A BIOLOGICAL SURVEY OF THE FLINDERS RANGES SOUTH AUSTRALIA

1997-1999

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Flinders Ranges Biological Survey

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PREFACE

A Biological Survey of the Flinders Ranges, South Australia is a further component of the Biological Survey of South Australia.

The program of systematic biological surveys to cover the whole of South Australia arose out of a realisation that a geographic occurrence of effort was needed to increase our knowledge of the remaining vertebrate fauna and the vascular plants of the State and to encourage its conservation.

Over the last fifteen years, there has been a strong commitment to the Biological Survey by Government and an impressive dedication from hundreds of volunteer biologists.

It is anticipated that the Biological Survey will achieve complete statewide coverage by 2015 and will be an achievement for which we can be very proud. Biologists in the future will be able to measure the direction of long-term ecological change, and we will have substantially improved our knowledge of the biodiversity of South Australia and our ability to adequately manage nature conservation into the future.

IAIN EVANS
Minister for Environment and Heritage
Minister for Recreation, Sport and Racing

ABSTRACT

The Flinders Ranges are an uplifted area of mostly sedimentary rock covering approximately 37,000 km^2 of South Australia from Crystal Brook in the south to Mount Hopeless in the north, a distance of ~400km. Annual rainfall varies markedly, from 600mm on the mountains of the south to less than 200mm on the plains of the north. The north-south variation is complicated by the influence of the ranges which rise to 1000m at several localities. These factors combined with the complex geology of the region provide the conditions for a high diversity of habitats, plants and animals. For the Biological Survey of the Flinders Ranges, the study area boundaries were defined by Environmental Province 6 (Flinders Ranges) and Environmental Association 3.3.19 (Mt Remarkable) of Environmental Province 3 (Mt Lofty Block), covering a total of 37,090 km^2.

The Biological Survey of the Flinders Ranges sought to determine the diversity, distribution and extent of biological communities for vegetation and vertebrate fauna in the region. This information enables the investigation of species richness within different habitats, species distributions, species habitat requirements within the ranges and the conservation status of species and communities. The other major objective was to map vegetation communities across the study area, bringing together all of the information and mapping from previous mapping studies.

Methods used involved collecting information on the plants, mammals, birds, reptiles and frogs present at specified sites within the range of different habitats across the study area. Quadrat based vegetation sampling recorded the presence of each species present and estimated broad cover abundances. A range of habitat parameters was also recorded for each vegetation quadrat. Plant identifications were confirmed through the collection of vouchered specimens lodged at the State Herbarium in the Plant Biodiversity Centre. Birds were recorded at each site through observation in the morning and evening. Ground dwelling fauna was recorded through trapping using small metal box (Elliott) traps, possum sized cage traps, pitfall traps and a manual search of the habitat. All fauna identifications, other than birds, were confirmed by the collection of vouchered specimens. These were verified, stored and catalogued by the South Australian Museum. Invertebrates were collected using pit traps and lodged with the South Australian Museum.

The 2732 sites within the study area supported at least 1366 plant species. The vegetation sampling associated with the 279 sites at which vertebrate sampling took place recorded 726 distinct plant taxa and added an extra 69 to the 1297 already in the Biological Survey Database. The species common to the most sites were the Silver Mulla Mulla *Ptilotus obovatus* (34% of sites), Ruby Saltbush *Enchylaena tomentosa* (31% of sites) and Elegant or Prickly Wattle *Acacia victoriae* (27%). Five hundred and thirty-five of the 1361 taxa recorded at sites were considered to be perennial or long lived readily detectable ephemerals. These were selected for floristic analyses. PATN, an exploratory analysis program, was used to clump 3079 sites into 66 groups based on the similarity of their floristic composition. The surveys recorded 221 plant species with some form of conservation rating. Fifteen plant species with restricted distributions were considered to be endemic to the Flinders Ranges and another three had limited populations in adjacent ranges (Northern Lofty and Olary Spur).

The Biological Survey recorded 26 native mammal species including seven previously unknown within the Ranges. Only the Yellow-footed Rock-wallaby *Petrogale xanthopus* has a National and State conservation rating (Vulnerable). Since half of the mammal fauna that was once known for the ranges is now extinct, the surviving species have been assessed at the regional level on the basis of this study and other recent collections. Fifteen species were assigned a regional conservation rating (two as Vulnerable, seven as Rare and six as Uncommon).

One hundred and forty of the 200+ bird species known for the study area were recorded at Biological Survey sites. One species, the Striated Thornbill *Acanthiza lineata*, not previously recorded in the Ranges was found on a ridge near Alligator Gorge in the southern Flinders. Two species with a southern temperate distribution, the White-eared Honeyeater *Lichenostomus leucotis* and Tawny-crowned Honeyeater *Gliciphila melanops*, were found in the northern Ranges on the 900m high Gammon Plateau. Fifteen species have a South Australian conservation rating: 7 are rated as Vulnerable, 4 as Rare and 4 as Uncommon. The only bird endemic to the Flinders and Gawler Ranges, the Short-tailed Grass-wren *Amytornis merrotsyi*, was recorded at several new locations.

Eighty-eight reptile species were known for the region prior to this study (SA Museum specimens). The Biological Survey recorded 74 species at sampling sites. The only species not previously recorded within the region was the Desert Skink *Egernia inornata*. The known distribution of the Velvet Gecko *Odeura marmorata* within the ranges was significantly extended by the survey. Three species have the bulk of their distributions within the study area and five species have South Australian conservation ratings (three are Vulnerable and two are Rare).

Eight species of frogs are known to occur in the Flinders Ranges. Seven of these were captured and one was heard calling. The most common was the endemic Streambank Froglet *Crinia riparia*. The capture of several Brown Toadlets *Pseudophryne bibronii* on the Mawson Plateau in the northern Flinders, substantially extended the known range of this species.

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A River Red Gum *Eucalyptus camaldulensis* in Flinders Ranges National Park (*Photo: Hafiz Stewart*).

INTRODUCTION

R Brandle[1]

THE PHYSICAL ENVIRONMENT

The Flinders Ranges form a chain of mountains and hills that run 390km from Crystal Brook in the south to the arid gibber plains in the north. The Ranges are unique in that they span two of Australia's major bioclimatic regions, the temperate Bassian region where dominant plant growth responds to winter rainfall, and the arid Eyrean region (Nix 1982). The areas of high elevation along the length of the Ranges further complicate the bioclimatic picture by creating islands of higher rainfall into the arid north (eg the Gammon Plateau). This complex climatic picture (Schwerdtfeger and Curran 1996) combined with the complex surface geomorphology and geology (Lemon 1996), produces a high diversity of habitats for a relatively small region. This complexity of landforms can be separated into zones:

- The depositional margins of the ranges include plains, dunefields, floodouts and river channels. The habitats, flora and fauna of these areas are generally typical of the surrounding country.
- Foothills and low ranges include creek lines, gorges, valleys, hill slopes, rocky outcrops and ridges. The structure of the habitat in these areas tends to be typical of low arid ranges elsewhere in South Australia, however the floristics of the vegetation communities and the fauna they support are distinctive and include a number of endemic species.
- The high ranges and mountains include steep slopes and gorges, cliffs, escarpments, ridges and plateaus mostly over 700m with summits exceeding 900m. These areas support a distinctive flora and fauna, often with temperate bassian biogeographic affinities.

This complexity sustains a high habitat diversity that is reflected in the variety of vegetation communities and the high species richness across the region. These concepts are summarised in 'The Natural History of the Flinders Ranges' (Davies *et al.* 1996). Other publications which provide overviews of the climate, geomorphology, geology and soils of the Flinders include: 'A Field Guide to the Flinders Ranges' (Corbett 1980), and 'Field Guide to Chambers Gorge, Flinders Ranges' (Medlin 1993).

The main spine of the Flinders cuts through two of the Environmental Provinces described in the 'Environments of South Australia' (Laut *et al.* 1977a; Laut *et al.* 1977b). These reports provide a detailed overview of the climate, landforms, soil types, dominant vegetation, landuse, population and settlement, and conservation measures across the study area. This project divided South Australia into eight Environmental Provinces, each of which were mapped out to Environmental Association level using Landsat Imagery and published accounts. Descriptions of the various land units comprising the 30 Associations are detailed in table form for Landform, Surface Water, Soil, Vegetative Cover, Native Vegetation and Land Use.

The present study area covers the Flinders Ranges Environmental Province which contains 29 Associations, and one Association from the Mid North Wheatlands Environmental Region of the Mt Lofty Block Environmental Province (these are displayed in Figure 1 and listed with descriptions in Appendix 1). The native vegetation descriptions are possibly the least accurate aspect of these reports because of the reliance on scant published source information and limited ground-truthing. It was not possible to reliably interpret dominant vegetation using the satellite imagery of the 1970's.

The geology, geomorphology and soils have been summarised for the survey area in the 'Natural History of the Flinders Ranges' (Davies *et al.* 1996) and will not be discussed in this report.

Study Objectives

This Biological Survey of the Flinders Ranges examined the biology of the Ranges from north of Crystal Brook (east of northern Spencer Gulf) to Mount Hopeless (east-south-east of Marree). It forms part of the Biological Survey of South Australia which aims to systematically document the vascular plants and vertebrate fauna of the various habitats found across the state. To date these surveys have gathered information for South Australia's offshore islands, Kangaroo Island, eastern agricultural lands, and a sizeable chunk of the arid-zone including the Olary Plains, southern Strzelecki Desert, Nullarbor Plain, Gawler Ranges, Yellabinna Region, Stony Deserts, Anangu-Pitjantjatjara Lands and the North West Flinders Ranges. Areas surveyed purely for vegetation include the Mount Lofty (vertebrate survey in progress), Yorke Peninsula, Eyre Peninsula, and the bulk of the Flinders Ranges. Survey titles and dates are listed in Forward & Robinson (1996), Playfair & Robinson (1997) and in the text and bibliography of this report.

The primary aim of the Biological Survey of South Australia is to systematically and consistently sample a representative range of the ecological habitats found in South Australia.

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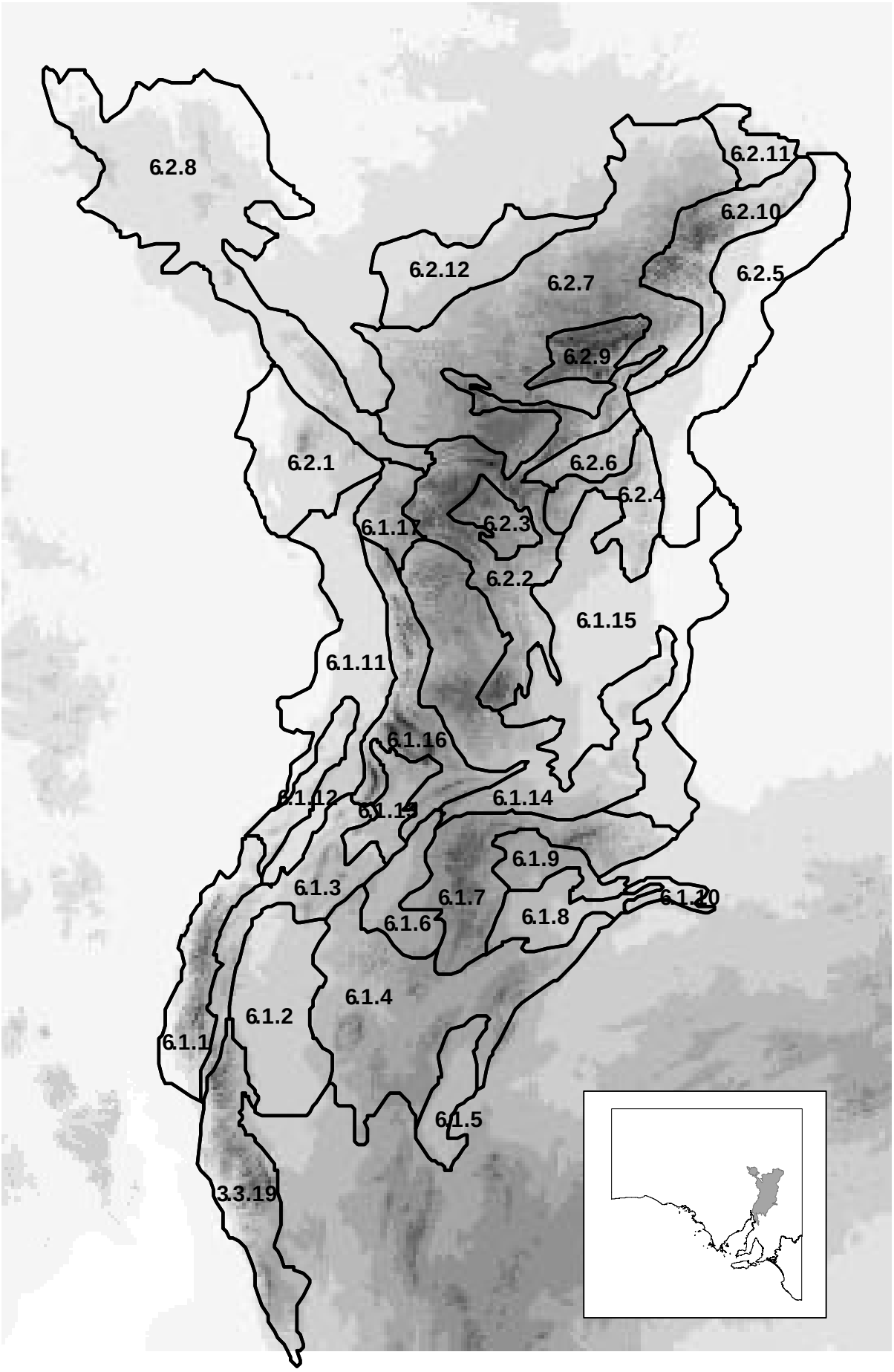

Figure 1. Environmental Associations (Laut *et al.* 1977) overlaying the Study Area (shading relates to elevation). A descriptive key to the numbers in each association is presented in Appendix 1. The numbers represent Environmental Province, then Environmental Region, followed by the Environmental Association number.

This information is collected to enhance, with scientific data, integrated land management and to assist in the conservation of South Australia's biological diversity.

The main aim of the Biological Survey of the Flinders Ranges was to conduct a vertebrate survey across the range of habitats comprising the Flinders Ranges and relating these findings to the existing vegetation information in a published report. Specific objectives are listed below:

- collate existing information about the flora, fauna and their habitats;
- systematically survey the flora and fauna at selected sample sites throughout the Ranges and document the physical characteristics of these sites;
- sample the terrestrial invertebrates using standard micro- and macro- pitfall trapping techniques;
- map structural vegetation associations in the northern Flinders Ranges at a scale of 1:100,000 north of the Orroroo 1:250,000 map sheet;
- analyse the biological survey database to determine floristic communities and the relationship between the fauna and the defined habitats;
- document the biogeography of plant and animal communities with the information obtained from the survey;
- identify characteristic species, communities and habitats of the Flinders Ranges;
- identify potential threats to the region's biological diversity;
- summarise findings in a final report.

CLIMATE

As indicated in the introduction the climate of the Flinders Ranges covers a wide variety of conditions. Comparisons of temperatures, winds, rainfall, evaporation and radiation between available weather stations in the region are detailed in 'The Natural History of the Flinders Ranges' (Schwerdtfeger and Curran 1996). Some rainfall and temperature data will be discussed to provide an insight into how the various climatic gradients influence the biological components of the region.

Latitude

The north-south gradient from temperate to arid is well illustrated by comparing the rainfall records in Table 1. Average rainfall decreases with latitude whilst evaporation rates are estimated to increase by about 25% from the southern to northern parts of the study area. The southern areas are dominated by winter rainfall, which becomes less marked with the northward progression of the ranges. This is in contrast with the drier surrounding plains which, north of Hawker, are more strongly influenced by summer storms. The influence of these unpredictable summer storms is reflected in the differences between the highest and lowest annual rainfall records. These are presented as "range" in Table 1. Arkaroola rainfall is far less predictable than that of more southerly climatic stations.

Temperatures follow an inverse pattern to rainfall and evaporation potential. Northern areas have the highest maximum and minimum temperatures for most months of the year. During winter these tend to converge. Averaged monthly maxima and minima range from: 13°C July to 30°C January and 2°C July to 13°C January in the south at Yongala; and 16°C July to 35°C January and 5°C July to 22°C January in the north at Leigh Creek (Schwerdtfeger and Curran 1996).

Elevation

The elevation is the major modifier of the north-south climatic gradient (Figure 2). Schwerdtfeger and Curran (1996) indicate that the effectiveness of the ranges in inducing rainfall is greatly reduced in the summer, particularly as one heads north and in along the lower hills. This is well illustrated by the Gammon Ranges Rainfall Project (Maier and Wright 1996) which began monitoring rainfall on the Gammon Plateau at 930m in 1988. Comparisons of rainfall data averaged over four years (1989, '90, '92, '93) with other stations at various altitudes in the surrounding region indicated that rainfall and number of rain days increased with altitudes greater than 400m above sea level (Table 2), and that this was predominantly winter rainfall.

Table 1. Rainfall records for three weather stations at similar altitudes along the length of the Ranges (Schwerdtfeger & Curran 1996).

Weather Station	Elevation (m)	Location	Average (mm)	Median (mm)	Range (mm) (highest to lowest)
Wirrabara	352	South	480	461	872 – 212 = 660
Hawker	315	Central	310	292	677 – 85 = 592
Arkaroola	340	North	265	229	56 – 949 = 893

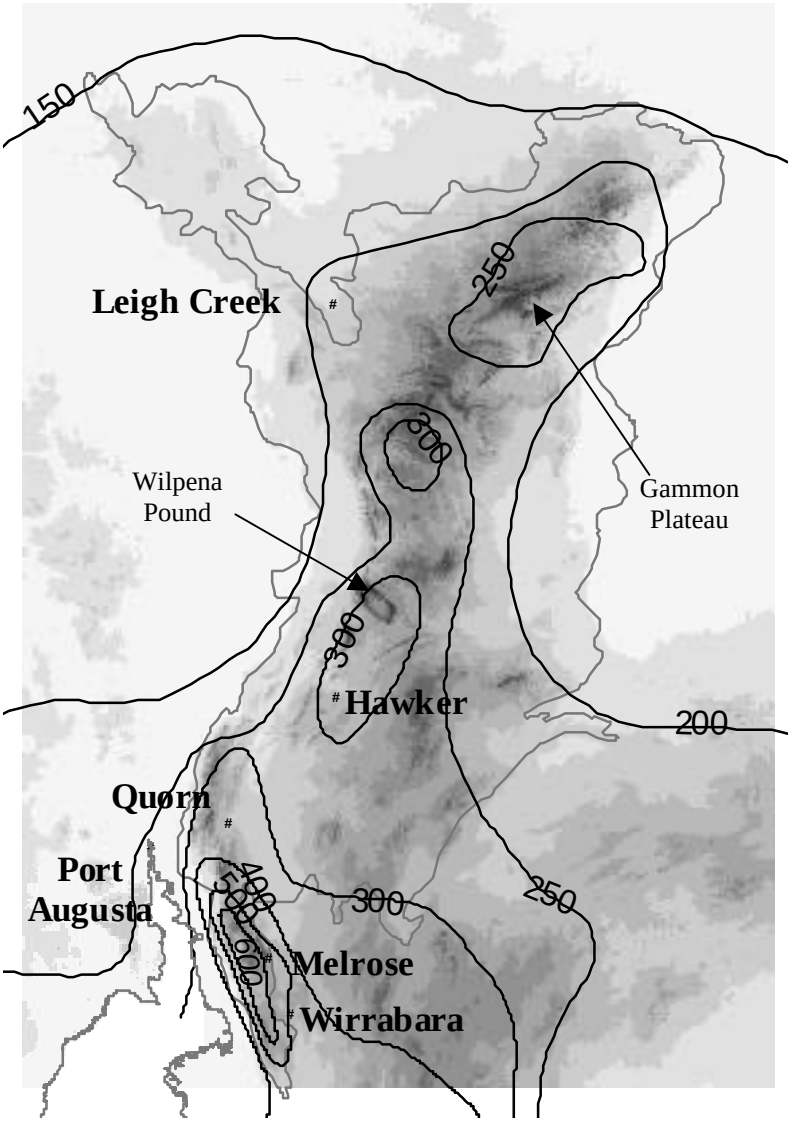

Figure 2. Average annual rainfall isohyet map superimposed over the Flinders Ranges study area. Darker shading represents higher altitude (based on Australian Bureau of Meteorology data).

Table 2. Rainfall data for northern Flinders locations across an elevation gradient during 1989 - 1990 and 1992 - 1993 (Maier and Wright 1996).

Weather Station	Elevation (m)	Location Distance and Direction from Gammon Plateau	Average 4 years (mm)	Median 4 years (mm)	Range (highest to lowest) (mm)
Aroona Dam	230	70km WSW	289	274	418-189 = 229
Pfitzners Well	350	50km SW	255	261	380-117 = 263
Mocatoona	600	40km SW	399	405	460-327 = 133
Gammon Plateau	930	-	481	454	631-384 = 247

The exceptionally wet years 1989 and 1992 skew the average during the 4 years of recording away from the long term averages. Arkaroola, which averages 265mm, received 582mm during 1989 and 210mm in 1990. The lowest records in the table were mostly from 1990. Without this detail of high elevation data Laut *et al.* (1977) predicted a mean annual rainfall of 250mm for the Gammon Plateau, a significant underestimation of over 150mm per annum. These recent records help to explain why the summits of peaks in the northern ranges are able to support denser shrublands and species more typical on southern range habitats.

The comparison of temperature stations at different elevations across the study region by Schwerdtfeger and Curran (1996) indicate that the relationship between temperature and elevation is complicated by other factors such as wind, position in the landscape, and proximity to the ocean. The lack of reliable recording stations across the study area, particularly at the highest elevations make a general analysis difficult. However there are likely to be significant differences at the highest elevations in the ranges.

Summary

To put the climate of the Ranges in perspective, their elevation creates a significant climatic barrier to the prevailing weather moving across from the south-west. This enables a tongue of higher rainfall to penetrate into the heart of South Australia's arid zone. In the highest southern ranges, rainfall exceeds 600mm per year and the more northern summits, ridges and plateaus (>700m) form climatic islands that attract rainfall in excess of 350mm per year. As elevation decreases rainfall drops to less than 200mm along the northern fringes of the ranges, particularly in the western rain-shadow that the ranges create (Medlin 1993). Temperatures appear to be more heavily influenced by the latitudinal gradient characteristic to South Australia and other factors such as wind and landform variation.

Rainfall - prior to and during the study period.

A more detailed analysis of the rainfall patterns immediately prior to and during the surveys is useful in interpreting what was found and where.

Many species of annual and short lived perennial plants are only apparent after sufficient rainfall in the right season, ie many herbs and sub-shrubs tend to germinate and grow following winter rains whilst grasses tend to dominate after summer rains (Tynan 1999). Fauna tends to have a lag following significant rainfall (Newsome and Corbett 1975; Southgate and Masters 1996; Brandle and Moseby 1999). A review of monthly rainfall for Blinman and Hawker indicate that the last significant rainfall years, where the six month cumulative rainfall exceeded 1.5 times the average six monthly rainfall for an extended period, was in 1992-93 and 1988-89.

Table 3. Annual rainfall (mm) for 1998/99 at three Flinders Ranges weather stations.

Station	1998	1999	Long-term Annual average
Arkaroola	247.6	130.5	262
Hawker	364.5	223.6	311
Wirrabara	425.8	408.6	478

Rainfall figures for Arkaroola in the north, Hawker in the centre and Wirrabara in the south indicate that the vertebrate survey was conducted in dry to average years following relatively dry preceding months. The yearly totals are presented in Table 3 and the monthly totals are compared with 1996 and 1997 in Figures 3-5.

The survey results should thus be seen in the context of normal to dry years when relating species to habitats

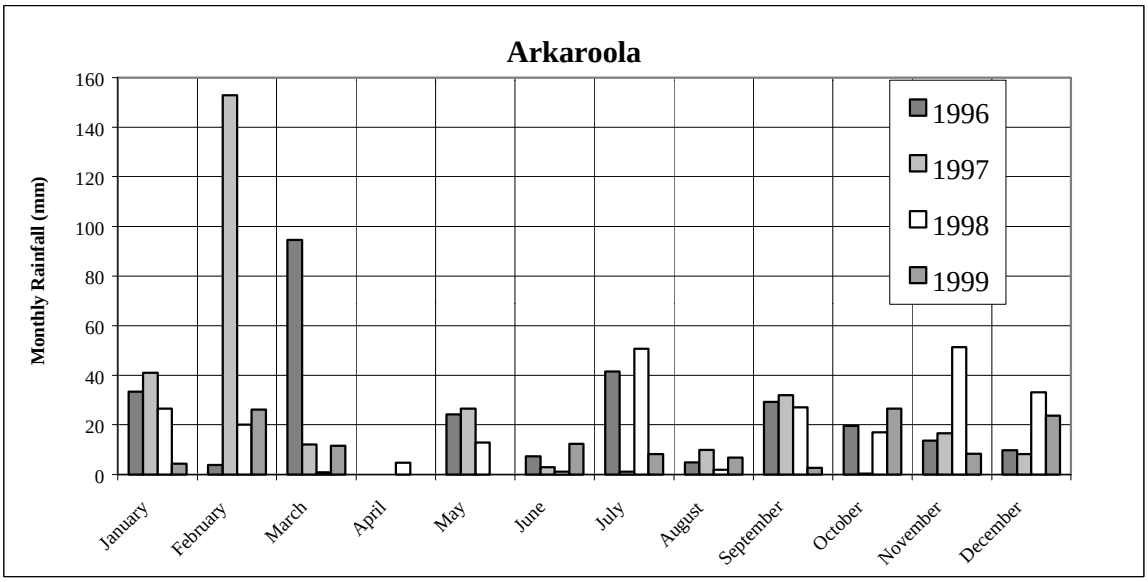

Figure 3. Monthly rainfall for Arkaroola weather station in the northern Flinders 1996-99. The vertebrate survey in this region took place in November 1998, March and October 1999.

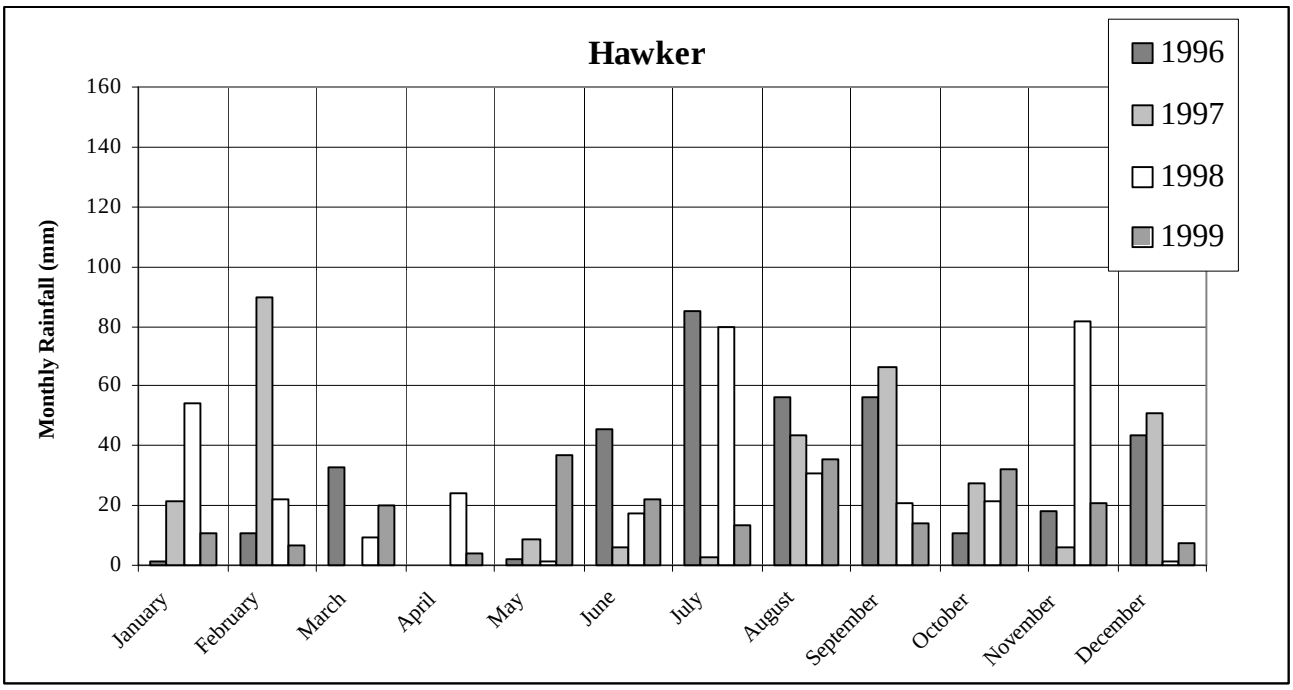

Figure 4. Monthly rainfall for Hawker weather station in the central Flinders 1996-99. The vertebrate survey in this region took place in March and November 1999.

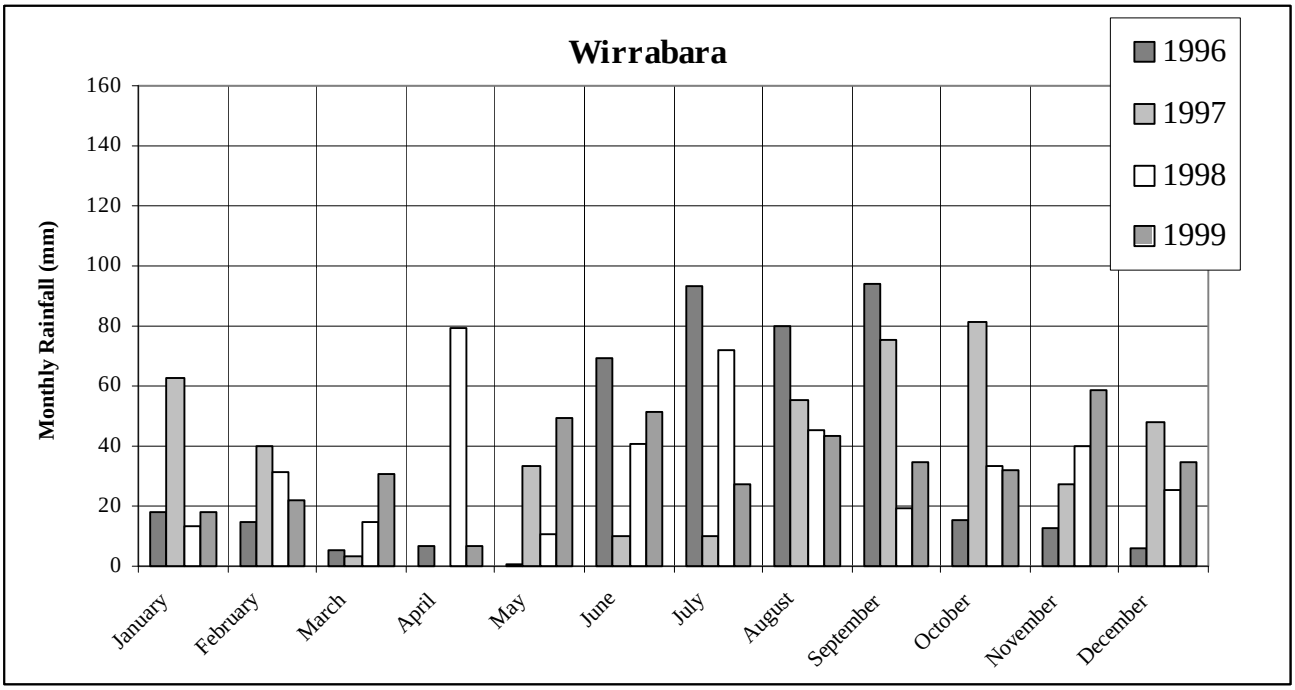

Figure 5. Monthly rainfall for Wirrabara weather station in the southern Flinders 1996-99. The vertebrate survey in this region took place in November 1999.

PREVIOUS BIOLOGICAL RESEARCH

Prior to this study there had been no attempt to systematically survey the entire Flinders Ranges in a single study for either vegetation or fauna. Since 1969 a number of smaller scale surveys have been conducted that investigated various areas in the ranges. These are discussed under Vegetation and Fauna sections below.

Vegetation

The Flinders Ranges have attracted botanists since 1802 when Robert Brown, his assistant Peter Goode and artist Ferdinand Bauer were part of Matthew Flinders' exploration team which investigated the Mount Brown area of the Southern Flinders (Gell and Bickford 1996). Until the 1920's, taxonomic collections dominated botanical activity in the ranges. The work of these and later taxonomists are discussed by Krahenbuehl (1971a,b) for the southern and northern ranges respectively. Cannon (1921), then Boomsma (1946) adopted a geographical and ecological approach to vegetation analysis which is summarised in Gell and Bickford (1996).

The lack of work on vegetation associations in the central and northern Flinders Ranges prior to 1972 is reflected in the lack of detail for this area in the 'distributional maps of South Australian plant communities' published in 'The Vegetation of South Australia' (Specht 1972). In this work the central and northern Ranges were mapped as a single complex of associations. Since then there have been numerous studies investigating the vegetation communities of various parts of the ranges and associated plains.

Only three of the larger studies on the southern Flinders (Sparrow 1989; Carruthers 1995) and northern Flinders (Greenwood *et al.* 1989) are mentioned and summarised in the vegetation chapter of the 'Natural History of the Flinders Ranges' (Gell and Bickford 1996). Not mentioned was a survey conducted by the Nature Conservation Society of South Australia (NCSSA) investigating the vegetation communities present in the Southern Flinders Ranges (Kaczan 1981). Ball (1978) also presented some generalised descriptions of geobotanical associations for the Northern Flinders Ranges. Other published surveys have been of smaller scale, usually focussed on conservation reserves such as the Flinders Ranges National Park (NCSSA 1971), Gammon Ranges National Park (Baulderstone 1999; RSAP ?) and Mount Brown Conservation Reserve (Oppermann and Bates 1995). Published surveys that fringe the Ranges include: Beverley Uranium Mine Environmental Impact Statement (Heathgate *et al.* 1998); several Biological Surveys conducted by the Department for Environment and Heritage (Forward and Robinson 1996; Playfair and Robinson 1997; Brandle 1998a; Brandle 1998b; Robertson 1998); and southern grasslands/grassy woodlands surveys for the Nature Conservation Society of South Australia (Hyde 1994) and the World Wildlife Fund (Hyde 1995). A number of other surveys contributing to the biological survey database from which some site information has been taken for this study are detailed in the vegetation chapter.

Site description datasheets have been completed for most pastoral leasehold land as part of the Pastoral Assessment Program to meet the requirements of the Pastoral Land Management and Conservation Act 1990. Whilst the level of detail with annual species varies greatly depending on the assessor, the data provides a large and reasonably comprehensive description and plant list with estimated cover information for most of the accessible habitats in the northern Flinders.

General summaries of the vegetation of the Flinders Ranges appear in several works. These include 'A Field Guide to the Flinders Ranges' (Corbett 1980), 'The Natural History of the Flinders Ranges' (Gell and Bickford 1996); and various reports such as 'Environments of South Australia' (Laut *et al.* 1977a; Laut *et al.* 1977b), 'Flinders Ranges Integrated Land Resource Survey' (Playfair 1992), 'Northern Flinders Ranges Soil Conservation Board District Plan' (NFRSCB 1997), and 'The Flinders Ranges, Problems and Prospects' (Whitelock 1972).

Fauna

There have been no large scale general vertebrate surveys of the Flinders Ranges. General surveys that have integrated vegetation and fauna in an ecological approach probably began in the Ranges with the Nature Conservation Society of South Australia's documentation of the natural history of the Oraparinna section of the Flinders Ranges National Park in 1971 (NCSSA 1971). The next major field work in the region was conducted by the Department of Environment and Planning in 1977 which resurveyed sections of the Oraparinna section and other parts of the Flinders Ranges National Park (including Wilpena Pound). This formed the basis of the resources inventory for the Flinders Ranges National Park Management Plan (SANPWS 1983). Some follow up vertebrate trapping and remonitoring of vegetation plots has occurred at various times at these sites by students studying for Parks and Wildlife Diplomas at the Salisbury College of Advanced Education (1981 and 1983). More recently the National Parks and Wildlife Service began an annual trapping program of most of these sites as part of Operation Bounceback (see explanation in the chapter titled "Ecological Recovery Based on Integrated Predator and Competitor Control Strategies"). At the time of writing, this program was ongoing. A similar habitat based assessment of the vertebrate fauna was conducted for

the Mt Remarkable National Park – Mambray Creek to Alligator Gorge section, during 1982, with follow up in 1983.

The next wave of general ecological studies used methodologies compatible with the Biological Survey of South Australia. In 1994 the Nature Conservation Society SA expanded a vegetation monitoring study in the Gammon Ranges National Park which was started by Parks and Wildlife Students from Salisbury College of Advanced Education. This was updated and expanded to cover rare species in 1987 by Davies (Davies 1990; Baulderstone 1999). Follow up sampling by the Scientific Exploration Group following good rains in 1998 has added to the data collected for these sites (G. Medlin pers comm). In 1996 a vertebrate survey organised by the Nature Conservation Society SA, assisted by the South Australian Herpetology Group, conducted some trapping in the Mount Brown area. This was followed up with intensive search effort at a sample of the vegetation sites surveyed 1994-1997 (Oppermann and Bates 1995). In December 1997 a joint project sponsored by Flinders Power, the Department for Environment and Heritage and the Adelaide Zoo investigated the flora and fauna of the Leigh Creek area surrounding the Yellow-footed Rock-wallaby release at Aroona Dam. The results of this have been published (Brandle 1998a) and form the first stage of sampling for the current survey.

Given the allure of the ranges to geologists, bushwalkers and tourists, surprisingly few trips by either the South Australian Field Naturalist's Mammal Society or the South Australian Herpetology Group, have conducted trapping/searching exercises in the Flinders Ranges. The mammal club has collected information from the southern Flinders at Mambray Creek in Mt Remarkable National Park in 1974, and 'White Park' adjacent to Wirrabara Forest in 1978. In the central Flinders they visited Buckaringa Gorge in 1975. In the northern Flinders they visited Chambers Gorge in 1980 and 1982, this was followed up by a South Australian Museum trapping exercise in 1989. This data was consolidated and published together with additional natural history data by Medlin (1993). The other trip to the Flinders Ranges National Park was part of the 1971 study by the Nature Conservation Society SA (NCSSA 1971). The SA Herpetology Group visited Barratta Station east of the central Flinders in 1975 and 1978, Mambray Creek 1978, and Mt Brown in 1994 and 1995 as part of the Nature Conservation Society of SA survey.

The birds of the ranges have received more comprehensive treatment by numerous ornithologists which have been summarised in the 'The Natural History of the Flinders Ranges' (Reid *et al.* 1996). The only detailed regional account of birds for the entire Flinders is that of Paton (1980) and more recently as an annotated check list by Carpenter based on South Australian Ornithological Association records in 'Explore the Flinders Ranges' (Barker 1995). Forward and Reid (1996) presented a study of the distribution, community composition and habitat preferences of the southern Olary Spur as part of the 'Biological Survey of the South Olary Plains, South Australia' (Forward and Robinson 1996). The birds of the eastern edge of the central Flinders Ranges were presented in a similar though less detailed manner as part of the 'Biological Survey of the North Olary Plains, South Australia (Playfair and Robinson 1997).

A number of published surveys have sites on the edge of the study area and these sites were in the analyses for this study. To the south east the South Olary Plains (Forward and Robinson 1996), to the east the North Olary Plains (Playfair and Robinson 1997), to the north and north east the Stony Deserts (Brandle 1998b). Into the ranges the 'Biological Survey of the North West Flinders Ranges, South Australia' (Brandle 1998a), forms the beginning of current survey. Also contributing to the survey effort in 1999 was the Nature Conservation Society of SA's Warraweena Biodiversity Project (Telfer 2000). The contributions from these surveys to the current study are detailed in the vertebrate chapters.

Books and reports which discuss aspects of the vertebrate fauna in the Flinders Ranges include: 'The Natural History of the Flinders Ranges' (Corbett 1969), 'A Field Guide to the Flinders Ranges' (Corbett 1980), 'The Natural History of the Flinders Ranges' (Davies *et al.* 1996). The most comprehensive overview of mammal fauna (past and present) for the northern Flinders can be found in 'The Story of the Flinders Ranges Mammals' (Tunbridge 1991).

The following photographs provide a visual sample of some of the landscapes from the southern to the northern Flinders Ranges.

Figure 6. Southern Flinders Ranges – the cliffs above Telowie Gorge, Telowie Gorge Conservation Park (*Photo: PD Canty*).

Figure 7. Southern Flinders Ranges – view north from Mount Brown, Mount Brown Conservation Park south west of Quorn (*Photo: Forestry SA*)

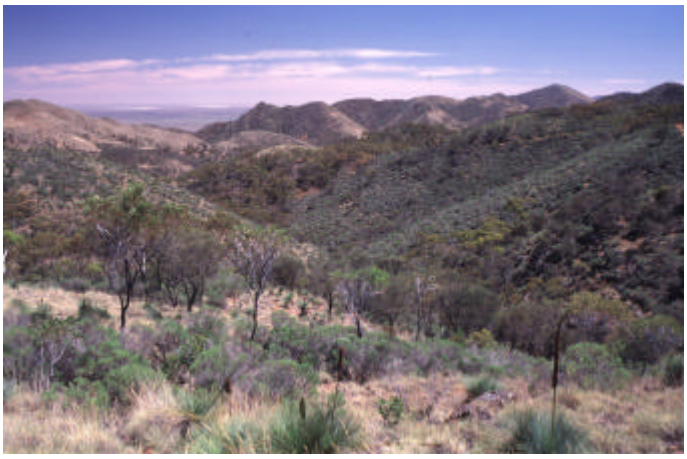

Figure 8. Southern Flinders Ranges – The Dutchman's Stern Conservation Park north of Quorn (*Photo: AC Robinson*)

Figure 9. Southern Flinders Ranges – Spinifex *Triodia* Hummock grassland in The Dutchman's Stern Conservation Park north of Quorn (*Photo: AC Robinson*)

Figure 10. Central Flinders Ranges – Mt Elm in the Yappala Range south west of Hawker (*Photo: AC Robinson*)

Figure 11. Central Flinders Ranges – Mt Aleck in the Elder Range north of Hawker (*Photo: PD Canty*).

Figure 12. Central Flinders Ranges – Bunyaroo Valley north of Wilpena Pound, Flinders Ranges National Park (*Photo: PD Canty*).

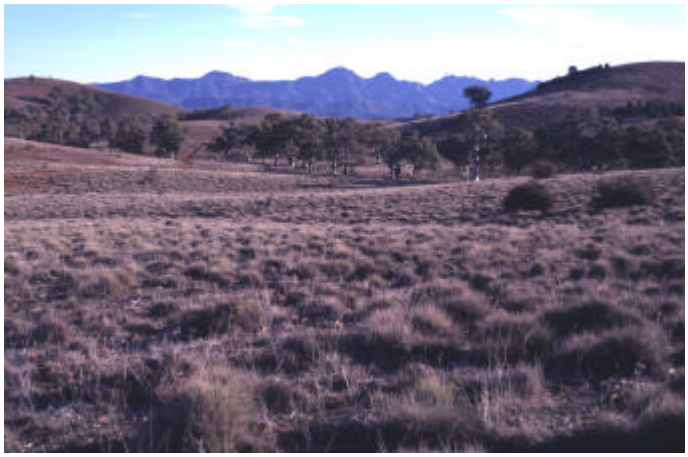

Figure 13. Central Flinders Ranges – Looking south to Wilpena Pound, Flinders Ranges National Park (*Photo: R Brandle*)

Figure 14. Central Flinders Ranges – Looking south to Wilpena Pound along the western boundary of Flinders Ranges National Park (*Photo: R Brandle*)

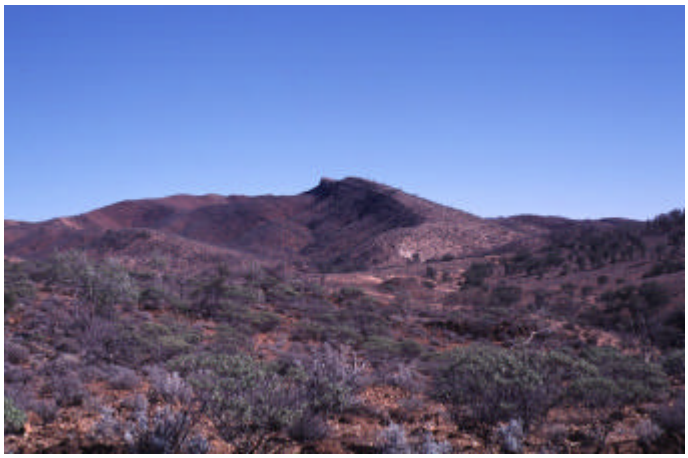

Figure 15. Central Flinders Ranges – Reaphook hill, an eastern outlier of the Flinders Ranges (*Photo: TJ Hudspith*)

Figure 16. Central Flinders Ranges – Parachilna Gorge to the west of Blinman (*Photo: C Arnold*)

Figure 17. Central Flinders Ranges – Chenopod shrubland on the margin of the ranges east of Blinman (*Photo: R Brandle*)

Figure 18. Central Flinders Ranges – Aerial view of the Bunkers Range east of Blinman (*Photo: R Brandle*)

Figure 19. Northern Flinders Ranges – Patawarta Hill to the north of Blinman (*Photo: R Brandle*)

Figure 20. Northern Flinders Ranges – Looking north to Mt McKinlay through Nantawarrina Gap, Nantawarrina Indigenous Protected Area (*Photo: AC Robinson*)

Figure 21. Northern Flinders Ranges – Looking south west to Mt McKinlay from Mt Benbonyathe, Gammon Ranges National Park (*Photo: TJ Hudspith*)

Figure 22. Northern Flinders Ranges – Looking south from Arkaroola Homestead, Arkaroola Sanctuary (*Photo: R Brandle*)

Figure 23. Northern Flinders Ranges – Looking north west to Freeling Heights from above Mount Painter, Arkaroola Sanctuary (*Photo: R Brandle*)

Figure 24. Northern Flinders Ranges – Looking south to Freeling Heights from the Granite Country of the Mawson Plateau, Arkaroola Sanctuary (*Photo: R Brandle*)

Figure 25. Northern Flinders Ranges – Mt Shannahan, north of Freeling Heights (*Photo: R Brandle*)

Figure 26. Northern Flinders Ranges – Curly mallee *Eucalyptus gillii* and spinifex *Triodia* country near the Mt Fitton Talc Mine (*Photo: AC Robinson*).

AQUATIC HABITATS

Aquatic habitats are minor but important ecosystem component of the Flinders Ranges. In previous general publications, Flinders Ranges aquatic habitats and biota have received a small amount of attention. In the most recent account in the 'Natural History of the Flinders Ranges' (Davies *et al.* 1996), Boulton and Williams concentrated on invertebrate life, adding to the earlier discussion of Flinders Ranges fish in 'A Field Guide to the Flinders Ranges' (Corbett 1980). Whilst the Biological Survey of South Australia normally reports on terrestrial environments and their biodiversity, a general publication such as this is a useful place to add information on other biological groups and habitats.

The following two chapters summarise recent work by aquatic biologists within the study area.

Figure 27. Moro Gorge, one of the more permanent aquatic habitats in the northern Flinders (*Photo: T Hudspith*).

Figure 28. An ephemeral waterhole in Hamilton Creek north of Arkaroola (*Photo: AC Robinson*).

RIVER HEALTH IN THE FLINDERS RANGES BASED ON AQUATIC MACRO-INVERTEBRATES AS BIOLOGICAL INDICATORS

Peter Goonan[1] and Daria Schulze[2]

Abstract

The Monitoring River Health Initiative (MRHI) is a coordinated national river bioassessment and prediction scheme which aims to assess and monitor the health of our rivers and streams, assess the impact of pollution on our waterways, and to assess the effectiveness of water and catchment management actions.

The MRHI is based on sampling a large number of relatively unimpacted ('least-disturbed') reference sites and comparing the faunas with impacted 'test' sites to determine whether different disturbances, pollution sources or other impacts have a measurable detrimental effect on biological communities. The approach adopted associates key chemical and physical features with aquatic macroinvertebrate communities present in our rivers and streams. Separate models provide predictions of the macroinvertebrates expected at different habitats (still-water edges, flowing riffles) and seasons (autumn, spring) at a site in the absence of major human impact.

In South Australia, a total of 111 reference and 30 test sites were sampled in autumn and spring 1994 and 1995 throughout the major catchments in the State. This included 23 sites from the Flinders Ranges, comprising four sites that drain into the Spencer Gulf, 11 into Lake Torrens and eight into Lake Frome. Further work from 1997-1999 involved sampling over 500 additional test sites as part of the AUSRIVAS (AUStralian RIVer Assessment Scheme) program, the first national assessment of river health to be conducted in Australia. This included a further 18 sites from waterways in the Flinders Ranges region in 1997 for which data was available to be incorporated into this chapter.

An overview of the aquatic macroinvertebrates found at these sites and a summary of the bioassessment ratings for completed sites are provided in this chapter. In general most rivers in the Flinders are in reference condition, although some sites are showing indications of adverse impacts from salt and increasing development in the region.

Introduction

There have been many changes in attitudes towards water quality assessment in Australia in recent times, with an increasing emphasis being placed on the use of aquatic biota to assess conditions more directly than traditional chemical and physical monitoring programs (Norris & Norris 1995).

Perhaps the most notable recognition of this trend was the statement on the environment given in December 1992 by the former Prime Minister Paul Keating, which led to the development of the National River Health Program. Another significant step was the inclusion of biological indicators in the recently released draft of the Australian & New Zealand Environment and Conservation Council (ANZECC/ARMCANZ 1999) National Water Quality Guidelines. These guidelines incorporate the protocol developed for the National River Health Program under the Monitoring River Health Initiative (MRHI).

There are many reasons why biological methods have not been widely adopted in water quality assessments in the past, including the following described by Campbell (1982):

- Their perceived lack of standardisation compared to chemical and physical methods of measurement;
- They have often been considered to be too expensive to carry out;
- They provide data that can be difficult to interpret.

Such reasoning is, however, poorly founded and may have been conditioned into the psyche of water managers through having a lack of advocates in national and state agencies with sufficient biological expertise to refute such claims (Norris & Norris 1995). Standardised approaches using aquatic biota to assess water quality have been available since the early 1900's (e.g. Kolkwitz & Marsson 1908), and many others have been developed in recent times (e.g. Wright et al. 1984; Moss et al. 1987; Lenat 1988; Plafkin et al. 1989; Marchant et al. 1994; and Anon 1994). Biological indicators are no more expensive than more traditional methods if the same standards of accuracy and precision are applied (Norris & Georges 1986), or if rapid methods are used (Plafkin et al. 1989). Finally, there has been a lot of development in the use of multivariate analyses to simplify large databases into formats that can be easily interpreted by the non-specialist (e.g. Wright et al. 1984).

The most notable national water quality bioassessment program that is currently underway in Australia is the AUStralian RIVer Assessment Scheme (AUSRIVAS), which builds on from work carried out under the MRHI in 1994-96. The MRHI involved sampling a large number of reference sites throughout Australia and each State and Territory have been developing predictive models of the macroinvertebrate communities expected at different sites in the absence of significant human disturbance or impact. The

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AUSRIVAS program follows on from the development of the models and involves sampling as many potentially impacted test sites from throughout Australia, and then processing the data through the predictive models to give the first national assessment of river health for Australia.

The MRHI and AUSRIVAS programs have provided a standardised biological monitoring protocol for rivers and streams throughout Australia that is based on the use of aquatic macroinvertebrates as biological indicators. This work aims to:

- Improve the knowledge of the ecological health of our rivers and streams;
- Assess the impact of pollution and other human-induced impacts on our rivers and streams;
- Assess the effectiveness of water and catchment management actions in the future; and
- Develop predictive models to assist in planning and pollution management.

In South Australia, the Environment Protection Agency and Australian Water Quality Centre have been working together on this State's component of the MRHI and AUSRIVAS programs since 1994. The work has covered the whole State and extends from Eight Mile Creek in the lower South East to Cooper Creek in the Far North.

In this paper we discuss the progress of this program in relation to the rivers and streams of the Flinders Ranges and include a brief overview of the aquatic macroinvertebrates found in the region.

Materials and Methods

Sampling sites

A total of 36 sites were sampled from the Flinders Ranges between 1994 and 1997; five sites were dry during the sampling program (Table 4, Figure 29). Of the 163 samples collected, 48 were from riffles (shallow, fast-flowing water over a rocky substrate) and the rest were from pool/edge (non-flowing) or macrophyte (aquatic plant) habitats.

Stream types in the Flinders Ranges

The streams and waterholes of the Flinders Ranges provide suitable habitat for a wide diversity of aquatic macroinvertebrates. The region receives highly variable rainfall and as water is fairly scarce for most of the year, the water that is present is extensively utilised by the macroinvertebrates of the area.

There are three basic types of stream in the Flinders: those fed by springs, which are generally permanent, such as Artimore Ck (Figure 30), those that flow for a considerable length of time following winter rains and are thus seasonal in nature; and those which flow only briefly after rain and are therefore ephemeral. In most streams there is a low base flow compared to the discharge that occurs after rain events. The ability to cope with disturbance due to rain and flood may be the most significant determinant of whether a macroinvertebrate will be present in a stream at any one time. Other factors such as substrate type, water chemistry, food sources and presence of predators then interact to influence the macroinvertebrate composition of a stream.

Springs, as well as having fairly permanent flow, often have higher water temperatures than other stream types and may be high in nitrogen in the form of nitrate/nitrite (Boulton & Williams 1996). They are thus 'hot spots' of productivity and sources from which other streams are colonised after wetting or disturbance.

There is also considerable sub-surface flow in many parts of the Flinders. This habitat is known as the hyporheos (from the Greek for 'under' and 'flow') and is described as the interstitial spaces between the substrate particles through which water flows. The major hyporheic inhabitants of the region include immature mayfly larvae, amphipod and bathynellacean crustaceans, hydrobiid molluscs and numerous microcrustaceans (e.g. Suter 1980, Boulton & Williams 1996).

Impacts on aquatic biota

There are many effects which pollutants and disturbances can have on aquatic habitats but the more significant in terms of causing negative impacts on the biota in streams of the Flinders Ranges could include:

- Physical smothering of habitats by the transport and deposition of sediment (e.g. unsealed roads, tourism impacts);
- Increase in turbidity by suspended sediments (stock and erosion);
- Reduction in dissolved oxygen concentrations by inputs of organic contaminants (stock, point source pollution from effluent);
- Promotion of algal blooms by the contribution of nutrients (stock, effluent);
- Promotion of changes in food webs by the introduction of microbial contaminants and nutrients (stock, effluent);
- Death of aquatic biota by toxic materials in the water (e.g. heavy metals from disused mines), or shifts in community structure through sub-lethal effects which can alter reproductive and development rates; and
- Alteration of natural flow regimes through resource development activities (e.g. Aroona Dam).

Table 4. Location of sites and aquatic habitats sampled in the Flinders Ranges between 1994 and 1997, SA (R=Riffle, E=Edge, M=Macrophyte, P=Pool, ns= not sampled).

LOCATION	EASTING	NORTHING	INFLUENCED BY SPRINGS OR GROUNDWATER	HABITATS AUTUMN 1994	SPRING 1994	AUTUMN 1995	SPRING 1995
1994/1995							
LAKE TORRENS DIVISION							
Alligator Ck, Alligator Gorge	225700	6372800		E, R	E	E, R	E, R
Mambray Ck, Picnic Area	222950	6362600	✓	DRY	E, R	E, R, M	E, R, M
Mambray Ck on Princes Hwy	779100	6361900		DRY	DRY	DRY	DRY
Nectar Brook Ck	777000	6378500		DRY	DRY	DRY	DRY
Spring Ck nr Wilmington	232300	6376700		DRY	DRY	E, R	E, R
Willochra Ck, Orrorroo Rd	239300	6382050		P	DRY	DRY	DRY
Kanyaka Ck at Kanyaka GS	244400	6445700	✓	E	E	E, R, M	E, M
Willochra Ck, S of Partacoona	229900	6448200	✓	E, R	E	E, R	E, M
Hookina Ck, Mt. Little	254100	6485850	✓	E, M	E, R, M	E, R, M	E, R, M
Oraparinna Ck, Dingly Dell	281400	6528700	✓	P	P	E, R	E, R
Brachina Ck, Brachina Gorge	270950	6530800	✓	E, R, M	E, R, M	E, R, M	E, R, M
Brachina Ck, Parachilna Rd	253650	6533200		DRY	DRY	DRY	DRY
Oratunga Ck, Third Spring	269950	6564500	✓	E, M	P	E	P
Parachilna Ck , Mt Mary	262700	6553800	✓	E, R, M	E, R, M	E, R, M	E, R
Aroona Ck D/S Aroona Dam GS	246300	6612600		E, M	E, R, M	E, R, M	E, M
LAKE FROME DIVISION							
Arcoona Ck, Sabot W'Hole	311600	6630400		ns	P	P	ns
Arcoona Ck, u/s Wild Ass Ck	308800	6630000		ns	DRY	P	ns
Italowie Ck, Italowie Gap	323750	6617300	✓	M	E	E, R, M	E
Artimore Ck, Nildottie Spring	289350	6563050	✓	E	P	E, R, M	E, M
Wirrealpa Ck at Wirrealpa	306500	6553500		DRY	DRY	DRY	DRY
Balcanoona Ck	336300	6621300		DRY	DRY	DRY	DRY
Wilpena Ck at Wilpena Pound	272150	6509000	✓	E, R, M	E, R, M	E, R, M	E, R, M
Wilpena Ck, Blinman Rd	275750	6510450		DRY	DRY	DRY	E, M

Table 4. continued LOCATION	EASTING	NORTHING	INFLUENCED BY SPRINGS OR GROUNDWATER	HABITATS AUTUMN 1997	SPRING 1997
1997					
LAKE TORRENS DIVISION					
Pekina Reservoir, Pekina Creek	275550	6375450		E	E
Pekina Creek, ford near "Raevale"	271500	6366700		E	E
Bunyeroo Creek, Bunyeroo Rd	269500	6520500	✓	E, R	E, R
Bunyeroo Creek, Wilcolo Track	267600	6521400	✓	E, R	E, R
Youngoona Waterhole, Enorama Ck	276750	6531400	✓	E, R	E, R
Oratunga Ck	264000	6553500	✓	E, R	E, R
Nilpena Creek, Nilpena HS	234750	6565250		E, R	E, R
Wild Dog Ck	241600	6356700		E	E
Willochra Creek, Quorn-Hawker Rd	230300	6430010	✓	E	E
LAKE FROME DIVISION					
Wilpena Creek, Hunt's Farm	273200	6510750		E	E
Mt Chambers Creek	331350	6573500	✓	E, R	E, R
Stubbs Waterhole, Arkaroola Ck	346200	6646250		E	E
Arkaroola Waterhole, Arkaroola Ck	339550	6648650		E	E
Paralana Hot Springs, Paralana Ck	349800	6660600	✓	E, R	E, R
Hamilton Creek, Terrapinna GS	371290	6689690		E	E
Balcanoona Creek, Weetootla camp.	331900	6624800		E, R	DRY
LAKE EYRE DIVISION					
Salt Water Springs, Jeremiah Ck	271250	6621700		E	E
Fink Springs, Fink Ck	282250	6620300	✓	E, R	E

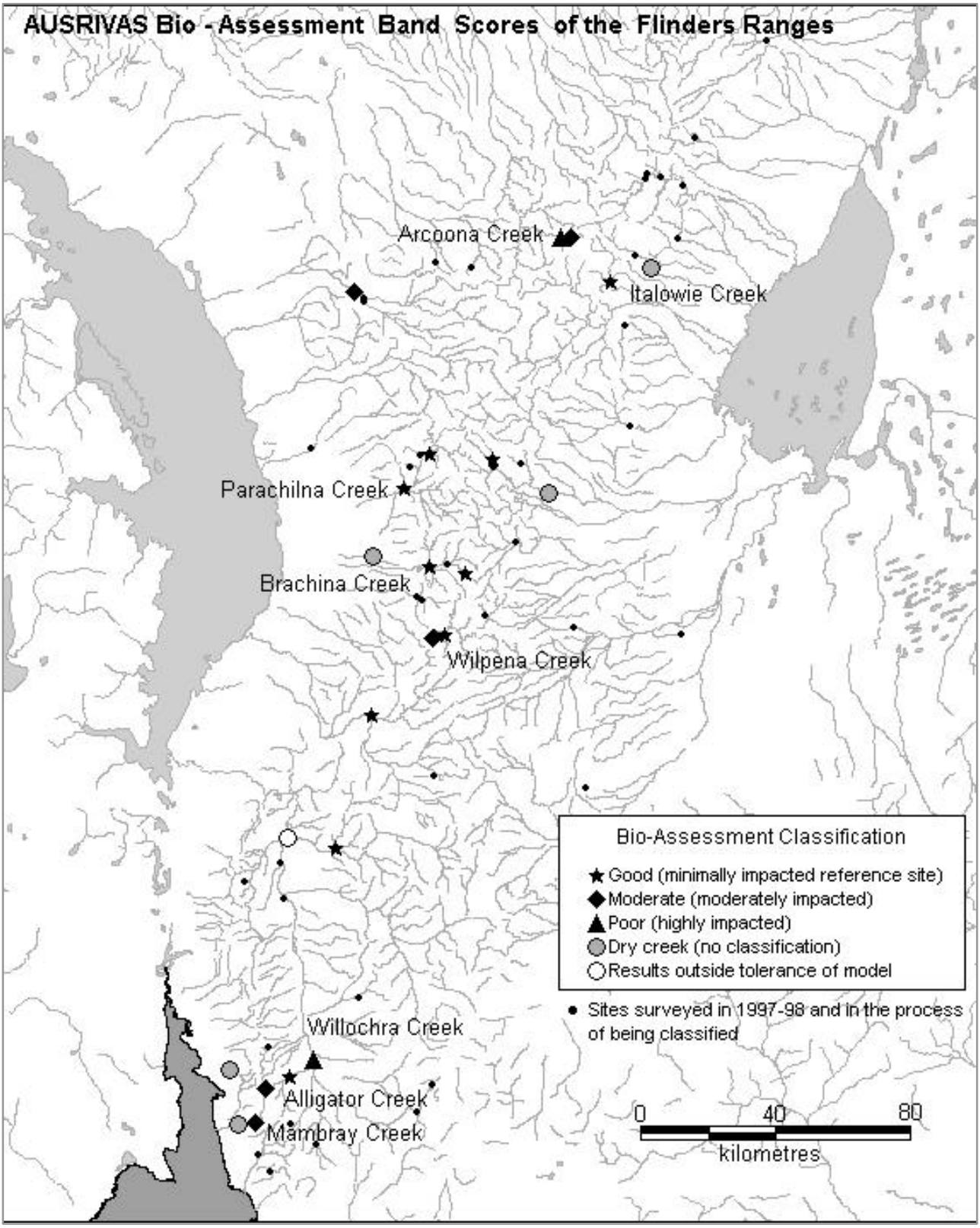

Figure 29. Localities of aquatic assessment sites.

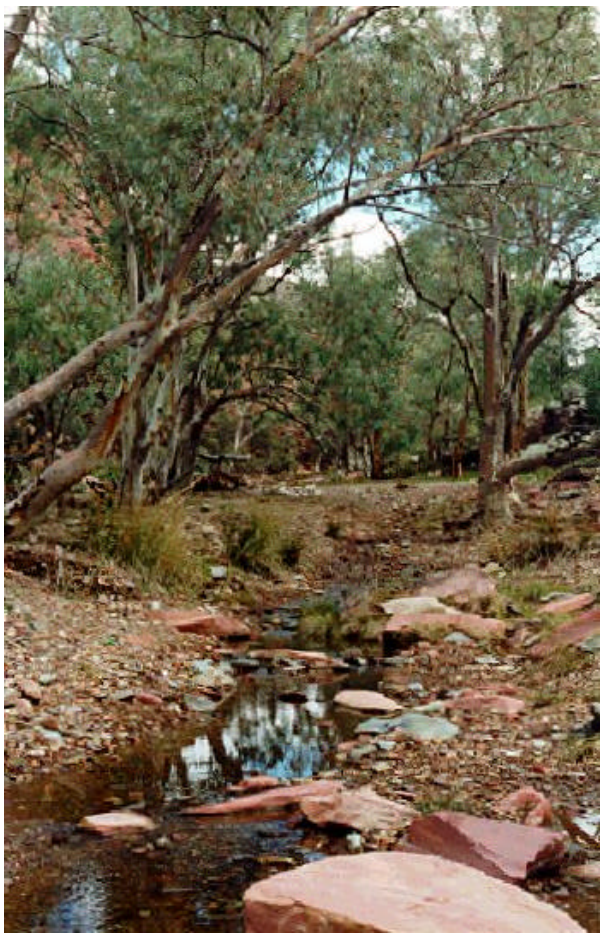

Figure 30. Artimore Ck looking towards Nildottie Spring (*Photo: P Goonan*).

What are macroinvertebrates?
Macroinvertebrates are aquatic animals without backbones that are large enough to be seen with the naked eye. They include insects, crustaceans, snails, worms, mites and sponges. The insects include the larvae of flying insects (e.g. midges, two-winged flies, dragonflies, mayflies, stoneflies and caddisflies) and adults of some groups (e.g. waterbugs, beetles, springtails). The more familiar crustaceans include yabbies and freshwater shrimps and prawns.

Why use macroinvertebrates?
Macroinvertebrates are most commonly used in biological monitoring studies because they are common, widely distributed, easily sampled and most can be identified by experienced biologists.

What is biological monitoring?
Biological monitoring involves studying the responses of animals or plants to changes in their environment. Aquatic organisms need the water quality to be good enough to meet their needs and enable them to complete their life-cycles. Any disturbance, pollution source or event can lead to the death of some or most of the aquatic life in a waterway. Since many contaminants can pass through a stream over a short period of time, chemical monitoring programs will usually fail to detect such events. This is where biological monitoring is important, as the structure and composition of plant or animal communities provides a measure of the water conditions in a waterway over a period of time which is related to each organisms life-span.

How do we determine water quality using macroinvertebrates?
A large number of reference sites were selected and sampled from S.A. in 1994-95 for the production of a database which could be used to construct the predictive bioassessment models. Reference sites were identified on the basis of being 'least-disturbed' and unimpaired by human activities; few pristine sites exist in South Australia as most catchments have been altered through grazing or other land use activities.

Test sites are those sites identified to be of importance in assessing the condition of a river which is known or thought to be experiencing an impact from some sort of water quality problem or habitat disturbance (Anon 1994). A small number of test sites were sampled in 1994-95 to ensure that the models developed from the reference sites were sensitive enough to distinguish highly impacted sites.

(i) Sampling, sample processing and identification
Sampling was carried out in South Australia twice yearly, during April-June (autumn) and October-November (spring-early summer), to provide an indication of the types of animals and range of conditions present in streams over time. The main focus of this work was to ensure that sampling the different habitats present at a site captured the broadest range of macroinvertebrates. This was because different animals live in different parts of a stream, with some preferring flowing water, whereas others may occur in standing water, or areas with rocks or macrophytes. Some animals occupy streams at different times of the year, making it important to sample the stream on more than one occasion in any one year.

Macroinvertebrate samples were taken using a pond net to capture those animals present in an area of 10 metres in each habitat. Samples were then taken back to the laboratory where the macroinvertebrates were sorted, identified and counted.

Numerous water chemistry and physical habitat characteristics were also measured at each site to assist in the assessment process. These included such things as stream width, depth, composition of the substrate, current speed, conductivity, pH, nutrient and ion concentrations, temperature, colour and turbidity.

(ii) Classification and selection of predictor variables
- Reference sites were classified into groups with similar macroinvertebrate communities using multivariate classification methods.
- Another multivariate method called Stepwise Multiple Discriminant Function Analysis was then used to determine which subset of environmental

variables best described the groups of sites. This subset of variables accounted for most of the variation between groups of sites and consisted of variables which were known to be largely unaffected by human activities. In most cases they were strongly related to location (e.g. latitude, longitude, altitude, distance from the source, etc.).

(iii) Using the predictive model(s)

- The predictive environmental variables were used to match the test sites with groups of reference sites, and a calculation of the probability of each site belonging to each group was made.
- Once group membership of a test site was determined the taxa that should occur at an individual site were predicted.
- The taxa that were actually collected were then compared with those that were predicted. The severity of any impact was then assessed by the difference between how the predicted community differed from what was observed.

Results and Discussion

Macroinvertebrates

A total of 360 aquatic macroinvertebrate taxa were collected from the Flinders Ranges in 1994-1997. This is approximately half the total recorded from the MRHI State database. Table 5 provides a summary of the animals found in the region.

The most common members were nematodes, beetles of the family Dytiscidae, biting midge (Ceratopogonidae) larvae, non-biting midge (Chironomidae) larvae, soldierfly (Stratiomyidae) larvae, oligochaetes, springtails (Hypogastruridae), scirtid beetle larvae, mosquito (Culicidae) larvae, and blackfly (Simuliidae) larvae. Most of the common species, except the simuliids, are typical of warm, still waterbodies and reflect the lack of flowing water and generally high water temperatures in the Flinders. The rapid life cycles and good dispersal abilities of simuliids enable them to locate flowing sections of Flinders Ranges streams, where they thrive.

Some of the species found are introduced. These include the planorbid snail *Physa acuta*, hydrobiid snail *Potamopyrgus antipodarum*, an unidentified species of Nemertea and possibly *Cherax destructor*, the common yabbie, which may have been introduced to the region in the past. However, none of these are particularly abundant or widespread.

Specific macroinvertebrate groups

The Acoelomate fauna (i.e. nematodes, flatworms and sponges) is not well known at lower taxonomic levels. It is possible there are many species present from waterways in the Flinders but the expertise to identify them is not available within Australia.

There were few snails present in the Flinders compared to most other areas in the State, probably due to the lack of permanent water in most streams. The family Lymnaeidae is commonly found in the region because they are able to plug their openings with mucus that enables them to survive variable regimes of drying and wetting. Other families such as the Hydrobiidae, Planorbidae and Physidae are also present but are not very widespread.

In a recent study of the oligochaetes of South Australia, McEvoy (2000) identified an undescribed species of *Insulodrilus* (Phreodrilidae) from Hookina Creek. This family is thought to have evolved in the much cooler climate of Gondwanaland because most of its species are found in cool, permanently flowing streams. Pinder & Brinkhurst (1997) suggest that some Australian phreodrilids may have retreated to subterranean waters to avoid the lack of surface water or warmer surface water temperatures. Hyporheic habitat is prominent at the Hookina Ck site and oligochaetes have previously been collected from the hyporheos in this area (Cooling & Boulton 1993). Other oligochaetes include *Nais* and *Paranais* which are both fairly common genera in the State. *Paranais* is characteristic of saline water, particularly within the Willochra drainage system.

Amphipods are not particularly abundant in the Flinders as they do not survive desiccation and are poor colonisers. However, one the unique animals found in the Flinders is a blind amphipod from the family Melitidae, *Brachina invasa*, which is endemic to the region and found in the hyporheos (Boulton & Williams 1996).

There is a diverse beetle and dipteran (fly) fauna. These types of macroinvertebrates are competitively advantaged in the arid and semi-arid regions of the State because their ability to fly enables them to disperse readily and colonise newly wetted sites. Among the beetles that are found in the Flinders but are rare elsewhere in the State is *Eretes australis*, which is endemic to the central arid and semi-arid areas of Australia and found at many sites in the Flinders. There is also one record of *Cybister tripunctatus* from Nilpena Creek. This species is found north of a line from Port Augusta, S.A. to Canberra, A.C.T. (Watts 1978). The only record of *Coelostoma fabricii* (Hydrophilidae) during the entire MRHI sampling program has been from Mt Chambers Creek, while *Sternolophus marginicolis* was present at Arcoona and Italowie creeks. This latter species is generally not found in the southern parts of the State (Watts 1997). All three South Australian genera of Gyrinidae were found in the region. Two are broadly distributed in the State but the third, *Dineutus*, is restricted to only the Murray, Flinders and more northern districts (Matthews 1980).

None of the dipteran families are restricted in their distribution over the State, but the diversity and abundance of some is of interest. In particular, there is a tendency for high abundances of biting midge (Ceratopogonidae) larvae to be present at sites with brackish water. At Italowie Ck, these larvae were the most numerically abundant group present. The taxonomy of some other dipteran groups (Tabanidae, Stratiomyidae, Ephydridae, Empididae) is not well known but it is possible there may be many species present in the Flinders.

Ephemeroptera (mayflies) generally prefer cool unpolluted water except for members of the genera *Cloeon* which favour warm, still water and are tolerant of poor water quality. *Cloeon* is present in the Flinders in quite high numbers and is also well represented in most regions in the State.

Aquatic hemiptera (bugs) are typically large-bodied and strong fliers and so tend to be able to disperse readily over large distances. They are best represented in warm, slow flowing or standing waters and most samples from the Flinders have representatives from this group. Most of the species found in the Flinders are found throughout the State, however, *Anisops paraexigera* (Notonectidae) (Figure 31) is restricted to the Flinders and North-West of the State.

Figure 31. *Anisops* sp. (*Photo: P Goonan*).

Within the odonates (dragonflies and damselflies), the family Libellulidae were commonly recorded from sluggish waters with submerged macrophytes present. They were absent from Mambray Ck, Alligator Ck, Wilpena Ck, Kanyaka Ck, Hookina WH and Oraparinna Ck, indicating that these sites either have more flow than the family can tolerate or lack sufficient macrophyte cover for them to inhabit. Other families of odonates are variously represented throughout the region.

Three species of Plecoptera (stoneflies) were found but none were particularly abundant where they did occur. Stoneflies prefer cool upland streams and are intolerant of pollution. They also require an extended period of flow to complete their life cycle. They have eggs that can resist desiccation in a dry stream-bed but require flow for a period of 5-6 months to develop fully from nymphs to adults (P. Suter, pers. comm.). They were found in riffle habitat at Oraparinna Ck, Spring Ck, Mambray Ck, Alligator Ck and on one occasion at Pekina Ck. All of these are fairly southern sites except for Oraparinna Creek, which is the northern-most site in the State where stoneflies have been found.

Within the Trichoptera (caddisflies), the family Leptoceridae often occurred in the edge habitats, while in the riffles the Hydropsychidae and Hydroptilidae were more common. The hydropsychid, *Cheumatopsyche* (the only genus found in SA), had the highest numerical abundance for a single site. *Apsilochorema*, (Figure 32) a fairly rare hydrobiosid

Figure 32. *Apsilochorema* sp. (*Photo: P Goonan*).

predator, was found in riffles in Bunyeroo Ck, Brachina Ck (Figure 33), Mambray Ck and Wilpena Ck. *Lectrides varians* (Leptoceridae) was found only in Mambray and Alligator Cks, which lie at the southern margins of the Flinders. These records may represent the northern-most distribution of *L. varians* in the State, where it is typically recorded from Kangaroo

Figure 33. Brachina Ck, Brachina Gorge (*Photo: P Goonan*).

Island, Fleurieu Peninsula and the Mt Lofty Ranges. Larvae from the genus *Orphninotrichia* (Hydroptilidae) were collected from sites in Brachina Ck, Oraparinna Ck and Italowie Ck. According to Wells (1985) these larvae are most abundant on the faces of natural or artificial waterfalls, among mosses, cyanobacteria and filamentous algae, and their diet consists of attached algae. Since their habitat is uncommon, these animals are not known from many sites in the State. The genus extends from the Fleurieu Peninsula and the Mount Lofty Ranges to the Flinders Ranges at its northern-most range.

AUSRIVAS bioassessment results

The preliminary band ratings for the sites that have had all samples completely processed are given in Figure 29. Ratings have been summarised across different seasonal and habitat models to reflect the lowest band score for any specific model. A more detailed report will be prepared in the year 2000 to describe the results and the major sources of impacts for all streams sampled in the State.

The Willochra Creek (Figure 34) is the major drainage system in the southern Flinders Ranges. Parts of the upper catchments from tributary streams in the catchment have diverse biological communities but as flows extend onto the Willochra Plain the creek becomes highly salinised and the resulting bioassessment classification shows a poor rating.

Mambray Creek, and one of its tributary streams Alligator Creek, are typically semi-permanent in the lower reaches and have permanent pools in the middle-upper parts of their catchments. It seems likely that their location in an essentially cool, shaded part (i.e. deep, sheltered gorges) of the lower Flinders Ranges may account for the moderate-poor biological ratings from the sites that were sampled in 1994-95.

The major impacts associated with streams in the middle and northern parts of the Flinders relate to nutrient enrichment and trampling by stock, and possibly some leachate from disused mines. Other impacts relate to erosion from tracks/roads, land clearance, tourism, camping, and the presence of naturally radioactive groundwater discharging at the surface in springs. Most sites that were sampled in 1994-95 were rated as equivalent to reference condition, including all sites on Brachina Creek, Parachilna Creek and Italowie Creek. Among the sites that showed moderate impacts were Aroona Creek downstream from the dam (river regulation) and Arcoona Creek in the Gammon Ranges that dries to a few isolated pools each year (hydrology, nutrient enrichment).

Sites sampled in 1997 have not been completely processed and checked but early indications from the autumn samples indicate that the edge habitat at Willochra Creek, Quorn-Hawker Rd and Salt Water Springs and the riffle habitat at Nilpena Creek were all moderately impacted by saline water. There were biodiverse sites at Bunyeroo Creek, Wild Dog Creek and Hamilton Creek. The other sites appear in good condition.

Figure 34: Willochra Ck south of Partacoona (*Photo: D Schulze*).

Table 5. Numbers of freshwater macroinvertebrate genera recorded from the Flinders Ranges between 1994-1997, according to major taxonomic groups.

Class	Order	**Family**	No. of Genera
		Spongillidae	*
		Hydridae	*
		Clavidae	*
	Turbellaria	Temnocephalidae	*
Nemertea			*
Nematoda			*
Bryozoa			*
Gastropoda		Hydrobiidae	2
		Lymnaeidae	2
		Ancylidae	1
		Planorbidae	2
		Physidae	1
Bivalvia		Sphaeriidae	1
Hirudinea		Richardsonianidae	*
Oligochaeta			*
Hydracarina			>15
Crustacea	Amphipoda	Ceinidae	1
		Eusiridae	1
		Paramelitidae	1
		Melitidae	1
	Isopoda	Janiridae	1
		Oniscidae	1
	Decapoda	Aytidae	1
		Parastacidae	1
Collembola		Hypogastruridae	*
Insecta	Coleoptera	Dytiscidae	16
		Gyrinidae	3
		Hydrophilidae	10
		Hydraenidae	2
		Ptiliidae	*
		Staphylinidae	*
		Scirtidae	2
		Curculionidae	*
	Diptera	Tipulidae	11
		Dixidae	*
		Culicidae	4
		Ceratopogonidae	20
		Simuliidae	2
		Psychodidae	4
		Scatopsidae	*
		Cecidomyidae	*
		Tabanidae	*
		Stratiomyidae	*
		Empididae	*
		Dolichopodidae	*
		Syrphidae	*
		Sciomyzidae	*
		Ephydridae	*
		Muscidae	*
		Diamesinae	1
		Podonominae	1
		Tanypodinae	5
		Orthocladiinae	13
		Chironominae	15
	Ephemeroptera	Baetidae	3
		Leptophlebiidae	1
		Caenidae	1
	Hemiptera	Mesoveliidae	1
		Hebridae	1
		Hydrometridae	1
		Veliidae	1
		Saldidae	1
		Nepidae	1
		Corixidae	2
		Notonectidae	2
	Lepidoptera	Pyralidae	*
	Neuroptera	Neurorthidae	1
		Sisyridae	1
	Odonata	Coenagrionidae	3
		Lestidae	1
		Aeschnidae	2
		Gomphidae	2
		Corduliidae	1
		Libellulidae	2
	Plecoptera	Gripopterygidae	3
	Trichoptera	Hydrobiosidae	1
		Hydroptilidae	3
		Hydropsychidae	1
		Ecnomidae	1
		Leptoceridae	5

*These groups are present but are not identified to genus level.

Conclusions

Macroinvertebrate diversity

While the Flinders Ranges is populated by a wide diversity of macroinvertebrate species, only a few of them do not occur elsewhere in the State and at present only one, *Brachina invasa*, is endemic to the area. The community composition is highly variable and dependent on flow conditions. There seems to be a line dividing the ranges of some species that coincides with the Willochra Plain, which appears to act as a barrier to the dispersal for many species.

Future use of the AUSRIVAS work

Once the models have been finalised it will be a relatively simple exercise to rapidly assess the biological condition of new test sites in the State. All that will be required is to collect and process macroinvertebrate samples and a limited set of prescribed environmental variables, and run the data through the appropriate model to determine whether the site has a significantly different community than those predicted by the reference database. This approach will provide a broad-based assessment of the condition of the State's waterways and assist in catchment planning and management in the future. The data collected from 1994-1999 provides a benchmark to assess changes in conditions over time and can be used to set targets and assess any improvements in catchment and river health in the future. The models are being developed for the whole State and appear to provide interpretable results for the waterways in the Flinders Ranges.

FLINDERS RANGES FISHES

Bryan E Pierce[1], Mike Young[2], Terry Sim[3]

Abstract

The South Australian Flinders Ranges possesses unique, largely ephemeral headwaters encompassing the South Australian Gulf, Lake Torrens, and Lake Eyre drainages. Documented evidence for waters within the mountainous extent of the Ranges indicates the presence of five native fish species (Lake Eyre Hardyhead, *Craterocephalus eyresii*; Flinders Ranges Purple-spotted Gudgeon, *Mogurnda clivicola*; Spangled Perch, *Leiopotherapon unicolor*; Bony Bream, *Nematalosa erebi*; and Lake Eyre Callop, *Macquaria* n. sp.) and two exotic fish species (Mosquitofish, *Gambusia holbrooki* and Redfin Perch, *Perca fluviatilis*). The restricted distribution and small population size of the Flinders Ranges Purple-spotted Gudgeon results in it's ranking as one of, if not the highest conservation/biodiversity value freshwater native fish in South Australia. The native fish conservation values within the Flinders Ranges are based upon the ability of resident stocks to access a mosaic of generally minor, ephemeral waters during irregular flood events, and to take advantage of these flows to enhance reproductive success. Threats to these values are categorised across habitat destruction, introduced species and overharvest processes. Habitat destruction incorporates the need for protection of water quantity, quality and fish passage access to habitat during periods of flow. Continued control over water abstraction, especially from the Balcanoona Creek surface and groundwater systems is essential. Continued effective feral animal control (goat/horse/donkey) is crucial to maintenance of adequate water quality during drought periods in refugial water bodies. Threats due to introduced species are currently greatest from predatory impacts of impending colonisation of key Flinders Ranges waters by exotic Mosquitofish. Effective prevention of the introduction of exotic fish species and/or translocation of Australian species is imperative. Illegal harvest (poaching) of Flinders Ranges fishes, especially Flinders Ranges Purple-spotted Gudgeon, must be far better controlled (and reduced) in future.

Introduction

Since freshwater fishes cannot generally move large distances over dry land, from an evolutionary perspective, individual drainage basins provide a biologically meaningful *a priori* stock delineation mechanism as well as habitat management unit. In considering the Flinders Ranges aquatic fauna, "natural" drainage basin fish faunas are viewed from within the integrating environmental context of "mountainous habitat." Within Australia, and particularly South Australia, such ranges represent scarce, unique and isolated habitat islands in a vast sea of flat desert. Thus, this work examines the fishes capable of making the Flinders Ranges home, as subsets of the potential donor faunas inhabiting the component drainage basins.

The South Australian Flinders Ranges, being the northerly extension of the Mount Lofty Ranges, acts to divide numerous drainages. For the purposes of this summary, the Flinders Ranges are taken as the rocky, high gradient uplift habitat bounded by Lake Blanche to the north, Lake Frome to the east, Lake Torrens to the west and the Broughton River drainage to the south. As such, the Flinders Ranges encompasses South Australian Gulf, Lake Torrens, Lake Eyre drainage basins, as well as minor endorheic drainages internal to the Ranges (Figure 35). The outer boundary is effectively defined as the high contour interval zone (ie, greater than 50m contour change per 1 linear kilometre) surrounding the periphery of this ecologically distinct region. Ranges waterways are typically erosive headwater tributaries containing small pockets of water of varying permanency during non-flood periods.

Fishes found only in floodout or other lower basin waters outside the mountainous portion of particular drainages are not considered here, as this would entail incorporation of discussions of fish stocks present in over 1/6th of Australia. Fishes of the coastal plains portion of the Gulf drainage are not discussed specifically as these would include numerous estuarine and other low gradient species not typically considered as part of the Flinders Ranges management unit and region. Finally, the fish stocks of the Broughton/Hutt/Rocky Rivers have been previously considered elsewhere (Pierce 1999; species listed per Appendix 31).

This text is used as an opportunity to record considerable observational and experiential evidence in addition to typical distributional information gleaned from extensive sampling in this region under diverse conditions that may be of management or natural history value in future. Sampling has ranged from full flood conditions to protracted drought, with coverage extending to all persistent waters surviving after two years without rain (and employing extensive volunteers and helicopter access). Specific site locations where particular fishes can be found will not be detailed (unless already considered to be "common knowledge"), as past experience has demonstrated that this leads to increased use of these water bodies together with associated habitat damage, potential

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introduction of exotic species, and especially increased harvest (legal and illegal).

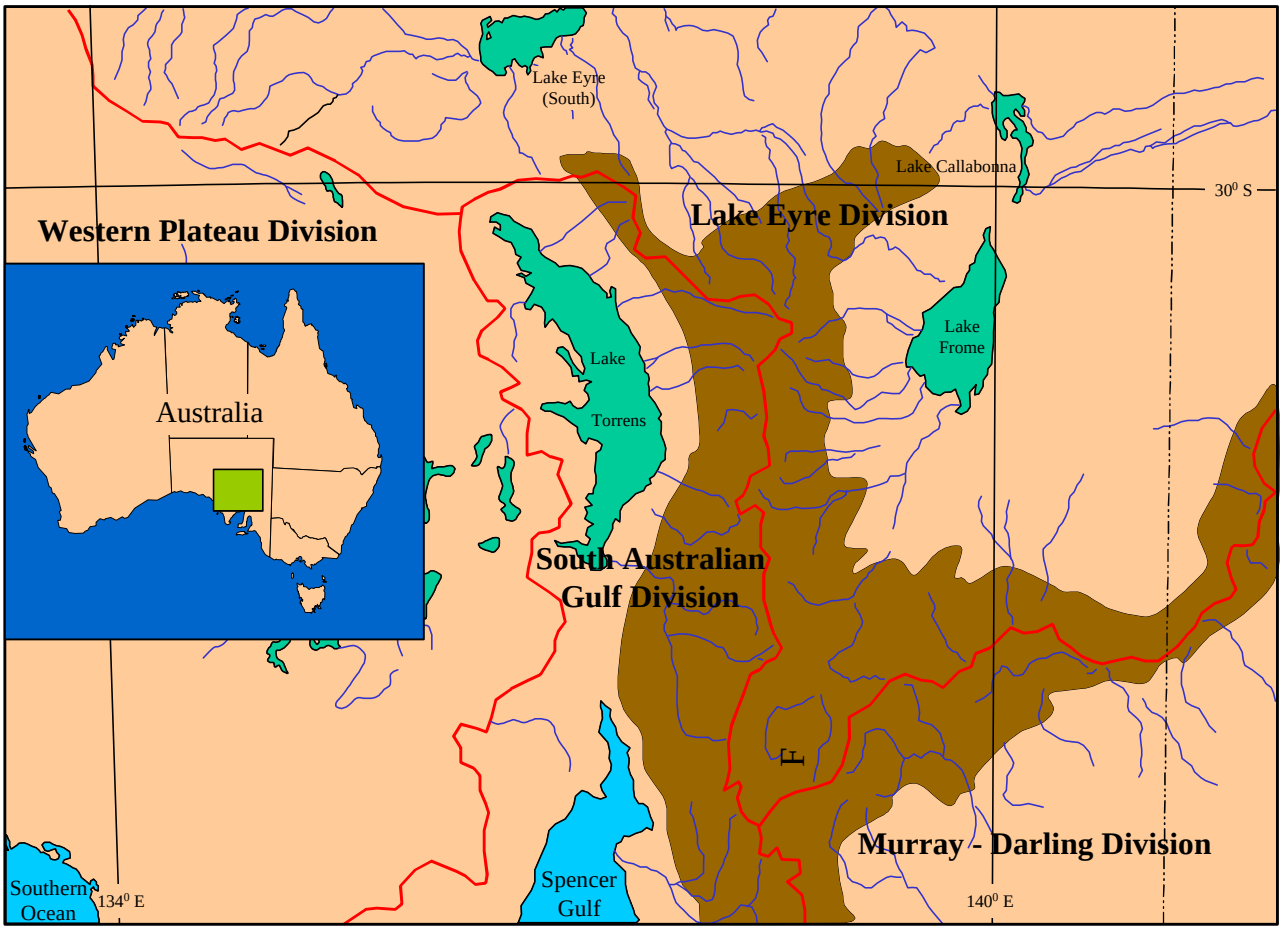

Figure 35. The South Australian Flinders Ranges and component meta-drainages, as considered in this work.

Fishes

Despite the paucity of permanent water within the Flinders Ranges, a surprising diversity of fishes manages to maintain self-sustaining populations in the region. Native fishes are considered to have been derived from marine ancestors which subsequently have adapted to a hostile desert aquatic system – with a subset of these species proving able to cope with the additional selective pressures imposed by high gradient, extremely confined waters. Some seven fish species are represented within the region as defined, of which five are native to the region and two are introduced exotic fishes. Glover (1980) also treated two additional native fish species (desert rainbowfish, *Melanotaenia splendida tatei*, and desert goby, *Chlamydogobius eremius*) as potential members of the Flinders Ranges fish fauna, based on their presence as reproducing populations in relatively nearby waters outside of the Ranges proper (as defined here). Despite extensive flooding during the intervening period (eg, 1990), these species have not yet been found to actually migrate and occur within the Ranges, and are therefore not treated here. Similarly, all fishes inhabiting the relevant drainage basins have theoretical access to Flinders aquatic habitat, but are not considered as being present without evidence in the form of specimens/photographs actually collected from within the region.

Native Fish Species

Lake Eyre Hardyhead

The fish species currently described as the Lake Eyre Hardyhead, *Craterocephalus eyresii* (Steindachner 1884), is the most common and widely distributed fish of the Flinders Ranges. This fish is widely distributed and common in both the Lake Torrens and Lake Eyre drainage components of the Flinders watershed system. Previous references to the species in the Murray-Darling drainage actually refer to what is now known to be a different species (Crowley and Ivantsoff 1990). Derived from marine ancestors, this member of the family Atherinidae is capable of living in waters of almost three times seawater salinity. Growing to 105mm total length in Flinders waters, this small schooling fish typically lives in mid-water habitat. As

with other hardyheads, this species has a conspicuous silver mid-lateral stripe. An opportunistic predator on small aquatic invertebrates such as mosquitoes, this species can be recognised by its forked tail and two separate dorsal fins (Ivantsoff and Crowley 1996).

The Lake Eyre Hardyhead can reach surprisingly high densities in residual waters post-flood, with size and age structure evidence supporting opportunistic spawning/recruitment success after rainfall or flood events, rather than strict seasonal reproductive events or recruitment success. Rainfall events serve to allow extensive migration throughout the Ranges by this species. Populations have regularly been found to be absent from water bodies where specimens have been previously collected (eg, Paralana Hot Springs lacked evidence of this species from 1991 to 1998, despite collection of hardyheads here by Glover 1980), as well as to be present in previously uninhabited waters after flooding. While re-colonisation after local extinction during dry periods may depend in part on donor stocks lower in the drainage, at least one recolonisation event in the Italowie watershed post-1991 depended on upstream donor stocks, as surface flows did not reach Lake Frome waters.

This species has value both as a natural predator of mosquitoes, and as a food source for migrating piscivorous birds. In farm dam conditions, members of this family are known to be excellent prey species supporting larger native fishes such as Lake Eyre Callop.

Flinders Ranges Purple-spotted Gudgeon

The Flinders Ranges Purple-spotted Gudgeon, *Mogurnda clivicola*, has only recently been described (Allen and Jenkins 1999). This distinctive species is only known to survive at two sites. By far the most secure and significant population, numbering up to an estimated 4000 adults at times, occurs in Balcanoona Creek within the Flinders Ranges, a minor groundwater-fed stream within the Lake Eyre drainage (McKay 1985, Pierce 1992). The species has been translocated into and become established in at least two other nearby and even more minor Flinders Ranges waters (and based on a limited donor stock). What appears to be a related fish of unexplored genetic affinity is found in small and insecure pools within part of the Barcoo River catchment (Wager and Unmack 2000). These populations appear to be refugial remains following historically wetter conditions prevailing in the Cooper system.

Growing to a maximum length of about 13cm in the wild, this benthic fish is a predator of small invertebrates and others of its own species. These are robust fish that are only slightly deeper than it is wide. Young fish are more elongate than adults that become stouter as they grow. This species has a rounded caudal fin; two separate dorsal fins, a brown to dark blue dorsal surface, and blue and rust spotting laterally.

Spawning in this population has been found to be associated with rainfall/flood events occurring during the warmer period of the year, following an initial approximately synchronous spring spawning that may or may not be associated with elevated flows. Spawning behaviour in this species has been described in detail by McKay (1985). After spawning on hard substrate (eg, rock, wood, tree bark), males guard and fan the egg mass that may exceed 900 ova (McKay 1985)(but with about 300 fertile eggs average for young fish held under aquarium conditions). McKay (1985) reports that hatching occurs approximately 148 hours after deposition at 26°C; although under aquarium conditions, hatching is advanced if the guardian male is removed. Eggs, as typical within this genus, are elongate rather than round (ie, about 1mm in diameter by 4mm long). In 1996, following summer rainfall, approximately 1/3 of egg masses observed contained mostly unviable eggs, although male guarding persisted. In aquarium conditions, removal of the guardian male prior to eyeing of the eggs often leads to major mortalities.

Fry typically inhabit the surface of pools during the day, and shift inshore near structure as they grow. Larger individuals (20mm+) take up benthic residence like adults, but commonly inhabit shallower habitat. Under aquarium conditions, fry and young fingerlings commonly occupy midwater positions, but this has not been commonly observed in the wild.

The extremely limited Balcanoona Creek population does not currently co-exist with other fish species. Habitat at this site is generally quite shallow which appears to have caused, in part, blotches in some lower catchment specimens that have been proven to be skin cancers (melanomas)(Pierce 1996). Nematode infestation (passing through herons as a host) is also known to impact this population (McKay 1985), but clearly varies in intensity from year to year.

The extreme rarity of this species has caused it to be classified as “Threatened” under current IUCN categories, and to be subject to a draft recovery plan focused on protecting its current population and habitat health (Wager and Jackson 1993). Susceptibility of a previously widespread related species, *Mogurnda adspersa*, to habitat and introduced species impacts reinforces the need to protect this remnant wild stock of the Flinders Ranges Purple-spotted Gudgeon.

Utility of this species includes aquarium trade potential, demonstrated importance to migrating fish-eating birds, and value in understanding the aetiology of skin cancers in vertebrates. As the Lake Eyre basin is further developed and populated, this species may also add considerable value in farm dams and reservoirs through mosquito control and prey population benefits.

Spangled Perch

Spangled Perch, *Leiopotherapon unicolor* (Gunther 1859), are another common and widely distributed desert fish. This member of the family Terapontidae (the freshwater grunters) is rapid growing and hardy, although it rarely reaches 25cm (about 500grams). This species is common in much of the Hamilton Creek catchment, as well as in nearby north-flowing Flinders watersheds. This fish generally reaches smaller sizes in these waters than in larger waters elsewhere. An aggressive predator that opportunistically consumes any prey it can capture and engulf, this population of Spangled Perch represents one of the most southerly in the range of this species. While Spangled Perch in the Flinders make use of what limited water they have available, observation in clearer water conditions indicates that smaller fish occupy shallower waters away from larger, cannibalistic, Spangled Perch. Large and small fish both occupy midwater positions and often move in loose groups/schools. During mid-day, these groups remain still in available shadows, rather than moving extensively as seen at morning and dusk. When disturbed, all take refuge in benthic structure, as available. Perhaps because they both utilise similar microhabitat or food, thus far we have not found Spangled Perch and Lake Eyre Hardyheads in sympatry.

Widespread across numerous Australian drainages, this species is found in both the Lake Eyre and Lake Torrens drainages. As in Bony Bream, this species exhibits little genetic variation across its extensive natural range (M Adams, SA Museum, pers. comm.). This species is known to survive seawater salinities, water temperatures of 5-44°C, and otherwise poor water quality (summarised by J. R. Merrick in McDowall 1996).

This species exhibits a caudal fin that is squared rather than forked, a single dorsal fin composed of two connected lobes, and pelvic fins connected to the body well back from the pectoral fins. This fish is a serial spawner throughout summer periods. While fish from the higher turbidity components of the Hamilton drainage typically have a brown back and silver to gold sides, the same fish found in or transferred to clearer water characteristically display rust coloured spots approximately randomly over the surface of the body (excluding the belly).

This species has adapted to co-habit desert waters with a diversity of other native fishes. It has excellent eating qualities and its limited maximum size is made up for by its commonly high density and productivity even under quite adverse conditions. This species is readily captured using recreational angling methods.

Bony Bream

The Bony Bream, *Nematalosa erebi* (Gunther 1868), is a freshwater herring of the family Clupeidae. Typically termed a "detritus feeder," this species makes use of high protein bacterial and fungal growth found on benthic debris that it ingests and grinds in a gizzard-like section of the upper alimentary tract. Bony Bream are a silver fish with a forked tail, single dorsal fin with an extremely extended last dorsal ray, and deep, laterally compressed body. This species is widespread in central Australia as well as the Murray-Darling drainage. Despite this extensive range, little genetic differentiation has been found to date within this species (M Adams, SA Museum, pers. comm.).

Following extended drought, Bony Bream are only known to persist in scarce deep and relatively large Flinders Ranges waters such as Terrapinna Waterhole (and associated deeper waters nearby) in the Hamilton drainage. Bony Bream are also known from the Lake Torrens drainage and are extremely abundant throughout the majority of the Lake Eyre drainage. This species will migrate and be found at least temporarily in other Flinders Ranges waters after major flooding events. While this species is known to reach sizes of almost 50cm elsewhere, fish from the Hamilton drainage of the Flinders are not known in excess of 28cm. This species typically occurs in sympatry with Spangled Perch in Flinders Ranges' waters.

Bony Bream are an extremely fecund and productive fish species that are extremely important as prey for fish-eating birds and larger native fish such as callop. Now established in the Leigh Creek Retention Dam, this species is an important component of the food chain in farm dam and reservoir fish faunas. High mortalities may occur naturally during winter and spring (Puckridge et al. 1989) that can cause unwarranted concern regarding population health and persistence.

Lake Eyre Callop

The Lake Eyre Callop, *Macquaria* n. sp., is a different species from the fish found in the Murray-Darling Basin (Musyl and Keenan 1992). Known to grow to at least 10kg in the South Australian Cooper Creek system, this species possesses a rounded caudal fin and a single (two-lobed) dorsal fin. Commonly light silver-yellow laterally, darkening dorsally, when removed from high turbidity waters commonly found in the Lake Eyre drainage, this fish often develops a more silver appearance with distinct "salt and pepper" flecks laterally when kept in clear water conditions.

Photographic evidence demonstrates the presence of Lake Eyre Callop in the Hamilton catchment of the Flinders Ranges immediately after the 1975 flood event. It appears that fish migrating up the Strzelecki Creek from the Cooper Creek system became "netted" in fencing placed across the Hamilton well into the Flinders. Persistent stocks of this species are not known from the Flinders Ranges, although a translocated population is currently being established in the Leigh Creek Retention Dam (just outside of the Flinders Ranges as defined here).

This species is highly sought after for its recreational angling value as well as eating qualities. Its potential for use in impoundments in the Flinders remains un-examined, but is likely to be considerable given this species' pre-adaptation to the rigours of desert life. Further, this species is known to have less strict requirements for flooding as a prerequisite to successful breeding/recruitment, so development of self-sustaining rather than hatchery dependent populations are more feasible.

Introduced Fish Species

Mosquitofish

The exotic Mosquitofish or eastern gambusia, *Gambusia holbrooki*, has been extensively introduced into waters throughout Australia. It is a surface dwelling species growing to roughly 60mm (for females, males are sexually dimorphic and seldom exceed 30mm). This feral species originally lived only in southeastern North America. A member of the family Poeciliidae, this fish is closely related to guppies in which eggs are fertilised internally, before 50 or more young are born at approximately monthly intervals over the warmer months. These fish do poorly at water temperatures below approximately 15°C, so winter reduces population levels dramatically. This species is highly tolerant of diverse water conditions and can undertake aquatic surface respiration (ASR) that allows it to survive in zero oxygen tension water for considerable periods. Males possess elongate anal fin rays specially adapted for internal fertilisation. This species has a rounded caudal fin and a single dorsal fin. McDowall (1996) summarises much available information for southern Australian waters.

Mosquitofish closely resemble their relative, the guppy, but have only drab colouration. Fish are typically olive drab on the back, shading through grey to silver on the belly. Both sexes have an iridescent bluish patch on the cheeks (opercles), and may display a dark line along the body through the vicinity of the eyes when subject to extreme stress.

Unfortunately, this species is a highly aggressive predator of native fish ova, young and adults. Elsewhere, its presence has been implicated in the demise of numerous small native fish, as well as the massive reduction in reproductive success in larger native fishes such as Murray cod and callop. Present in the Gulf, Lake Torrens and Lake Eyre drainages, this species is not yet common throughout Flinders Ranges waters. Its presence and range extension must be actively discouraged, as it can likely result in the extinction of the Flinders Ranges Purple-spotted Gudgeon population, as well as the local destruction of other Flinders native fishes. While referred to as "Mosquitofish," it has been demonstrated that Australian native fish species are already well adapted to remove mosquito larvae present in waters they inhabit without associated disbenefits in the form of impacts on natural aquatic fauna.

Redfin Perch

The Redfin Perch, *Perca fluviatilis*, is an introduced species of the family Percidae that originated from northern Eurasia (see Craig 1987 for more detail). This species is not known to currently exist in the Flinders Ranges as considered here (aside from reproducing populations in the Broughton catchment). However, a specimen of this species has been collected previously from the Flinders Ranges (Glover 1980). It is known from direct conversation with persons involved that fish of this species were introduced into Moro Gorge waters, although extensive sampling has failed to demonstrate their successful establishment there. This species has a forked caudal fin, two dorsal fins, and typically bright red pectoral and anal fins.

Unlike native fish species, redfin spawn in spring with a strong preference for aquatic vegetation as a deposition substrate, on which strands of eggs are attached. Spawning is synchronous over a relatively short period.

Redfin are an aggressive visual predator growing to over 5kg in South Australian waters, but fish up to about 1.2kg are more typical. Redfin are also highly cannibalistic, with many farm dam populations consisting of a few large individuals preying almost exclusively upon their own offspring. While it would seem that water conditions in the Flinders Ranges would be at the extreme of the tolerances of this temperate species, its survival would effectively limit the potential for native fish species in the same waters. Native predators such as callop offer greater potential in impounded waters due to their pre-adaptation to local conditions. This is particularly true given that Redfin Perch commonly "stunt" in South Australian waters with the majority of the population being composed of small 20cm fishes and few larger, more highly sought after specimens.

Other

A number of other native fish species occur in the immediate vicinity of the study area, but have not been included since they are not known to persist within the actual high gradient habitat considered here. These include carp gudgeon of the genus *Hypseleotris* sampled from Saint Mary's Waterhole and Myrtle Springs, the desert rainbowfish, *Melanotaenia splendida tatei*, known from Saint Mary's Waterhole, and the desert goby, *Chlamydogobius eremius*, known from several waters in the vicinity of the Leigh Creek coalfields. In addition, native fish representative of the Cooper Creek fish faunal assembly have been introduced into the low gradient zone Leigh Creek Retention Dam in order to create artificial refugia for these species (as well as to meet other local community needs). Donor stock, in significant numbers to avoid inbreeding problems, included the three catfish species, glassfish, Australian smelt, Welch's grunter, and other small fish species native to the lower Cooper Creek in South Australia.

Other introduced Australian and exotic fish species have access to the Flinders Ranges aquatic habitat. European carp, *Cyprinus carpio carpio*, occur in the nearby Leigh Creek Retention Dam (Lake Eyre Basin). Goldfish, *Carassius auratus*, are also established in the Lake Eyre drainage. Both of these species are well documented to contribute to increased water turbidity under low flow/waterhole conditions.

Australian native fish species not native to the Flinders Ranges associated drainages are also known to have been or be present in immediate proximity to the Flinders. Murray cod, *Maccullochella peeli peeli*, have been introduced into the Lake Eyre drainage in the Cooper Creek and thus have access to the Flinders Ranges during high flow events. River Murray callop, *Macquaria ambigua*, have previously been introduced into the Leigh Creek Retention Dam, from which they were removed to be replaced with better adapted Lake Eyre Callop stocks. Lack of public knowledge regarding the differences between these species could result in mixing of stocks and resulting hybridisation to the detriment of all users and the natural aquatic biodiversity of the region (see Musyl and Keenan 1992).

Habitat

The aquatic habitat of the Flinders Ranges has seldom been considered as a distinct component of this unique region. The majority of waters within the Flinders are effectively ephemeral, and thus represent a mosaic of potential habitats that fishes must colonise during wetter periods when flows connect them. Survival and subsequent reproduction is then dependent upon:

- Habitat persistence
- Habitat quality
- Fish passage between habitat islands/drought refugia

Thus, the importance of maintaining habitat health and fish passage throughout the Flinders is clear. While priority can be given to protecting more permanent waters such as Balcanoona Creek, the majority of species survive by colonising a number of waterholes rather than just "permanent" waters. Failure to consider each of these three facets of aquatic habitat health will result in loss of fish populations and eventually species from the Flinders Ranges.

In brief, the watersheds of the Flinders Ranges experience highly irregular flooding that punctuates protracted drought periods (ie, drought is normal; floods are unpredictable). While the annual cumulative rainfall for most of the Ranges is less than 100mm, mean annual evaporation (evaporation pan data) exceeds 3000mm (Kotwicki 1986) – effectively a similar climatic region to the Sahara desert. Even minor rainstorms become significant replenishment events during summer/dry periods. Unpredictability of the annual climate is equally important. Both northern and southern climatic drivers influence the Flinders Ranges. The annual northern monsoonal cycle may, or may not, reach as far south as this region (ie, summer rainfall dominates). The Flinders is also subject to climatic influence from weather coming off the South Australian gulf and Southern Ocean waters (ie, winter rainfall dominates). As a boundary zone between climatic systems, rainfall is particularly unpredictable within years as well as between years, posing pressures on fishes and aquatic systems for which drought is the "norm."

Floods, when they eventuate in the Flinders, are catastrophic in nature from the perspective of resident fishes. Narrow gorges typify much of the Flinders tributary habitat. High intensity rainfall events create flood pulses (waves) that effectively flush out through Ranges valleys – fish must maintain and move amongst flow refugia during these times. Fortuitous sampling immediately after a minor summer rain in Balcanoona Creek revealed considerable numbers of dislodged adult Flinders Ranges Purple-spotted Gudgeon which displayed a clear behavioural adaptation to reduce water loss and movement while stranded amongst rocks between pools.

Water quality in refugial waterholes during drought periods is equally necessary to fish survival. Feral exotic animals, especially goats and horses/donkeys, pose a considerable impact upon water quality during these crucial times when temperatures are highest and oxygen tensions least. High densities of such animals, as occurred pre-feral animal control program, placed a high intensity impact upon remaining potable water – the same water necessary for fish survival. Goats and horses often defecate in or near their watering sites, while native animals such as kangaroos often dig scrapes in sand away from open water to obtain a drink. At higher pre-eradication goat abundances circa 1989, over 150mm of goat feces were measured around Yackie waterhole, which had a measured pH of 2.0 (per a daily calibrated Horiba U-10 meter) and was clearly no longer acceptable habitat for fish or most other aquatic biota (Figure 36). Less severe impacts of nutrient enrichment/pollution are commonly seen as excessive algal surface scum. Such algal growth consumes oxygen during darkness and is a common cause for deoxygenation of surface waters. Most native fish species have no behavioural or physical adaptations to allow them to survive such zero oxygen periods successfully (ie, lacking ASR behaviour).

Fishless Habitat

While the authors have an obvious bias towards native fishes, it is important to not under-estimate the value of "fishless" waters within the composition of Flinders Ranges aquatic ecosystems. In similar dry mountains such as the Sierra Nevada Ranges in western North America, extensive stocking and translocation of diverse salmonids as sport fish has heavily impacted invertebrates and vertebrates dependent upon fish-free aquatic habitats for some or all of their life history (Moyle and Randall 1998, McNaught et al. 1999). People tend to view fish as deserving favour over invertebrates (in particular); however, it makes little sense to impact total aquatic biodiversity simply because of a misguided desire to "safeguard" fish by liberally sprinkling them across all available waters in the vain hope that some will survive somewhere and make up for incompetent management of their natural waters. For example, upper Mawson Plateau, based on invertebrate diversity observed, deserves to remain fishless.

Figure 36. Yackie Waterhole prior to extensive goat eradication. Black areas between rocks are goat faeces. No aquatic crustaceans or fish were sampled in these waters (*Photo: Jason Carter*).

Threatening Processes

Threatening processes responsible for serious impacts upon freshwater fish species may be classified into three major categories:

- habitat destruction
- introduced species
- overharvest

Analysis of the relative impacts of each category with respect to individual threatened fishes (summarised in Pierce In Prep.) indicates that on average over available world literature, habitat destruction was a key threatening process in 65.3% of species threatening events, introduced species were key to the threatening process in 29.0% of events, and overharvest was implicated in 5.7% of cases. This clearly indicates the priority for action to prevent extinction and loss of freshwater fish overall, and is highly likely to also apply to Flinders Ranges fish populations/species given the inclusion of data from Wager and Jackson (1993) relative to Australian freshwater fishes.

Habitat Destruction

While much of the Flinders Ranges aquatic habitat is "protected" within reserves or by conservation-minded

station managers, some of the potential impacts are insidious and less than obvious to terrestrially oriented managers. In terms of priority habitat for protection, consideration of the relative vulnerability of each species/genetic group indicates that the Balcanoona Gorge is the highest priority in the region, and likely the highest priority in the state of South Australia. Secondarily, the limited semi-permanent waters within the Torrens drainage potentially support distinct genetic stocks of resident fish and also need to be protected as a high priority.

Protection of both surface and groundwater resources from excessive abstraction seems obvious in order to protect the aquatic biodiversity of the Flinders Ranges. Protection of water quality, including groundwater quality, from pollutants also seems obvious and within the control and desires of regional managers. The disastrous, long-term, and well-documented impacts of effectively unregulated sewage disposal to Wilpena Creek exemplify lack of management control in the area of water quality - and must not be repeated. Protection of water quantity must be continuous through time – and such protection is less readily guaranteed in more remote components of the Ranges. For example, it is known that one of the translocated populations of Flinders Ranges Purple-spotted Gudgeon was subject to massive water abstraction to support an illegal drug crop. Slightly more efficient water harvest at this site would have resulted in the extinction of this population outside of any reasonable management control.

Protection of the majority of Flinders Ranges waterholes from the impacts of nutrient enrichment caused by excessive feral animal populations is a less obvious, but equally essential activity which must continue as long as feral populations are present in this ecosystem. Terrestrial benefits also occur with such control programs, but the direct relationship between feral animal abundance and water quality is less evident.

Barriers to fish passage act as a defacto habitat destruction factor in that habitat is effectively alienated from access by fish. While South Australian Fisheries Act (1982) fish passage protection provisions are severely limited, land managers can assess permits for works in or near Flinders Ranges waterways with regard to fish passage requirements. For many native fish species, even minor barriers of less than 0.75m can impede passage. Likewise, many native fish species (eg, Bony Bream) avoid passing through dark tunnels, thus rendering most culverts effective fish passage barriers (M Mallen-Cooper, pers. comm.). Finally, flow velocity can stop fish movement in several ways. Most native fish species spend the majority of their lives in low to nil flow conditions. They are simply not well adapted to movement through un-naturally high water velocities as found across many weir designs. They also require regular flow refugia to rest in between bursts of swimming against moderate flows. Clearing of floodplain land and extensive smooth-bottom channel modifications can readily lead to impassability for fish, although this will not necessarily be obvious from a terrestrial perspective or without considerable knowledge of the functioning of Australian desert fish populations.

Introduced Species

Typically, impacts of introduced aquatic species occur through habitat destruction, competition, or predation. Introduction of disease vectors can also be considered in this framework and have the potential to dramatically impact fish resources while going almost un-noticed.

The most apparent threat to the sustainability of priority Flinders Ranges fish species from introduced fish species is the range extension (natural or human-mediated) of the Mosquitofish, *Gambusia holbrooki*. Should this species invade the Balcanoona Creek system it is unlikely that the resident gudgeon will survive due to direct predation on surface dwelling fry, as well as aggressive interactions with adult gudgeons. Stock status and health need to be consistently monitored, as is currently incorporated into the SARDI Aquatic Sciences stock assessment program. In this watershed, consideration could be given to creation of an upstream fish passage barrier at or below the floodout entry to act to prevent invasion of this key habitat by exotic fish species during flood events. Greater education as to the value of this population together with shifting of the visitor access point further downstream away from permanent water would both materially reduce different aspects of the threat of illegal and unwanted exotic fish introductions at this critical site.

Impacts of other potential introduced species also need to be minimised. This includes both exotic fish species such as European carp, *Cyprinus carpio*, or goldfish; as well as translocated Australian fishes (eg, Murray cod, River Murray callop, silver perch, etc.). In the latter case, the potential for hybridisation and genetic diminution of resident fish stocks is an added disincentive to such introductions. With the increased availability of aquacultured, and genetically limited, native fish for sale for outplanting purposes – increased control over such stocking is essential. Policy, or preferably regulation, to prevent issuance of permits under the SA Fisheries Act 1982 for stocking of fish from outside the Lake Eyre drainage and Lake Torrens drainages within these boundaries would be a significant action in this direction.

Given the relatively warm water conditions found in this region, continued control over importation (into both Australia and South Australia) of potentially threatening exotic fish species for aquarium trade purposes is essential as a first line of defence against undesirable introductions of unwanted fish and aquatic species. Relevant authorities have indicated that the initial introduction of carp into the (Cooper Creek

catchment) Leigh Creek Retention Dam was as a result of vindictive action by a single individual. Access to source stock is the first prerequisite to either accidental or purposeful introduction of destructive unnatural fish species.

Overharvest

While most species present in the Flinders Ranges are actively protected by the South Australian Fisheries Act (1982), and within reserves administered under the SA National Parks and Wildlife Act (1972-81), this doesn't necessarily result in effective protection of stocks on the ground. Given the small number of adult individuals composing most of the stocks of fish within the Flinders Ranges, unregulated removal can impact viability at the genotypic or population level. Again, priority must be given to Flinders Ranges Purple-spotted Gudgeon and Lake Torrens catchment populations. Other stocks that are well represented throughout an extensive Australian range are primarily a priority relative to preservation of the biodiversity of the Range fauna.

It is common knowledge that Flinders Ranges Purple-spotted Gudgeons are consistently illegally harvested for aquarium culture and sale. In some cases, overseas visitors have indicated that their "holiday" is largely aimed at procuring and subsequently marketing wild fish from this source. These fish are also available for sale in aquarium shops in Adelaide and interstate. Given that these fish are most accessible to capture during their periods of lowest abundance in protracted dry conditions, increased emphasis on visitor education and enforcement of existing harvest prohibition is essential.

Figure 37. The Flinders Ranges Purple-spotted Gudgeon *Morgunda clivicola* (*Photo: H Ehmann*).

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ECOLOGICAL RECOVERY IN THE FLINDERS RANGES BASED ON INTEGRATED PREDATOR AND COMPETITOR CONTROL STRATEGIES

Peter Alexander[1], Trevor Naismith[2],

Introduction

The Flinders and Olary Ranges bioregion is an important refuge for biological diversity in the semi-arid environment of South Australia. The region has been severely impacted upon by the pastoral practices of European settlers and the long-term presence of introduced animals, such as rabbits, goats, donkeys, foxes and feral cats. Pastoral properties in the Flinders Ranges, in particular, have been exposed to extreme levels of grazing pressure from domestic stock. In the early years of pastoralism in the Flinders Ranges, stocking rates of 40 to 100 sheep per square mile were common.

Subsequent colonisation by exotic plants also impacted greatly on native vegetation and soil condition, reducing the amount of suitable habitat for animal species in the region. When combined with the impact of predation by foxes and feral cats, this resulted in significant local extinctions of small to medium sized mammals, such as Bilbies, Bettongs and Hare-Wallabies.

The Flinders Ranges National Park is a mosaic of former pastoral lands and was dedicated in the mid-1970s. Since its inclusion in the reserve system of South Australia, the park has been de-stocked. It was thought that once sheep were removed that native vegetation would begin to recover and soil condition improve. However, the combined grazing impact from large numbers of introduced and native herbivores resulted in widespread degradation, and recovery was slow. The continued impact of rabbits, goats and kangaroos limited or prevented regeneration of plant communities, leading to the fragmentation of ecosystems.

Operation Bounceback and Bounceback 2000

Operation Bounceback is an ecological restoration program that has been running in Flinders Ranges National Park since 1992. The program is characterised by a shift from conservation programs focused on a single species to a landscape scale approach to management, where all elements of an ecosystem are considered. The goal of the program has been to link an integrated feral animal control program to natural recovery processes, weed control and strategic revegetation and fauna recovery initiatives. Initial emphasis was placed on the recovery of the threatened Yellow-footed Rock-wallaby (*Petrogale xanthopus*), but following the arrival of the Rabbit Calicivirus Disease (RCD), Bounceback has capitalised on the opportunity to restore key components of ecosystems in the Flinders and Olary Ranges to their original condition.

A dramatic reduction in grazing pressure has been achieved through the control of goats and rabbits. Combined with the virtual elimination of foxes and suppression of feral cat populations, the reduced impact on native vegetation has enabled a significant recovery of native plant and animal communities. This success resulted in a major extension of "Operation Bounceback" under the banner of "Bounceback 2000".

Bounceback 2000, an initiative of the Natural Heritage Trust, was launched in May 1998 by South Australian Environment and Heritage Minister and Commonwealth Environment Minister. *Bounceback 2000* aims to build on the gains achieved in the Flinders Ranges National Park and expand Bounceback to the Gammon Ranges National Park and other land holdings in the North Flinders Ranges. By extending the program beyond park boundaries to pastoral properties and aboriginal lands in the region, conservation of biodiversity is addressed on a regional scale. Critical links are being established with the community and land managers, enabling threats to biodiversity to be removed or ameliorated.

Bounceback 2000 will develop and implement a "Best Practice" model for the management and rehabilitation of ecological systems in semi-arid environments, demonstrating how conservation can be integrated with the sustainable use of rangelands.

Ecological Integrity and Bioregional Approaches to Biodiversity Conservation

Operation Bounceback aims to restore, enhance and maintain the ecological integrity of Flinders Ranges National Park, Gammon Ranges National Park and other land holdings in the North Flinders Ranges. Ecological integrity relates to the "health" of an ecosystem, where:

- the structure and function of the ecosystem are unaffected by impacts from human causes and natural disturbances; and
- biological diversity and the ecological processes supporting it are likely to persist.

National Parks and Reserves (Protected Areas) are often viewed as being untouched or pristine environments, which are somehow protected from external influences by their boundaries. This is not the case, however, as Protected Areas are part of larger ecosystems, which are subject to a range of human induced and natural disturbances. Management of a Protected Area must address these cross-boundary impacts. For example, reducing predation by controlling foxes on a National Park will only have

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long-term benefit if a *buffer zone* of fox control is created around the Park.

- The shift from species-specific conservation programs has resulted in a regional approach to conservation.

The Flinders and Gammon Ranges National Parks are the focal points of long-term conservation efforts in the Flinders and Olary Ranges bioregion. By addressing cross-boundary impacts and enhancing the ecological integrity of the Parks and surrounding rangelands, Bounceback will maximise the contribution these Parks make to conservation of biodiversity on a regional scale.

Criteria for Assessing Ecological Integrity and the Success of Operation Bounceback

Ecological performance indicators are often difficult to define and sometimes even more difficult to measure. They are generally specific to particular environments. For the Flinders Ranges National Park, some of the most important indicators of ecological integrity are:

1. Increases in populations of Yellow-footed Rock-wallabies.
2. The natural and unassisted recovery, survival and increase in the diversity and density of: perennial native grasslands (eg *Themeda* and *Stipa*); long lived shrublands (eg blue bush and salt bush shrublands); arid mountain woodlands; and Casuarina / Bullock bush / Sugarwood woodlands.
3. Recruitment and survival of common or abundant components of the ecosystem (kangaroos, emus, woodland and grassland birds, amphibians, reptiles), and threatened species such as the Yellow-footed Rock-wallaby, Flinders Ranges Grass Wren, Carpet Python and birds of prey.
4. Successful reintroductions of one or more of the following medium sized mammals: Stick-nest Rat, Greater Bilby, Brush-tailed Bettong and Burrowing Bettong.
5. Reduced populations of introduced plants and animals, resulting in recovery or reintroduction of rare, vulnerable, endangered or locally extinct mammals, birds, fish, amphibians and reptiles typical to the region.
6. High drought resistance and connectivity between habitats.
7. Low rates of erosion.

Indicators of ecological integrity are directly linked to the criteria used to assess the success of the Flinders Ranges Bounceback project. For example, a combination of threats, including fragmentation of habitats and predation by introduced carnivores, has lead to the decline of the Yellow-footed Rock-wallaby, which was once common in the Flinders Ranges. Recovery of wallaby populations provides an excellent indication that these threats have been either removed or significantly reduced. The decrease in introduced animal populations (identified by field surveys) also shows that ecological integrity in the region is improving, demonstrates the effectiveness of control efforts and ensures that threats are contained in the long term.

Another technique for providing an objective measure of ecological integrity is Land Condition Assessment, which uses methods similar to those for monitoring Pastoral Leases in South Australia. This involves the calculation of a Land Condition Index and the establishment of quantitatively described and photographically based recording sites (photopoints), which can be monitored for long term vegetation change or analysis of trends. Background information, such as history of tenure on the lease, previous stocking rates, rainfall data and seasonal conditions, are all incorporated into the assessment.

Combined with the other criteria used to review the success of Bounceback, the Land Condition Index provides a useful tool to set targets for future recovery and to incorporate these targets into ongoing management. In semi-arid rangelands recovery of land condition is driven by rainfall events, which promote significant responses in recruitment of endemic vegetation. These events are unpredictable and irregular. It is therefore important to establish long term repeatable monitoring sites and set targets that have short, medium and long term goals.

Setting of habitat recovery targets has been facilitated by the completion of a Vegetation Management Workshop for Flinders Ranges National Park, and preparation of the proceedings of the workshop. The workshop set the direction for vegetation management in each major habitat on Flinders Ranges National Park by developing *Habitat Statements*. These statements:

- provide an assessment of habitat condition;
- identify key structural components and threatened species;
- identify threatening processes;
- identify priorities for protection/restoration;
- provide information on reliance on natural recovery processes verses active management (eg revegetation);
- list desired outcomes (ie setting targets for recovery and rehabilitation, threat abatement, grazing management); and
- quantify targets in a manner that can be revised as better information is obtained.

This is an iterative process, which allows for refining of targets and methods. The statements provide Park managers with a clear vision of the vegetation management objectives for the Park. These objectives are already being incorporated into Park planning and ongoing operations.

Recovery of Ecosystems in the Flinders Ranges National Park

Successful conservation programs rely on linking measurable outcomes (ie indicators of ecological integrity and the Land Condition Index) with ongoing

and future management actions. Monitoring and assessment procedures are incorporated into conservation programs in a process known as "adaptive management". This means that programs are designed so as to contribute to the learning process, resulting in management that is proactive rather than reactive. Adaptive management is able to deal with management problems that are currently unknown.

Although recovery of land systems in semi-arid environments is a slow process, significant achievements were noticeable after the first five years of developing integrated pest animal control. The following indicators of ecological integrity have been recorded:

- Recovery of Yellow-footed Rock-wallaby populations.
- Dramatic decreases in introduced animals.

Favourable rain events in the winter of 1996 and summer of 1997 have given rise to significant recruitment of perennial shrubs such as *Mairieana* spp. (bluebush), *Atriplex* spp. (saltbush), *Ptilotus obovatus*, *Sida petrophila* and *Abutilon leucopetalum*. Perennial grasses such as *Enneopogon avenaceus* (Common Bottle-washers), *Stipa* spp., *Danthonia* spp. (wallaby-grass) and *Aristida* spp. are returning, along with a number of forbes and herbaceous plants such as several *Swainsona* spp., *Sida* spp., *Ptilotus exaltatus* and *Goodenia pinnatifida*. A number of grazing tolerant *Acacia* spp., *Eremophila* spp. (Emu-bush) and *Senna* spp. are showing accelerated rates of recruitment. Long lived tree species such as *Alectryon oleifolius* (Bullockbush) and *Casuarina pauper* (Black Oak) are also showing signs of significant recruitment.

The recovery of ecosystems in the Flinders Ranges National Park is being further enhanced by active re-establishment of native grasslands and shrublands. Revegetation leader trials will establish seed stocks for species removed by overgrazing that are capable of natural spread once re-established. Some highly degraded sites are subject to targeted restoration and tree planting works. The progress of these trials will be observed using the adaptive monitoring procedures outlined above.

Arid lands are resilient and can be restored, provided that time and resources are allocated to do physical treatment of lands and to control additional grazing by rabbits, goats and the large kangaroo species.

Cooperative Management

Operation Bounceback involves the community in the cooperative management of the Flinders and Gammon Ranges National Parks and, increasingly, in surrounding lands. For example, the Adnyamathana people have a long standing association with the Flinders Ranges and retain a cultural association with Flinders Ranges National Park and Gammon Ranges National Park. Andu, the Yellow-footed Rock-wallaby, has spiritual significance to the Adnyamathana people and has generated interest and support for the project. A number of members of this community have been employed, contracted or have volunteered their time to Bounceback. Where possible, Aboriginal people are employed or provided with training opportunities.

Bounceback has fostered cooperative partnerships between National Parks and Wildlife – South Australia and the region's pastoral community, which is actively involved in developing sustainable landuse practices. An example is the cooperative feral animal control program with neighbours of Flinders Ranges National Park and Gammon Ranges National Park. Partnerships are further enhanced by companion projects to Bounceback, such as the Natural Heritage Trust project Regeneration of Native Pastures in the Northern Flinders Ranges (Primary Industries and Resources South Australia). Cooperation and coordination with neighbouring properties provides an opportunity to expand feral animal control and restore ecosystems on a landscape and regional scale, resulting in improved biodiversity qualities and pastoral production outcomes.

The continued involvement of community groups and volunteers under the direction of professional staff is fundamental to the success of Operation Bounceback.

METHODS

R Brandle[1] and TJ Hudspith[1]

This survey forms part of the Biological Survey of South Australia. The methods are therefore consistent with the methodology first developed for the Biological Survey of the Nullarbor and Yellabinna Region s (Copley and Kemper 1992) with some minor alterations. A set of two manuals detailing these methods are available from the South Australian Departments. The Department for Transport, Urban Planning and the Arts' Geographic Analysis and Research Program for vegetation in the agricultural regions (Heard and Channon 1997), and the Department for Environment and Heritage's Biological Survey and Research Program for all vertebrate surveys and vegetation in the pastoral and arid regions (Owens 2000).

Site Selection

There were existing vegetation sites in the study area from 17 surveys that were partly or wholly conducted in the Flinders Ranges (refer to Table 6). These sites were used to help determine the localities of the vertebrate survey sites. Proposed 'camps' (a group of six to eight quadrats to be surveyed over one week) were then selected using a combination of 1:50,000 topographic mapsheets, and Landsat Thematic Mapper (TM) satellite imagery, Environmental Association Unit information (Laut *et al.* 1977) and in the Pastoral Assessment areas Land Systems Mapping. SA Department for Environment and Heritage knowledge of areas also assisted the process. The proposed areas were investigated by ground reconnaissance survey where liaison with land managers and physical factors such as land condition, accessibility and representativeness of a range of habitats were used to determine final quadrat locations. At each 'camp' the six to eight quadrats to be surveyed were selected, marked with labelled photopoint posts (two steel or plastic star droppers separated by 10m) and photographed. A global positioning device was used to produce Australian map grid references for relocation of sites. Field location maps were drawn and the habitat types (patches) to be sampled within each 1 km^2 quadrat were described. Each group of quadrats were selected to represent the major landform and habitat types present within the 'camp' area.

The distances between quadrats was mostly determined by the location of different habitat types in relation to the presence and condition of access tracks, as the time taken to traverse and check all the quadrats was critical. Traps at quadrats needed checking before rising temperatures threatened the survival of trapped fauna. Consequently the spread of quadrats within a camp area was usually less than 40km where access was good and within 20km where access was poor. A helicopter was used during October 1999 to sample the inaccessible higher altitude Gammon and Mawson Plateaus in the north-eastern part of the Flinders Ranges.

Specific sites were labelled as 'Camp', 'Quadrat', 'Patch' (Copley and Kemper 1992). The 'Camp' was given a three letter code which related to a mapped feature nearby. Each 'Quadrat' was numbered one to six or eight. The 'Patch' was numbered with the habitat type supporting the permanent photopoint being assigned number one. Other patches within the 1km^2 quadrat were then arbitrarily assigned sequential numbers. Thus quadrat 5 patch 1 at Mt Deception would become DEC_5_1 (written as DEC00501 on the datasheets). This is referred to as a site in this report. The standard output of this site nomenclature from the database would be DEC00501. This is how they are presented in the report.

Sampling

Quadrats were sampled for vegetation and vertebrate fauna (birds, reptiles and terrestrial mammals). Frogs and bats were only sampled when and where conditions were suitable. The field survey was conducted by two or three teams working in separate areas for a minimum of four nights. Sampling took place in two-week blocks. Dates are presented in Table 7 and the location of sites are displayed in Figure 38. These are labelled by the three letter camp codes only (eg ARO).

Each survey team was completely independent and consisted of a minimum of six people: a botanist and assistant; a herpetologist; a mammalogist; an ornithologist; and one or two technical assistants. Each group attempted to sample a minimum of six quadrats per week for vertebrate species and vegetation. More quadrats were sampled for vegetation when eager botanists identified unsampled habitat types. Details of quadrats are summarised in Table 6 and presented in Appendix 2.

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Table 6. Surveys contributing to the Biological Survey of the Flinders Ranges. The number of sites for each survey that were sampled within the study area boundary (as depicted in Figure 1) have been separated from the sites that were sampled outside the study are boundary. The number of vegetation sites are presented, along with the subsets at which fauna sampling was conducted. All sites were within the grid references; latitude 29^{0}48' and 33^0 18', longitude 137^0 48' and 139^0 48', were used to enable comparison of the Ranges flora and fauna with that of the surrounding plains and hilly areas to the south. These sites, when viewed in Figures 46 - 51 (page 50) enable readers to appreciate the gaps present in the biological survey coverage.

Survey Number	SURVEY NAME	Date of Surveys	Sites within the study area boundary as defined by Environmental Associations. (Laut *et al.* 1977)		Number of sites used for analyses that fall outside the study area boundary	
	Northern and Central Ranges		**Veg**	**Trap**	**Veg**	**Trap**
6	FLINDERS	1986-1990	1561	0	0	0
67	GAMMON RANGES (NCS)	1993	16	7	6	2
86	UPPER MID NORTH	1996	120	0	69	0
89	LOWER FLINDERS RANGES	1996	47	0	37	0
98	NORTH-WEST FLINDERS RANGES	1997	72	30	8	3
104	FLINDERS RANGES	1998-1999	181	120	0	0
111	WARRAWEENA	1999	19	13	0	0
114	MT REMARKABLE NATIONAL PARK	1983	15	10	0	0
PMB	PASTORAL ASSESSMENT PROGRAM	1990-	387	0	0	0
	Southern Ranges					
31	MIDNORTH AND WEST MURRAY		8		10	0
49	MIDNORTH	1992	101	0	41	0
66	MT BROWN (NCS)	1994	75	6	0	0
83	LOFTY BLOCK GRASSLANDS	1995	21	0	24	0
87	NORTHERN SPENCER GULF	1996	22	0	25	0
	Surveys fringing the study area					
19	STRZELECKI	1990	4	0	0	0
24	SOUTH OLARY PLAINS	1991	0	0	79	14
51	RAILWAY CORRIDOR (NCS)	1992	9	0	20	0
54	GRASSY WOODLANDS (MK HYDE)	1993	1	0	2	0
58	PYGMY BLUE TONGUE PROJECT	1996	0	0	3	0
62	BURRA HILLS	1994	0	0	43	0
63	YORKE PENINSULA	1994	0	0	2	0
69	STONY DESERTS	1994-1996	0	0	13	10
74	NORTH OLARY PLAINS	1995	73	11	75	9
	Total sites from 23 surveys		2732		3079	

Vegetation

At each quadrat the primary habitat 'patch' type was surveyed for vegetation over an approximate 100m x 100m area consistent with the methods section outlined in 'A Biological Survey of the South Olary Plains' (Forward and Robinson 1996). Some minor differences have occurred in the adapted Braun-Blanquet (Gullen *et al.* 1976) cover abundance estimates. After defining the parameters of the primary habitat patch type over the one km^2 quadrat, the botanist had the responsibility for defining secondary patches as well as sampling and numbering them (up to five patches were sampled in particularly diverse areas). The approximate location and extent of each patch type was drawn onto a quadrat map. Photopoints were taken at all patches, though only the primary patch was marked with permanent photopoint posts. Interesting plant species which were observed outside of patches and quadrats were recorded as opportunistic records with precise location details for inclusion into the South Australian Opportune Database.

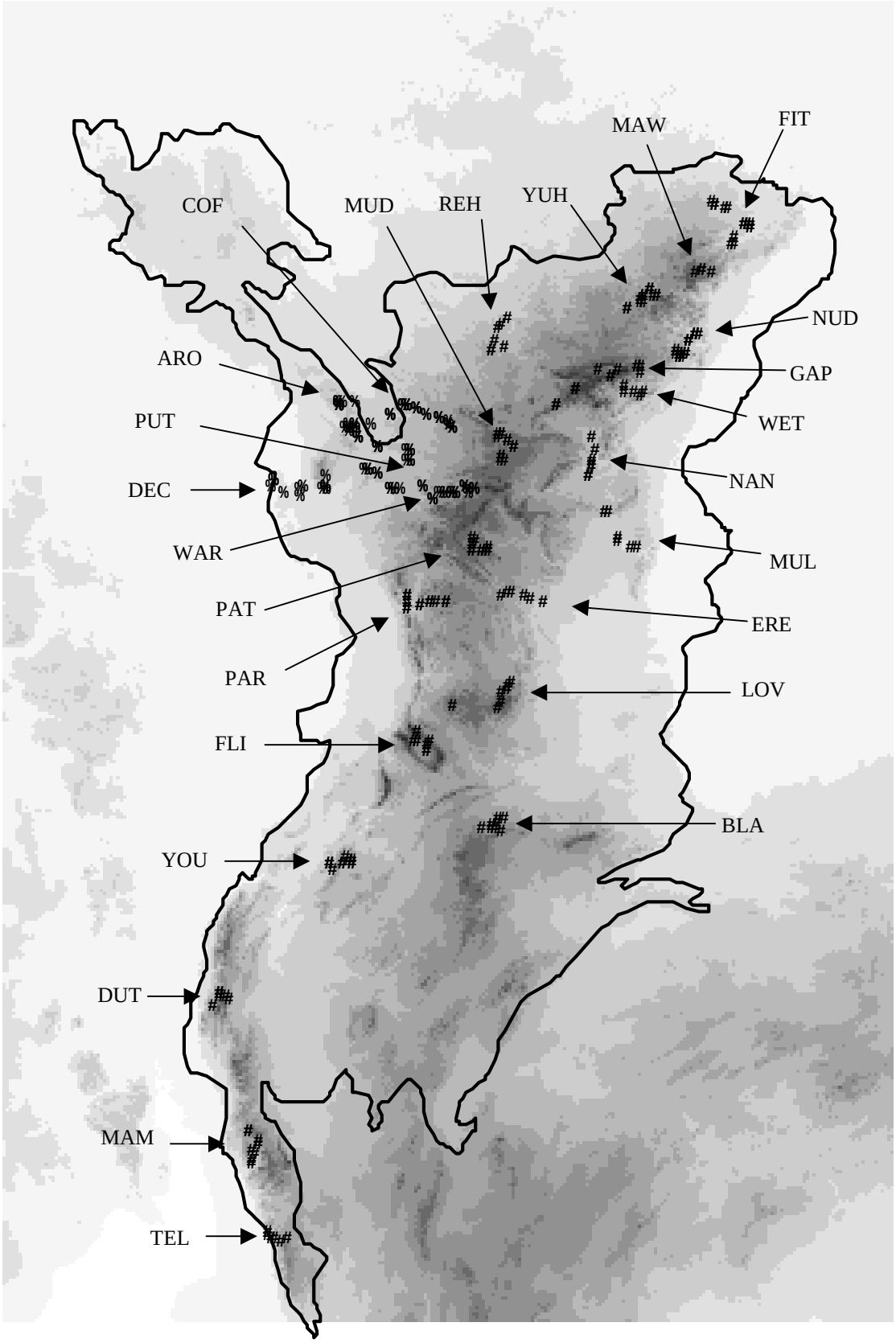

Figure 38. Map of Study Area showing the location of sites sampled for vertebrates and their camp labels. Shading relates to elevation.

At each camp area a representative collection of all species was vouchered, and dried, for later verification at the South Australian Herbarium. All data collected was entered into the Biological Survey of South Australia 'Survey Database' which is centrally located and maintained at the Department for Transport, Urban Planning and the Arts. The 'North West Flinders Ranges, the 'Flinders Ranges' and the 'Warraweena' Biological Survey efforts which contribute to this study are numbered 98, 104 and 111 in this system. For more details on methods and datasheet design refer to Owens (2000). Vegetation surveys listed for the southern regions follow the methodology for the agricultural regions as outlined in Heard and Shannon (1997).

Fauna

Fauna sampling took place at all of the primary patch types in each quadrat except where extra vegetation quadrats were introduced (ie ARO00901). Sampling at each quadrat involved establishing two sets of pitfall trap-lines consisting of six pits (40cm deep, 15 cm diameter) joined by 50 m of flywire drift-fence. The two traplines were separated by at least 200m. These were used for trapping ground-dwelling vertebrates and macro-invertebrates over four nights. Associated with each pitfall trap-line was a line of 15 baited metal box treadle traps (Elliott Scientific Equipment type A) and two baited wire cage treddle traps (15 cm x 15 cm x 50 cm). Traps were mostly baited with a mixture of peanut butter and rolled oats. Where the landform and rock was unsuited for full pitfall traps, shallower pits were used or pitfall trapping was abandoned. At these sites greater physical search effort, more spotlighting and double the normal quota of Elliott traps were used to compensate for decreased pit-trap effort.

Birds were sampled through one hour search efforts in the primary patch type. Species observed within the 1 km^2 quadrat but in adjacent habitat patches were assigned that patch number. This method was used twice at each primary patch type, in the early morning and late afternoon, except where this proved impractical. Bird data was collected for a number of secondary patches by several ornithologists.

Mammals and reptiles were surveyed by four nights of trapping and one to two hours of searching at each quadrat. Attempts were made to check all traps twice a day, particularly in hot weather. Searching involved lifting rocks, branches and other objects, raking leaf litter, digging up burrows and recording tracks, scats, bones, skin, fur and bird of prey pellets. Other predator scats were also collected for analysis. Attempts were made to sample the bat fauna on an opportunistic basis using strategically positioned harp traps and mist nets. All caves and hollow trees were also checked for fauna, their signs and bone deposits. Any fauna observed off quadrat was recorded along with an accurate location for inclusion on the 'Opportune Database'. Frogs were recorded at sites when conditions were suited to their emergence.

Separate quadrat datasheets were filled out for each day of sampling and for each discipline even when no captures were made. Amphibian datasheets were only used when frogs were recorded. Representative specimens were collected and vouchered for each species recorded at each camp. Usually a male and a female of each species was collected for positive species determination and lodgement with the South Australian Museum. This is a particularly critical part of fauna surveys in remote locations where many species' distributions and taxonomy are not well defined. Species which were difficult to identify (eg *Lerista* spp. and *Ctenotus* spp.) were collected in greater numbers to gain representative animals for those locations. All information collected in the field was transferred to the Biological Survey of South Australia database following verification of voucher specimens. For more details and datasheet design refer to Owens (2000).

Trapping effort for this study is presented in Table 6. Full details of trap effort for each site is provided along with site location information in Appendix 11.

Figure 39. Survey field team processing specimens and catching up with paperwork during the heat of the afternoon (*Photo: R Brandle*).

Table 7. Trapping effort at each camp group, the number of sites sampled and the sampling date. Trap effort is summarised as trap nights (the number of traps x the number of nights).

Camp Group	Date	Number of sites	Number of Trap Nights Elliott traps	Pitfall Traps	Cage traps
ARO	Dec-1997	8	990	348	132
DEC	Dec-1997	8	1025	330	110
COF	Dec-1997	8	960	336	128
PUT	Dec-1997	8	1060	336	120
REH	Nov-1998	6	720	288	96
FIT	Nov-1998	6	840	288	96
YUH	Nov-1998	6	720	288	96
NUD	Nov-1998	6	720	264	96
WET	Nov-1998	6	720	288	96
MUD	Nov-1998	6	720	264	96
NAN	Mar-1999	6	720	288	96
PAT	Mar-1999	6	718	288	96
MUL	Mar-1999	6	720	264	96
PAR	Mar-1999	6	660	288	96
ERE	Mar-1999	6	720	288	96
LOV	Mar-1999	6	720	264	96
WAR	Jul & Sep 1999	14	2640	1032	352
GAP	Oct-1999	5	600	240	80
MAW	Oct-1999	4	480	192	64
FLI	Nov-1999	6	720	288	96
BLA	Nov-1999	6	704	288	96
YOU	Nov-1999	6	720	288	96
DUT	Nov-1999	6	720	288	96
MAM	Nov-1999	6	780	312	100
TEL	Nov-1999	6	780	288	96
Total		**163**	**20,877**	**7,926**	**2,718**

Data analysis

The site based data were analysed using PATN exploratory data analysis software (Belbin 1989). This clustered the site species presence/absence data into groups based on similarity for each taxonomic group (vascular plants, birds, reptiles, and small terrestrial mammals). The datasets for each taxonomic group utilised subsets of the total sites sampled. The numbers of sites contributing to these datasets are detailed in the separate chapters.

The method of PATN analysis is similar to that used for the Gawler Ranges Survey (Robinson *et al.* 1988) and the Yellabinna Survey (Copley and Kemper 1992) reports. The PATN analysis pathway used for this survey was as follows: ASO - using the Bray-Curtis Coefficient to produce an association matrix; FUSE using UPGMA; DEND to produce a dendrogram of similarity between sites; GDEF to define groups of similarity in the dendrogram; and GSTA to produce a species by PATN group frequency table. GDEF and GSTA were repeated with various numbers of groups chosen by analysing the dendrogram to explore which number of groups best reflected intuitive groups based on field knowledge. Once the number of groups had been determined the data matrix was transposed using DATN and the pathways outlined above were used on this dataset to GDEF step of the process followed by TWAY to produce a species by site two-way table to assist with interpretation. TWAY was also used on the transposed data to produce the [Observed frequency - Expected frequency]/Expected frequency (O-E/E) index values for each species by group. This index is an adaptation of the Chi-squared formula. The Expected frequency for a species in a particular category is determined by dividing the sum of frequencies within one category (ΣX) by the total of the sums of all categories ($\Sigma\Sigma X$), multiplied by the sum of the frequency for the species in all categories (ΣY), ie $\Sigma X/\Sigma\Sigma X*\Sigma Y$. The (O-E/E) index is not particularly meaningful in terms of defining indicator species when frequencies are less than 5 as rare species begin to dominate the interpretation. Therefore the (O-E/E) index has been multiplied by the ratio of the species frequency for all groups to the total frequency of all species multiplied by 100 (ie [O-E/E] x [freq. of

sp.]/[total freq. of sp.] x 100), to give the **indicator value** for species in each group.

All species assemblage groups defined through PATN are presented for each taxonomic group in the relevant chapters except where a group was defined by less than 1% of the sites contributing to the analysis. Details on presentation of group information can be found at the beginning of the group presentation in each chapter.

Vegetation Mapping

The rationale and methods for vegetation mapping are detailed in Forward and Robinson (1996). The methods are briefly outlined below to include adaptation of the methods for this study.

Vegetation mapping relied on the interpretation of 1:100,000 scale rectified Landsat Thematic Mapper (TM) satellite imagery, with reference to topographic maps, geological maps and some 1:40,000 plus 1:89,000 scale colour aerial photographs. Site descriptions for Pastoral Assessment sites and the Flinders Ranges Management Review sites in combination with descriptions from Laut *et al.* (1977) and the Land Systems Mapping produced by the Pastoral Management Branch (DEH) (NFRSCB 1997) greatly assisted interpretation. Areas for which survey site data and photographs had been obtained were used to determine how the colours of the TM image related to structural vegetation types. Aerial photographs proved to be the most reliable source for mapping boundaries. Boundaries were then marked directly on the laminated image and extrapolated out to areas not visited as part of the survey.

The mapping for this study covered the central and northern Flinders Ranges at 1:100,000 scale, incorporating existing digitised linework from the Flinders Ranges Management Review (Greenwood *et al.* 1989), the Flinders Ranges integrated Land Resources Survey (Playfair 1992) and the Biological Survey of the North Olary Plains (Playfair 1997). Coverage included the 1:250,000 mapsheets SH54-09 Copley and SH54-08 Parachilna, and sections of Marree, Callabonna and Frome mapsheets. A small area of the Willouran Ranges in the north-west of the map sheet has not been mapped because no data has yet been collected for this area. Significant sections of the southern Flinders Ranges have been mapped by the Geographic Analysis and Research Program, Planning SA. A small section was also mapped as part of a special project by the Biodiversity Monitoring and Evaluation Program, Biodiversity and Heritage South Australia. These coverages are detailed in Figure VM1 in the vegetation chapter.

Mapping involved marking the boundaries of vegetation communities onto laminated, hard copy, 1:100,000 scale satellite images, using an Omni-chrome pencil. Digital topographic information was printed onto same scale transparent overlays and these were placed on top of each mapped image. The vegetation community boundaries were transferred to the overlays and then digitised as polygons using ARC/INFO GIS software. Each digitised polygon was edited and coded with a unique identifying number. Each polygon was also assigned a code representing between one and three of the vegetation or non-vegetation mapping groups. Each map sheet was produced as a standard, hard copy, 1:100,000 scale vegetation map. These maps are similar in design to a 1:100,000 scale topographic map. Each hard copy map was checked in the field for accuracy and later digitally edited if necessary. After final editing, the fifteen separate, digital vegetation polygon coverages were joined to create one continuos digital vegetation layer covering the entire central and northern Flinders Ranges. This complex layer of digital information is presented as a single small-scale map in the back of this report. Another two maps, depicting the vegetation of the Flinders Ranges and Gammon Ranges National Parks, are also presented at their original capture scale of 1:100,000. The fifteen standardised 1:100,000 vegetation map sheets, complete with grid references, drainage and infrastructure information, can also be obtained from the Department for Environment and Heritage upon request (a small fee will apply).

METHODS

R Brandle[1] and TJ Hudspith[1]

This survey forms part of the Biological Survey of South Australia. The methods are therefore consistent with the methodology first developed for the Biological Survey of the Nullarbor and Yellabinna Region s (Copley and Kemper 1992) with some minor alterations. A set of two manuals detailing these methods are available from the South Australian Departments. The Department for Transport, Urban Planning and the Arts' Geographic Analysis and Research Program for vegetation in the agricultural regions (Heard and Channon 1997), and the Department for Environment and Heritage's Biological Survey and Research Program for all vertebrate surveys and vegetation in the pastoral and arid regions (Owens 2000).

Site Selection

There were existing vegetation sites in the study area from 17 surveys that were partly or wholly conducted in the Flinders Ranges (refer to Table 6). These sites were used to help determine the localities of the vertebrate survey sites. Proposed 'camps' (a group of six to eight quadrats to be surveyed over one week) were then selected using a combination of 1:50,000 topographic mapsheets, Landsat Thematic Mapper (TM) satellite imagery, Environmental Association Unit information (Laut 1977) and in the Pastoral Assessment areas Land Systems Mapping. SA Department for Environment and Heritage knowledge of areas also assisted the process. The proposed areas were investigated by ground reconnaissance survey where liaison with land managers and physical factors such as land condition, accessibility and representativeness of a range of habitats were used to determine final quadrat locations. At each 'camp' of six to eight quadrats to be surveyed were selected, marked with labelled photopoint posts (two steel or plastic star droppers separated by 10m) and photographed. A global positioning device was used to produce Australian map grid references for relocation of sites. Field location maps were drawn into the habitat types (patches) to be sampled[2] within each quadrat were described. Each group of quadrats were selected to represent the major landform and habitat types present within the 'camp' area.

The distances between quadrats was mostly determined by the location of different habitat types in relation to

Survey of the presence and condition of access tracks, taken to traverse and check all the quadrats. Biological quadrats needed checking before temperatures threatened the survival of trap. Consequently the spread of quadrats within a was usually less than 40km where access was within 20km where access was poor. A helico used during October 1999 to sample the inac high and altitude Gammon and Mawson Plateaus north-eastern part of the Flinders Ranges.

Specific sites were labelled as 'Camp', 'Patch' (Copley and Kemper 1992). The 'Camp' was given a three letter code which related to feature nearby. Each 'Quadrat' was numbered six or eight. The 'Patch' was numbered habitat type supporting the photopoint being assigned number one. Other patches[2] within quadrat were then arbitrarily assigned s numbers. Thus quadrat 5 patch 1 at Mt De would become DEC_5_1 (written as DEC00501 on datasheets). This is referred to as a site The standard output of this site nomenclatur database would be DEC00501. This is how th presented in the report.

Sampling

Quadrats were sampled for vegetation and ve fauna (birds, reptiles and terrestrial mamma and bats were only sampled when and where co were suitable. The field survey was conducte ca three teams working in separate area minimum of four nights. Sampling took place week blocks. Dates are presented in Table 1 location of sites are displayed in Figure 38 labelled by the three letter camp codes only

Each survey team was completely independen consisted of a minimum of six people: a bot relocation a herpetologist; a mammalogist; an ornithologist; and one or two technical assis group attempted to sample a minimum of six quadrats were for vertebrate species and vegetati and habitat were sampled for vegetation when botanists identified unsampled habitat types. Detai quadrats are summarised in Table 6 and pres Appendix 2.

[1]Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage,

RESULTS

VEGETATION

R Brandle[1]

INTRODUCTION

The vegetation of the Flinders Ranges exists as a diverse range of structural and floristic communities. These are generally described using the dominant overstorey and understorey species. Because of the climatic differences along the length of the ranges, writers attempting to provide a broad overview of the vegetation tend to consider the ranges as three distinct geographic units: the southern, central and northern Flinders (Kuchel and Kenny 1969; Kuchel 1980; Gell and Bickford 1996). For floristic purposes Kuchel (1969) considers the Southern Flinders to be South of Hawker, the Central Flinders to be between Hawker and the Blinman – Parachilna Road and the Northern Flinders north of this road. The definition of the Southern Flinders adopted by Kraehenbuehl (1971) and Kaczan (1981) incorporating the ranges from north of Crystal Brook to The Dutchman's Stern Conservation Park (~5km north of Quorn) has been adopted for this report, with the ranges to the north being considered as the Northern Flinders. There is an obvious transition at The Dutchman's Stern in the structure of the dominant overstorey vegetation, mostly relating to rainfall. To the south Tall Eucalypt Woodlands and Forests dominate the ranges whilst to the north more open Eucalypt, Casuarina, Native Pine and Acacia woodlands, mallee, shrublands, hummock and tussock grasslands compete for dominance of the hill environments. In all areas the surrounding plains and lower valleys support mallee or more open shrublands and grasslands.

This chapter has compiled the data from 23 surveys which used the Biological Survey of South Australia methodology (Heard and Channon 1997) into a single floristic analysis. The structural vegetation mapping aspect of this project has consolidated all previous land unit and vegetation mapping into a seamless coverage of the Northern Flinders Ranges north of latitude 32^0 near Hawker. Mapping to the south is in progress as part of the vegetation mapping program of the Geographic Analysis and Research Unit of the Department for Transport and Urban Planning SA.

SURVEY COVERAGE

One of the most heavily surveyed regions for vegetation in the Biological Survey of South Australia is the Flinders Ranges. Major studies have collected vegetation site data from all areas of the ranges except the Willouran Ranges in the north-west. A number of smaller scale studies have also contributed to the picture. To enable the variety of species and habitats to be analysed on regional basis, all of the information from these sources was extracted from the Biological Survey Database as a rectangle enclosing the Ranges (coordinate range latitude $29^0$48' to $33^0$18' and longitude $137^0$48' to $139^0$48' see Figure 40). Therefore site information from a number of larger surveys that fringe the ranges were included. The surveys and their contribution to this study are detailed in Table 8.

The study area boundaries were defined by Environmental Province 6 (Flinders Ranges) and Environmental Association 3.3.19 (Mt Remarkable) of Environmental Province 3 (Mt Lofty Block), covering a total of 37,090 km^2. This area contained 2732 vegetation quadrats from 17 of the 23 surveys that contributed to the vegetation analyses. The vegetation survey effort within this region (1 site per 14 km^2) is therefore much greater than for comparable areas such as the Gawler Ranges (1 site per 53 km^2 (Robinson *et al.* 1988)). The physical attributes of these sites (landform pattern, landform element, surface soil texture) have been presented in Figures 40-42 as a percentage of the total number of sites to provide an indication of the coverage and abundance of these features.

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

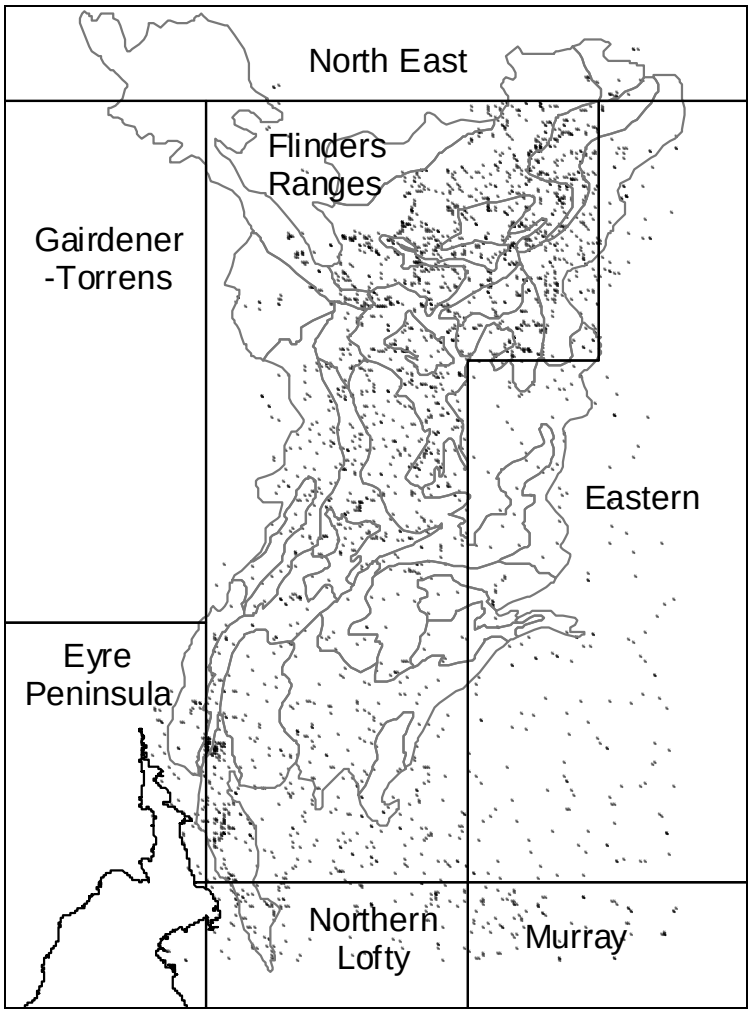

Figure 40. Plot of all vegetation survey sites over the Flinders Ranges study area as defined by the Environmental Association boundaries and the straight sided Herbarium Regions.

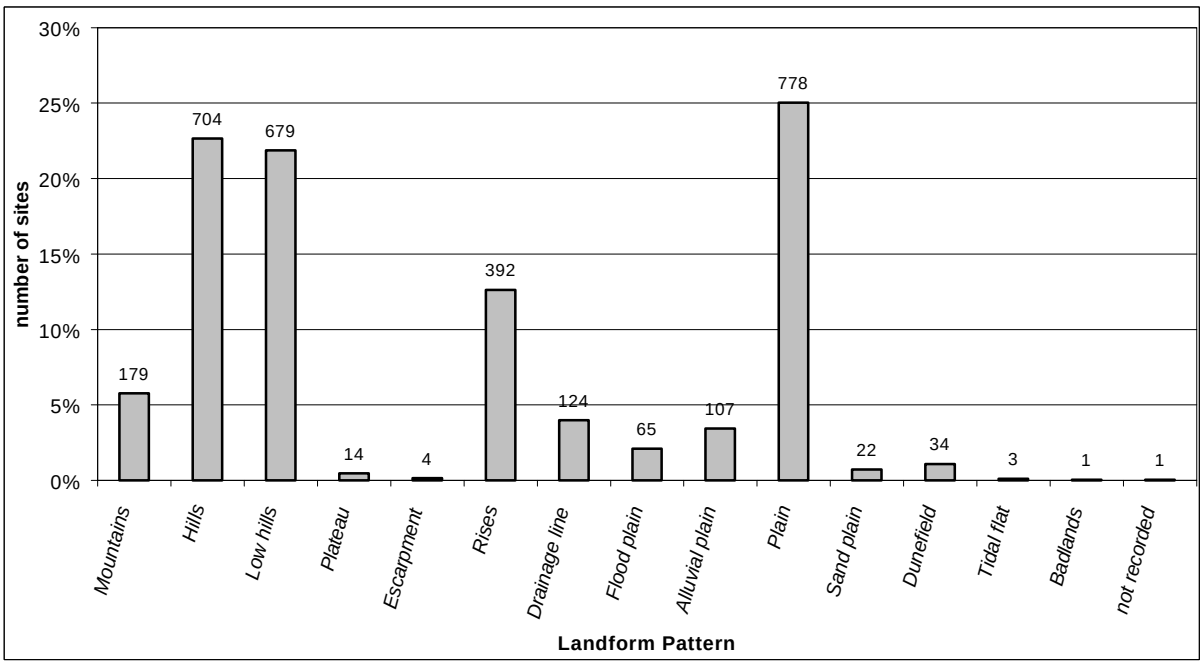

Figure 41. Percent frequency of sites sampled in each Landform Pattern type. Data is labelled with the number of sites contributing to each category.

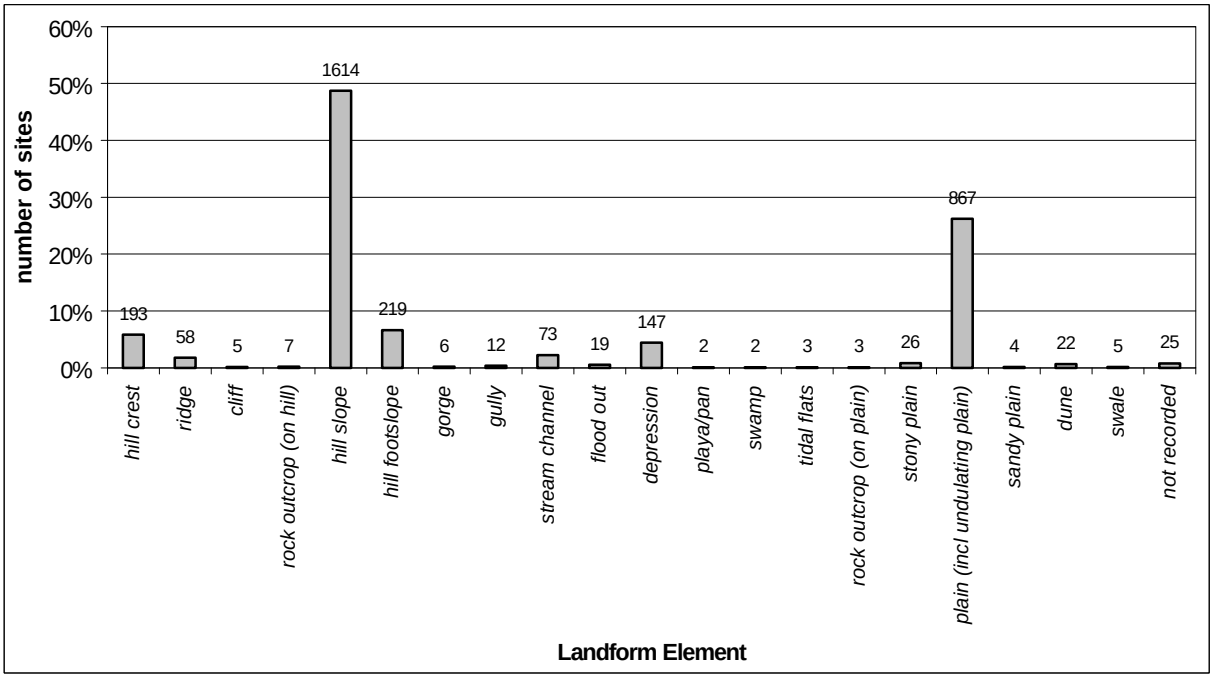

Figure 42. Percent frequency of sites sampled in each Landform element type. Data is labelled with the number of sites contributing to each category.

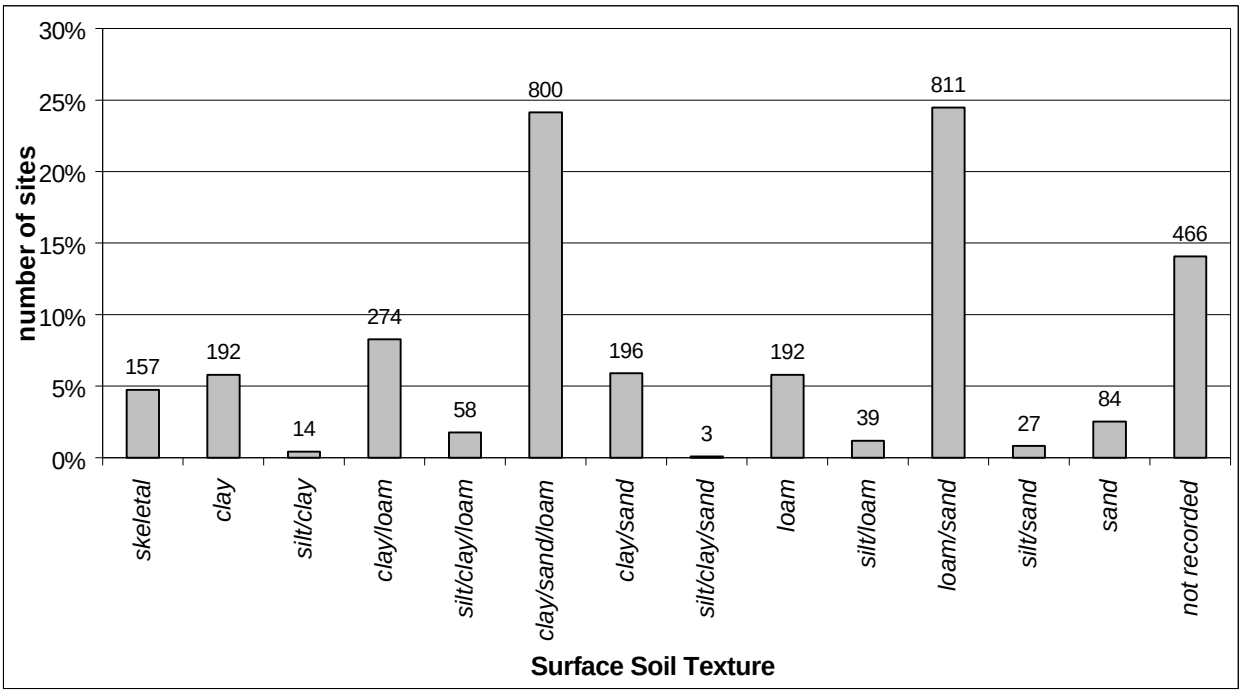

Figure 43. Percent frequency of sites sampled in each surface soil texture category. Data is labelled with the number of sites contributing to each category.

Table 8. Biological Survey efforts within the study area and sites contributing vegetation data for the analysis of Flinders Ranges vegetation.

Survey Number	SURVEY NAME	Date of Surveys	Sites within the study area boundary as defined by Environmental Assocs. (Laut *et al.* 1977)	Number of sites used in the vegetation analysis
	Northern and Central Ranges			
6	FLINDERS	1986-1990	1561	1546
67	GAMMON RANGES (NCS)	1993	16	22
86	UPPER MID NORTH	1996	120	189
89	LOWER FLINDERS RANGES	1996	47	84
98	NORTH-WEST FLINDERS RANGES	1997	72	77
104	FLINDERS RANGES	1998-1999	181	123
111	WARRAWEENA	1999	19	0
114	MT REMARKABLE NATIONAL PARK	1983	15	0
PMB	PASTORAL ASSESSMENT PROGRAM	1990-	387	387
	Southern Ranges			
31	MIDNORTH AND WEST MURRAY FLATS		8	18
49	MIDNORTH	1992	101	142
66	MT BROWN (NCS)	1994	75	73
83	LOFTY BLOCK GRASSLANDS	1995	21	45
87	NORTHERN SPENCER GULF	1996	22	47
	Surveys fringing the study area			
19	STRZELECKI	1990	4	4
24	SOUTH OLARY PLAINS	1991	0	79
51	RAILWAY CORRIDOR (NCS)	1992	9	29
54	GRASSY WOODLANDS (MK HYDE)	1993	1	3
58	PYGMY BLUE TONGUE PROJECT	1996	0	3
62	BURRA HILLS	1994	0	43
63	YORKE PENINSULA	1994	0	2
69	STONY DESERTS	1994-1996	0	13
74	NORTH OLARY PLAINS	1995	73	148
	Total sites from 23 surveys		2732	3079

Figure 44. Silver Wattle *Acacia rivalis* and White Cypress-pine *Callitris glaucophylla* below the Elder Range (*Photo: PD Canty*).

TOTAL SPECIES

The South Australian flora census database revealed that the Flinders Ranges Herbarium region (refer to Figure 40) contained 1233 indigenous and 300 introduced plant taxa (total 1533 – includes subspecies, varieties, forms and nothospecies). The 23 surveys recorded 1428 distinct plant taxa (1165 indigenous and 263 introduced 22%) from 90,968 individual records in 3273 sites. For this survey several of the less easily distinguishable taxa have been clumped for the analysis and comparison between surveys. This cuts the list to 1361 taxa. The current survey effort began in December 1997 with the North West Flinders Ranges (Brandle 1999) and includes data from the Flinders Ranges Survey (this project: August 1998 to December 1999) and the Warraweena Survey (Nature Conservation Society SA July-October 1999). These efforts produced 726 distinct taxa from 279 sites and added 69 new taxa to the 1315 already in the Biological Survey Database. The taxonomic composition of this total recorded flora is summarised in Table 9.

Direct comparisons between the Flinders Ranges Herbarium Region and the species recorded for the 23 surveys do not provide an effective guide to the comprehensiveness of the survey as the Herbarium Region does not coincide directly with the area covered for the analyses in this chapter. Information for the analyses was drawn from an area 40% greater that intrudes into the Eastern, Lake Eyre, Gairdener-Torrens, Northern Lofty, Murray and Eyre Regions. The Herbarium listing for the Flinders Ranges Region contains 399 extra taxa that were not recorded by the biological surveys.

The current vertebrate survey sampled 183 vegetation quadrats contributing 6570 records to the database. This survey recorded 673 plant taxa (564 indigenous and 109 introduced). Location of the sites from the current survey, Warraweena and North West Flinders Ranges are presented in Figure 46 whilst the remaining surveys are displayed in Figures 46-50.

Of the 97 plant families represented in the study sites 46% of taxa are represented by four families:

- Compositae (daisies), 91 genera with 206 taxa;
- Graminae (grasses), 74 genera with 174 taxa;
- Chenopodiaceae (chenopods), 19 genera with 129 taxa;
- Leguminosae (legumes), 25 genera with 116 taxa;

A list of families and the number of species in each is presented in Appendix 5. These figures contrast with the results of the Biological Survey of the Stony Deserts to the north and west, where chenopods dominated, followed by members of the grass family and then the daisy family. A total species list for the study area is presented in Appendix 3. Species are listed for each survey in Appendix 4.

Table 9. Division of readily determined plant species/taxa into taxonomic categories. Species in brackets represents non-indigenous taxa.

	CLASS	FAMILIES	GENERA	SPECIES
Ferns	Filicopsida	6	10	15
Non-flowering	Gymnospermae	2	2	6 (3)
Flowering	Monocotolydonae	14	19	293 (63)
	Dicotyledonae	75	370	1047 (197)
TOTALS		97	401	1361 (263)

Figure 45. Tender Brake *Pteris tremula* is one of the ferns that inhabits the northern Flinders (*Photo: PD Canty*).

Figure 46. Survey sites: Flinders Ranges (squares), North West Flinders Ranges (triangles), Warraweena (small stars).

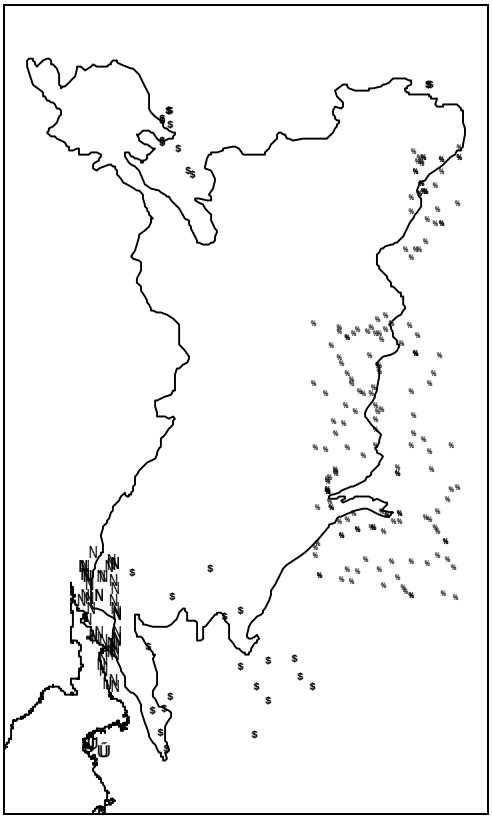

Figure 47. Survey sites: Stony Deserts (triangles north) North Olary Plains (squares), Northern Spencer Gulf (x), Mid North and Western Murray Flats (triangles south), York Peninsula (stars).

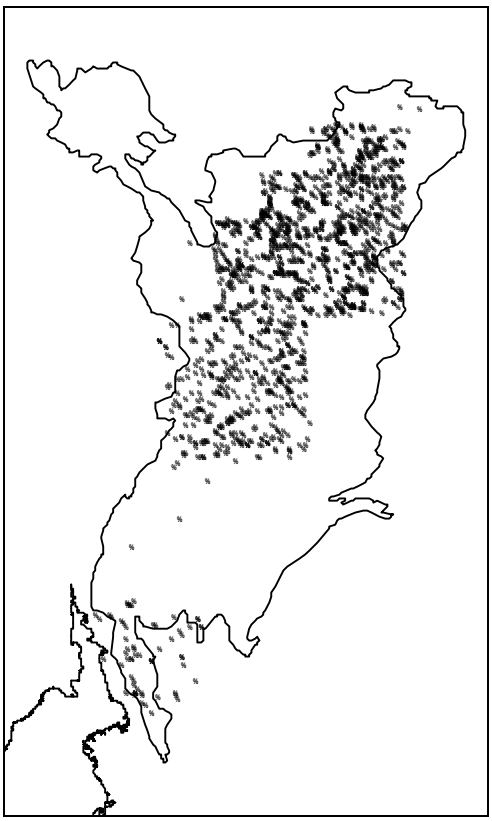

Figure 48. Survey sites: Flinders Ranges Review (squares).

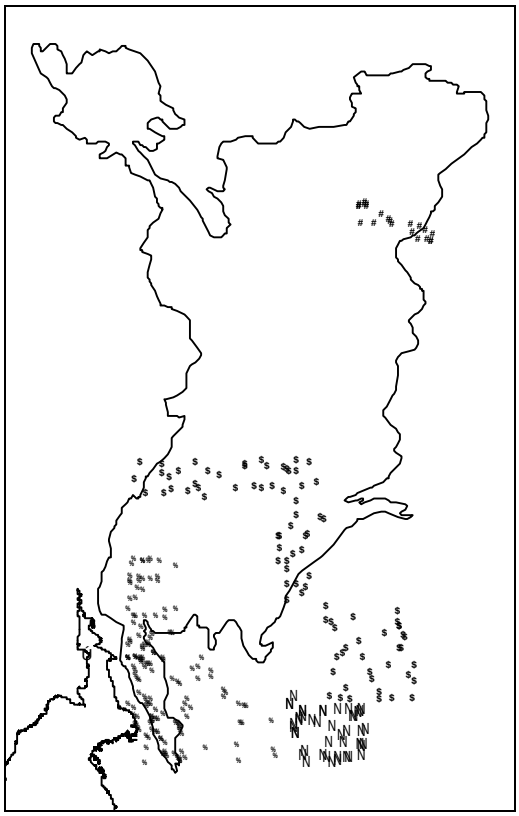

Figure 49. Survey sites: Mid North (squares), Gammon Ranges (circles), Lower Flinders Ranges (triangles), Burra Hills (x), Coastal (star).

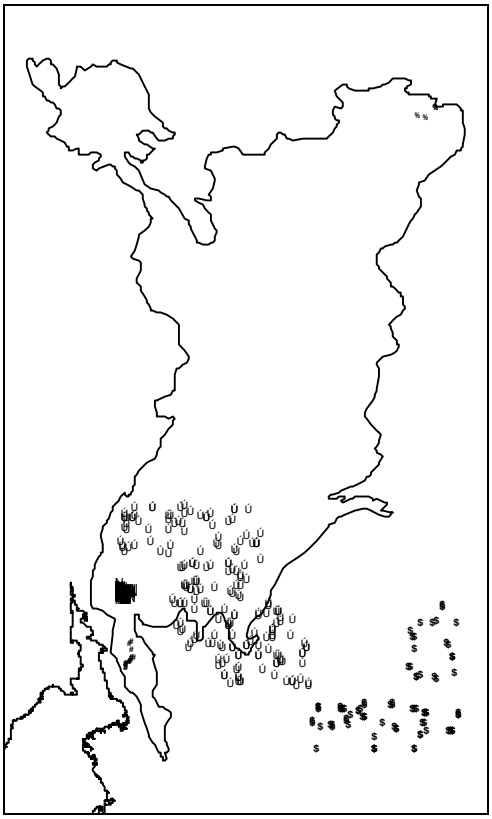

Figure 50. Survey sites: Strzelecki (squares), South Olary Plains (triangles), Upper Mid North (stars), Mt Brown (x), Mt Remarkable (circles).

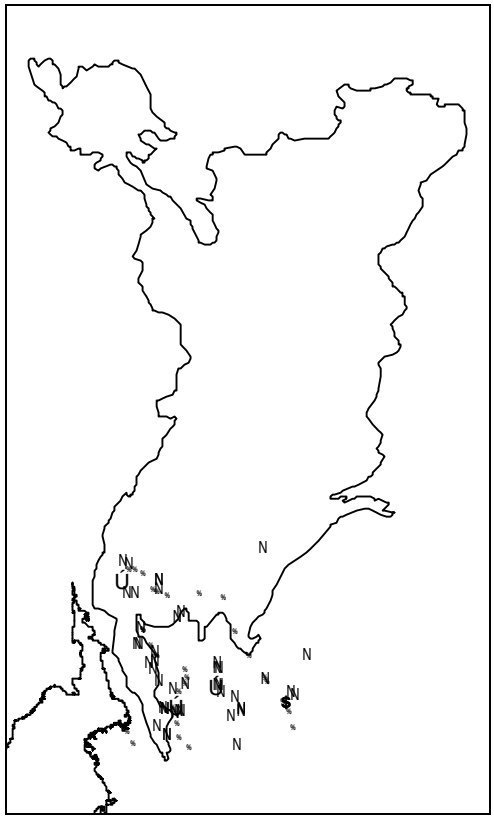

Figure 51. Survey sites: Rail Corridors (squares), Lofty Block Grasslands (x), Bluetongue (triangle), Grassy Woodland (star).

COMMON SPECIES

The high diversity of vegetation communities and site species composition is reflected in the low number of species which are common to a majority of sites. Only 55 species (4%) occurred on more than 10% of the sites. Nine of these are introduced species and 36 are perennials (these are listed in Appendix 6).

The most frequently recorded species were the Silver Mulla Mulla *Ptilotus obovatus* (34% of sites), Ruby Saltbush *Enchylaena tomentosa* (31% of sites) and Elegant or Prickly Wattle *Acacia victoriae* (27%). Both the *Senna artemisioides* species complex and The two similar species of Potato Bush *Solanum ellipticum* / *quadriloculatum* were present at more sites, however if it were possible to separate them into their component species they would be less common.

Species that have the highest site frequencies are not necessarily make them the most abundant species in the ranges or those with the greatest canopy cover. Most of the species that characterise the vegetation of the Flinders were present at more than 10% of sites, eg. White Cypress Pine *Callitris glaucophylla*, Beaked Red-mallee *Eucalyptus socialis*, Spinifex *Triodia* spp. and Blackoak *Casuarina pauper*.

Notable common species that occur at less than 10% of sites reflect the extent of their favoured habitat. Apparently common features, such as high steep ridges and major creeklines, cover a relatively small percentage of the study area, and this is reflected in the sampling effort (Mountains 6% and Drainage Channels 4% - Figure 41). Thus apparently locally common or dominant species, such as the Gum-barked Coolabah *Eucalyptus intertexta* on the northern ridges, and Sugar Gums *Eucalyptus cladocalyx* or South Australian Blue Gum *Eucalyptus leucoxylon* on the southern ranges, are relatively restricted in the area they cover. The River Red Gum *Eucalyptus camaldulensis* is the classic example along creeklines.

Figure 52. Rock sida *Sida petrophylla* in foreground with typically scraggly Elegant Wattle *Acacia victoriae* in background (*Photo: R Brandle*).

Figure 53. The Native Soursob *Oxalis perennans* is small and inconspicuous at many sites when not in flower. (*Photo: AC Robinson*).

SPECIES RICHNESS

Species richness at sites from all of the surveys varied from 1 to 111. The 564 sites from the various vertebrate surveys ranged from 2 to 101 taxa. Data for all of the vegetation only survey sites was collected on a 30m x 30m quadrat as apposed to the 100m x 100m quadrats used for the vertebrate survey. The effect of this larger sampling area on species richness at sites was negligible (mean=27.4 and median=25 for the 30m x 30m quadrats compared with mean=26.8 and median=23 for the 100m x 100m quadrats). The greatest difference observable from the frequency histogram (Figure 54) was the extra 6% of sites with 20 to 25 species in the 100m x 100m quadrat group. The greater proportion of 30m x 30m quadrats in the wetter southern areas of the Ranges may be largely responsible for this apparent similarity. This is demonstrated by comparing northern sites above the 32nd parallel with sites to the south (mean 25.2 : 31.9, median 22 : 30 significant >>0.01). All of the 30m x 30m quadrat surveys (excepting survey 6), were sampled south of the 32nd parallel and most of the 100m x 100m quadrats were sampled in the north, and over half of these were situated on the drier surrounding plains. Comparisons between surveys 6 (Flinders Ranges Management Review 30m x 30m quadrats) and Surveys 104 and 111 (current vertebrate survey 100m x 100m quadrats) which roughly cover the main body of the Ranges shows a more significant difference between the two quadrat sizes (30m x 30m : 100m x 100m mean 24.6 : 33.9, median 21 : 32.5 sign >>0.01). This is also apparent in Figure 54.

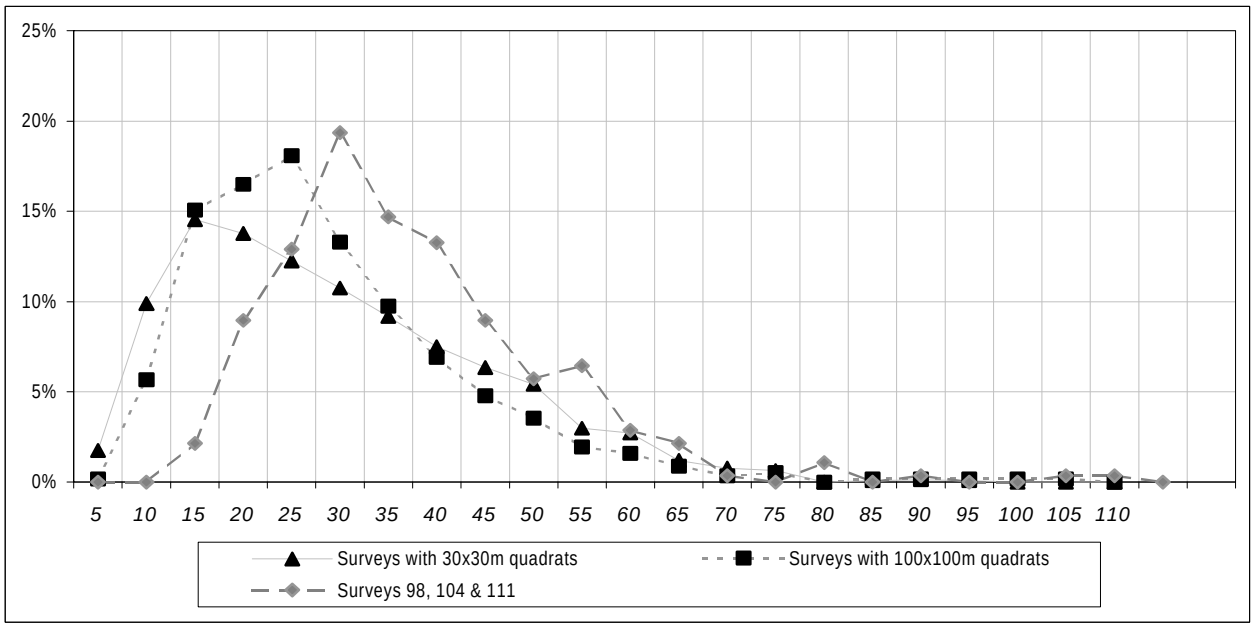

Figure 54. Frequency histogram for plant species richness (categories are clustered in multiples of five). The three groups of data compare the surveys that sampled at 30m x 30m quadrats with those sampled at 100m x 100m quadrats. Surveys 98, 104 and 111 are a subset of the 100m x 100m quadrat group.

The variations in species richness across the study area, and across the survey efforts, complicate comparisons with the physical attributes of sites in the ranges. For this reason, only vegetation data from the recent vertebrate surveys (98, 104 and 111) has been presented to show relationship of species richness with physical parameters. These are displayed in Figures 55-57.

Sites in areas that were categorised as mountains were consistently the most species rich. Mountains are generally more complex and have higher rainfall than the surrounding areas (Figure 55). Rises were consistently the least species rich landform type. These are distributed around the edges of the ranges on the drier surrounding plains. The few floodplain and dune sites were highly variable for species richness, however, the broad confidence intervals are also a factor of the small sample sizes. The most species rich land units are gorges, ridges, rocky outcrops on hills and stream channels, and units that occur in mountain landforms (Figure 56). Consistent differences in species richness relating to surface soil types are difficult to discern because of the variability in the data across the study area. The classes with the lowest and highest average species richness (heavy clay and silty clay loam) are both based on small sample sizes and may therefore be deceptive. However the survey does seem to indicate a trend in higher species richness for sandy soils when compared with the heavier clay soils.

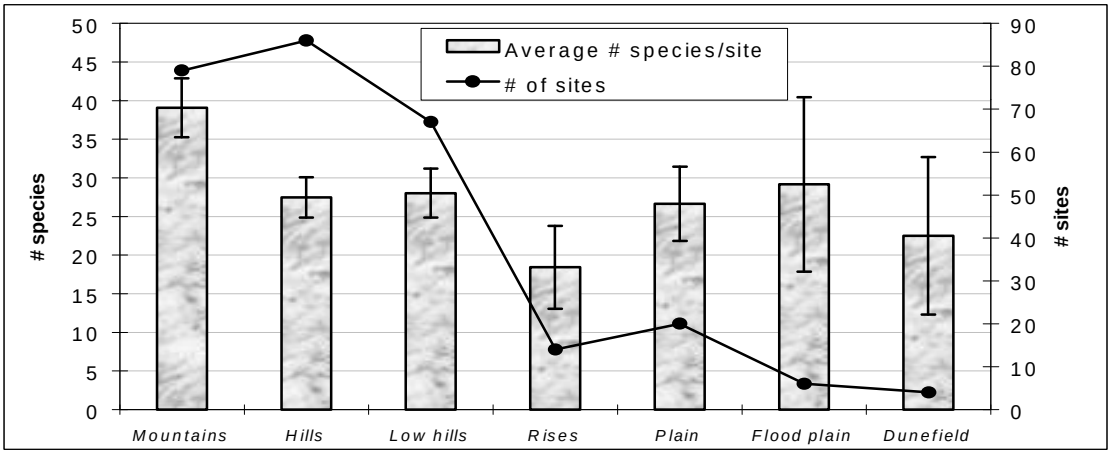

Figure 55. Average plant species richness of sites on the different landform categories (error bars indicate 95% confidence interval).

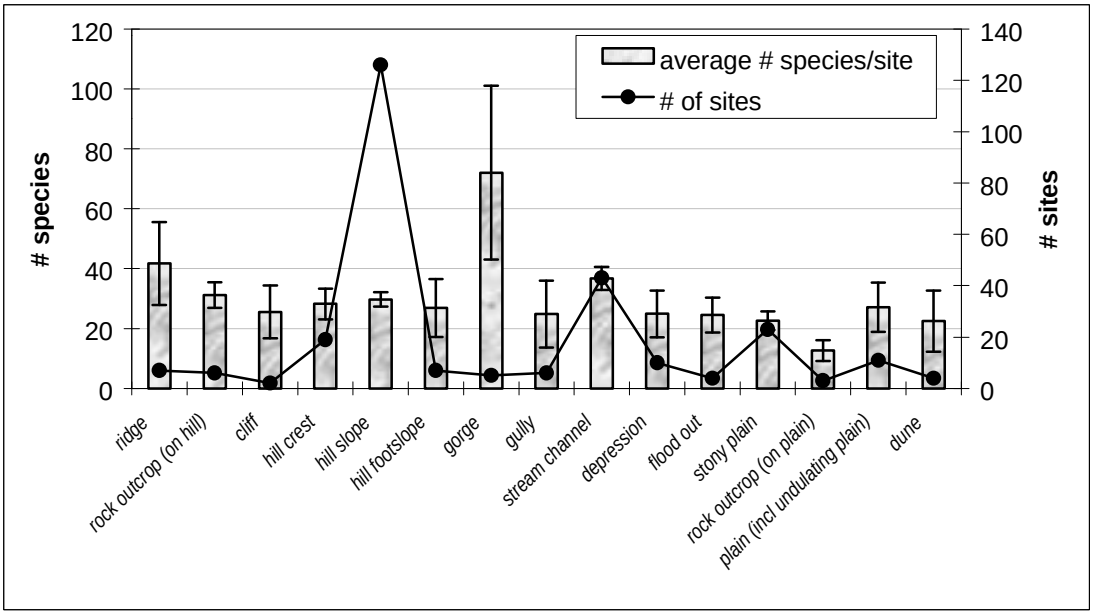

Figure 56. Average plant species richness of sites on the different land unit categories (error bars indicate 95% confidence interval).

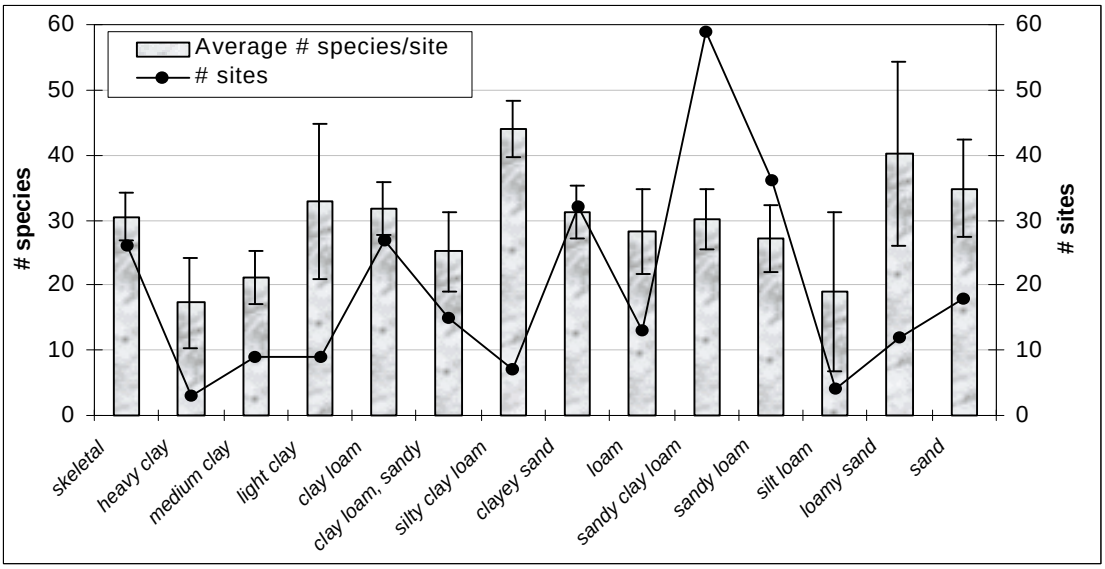

Figure 57. Average plant species richness of sites on the different surface soil categories (error bars indicate 95% confidence interval).

The analysis of species richness in relation to structural vegetation types (Figure 58) indicates that multi-layered communities such as open forests, woodlands and some mallees have the greatest species richness whilst tussock grassland and low open shrubland communities have the lowest. Typically about 60% of species at a site are ephemeral. This is consistent across the data-set and in the different analyses.

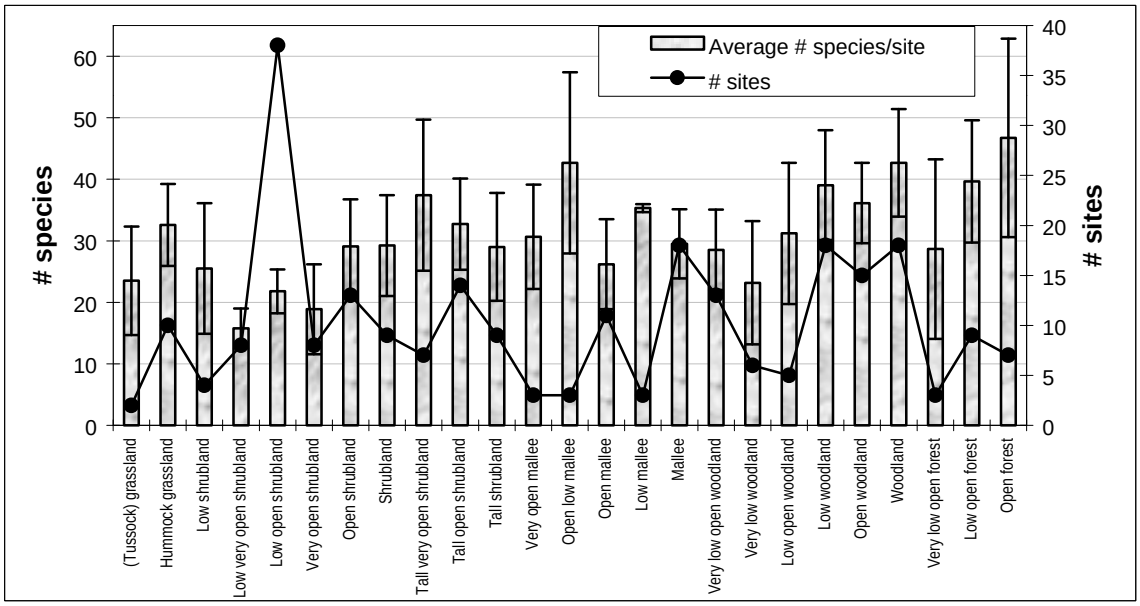

Figure 58. Average plant species richness of sites with different structural vegetation types (error bars indicate 95% confidence interval).

Figure 59. High altitude ridges such as the low open mallee on the Gammon Plateau were amongst the more species diverse sites (*Photo: R Brandle*).

CONSERVATION SIGNIFICANCE

Endemic Species

Fourteen plant taxa are endemic to the Flinders Ranges study area and another four are shared with the adjacent Northern Lofty and Olary Ranges. Some of these are locally very common, usually restricted to specific habitats, whilst others are more sparsely present and have been given specific conservation significance ratings. Details of the species and their distribution within the Flinders are detailed in Table 10.

Table 10. Flinders Ranges endemic plant species and those with limited distributions elsewhere.

Flinders Ranges Endemic Species	# sites recorded	Habitat description
Acacia araneosa 2VCa, V, V Spidery Wattle	6	Tall shrub to low tree, restricted to hill slopes with fine, sandy, calcareous loams between the Gammon Plateau and Arkaroola in the north-eastern Flinders. Occurs mostly as a co-dominant with *Eucalyptus gillii* mallee. In areas where the species forms its own low woodland it has been severely denuded by rabbits and goats (Davies 1995). Recorded in Floristic groups 2, 3 and 5.
Acacia barattensis 2V, V Barratta Wattle	0	Shrub, restricted to a steep quartzite hillslopes of mountains in the south-east of the northern Flinders. Occurs in association with *Dodonaea viscosa*, *Cassinia laevis*, *Eucalyptus flindersii*, *E. intertexta* and *Callitris glaucophylla*. Whilst not recorded by survey sites this association is typical of Floristic Group 56 and 57. Davies (1995) noted six populations.
Acacia confluens 2R, R, R Arkaroola Wattle	20	Shrub, restricted to the northern Flinders and recorded on light clay to sand clay loam soils on the slopes of hills, mountains and rises. Most commonly recorded in the *Acacia*, *Eremophila freelingii*, *Ptilotus obovatus* shrubland/low woodland floristic groups 1 to 3 and on the higher slopes with *Callitris glaucophylla* and *Eucalyptus intertexta* woodland over *Dodonaea* and *Cassinia* (floristic group 56).
Acacia gracilifolia 3RCa, R, R Graceful Wattle	22	Tall shrub, restricted to the mountains of the southern Flinders and mostly recorded on the loamy slopes of mountains. Associated with a number of overstorey species including *Allocasuarina verticillata*, *Eucalyptus leucoxylon*, *E. goniocalyx* and *E. cladocalyx* (floristic groups 64, 66 and 68).
Acacia quornensis 2Rca, R, R Quorn Wattle	10	Tall shrub, restricted to slopes of the higher ranges from west of Hawker to the southern Flinders near Pt Pirie. Near Quorn it can form a dense shrubland, but is also associated with *Eucalyptus leucoxylon*, *E. cladocalyx*, *E. odorata*, *Callitris glaucophylla* and *Allocasuarina verticillata* woodlands (floristic groups 64-69).
Allocasuarina muelleriana ssp. *alticola* Flinders Ranges Oak-bush	17	Low tree to tall shrub, distributed throughout the Flinders where it is restricted to slopes, ridges and plateaus of high quartzite hills and mountains. It occurs in association with *Eucalyptus flindersii*, *E. aff. viridis*, *E. intertexta*, *E. goniocalyx*, *Allocasuarina verticillata* and *Callitris glaucophylla* (floristic groups 57, 65 and 66).
Caladenia woolcockiorum 2VC, V *Orchid*	0	This southern Flinders endemic herb is restricted to the wetter gullies on the eastern slopes of the Black Range in Mt Remarkable National Park where it occurs under *Eucalyptus cladocalyx* and *E. leucoxylon* woodland. Not recorded on any survey sites its total population has been estimated at approximately 2000 plants (D Bickerton *pers comm*).
Cassytha peninsularis var. *flindersii* Flinders Ranges Dodder-laurel	30	Parasitic vine, occurs throughout the highest ranges of the Flinders and is most common in the southern Flinders. Grows in association with all of the *Eucalypts* common on the tops of ranges as well as *E. camaldulensis*, *Callitris glaucophylla*, *Casuarina pauper* and *Allocasuarina verticillata* (floristic groups 64, 57, 14, 65 and 68).
Daviesia stricta 3RC, R, R Flinders Ranges bitter-pea	5	Low shrub, restricted to hills and mountains of the northern Flinders. Recorded in association with *E. flindersii*, *E. intertexta*, *Callitris glaucophylla*, *Melaleuca uncinata* and *E. camaldulensis* (floristic groups 57).
Eremophila santalina U, U Sandalwood Emubush	30	Shrub, distributed from the southern Flinders to the central Flinders as far north as Blinman. Grows on low hills to mountains in sandy to clay-loam soils, and is associated with a variety of mallee, mainly *Eucalyptus socialis* and *E. odorata*, *Callitris glaucophylla* and rarely in *E. camaldulensis* creeks (floristic groups 56, 63 and 3).
Eucalyptus flindersii Flinders Grey mallee	46	Low mallee, occurs on high slopes, ridges and plateaus of the higher ranges and mountains north from the Yappala Range near Hawker. Associated with *Callitris glaucophylla*, *Eucalyptus intertexta* and *Melaleuca uncinata* (floristic groups 57).
Eucalyptus gillii Curly Mallee	101	Low mallee, restricted to the eastern margins of the north Flinders associated with powdery, white calcareous loams. Most commonly associated with *Acacia aneura*, *A. tetragonophylla*, *Casuarina pauper* and *Alectryon oliefolius* (floristic groups 2, 5 and 3). Isolated outlier populations of this species occur in the Barrier Ranges of western New South Wales (Cunningham *et al.* 1984).
Eucalyptus goniocalyx ssp. *exposa* South Australian Mountain Box	1	Low mallee, restricted to mountain peaks in the Elder Range and Wilpena Pound. Sometimes associated with *Eucalyptus flindersii* (Nicolle 1997). Not recorded at survey sites.

Eucalyptus sp. Y U, U Flinders Ranges Box	5	Low mallee, restricted to gullys, slopes and ridges of mountains on clay soils in the northern Flinders. Associated with *Eucalyptus flindersii*, *E. intertexta*, *Callitris glaucophylla*, *Melaleuca uncinata* and *Acacia havilandii* (floristic group 57).
Eucalyptus percostata R, R Rib-capped Mallee	10	Low mallee, recorded on mountains in the southern Flinders and collected near Hawker on a high range and a small dunefield. Associated with *Eucalyptus socialis*, *E. odorata*, *Casuarina pauper* and *Acacia pycnantha* (floristic group 55)
Frankenia subteres 2K, K, K	11	Low shrub, restricted to the northern Flinders north of Blinman where it inhabits clay to loam soils on gentle slopes of undulating plains, low hills and drainage lines. Associated with *Eucalyptus socialis*, *E. camaldulensis*, *Alectryon oleifolius*, *Frankenia serpyllifolia* and *Maireana pyramidata*.(floristic groups 16 and 25)
Ixodia flindersica Flinders Ranges Ixodia	8	Shrub, restricted to the slopes and crests of high hills and mountains in the northern Flinders on sandy clay loam soils. Associated with *Callitris glaucophylla*, *Eucalyptus intertexta* and *E. flindersii* (floristic group 57).
Maireana melanocarpa 3V, V, R Black-fruit Bluebush	11	Low short-lived shrub, restricted to slopes of undulating plains and low hills in the north western margins of the northern Flinders on white powdery dolomitic loams. Associated with *Sclerolaena obliquicuspis*, *Maireana astrotricha*, *Atriplex vesicaria* and *Casuarina pauper* (floristic groups 3, 5 and 25).
Olearia pannosa ssp. *cardiophylla* 3RC, R, R Velvet Daisy-bush	1	Shrub, restricted to the southern Flinders and is well represented in Mt Remarkable National Park. The only survey record was from a site near Orroroo.
Endemic to the Flinders, Northern Lofty Ranges and Olary Spur		
Stipa petraea R, R Flinders Range Spear-grass	8	Tussock grass, recorded mostly on loam slopes of low hills and hills near the eastern boundary of the southern Flinders and also east of Hawker and in a gorge on the Gammon Plateau. Associated with *Triodia* spp., *Stipa* spp., *Callitris glaucophylla* (floristic groups 7, 62-69).
Spyridium phlebophyllum Inland Spyridium	48	Shrub, common on sandy or clay loam slopes, ridges and crests of hills and mountains in the Flinders Ranges and the Olary Spur. Associated with *Eucalyptus flindersii*, *E. intertexta*, *Callitris glaucophylla*, *E. microcarpa*, *E. socialis* and *E. dumosa* (floristic group 57 and 65).
Caladenia gladiolata	0	Herb, known from native grasslands on the eastern flanks of the southern Flinders. This species is not strictly endemic to the region as one small population is known from Scott Creek Conservation Park in the Southern Mt Lofty Ranges. The species was also previously known to occur in parts of the northern Mt Lofty Ranges, but is now considered extinct in those areas (P Lang *pers comm*).
Wurmbea latifolia ssp. *latifolia* 3V, V, V Broad-leaf Star-lily	3	Herb, recorded on clay to loam slopes on plains, low hills and mountains along the western range of the southern Flinders. Associated with *Eucalyptus porosa*, *E. odorata*, *E. dumosa* and *Callitris glaucophylla* (floristic group 63).

Species that have been rated for conservation significance

Within the Flinders Ranges there are currently three generally accepted levels at which the conservation significance of a species has been considered.

1. *The national level*. This is referred to as the Australian Status and the ratings for each species are documented in Briggs and Leigh (1995). This rating is now being superseded by various national action plans for threatened taxa. However these do not recognise non-threatened categories such as rare and insufficiently known. Species in both categories are worth noting as these are often these species, that upon further investigation, join the ranks of threatened species. Therefore in this report the Briggs and Leigh (1995) system of ranking with some updates from Lang (SA Biological Survey Databases) will be referred to for national conservation status.

2. *The state level*. The conservation status of plants within South Australia have been determined by Lang and Kraehenbuehl (1997) and includes species that may be common interstate but are less common or threatened within South Australia.

3. *The regional level*. The conservation status of plants within the agricultural regions as used by the Plant Biodiversity Centre of South Australia (refer to Figure 40 for the location of the boundaries), have also been assessed by Lang and Kraehenbuehl (1997).

Of the 1428 plant taxa recorded by the various surveys 221 plant species have some form of conservation rating. Table 11 compares these at the three levels with the known conservation significant plants for the Flinders Ranges Region.

Table 11. The number of plant species with conservation ratings sampled by survey compared with the Flinders Ranges Herbarium region.

	Australian	South Australian	Regional - FR	Total
All Survey Efforts	29	107	211	221*
Current Survey 98, 111 & 104	15	55	113	117
SA Herbarium Flinders Region	58	201	367	337

* A species that is rated at the state level is not necessarily rated within a region as it may be common within that region.

Figure 60. The endemic Flinders Grey Mallee *Eucalyptus flindersii* (*Photo: R Brandle*).

Figure 61. The Curly Mallee *Eucalyptus gillii* also has a limited occurrence in the Barrier Ranges NSW (*Photo: AC Robinson*).

Figure 62. The endemic Flinders Ranges Oak-bush *Allocasuarina muelleriana* ssp. *alticola* (*Photo: R Brandle*).

Figure 63. The endemic and vulnerable Spidery Wattle *Acacia araneosa* (*Photo: AC Robinson*).

Four of the South Australian rated species and a further eight with regional significance were only recorded by the recent vertebrate surveys (# 98,104 and 111). One species that was listed as regionally extinct was collected on surveys 6 and 104. The Sand Sida *Sida ammophila* is a common and abundant plains species which is only rare in the Flinders Ranges botanical region due to lack of suitable habitat.

The nationally rated species that were recorded at survey sites are listed in Table 12 including the numbers of sites at which they were recorded, their average relative abundance, and their most common lifeform habit in the study area.

Table 12. Plant species with an Australian conservation rating. *

Aus status	SA status	FR regional	SPECIES	COMMON NAME	Lifeform	Number of sites	% cover at majority of sites
2VCi	V	V	*Codonocarpus pyramidalis*	Slender bell-fruit	Tree <5m	17	<<5%
2VCa	V	V	*Acacia araneosa*	Spidery wattle	Tree <5m	5	<5%
2VCa	U		*Calandrinia volubilis*	Twining purslane	Herb	1	<5%
3VCa	V	V	*Olearia pannosa ssp. pannosa*	Silver daisy-bush	Shrub 0.5-1m	5	<5%
3VCa	V	V	*Prasophyllum pallidum*	Pale leek-orchid	Herb	4	<5%
3V	V	R	*Maireana melanocarpa*	Black-fruit bluebush	Shrub<0.5m	15	<<5%
3V	V	E	*Wurmbea latifolia ssp. latifolia*	Broad-leaf star-lily	Herb	3	<5%
2RCa	R	R	*Acacia quornensis*	Quorn wattle	Shrub 1.5-2m	12	<5%
2RC-	R	R	*Eucalyptus percostata*	Ribbed white mallee	Mallee <5m	6	<5%
2R	R	R	*Acacia confluens*	Arkaroola wattle	Shrub 0.5-1m	18	5%
2K	K	K	*Frankenia subteres*		Shrub <0.5m	9	5%
3RCa	R	R	*Acacia gracilifolia*	Graceful wattle	Shrub 0.5-2.5m	19	5%
3RCa	R	R	*Acacia iteaphylla*	Flinders Ranges wattle	Shrub 1-2m	9	<5%
3RCa	R	R	*Anthocercis angustifolia*	Narrow-leaf ray-flower	Shrub 0.5-1m	1	<<5%
3RCa	R	R	*Festuca benthamiana*	Bentham's fescue	Grass <0.5m	1	<<5%
3RCa	R	R	*Swainsona tephrotricha*	Ashy-haired swainson-pea	Herb	35	<5%
3RC-	R	R	*Daviesia stricta*	Flinders Ranges bitter-pea	Shrub 0.5-1m	5	<5%
3RC-	R	R	*Derwentia decorosa*	Showy speedwell	Shrub 0.5-1.5m	14	<5%
3RC-	R	R	*Maireana rohrlachii*	Rohrlach's bluebush	Shrub <1m	6	<5%
3RC-	R	R	*Olearia pannosa ssp. cardiophylla*		Shrub 0.5-1m	1	<5%
3RC-	R	R	*Stipa breviglumis*	Cane spear-grass	Grass <1m	14	<5%
3R	R	V	*Atriplex eichleri*	Eichler's saltbush	Shrub <0.5m	13	<5%
3R	R	K	*Zygophyllum hybridum*		Herb	4	<5%
3K	K	K	*Swainsona leeana*	Lee's swainson-pea	Herb	1	<<5%
3K	K	K	*Atriplex morrisii*		Shrub <0.5m	1	<<5%
3K	K	K	*Goodenia anfracta*		Herb	1	<5%
3K			*Swainsona viridis*	Creeping Darling pea	Herb	3	5%
3K			*Sclerolaena bicuspis*	Two-spine bindyii	Shrub <0.5m	2	<5%

* Species recorded at survey sites that are of State or regional significance only, are listed in Appendix 7.

Associations with conservation significance

The conservation status of South Australian plant associations was reviewed in 1982 (Davies 1982) and 1992 (Neagle 1995). These reports describe the majority of plant communities existing in the State's National Parks and Wildlife managed conservation reserves and many of the Heritage Agreements, using overstorey dominants, and in some instances understorey dominants. A total of 176 plant associations were rated as excellently, reasonably, moderately, poorly or not conserved within the conservation reserves of the Flinders Ranges.

The term conservation reserve, in this report include National Parks, Conservation Parks and Conservation Reserves which are all managed by National Parks and Wildlife South Australia under the Minister for Environment and Heritage. Heritage Agreements are privately owned or leased areas of native vegetation for which the landholder has entered into a legally binding

agreement with the Minister for Environment and Heritage to manage that area for conservation. Such agreements are transferred with the sale of the land title and are not reversible. Only five Heritage Agreements occur within the study area, and all are south of Telowie Gorge Conservation Park at the southern tip of the southern Flinders.

An assessment of floristic group representation within the reserve system shows that any one park contains only a sample of the floristic groups sampled in the study area. (The reader should note that this comparison is limited by the variation in effort between reserves – and the subsequent list should not be seen as an exhaustive account of the floristics of each reserve).

The Flinders Ranges National Park sites sampled the highest number of floristic groups despite the park being 26% smaller than the Gammon Ranges National Park. This may reflect the position of the Flinders Ranges National Park in the centre of the ranges and thus supporting a greater range of the moister southern floristic elements as well as many associated with the arid north. Parks that were sampled by few sites, such as Dutchman's Stern and Telowie Gorge Conservation Parks, are likely to be more diverse than the table indicates.

Seventeen of the 66 floristic groups are unlikely to be represented in the parks system (Table 13).

Table 13. Floristic groups recorded in the five conservation reserves present in the study area. Parks are ordered from north to south.

Floristic Group	Gammon Ranges NP	Flinders Ranges NP	Dutchman's Stern CP	Mt Brown CP	Mt Remarkable NP	Telowie Gorge CP
1	*	*				
2	*	*				
3	*	*				
4						
5	*					
6	*	*				
7		*				
8		*				
9		*				
10		*				
11	*	*				
12		*				
13						
14	*					
15	*	*				
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39	*					
40	*	*				
41	*	*				
42			*		*	
43				*		
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46						
47		*				
48		*				
49		*		*		
50		*			*	
53						
54	*					
55	*	*			*	
56	*	*				
57	*	*			*	
58						
59		*				
60				*	*	
61				*	*	
62						
63				*		
64				*	*	*
65			*	*		*
66		*			*	*
67				*	*	
68				*	*	
69		*	*			
Floristic groups/Park	**20**	**29**	**3**	**9**	**11**	**3**
Sites/Park	**192**	**64**	**5**	**68**	**50**	**4**

BIOGEOGRAPHY

The Flinders Ranges owes its high plant species richness and diversity to its varied geomorphology and location across three of the six bioclimatic regions recognised for Australia (Nix 1982) (Figure 64). These are the:

- Eyrean – surrounds the ranges on all sides and includes the arid plains and arid ranges habitats (tussock grasslands, chenopod low shrublands, hummock grasslands and Acacia shrublands);
- Bassian/Eyrean – which includes areas of the ranges south of Hawker and is typified by mallee and mallee/heath and grassy woodland communities;
- Bassian – occurs in areas with greater than 500mm annual average rainfall that support sclerophyll woodlands and forests. The Bassian Region includes the Mt Lofty Ranges, Kangaroo Island and the south-eastern tip of South Australia.

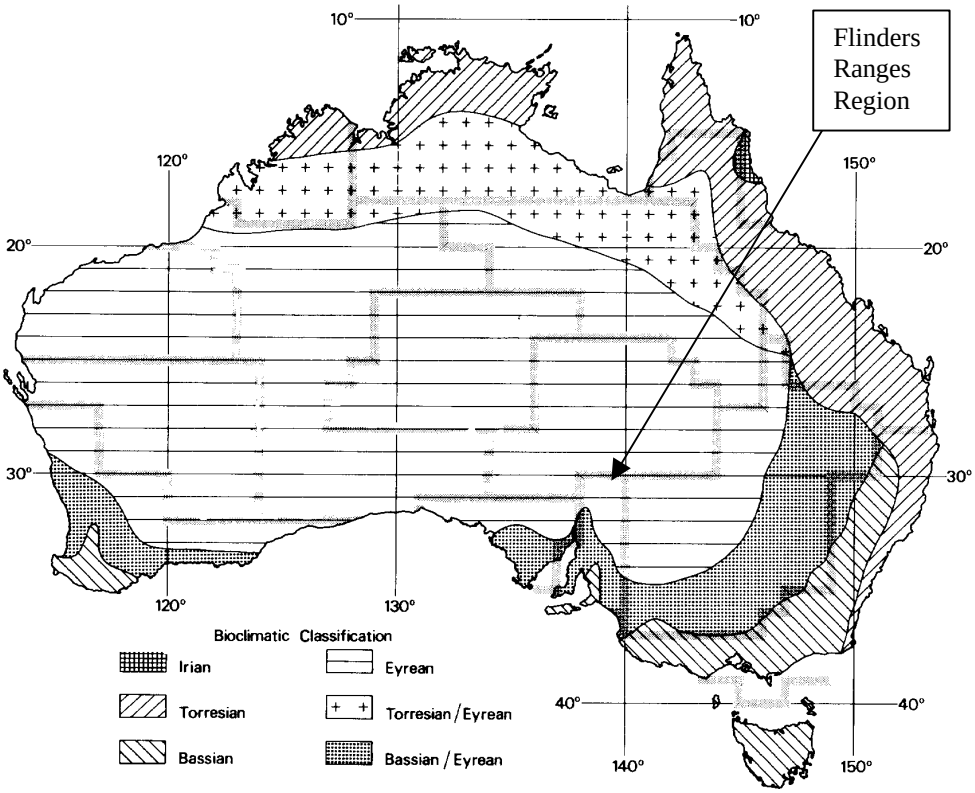


Figure 64. Map of bio-climatic regions (adaptation of Nix 1982, copied from Blakers *et al.* 1984)

The Flinders Ranges are sufficiently high to influence significantly the local climate. They have thus created an archipelago of moister habitat through the semi-arid region of South Australia and into the arid north. This has the effect of pushing the Bassean/Eyrean Region north into the Eyrean Region near Hawker, with smaller isolated areas on the high ridges and plateaus to Freeling Heights (north of Arkaroola). True Bassian communities are also present along the ridges of the southern Flinders as far north as Mt Brown. In this context the ranges have been regarded both as a corridor for the dispersal of species with Bassian affinities, and as a series of evolutionary refuges (Barker 1995; Gell and Bickford 1996).

The majority of species that inhabit the Flinders Ranges occur widely across the Eyrean and Eyrean/Bassian boundary. The number of taxa from the survey data that are primarily distributed in only one of the three bio-climatic regions are summarised in Table 14. These species are listed in Appendix 8.

Table 14. Summary of plant species with distributions primarily confined to single bio-climatic region, including those with South Australian and Australian conservation ratings.

Bio-climatic region	Number of Species	Number of species with Australian status	Number of species with South Australian status
Bassian	87	3	27
Eyrean/Bassian	242	6	40
Eyrean	40	2	4

Table 15. Summary of endemic plant species and others with interesting distributional limits, including those with South Australian and Australian conservation ratings.

Endemic Species and Distributional Outliers	Number of Species	Number of species with Australian status	Number of species with South Australian status
Endemic (includes northern Mt Lofty Ranges & Olary Spur)	25	10	18
Western limit – eastern Australia and not in the Mt Lofty Ranges	2	0	1
Eastern Limit – Eyre Peninsula or Western Australia	5	0	2
Eyrean – but restricted to arid ranges	12	2	3

The majority of species with Bassian affinities are restricted to the wettest parts of the Western Range of the Southern Flinders. This includes tree species such as: South Australian Blue Gum *Eucalyptus leucoxylon*, Grey Box *E. microcarpa*, Long-leaf Box *E. goniocalyx* and Square-fruit Mallee *E. calycogona* var. *calycogona*; shrubs such as Kangaroo Thorn *Acacia paradoxa*; vines like the Native Lilac *Hardenbergia violacea*; and understorey species including sundews *Drosera* spp. and orchids. However, at least 23 species of these Bassian species have been recorded north of Hawker (Appendix 8) on the wetter slopes, gorges and ridge-tops. This includes species such as the Golden Wattle *A. pycnantha* which manages to extend a little further into the northern ranges at Wilpena Pound and the Black Range (east of Hawker). Eighteen of these, including Cranberry Heath *Astroloma humifusum* and the Guinea Flower *Hibbertia riparia*, penetrate even further north along the spine of the Heysen Range, Mt Hack and the Gammon Plateau.

Twenty-two of the 25 endemic species noted in Table 15 have already been mentioned. The other three also occur in the Mt Lofty Ranges. These are Dog Wattle *Acacia wattsiana*, which occurs in the northern Lofty Ranges and southern Flinders, and Needle Bottlebrush *Callistemon teretifolius* and Green-flower Emubush *Eremophila subfloccosa* ssp. *"glandulosa"*, which are both also present in the southern Mount Lofty Ranges.

The two species at their western limits, that don't also occur in the Mount Lofty Ranges, are the White Box *Eucalyptus albens* and the Lobe-seed Daisy *Brachycome dentata*. White Box occurs in the Melrose area of the southern Flinders in South Australia, and along the Great Dividing Range in eastern Australia. Lobe-seed Daisy occurs more widely in South Australia east from the northern Flinders and the northern Lofty Ranges.

Of the five taxa listed as having their eastern limits in the Flinders Ranges, three are endemic to South Australia and are restricted to the southern ranges. The Sugar Gum *Eucalyptus cladocalyx* occurs on Kangaroo Island and southern Eyre Peninsula, the Green Mallee *E. viridis* ssp. *viridis* occurs in the Middleback Ranges in north-eastern Eyre Peninsula, and the Smooth Cup-flower *Angianthus glabratus* is also found in the Gawler Ranges and northern Eyre Peninsula. The Native Hibiscus *Alyogyne huegelii* was recorded in the southern ranges and is known from southern western Australia as well as the Eyre Peninsula and Gawler Ranges. The more widespread Western Myall *Acacia papyrocarpa* also occurs in the Northern Territory and has its eastern limit on the low western margins of the Flinders Ranges.

Of the Arid Range species a number have northern affinities, being found in the Central Australian Ranges in South Australia. These include the paperbarks *Melaleuca bracteata*, *M. dissitiflora* and *M. glomerata*, the Gum-barked Coolabah *Eucalyptus intertexta*, Sturt's Desert Rose *Gossypium sturtianum* var. *sturtianum*, Purple-head Nineawn *Enneapogon oblongus* and Native Cobbler's-pegs *Glossogyne tannensis*. Three species, the Slender Bell-fruit *Codonocarpus pyramidalis*, the Flinders Ranges Corkwood *Hakea ednieana* and the Silver Wattle *Acacia rivalis* are shared with arid ranges in western New South Wales. Two Goodenias *Goodenia anfracta* and *G. calcarata* occur on breakaway slopes in the stony deserts of the western Lake Eyre catchment in South Australia.

SPECIES PATTERNS

Five-hundred and thirty-five of the 1361 taxa recorded at sites were considered to be perennial or long lived readily detectable ephemerals. These were selected for floristic analyses and are listed for each floristic group in Appendix 10. Perennial species that were recorded at less than four sites were excluded from the analysis. Sites that supported less than four of the selected species were also excluded from further analysis.

PATN an exploratory analysis program, was used to clump the 3079 sites into 69 groups based on the similarity of their floristic composition (using species presence data). The dissimilarity cut-off value of approximately 1, which was used to define the 69 groups, is similar to the levels used for other regional surveys (Robinson *et al.* 1988; Brandle 1998).

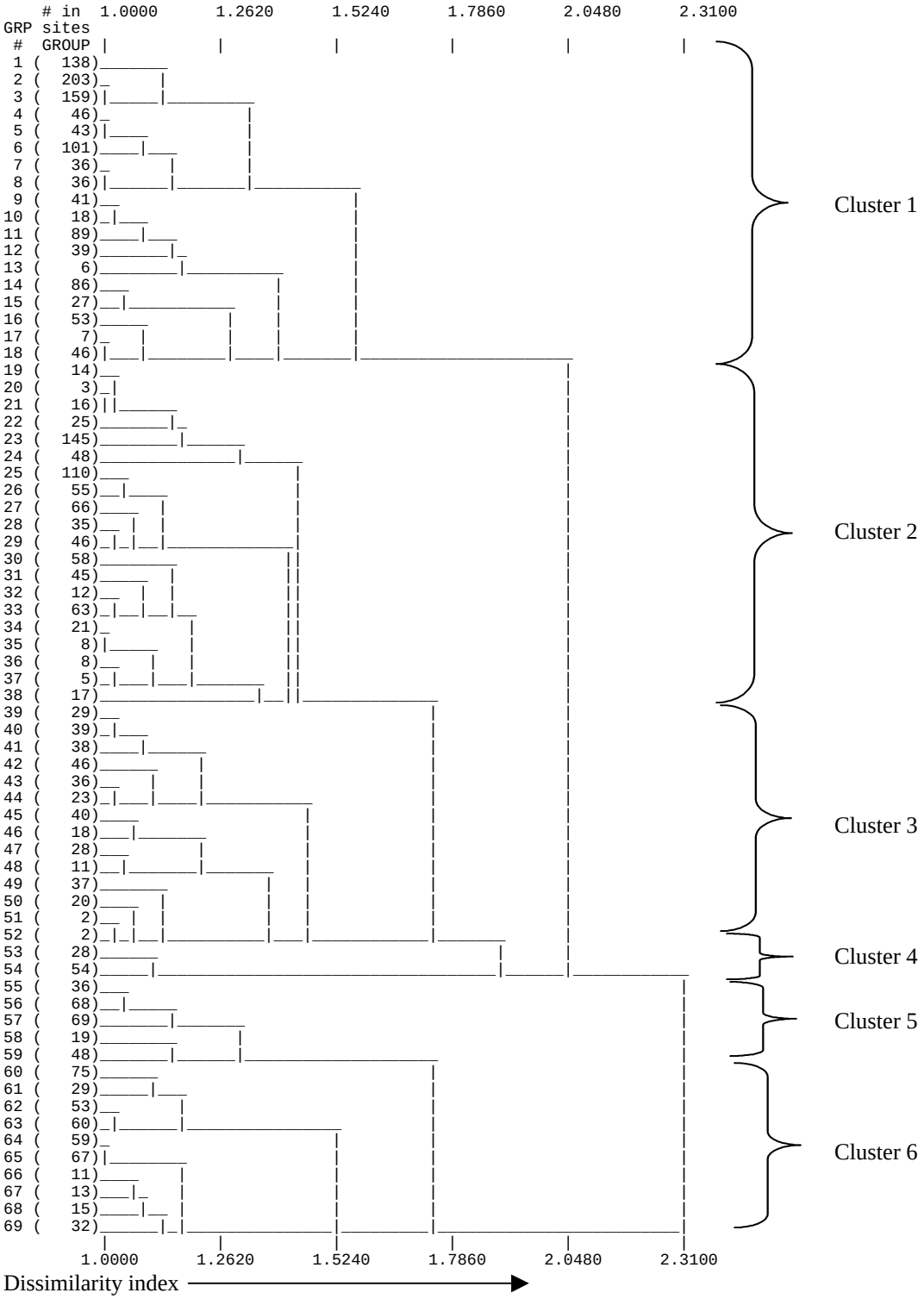


Figure 65. Floristic groups from PATN - Dendrogram of 69 groups

Interpretation of the dendrogram

On the broadest level the 69-group dendrogram can be simplified into six broad clusters that relate to broad environmental parameters. Each cluster can be split into alliances of groups that are often recognisable by a common suite of dominant species or are characteristic of a suite of environmental parameters, and therefore share indicator species. It should be noted that vegetation communities are present in the landscape as a continuum of various associations with one grading into another. The relevance of very small groups, ie with less than five members, is therefore minor in the overall understanding of the vegetation across the region. This does not necessarily discount their relevance in the locality where they were sampled as it may just reflect under-sampling of a type. However, geographically distant sites that have little in common with other sites are also sometimes clustered together by a couple of common species. For this reason the three groups with less than five members (20, 51 and 52) have been discarded from the presentation.

Cluster 1: 5 alliances, 18 groups, 1164 sites (38%).
Groups 1 to 18 cover the majority of the low, rock or shale hills/range communities of the northern Flinders.

Groups 1 to 3 relate to the *Acacia* woodlands and tall shrublands with Rock Emubush, Silver Mulla Mulla, Rock Sida and Desert Senna dominating shrub and low shrub layers. These groups are typical of the slopes and hill crests of rocky range and outcrop habitats.

Groups 4 to 8 have a more variable range of overstorey species including a Black Oak and a Curly Mallee group. Many of the dominant shrub layer species present in groups 1 to 3 are present though often accompanied by chenopods such as bluebushes and saltbushes. These groups generally occur on the lower slopes of the higher ranges, as well as low hills, rises and undulating plains and are often associated with white calcareous loams or the presence of limestone.

Groups 9 to 13 herald a major change away from the rocky *Acacia* dominated hills to the lower shale dominated hills surrounding the central mountain spine of northern Flinders. Major vegetative elements of these groups are Native Pine and Elegant Wattle in the overstorey (where present), and Lemon-grass or Shrubby Twin-leaf in the understorey. The latter is common on calcareous shales.

Groups 14 to 15 represent the floodplain and drainage line habitats in the northern Flinders. River Red Gums, Inland Paper-bark and Elegant Wattle are major overstorey species. Lemon-grass is the understorey plant common to most sites.

Group 16 to 18 are representative of gentle slopes and plains amongst low hills and supporting chenopod dwarf-shrublands with or without an Elegant Wattle or Bullock Bush overstorey. Such flats are often associated with or adjacent to major drainage lines. And floodouts.

Cluster 2: 5 alliances, 20 groups, 800 sites (26%).
Groups 19 to 38 describe the vegetation associations of the dunefields, sandplains, alluvial plains and rises that surround the Flinders.

Groups 19 to 21 describe the vegetation associations that occur on the surrounding dunes and sand plains whilst groups 22 and 23 are associated with alluvial plains dominated by sand to loam soils. Tall shrubs such as Umbrella Wattle, Harlequin Emubush, Elegant Wattle and in one group Mulga, dominate the overstorey.

Group 24 has a similar overstorey component to groups in the previous alliance, but its occurrence on the stony clay/loam footslopes of the north-eastern ranges provides for a distinctive understorey that sets it in its own alliance.

Groups 25 to 29 represent the variety low chenopod shrublands of the low hills and plains that surround the main spine of the northern Flinders. Soils tend to be a mixture of clay and sandy loams. Dominant species range from Low Bluebush and Bladder Saltbush on the low hills and rises to Black Bluebush in the moister habitats.

Groups 30 to 37 represents vegetation associations where Elegant Wattle, Ruby Saltbush, and Black Bluebush are important elements. These occurred on a variety of habitats and in a variety of regions. In northern areas these associations are mostly associated with alluvial flats often in a degraded state. All groups within this alliance have strong links to the southern Flinders and the Olary Spur.

Group 38 represents a fairly rare salt tolerant group dominated by Nitre-bush that occurs most commonly on flats of the Willochra plain or adjacent to Spencer Gulf.

Cluster 3: 3 alliances, 14 groups, 369 sites (12%).
Groups 39 to 52 describes the drier mallee, woodland and grassy shrub to woodland habitats of the lower ranges, hills and plains throughout the Flinders.

Group 39 to 44 represent all the lowland mallee and denser Black Oak woodland associations. Red-beaked Mallee is the most common overstorey dominant with Desert Senna and Ruby Saltbush being understorey shrubs evident at most sites. In the southern regions Mealy Saltbush becomes a common element whilst Red-beaked Mallee becomes sub-dominant to other species such as Yorrel and Red Mallee. On the Western slopes and plains of the southern Flinders Boxthorn and Native Apricot become overstorey components – possibly after native trees were removed.

Groups 45 to 48 represent the drier grassy shrublands to woodlands that occur in the northern parts of the southern Flinders and the northern Flinders. Wallay and spear grasses dominate the ground layer whilst overstorey range from Pearl Bluebush shrubs, False Sandlewood, Mallee or White Cypress-pine in southern areas to Elegant Wattle in the northern Flinders.

Groups 49 to 52 represent the River Red Gum and Grey Box woodland associations that have severely degraded understorey vegetation. These associations of drainage habitats and associated plains are mostly a feature of the southern Flinders, but some weed infested northern Flinders creeklines are included in these groups.

Cluster 4: 1 alliance, 2 groups, 82 sites (3%).
Groups 53 to 54 describe the distinctive vegetation associations restricted to clay plains that surround the Flinders. The Bindyi dwarf-shrublands and Mitchell grasslands are largely devoid of trees and shrubs and are characteristic vegetation communities in the Stony Deserts to the north.

Cluster 5: 2 alliance, 5 groups, 240 sites (8%).
Groups 55 to 59 describes the vegetation associations that are typical of the hills, mountains and elevated plains of the central spine of the northern Flinders and western flank of the main range in the southern Flinders.

Groups 55 to 57 represent the vegetation associations of the high slopes, ridges and plateaus. Characteristic overstorey species are White Cypress-pine, Gum-barked Coolabah and a range of Mallee species with Curry Bush, Sticky Hop-bush and Spinifex dominating the understorey.

Groups 58 and 59 are characteristic of the high elevation footslopes and valleys in the central highlands of the northern Flinders. Gum-barked Coolabah or Mallee and White Cypress-pine cover over a Desert, Senna, Lobe-leaf Hop-bush and spinifex or tussock grass understorey.

Cluster 6: 2 alliances, 10 groups, 414 sites (13%).
Groups 60 to 69 describe the grassy woodlands, forests and hummock grasslands which characterise the most southerly section of the southern Flinders.

Groups 60 to 63 represent the grasslands and grassy woodland associations of the mid-slopes and footslopes of the southern ranges and associated low hills and undulating plains. The grassy understorey species tend to define the various forms of these grassy woodlands.

Groups 64 to 69 represent the heath woodlands and forest associations of the slopes, ridges and crests of the highest parts of the western range and tall woodland communities most common on the eastern lower slopes of this part of the southern Flinders. The last two groups represent a southern mallee/South Australian Blue Gum association and the hummock grasslands that dominate the higher slopes and crests of the northern part of the western range of the southern Flinders.

A summary of the relationships between habitat parameters and floristic groups is provided in Table 16. A floristic group description, a map of the sites contributing to each group, and photographic examples follow. A more detailed presentation displaying the most frequent and important indicator species can be found in Appendix 9.

Figure 66. The vulnerable Slender Bell-fruit *Codonocarpus pyramidalis* has its stronghold in the Flinders and Olary Ranges (*Photo: AC Robinson*).

Table 16. The percentage of sites within each floristic group occurring in the different habitat parameter groups. Percentage figures for dominant types within a group are presented in bold type to aid interpretation.

Landform pattern	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Alluvial plain	1%	0%	1%	2%				3%				8%		4%	4%	2%		7%		13%	9%	11%	9%	8%	9%	8%	11%	4%	13%	2%	8%	18%	10%	38%	14%
Badlands						1%																													
Drainage line	1%	1%			8%	1%			17%	11%	3%	5%		**35%**	**74%**	10%			6%		13%	4%		1%	2%				2%			9%			
Dunefield				2%												2%			12%	**33%**					2%	2%				6%	17%	8%			
Escarpment																							2%												
Flood plain				4%				3%		6%				8%	4%	4%			6%		26%	7%		3%	5%	6%	6%			6%	8%	3%		13%	
Hills	**56%**	**36%**	**30%**	9%	15%	33%	**61%**	14%	**37%**	11%	**37%**	13%	17%	7%	7%			9%		27%		1%		7%	2%	11%		17%	4%	6%		3%	10%		14%
Low hills	24%	20%	**30%**	16%	**43%**	**41%**	28%	**37%**	22%	**28%**	33%	**47%**	33%	14%	4%	**39%**	**57%**	**34%**			4%	3%	4%	19%	9%	12%	11%	17%	10%	13%	8%	8%	15%		**29%**
Mountains	1%	11%	3%		8%	1%	3%		7%	11%	2%			10%	7%															2%					
Plain	2%	10%	6%	**38%**	5%	8%	3%	26%	5%	6%	6%	13%		11%		22%	14%	30%	**65%**	20%	**39%**	**64%**	**73%**	**39%**	**58%**	**47%**	**51%**	**41%**	**63%**	**57%**	**42%**	**40%**	**55%**	**50%**	**29%**
Plateau		0%	1%			1%																1%	2%					2%								
Rises	14%	20%	28%	29%	23%	14%	6%	17%	12%	**28%**	18%	13%	**50%**	12%		22%	29%	20%	6%	7%	9%	5%	9%	20%	9%	15%	11%	17%	6%	6%		3%	10%		14%
Sand plain																			6%			4%		2%	4%		9%		2%		17%	8%			
Tidal flat																																			
Land unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
cliff					3%																														
depression	2%	0%			5%	1%			15%	11%	5%	11%		**33%**	**63%**	11%			12%		17%	4%	2%	4%	4%	2%	3%		3%	2%		12%			
dune																2%			18%	13%		1%								4%	25%	3%			
flood out														1%							13%	3%		3%		2%						5%			
gorge														2%																					
gully	2%																																		
hill crest	13%	8%	6%	2%	8%	12%	11%	6%	7%		5%	11%		1%			29%	9%	18%	7%	4%	1%	2%	4%		2%	3%	4%	2%	9%		2%			
hill footslope	4%		1%	4%	3%	7%	3%	11%	2%		9%	5%		2%		13%		7%				4%		5%	7%	12%	9%	9%	7%	2%	17%	5%	23%	25%	**43%**
hill slope	**76%**	**85%**	**88%**	**71%**	**68%**	**70%**	**69%**	**61%**	**66%**	**67%**	**76%**	**63%**	**100%**	23%	4%	**51%**	**57%**	**53%**		**47%**	4%	8%	16%	**48%**	15%	26%	26%	**50%**	14%	19%	8%	15%	23%		14%
Not recorded		0%																											2%						
plain (incl undulating plain	1%	4%	3%	18%	10%	7%	3%	22%	5%	22%	3%	11%		11%	11%	21%	14%	30%	**53%**	33%	**54%**	**79%**	**73%**	31%	**67%**	**56%**	**54%**	30%	**66%**	**57%**	**50%**	**57%**	**50%**	**75%**	**43%**
playa/pan																														2%					
ridge			1%				11%				1%												2%						3%				5%		
rock outcrop (on hill)		0%	1%						2%					1%																					
rock outcrop (on plain)	1%					1%	3%																												
sandy plain																									2%		3%		2%						
stony plain		0%		2%		2%					1%					2%						1%	4%	4%	2%		3%	7%							
stream channel	1%			2%	5%				2%					24%	22%						8%			3%	2%	2%			2%	2%					
swale																									2%					2%		2%			
swamp														1%																					
Surface soil texture	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
clay	4%	1%	8%	4%		3%	3%	3%		6%	5%			1%		4%		5%	12%		13%	6%	**20%**	5%	7%	6%	6%	22%	15%		17%	9%	9%	**38%**	14%
clay/loam		2%	3%		5%	4%	3%	6%	7%	11%	2%	11%		2%		9%		5%			8%	1%	11%	5%	9%	5%	3%	9%	**22%**	13%	8%	3%			
clay/sand	4%	6%	7%	7%	8%	5%	6%	3%	10%	6%	6%	3%		12%	19%	4%		2%	6%	20%	4%	15%	7%	7%	2%	6%	14%	2%	5%	4%	8%	3%		13%	14%
clay/sand/loam	**26%**	**40%**	**52%**	**36%**	**30%**	**33%**	**22%**	**36%**	32%	**39%**	25%	21%	**33%**	21%	11%	**34%**		16%	**24%**	7%	21%	24%	**40%**	**20%**	22%	20%	11%	15%	12%	26%		18%	32%	13%	14%
loam	2%	0%	1%		3%	4%	11%	6%	7%		1%	11%				2%	14%	5%			4%			2%	4%	2%		2%	10%	11%		9%	5%	25%	**29%**
loam/sand	24%	29%	18%	**36%**	10%	31%	**22%**	33%	**37%**	11%	**29%**	**24%**		**38%**	**44%**	28%		7%	12%	**33%**	13%	**30%**	13%	15%	**38%**	**39%**	17%	4%	19%	**30%**	**25%**	**42%**	**41%**		14%
not recorded	14%	12%	3%	9%	33%	14%	25%	6%	5%	6%	14%	26%	33%	8%	11%	8%	57%	57%	6%		13%	11%	7%	41%	13%	14%	37%	43%	8%	6%		3%	5%		
sand	1%	0%		4%	3%	1%				6%		3%		10%	7%				**24%**	27%		4%		4%	4%	3%	6%	2%	5%	6%	42%	9%	9%		
silt/clay		1%	1%							6%						2%						1%													
silt/clay/loam		0%	6%	2%									17%	1%	4%	2%	14%	2%			21%	1%								4%				13%	
silt/clay/sand																																			
silt/loam	2%	0%				1%	3%	6%	2%							2%	14%					1%				2%			2%			2%			14%
silt/sand																			12%		4%	6%			2%										
skeletal	21%	6%	2%	2%	10%	4%	6%	3%		11%	18%	3%	17%	6%	4%	6%		2%	6%	13%		1%	2%	1%		5%	6%		2%			2%			
Total	138	203	160	45	40	100	36	36	41	18	87	38	6	84	27	53	7	44	17	3	15	24	142	45	110	55	66	35	46	59	47	12	65	22	8

Table 16. (continued)

Landform pattern	37	38	39	40	41	42	43	44	45	46	47	48	49	50	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Alluvial plain		8%						10%	3%		4%		13%									1%			2%						
Badlands																															
Drainage line		17%						5%					9%	**50%**		2%		3%	7%							4%		25%			
Dunefield		17%				2%		**25%**																							
Escarpment																	3%		3%												
Flood plain						2%		10%				17%		6%		4%						1%									
Hills			**31%**	24%	16%	14%	**38%**	5%	10%	7%	4%		13%	6%	11%		**45%**	**57%**	**51%**	21%	**55%**	31%	**63%**	30%	26%	36%	**77%**		11%		33%
Low hills	20%		24%	**38%**	**54%**	19%	23%	**25%**	26%	40%	19%	**33%**	**28%**	13%	4%		16%	6%		**53%**	24%	**33%**	29%	**41%**	**37%**	12%	13%	25%	**89%**	**100%**	**50%**
Mountains			17%	3%		2%		15%	3%								13%	25%	28%		10%	6%	4%		9%	**48%**	10%	**50%**			13%
Plain	**40%**	**50%**	14%	27%	19%	**40%**	**38%**	5%	**54%**	**47%**	**52%**	**33%**	**28%**	13%	**64%**	**91%**	13%			16%	6%	14%	4%	24%	11%						4%
Plateau																			9%												
Rises	**40%**		14%	8%	11%	19%			5%	7%	22%	17%	9%	13%	21%	4%	10%	9%	3%	11%	4%	14%		5%	15%						
Sand plain																															
Tidal flat		8%																													
Land unit	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**
cliff																										2%	3%				
depression	20%	18%			3%		3%	4%					8%	**25%**				6%	7%	11%		1%					3%	8%			
dune		6%						15%																							
flood out					3%											2%															
gorge																															
gully					3%																		3%		2%		3%				
hill crest	20%			5%	5%	2%	5%	7%	7%		4%		5%				17%	13%	20%	16%	12%	5%	3%	6%	7%	8%	6%			7%	6%
hill footslope			31%	8%	5%	13%	8%	11%	10%		4%		5%		14%	2%	11%		1%		14%	8%	7%	23%	17%	3%	3%	**42%**	8%	**53%**	
hill slope	20%		**59%**	**56%**	**63%**	23%	24%	22%	17%	33%	36%	18%	32%	20%	14%	5%	**56%**	**79%**	**70%**	**47%**	**63%**	**59%**	**76%**	**38%**	**62%**	**64%**	**64%**	25%	**69%**	33%	**82%**
Not recorded						4%	19%	4%				9%	5%	10%												7%		8%			
plain (incl undulating plain)	**40%**	**65%**	10%	31%	13%	**51%**	**27%**	**26%**	**63%**	**67%**	**46%**	**73%**	**35%**	**25%**	**68%**	**87%**	6%			11%	8%	21%	7%	29%	8%	2%		8%	15%	7%	3%
playa/pan		6%																													
ridge					3%	2%	11%		2%								8%		1%		2%	3%	3%	2%	3%	14%	18%				3%
rock outcrop (on hill)																									2%						
rock outcrop (on plain)																															
sandy plain						2%																									
stony plain																4%				5%											
stream channel		6%			3%		3%	11%			11%		8%	20%			3%	1%		11%		3%		2%				8%	8%		6%
swale						2%																									
swamp															4%																
Surface soil texture	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**
clay		**24%**	7%	3%	8%		3%	4%	15%	6%		18%	3%		**29%**	9%	3%	4%			2%	5%		10%				8%			
clay/loam	20%	18%	17%	10%	5%	23%	14%	19%	10%	**22%**	**21%**	**36%**	14%	5%	11%	5%	22%	6%	1%			14%	28%	**40%**	8%	5%	15%	8%	23%	**27%**	**35%**
clay/sand		6%	7%		8%	4%	3%	7%	2%			9%	8%	10%	4%	7%	3%	4%	14%	5%	4%	7%		13%	7%			8%			3%
clay/sand/loam		6%	17%	31%	**32%**	15%	14%	7%	29%	**22%**	11%	9%	8%	10%	14%	9%	19%	**66%**	**39%**	**37%**	16%	**25%**	7%	10%	18%	8%		8%	8%		3%
loam			3%	5%	5%	15%	5%	7%	17%		4%		8%	5%	4%		17%		1%	5%	2%	11%	**31%**	2%	22%	14%	**48%**	17%	23%	**27%**	26%
loam/sand	**40%**	6%	14%	**36%**	26%	**28%**	**22%**	**22%**	**27%**	**22%**	14%	18%	14%	**35%**	11%	4%	**31%**	15%	32%	5%	24%	**25%**	**31%**	17%	**40%**	**39%**	33%	**25%**	**46%**	**27%**	12%
not recorded	40%	29%	7%	13%	5%	9%	30%	4%		11%	43%	9%	38%	30%	21%	27%	6%		3%	42%	8%	5%	3%	2%	2%	34%	3%	17%		13%	15%
sand						2%		**22%**		6%								1%									1%			7%	6%
silt/clay																5%			1%												
silt/clay/loam		6%	3%		3%					6%	4%		8%		7%	4%		1%			4%	4%		2%				8%			
silt/clay/sand																5%															
silt/loam		6%	3%		3%	4%	5%	7%		6%	4%											3%		2%	2%						
silt/sand																**24%**															
skeletal			**21%**	3%	5%		5%							5%				1%	7%	5%	**39%**	1%		2%	2%						
Total	**7**	**5**	**17**	**29**	**39**	**38**	**47**	**37**	**27**	**41**	**18**	**28**	**11**	**37**	**20**	**2**	**2**	**28**	**55**	**36**	**68**	**69**	**19**	**49**	**76**	**29**	**52**	**60**	**59**	**67**	**12**

Detailed descriptions of 66 floristic groups defined using PATN are presented in the following format in the remainder of this chapter:

- PATN group number followed by the descriptive title that includes the dominant overstorey species, the vegetation structural classification for South Australia and the dominant understorey species.
- A brief description of the location, landform, soils and variation across the group. The most important indicator species are also listed.
- The number of sites contributing to the group.
- The number of perennial species recorded at sites defining the group.
- The total number of species recorded at sites defining the group.
- The average number of perennial and total species per site including the maximum and minimum number of species recorded at any of the sites within the group.
- The number of conservation significant species recorded at sites in the group for the Australian, South Australian and Flinders Ranges regional levels.
- The number of introduced species at all sites within the group and the average number per site.
- A map of the study area with the location of the sites contributing to the group.
- A picture of one of the sites representing the group.

The sites contributing to each group are detailed in Appendix 2. Species frequencies, significance, occurrence in other groups, and cover abundance estimates, as well as physical attributes of the group are tabled in Appendix 10.

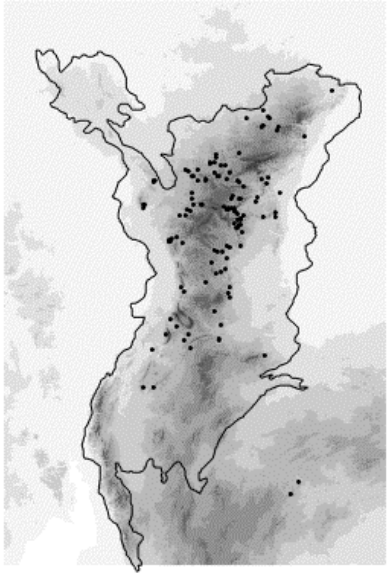
Figure 67. Edeowie Gorge, Wilpena Pound. Sites in deep sheltered gorges supported the most diverse vegetation assemblages. (*Photo: PD Canty*).

Group 1. ***Acacia tetragonophylla*** **Dead Finish /** ***Acacia victoriae*** **Elegant Wattle Very open tall shrubland +/-** ***Acacia aneura*** **Mulga Very low open woodland over** ***Ptilotus obovatus*** **Silver Mulla Mulla/** ***Solanum*** **spp. Potato Bush/*****Sida petrophila*** **Rock Sida/*****Senna artemisioides*** **Desert Senna/** ***Dodonaea lobulata*** **Lobed-leaf Hop-bush/*****Eremophila freelingii*** **Rock Emubush shrubs.**

This common shrubland to low woodland association usually occurs on rocky or shale outcrops, crests and slopes of ranges, low hills and rocky rises along the margins of the central spine of the northern Flinders. The soils were mostly described as skeletal or sandy loams to clays. Variants of this association vary from very open overstorey with sparse understorey to dense Acacia. Important indicator species include: Lobed-leaf Hop-bush, Dead Finish, Silver Mulla Mulla, Rock Emubush, Mulga and *Eremophila alternifolia* Narrow-leaf Emubush.

Number of sites in group: 138
Number of perennial species defining group: 193
Total number of species at sites: 317
Average number of species at sites Perennial: 16
total: 22 Max: 61 Min: 6
Number of conservation significant species Australian: 2
South Australia: 9
Flinders Ranges region: 18
Number of introduced species: 50 average per site: 7

Figure 68. Site NAN00501 Senna shrubland with emergent dead *Acacia* spp.

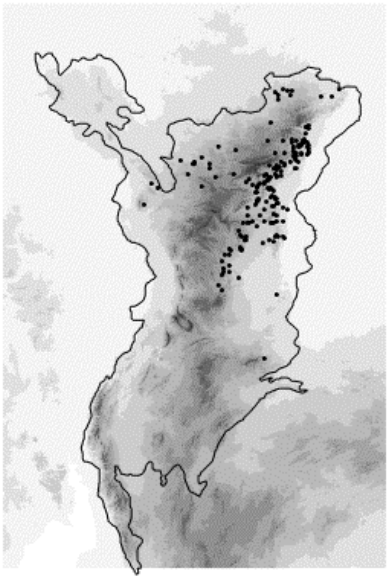


Group 2. ***Acacia aneura*** **Mulga +/-** ***Alectryon oleifolius*** **Bullock Bush Very low open woodland with** ***Acacia tetragonophylla*** **Dead Finish/** ***Acacia victoriae*** **Elegant Wattle Tall shrubland over a** ***Senna artemisioides*** **Desert Senna/** ***Ptilotus obovatus*** **Silver Mulla Mulla/** ***Sida petrophila*** **Rock Sida/** ***Solanum*** **spp. Potato bush/** ***Eremophila freelingii*** **Rock Emubush Low shrubs.**

This low open woodland to tall shrubland association is common on rocky slopes and crests of hills, ranges and some mountains in the northern and eastern parts of the northern Flinders. Sand/clay/loam and sand/loam soils were most frequently recorded for sites in this group. Vegetative cover of site with this association were generally sparse. Important indicator species include: Mulga, *Amyema maidenii* Pale-leaf Mistletoe, *Scaevola spinescens* Spiny Fan-flower, Rock Emubush and Dead Finish, *Abutilon leucopetalum* Desert Lantern-bush, *Sida fibulifera* Pin sida and *Hibiscus sturtii* Sturt's Hibiscus.

Number of sites in group: 203
Number of perennial species defining group: 233
Total number of species at sites: 365
Average number of species at sites Perennial: 27
total: 35 Max: 96 Min: 12
Number of conservation significant species Australian: 4
South Australia: 14
Flinders Ranges region: 34
Number of introduced species: 33 Average per site: 5

Figure 69. Site NUD00201 Rock Emubush shrubland with emergent Mulga.



Group 3. ***Acacia tetragonophylla*** **Dead Finish/** ***Acacia victoriae*** **Elegant Wattle Very open tall shrubland over a** ***Ptilotus obovatus*** **Silver Mulla Mulla/** ***Sida petrophila*** **Rock Sida/** ***Dodonaea lobulata*** **Lobed-leaf Hop-bush/** ***Eremophila freelingii*** **Rock Emubush Low open shrubland +/- emergent** ***Alectryon oleifolius*** **Bullock Bush/** ***Acacia aneura*** **Mulga.**

This tall shrubland to low woodland association is found on slopes, ridges and outcrops of ranges and low hills, mostly in the northernmost part of the northern Flinders with a cluster of sites further south in the Wilkawillina Gorge area of the Bunkers Range (Flinders Ranges National Park). The trees and shrubs in this association were generally very sparsely present with the vegetative cover being dominated by low shrubs or grasses. Important indicator species include: *Cheilanthes lasiophylla* Woolly Cloak-fern, *Chrysocephalum semicalvum* Scented Button-bush, *Aristida nitidula* Brush Three-awn, *Stipa trichophylla* Spear-grass, *Sida cunninghamii* Ridge Sida and Dead Finish.

Number of sites in group: 159
Number of perennial species defining group: 228
Total number of species at sites: 371
Average number of species at sites Perennial: 29
total: 45 Max: 76 Min: 22
Number of conservation significant species Australian: 8
South Australia: 20
Flinders Ranges region: 38
Number of introduced species: 38 Average per site: 9

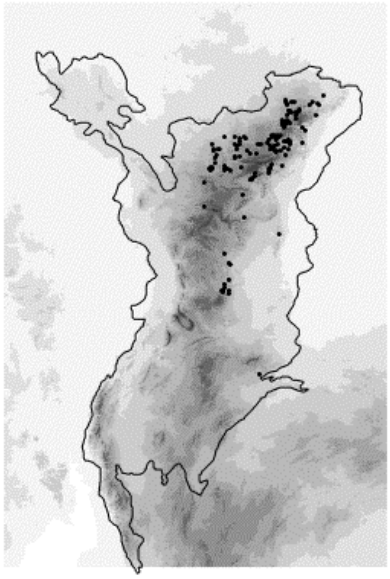


Figure 70. Site WET00401 Rock Sida Low open shrubland with emergent Bullock Bush and Dead Finish.

Group 4. ***Casuarina pauper*** **Black Oak/** ***Alectryon oleifolius*** **Bullock Bush Very low open woodland with** ***Acacia victoriae*** **Elegant Wattle over** ***Maireana pyramidata*** **Black Bluebush/** ***Rhagodia spinescens*** **Spiny Saltbush/** ***Enchylaena tomentosa*** **Ruby Saltbush Low shrubland.**

This low open woodland association most commonly occurs on low hill slopes, rises and plains on the eastern and northern margins of the northern Flinders. Recorded surface soils were a mixture of clay/loam/sand or sand/loam. Where Bullock bush and Elegant wattle dominate, the overstorey is very sparse. When Black Oak is present it generally forms denser low woodlands. Understorey species such as Black Bush are generally sparsely present, however other chenopods such as Low Bluebush *Maireana astrotricha* generally form denser stands when present. Indicator species include: Black Oak, *Dodonaea microzyga* Brilliant Hopbush, *Acacia oswaldii* Umbrella Wattle, Black Bluebush and *Dissocarpus paradoxus* Ball Bindyi.

Number of sites in group: 46
Number of perennial species defining group: 154
Total number of species at sites: 232
Average number of species at sites Perennial: 22
total: 28 Max: 72 Min: 11
Number of conservation significant species Australian: 4
South Australia: 10
Flinders Ranges region: 16
Number of introduced species: 28 Average per site: 5

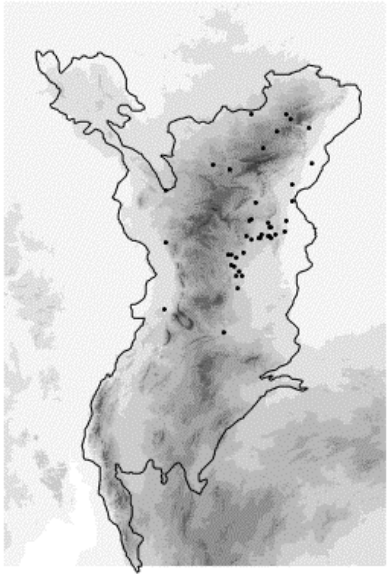


Figure 71. Site ERE00401 Black Oak woodland over sparse Brilliant Hopbush.

Group 5. *Eucalyptus gillii* Curly Mallee open mallee or *Acacia tetragonophylla* Dead Finish Very open tall shrubland over *Ptilotus obovatus* Silver Mulla Mulla/ *Solanum* spp. Potato Bush Low open shrubland.

This open mallee or sparse shrub association occurs on the slopes of low hills and rises characterised by white calcareous soils and dolomite outcrops. The Curly Mallee appears to be restricted to sites on the eastern side of the northern Flinders, whilst sites across the northern margin have an open or sparse Acacia shrub overstorey. Indicator species include Curly Mallee, Bluebush *Maireana pentatropis* Erect Mallee, *Anemocarpa podolepidium* Rock Everlasting, *Maireana melanocarpa* Black-fruited Bluebush and *Amyema miquelii* Box Mistletoe.

Number of sites in group: 43
Number of perennial species defining group: 154
Total number of species at sites: 249
Average number of species at sites Perennial: 23
total: 31 Max: 69 Min: 12
Number of conservation significant species Australian: 4
South Australia: 9
Flinders Ranges region: 18
Number of introduced species: 21 Average per site: 6

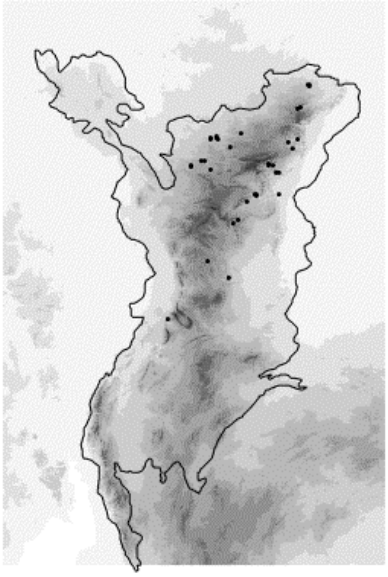


Figure 72. Site NUD00101 Curly Mallee over Spinifex.

Group 6. *Eremophila freelingii* Rock Emubush +/- *Senna artemisioides* Desert Senna Open shrubland over *Maireana astrotricha* Low Bluebush/ *Ptilotus obovatus* Silver Mulla Mulla / *Maireana sedifolia* Pearl Bluebush shrubs +/- *Acacia aneura* Mulga/ *Acacia tetragonophylla* Dead finish very Low open woodland.

This low shrubland to low open woodland association was commonly associated with the slopes on rises to low ranges which fringe the main body of the northern Flinders. When Mulga or Blackoak *Casuarina pauper* are present the association forms an open woodland. More typically it assumes the form of a low shrubland except when the taller shrubs Dead Finish or Desert Senna dominate. Important indicator species include: Rock Emubush, *Dodonaea microzyga* Brilliant Hop-bush, Pearl Bluebush, Low Bluebush, and *Rhagodia ulicina* Intricate Saltbush.

Number of sites in group: 101
Number of perennial species defining group: 176
Total number of species at sites: 265
Average number of species at sites Perennial: 18
total: 22 Max: 48 Min: 9
Number of conservation significant species Australian: 1
South Australia: 6
Flinders Ranges region: 21
Number of introduced species: 22 Average per site: 4

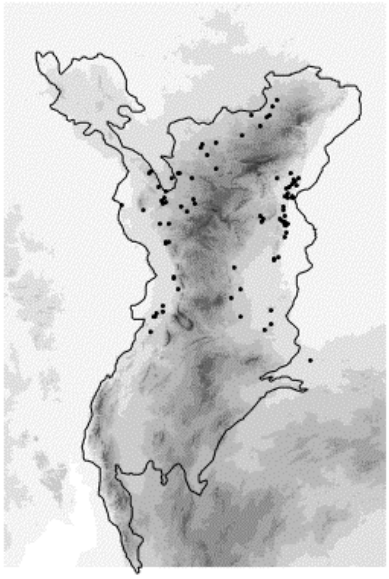
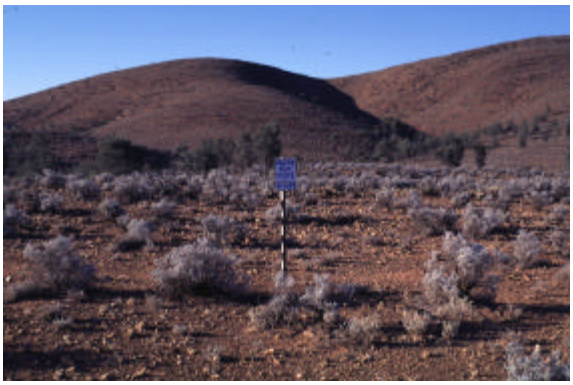


Figure 73. Site PUT00301 Pearl Bluebush and Silver Mulla Mulla Low shrubland with emergent Acacias and Black Oak.



Group 7. *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Atriplex vesicaria* Bladder Saltbush/ *Maireana astrotricha* Low Bluebush/ *Eremophila freelingii* Rock Emubush Low shrubland.

This low shrub association is most frequently encountered on the slopes, crests and ridges of ranges and low hills in the north-western part of the northern Flinders. At sites where Bladder Saltbush and Low Bluebush dominate, the association forms a denser low shrubland. The formation tends to be open when other species are dominant. Important indicator species include: Rock Sida, *Senecio anethifolius* Feathery Groundsel, Bladder Saltbush, *Isotoma petraea* Rock Isotome and Silver Mulla Mulla.

Number of sites in group: 36
Number of perennial species defining group: 107
Total number of species at sites: 188
Average number of species at sites Perennial: 13
total: 20 Max: 55 Min: 7
Number of conservation significant species Australian: 1
South Australia: 3
Flinders Ranges region: 8
Number of introduced species: 38 Average per site: 7

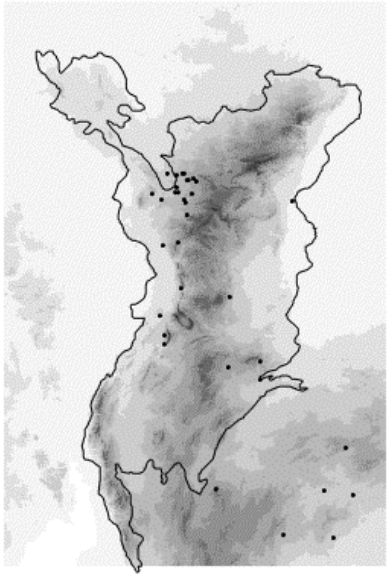


Figure 74. Site PUT00402 Rock Emubush over Low Bluebush with emergent Mulga.

Group 8. *Maireana pyramidata* Black Bluebush/ *Maireana sedifolia* Pearl Bluebush/ *Ptilotus obovatus* Silver Mulla Mulla Low shrubland.

This low shrubland to very low open woodland association occurs mostly on the slopes of low hills, rises and undulating plains on the western and eastern margins of the central Flinders. The association tends to a tall shrubland to woodland where *Alectryon oliefolius* Bullock Bush, *Acacia aneura* Mulga or *Casuarina pauper* Black Oak are present. Important indicators include: Pearl Bluebush, Black Bluebush, Tangled Burr-daisy *Calotis erinacea*, *Eriochiton sclerolaenoides* Woolly-fruited Bluebush.

Number of sites in group: 36
Number of perennial species defining group: 110
Total number of species at sites: 182
Average number of species at sites Perennial: 13
total: 21 Max: 46 Min: 12
Number of conservation significant species Australian: 0
South Australia: 3
Flinders Ranges region: 3
Number of introduced species: 33 Average per site: 7

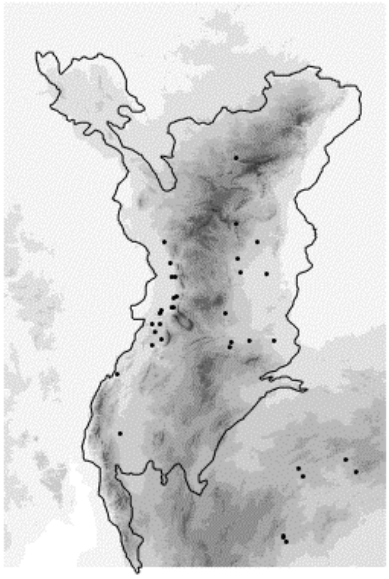
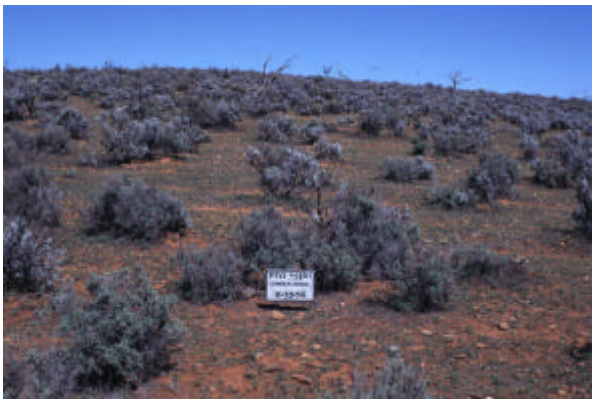


Figure 75. Site PTO11201 Pearl Bluebush and Black Bluebush open shrubland.



Group 9. *Callitris glaucophylla* White Cypress-pine +/- *Alectryon oleifolius* Bullock Bush Open woodland +/- *Acacia victoriae* Elegant Wattle over *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida Low shrubland.

This open woodland to tall shrubland association is characteristic of the lower slopes and valleys of the ranges and mountains in the central part of the northern Flinders. White Cypress-pine, Bullock Bush or Eucalypts when present create woodlands. When these are absent the Acacias dominate to form shrublands. The understorey is generally a disturbed low open shrubland, grassland dominated by introduced herbs or grasses. Important indicator species include: *Asphodelus fistulosus* Onion Weed, *Acacia calamifolia* Wallowa, *Olearia pimeleoides* Pimelia Daisy-bush, *Acacia ligulata* Umbrella Bush, *Opuntia stricta* Prickly Pear and White Cypress-pine.

Number of sites in group: 41
Number of perennial species defining group: 153
Total number of species at sites: 233
Average number of species at sites Perennial: 21
total: 29 Max: 60 Min: 7
Number of conservation significant species Australian: 2
South Australia: 9
Flinders Ranges region: 11
Number of introduced species: 47 Average per site: 12

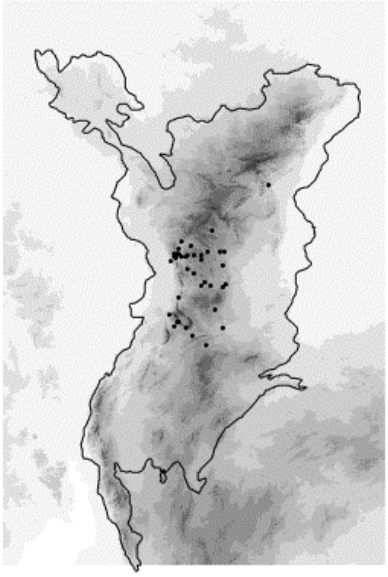


Figure 76. Site PAR00101 Elegant Wattle over *Aristida* grass, Silver Mulla Mulla and Onion Weed.

Group 10. *Acacia victoriae* Elegant wattle Open tall shrubland over *Asphodelus fistulosus* Onion Weed +/- *Zygophyllum aurantiacum* Shrubby Twin-leaf/ *Senecio magnificus* Showy Groundsel low shrubs.

This open shrubland association was most often found on low hills and rises in the higher parts of the central region of the northern Flinders. Shrubs and trees were sometimes absent leaving the association in the form of a herbland, low shrubland or tussock grassland. Important indicator species include: Onion Weed, Shrubby Twin-leaf, *Acacia calamifolia* Wallowa, *Ixiolaena tomentosa* Wooly Plover-daisy, *Acacia rigens* Nealie and Showy Groundsel.

Number of sites in group: 18
Number of perennial species defining group: 64
Total number of species at sites: 113
Average number of species at sites Perennial: 10
total: 17 Max: 33 Min: 6
Number of conservation significant species Australian: 1
South Australia: 3
Flinders Ranges region: 4
Number of introduced species: 29 Average per site: 8

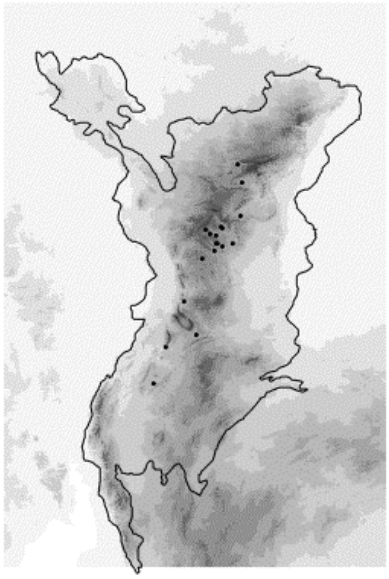


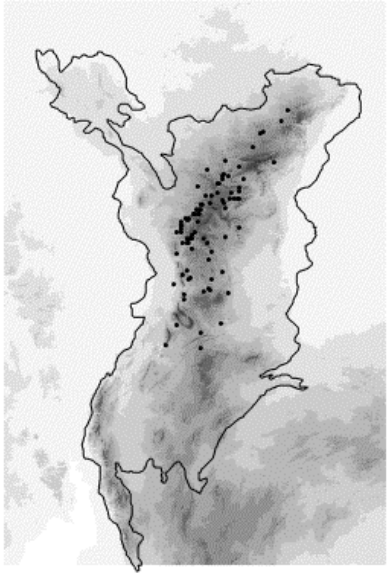
Figure 77. Site PAT00402 Nealie over herbs and grasses.

Group 11. *Acacia victoriae* Elegant Wattle Open tall shrubland over *Cymbopogon ambiguus* lemon-grass/ *Ptilotus obovatus* Silver Mulla Mulla +/- *Callitris glaucophylla* White Cypress-pine/ *Acacia rivalis* Silver Wattle.

This tall shrubland to open woodland over tussock grass association is common on slopes of hills, low hills and rises along the central spine of the northern Flinders. Most commonly occurs as a tall open shrubland often with emergent White-cypress Pine. When the tall Acacia shrubs are absent Lemon-grass usually dominates. Indicator species includes: Lemon-grass, Silver Wattle, White-cypress Pine and Elegant Wattle.

Number of sites in group: 89
Number of perennial species defining group: 130
Total number of species at sites: 218
Average number of species at sites Perennial: 12
total: 18 Max: 39 Min: 7
Number of conservation significant species Australian: 1
South Australia: 5
Flinders Ranges region: 7
Number of introduced species: 42 Average per site: 7

Figure 78. Site MUD00202 White-cypress Pine woodland.

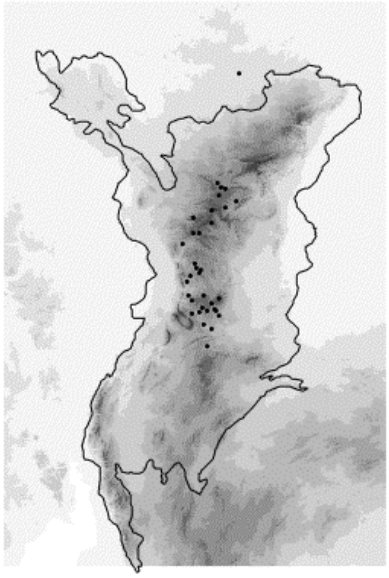


Group 12. *Callitris glaucophylla* White Cypress-pine +/- *Eucalyptus intertexta* Gum-barked Coolibah Open woodland over *Stipa scabra* Rough Spear-grass/ *Cymbopogon ambiguus* Lemon-grass/ *Danthonia caespitosa* Common Wallaby-grass.

This open woodland association was found on slopes, crests and depressions of low hills, rises and alluvial plains in the central part of the northern Flinders. An Important indicator species for this group not mentioned in the group name was, *Sclerolaena patenticuspis* Spear-fruit Bindyi.

Number of sites in group: 39
Number of perennial species defining group: 68
Total number of species at sites: 127
Average number of species at sites Perennial: 10
total: 16 Max: 35 Min: 6
Number of conservation significant species Australian: 1
South Australia: 4
Flinders Ranges region: 3
Number of introduced species: 32 Average per site: 8

Figure 79. Site PMB1993 White Cypress-pine over Silver Wattle *Acacia rivalis*, Rough Spear-grass and Lemon-scented Grass.

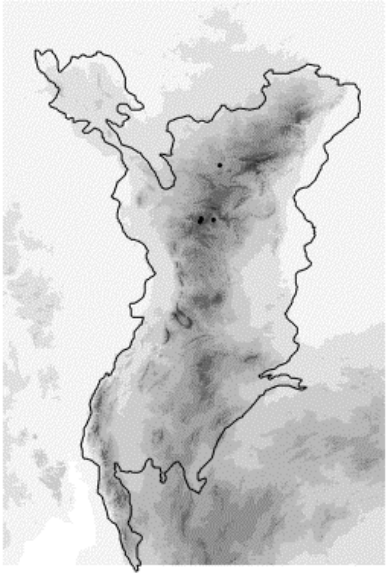


Group13. *Cymbopogon ambiguus* Lemon-grass with *Senecio magnificus* Showy Groundsel +/- *Callitris glaucophylla* White Cypress-pine/ *Melaleuca lanceolata* Dryland Tea-tree/ Mallee spp. overstorey.

Minor group

Number of sites in group: 6
Number of perennial species defining group: 20
Total number of species at sites: 39
Average number of species at sites Perennial: 9
total: 15 Max: 20 Min: 12
Number of conservation significant species Australian: 0
South Australia: 0
Flinders Ranges region: 0
Number of introduced species: 9 Average per site: 6

Figure 80. Site WAR00601 White Cypress-pine over Lemmon-scented Grass.

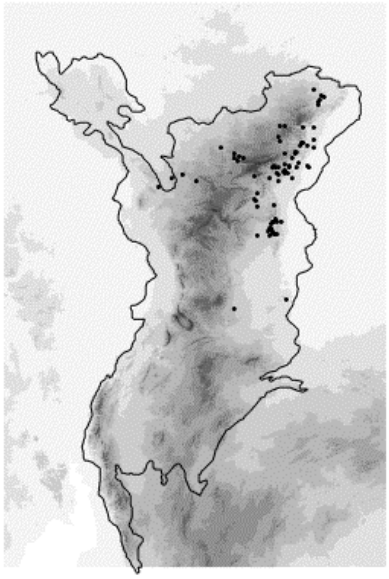


Group 14. *Acacia victoriae* Elegant Wattle tall shrubs +/- *Eucalyptus camaldulensis* River Red Gum/ *Melaleuca glomerata* Inland Paper-bark woodland over *Malvastrum americanum* Malvastrum/ *Ptilotus obovatus* Silver Mulla Mulla/ *Enchylaena tomentosa* Ruby Saltbush/ *Solanum* spp. Potato Bush/ *Pterocaulon sphacelatum* Apple-bush low shrubs and *Cymbopogon ambiguus* Lemon-grass.

This tall shrubland to open woodland association was recorded along drainage channels, gorges, swamps, floodouts amongst a variety of landforms on mostly sand/laom soils. This group is restricted to watercourses in the northern and eastern flanks of the northern Flinders. Important indicator species include: Apple-bush, Inland Paper-bark, *Pluchea dentex* Bowl Daisy, Malvastrum, River Red Gum, *Abutilon leucopetalum* Desert Lantern-bush and *Melaleuca dissitiflora*.

Number of sites in group: 86
Number of perennial species defining group: 238
Total number of species at sites: 411
Average number of species at sites Perennial: 29
total: 42 Max: 111 Min: 17
Number of conservation significant species Australian: 9
South Australia: 18
Flinders Ranges region: 39
Number of introduced species: 63 Average per site: 10

Figure 81. Site NUD00501 River Red Gum woodland over Inland Paperbark.

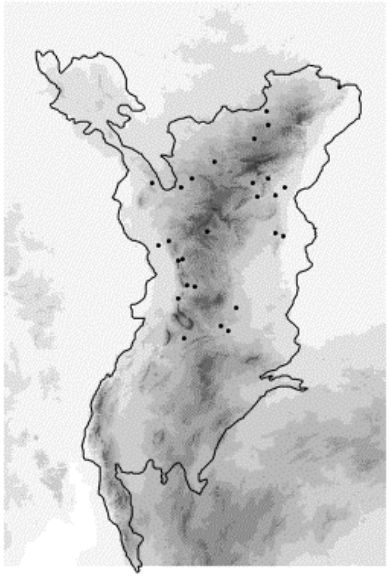


Group 15. *Eucalyptus camaldulensis* River Red Gum Woodland +/- *Melaleuca glomerata* Inland Paper-bark/ *Acacia victoriae* Elegant Wattle over *Cymbopogon ambiguus* Lemon-grass +/- shrubs, sedges and herbs.

This woodland group was found along the better watered depressions and stream channels of drainage lines scattered across the northern Flinders. The wetter conditions of these areas are indicated by the presence of sedges and rushes. Important indicator species include: *Typha orientalis* Broad-leaf Bulrush, *Cyperus gymnocaulos* Spiny Flat-sedge, River Red Gum, Inland Paper-bark, *Schoenoplectus litoralis* Shore Club-rush and *Ajuga australis* Australian Bugle.

Number of sites in group: 27
Number of perennial species defining group: 126
Total number of species at sites: 201
Average number of species at sites Perennial: 17
total: 25 Max: 56 Min: 9
Number of conservation significant species Australian: 1
South Australia: 3
Flinders Ranges region: 6
Number of introduced species: 55 Average per site: 13

Figure 82. Site PAR00301 River Red Gum woodland over sedges and reeds.

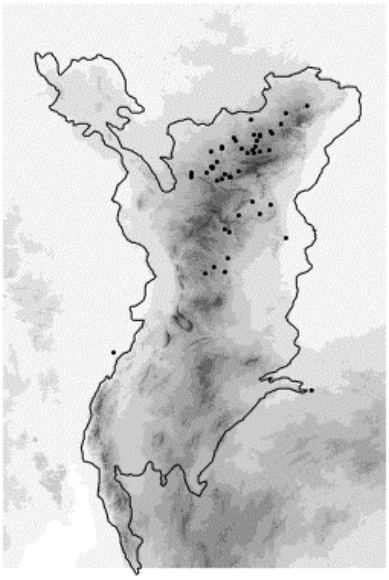


Group 16. *Alectryon oleifolius* Bullock Bush/ *Acacia victoriae* Elegant Wattle Very low open woodland/tall shrubland over *Sclerolaena obliquicuspis* Oblique-spined Bindyi dwarf-shrubland.

This low open woodland association was found on slopes of low hills and rises on the northern and eastern flanks of the northern Flinders. Important indicator species include: *Lysiana exocarpi* Harlequin Mistletoe, Bullock Bush, *Pimelea elongata*, *Frankenia subteres* and Oblique-spined Bindyi.

Number of sites in group: 53
Number of perennial species defining group: 130
Total number of species at sites: 230
Average number of species at sites Perennial: 13
total: 23 Max: 49 Min: 5
Number of conservation significant species Australian: 2
South Australia: 5
Flinders Ranges region: 16
Number of introduced species: 33 Average per site: 8

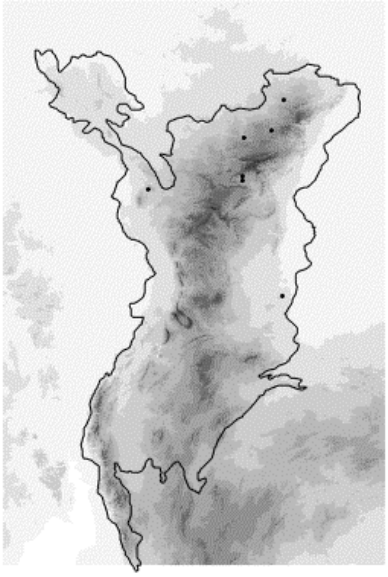
Figure 83. Site YUH00701 Oblique-spined Bindyii with emergent Elegant Wattle.



Group 17. *Sida petrophila* Rock Sida and *Sclerolaena obliquicuspis* Oblique-spined Bindyi Low shrubland with emergent *Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle tall shrubs.

This low open shrubland group was most closely associated with slopes and crests of low hills and rises on loam soils. The few sites comprising this group were scattered across the northern half of the northern Flinders. Important indicator species include: *Maireana tomentosa*, *Senecio lautus* Variable Groundsel, *Pimelea simplex* Desert Riceflower, Rock Sida.

Number of sites in group: 7
Number of perennial species defining group: 30
Total number of species at sites: 58
Average number of species at sites Perennial: 12
total: 21 Max: 38 Min: 8
Number of conservation significant species Australian: 0
South Australia: 1
Flinders Ranges region: 1
Number of introduced species: 4 Average per site: 3

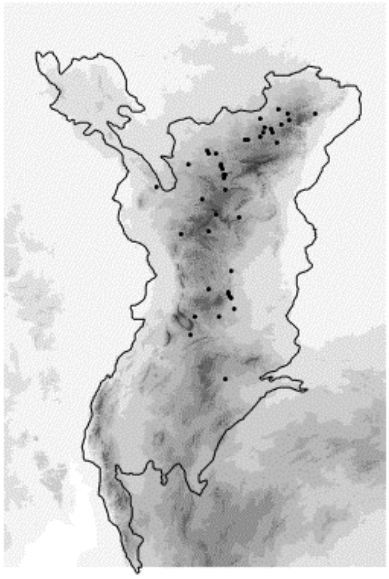


Group 18. *Sclerolaena patenticuspis* Spear-fruit Bindyi/ *Solanum* spp. Potato Bush dwarf-shrubland +/- *Acacia victoriae* Elegant Wattle tall shrub overstorey.

This dwarf-shrub to tall shrubland association was found on slopes, plains and crests of low hills, rises and undulating plains with clay to clay loam soils. Most sites occurred in the northern and central parts of the northern Flinders. Important indicator species include: Spear-fruit Bindyi, *Cymbopogon ambiguus* Lemon-grass, *Zygophyllum aurantiacum* Shrubby Twin-leaf, *Boerhavia dominii* Tar-vine.

Number of sites in group: 46
Number of perennial species defining group: 115
Total number of species at sites: 190
Average number of species at sites Perennial: 16
total: 24 Max: 48 Min: 7
Number of conservation significant species Australian: 3
South Australia: 6
Flinders Ranges region: 9
Number of introduced species: 31 Average per site: 7

Figure 84. Site WPN12601 Shrubby Twin-leaf Low open shrubland.

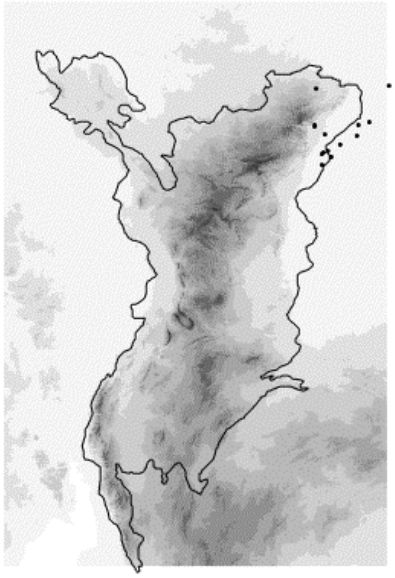


Group 19. *Acacia victoriae* Elegant Wattle/ *Acacia tetragonophylla* Dead Finish/ *Eremophila duttonii* Harlequin Emubush/ *Acacia ligulata* Umbrella Bush Tall shrubland with *Senna artemisioides* Desert Senna over *Sida fibulifera* Pin Sida/ *Rhagodia spinescens* Spiny Saltbush/ *Eragrostis eriopoda* Woolybutt.

This tall shrubland group of the plains, sand plains and dunes was associated with sand to loam soils. The group impinges on the ranges in the north-western most corner of the northern Flinders. Important indicator species include: Woolybutt, the introduced *Cenchrus ciliaris* Buffel Grass, *Swainsona phacoides* Dwarf Swainson-pea, *Minuria denticulata* Wooly Minuria.

Number of sites in group: 14
Number of perennial species defining group: 112
Total number of species at sites: 194
Average number of species at sites Perennial: 20
total: 33 Max: 72 Min: 7
Number of conservation significant species Australian: 1
South Australia: 4
Flinders Ranges region: 17
Number of introduced species: 15 Average per site: 6

Figure 85. Site FIT00201 herbland with emergent Elegant Wattle and Dead Finish. Atypical of the group and the only site within the Ranges.

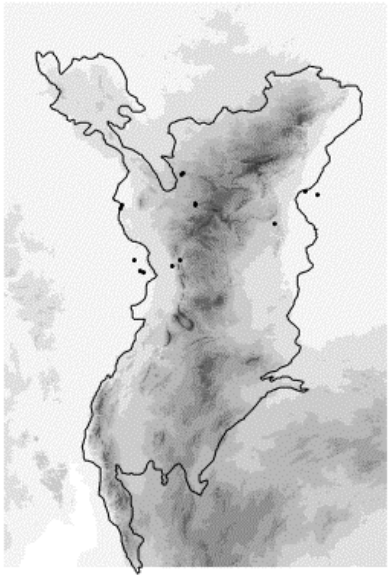


Group 21. *Acacia aneura* Mulga Low woodland +/- *Acacia ligulata* Umbrella Bush over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.

This woodland to shrubland association was strongly associated with dunes, plains and slopes from the dunefields to the hills on sand to sand/loam soils. Sites within the group were mostly located on the eastern and western edges of the central part of the northern Flinders. Important indicator species include: *Crotalaria eremaea* Loose-flowered Rattlepod, Mulga, Umbrella Bush, *Amyema maidenii* Pale-leaf Mistletoe, *Sclerolaena decurrens* Green Bindyi, and *Santalum spicatum* Sandalwood.

Number of sites in group: 16
Number of perennial species defining group: 61
Total number of species at sites: 101
Average number of species at sites Perennial: 12
total: 19 Max: 37 Min: 8
Number of conservation significant species Australian: 0
South Australia: 2
Flinders Ranges region: 5
Number of introduced species: 12 Average per site: 4

Figure 86. Site DEC00201 Umbrella Bush Tall shrubland.

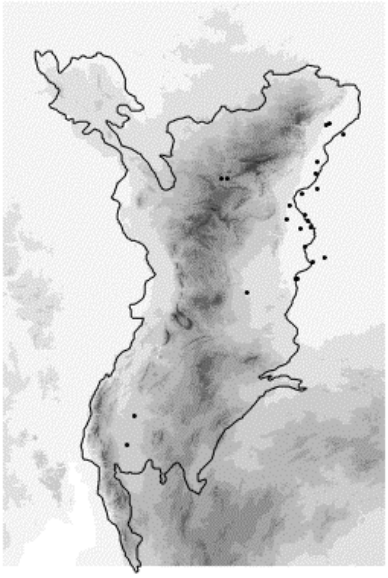


Group 22. *Rhagodia spinescens* Rhagodia Spinescens Low shrubland over *Malvastrum americanum* Malvastrum +/- emergent *Acacia victoriae* Elegant Wattle/ *Acacia salicina* Willow Wattle/ *Eucalyptus camaldulensis* River Red Gum.

This low shrubland to sparse woodland group was mostly found on alluvial landforms of the eastern plains of the northern Flinders. Two sites occurred on the Willochra plain of the southern Flinders. The most common soil types ranged from clay to clay/loam/sand. Important indicator species include: Willow Wattle, *Enteropogon acicularis* Umbrella Grass, *Maireana villosa* Silky Bluebush, Malvastrum and Spiny Saltbush.

Number of sites in group: 25
Number of perennial species defining group: 88
Total number of species at sites: 156
Average number of species at sites Perennial: 10
total: 18 Max: 37 Min: 10
Number of conservation significant species Australian: 0
South Australia: 2
Flinders Ranges region: 9
Number of introduced species: 36 Average per site: 7

Figure 87. Site N3/27 Cotton Bush shrubland with emergent Desert Senna.

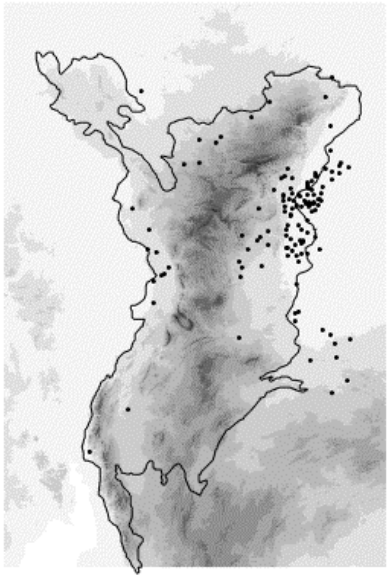


Group 23. *Acacia victoriae* Elegant Wattle Open tall shrubland +/- *Senna artemisioides* Desert Senna/ *Eremophila duttonii* Harlequin Emubush over *Rhagodia spinescens* Spiny Saltbush/ *Sclerolaena limbata* Pearl Bindyi +/- *Maireana pyramidata* Black Bluebush/ *Maireana astrotricha* Low Bluebush Low shrubland.

This shrub to tall shrubland association is typical of plains, alluvial plains and floodplains with sand/loam to sand/clay/loam surface soils that occur out from the eastern margins of the northern Flinders. Sites in this group were also scattered around the northern and western periphery of the ranges as far south as Port Augusta. Important indicator species include: Pearl Bindyi, Harlequin Emubush, Spiny Saltbush, *Eremophila sturtii* Turpentine Bush, *Sida intricata* Twiggy Sida and *Maireana pyramidata* Black Bluebush.

Number of sites in group: 145
Number of perennial species defining group: 183
Total number of species at sites: 300
Average number of species at sites Perennial: 17
total: 25 Max: 69 Min: 8
Number of conservation significant species Australian: 0
South Australia: 6
Flinders Ranges region: 17
Number of introduced species: 42 Average per site: 6

Figure 88. Site FIT00401 Spiny Saltbush and Black Bluebush shrubland with emergent Elegant Wattle.



Group 24. ***Acacia victoriae*** **Elegant Wattle +/-** ***Acacia tetragonophylla*** **Dead Finish/** ***Senna artemisioides*** **Desert Senna/** ***Eremophila duttonii*** **Harlequin emubush Open tall shrubland over** ***Malvastrum americanum*** **Malvastrum/** ***Sida fibulifera*** **Pin Sida/** ***Sclerolaena longicuspis*** **Long-spine Bindyi/** ***Sclerolaena divaricata*** **Tangled Bindyi dwarf-shrubland.**

This tall shrubland to shrubland association was characteristic of the clay/loam/sand to clay gently sloping plains that hug the ranges on the eastern flanks of the northern Flinders. Important indicator species include: *Solanum esuriale* Quena, *Eragrostis setifolia* Bristly Love-grass, *Rhynchosia minima* Rhynchosia, *Brachycome dentata* Lobe-seed Daisy and Long-spine Bindyi.

Number of sites in group: 48
Number of perennial species defining group: 147
Total number of species at sites: 243
Average number of species at sites Perennial: 25
total: 38 Max: 66 Min: 16
Number of conservation significant species Australian: 1
South Australia: 5
Flinders Ranges region: 20
Number of introduced species: 13 Average per site: 4

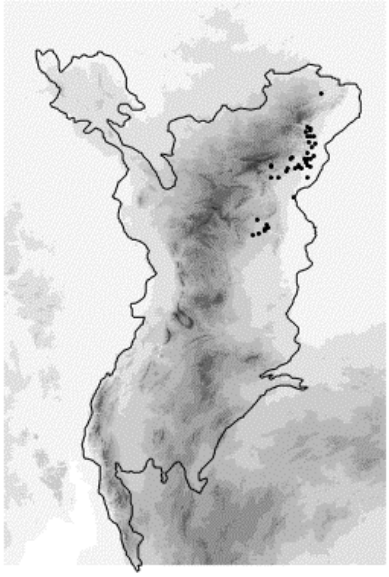


Figure 89. Site FIT00302 Dead Finish Shrubland over Long-spined Bindyi.

Group 25. ***Maireana astrotricha*** **Low Bluebush/** ***Atriplex vesicaria*** **Bladder Saltbush Low shrubland with emergent** ***Acacia victoriae*** **Elegant Wattle.**

This low shrubland association is typical of the slopes and flats of the plains, rises and low hills in the north-west and the south-east of the northern Flinders. Surface soils are predominantly clay/loam/sand and loam/sand. Important indicator species include: Low Bluebush, Bladder Saltbush, *Maireana pyramidata* Black Bluebush, *Sclerolaena ventricosa* Salt bindyi and *Sclerolaena patenticuspis* Spear-fruit Bindyi.

Number of sites in group: 110
Number of perennial species defining group: 174
Total number of species at sites: 278
Average number of species at sites Perennial: 20
total: 26 Max: 126 Min: 7
Number of conservation significant species Australian: 2
South Australia: 6
Flinders Ranges region: 17
Number of introduced species: 37 Average per site: 6

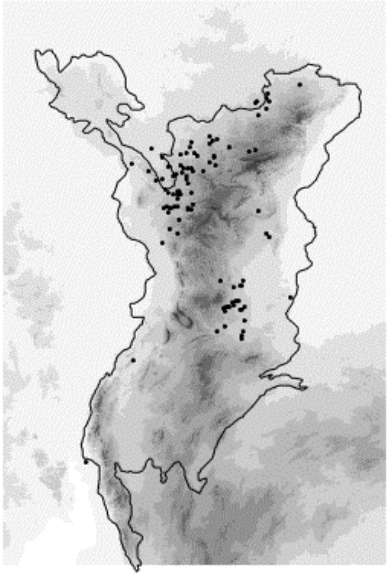
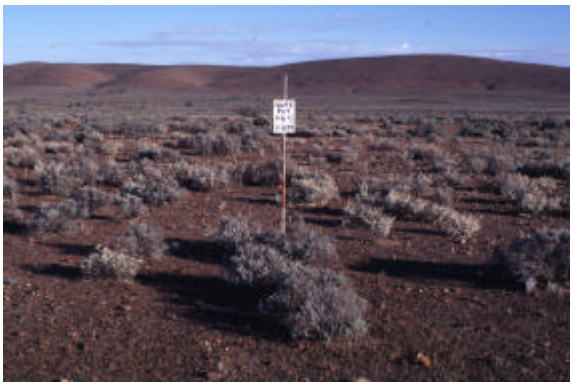


Figure 90. Site PUT00601 Bladder Saltbush and Low Bluebush Low shrubland.



Group 26. *Maireana astrotricha* Low Bluebush/ *Sclerolaena limbata* Pearl Bindyi/ *Sclerolaena divaricata* Tangled Bindyi +/- emergent *Acacia victoriae* Elegant Wattle.

This low shrubland association was mostly associated with plains scattered around the margins of the ranges in the northern Flinders. Important indicator species include: Pearl Bindyi, Tangled bindyi, *Sclerolaena lanicuspis* Spinach Bindyi, *Brachycome ciliaris var. lanuginosa* Woolly Variable Daisy and Low Bluebush.

Number of sites in group: 55
Number of perennial species defining group: 143
Total number of species at sites: 229
Average number of species at sites Perennial: 16
total: 25 Max: 69 Min: 7
Number of conservation significant species Australian: 1
South Australia: 3
Flinders Ranges region: 10
Number of introduced species: 27 Average per site: 6

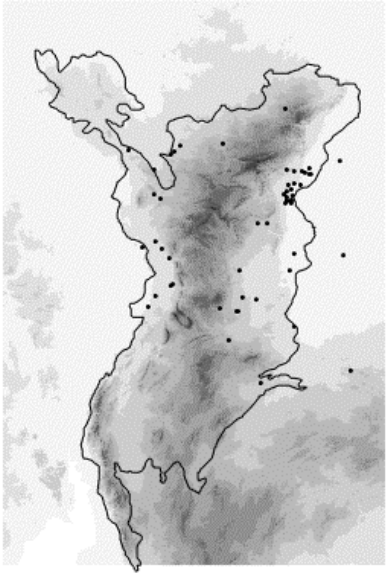
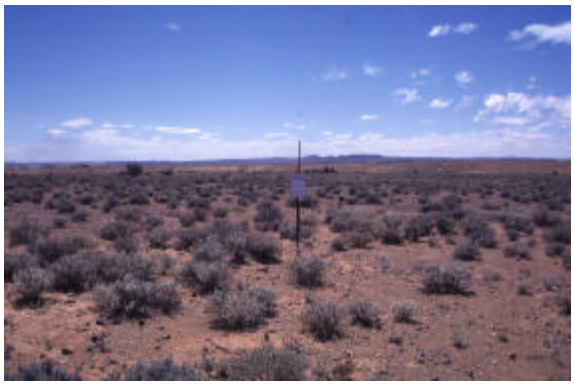


Figure 91. Site ARO00501 Low Bluebush Low open shrubland.



Group 27. *Maireana astrotricha* Low Bluebush/ *Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi Low shrubland.

This low shrubland association is common on the flats and slopes of plains, rises and some low hills that have loam sand and clay/loam/sand surface soils. Sites are distributed along the west to north-western edge of the northern Flinders and further out in the North Olary Plains to the east. Indicator species inot mentioned in the title include, Short-winged Bindyi *Sclerolaena brachyptera*, Pearl Bindyi *S. limbata*, Bush Minuria *Minuria cunninghamii*, Salt Bindyi *S. ventricosa*, and Smooth Minuria *M. integerrima*.

Number of sites in group: 66
Number of perennial species defining group: 86
Total number of species at sites: 164
Average number of species at sites Perennial: 9
total: 15 Max: 38 Min: 6
Number of conservation significant species Australian: 0
South Australia: 1
Flinders Ranges region: 6
Number of introduced species: 25 Average per site: 5

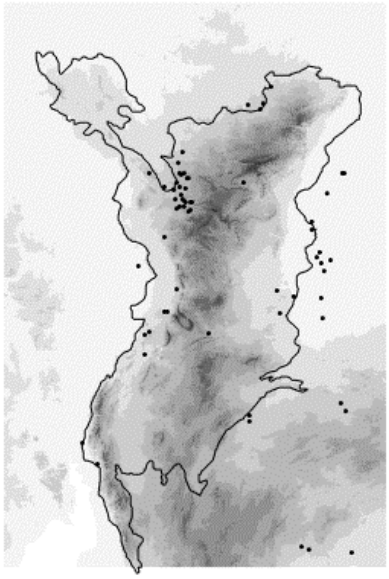


Figure 92. Site PAS06401 Black Bluebush and Low Bluebush open shrubland.

Group 28. *Maireana pyramidata* Black Bluebush +/- *Sclerolaena ventricosa* Salt Bindyi/ *Maireana astrotricha* Low Bluebush/ *Atriplex vesicaria* Bladder Saltbush Low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.

This low shrubland association of the plains occurs on more saline loam/sand and clay/loam/sand surface soils than group 27, from which it differs by the prominence of salt tolerant indicator species. These include: *Gunniopsis quadrifida* Sturt's Pigface, *Sclerostegia tenuis* Slender Samphire, Salt Bindyi and Black Bluebush.

Number of sites in group: 35
Number of perennial species defining group: 79
Total number of species at sites: 138
Average number of species at sites Perennial: 11
total: 16 Max: 34 Min: 6
Number of conservation significant species Australian: 1
South Australia: 2
Flinders Ranges region: 6
Number of introduced species: 15 Average per site: 4

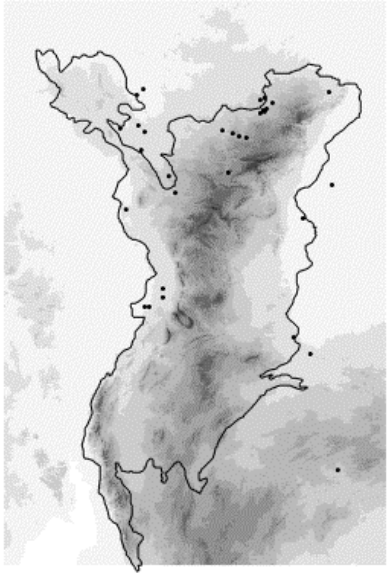


Figure 93. Site DEC00301 Black Bluebush and Low Bluebush Very open shrubland.

Group 29. *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena divaricata* Tangled Bindyi/ *Sclerolaena brachyptera* Short-wing Bindyi Low open shrubland.

This low shrubland association of the plains, rises and lower hills is most common on the clay to clay/loam/sand soils of the north-west of the northern Flinders and sometimes forms the understorey for Black Oak woodlands. Important indicator species include: *Sclerolaena longicuspis* Long-spine bindyi, Tangled Bindyi, Bladder Saltbush and Short-wing Bindyi.

Number of sites in group: 46
Number of perennial species defining group: 87
Total number of species at sites: 135
Average number of species at sites Perennial: 14
total: 19 Max: 50 Min: 7
Number of conservation significant species Australian: 0
South Australia: 2
Flinders Ranges region: 6
Number of introduced species: 19 Average per site: 4

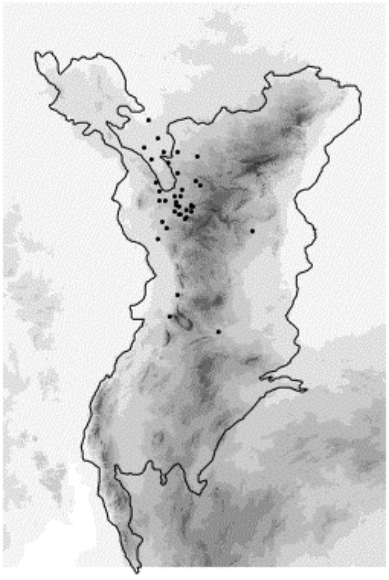


Figure 94. Site COF00701 Tangled Bindyi and Sea Heath *Frankenia serpyllifolia* Low open shrubland.

Group 30. *Enchylaena tomentosa* Ruby Saltbush Low open shrubland +/- *Rhagodia spinescens* Spiny Saltbush and/or emergent *Acacia victoriae* Elegant Wattle.

This sparse low shrubland to shrubland association was common on flats and slopes of plains and rises associated with the main spine of the northern Flinders and more widely in the southern Flinders. Surface soils are dominated by clay, clay/loam and loam/sand. Sites comprising this group generally had a degraded understorey which in the north were dominated by introduced species, most of which are annual. Important indicator species include: *Convolvulus microsepalus* Small-flower bindweed, *Atriplex stipitata* Bitter Saltbush and Ruby Saltbush.

Number of sites in group: 58
Number of perennial species defining group: 165
Total number of species at sites: 306
Average number of species at sites Perennial: 16
total: 29 Max: 55 Min: 10
Number of conservation significant species Australian: 2
South Australia: 16
Flinders Ranges region: 26
Number of introduced species: 59 Average per site: 13

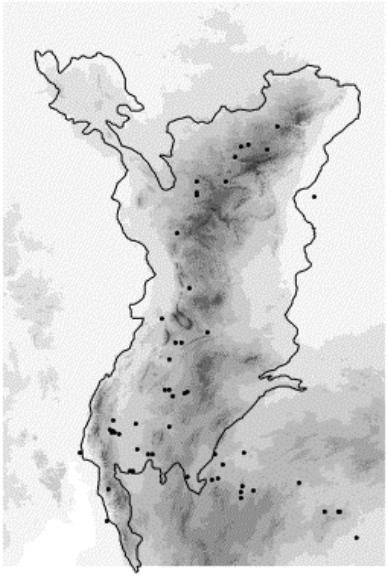


Figure 95. Site COF00801 Elegant Wattle over Spiny Saltbush and Bladder saltbush.

Group 31. *Enchylaena tomentosa* Ruby Saltbush/ *Maireana pyramidata* Black Bluebush/ *Maireana sedifolia* Pearl Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Obliqu-spined bindyi Low shrubland +/- emergent *Myoporum platycarpum* False Sandlewood/ *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush.

This low shrubland to woodland association of the plains with loam/sand to clay/loam/sand surface soils mostly occurred in the southern regions outside the study area with most sites in the South Olary Plains. Important indicator species include: *Chenopodium curvispicatum* Cottony Goosefoot, Pearl Bluebush, *Lycium australe* Australian Boxthorn, *Myoporum platycarpum* False Sandalwood and Bladder Saltbush.

Number of sites in group: 45
Number of perennial species defining group: 104
Total number of species at sites: 240
Average number of species at sites Perennial: 12
total: 25 Max: 89 Min: 10
Number of conservation significant species Australian: 1
South Australia: 7
Flinders Ranges region: 16
Number of introduced species: 39 Average per site: 8

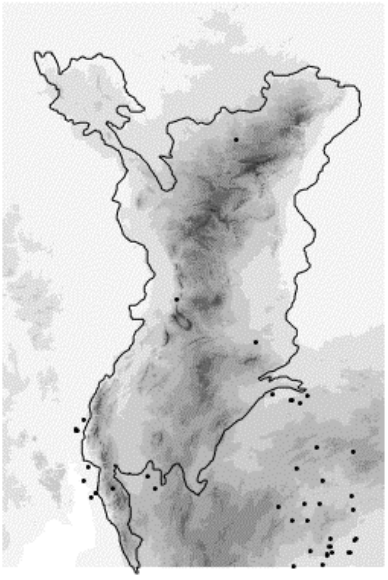


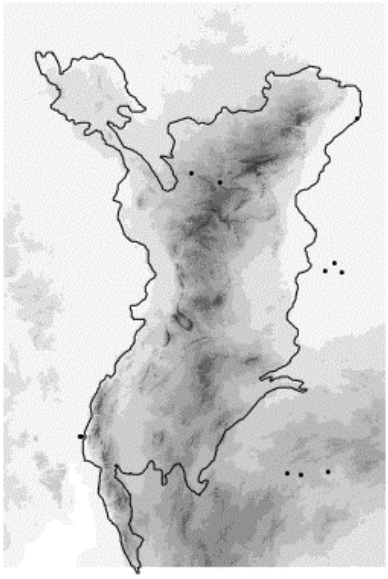
Figure 96. Site PTO11301 Black Oak over Pearl Bluebush and Low Bluebush.

Group 32. *Rhagodia spinescens* Spiny Saltbush/ *Maireana pyramidata* Black Bluebush Low shrubland +/- emergent *Acacia victoriae* Elegant Wattle/ *Acacia burkittii* Pin-bush Wattle.

This tall shrubland to low shrubland association was most common on sand plain and dune habitats in the North and South Olary Plains. Two sites were sampled in the northern Flinders. Important indicator species include Pin-bush Wattle, *Phyllanthus fuernrohrii* Sand Spurge, *Eremophila sturtii* Turpentine Bush and *Erodiophyllum elderi* Koonamore daisy.

Number of sites in group: 12
Number of perennial species defining group: 65
Total number of species at sites: 126
Average number of species at sites Perennial: 12
total: 22 Max: 36 Min: 9
Number of conservation significant species Australian: 1
South Australia: 2
Flinders Ranges region: 4
Number of introduced species: 31 Average per site: 11

Figure 97. Site PTO17101 Turpentine Bush over Black Bluebush and Wards Weed.

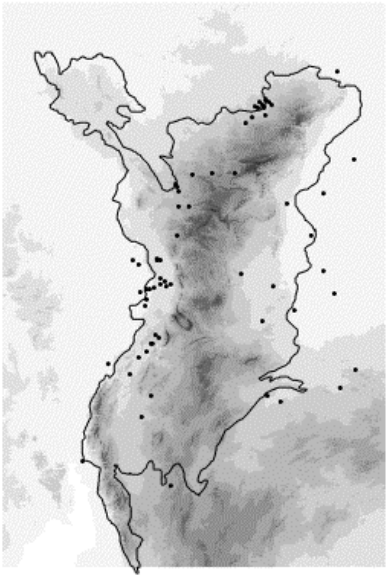


Group 33. *Maireana pyramidata* Black Bluebush/ *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia spinescens* Spiny Saltbush Low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.

This tall to low shrubland association was found on sand to loam surface soils of the plains and dunefields surrounding the northern Flinders. The majority of sites were on the western side. A few sites were also sampled in the Willochra plain region of the southern Flinders. Important indicator species include: Black Bluebush, *Sclerolaena limbata* Pearl bindyi, Spiny Saltbush and *Sclerolaena obliquicuspis* Oblique-spined Bindyi.

Number of sites in group: 63
Number of perennial species defining group: 103
Total number of species at sites: 180
Average number of species at sites Perennial: 10
total: 15 Max: 33 Min: 7
Number of conservation significant species Australian: 0
South Australia: 3
Flinders Ranges region: 6
Number of introduced species: 34 Average per site: 5

Figure 98. Site HWK11201 Black Bluebush Low shrubland.



Group 34. *Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush Low shrubland.

This low shrubland association was mostly found on loam/sand and clay/loam/sand surface soils on plains south-east of the study area in the South Olary Plains. Three sites were sampled in the Willochra region of the southern Flinders. Important indicator species include: *Nitraria billardierei* Nitre-bush, *Maireana georgei* Satiny Bluebush, *Asphodelus fistulosus* Onion weed and Black Bluebush.

Number of sites in group: 21
Number of perennial species defining group: 53
Total number of species at sites: 132
Average number of species at sites Perennial: 9
total: 20 Max: 47 Min: 8
Number of conservation significant species Australian: 1
South Australia: 5
Flinders Ranges region: 6
Number of introduced species: 38 Average per site: 10

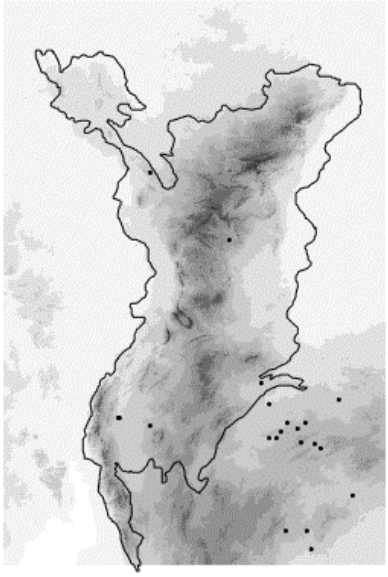


Figure 99. Site KOO27101 Bladder Saltbush Low shrubland with emergent Black Bluebush.

Group 35. *Nitraria billardierei* Nitre-bush Low shrubland.

This low shrubland association of clay to loam alluvial plains was mostly recorded to the south-east of the study area. Two sites occurred in the northern Flinders. Important indicator species include: Nitre-bush, *Acacia nyssophylla* Spine Bush and *Arabidella trisecta* Shrubby Cress.

Number of sites in group: 8
Number of perennial species defining group: 33
Total number of species at sites: 65
Average number of species at sites Perennial: 8
total: 16 Max: 21 Min: 9
Number of conservation significant species Australian: 0
South Australia: 1
Flinders Ranges region: 0
Number of introduced species: 23 Average per site: 9

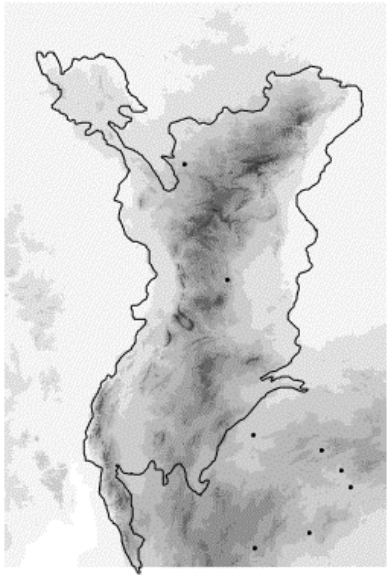


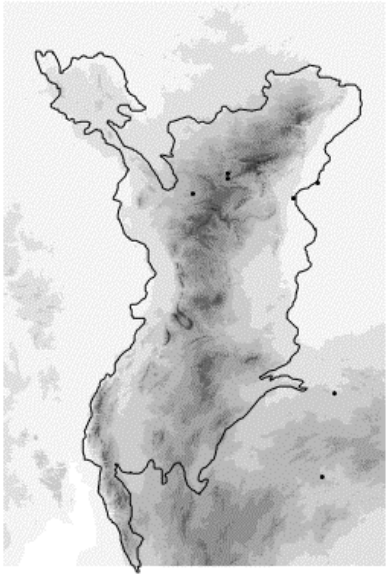
Figure 100. Site WIN10301 Introduced herbland with emergent Nitre Bush.

Group 36. *Dissocarpus paradoxus* Ball Bindyi and *Sida intricata* Twiggy Sida/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi dwarf-shrubland +/- *Atriplex vesicaria* Bladder Saltbush Low open shrubland.

This minor low shrubland group was found on hill footslopes, low hills and plains with loam to clay surface soils in the northern Flinders and the Olary Plains. Important indicator species include: Twiggy Sida, Ball Bindyi, *Convolvulus microsepalus* Small-flower Bindweed, *Sclerolaena bicornis* Goathead Bindyi.

Number of sites in group: 8
Number of perennial species defining group: 36
Total number of species at sites: 68
Average number of species at sites Perennial: 10
total: 19 Max: 42 Min: 10
Number of conservation significant species Australian: 0
South Australia: 0
Flinders Ranges region: 1
Number of introduced species: 9 Average per site: 5

Figure 101. Site WIN01301 Bladder Saltbush and Black Bluebush over Ball Bindyi with emergent Bullock Bush.

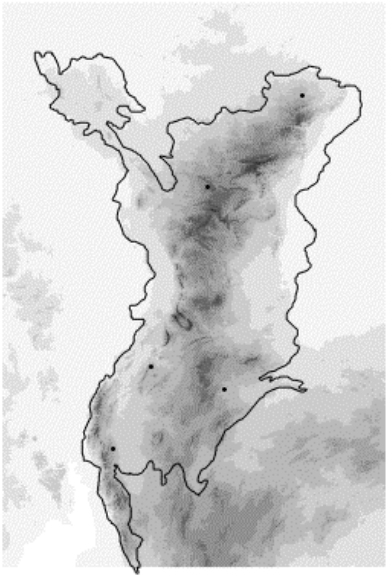


Group 37. *Boerhavia dominii* Tar-vine/ *Danthonia caespitosa* Common Wallaby-grass herbland/grassland +/- a *Muehlenbeckia florulenta* Lignum and/or *Eragrostis australasica* Cane-grass overstorey.

This association represents a few degraded sites from across the study clustering with a unique but heavily impacted Lignum/Canegrass swamp near Hawker. The indicator species mostly relate to this site and include: Lignum, Cane-grass, *Stellaria palustris* Swamp Starwort, *Cullen australasicum* Tall Scurf-pea and Tar-vine.

Number of sites in group: 5
Number of perennial species defining group: 25
Total number of species at sites: 62
Average number of species at sites Perennial: 8
total: 19 Max: 26 Min: 10
Number of conservation significant species Australian: 0
South Australia: 1
Flinders Ranges region: 3
Number of introduced species: 27 Average per site: 13

Figure 102. Site YOU00401 Lignum and Swamp Canegrass shrubland.



Group 38. *Nitraria billardierei* Nitre-bush +/- *Atriplex vesicaria* Bladder Saltbush/ *Rhagodia spinescens* Spiny Saltbush Low shrubland.

This low shrubland association of saline clay and clay/loam plains and depressions was most common on the Willochra Plain and to the south-west of the southern Flinders. Important indicator species include: *Disphyma crassifolium* Round-leaf Pigface, *Halosarcia indica* Brown-head Samphire, Nitre-bush and *Halosarcia halocnemoides* Grey samphire.

Number of sites in group: 17
Number of perennial species defining group: 55
Total number of species at sites: 148
Average number of species at sites Perennial: 9
total: 21 Max: 34 Min: 8
Number of conservation significant species Australian: 2
South Australia: 2
Flinders Ranges region: 7
Number of introduced species: 53 Average per site: 14

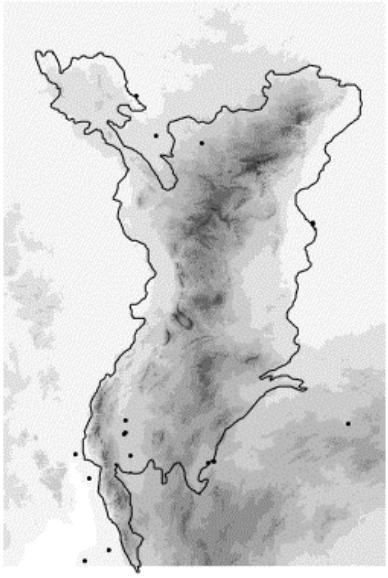


Figure 103. Site WIN08101 Nitre Bush shrubland.

Group 39. *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus dumosa* White Mallee over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.

This mallee association was recorded on the slopes of low hills, hills and footslopes of mountains on skeletal clay/loam to loam/sand surface soils. Sites were mostly distributed along the main spine of the ranges in the north of the northern Flinders. Important indicator species include: *Olearia muelleri* Mueller's Daisy-bush, White Mallee, *Amyema miquelii* Box Mistletoe, Beaked Red Mallee and *Acacia oswaldii* Umbrella Wattle.

Number of sites in group: 29
Number of perennial species defining group: 109
Total number of species at sites: 154
Average number of species at sites Perennial: 15
total: 20 Max: 48 Min: 7
Number of conservation significant species Australian: 3
South Australia: 4
Flinders Ranges region: 9
Number of introduced species: 16 Average per site: 4

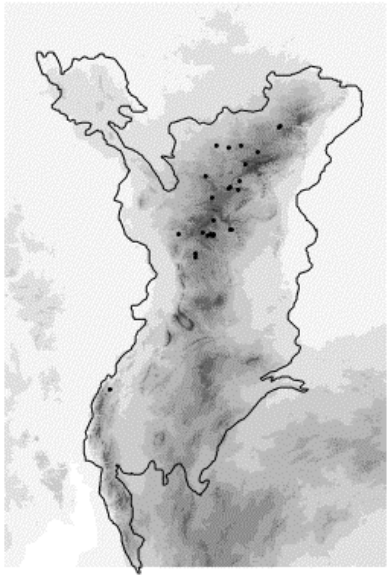


Figure 104. Site PAT00501 White Mallee and Beaked Red Mallee.

Group 40. *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush Low woodland over *Exocarpos aphyllus* Leafless Cherry/ *Senna artemisioides* Desert Senna/ *Enchylaena tomentosa* Rubby Saltbush.

This low woodland association was found on slopes of low hills and ranges as well as plains and rises with loam/sand and clay/loam/sand surface soils. Sites were distributed along the main spine of the ranges from the northern to the top of the southern Flinders. Sites in this group were most common between the Gammon Ranges and Blinman. Important indicator species include: Black Oak, Bullock Bush, Leafless Cherry and *Amyema linophyllum* Casuarina Mistletoe.

Number of sites in group: 39
Number of perennial species defining group: 104
Total number of species at sites: 171
Average number of species at sites Perennial: 12
total: 19 Max: 38 Min: 7
Number of conservation significant species Australian: 1
South Australia: 4
Flinders Ranges region: 6
Number of introduced species: 35 Average per site: 8

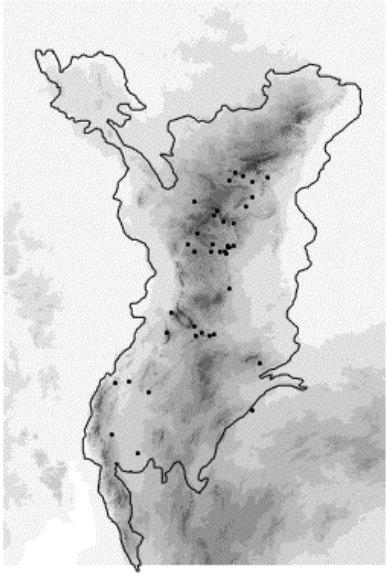


Figure 105. Site WIL09601 Black Oak woodland.

Group 41. *Eucalyptus socialis* Beaked Red Mallee and/or *Alectryon oleifolius* Bullock Bush over *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Eremophila scoparia* Broom Emubush/ *Maireana pentatropis* Erect Mallee Bluebush.

This mallee association most commonly occurs on the slopes of low hills on clay/loam sand and loam/sand surface soils. Sites were distributed across the low hill areas of the northern Flinders and also in the range country of the South Olary Plains. Important indicator species include: Broom Emubush, Erect Mallee Bluebush, *Maireana ovata*, Beaked Red Mallee and *Myoporum platycarpum* False Sandalwood.

Number of sites in group: 38
Number of perennial species defining group: 101
Total number of species at sites: 162
Average number of species at sites Perennial: 12
total: 17 Max: 37 Min: 7
Number of conservation significant species Australian: 1
South Australia: 4
Flinders Ranges region: 4
Number of introduced species: 24 Average per site: 5

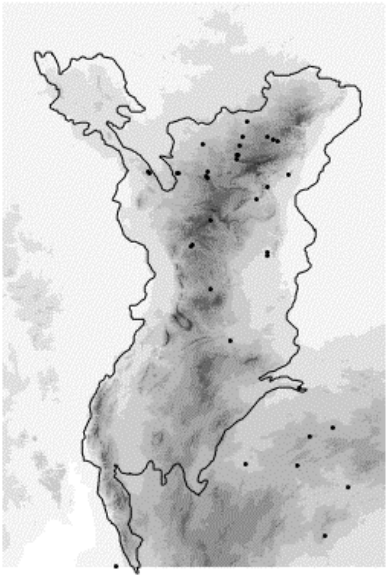


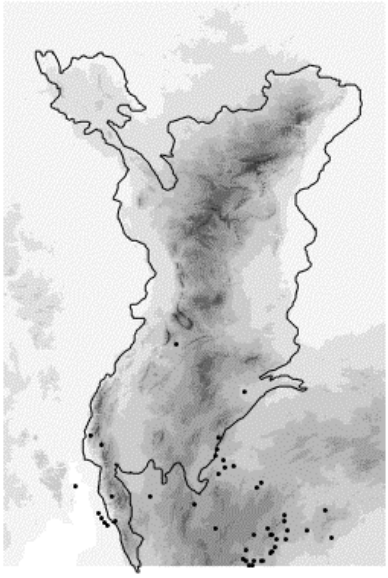
Figure 106. Site ARO00201 Beaked Red Mallee.

Group 42. *Eucalyptus gracilis* Yorrell/ *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus oleosa* Red Mallee over *Enchylaena tomentosa* Ruby Saltbush.

This mallee association was most common on loamy slopes and flats of plains, rises and low hills in the southern Flinders and in the Olary Spur to the south-east of the study area. Important indicator species include: Yorrell, Red Mallee, *Eucalyptus brachycalyx* Gilja and Beaked Red Mallee.

Number of sites in group: 46
Number of perennial species defining group: 119
Total number of species at sites: 218
Average number of species at sites Perennial: 14
total: 22 Max: 52 Min: 7
Number of conservation significant species Australian: 2
South Australia: 13
Flinders Ranges region: 19
Number of introduced species: 42 Average per site: 9

Figure 107. Site PTO48201 Yorrell over Bladder Saltbush.

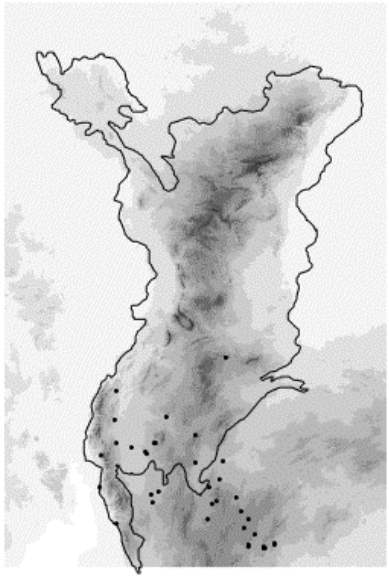


Group 43. *Alectryon oleifolius* Bullock Bush open Low woodland over *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia parabolica* Mealy Saltbush +/- an overstorey of *Eucalyptus* spp. Mallee or *Casuarina pauper* Black Oak Woodland.

This woodland to mallee association occurs on loamy soils from the plains to hill crests across the southern Flinders. Sites in this groups usually had disturbed understories. Important indicator species include: *Maireana brevifolia* Short-leaf Bluebush, *Olearia pimeleoides* Pimelea Daisy-bush, *Grevillea huegelii* Comb Grevillea, *Eremophila glabra* Tar Bush and *Exocarpos aphyllus* Leafless Cherry.

Number of sites in group: 36
Number of perennial species defining group: 148
Total number of species at sites: 244
Average number of species at sites Perennial: 21
total: 33 Max: 51 Min: 15
Number of conservation significant species Australian: 2
South Australia: 11
Flinders Ranges region: 24
Number of introduced species: 52 Average per site: 12

Figure 108. Site WPN11401 Blackoak woodland over Pimelea Daisy.



Group 44. +/- Mallee +/- *Pittosporum phylliraeoides* Native Apricot / *Lycium ferocissimum* African Boxthorn sparse Tall shrubland over *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia parabolica* Mealy Saltbush and *Stipa nitida* Balcarra Spear-grass/ *Danthonia caespitosa* Common Wallaby-grass.

This collection of tall shrub, mallee and woodland associations does not represent a clearly defined group. Sites include sand to clay loam surface soils on dunes, plains and slopes of the coastal plains to the mountains of the southern Flinders. Only two sites were present in the central part of the northern Flinders. The more common indicator species which are likely to be present at sites in the study area include: African Boxthorn, *Pimelea microcephala* Shrubby Riceflower, Native Apricot and *Eucalyptus porosa* Mallee Box.

Number of sites in group: 23
Number of perennial species defining group: 105
Total number of species at sites: 303
Average number of species at sites Perennial: 14
total: 38 Max: 92 Min: 10
Number of conservation significant species Australian: 3
South Australia: 17
Flinders Ranges region: 39
Number of introduced species: 74 Average per site: 19

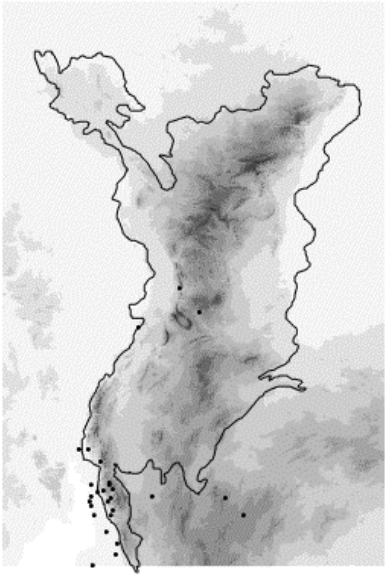


Figure 109. Site DAV02201 Emergent Sugarwood *Myoporum platycarpum* over Umbrella Bush *Acacia ligulata* to the east of the ranges.

Group 45. *Danthonia caespitosa* Common Wallaby-grass/ *Eriochiton sclerolaenoides* Woolly-fruit Bluebush Tussock grassland/Low shrubland +/- *Maireana sedifolia* Pearl Bluebush low shrub overstorey.

This low shrubland/grassland association occurs on clay/loam sand and loam/sand surface soils of plains and some low hills in the south-east of the northern Flinders and across the north of the southern Flinders. Important indicator species include: *Stipa eremophila* Rusty Spear-grass, *Maireana turbinata* Top-fruit Bluebush, Woolly-fruit Bluebush, Common Wallaby-grass and Pearl Bluebush.

Number of sites in group: 40
Number of perennial species defining group: 93
Total number of species at sites: 203
Average number of species at sites Perennial: 12
total: 26 Max: 43 Min: 12
Number of conservation significant species Australian: 0
South Australia: 8
Flinders Ranges region: 8
Number of introduced species: 51 Average per site: 12

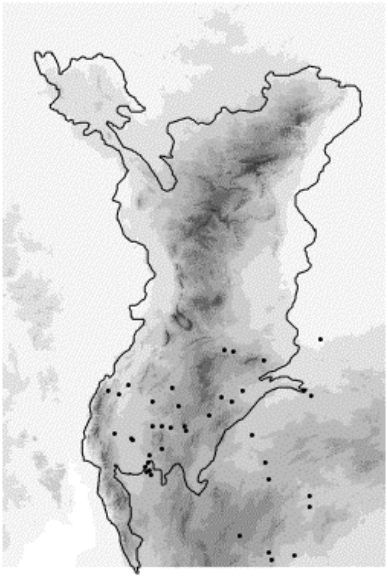


Figure 110. Site PTO14201 Orange Sunray *Hyalosperma semisterile* and Pygmy Daisy *Rodanthe pygmaea* herbland.

Group 46. *Stipa nitida* Balcarra Spear-grass Tussock grassland +/- *Myoporum platycarpum* False Sandlewood/ *Eucalyptus socialis* Beaked Red Mallee.

This degraded grassy woodland association was recorded on clay/loam to loam/sand soils of plains and low hills in the north-east of the southern Flinders and in the Upper Mid North to the south of the study area. Important indicator species include: *Stipa drummondii* Cottony Spear-grass, Balcarra Spear-grass, *Templetonia egena* Broombush Templetonia and *Stipa platychaeta* Flat-awn spear-grass.

Number of sites in group: 18
Number of perennial species defining group: 88
Total number of species at sites: 165
Average number of species at sites Perennial: 12
total: 25 Max: 44 Min: 10
Number of conservation significant species Australian: 0
South Australia: 7
Flinders Ranges region: 9
Number of introduced species: 47 Average per site: 15

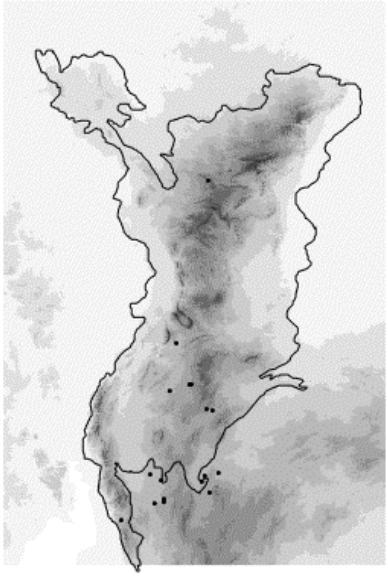


Figure 111. Site CRT10101 Barley Grass *Critesion murinum*, Balcarra Spear-grass grassland.

Group 47. *Danthonia caespitosa* Common Wallaby-grass Tussock grassland +/- emergent *Acacia victoriae* Elegant Wattle tall shrubs.

This grassland group occurred on a variety of plains and rises with mixed loam surface soils. Sites are distributed along the length of the study area, being restricted to the wetter central spine of the ranges in the northern Flinders. This association may be the result of overgrazing by herbivores with more than half of the species present at most sites being introduced weeds. Important indicator species include: Common Wallaby-grass, *Sclerolaena patenticuspis* Spear-fruit Bindyi, *Atriplex eardleyae* Eardley's Saltbush and *Sida corrugata* Corrugated sida.

Number of sites in group: 28
Number of perennial species defining group: 60
Total number of species at sites: 134
Average number of species at sites Perennial: 9
total: 18 Max: 34 Min: 6
Number of conservation significant species Australian: 2
South Australia: 4
Flinders Ranges region: 7
Number of introduced species: 44 Average per site: 11

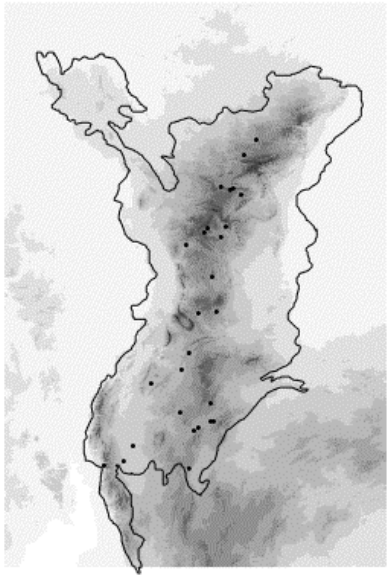


Figure 112. Site WPN01101 Onion Weed *Asphodelus fistulosus*, Brome *Bromus rubens* and Common Wallaby-grass grassland.

Group 48. ***Sida corrugata*** **Corrugated Sida dwarf-shrubland +/-** ***Danthonia caespitosa*** **Common Wallaby-grass/** ***Aristida behriana*** **Brush Wire-grass/** ***Oxalis perennans*** **Native Sorrel / introduced grasses +/-** ***Acacia victoriae*** **Elegant Wattle or** ***Callitris glaucophylla*** **White Cypress-pine or** ***Eucalyptus*** **spp. shrub to woodland overstorey.**

This grassy shrub to woodland association was found on plains and low hills with clay to loam soils in the southern Flinders. The only sites in the central Flinders were in the wetter Wilpena area. The understorey vegetation in this association appears to be one that has been modified by grazing herbivores and contains a high percentage of introduced species. Important indicator species include: *Homopholis proluta* Rigid Panic, the introduced *Medicago sativa* Lucerne and *Cynodon dactylon* Couch, Brush Wire-grass and Corrugated Sida.

Number of sites in group: 11
Number of perennial species defining group: 62
Total number of species at sites: 140
Average number of species at sites Perennial: 12
total: 28 Max: 52 Min: 16
Number of conservation significant species Australian: 1
South Australia: 4
Flinders Ranges region: 5
Number of introduced species: 55 Average per site: 17

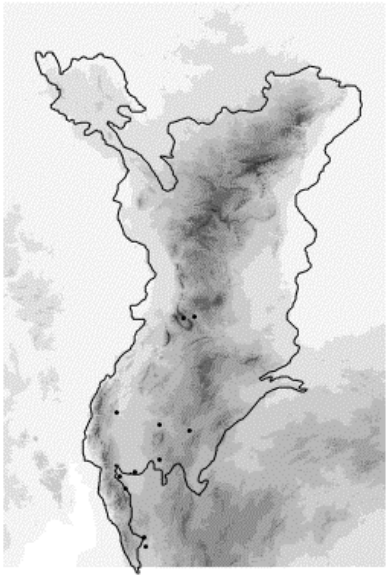


Figure 113. Site WIC01801 Elegant Wattle Tall shrubland over introduced grasses.

Group 49. ***Acacia victoriae*** **Elegant Wattle/** ***Lycium ferocissimum*** **African Boxthorn. Tall shrubland +/-** ***Eucalyptus camaldulensis*** **River Red Gum/*E. microcarpa* Grey Box Woodland over degraded herbland/grassland.**

This shrubland/woodland group combines a number of associations with severely altered understorey vegetation. Sites mostly occurred on plains and low hills in the southern Flinders and to the south-east in the Upper Mid North. Important indicator species include: the introduced *Salvia verbenaca* Wild Sage, *Marrubium vulgare* Horehound, African Boxthorn and *Asphodelus fistulosus* Onion Weed.

Number of sites in group: 37
Number of perennial species defining group: 136
Total number of species at sites: 274
Average number of species at sites Perennial: 15
total: 28 Max: 62 Min: 10
Number of conservation significant species Australian: 1
South Australia: 6
Flinders Ranges region: 14
Number of introduced species: 94 Average per site: 18

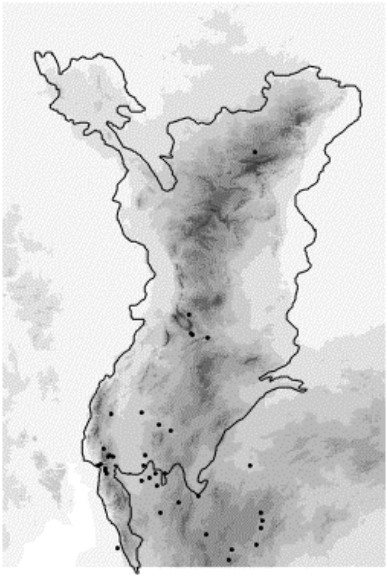


Figure 114. Site PTO07101 Elegant Wattle over Onion Weed and Wards Weed.

Group 50. *Eucalyptus camaldulensis* River Red Gum +/- *Callitris glaucophylla* White Cypress-pine Woodland over a degraded understorey.

This drainage line woodland association occurs on a variety of loam soils along the central spine of the northern and southern Flinders. The presence of rushes and sedges at many sites indicate that these might represent severely degraded moist areas, particularly in the northern Flinders. Important indicator species include: River Red Gum, *Carex tereticaulis* Rush Sedge, *Juncus kraussii* Sea Rush, *Cotula coronopifolia* Water Buttons and *Myoporum montanum* Native Myrtle.

Number of sites in group: 20
Number of perennial species defining group: 84
Total number of species at sites: 167
Average number of species at sites Perennial: 9
total: 18 Max: 42 Min: 5
Number of conservation significant species Australian: 1
South Australia: 3
Flinders Ranges region: 5
Number of introduced species: 69 Average per site: 13

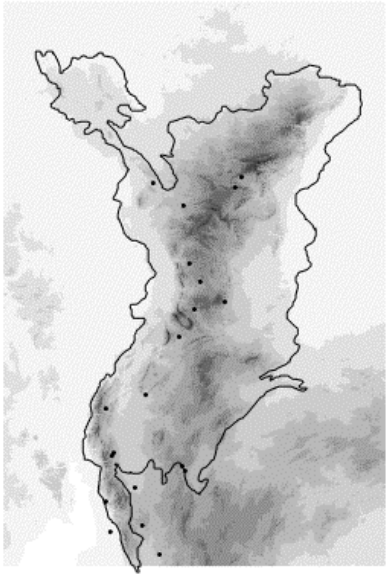


Figure 115. Site ARO00802 River Red Gum over Inland Paperbark and reeds.

Group 53. *Sclerolaena brachyptera* Short-wing Bindyi/ *Sclerolaena divaricata* Tangled Bindyi Dwarf-shrubland.

This low shrubland group is restricted to the clay to clay/loam plains and rises at the margins of the ranges and includes some areas of the Willochra Plain. Indicator sites include: Short-wing Bindyi, Tangled Bindyi, *Sclerostegia tenuis* Slender Samphire and *Minuria cunninghamii* Bush Minuria.

Number of sites in group: 28
Number of perennial species defining group: 67
Total number of species at sites: 149
Average number of species at sites Perennial: 10
total: 19 Max: 37 Min: 7
Number of conservation significant species Australian: 0
South Australia: 3
Flinders Ranges region: 11
Number of introduced species: 30 Average per site: 9

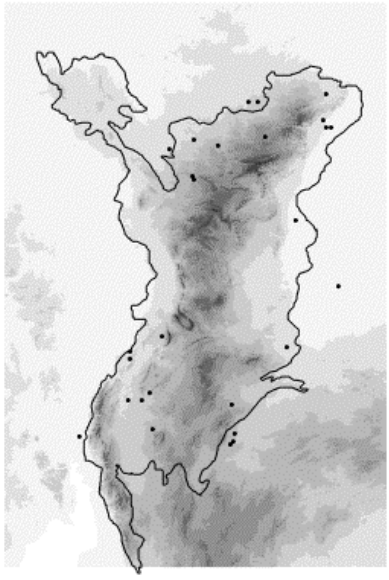


Figure 116. Site PAR009101 Tangled Bindyii Low shrubland.

Group 54. *Astrebla pectinata* Barley Mitchell-grass/ *Eragrostis setifolia* Bristly Love-grass Tussock grassland with bindyi dwarf-shrubs +/- *Maireana aphylla* Cotton-bush low shrub overstorey.

This tussock grassland association is most common on the clay plains of the north-east of the northern region. Small areas of this group also occur east of Leigh Creek and are common to the north of the study area in the Stony Deserts. Important indicator species include: Barley Mitchell-grass, Bristly Love-grass, *Ixiolaena brevicompta* Plains Plover-daisy, *Dichanthium sericeum* Silky Blue-grass, *Sclerolaena ventricosa* Short-wing Bindyi and *Sclerolaena brachyptera* Short-wing bindyi.

Number of sites in group: 54
Number of perennial species defining group: 98
Total number of species at sites: 184
Average number of species at sites Perennial: 14
total: 21 Max: 52 Min: 8
Number of conservation significant species Australian: 1
South Australia: 6
Flinders Ranges region: 19
Number of introduced species: 13 Average per site: 4

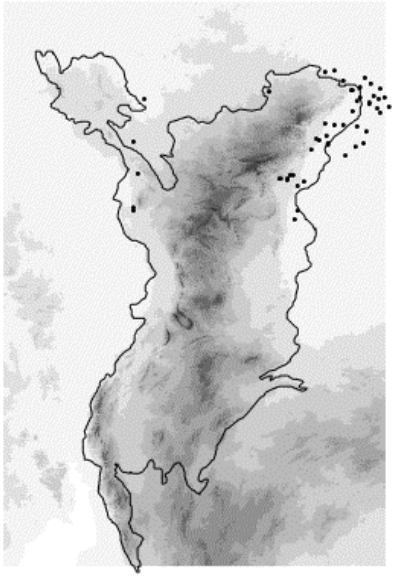


Figure 117. Site PAR03101 Salt Bindyii *Sclerolaena ventricosa* and Barley Mitchell-grass Low shrub/ grassland.

Group 55. *Cassinia laevis* Curry Bush/ *Dodonaea* spp. Hop-bush Open shrubland over *Triodia* spp. Spinifex hummock-grass +/- *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus porosa* Mallee Box / *Callitris glaucophylla* White Cypress-pine overstorey.

This mallee/shrubland association is restricted to the higher slopes, ridges and crests of the higher ranges and mountains in the southern, central and northern Flinders. Important indicator species include: *Olearia decurrens* Winged Daisy-bush, *Vittadinia blackii* Narrow-leaf New Holland Daisy, Spinifex and Curry Bush.

Number of sites in group: 36
Number of perennial species defining group: 228
Total number of species at sites: 369
Average number of species at sites Perennial: 30
total: 45 Max: 86 Min: 19
Number of conservation significant species Australian: 5
South Australia: 21
Flinders Ranges region: 36
Number of introduced species: 59 Average per site: 12

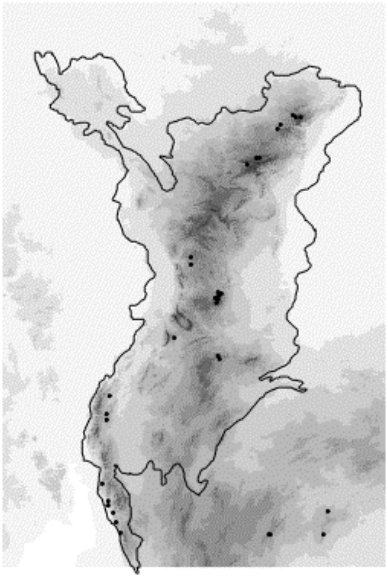


Figure 118. Site YUH00601 Beaked Red Mallee over Spinifex.

Group 56. *Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah Open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Chrysocephalum semicalvum* Scented Button-bush and *Cheilanthes lasiophylla* Woolly Cloak-fern.

This woodland association was found on slopes and crests of the steeply dissected hills and mountains of the northern Flinders. This association was particularly common in the Arkaroola area where in many places the association is dominated by Spinifex hummock grassland with emergent Gum-barked Coolabahs. Important indicator species include: *Paraceterach reynoldsii* Scaly Rock-fern, *Indigofera leucotricha* Silver Indigo, *Olearia decurrens* Winged Daisy-bush, Gum-barked Coolibah and *Hakea ednieana* Flinders Ranges Corkwood.

Number of sites in group: 68
Number of perennial species defining group: 216
Total number of species at sites: 351
Average number of species at sites Perennial: 33
total: 48 Max: 89 Min: 13
Number of conservation significant species Australian: 5
South Australia: 14
Flinders Ranges region: 25
Number of introduced species: 32 Average per site: 9

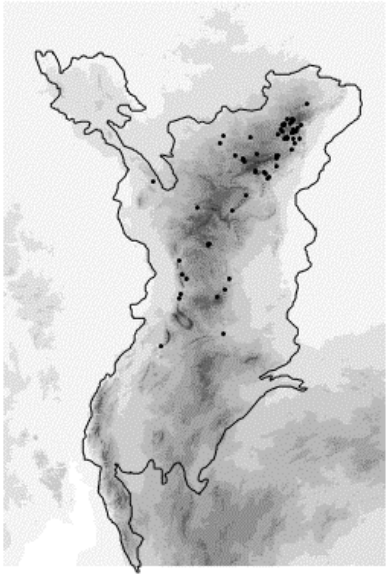


Figure 119. Site PAR00201 Flinders Ranges Corkwood, Gum-barked Coolabah and Native Pine over Spinifex and Winged Daisy-bush.

Group 57. *Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah +/- *Eucalyptus flindersii* Flinders Grey Mallee Open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Lomandra multiflora* Hard Mat-rush/ *Xanthorrhoea quadrangulata* Rock Grass-tree/ *Cheilanthes sieberi* Narrow Rock-fern.

This open woodland to shrubland group was typical of the highest ridges, escarpments and plateaus of the mountains along the central spine of the northern Flinders. Important indicator species include: Flinders Grey Mallee, *Grevillea aspera* Rough Grevillea, *Melaleuca uncinata* Broombush, *Acacia havilandii* Needle Wattle and *Goodenia vernicosa* Wavy Goodenia.

Number of sites in group: 69
Number of perennial species defining group: 209
Total number of species at sites: 352
Average number of species at sites Perennial: 24
total: 33 Max: 71 Min: 12
Number of conservation significant species Australian: 5
South Australia: 24
Flinders Ranges region: 47
Number of introduced species: 34 Average per site: 6

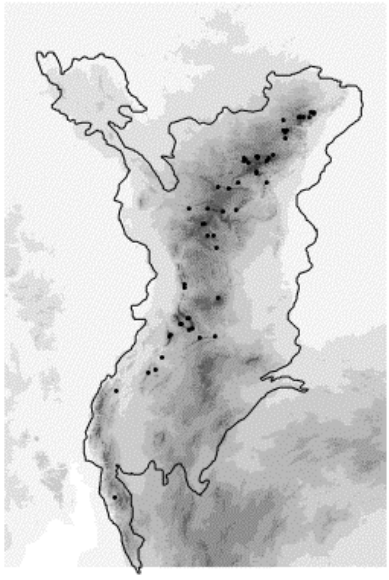


Figure 120. Site MUD00102 Gum-barked Coolabah over Rock Grass-tree and Needle Wattle.

Group 58. ***Eucalyptus intertexta*** **Gum-barked Coolibah /** ***Callitris glaucophylla*** **White Cypress-pine Open woodland over** ***Acacia rivalis*** **Silver Wattle/** ***Senna artemisioides*** **Desert Senna with** ***Dodonaea lobulata*** **Lobed-leaf Hop-bush and** ***Sclerolaena patenticuspis*** **Spear-fruit Bindyi/** ***Danthonia caespitosa*** **Common Wallaby-grass in the understorey.**

This woodland association appears to be restricted to a small, elevated area of low hills in the Angepena area of the northern Flinders with smaller patches adjacent to Wilpena Pound. Important indicator species include: *Boerhavia schomburgkiana* Schomburgk's Tar-vine, Gum-barked Coolibah, Silver Wattle, Lobed-leaf Hop-bush, *Rumex brownii* Slender Dock and Common Wallaby-grass.

Number of sites in group: 19
Number of perennial species defining group: 88
Total number of species at sites: 146
Average number of species at sites Perennial: 22
total: 32 Max: 49 Min: 13
Number of conservation significant species Australian: 0
South Australia: 5
Flinders Ranges region: 9
Number of introduced species: 28 Average per site: 9

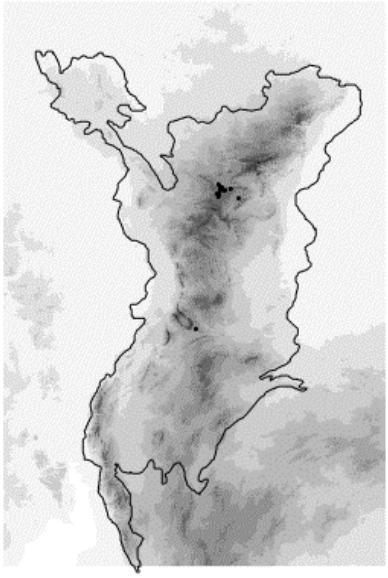


Figure 121. Site MUD00401 Gum-barked Coolabah over Lobed-leaf Hop-bush.

Group 59. ***Eucalyptus socialis*** **Beaked Red Mallee/** ***Eucalyptus dumosa*** **White Mallee/** ***Callitris glaucophylla*** **White Cypress-pine over** ***Senna artemisioides*** **Desert Senna/** ***Cassinia laevis*** **Curry Bush/** ***Dodonaea lobulata*** **Lobe-leaf Hop-bush +/-** ***Triodia*** **spp. Spinifex.**

This mallee/woodland association was found mostly on slopes with skeletal sand/loam surface soils on higher ranges and low hills. The majority of sites were sampled in the Angepena area of the northern Flinders with a few sites scattered along the central spine of the ranges. Important indicator species include: *Eucalyptus dumosa* White Mallee, *Westringia rigida* Stiff Westringia, Curry Bush, *Chrysocephalum semipapposum* Clustered Everlasting and Lobe-leaf Hop-bush.

Number of sites in group: 48
Number of perennial species defining group: 118
Total number of species at sites: 162
Average number of species at sites Perennial: 13
total: 17 Max: 39 Min: 7
Number of conservation significant species Australian: 0
South Australia: 5
Flinders Ranges region: 12
Number of introduced species: 21 Average per site: 4

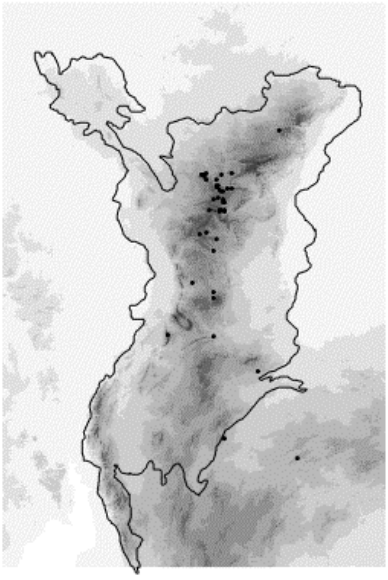


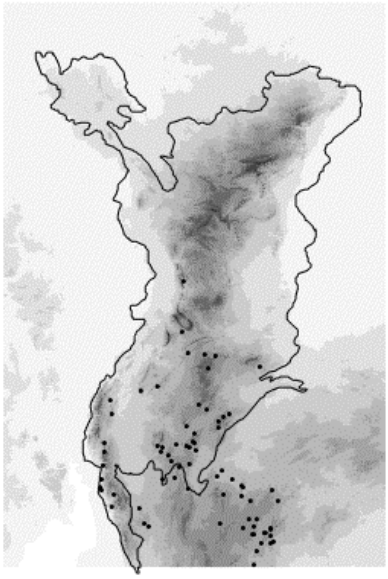
Figure 122. Site PAT00201 White Cypress-pine and White Mallee over Spinifex, Stiff Westringia and Crinkled Hop-bush *Dodonaea baueri*.

Group 60. ***Danthonia caespitosa*** **Common Wallaby-grass Tussock grassland with** ***Oxalis perennans*** **Native Sorrel/** ***Ptilotus spathulatus*** **Pussy-tails with a shrub or woodland overstorey of** ***Callitris glaucophylla*** **White Cypress-pine/** ***Eucalyptus*** **spp./** ***Acacia*** **spp./** ***Dodonaea*** **spp.**

This grassy shrub to woodland association was found on slopes of hills, low hills and plains across the southern Flinders and the Olary Spur. Whilst White Cypress-pine are the most common overstorey element a variety of mallee and shrub species also occur over this grassy-shrub understorey. Important indicator species include: Pussy-tails, *Wahlenbergia luteola* Yellow-wash Bluebell, Common Wallaby-grass, *Stipa elegantissima* Feather Spear-grass, Native Sorrel, *Goodenia pusilliflora* Small-flower Goodenia and *Acacia calamifolia* Wallowa.

Number of sites in group: 75
Number of perennial species defining group: 191
Total number of species at sites: 382
Average number of species at sites Perennial: 19
total: 38 Max: 85 Min: 13
Number of conservation significant species Australian: 3
South Australia: 27
Flinders Ranges region: 39
Number of introduced species: 80 Average per site: 19

Figure 123. Site CRT11101 White Cypress-pine over Wallowa Pygmy Daisy *Rhodanthe pygmaea* and grasses.

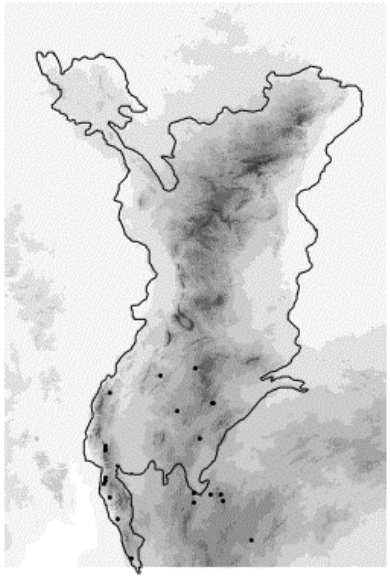


Group 61. ***Danthonia caespitosa*** **Common Wallaby-grass/** ***Stipa*** **spp. Spear-grass Tussock grassland with an overstorey of** ***Eucalyptus socialis*** **Beaked red Mallee/** ***Eucalyptus gracilis*** **Yorrell/** ***Acacia calamifolia*** **Wallowa/** ***Melaleuca lanceolata*** **Dryland Tea-tree.**

This dominantly Mallee grassland association was mostly recorded on the slopes of ranges across the southern Flinders. Important indicator species include: *Olearia minor* Heath daisy-Bush, *Eucalyptus gracilis* Yorrell, *Dodonaea baueri* Crinkled Hop-bush, *Stipa elegantissima* Feather Spear-grass, Dryland Tea-tree, Wallowa and *Goodenia pinnatifida* Cut-leaf Goodenia.

Number of sites in group: 29
Number of perennial species defining group: 124
Total number of species at sites: 218
Average number of species at sites Perennial: 16
total: 32 Max: 51 Min: 15
Number of conservation significant species Australian: 4
South Australia: 18
Flinders Ranges region: 22
Number of introduced species: 56 Average per site: 14

Figure 124. Site WPN16101 Mallee Box *Eucalyptus porosa* and Yorrell over grasses.



Group 62. *Lomandra* spp. Mat-rush/ *Danthonia caespitosa* Common Wallaby-grass/*Stipa* spp. Spear-grass/ *Aristida behriana* Brush Wire-grass Tussock grassland +/- a woodland overstorey of *Acacia pycnantha* Golden Wattle/ *Callitris* spp. Native Pine/ *Eucalyptus porosa* Mallee Box.

This tussock grass association of the hills, low hills and plains only extends into the southern Flinders in the vicinity of Mt Brown and the Orroroo area. The majority of sites in this group occurred in the Upper Mid North to the south of the study area. Indicator species included: *Lomandra effusa* Scented Mat-rush, *Minuria leptophylla* Minnie Daisy, Brush Wire-grass, *Convolvulus erubescens* Australian Bindweed, *Stipa eremophila* Rusty Spear-grass and *Goodenia pinnatifida* Cut-leaf Goodenia.

Number of sites in group: 53
Number of perennial species defining group: 174
Total number of species at sites: 331
Average number of species at sites Perennial: 25
total: 47 Max: 75 Min: 26
Number of conservation significant species Australian: 5
South Australia: 27
Flinders Ranges region: 39
Number of introduced species: 86 Average per site: 20

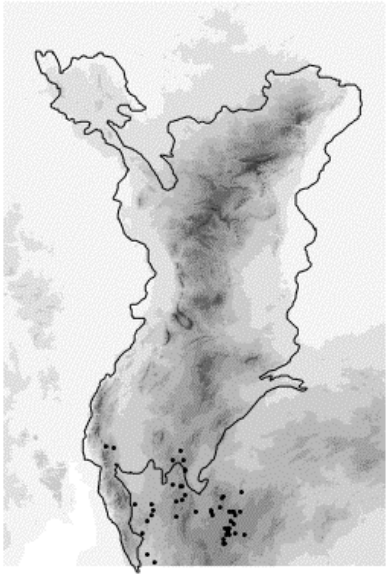


Figure 125. Site LBGPET01 *Stipa blackii, Lomandra effusa* and *Stipa nodosa* tussock grassland.

Group 63. Variable Woodland of *Eucalyptus odorata* Peppermint Box/ *E. microcarpa* Grey Box/ *Allocasuarina verticillata* Droopinf Sheoak/ *E. leucoxylon* South Australian Bluegum/ *Callitris glaucophylla* White Cypress-pine/ *Acacia pycnantha* Golden Wattle over a sparse *Bursaria spinosa* Sweet Bursaria shrub layer, low shrubs; *Lomandra multiflora* Hard Mat-rush/ *Stipa* spp. Spear-grass tussock grassland +/- *Tiodia* spp. Spinifex Hummock grassland.

This grassy woodland complex was recorded along the lower hills and footslopes on the eastern flanks of the western spine of the southern Flinders and also north of Orroroo. Sites in this group were also common to the south of the study area. Important indicator species include: *Stipa blackii* Crested Spear-grass, *Stipa elegantissima* Feather Spear-grass, *Calocephalus citreus* Lemon Beauty-heads, *Wahlenbergia luteola* Yellow-wash Bluebell, *Danthonia setacea var. setacea* Small-flower Wallaby-grass and Peppermint Box.

Number of sites in group: 60
Number of perennial species defining group: 213
Total number of species at sites: 416
Average number of species at sites Perennial: 28
total: 54 Max: 98 Min: 25
Number of conservation significant species Australian: 4
South Australia: 42
Flinders Ranges region: 61
Number of introduced species: 92 Average per site: 20

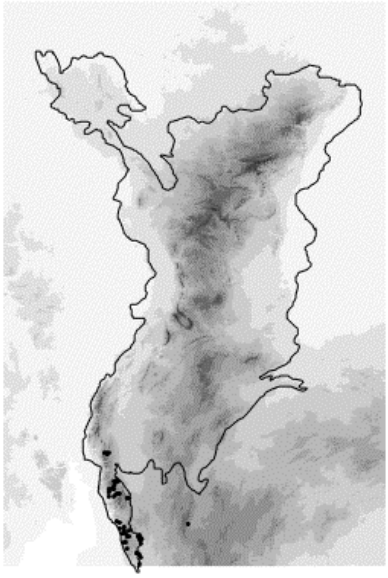
Figure 126. Site LBGBOO01 Golden Wattle and Sweet Bursaria over Crested Spear-grass and Kangaroo Grass *Themeda triandra*.

Group 64. ***Allocasuarina verticillata*** **Drooping Sheoak/** ***Eucalyptus leucoxylon*** **South Australian Blue Gum/** ***Eucalyptus goniocalyx*** **Long-leaf Box/** ***Eucalyptus cladocalyx*** **Sugar Gum +/-** ***Acacia pycnantha*** **Golden Wattle Woodland over** ***Bursaria spinosa*** **Sweet Bursaria/** ***Hibbertia exutiacies*** **Prickly Guinea-flower/** ***Astroloma humifusum*** **Cranberry Heath heathy-shrubland.**

This woodland to forest association dominated the slopes, crests and ridges of the highest ranges and mountains along the western spine of the southern Flinders to which it is restricted. Important indicator species include: Prickly Guinea-flower, *Pultenaea largiflorens* Twiggy Bush-pea, Long-leaf Box, Cranberry Heath, *Goodenia robusta* Woolly goodenia, Sugar Gum, *Exocarpos cupressiformis* Native Cherry and *Acacia wattsiana* Dog Wattle.

Number of sites in group: 59
Number of perennial species defining group: 185
Total number of species at sites: 366
Average number of species at sites Perennial: 26
total: 41 Max: 98 Min: 25
Number of conservation significant species Australian: 7
South Australia: 41
Flinders Ranges region: 76
Number of introduced species: 69 Average per site: 11

Figure 127. Site TEL00501 Sugar Gum, Long-leaf Box and Drooping Sheoak over Dog Wattle, Golden Wattle and Cranberry Heath.

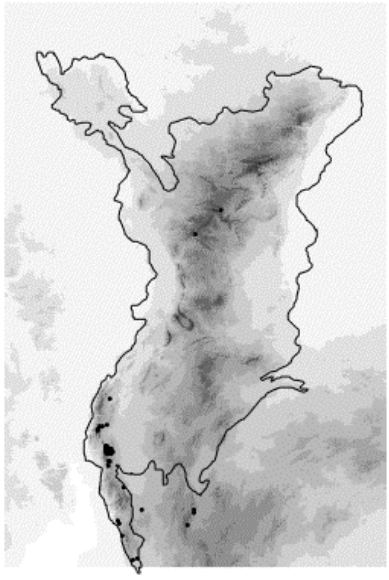


Group 65. ***Allocasuarina verticillata*** **Drooping Sheoak/** ***Eucalyptus microcarpa*** **Grey Box/** ***Callitris glaucophylla*** **White Cypress-pine Woodland over** ***Cassinia laevis*** **Curry Bush and** ***Lomandra*** **spp. and** ***Dianella*** **spp. Mat-rush +/-** ***Triodia*** **spp. spinifex hummock-grass.**

This woodland association was most common on ridges and mid slopes of the main western range of the southern Flinders. In the south this association tends to occur on the western slopes whilst in the north around Mount Brown and Dutchman's Stern the ranges are wider and more complex thus complicating the distribution. This group also occurs at a few sites in the Upper Mid North. Important indicator species include: *Lomandra densiflora* Soft Tussock Mat-rush, *Cheilanthes austrotenuifolia* Annual rock-fern, Grey Box, Drooping Sheoak, *Stackhousia monogyna* Creamy Candles, *Dianella revoluta* Flax-lily and *Astroloma humifusum* Cranberry Heath.

Number of sites in group: 67
Number of perennial species defining group: 183
Total number of species at sites: 347
Average number of species at sites Perennial: 24
total: 42 Max: 88 Min: 18
Number of conservation significant species Australian: 5
South Australia: 32
Flinders Ranges region: 47
Number of introduced species: 74 Average per site: 13

Figure 128. Site TEL00301 ***Eucalypus percostata*** **and Drooping Sheoak over spinifex hummock grassland.**

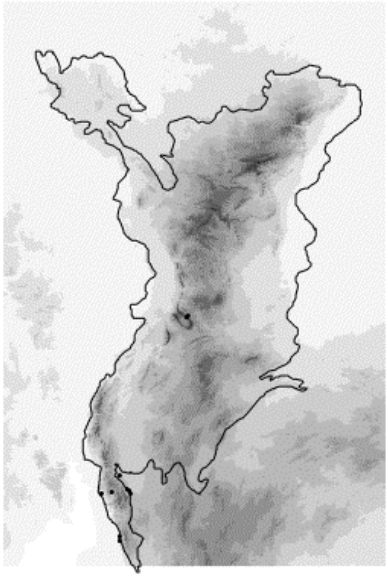


Group 66. *Eucalyptus camaldulensis* River Red Gum/ *Callitris glaucophylla* White Cypress-pine Woodland over *Dodonaea viscosa* Sticky Hop-bush/ *Acacia continua* Thorn Wattle/ *Acacia pycnantha* Golden Wattle and *Lomandra multiflora* Hard Mat-rush/ *Danthonia caespitosa* Common Wallaby-grass ground layer.

This woodland association was found on the lower hills and footslopes often associated with drainage areas (creeks and associated floodouts) on the margins of the western spine of the southern Flinders. This group was also present in the Alligator Pound in Mt Remarkable National Park and Wilpena Pound in the northern Flinders. Important indicator species include: *Carex appressa* Tall Sedge, *Goodenia amplexans* Clasping Goodenia, Thorn Wattle and *Gonocarpus elatus* Hill Raspwort.

Number of sites in group: 11
Number of perennial species defining group: 115
Total number of species at sites: 237
Average number of species at sites Perennial: 22
total: 46 Max: 85 Min: 17
Number of conservation significant species Australian: 2
South Australia: 15
Flinders Ranges region: 26
Number of introduced species: 68 Average per site: 21

Figure 129. Site MAM00701 River Red Gum over shrubs and sedges.

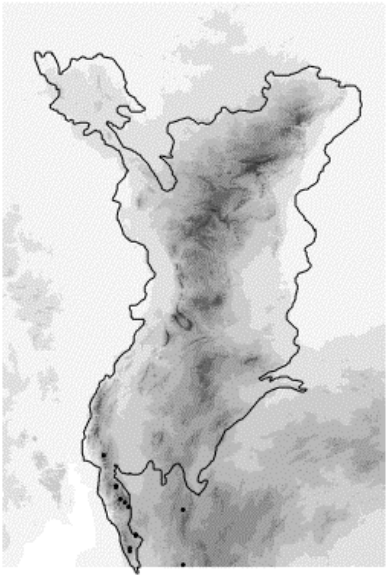


Group 67. *Eucalyptus leucoxylon* South Australian Blue Gum/ *Allocasuarina verticillata* Drooping Sheoak Woodland over Sedge/Tusssock grassland.

This grassy woodland association was most common on slopes of low hills, and appears to be restricted to the eastern flanks of the western range in the southern Flinders. Important indicator species include: *Plantago gaudichaudii* Narrow-leaf plantain, *Acaena echinata* Sheep's burr, *Carex breviculmis* Short-stem Sedge, *Hydrocotyle laxiflora* Stinking Pennywort, *Poa labillardieri* Common Tussock-grass, *Luzula meridionalis* Common Wood-rush, *Kennedia prostrata* Scarlet Runner and *Danthonia racemosa* Slender wallaby-grass.

Number of sites in group: 13
Number of perennial species defining group: 98
Total number of species at sites: 186
Average number of species at sites Perennial: 26
total: 46 Max: 63 Min: 26
Number of conservation significant species Australian: 1
South Australia: 20
Flinders Ranges region: 35
Number of introduced species: 45 Average per site: 13

Figure 130. Site LBGPIR01 South Australian Blue Gum and Grey Box over grasses.

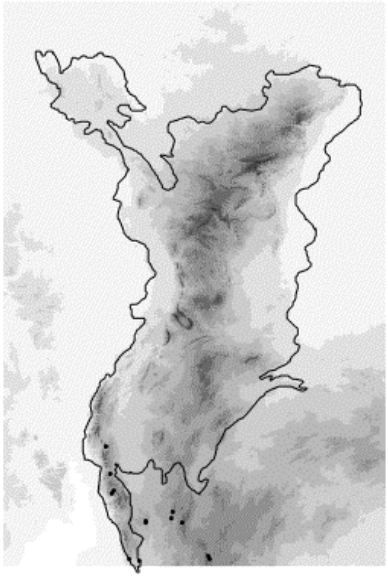


Group 68. *Eucalyptus odorata* Peppermint Box +/- *Eucalyptus leucoxylon* South Australian Blue Gum Woodland or Mallee.

This woodland or mallee association was found on the footslopes and slopes of the low hills along the western range of the southern Flinders. It was also present in the Upper Mid North. Important indicator species include: Peppermint Box, *Billardiera versicolor* Yellow-flower Apple-berry, *Acacia notabilis* Notable Wattle, *Helichrysum leucopsideum* Satin Everlasting and *Goodenia amplexans* Clasping Goodenia.

Number of sites in group: 15
Number of perennial species defining group: 105
Total number of species at sites: 202
Average number of species at sites Perennial: 16
total: 34 Max: 62 Min: 12
Number of conservation significant species Australian: 3
South Australia: 15
Flinders Ranges region: 26
Number of introduced species: 64 Average per site: 17

Figure 131. Site MEL00601 Perpermint Box over Notable Wattle and *Danthonia* spp. grasses.

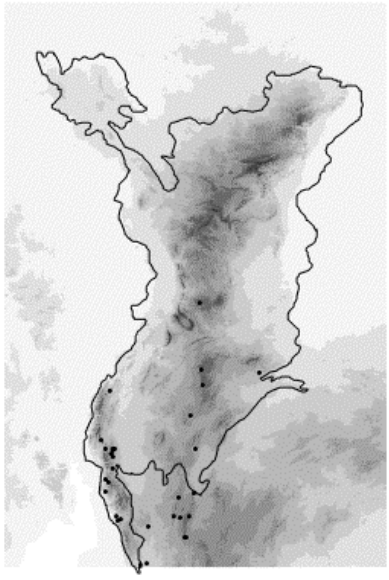


Group 69. *Triodia* spp. Spinifex Hummock grassland +/- *Allocasuarina verticillata* Drooping Sheoak mixed woodland or shrubland overstorey.

This Hummock grass association occurs widely on the hills of the main ranges of the southern Flinders. Patches of this habitat are also present in high altitude areas of the southern part of the northern Flinders. In these areas and in the northern sections of the southern Flinders, shrubs and trees are either absent or sparsely emergent. In the southern mountains, south of Dutchman's Stern, overstorey species are mostly present. Important indicator species include: *Cheilanthes distans* Bristly Cloak-fern, Spinifex, *Pimelea curviflora* Curved Riceflower, *Themeda triandra* Kangaroo Grass, *Wahlenbergia luteola* Yellow-wash Bluebell, Drooping Sheoak and *Ptilotus spathulatus* Pussy-tails.

Number of sites in group: 32
Number of perennial species defining group: 128
Total number of species at sites: 249
Average number of species at sites Perennial: 17
total: 34 Max: 63 Min: 7
Number of conservation significant species Australian: 3
South Australia: 20
Flinders Ranges region: 25
Number of introduced species: 70 Average per site: 17

Figure 132. Site DUT00401 Spinifex hummock grassland with emergent Drooping Sheoak and Rock Grass-tree.



VEGETATION MAPPING

Tim Hudspith[1] and Robert Brandle[1]

The Flinders Ranges survey area straddles the agricultural and pastoral zones, which complicates the vegetation mapping process when compared to other regional surveys. The Geographic Analysis and Research Unit (GAR) of the SA Department for Transport, Urban Planning and the Arts (DTUPA) has the responsibility for mapping in the agricultural zone. This mapping is generally based on 1:40,000 scale aerial photography and 1:50,000 scale topographic map data. In the pastoral zone, mapping has been the responsibility of the Biological Survey and Research Program (BSR) of the Department for Environment and Heritage (DEH). In southern sections of the pastoral zone, of which the Flinders Ranges is a part, mapping is usually based on 1:100,000 scale geo-rectified satellite imagery (Landsat 5 Thematic Mapper) and 1:100,000 scale topographic map data enhanced by 1:80,000 scale aerial photography. In northern parts 1:250,000 scale satellite imagery and map data are used. However, vegetation mapping in the pastoral zone for this survey was based on a slightly different scenario. This was due to the availability of 1:50,000 topographic map data covering most of the survey area, with the exception of the northeastern tip of the Ranges. Consequently, mapping for this survey was based on 1:100,000 scale imagery enhanced by 1:50,000 scale topographic map data and 1:80,000 scale aerial photography (listed on the maps in the back of this report).

The agricultural and pastoral zones meet approximately along the Parachilna and Orroroo 1:250,000 topographic map sheet boundaries, near the 32nd parallel of latitude. The vegetation mapping undertaken for this project and presented in this report, covers the area to the north of this line. The GAR Unit has completed vegetation mapping for a substantial part of the ranges to the south of this line, as illustrated in Figure 133. This mapping is more in depth with extra information in relation to the differentiation of dominant overstorey species. Some of the preliminary mapping groups have been referred to in the analyses of survey results. However, this mapping is not presented in this report and is not expected to be complete until 2003.

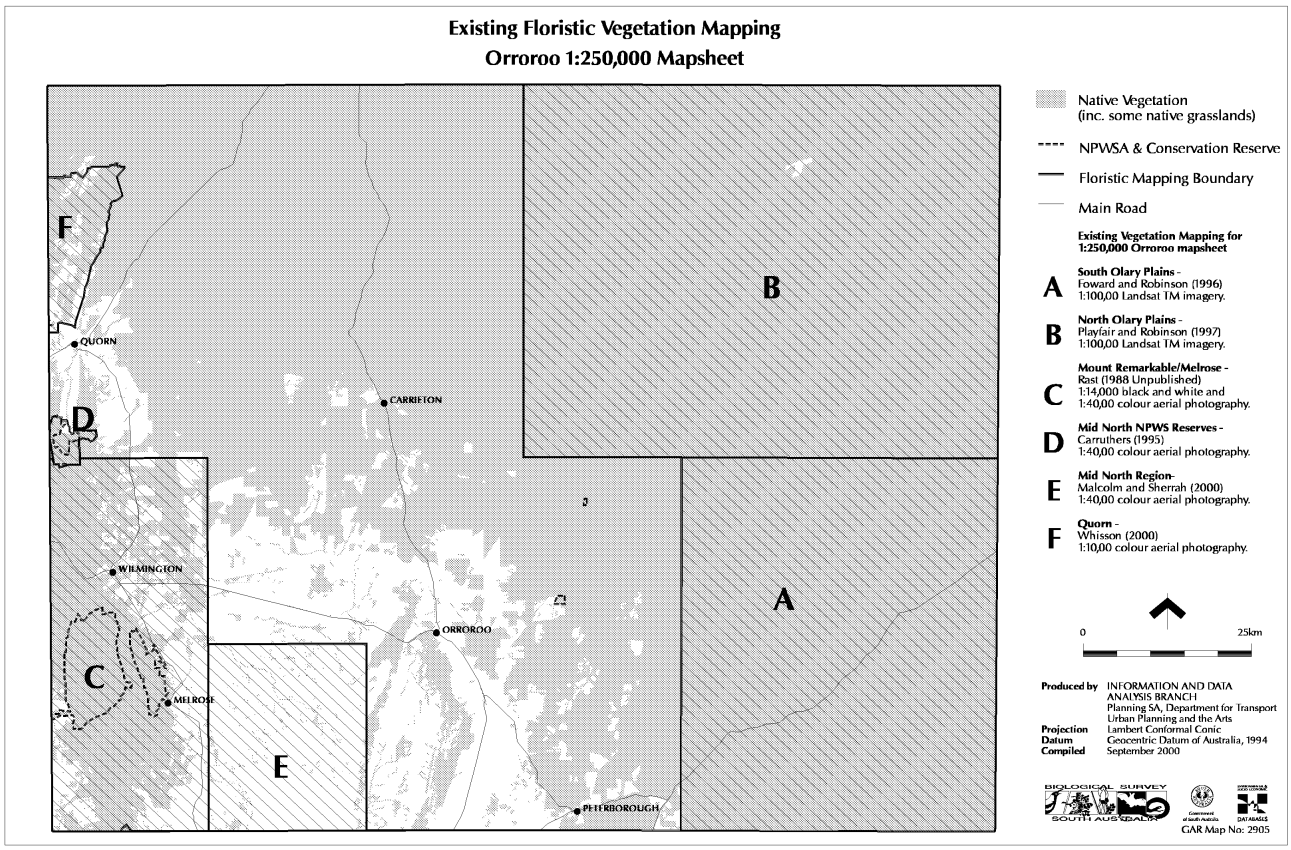


Figure 133. Extent of vegetation map coverage for the Orroroo 1:250000 Mapsheet.

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

All relevant literature, previous vegetation mapping, aerial photography, satellite imagery, topographic and geological maps were reviewed prior to commencing mapping. In addition, many individuals or groups with local knowledge were consulted and some fieldwork was carried out. Based on the available information, and taking into account the scale factor of the mapping, it was decided 22 distinct vegetation associations could be reasonably well identified and delineated. Three non-vegetation groups were also identified and mapped. Vegetation was mapped for the fifteen 1:100,000 map sheets covering the central and northern parts of the Flinders Ranges survey area. Each map sheet was mapped individually at 1:100,000 scale.

Each community is represented on the maps by a unique colour. The colour was chosen to reflect the vegetation itself or the basic landform or soil type on which the community usually occurred. Thus, sand dune and sand plain vegetation communities are shades of yellow, whilst stony plains communities are shades of orange.

An uninterrupted block of colour represents a homogenous area where one community is relatively dominant. If a homogeneous vegetation community was deemed too small to be mapped individually, then it was mapped as part of a mosaic. Indeed, it became necessary to map the 22 distinct vegetation communities as part of a mosaic on numerous occasions. In the case of a mosaic, cross-hatching and numbers are printed on top of the block of colour. The cross-hatching confirms the area is a mosaic of vegetation communities. The numbers (eg: 12/13/5) represent the vegetation communities constituting the mosaic. These are listed in the order of most to least dominant and can be cross-referenced to the 'vegetation communities' key for details.

A vegetation map covering the study area north from the 32nd parallel of latitude, together with individual maps for the Gammon Ranges and Flinders Ranges National Parks, are included in the pocket at the back of this report. The 22 vegetation communities and the three non-vegetation mapping groups, are listed below. A brief explanation of the characteristics of each community, together with the floristic groups they represent is also provided.

KEY TO THE VEGETATION MAPPING

DRAINAGE LINES, FLOODOUTS, LAKES AND RUN-ON LANDFORMS

1: Clay pans and salt lakes without vegetation or water bodies.

This group is uncommon in the study area, being restricted to the surrounding plains. The biggest example is Lake Torrens to the west of the study area. This is one of the three non- vegetation mapping groups. Consequently, there are no corresponding floristic groups.

2: *Eragrostis australasica* Swamp Canegrass Open tussock grassland over +/- *Halosarcia* spp. or *Sclerostegia* spp. Samphires Low shrubland.

This group refers to swamps or closed drainage depressions characterised by either a Swamp Canegrass/Lignum/Old Man Saltbush shrub overstorey or if more saline a Samphire low shrub overstorey. This group is rare in the study area. The only canegrass swamp known to occur within the ranges was Hawker Lagoon, between the Yappala and Yourambulla ranges west of Hawker. Small saline Samphire swamps were most common in the northwest ranges near Leigh Creek. Floristic groups 37 and 38 best represent this mapping group.

3: *Eucalyptus camaldulensis* River Red Gum Woodland over +/- *Melaleuca glomerata* Paperbark Very low woodland, *Acacia victoriae* Elegant Wattle Tall shrubland, *Maireana pyramidata* Blackbush, *Enchylaena tomentosa* Ruby Saltbush Low shrubland, Herbs and *Cymbopogon ambiguus* Lemon Scented Grass.

This group was used to identify the wooded drainage lines throughout the ranges and adjacent plains and corresponds to floristic groups 14, 15, 22 and 50.

4: *Acacia victoriae* Elegant Wattle Tall shrubland over *Maireana pyramidata* Blackbush, *Maireana aphylla* Cottonbush Low shrubland.

This group is characteristic of the terraces and floodouts associated with major drainage lines and the low-lying areas surrounding the ranges. Floristic groups 22 and 23 are related to this mapping group.

5: *Nitraria billardierei* Nitrebush, *Rhagodia spinescens* Spiny Saltbush, *Maireana pyramidata* Blackbush, +/- *Atriplex nummularia* ssp. *nummularia* Oldman Saltbush Low shrubland.

This group is mostly found on the more saline terminal floodouts associated with the plains surrounding the ranges, or the elevated plains within the ranges, such as the Willochra Plain. Floristic groups 35 and 38 are related to this mapping group.

SAND DUNES AND SAND PLAINS

6: *Acacia ligulata* Umbrella Bush, *Dodonaea viscosa* ssp. *angustissima* Sticky Hopbush Tall open shrubland, over +/- *Zygochloa paradoxa* Sandhill Canegrass Tussock grassland, +/- *Casuarina pauper* Blackoak Low open woodland.

This group was not adequately sampled during this study as it falls outside of the main survey area. It is typical of the deeper sands associated with dunes and

some swales. No floristic group describes this community.

7: *Acacia aneura* Mulga and/or *Acacia papyrocarpa* Western Myall Low open woodland over +/- *Senna* spp. Shrubland, Chenopodiaceae spp. Low shrubland or Open tussock grassland.

This group was used to describe the sand plain, sand dune and swale landscape of the plains surrounding parts of the study area. Western Myall is restricted to the south western plains. Floristic group 21 best describes this association.

PLAINS AND RISES

8: *Atriplex vesicaria* Bladder Saltbush, *Maireana astrotricha* Low Bluebush, *Maireana sedifolia* Pearl Bluebush, *Maireana pyramidata* Blackbush, +/- *Zygophyllum aurantiacum* Shrubby Twinleaf Low shrubland.

Once this group would have dominated many of the valleys of the central and northern ranges (NFRSCB 1997). It remains the dominant group of the surrounding harder soil plains. The best examples of this group can be seen in the low hills and rises of the north-western Ranges. In southern areas Bluebush species have been replaced by Blackbush, which is less palatable to domestic stock. Floristic groups 7, 8, 25, 26, 27, 28, 29, 34 and 36 are related to this mapping group.

9: *Enneapogon* spp. Bottle washers, *Sporobolus actinocladus* Rat-tail Couch, +/- *Astrebla pectinata* Mitchell-grass Open tussock grassland, +/- *Sclerolaena* spp. Low open shrubland.

This group is characteristic of clay plains and depressions supporting dwarf shrubs, grasses and herbs, many of them ephemeral. Grasses dominate following summer rains whilst in winter the herbs respond best. Floristic groups 53 and 54 correspond to this mapping group.

10: *Acacia victoriae* Elegant Wattle, +/- *Eremophila duttonii* Harlequin Emubush, *Alectryon oleifolius* Bullock Bush Tall open shrubland over Chenopodiaceae spp. Low shrubland or Open tussock grassland.

This group characterises the plains surrounding the ranges, which support a sparse tall shrub overstorey. The related floristic groups are 16, 19, 23, 24, 26, 32, 33 and 47.

RANGES

11: *Cymbopogon ambiguus* Lemon Scented grass, *Stipa nitida* Balcarra Spear Grass, *Enneapogon* spp., *Aristida* spp. Open tussock grassland, +/- *Asphodelus fistulosus* Onion weed.

This group is commonly associated with calcareous loams and shale hill slopes. The most extensive occurrences of this community are found in the northern Flinders. Floristic group 12 best describes this mapping group.

12: *Acacia victoriae* Elegant Wattle, *Acacia tetragonophylla* Dead Finish, *Acacia oswaldii* Umbrella Wattle Tall Shrubland and/or *Sida petrophila* Rock Sida over *Ptilotus obovatus* Silver Mulla Mulla Low shrubland or Open tussock grassland.

This widespread group is usually associated with the lower shale hills and valleys common in the northern and central Finders. It also includes severely degraded or former chenopod shrublands. Floristic groups 5, 7, 9, 10, 11, 16, 17 and 18 are related to this mapping group.

13: *Acacia anuera* Mulga Very low open woodland and/or *Acacia* spp., *Eremophila* spp., *Senna* spp., *Dodonaea* spp. Shrubland over *Ptilotus obovatus* Silver Mulla Mulla and Chenopodiaceae spp. Low shrubland.

This group was common on the rockier low hills throughout the central and northern ranges. This group corresponds to floristic groups 1, 2, 3 and 6.

14: *Triodia* spp. Spinifex Open hummock grassland +/- an overstorey of *Acacia* spp. or *Melaleuca uncinata* Mallee Broombush or *Xanthorrhoea quadrangulata* Rock Grass-tree or *Callitris glaucophylla* White Cypress-pine or *Eucalyptus* spp. Open shrubland or Woodland.

This group was typical of the quartzite slopes of the higher ranges and mountains of the central and northern Flinders. The related floristic groups are 55, 56 and 57.

23: *Triodia* spp. Spinifex Hummock grassland.

This hummock grassland group is mainly found in three areas in the Ranges. In the south it occurs from Dutchman's Stern Conservation Park to north of Mount Arden. In the central Flinders it is found on the high undulating hills east of the Flinders Ranges National Park and on the slopes of the Loves Mine Range. In the north it occurs on the granite country north of the Freeling Heights. This mapping group relates to floristic group 14.

15: *Eucalyptus socialis* Red Mallee, *Eucalyptus dumosa* White Mallee, +/- *Eucalyptus gracilis* Yorrell over *Eremophila* spp. Shrubland or *Zygophyllum* spp. Low shrubland.

This group was scattered throughout the ranges, mostly in valleys and lower hill slopes containing calcareous

loams. Floristic groups 39, 41, 42, 43 and 59 are included in this mapping group.

16: *Eucalyptus gillii* Curly Mallee, +/- *Eucalyptus socialis* Red Mallee over +/- *Triodia* spp. Spinifex Open hummock grassland.

This relatively rare association, characterised by Curly Mallee, occurs on calcareous loams on the eastern side of the northern and central ranges. Floristic group 16 best matches this association.

17: *Eucalyptus flindersii* Flinders Mallee over +/- *Melaleuca uncinata* Mallee Broombush Shrubland, +/- Triodia spp. Spinifex Open hummock grassland.

This endemic Flinders Ranges vegetation association is restricted to the highest parts of the ranges. Floristic group 17 best matches this association.

18: *Eucalyptus porosa* Mallee Box, +/- *Eucalyptus odorata* Peppermint Box Mallee.

This community is only found on the floor of Wilpena Pound. It represents a northern variant of floristic group 63.

19: *Eucalyptus intertexta* Gum-barked Coolibah Open woodland over *Dodonaea* spp., *Cassinia laevis* Curry Bush or *Senna* spp. Shrubland.

This group, common in the central and northern high ranges, is a composite of steep slope woodlands with dense shrub or *Triodia* spinifex understorey (floristic groups 56 and 57) and a raised valley open understorey association (Floristic group 58).

20: *Allocasuarina verticillata* Drooping Sheoak, +/- *Allocasuarina muelleriana* Slaty Sheoak Tall shrubland over *Lepidosperma* spp.

This group has its origins in the southern Flinders. It only occurs on the internal slopes of Wilpena Pound within the mapping area. Floristic group 69 best represents this mapping group, although it converges with floristic group 57 on the plateaus and broad ridges of the central and northern Flinders.

21: *Casuarina pauper* Blackoak Low open woodland over Low shrubland or Open tussock grassland.

This hill footslope and valley community represents a variety of associations all with Blackoak in the overstorey. Although common, it is usually of minor extent, the exception being parts of the eastern central ranges and areas in the north-western ranges. Floristic groups 4, 31, 40 and 43 are related to this association.

22: *Callitris glaucophylla* White Cypress-pine Woodland.

In it purest form this group occurs as a virtual monoculture woodland over a very sparse grassy understorey. It also often occurs as an open woodland in association with a variety of other suites of species. White Cypress-pine appears to be confined to the central quartzite spine of the ranges. Floristic groups 12, 13, 55 and 22 are related to this mapping group.

24: Agricultural or cleared area or severely degraded area. May contain patches of remnant native vegetation.

This group is the second of three non-vegetation mapping groups.

As previously discussed, cross-hatching and numbers printed on top of a block of colour confirm the area is a mosaic of vegetation communities. The numbers (eg: 12/13/5) represent the vegetation communities constituting the mosaic. These are listed in the order of most to least dominant and can be cross- referenced to the ‘vegetation communities’ key for details.

Dark pink areas represent built-up areas, re-vegetation areas or mines. This group is the third of the three non-vegetation mapping groups.

Biological Survey of the Flinders Ranges

MAMMALS

Robert Brandle[1]

INTRODUCTION

Only nineteen species of mammal were listed as definitely occurring in the region in the first edition of the 'Natural History of the Flinders Ranges' (Aitken in Corbett 1969). This reflects the paucity of specimens in the South Australian Museum for the region at that time. In 1980 Aitken revised this estimate for the Field Guide to the Flinders Ranges (Corbett 1980) to 21 species, of which 16 were known to still be present in the area. Four more were considered as likely to be present though none had been recorded for more than fifty years. For the 1996 edition of the 'Natural History of the Flinders Ranges' the list of mammal species that were likely to have existed in the region at the beginning of the nineteenth century had grown to fifty (Smith 1996).

Smith's account draws on the work of Graham Medlin who has identified much of the pre-European fauna of the region from bone deposits in caves (usually accumulated by owls through regurgitation of pellets containing the bones of small mammals). This method had contributed 19 species to the list of mammals known for the Flinders Region (Smith and Medlin 1982, Medlin 1993, Smith 1996). Survey activity since 1969 (see chapter on previous research) has raised the number of species in the mammal collection of the South Australian Museum to 29 species (the area referred to also included a significant part of the Olary Spur). Historical accounts of mammals and the skeletal material have been supported by local Aboriginal knowledge of several species (Tunbridge 1991) and two of the fifty mammals listed by Smith (1996) are only known to have inhabited the region through these oral records. Twenty-four of these fifty species were considered extinct in the region (Smith 1996).

The aims of the mammal component of the vertebrate surveys was to determine which species still inhabit the region and the areas and habitats in which they still occur. From this information the regional conservation status for each species was determined.

The Biological Survey of South Australia Database contains mammal records from 263 Biological Survey sites within longitudes 137^0 48' and 139^0 48' and latitudes 29^0 48' and 33^0 18'. Mammal survey data was drawn from nine distinct surveys as depicted in Figure 134. A summary of the survey dates and numbers of species is presented in Table 17.

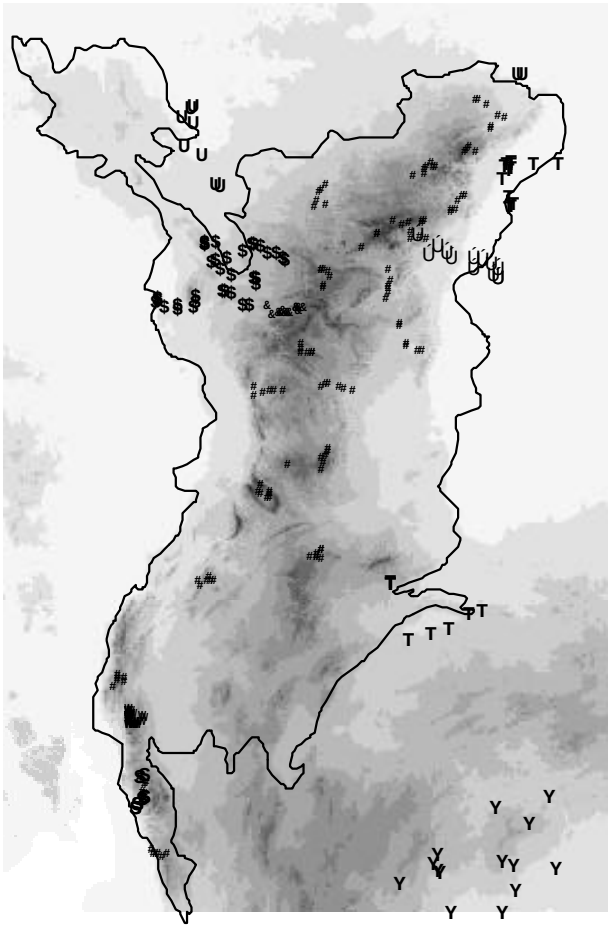


Figure 134. Distribution of vertebrate survey sites within latitudes 29^0 48' to 31^0 18' and longitude 137^0 48' to 139^0 48'. Open squares = Stony Deserts, black circles = Flinders Ranges, black triangles = North West Flinders Ranges, black pentagons = Warraweena (NCSSA), open triangles = North Olary Plains, open stars = Gammon Ranges (NCSSA), open hexagons = Mt Brown Survey (NCSSA), open circles = Mt Remarkable National Park (NPWS), and circles with a centre point = South Olary Plains. Black line delineates the study area.

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

Table 17. Vertebrate surveys and their contribution of sites within and outside of the study area boundary as depicted in Figure 134. The majority of sites were sampled using two lines of six pitfall trap, fifteen Elliott traps, two cage traps and a one hour search for evidence of mammals. A number of sites had fewer or no traps particularly on the Mt Brown Survey (#66). For full trap details for each site refer to Appendix 11.

Survey Number and Name	Survey Dates	# sites sampled within/outside study area	# species and (# native species) within/outside study area	Average # species and (native sp.) per site
24 South Olary Plains*	1991-92	0 / 14	0 / 14 (8)	4 (2.1)
66 Mt Brown (NCSSA)	1993	35 / 0	8 (3) / 0	2.2 (1.3)
67 Gammon Rgs NP (NCSSA)	1994	7 / 2	9 (8) / 3 (1)	2.5 (2.1)
69 Stony Deserts*	1994-97	0 / 10	0 / 3 (1)	3.2 (1.5)
74 North Olary Plains**	1995-97	11 / 9	14 (9) / 14 (7)	3.8 (2.1)
98 North West Flinders Ranges+	1997	30 / 3	15 (7) / 5 (1)	2.7 (1.7)
104 Flinders Ranges	1998-99	121 / 0	31 (21) / 0	4.3 (2.5)
111 Warraweena	1999	13 / 0	16 (10) / 0	4.4 (2.4)
114 Mt Remarkable NP	1983	10 / 0	4 (2) / 0	1.3 (1)
Totals		225 / 38	32 (22) / 20 (12)	

* no sites in study area – but data included in PATN analysis
** 10 sites outside of study area – but data included in PATN analysis
\+ 3 sites outside of study area – but data included in PATN analysis

TOTAL MAMMAL FAUNA

All records from the South Australian Museum, Smith (1996), Medlin (1993), the Biological Survey and Opportune Databases have been collated for the study area (Appendix 12). This compilation of sources indicates that up to 54 native and 10 introduced mammal species have at sometime existed within the study area boundary. The vertebrate survey activity since 1996 recorded 24 native species, of which four were additions to the 50 species listed for the region in Smith (1996).

One of these, Giles' Planigale *Planigale gilesi* was omitted from the list in Smith (1996) despite a collection from Moolawatana at the north-eastern boundary of the study area for the SA Museum in 1979. This species was also collected during the 'Biological Survey of the North Olary Plains' (Playfair and Robinson 1997) near the north eastern ranges 1.5km east of the study area boundary. The trapping of the Common Dunnart *Sminthopsis murina* at Wilpena Pound and on the Gammon Plateau, were the first live records of this species in the Flinders Ranges. Its bones were present in sub-fossil owl pellet material collected from caves in the Loves Mine Range closer to Wilpena Pound and recent re-evaluation of *Sminthopsis* bones from the Chambers Gorge collection indicates that it may be present in this material (G Medlin pers. comm). The capture of one Little Long-tailed Dunnart *Sminthopsis dolichura*, below the Dutchman's Stern in the southern Flinders, is an easterly extension of this species' distribution into the Flinders. The capture of the Little Forest Bat *Vespadelus regulus* above Alligator Gorge and Tellowie Gorge represents the first records of this species in the ranges.

A fifth species the Desert Mouse *Pseudomys desertor*, listed as extinct in the region (Smith 1996), was an unexpected find on the slopes and ridges of the southern Flinders. In October 2000 one individual was hand caught in a rocky spinifex lined creek near Mt Croker (Mt Freeling Station) in the northern Flinders. All previous evidence of its occurrence in the northern, central and near the southern Flinders at Burra (to the south-east of the study area), comes from sub-fossil owl pellet material (Medlin 1993, Robinson *et al.* 2000b).

The conservation status ratings for each species as listed in Appendix 12 were based on the Commonwealth Endangered Species Schedules for the Australian Status, and Robinson *et al.* (2000a) for South Australian Status. The regional conservation status has been assessed from the results of the survey and the numbers of collections made for the SA Museum. Of the 54 native species listed in Appendix 12, 20 are considered extinct in the region and four are likely to only be present occasionally as vagrants from the surrounding plains. The extant mammal fauna for the region therefore currently numbers 29 native species. This includes four species of macropod, seven carnivorous marsupials (of which Giles' Planigale and the Kultarr are probably restricted to the fringing plains), ten insectivorous bats, five native rodents, one possum, one Monotreme and the Dingo. The dingo fence along the eastern and part of the northern edge of the Flinders Region is designed to keep dingoes out of sheep farming areas such as the Flinders Ranges. However, breaches in the fence are common and it is likely that in the denser more rugged parts of the ranges dingoes are always present. During the survey dingoes were troubling sheep as far south as Patawarta Hill, 30km north of Blinman. The conservation dependent Brush-tailed Bettong (marked CD in Appendix 12), is the first trial release of a regionally extinct mammal in the intensively managed Flinders Ranges National Park. If this release is successful this will be the 30th native mammal species present in the region.

COMMON SPECIES

Ten of the 33 species recorded by the surveys were detected at more than 10% of the 225 survey sites sampled in the study area (Table 18). The most frequently recorded, using all methods such as observation, tracks, scats and skeletal material, was the Euro at 52% of sites. The recording rate refers to the number of individuals of a species trapped, divided by the total number of all species trapped on the survey, therefore this analysis could only be applied to small mammal species and is presented as a percentage in Table 18. Five native species were present at more than 10% of sites, the echidna regarded as being present at sites because of its distinctive scats and diggings. Bats are likely to be much more common and abundant than the data implies as they were not sampled at very many sites. It is probable that in many mallee and woodland habitats they are amongst the most abundant species with Gould's Wattled Bat and the 'large penis' and 'small penis' species of the Southern Free-tailed being the next most commonly caught.

Of the small mammals the House Mouse was the most common because of its distribution through a variety of habitats along the entire length of the ranges, and where it was present it was often readily captured. This skews the analysis against the carnivorous marsupials as they do not occur in the southern Flinders and are not as 'trap happy' as mice. However in the drier north (Table 21) the Stripe-faced Dunnart displaces the introduced House Mouse as the most widespread small mammal.

Species habitat preferences and dominance changes in relation to the variation in climate and topography across the study area. Therefore, the most common species (occuring at more than 10% of sites) for each region are presented in Tables 19-21 as the percentage of sites in each of the major landform categories sampled.

Table 18. Percent frequency of the most commonly encountered mammals recorded across the study area (refer to Table 17 for explanation of survey numbers). Records from all methods of data collection were combined, hence the larger species such as goats and rabbits which are easily identified by tracks, scats and skeletal remains, may be over represented in comparison with more cryptic species. Recording rate only refers to small mammals captured using standard trapping techniques (the number of captures per species divided by the total of all captures (825) as a percentage).

		Survey Number							% of	Recording
SPECIES	**Common Name**	**66**	**67**	**74**	**98**	**104**	**111**	**114**	**all sites**	**Rate**
Macropus robustus	Euro	43	14	45	33	61	100		52	
Oryctolagus cuniculus	Rabbit (European Rabbit)	34		27	37	45	62		39	
Capra hircus	Goat (Feral Goat)			9	13	54	92		36	
Mus musculus	House Mouse	6	43	45	50	36	15	70	35	48
Sminthopsis macroura	Stripe-faced Dunnart		57	45	50	30	31		28	22
Tachyglossus aculeatus	Short-beaked Echidna	34		18	3	28	15		23	
Vulpes vulpes	Fox (Red Fox)	29		18	10	26	23		22	
Sminthopsis crassicaudata	Fat-tailed Dunnart		43	27	33	19	31		19	19
Ovis aries	Sheep	43			3	17			16	
Macropus rufus	Red Kangaroo		14	55	10	16	15		14	

Table 19. Percent frequency of the most commonly encountered mammals in the major landform types of the southern Flinders. Mountains refers to the main chain of the ranges with altitudes over 700m, hills refers to the lower parts of the ranges and low hills to the foothills and low outlying ranges. The percentage refers to the proportion of sites within each category at which the species was recorded. Total refers to the number of sites at which each species was recorded.

SPECIES	Common Name	Landform			
	# sites	Mountains (28)	Hills (23)	Low hills (11)	Total (62)
Macropus robustus	Euro	43	39	64	45
Oryctolagus cuniculus	Rabbit	18	35	55	31
Tachyglossus aculeatus	Short-beaked Echidna	39	35		31
Mus musculus	House Mouse	43	17	9	27
Vulpes vulpes	Fox	18	26	18	21
Macropus fuliginosus	Western Grey Kangaroo	11	13	36	16
Capra hircus	Goat	21	9	9	15

Table 20. Percent frequency of the most commonly encountered mammals in the major landform types of the central Flinders. Mountains refers to the main chain of the ranges with altitudes over 700m, hills refers to the lower parts of the ranges, low hills to the foothills and low outlying ranges, and plains to undulating and flat areas. The percentage refers to the proportion of sites within each category at which the species was recorded. Total refers to the number of sites at which each species was recorded.

SPECIES	Common Name	Landform				
	# sites	Mountains (13)	Hills (13)	Low hills (7)	Plain (4)	Total (39)
Macropus robustus	Euro	69	77	71	75	74
Mus musculus	House Mouse	62	38	57	75	54
Oryctolagus cuniculus	Rabbit	38	62	71	75	54
Capra hircus	Goat	54	54	57	50	51
Sminthopsis macroura	Stripe-faced Dunnart	46	46	43	50	44
Sminthopsis crassicaudata	Fat-tailed Dunnart	15	15	29	50	23
Tachyglossus aculeatus	Short-beaked Echidna	23	23	14	25	21
Vulpes vulpes	Fox	38	8	29		21
Macropus fuliginosus	Western Grey Kangaroo	15			25	10
Macropus rufus	Red Kangaroo	8		14	50	10

Table 21. Percent frequency of the most commonly encountered mammals in the major landform types of the northern Flinders. Mountains refers to the main chain of the ranges with altitudes over 700m, hills refers to the lower parts of the ranges, low hills to the foothills and low outlying ranges, and pediment to the gently sloping alluvium that collects at the base of ranges. The percentage refers to the proportion of sites within each category at which the species was recorded. Total refers to the number of sites at which each species was recorded.

SPECIES	Common Name	Landform								
	# sites	Mountains (29)	Hills (32)	Low hills (29)	Rises (11)	Pediment (3)	Plain (14)	Flood plain (3)	Dunefield (2)	Total (124)
Macropus robustus	Euro	59	69	52	36	33	14			49
Capra hircus	Goat	52	47	62	18	33		33		43
Oryctolagus cuniculus	Rabbit	28	41	55	36	67	21		50	39
Sminthopsis macroura	Stripe-faced Dunnart	21	31	38	64	67	57	67		38
Mus musculus	House Mouse	31	25	17	55	33	50	100	50	32
Sminthopsis crassicaudata	Fat-tailed Dunnart	7	6	45	64	33	57	33		27
Vulpes vulpes	Fox	17	28	34	9		7	33	50	23
Macropus rufus	Red Kangaroo	7	9	34	64	33	29			22
Tachyglossus aculeatus	Short-beaked Echidna	41	16	7	9	33		33	50	19
Bos taurus	Cattle	17	3	3	36		14	33		11

BIOGEOGRAPHY

From a biogeographic perspective the surviving mammal fauna of the Flinders Ranges is less distinctive than some of the plants, birds or reptiles. This is because there are few species confined to the southern temperate (Bassian) region or the mallee lands (Bassian/Eyrean) region (refer to vegetation chapter for details). A substantial proportion of the mammal fauna is dominated by Eyrean species or generalists that historically were able to survive in wetter refuges (such as drainage lines and floodplains) within arid Australia (Morton 1990). This was probably also the case with the long list of extinct species.

The only truly Bassian species which was collected once from the southern Flinders in 1925 is the Ring-tailed Possum *Pseudocheirus peregrinus* which reached its northern limit in South Australia near Melrose. The Water Rat *Hydromys chrysogaster* is restricted to areas with a continuous supply of water rather than having affinities with a particular bio-climatic region. However in South Australia this limits their distribution to the higher rainfall areas that have near permanent streams, and the adjacent coast, as well as along the Murray River and Cooper Creek in the north. In the Flinders they have been recorded as far north as Wirrabara on the eastern side of the southern ranges (Aitken 1980, Robinson *et al.* 2000b). Neither of these species were recorded during the survey.

The three species that have a Bassian/Eyrean or mallee lands distribution were unknown from the study area prior to the survey. The Common Dunnart *Sminthopsis murina* was known from as far north as the southern margins of the Olary Spur. The capture of this species at Wilpena Pound represents the western limit for this species' distribution and the population on the Gammon Plateau marks the northern limit. It is probable that the Common Dunnart was more widespread through the low woodlands and tall shrublands of the ranges as their remains have been recorded in sub-fossil owl pellets in the northern and central Flinders. Their continued survival in habitats associated with the highest peaks in the ranges is probably the result of the wetter climate in these areas. Both of these areas have been noted as northern refuges for Bassian/Eyrean plants and fauna. In comparison the Southern Forest Bat *Vespadelus regulus* which is distributed across the southern third of South Australia at a level in line with the tip of Spencer Gulf does not appear to utilise the corridor for distribution into the north that the ranges represent. The capture of this species at two sites in the southern Flinders is therefore not surprising as there are many records from the ecologically similar Mt Lofty Ranges and the drier Gawler Ranges. The one capture of a Little Long-tailed Dunnart *Sminthopsis dolichura* in the ranges of the Dutchman's Stern represents a relatively minor extension of its distribution to the east.

Eleven of the extant mammal species that were in the study area have arid Eyrean distributions. This includes the four native rodents, three carnivorous marsupials (the two planigales and *Sminthopsis macroura*), two Macropods (*Macropus rufus* and *Petrogale xanthopus*), and two bats (*Vespadelus finlaysoni* and *Vespadelus baverstocki*). Two Eyrean species are essentially restricted to arid ranges habitats. The most familiar is the Yellow-footed Rock-wallaby *Petrogale xanthopus* which is distributed from the Gawler Ranges across to the Olary Spur in South Australia, the Coturaundee Ranges in western New South Wales and, as a distinct subspecies, in southern central Queensland. The Finlayson's Cave Bat *Vespadelus finlaysoni* reaches the southern limit of its distribution in the northern parts of the southern Flinders. Elsewhere in the state it is restricted to the isolated ranges in the western stony deserts and the ranges of the Anangu-Pitjantjatjara Lands. The only other species with its southern limits in the ranges is the Desert Mouse *Pseudomys desertor* which was discovered in the southern Flinders during the survey, a range extension of 300 km in a south-easterly direction. Sub-fossil owl pellet investigations from sites scattered along the length of the ranges indicate that it once occurred as far south as Burra Creek south-east of the study area (Robinson *et al.* 2000b).

The remaining 14 species have general distributions that cross all the bioclimatic regions. The only carnivorous marsupial in this group was the Fat-tailed Dunnart *Sminthopsis crassicaudata*. Most of the bats and the larger mammals fall into this category. All of the species that are considered occasional visitors in Appendix 12 have Eyrean distributions including the Kultarr *Antechinomys laniger* which whilst being a plains dweller may occur in the study area.

CONSERVATION SIGNIFICANCE

The demise of the Flinders Ranges mammal species has been extensively documented elsewhere (Corbett 1969; Corbett 1980; Tunbridge 1991; Smith 1996). This discussion concentrates on the surviving fauna which is rated at a state level as presented for the regulations of South Australian 'National Parks and Wildlife Act 1972' which were updated in 2000 (Robinson *et al.* 2000a). The regional status for all species has also been reassessed based mostly on survey results and the records of the South Australian Museum.

The only species that are rated under the 'Commonwealth Endangered Species Protection Act 1992' are extinct in the study area with the possible exception of the Dusky-Hopping Mouse *Notomys fuscus* and the Plains Rat *Pseudomys australis*. Neither of these species are inhabitants of the ranges and would

only have the potential to disperse into them after exceptional above-average rainfall conditions. The only South Australian rated species recorded in the study area is the Yellow-footed Rock-wallaby *Petrogale xanthopus* which is considered vulnerable (likely to become endangered in the near future if causal factors continue to operate). The Brush-tailed Bettong *Bettongia penicillata* is the subject of a trial release in the Flinders Ranges National Park and is still a long way from developing self sustaining populations (K Bellchambers pers.com.). If in the longer term the trial is successful the survival of such species will be dependent on conservation measures that limit the threatening processes, hence the rating CD (conservation dependent). On a regional level three species were considered vulnerable to further decline or extinction from the region; eight as rare, having been recorded at less than four survey sites and have rarely been recorded by other sources. These are listed in Appendix 12. A further five species were considered uncommon, having been recorded at less than 15 sites (excluding bats which were assessed against the numbers caught at sites and the previous Museum records).

Vulnerable Species

Yellow-footed Rock-wallaby *Petrogale xanthopus*
The Flinders Ranges are the stronghold for this once abundant rock-wallaby. Early decline of this species was attributed to a massive hunting effort for scalps and the fur trade in the latter half of the 1800's to 1919 when the species was formally protected (Copley 1981). Since the 1930's predation by foxes (which reached the region in 1910) and competition from introduced herbivores (which were all present before 1900) have been implicated in preventing the return to former numbers, and the continued decline of many populations (Lim *et al.* 1987). Whilst rock-wallabies remain widespread through the region many small populations continue to decline in the absence of threat control measures such as the predator and herbivore control being implemented by the 'Operation Bounceback' ecological restoration project in the central and northern Flinders Ranges. Where 'Operation Bounceback' has been active there has been a marked increase in rock-wallaby numbers including re-colonisation of adjacent suitable habitats (DEH 1999). The primary limiting factor on most small rock-wallaby colonies appears to be the presence of foxes which are thought to limit recruitment to the adult populations by consuming the young. The small populations in the southern Flinders from Dutchman's Stern south are highly vulnerable to extinction (even in conservation reserves), the most southerly populations, south of Telowie Gorge Conservation Park, having disappeared over the last 15 years (S Beinke pers. com.).

Ring-tailed Possum *Pseudocheirus peregrinus*
This species was known from the eastern slopes of the southern Flinders between Beetaloo and Wilmington and was considered to be uncommon and apparently declining by Aitken in Corbett (1980). One specimen was collected from Melrose in 1925, and there are few substantiated records in the literature since that time. The Long-leaf Box and Blue Gum forests in the southern Flinders have many structural and species similarities to some habitats supporting Ring-tailed Possums in the northern Mount Lofty Ranges (Biological Survey of SA database, D Armstrong pers comm). Also, Pahl (1984) has shown that young and intermediate aged leaves are preferred food items for Ringtail Possums in Lysterfield National Park (Victoria). Therefore, a relatively large area of potentially suitable Ring-tail Possums habitat is still present in the southern Flinders. However, no records of the species have been obtained from the area since 1980 or during the current survey.

Brush-tailed Possum *Trichosurus vulpecula*
The decline of the Brush-tailed Possum in the Flinders Ranges is well documented (Corbett 1980, Papenfus 1990, Kerle *et al.* 1992, Tunbridge 1991, Kemper and Foulkes 1997). Kemper and Foulkes (1997) indicate that the possums probably dissapeared from the northern and central Flinders Ranges in the 1930's and to date there has been no confirmation of the 1989, 1990 unconfirmed sightings from the central Flinders. Haphazard releases of possums from Adelaide at Wilpena (1961-65) and Arkaroola (1968) have not lead to the establishment of viable colonies (Copley 1995). In the southern Flinders, Kemper and Foulkes rate the current status of Brush-tailed Possums as rare, occurring only in fragmented populations. Bellchambers (1999) reviewed the current status of populations and indicates that despite a number of releases in Mambray Creek over the last few years no signs of a stable population are evident in the best habitat along the creek. An earlier release of 11 animals in 1972 (Copley 1995) also appears to have failed, as did unrecorded releases at Alligator Gorge during the late 1980's (T Dowd pers. com.). Further south at Telowie Gorge, which is also on the western side, Brush-tailed Possums were not evident during the survey. All surviving populations now appear to be restricted to the eastern footslopes of the southern ranges in remnant open eucalypt woodlands or associated with the major towns of Melrose, Wilmington and Quorn. All populations near towns appear to have declined with the exception of the Wilmington populations which at the Beautiful Valley Caravan Park are protected and fed by the owners. The most substantial populations are therefore likely to be in the remnant River Red Gum and box woodlands between Melrose and Wilmington. The vulnerability of these fragmented populations to extinction is high. Research to assess the extent of these populations and the causes of their decline is imperative for the long term conservation of this species outside Metropolitan Adelaide.

Rare Species

Five of the nine species which were rated as rare in the region were recorded by the surveys. The Dingo *Canis*

lupus has been discussed earlier. The one record of Giles' Planigale *Planigale gilesi* from the north eastern tip of the study area at Moolawatana indicates that it may be present in similar stony plains habitats elsewhere around the ranges. However it is not likely to be a significant component in the fauna of the ranges. Similarly the Kultarr *Antechinomys laniger* which was recorded east of the study area may be found on the open plains west and south of Chambers Gorge, as is implied by the owl pellet record (Medlin 1993). However the lack of records from these parts (some of which have been sampled) indicates that they are probably worthy of a rare rating. In South Australia this species is most common in the Sturt's Stony Desert and around Oodnadatta west of Lake Eyre (Brandle 1998). The Water-rat *Hydromys chrysogaster* is very restricted in the Flinders to permanent water and is only known in the study area from near Wirrabara along the Rocky River which leads into the Broughton River. Whether the species has populations in and around the Beetaloo and Baroota Reservoirs needs to be determined.

The species that were recorded by the survey have been annotated to include habitat details.

Little Long-tailed Dunnart *Sminthopsis dolichura*
The only record of this species in the ranges is from survey site DUT00601 which was on a hill slope below the western escarpment of the Dutchman's Stern. The habitat was a very low open woodland of Black Mallee-box *Eucalyptus porosa* and SA Blue Gum *E. leucoxylon* with Drooping sheoak *Allocasuarina verticillata* over Spinifex *Triodia* hummock grassland and Curry Bush *Cassinia laevis*. On Eyre Peninsula the species is widely distributed through a variety of habitats. In the Gawler Ranges the Little Long-tailed Dunnart was largely confined to mallee *Eucalyptus* spp. and Western Myall *Acacia papyrocarpa* woodlands with chenopod low shrub understorey (Robinson *et al.* 1988). To the north west in the Yellabinna region it was found mostly on dunes in similar vegetation types as well as Black Oak *Casuarina pauper* woodland and spinifex hummock grassland (Copley and Kemper 1992). In the Kulliparu region of western Eyre Peninsula it was associated with a variety of mallee broombush *Melaleuca* spp. and spinifex habitats with an apparent preference for non-dune habitats. Further trapping is required to determine the status of this species in the southern Flinders as no trapping has been undertaken north along this section of the Ranges. The nearest museum records were collected on the western flats in the chenopod shrublands 20km to the south-west.

Common Dunnart *Sminthopsis murina*
The collection of this species from four sites in two relatively restricted areas (two sites at Wilpena Pound and the other two on the Gammon Plateau), represent the first collections of this species from the Flinders Ranges. The nearest record comes from hill country on the southern edge of the Olary Ranges and the north western corner of the South Olary Plains (Forward and Robinson 1996). In this area it was collected in Black Oak woodland over chenopod shrubs, a habitat in which it was common on the Olary Plains. Both capture localities in the Flinders were associated with islands of higher rainfall related to the height of the ranges. Habitats included sandy clay loam to medium clay soils supporting a variety of mallee, low mallee and tall shrubland. Each site was characterised by different species including *Eucalyptus porosa*, *E. dumosa*, *E. flindersii* / *E.* aff.. *viridis* and *Allocasuarina muelleriana* / *Melaleuca uncinata*. Understorey species and structure were similarly variable. It is therefore possible that the species may also occur in other isolated higher altitude pockets such as the Mt Hack area, along the Heysen Range and the Loves Mine Range. Sub-fossil evidence of the species has been found at Warraweena near Mt Hack, Loves Mine Range and nearby in the Bunkers at Eerie Cave (G Medlin pers comm). Both known populations are currently in fairly secure environments protected as National Parks.

Desert Mouse *Pseudomys desertor*
The capture of this arid zone rodent in the forests and heathy shrublands of Telowie Gorge Conservation Park and Wirrabara Forest Reserve was the most surprising mammal discovery for the survey. Seven animals were captured from three sites in a variety of habitats. These ranged from a site on a west facing slope at 360 m, dominated by Golden Wattle *Acacia pycnantha* and Drooping Sheoak tall very open shrubland over spinifex *Triodia irritans*, Shiny Ground-berry *Acrotriche patula* and *Lepidosperma* sedges (site TEL00301 one juvenile female), to a ridge at 415m. This site was dominated by Graceful Wattle *Acacia gracilifolia* tall open shrubland over a diverse range of low heathy shrubs (site TEL00401 two adult males and one female plus two young). The third site occurred in a 530m high valley dominated by Blue Gum *Eucalyptus leucoxylon* open forest over Dog Wattle *Acacia wattsiana* tall closed shrubland (TEL00601 one adult male). The nearest records of the species come from 300km north-north-east near Roxby Downs. A recent chance capture of this species was made in the northern Flinders to the north-west of Freeling Heights on Mt Freeling Station (C Leigh pers comm). This animal was observed at 10am on an overcast day from a vehicle. It was captured in a very rocky minor drainage line in a *Triodia* hummock grassland and its identification was confirmed at the South Australian Museum. This represents the first specimen record for the species in the northern Flinders.

Inland Broad-nosed Bat *Scotorepens balstoni*
There are six specimens of this small insectivorous bat in the SA Museum that fall within the study area. These come from five localities in the north eastern tip of the study area. Three were from the plains abutting the ranges and the other two were collected during the survey, from dissected areas of the ranges at Arkaroola and Weetootla Gorge (Gammon Ranges National Park). The recording rate indicates that the species is

relatively rare in the Flinders Ranges, however they can be locally abundant (T Reardon pers. comm.) and may be more common than is apparent (Reardon and Flavel 1987).

Southern Forest Bat *Vespadelus regulus*

This small insectivorous bat was once thought to be confined to the forests and woodlands south of Adelaide until surveys during the 1980's recorded the species in a variety of habitats as diverse as mallee and saltbush (Reardon and Flavel 1987). Numerous localities are known from the Eyre Peninsula and South Olary Plains up to a latitude level with the top of Spencer Gulf. The lack of records for this species in the southern Flinders, which exhibits the entire range of habitats known to be used by the Southern Forest bat, is therefore surprising. During the Flinders survey this species was captured on a 700m ridge above Alligator Gorge over a dam in Long-leaf Box *Eucalyptus goniocalyx* and over a dam in South Australian Blue Gum *Eucalyptus leucoxylon* open forest at Wirrabara Forest in a high valley at 500m (site TEL00601). Only two animals were recorded in each area along with a large number of individuals of other bat species. More systematic bat surveys are required to determine a reliable status and whether this species is resident in the area in all seasons.

Uncommon Species

The five species rated as uncommon are all small ground dwelling mammals which were recorded at less than 15 sites. Only one, the Forrest's Mouse *Leggadina forresti*, should be considered as a non-range component of the fauna because of its preference for arid plains habitats (Brandle 1998). Fourteen individuals were recorded at eight sites on clay plains with low shrubland or grassland. These were distributed from Mount Deception in the west around the northern perimeter of the region to Chambers Gorge in the east. The collection of a single specimen in 1922 from Melrose as described by P Aitken (Corbett 1969), is an anomaly that is not supported by the sub-fossil record from the southern Flinders area. The nearest recent records are from stony plains on the Arcoona Plateau 120km to the north-north-east (Brandle 1998b).

Bolam's Mouse *Pseudomys bolami* was the more common of the two *Pseudomys* species that were found in the ranges. None had been recorded in the ranges prior to the survey however its presence within the ranges was well supported by sub-fossil deposits (Robinson *et al*. 2000). A survey in the Gammon Ranges National Park during 1994 captured this species on the western plains on sandy clay loam in an open woodland (Baulderstone *et al.* 1999). The species had also been recorded on the South Olary Plains survey in Black Oak *Casuarina pauper* woodland over chenopod shrubs (Forward and Robinson 1996). In 1998 the North West Flinders Ranges Survey established that the species was present in the chenopod shrublands at two site on plains and rises amongst the low foothills of the ranges (Brandle 1998a). Nine subsequent localities were recorded on the vertebrate survey in the northern part of the central Flinders and the southern half of the northern Flinders to the footslopes of the Gammon Plateau. These sites varied from low shrub to woodland with Black Oak being the most consistent overstorey element. Twenty-seven animals were recorded from the twelve sites within the study area the southern most being to the west of the Heysen Range near Brachina Gorge. The Sandy Inland Mouse *P. hermannsburgensis* by comparison was only found as individuals at four sites also in the northern Flinders. These sites ranged from low hills dominated by Shrubby-twin Leaf *Zygophyllum aurantiacum* (ERE00101) and Black Oak over chenopod shrubs (REH00201) to the mixed mallee communities present on the Gammon (GAP00501) and Mawson Plateaus (MAW00201). Two specimens weretrapped as part of the Rabbit Calicivirus monitoring project in Elegant Wattle *Acacia victoriae* open shrub habitat on Gum Creek Station (Holden 1999).

The more frequently encountered species of the two uncommon carnivorous marsupials was the Narrow-nosed Planigale *Planigale tenuirostris* with 21 captures from 14 sites. However four of the sites in the southern Flinders around Mambray Creek were sampled in 1980's, and four of the ten sites sampled recently were typical stony plains planigale habitat (being dominated by Mitchell grasses *Astrebla* spp. or bindyii *Sclerolaena* spp. very low shrubs and herbs). The other five records were from hills, mountain ridges slopes and valleys in a variety of arid to temperate vegetation types. These ranged from grasslands to forests. Recent trips to Warraweena recorded more planigales on shale hills dominated by Lemon-scented Grass *Cymbopogon ambiguus* to the south of Mt Hack (G Medlin pers. comm.). The fauna monitoring program in the northern part of the Flinders Ranges National Park also recorded this species for the first time (in a mallee community) since sampling began in 1977. The capture of this species in patches along the entire length of the ranges indicates that they may be reasonably common but difficult to detect.

SPECIES PATTERNS

Habitat use patterns for macropods and introduced species were inferred using species/habitat parameter tables which included latitude, landform pattern, land units, surface soil, floristic groups and vegetation mapping groups. The small mammals, including the introduced House Mouse *Mus musculus* and Black Rat *Rattus rattus*, were more consistently collected using standard trapping techniques and were analysed using PATN analysis (Belbin 1992). Bats were recorded using a variety of techniques (bat traps, mist nets, checking roosts and at one location with a bat detector) and with a large variation in effort. Trapping was generally conducted over open water (dams, tanks or springs) or in perceived fly-ways, mostly along drainage lines. Bat assemblages at each location are therefore discussed in context to the types of habitat which occur in the general area where trapping took place. All mammal species are presented by their occurrence at sites by landform group (Appendix 14), latitude region from south to north (Appendix 14), landform pattern type (Appendix 15) and each survey effort (Appendix 16).

Monotremes

The Echidna *Tachyglossus aculeatus* is the only species of monotreme to inhabit the study area. Whilst this animal is rarely observed directly, its distinctive faeces and tracks led to it being recorded at 57 sites, mostly in creeks or on hill slopes within the ranges. There appeared to be no affinity to any particular vegetation type, though few were recorded in grassland, herbland or low shrubland situations. Records were also evenly spread along the length of the ranges including one of three sand dune sites on the margin of the study area where fresh tracks were easily observed.

Macropods

Four species were recorded at survey sites. It is generally accepted that the Red Kangaroo *Macropus rufus* is the plains dweller in arid Australia whilst the Euro *M. robustus*, away from the coast, lives in the hills (Tunbridge 1991, Smith 1996). The steepest rockiest ranges are the habitat of Yellow-footed Rock-wallabies *Petrogale xanthopus* (Copley 1981) and the Western Grey Kangaroo *M. fuliginosus* prefers open woodlands in the southern parts of the study area. Table 22 compares the physical characteristics of the sites at which kangaroos and rock-wallabies were recorded. The data supports the accepted generalisations but also gives an indication of the extent of exceptions to these 'rules'.

Sixty-eight percent of Western Grey Kangaroo observations were in the southern Flinders with only a few observations in the northern Flinders restricted to woodlands. The Euro was found at the highest proportion of hill and low hill sites across the study area. Plains with grasslands and low shrublands appear to be their least favoured habitats. Red Kangaroos, conversely, were found in a greater proportion of the plains and rises sites, with few records in the hills and mountains. This is reflected in the apparent preference for low shrubland sites.

Figure 135. Echidna *Tachyglossus aculeatus* and *Triodia* in defensive positions (*Photo: S Doyle*).

Table 22. The number of sites in various habitat types occupied by macropods. Percentages indicate the proportion of sites for each category at which each macropod species was recorded.

Region / habitat types	# sites	*Macropus fuliginosus*	*Macropus robustus*	*Macropus rufus*	*Petrogale xanthopus*
Geographic Region					
Northern 29-30 deg	10		2 (20%)	1 (10%)	
Northern 30- 31 deg	134	5 (4%)	83 (62%)	38 (28%)	4 (3%)
Central 31-32 deg	39	4 (10%)	29 (74%)	4 (10%)	1 (3%)
Southern 32-33 deg	65	11 (17%)	27 (42%)	2 (3%)	1 (2%)
Southern > 33 deg	17	8 (47%)	8 (47%)	3 (18%)	1 (6%)
Landform					
Mountains	70	6 (9%)	40 (57%)	3 (4%)	6 (9%)
Hills	72	10 (14%)	59 (82%)	4 (6%)	1 (1%)
Low hills	48	5 (10%)	32 (67%)	12 (25%)	
Rises	15	2 (13%)	7 (47%)	11 (73%)	
Plain	39	3 (8%)	8 (21%)	15 (38%)	
Flood plain	7	2 (29%)	1 (14%)	3 (43%)	
Land unit					
Hill crest	13	1 (8%)	9 (69%)		1 (8%)
Cliff	1		1 (100%)		
Rock outcrop (on hill)	4		1 (25%)	1 (25%)	1 (25%)
Ridge	14	2 (14%)	7 (50%)		
Hill slope	111	13 (12%)	77 (69%)	12 (11%)	2 (2%)
Hill footslope	12	2 (17%)	10 (83%)	2 (17%)	
Gorge	5	1 (20%)	4 (80%)		2 (40%)
Stream channel	22	2 (9%)	13 (59%)	3 (14%)	1 (5%)
Flood out	7	1 (14%)	1 (14%)	5 (71%)	
Drainage depression	8	4 (50%)	4 (50%)	5 (63%)	
Stony plain	19		12 (63%)	7 (37%)	
Plain (incl undulating plain)	23	2 (9%)	8 (35%)	12 (52%)	
Dune/consolidated dune	5		2 (40%)	1 (20%)	
Structural vegetation type					
Herbland	1		1 (100%)	1 (100%)	
Grassland	6	1 (17%)	1 (17%)		
Hummock grassland	10		7 (70%)	1 (10%)	1 (10%)
Low shrubland	45	4 (9%)	15 (33%)	16 (36%)	
Shrubland	33	4 (12%)	20 (61%)	6 (18%)	1 (3%)
Tall shrubland	21		7 (33%)	2 (10%)	
Low mallee	7	2 (29%)	6 (86%)		
Mallee	27	3 (11%)	18 (67%)	5 (19%)	
Low woodland	52	6 (12%)	28 (54%)	4 (8%)	
Woodland	42	8 (19%)	24 (57%)	4 (10%)	5 (12%)

Figure 136. Yellow-footed Rock-wallabies are on the road to recovery in areas where feral animals are being controlled (*Photo: AC Robinson*).

Small Mammals

The presence/absence data for 12 small mammal species (including the two introduced species) was analysed using PATN (see methods) from sites in the surveys listed in Table 17. One hundred and sixty sites containing small mammal records were included in the analysis to investigate how species related to each other and the recorded physical parameters of the sites. Fourteen groups were selected to cluster the data into interpretable assemblages. These were clumped into ten assemblages that were considered to reflect the variety of small mammal communities present in the study area. Two of these are single species groups with only one of the two introduced species present. The dendrogram of similarity between sites in Figure 137 is skewed at group 14 by the large number of sites at which only the House Mouse was present.

Interpretation of Dendrogram

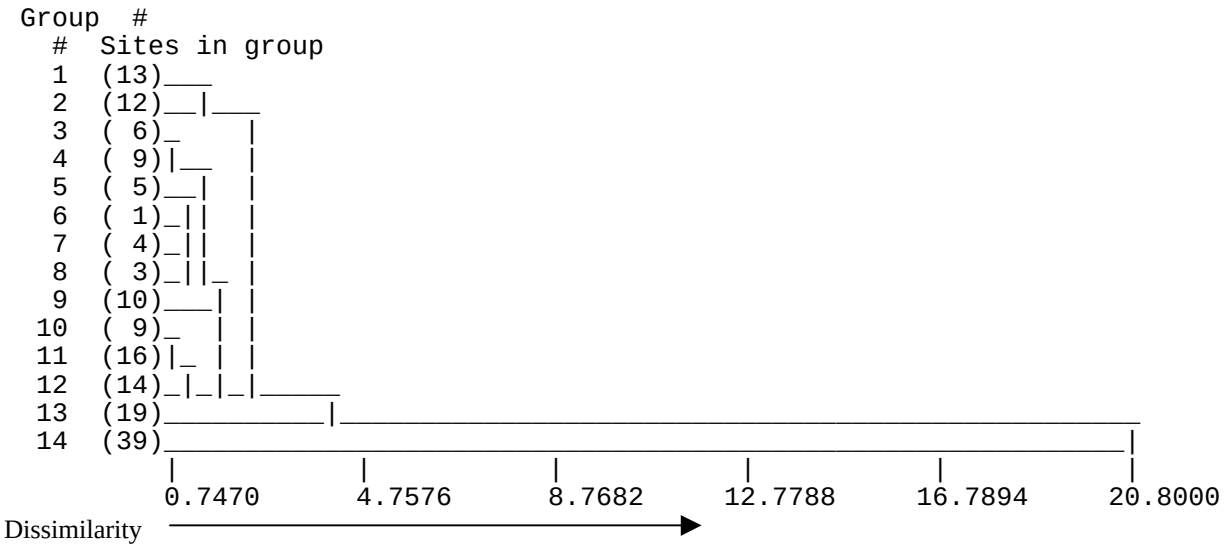


Figure 137. Dendrogram relating mammal species presence/absence data from 160 sites into 14 groups based on similarity between the mammal assemblages at those sites.

Given the significant number of sites with single species the usefulness of a truncated dendrogram in interpreting assemblage patterns is obscured, and some re-arrangement of group boundaries was necessary to interpret these groups. The species and sites are presented as a two-way table in Appendix 13 in dendrogram order. This was the basis for the following interpretation which is summarised as PATN groups by habitat variables in Table 23.

The first two groups in the dendrogram representing sites characterised by Fat-tailed Dunnarts (Assemblage 1) are widespread across the study area and represent open chenopod low shrub and herb lands as well as more hilly open shrub and woodland areas. The dendrogram then indicates a cluster of woodland mammal assemblages (groups 3 to 8) of which groups 3 and 4 are characterised by Bolam's Mouse (Assemblage 2). Important habitat appears to be the more arid Black Oak/ Myoporum woodlands of the lower ranges in the northern to central Flinders and the Olary Spur. Assemblage 3 (group 5 and 6), dominated by the Common Dunnart, is characterised by the wetter mallee and dense shrub habitats at Wilpena Pound and the Gammon Plateau. Group 7 represents a southern temperate woodland assemblage (Assemblage 4), which contains the Desert Mouse and Little Long-tailed Dunnart, and Group 8 (Assemblage 5) the wetter forests which is dominated by the introduced Black Rat. The dendrogram then splits to group 9 (Assemblage 6) which is represented by southern and northern sites amongst high ranges and is characterised by the Narrow-nosed Planigale which utilises a variety of habitats. Group 10 indicates the change to more northerly plains sites beginning with the diverse Assemblage 7. This group supported four carnivorous marsupial species and Bolam's Mouse and is mostly found on the plains low chenopod shrublands and grasslands. Group 11 (Assemblage 8) is a depauperate version of Assemblage 7 that includes only the Fat-tailed and Stripe-faced Dunnarts and is characteristic of low chenopod shrublands on low hill slopes and rises. The dendrogram then cuts to Groups 12 and 13 (Assemblage 9), a widespread plains and ranges group dominated by Stripe-faced Dunnart. The last group gathered all of the sites which were only inhabited by the introduced House Mouse (Assemblage 10). This is the major small mammal assemblage of creeklines in the Flinders Ranges.

Table 23. Proportion of sites within each small mammal assemblage presented as percentages against habitat variables. Where a group contained more than 50% of site records in a habitat type, values are highlighted in bold. The number of sites in each group are in brackets.

	Assemblage Number										
Habitat Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total**
# sites	**(25)**	**(15)**	**(6)**	**(4)**	**(3)**	**(10)**	**(9)**	**(16)**	**(33)**	**(39)**	**(160)**
Latitude group											
Northern 29-30 deg	**16%**						11%		3%	3%	4%
Northern 30- 31 deg	56%	60%	50%			50%	**89%**	**88%**	61%	49%	58%
Central 31-32 deg	20%	20%	**33%**					13%	**33%**	18%	19%
Southern 32-33 deg		7%	17%	25%	**100%**	**50%**			3%	**23%**	13%
Southern > 33 deg	8%	13%		**75%**						8%	6%
Landform											
Mountains	8%	20%	33%	**100%**	**100%**	**60%**		13%	21%	33%	26%
Plateau			**17%**								1%
Hills	8%	20%	17%			**40%**		13%	**36%**	23%	21%
Low hills	**32%**	7%	17%					**38%**	21%	13%	18%
Rises	8%	7%					**22%**	19%	6%	8%	8%
Drainage line	4%										1%
Pediment								6%	3%		1%
Plain	28%	**33%**	17%				**67%**	13%	9%	15%	19%
Peneplain		7%									1%
Flood plain	4%	7%					11%		3%	5%	4%
Playa plain	4%										1%
Sand plain	4%										1%
Dunefield										3%	1%
Land unit											
Hill crest	12%	7%				10%		13%	9%		6%
Rock outcrop (on hill)									3%	3%	1%
Ridge			**17%**	**25%**		**20%**			3%	5%	4%
Hill slope	36%	47%	**50%**	**75%**	**100%**	40%		25%	**55%**	23%	38%
Hill footslope						**30%**				8%	4%
Gorge										8%	2%
Gully									3%		1%
Stream channel								6%	6%	**23%**	8%
Drainage depression	4%							6%	6%	3%	3%
Open depression			**17%**						3%		1%
Swamp								6%			1%
Flood out	4%	7%						6%	3%	3%	3%
Flat	4%						11%			3%	2%
Plain (incl undulating plain)	16%	**27%**	17%				**44%**	19%	3%	10%	13%
Stony plain	12%	13%					**33%**	19%	6%	8%	10%
Clay plain	8%						11%				2%
Sandy plain	4%										1%
Dune/consolidated dune										5%	1%
Structural Vegetation											
Herbland	4%										1%
Grassland						10%	**22%**			3%	3%
Hummock grassland						**20%**			6%	5%	4%
Low shrubland	**52%**	13%					**56%**	31%	24%	13%	24%
Shrubland	**24%**	13%						6%	9%	15%	11%
Tall shrubland		20%	17%	**50%**		10%		**25%**	9%	10%	11%
Low mallee			17%						6%	3%	3%
Mallee		7%	**33%**			20%			3%	5%	5%
Low woodland	4%	**40%**	**33%**	25%	**67%**	10%		6%	24%	8%	16%
Woodland	12%	7%		**25%**	**33%**	10%		6%	12%	26%	14%

Detailed descriptions of the groups identified are set out in the following format:

- the mammal assemblage number and title;
- all species within the group and the percent frequency of the sites in which they were recorded;
- the number of sites contributing to the group;
- a brief description of the group;
- a map showing the location of sites in a group relative to the study area boundary and elevation (sea level is white and the highest areas are dark grey);

A two-way table of small mammal species by sites in PATN analysis order are presented in Appendix 13.

Figure 138. Red Kangaroo *Macropus rufus* (*Photo: PD Canty*).

Assemblage 1. Low open chenopod shrub and herb plains and open low shrub to low woodland on low hills.

Species and % frequency at sites:

Fat-tailed Dunnart *Sminthopsis crassicaudata* 100%
House Mouse *Mus musculus* 48%

Number of sites: 25

This combination of groups 1 and 2 from the analysis includes all sites where Fat-tailed Dunnarts were the only small mammal present or where it was present with the introduced House Mouse. The majority of sites with this combination were from the northern Flinders but this assemblage is likely to be as common in the gentler sloping hills and plains of the central Flinders. This combination of species is typical in very open or disturbed understoreys dominated by grasses or bindyii which are a common feature of open *Acacia* tall shrublands in the region, particularly Elegant Wattle *A. victoriae*, and also areas of White-cypress Pine *Callitris glaucophylla* woodland. House mice are often only seasonally present when conditions have enabled them to disperse into dry open habitats.

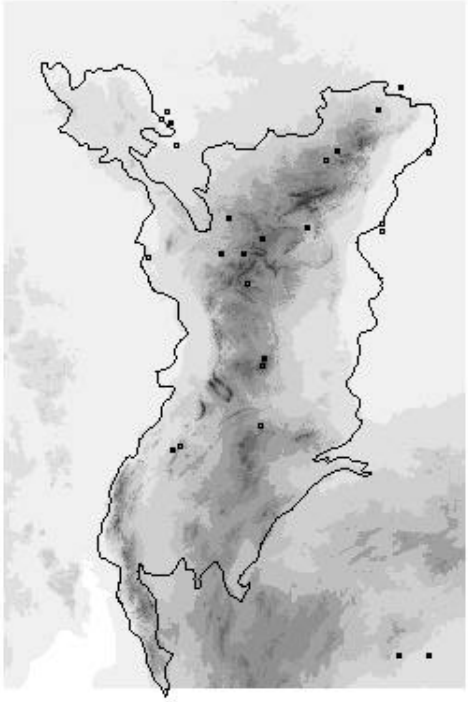
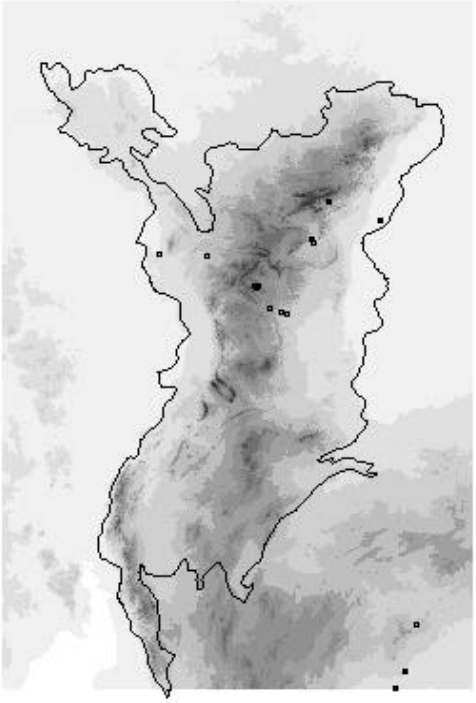


Figure 139. The Fat-tailed Dunnart *Sminthopsis crassicaudata* is mostly a low land inhabitant of the central and northern Flinders Ranges (*Photo: AC Robinson*).

Assemblage 2. Black Oak / Myoporum low woodland over low chenopods or other shrubs.



Species and % frequency at sites:

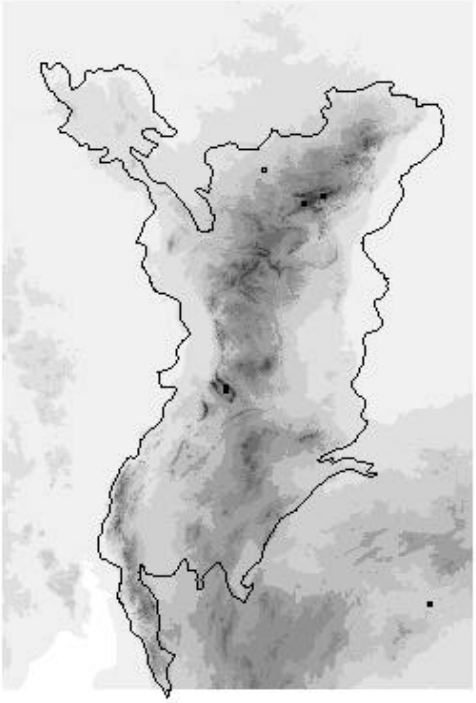
Bolam's Mouse *Pseudomys bolami* 100%
Stripe-faced Dunnart *Sminthopsis macroura* 40%
Fat-tailed Dunnart *Sminthopsis crassicaudata* 27%
House Mouse *Mus musculus* 53%

Number of sites: 15

This combination of PATN groups 2 and 3 includes all sites where Bolam's Mouse was present. At the sites where only Bolam's Mouse was present Black Oak woodland dominated. Where the other three species were also present, the sites supported a mixture of *Acacia* low woodland or shrubland with or without Black Oak. The presence of other other species, particularly the Stripe-faced Dunnart, was mostly associated with more complex dense understorey or rocks and soil cracks. However, the Fat-tailed Dunnart was also present where the woodland or shrublands supporting Bolam's Mouse were adjacent to larger open areas.

Figure 140. Bolam's Mouse *Pseudomys bolami*, an inhabitant of Black Oak Woodlands and chenopod shrublands in the central and northern Flinders (*Photo: AC Robinson*).

Assemblage 3. High ranges Mallee heath and Black Oak over chenopods on low ranges.



Species and % frequency at sites:

Common Dunnart *Sminthopsis murina* 83%
Sandy Inland Mouse *Pseudomys hermannsburgensis* 33%
Stripe-faced Dunnart *Sminthopsis macroura* 33%
House Mouse *Mus musculus* 33%

Number of sites: 6

This assemblage is comprised of the Common Dunnart dominated group 5 and includes a Sandy Inland Mouse single site group 6. Within the Flinders Ranges the Common Dunnart was only associated with the major uplift areas of Wilpena Pound and the Gammon Ranges Plateau. These areas are both islands of higher rainfall when compared to surrounding areas and also support plant, bird and reptile species with southern temperate affinities. This implies that the Common Dunnart populations (previously unknown for the region) are likely to be stranded in these northern climatic refuge areas. The site in the Olary Spur was a Black Oak over chenopod shrub site and was typical habitat for the Common Dunnart in the Olary Plains (Forward and Robinson 1996). The most northerly site which was group 6 was also a Black Oak and chenopod community.

Figure 141. The Common Dunnart *Sminthopsis murina* is uncommon in the Flinders Ranges being restricted to dense mallee areas in the higher ranges (*Photo: PD Canty*).

Assemblage 4. Southern mountain woodland and dense heath or spinifex tall shrublands.

Species and % frequency at sites:

Desert Mouse *Pseudomys desertor* 75%
Little Long-tailed Dunnart *Sminthopsis dolichura* 25%
House Mouse *Mus musculus* 75%

Number of sites: 4

This rare assemblage contains two species which were previously unrecorded in the ranges. It combines the diverse habitats of the three sites that supported the Desert Mouse near Telowie Gorge with the only capture site for the Little Long-tailed Dunnart (to the north in Dutchman's Stern Conservation Park). This site, whilst at the northern boundary of the temperate eucalypt forests and woodlands, had structural similarities with the tall shrublands of the western slopes of the range near Telowie Gorge. Both native species in this group are in atypical habitat within the ranges (refer to the Rare Species discussion in this chapter).

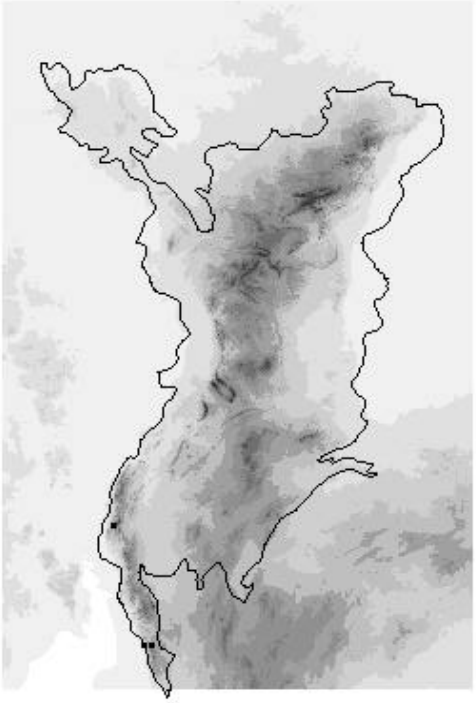


Figure 142. The versatile Desert Mouse *Pseudomys desertor* was found in dense shrub and woodland in the wettest parts of the Flinders, 300km south of the nearest desert population (*Photo: PD Canty*).

Assemblage 5. Southern temperate mountain forests.

Species and % frequency at sites:

Black Rat *Rattus rattus* 100%
House Mouse *Mus musculus* 33%

Number of sites: 3.

This minor assemblage of introduced species was present only in temperate eucalypt forest characterised by Sugar Gum / Blue Gum / Long-leafed Box with shrubby understorey. This habitat is restricted to the southern Flinders and its northern boundary is at Dutchman's Stern. The presence of a Black Rat at the northern extent of this habitat and several other collections of rats within the ranges around Mambray Creek and Mt Brown indicates that they are possibly spread throughout the forests of the southern ranges. The proximity of a towns such as Melrose, Wilmington and Quorn to many of these areas may sustain these populations following droughts and fires.

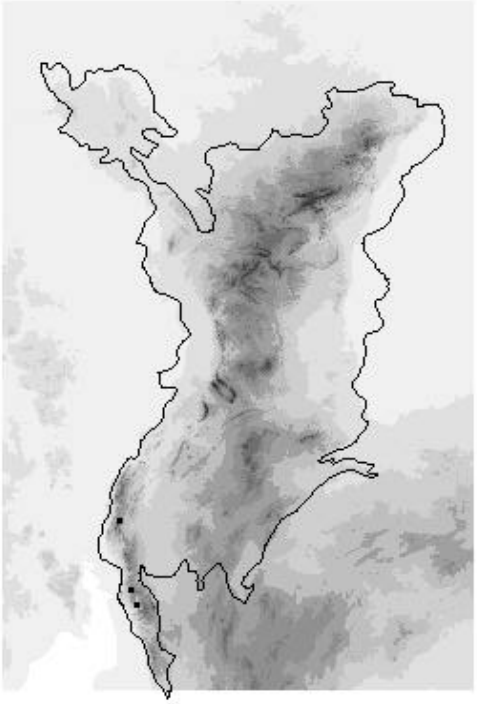


Figure 143. The Black Rat *Rattus ratus* is an introduced coloniser of the wetter parts of the southern Flinders (*Photo: AC Robinson*).

Assemblage 6. High range Narrow-nosed Planigale.

Species and % frequency at sites:

Narrow-nosed Planigale *Planigale tenuirostris* 100%
Stripe-faced Dunnart *Sminthopsis macroura* 20%
House Mouse *Mus musculus* 30%

Number of sites: 10.

The sites within this group were all associated with mountains or high ranges, five sites in the northern Flinders and five in the south. However the habitats varied from hill crest and ridge shrublands and woodlands to steep sloping hummock grasslands and mallee or tussock grassland on footslopes make an adequate description of the assemblage difficult. Soils for this group varied from cracking clay, shale on low hills, loamy levy banks and loamy sands. Other than the Narrow-nosed Planigale, the only native species to be present at sites was the Stripe-faced Dunnart, which in the ranges has not been recorded south of Hawker. This species absence from the southern Flinders is likely to be a combination of climate (too wet) and clearance or degradation of the low shrubland areas that used to occur in some of the valleys.

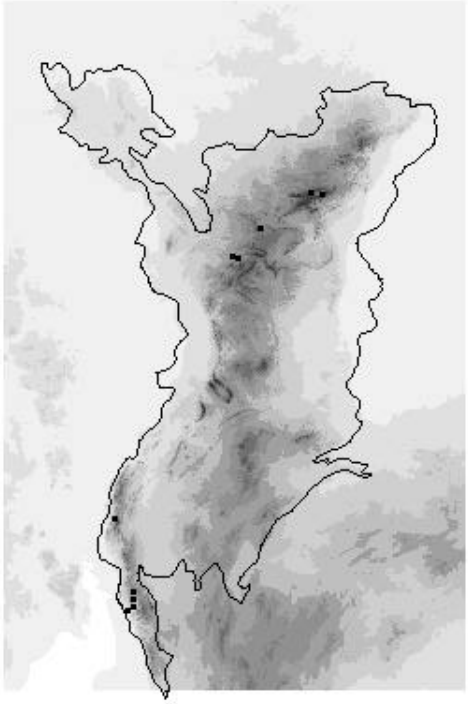
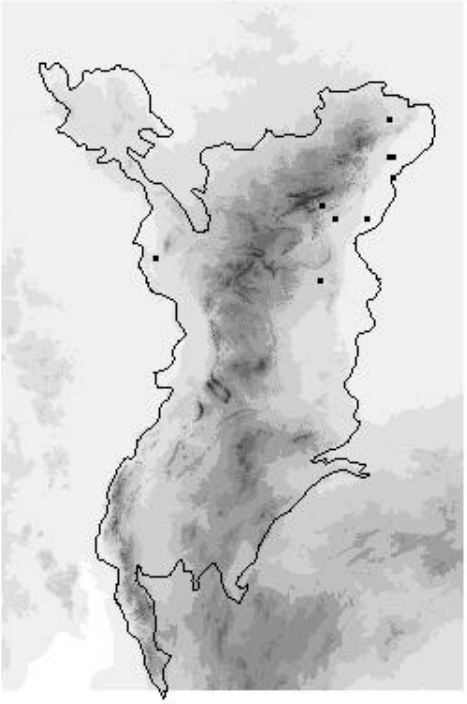


Figure 144. The Narrow-nosed Planigale *Planigale tenuirostris*, a miniature but formidable predator, was found in a variety of habitats throughout the ranges (*Photo: AC Robinson*).

Assemblage 7. Mitchell grass and chenopod low shrub cracking clay plains and floodouts.



Species and % frequency at sites:

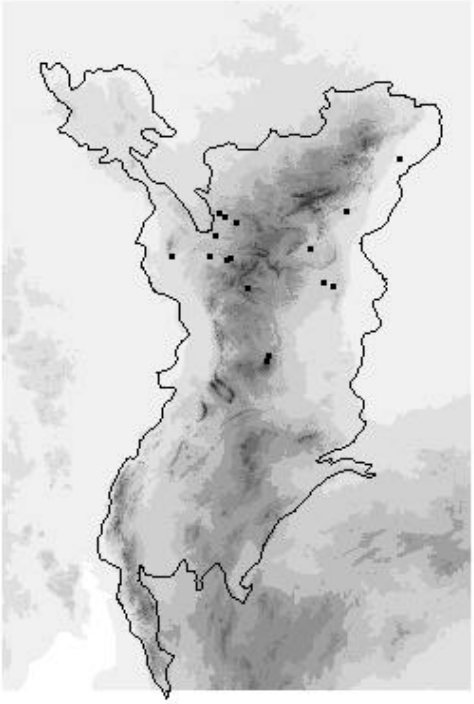
Forrest's Mouse *Leggadina forresti* 100%
Stripe-faced Dunnart *Sminthopsis macroura* 100%
Fat-tailed Dunnart *Sminthopsis crassicaudata* 89%
Narrow-nosed Planigale *Planigale tenuirostris* 44%
Giles' Planigale *Planigale gilesi* 11%
House Mouse *Mus musculus* 22%

Number of sites: 9.

This was the most diverse small mammal assemblage present in the Flinders and is restricted to the surrounding plains, particularly in the north east and is common further north in the gibber plains of the stony deserts (Brandle 1998b). The most diverse sites in the region belong to this assemblage and three of the four sites with four native species were present in the Gammon Ranges National Park. In the stony deserts of South Australia Giles's Planigale was much more closely associated with deep cracking clay found in drainage depressions, floodouts and swamps than the Narrow -nosed Planigale, which was associated with low shrublands on stony plains and on a greater range of soil types (Brandle 1998b). This indicates that Giles's Planigale is probably less adaptable and restricted to its preferred habitat types which are rare within the study area.

Figure 145. The Forrest Mouse *Leggadina forresti* is an inhabitant of the plains which surround the northern Flinders (*Photo: PD Canty*).

Assemblage 8. Low hills low chenopod shrublands and open Acacia tall shrublands with low shrub understorey.



Species and % frequency at sites:

Stripe-faced Dunnart *Sminthopsis macroura* 100%
Fat-tailed Dunnart *Sminthopsis crassicaudata* 100%
House Mouse *Mus musculus* 63%

Number of sites: 16.

The bulk of the sites in this group are among the lower hills and ranges of the northern Flinders. These species are present at the same sites, mostly in low open shrub situations. At these sites there is a combination of cover for the Stripe-faced Dunnart and open areas favoured by the Fat-tailed Dunnart. However, within the Flinders both species were also caught together on mountain slopes with shrubs over spinifex. (Patawarta Hill and the Loves Mine Range).

Figure 146. The Stripe-faced Dunnart *Sminthopsis macroura* was the most common native small mammal trapped in the central and northern Flinders Ranges (*Photo: PD Canty*).

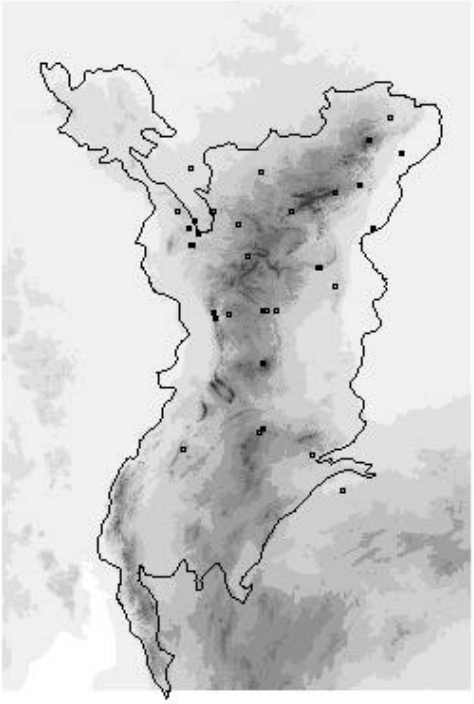
Assemblage 9. Hills Stripe-faced Dunnart.

Species and % frequency at sites:

Stripe-faced Dunnart *Sminthopsis macroura* 100%
Sandy Inland Mouse *Pseudomys hermannsburgensis* 6%
House Mouse *Mus musculus* 42%

Number of sites: 33

The Stripe-faced Dunnart, the most common native small mammal in the ranges, inhabits a variety of shrub and hummock grass to woodland groups from plains to major ranges. The Sandy Inland Mouse, one of the rarer small mammals in the northern Flinders, was similarly catholic in its choice of habitats. In the central Flinders it was found on steep low calcareous hills in a low shrubland of Shrubby Twinleaf, whilst on the granitic Mawson Plateau in the north it was captured on a boulder strewn slope amongst the Butterfly Bush scattered White-cypress Pine and Flinders Grey Mallee. Throughout northern South Australia it is associated with sandplain and dune habitats (Robinson *et al.* 2000b).



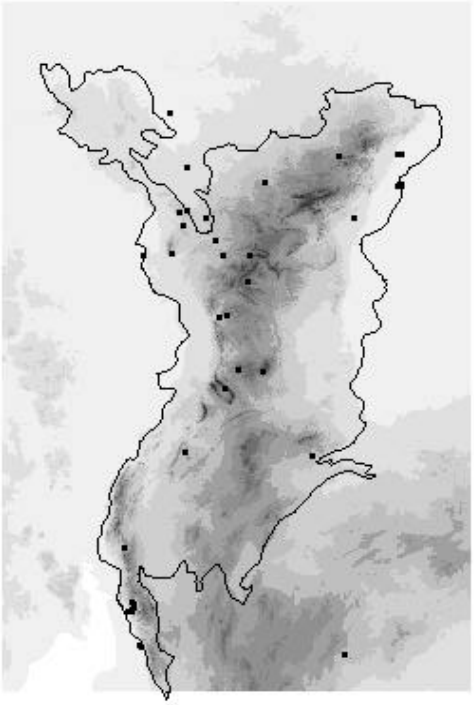
Assemblage 10. Creeklines and highly disturbed habitats.

Species and % frequency at sites:

House Mouse *Mus musculus* 100%

Number of sites: 30

House mice are the dominant small mammal at many sites when conditions are suitable. However, their populations retract back to smaller populations associated with wetter more productive areas when resources become scarce. They are also highly adaptable fast breeders and are nearly always present in disturbed environments. For these reasons they are probably advantaged in creeklines where the moisture and nutrient content in plants is higher for longer and the regular disturbance seems to advantage weed species and disadvantage native ground dwelling mammals.



BATS

Bats were sampled in a non systematic way from 43 localities (16 at survey sites and 27 opportunely from localities selected for their likelihood in sampling bats). Thus the majority of habitats sampled were well wooded drainage lines dominated by Red Gum *Eucalyptus camaldulensis* or Teatree *Melaleuca* spp. with or without water over which one to two mist nets and/or Harp Traps were set for one to four nights. Tanks and dams, also the target for such activities, were often in or near similar habitats because of their proximity to creeklines. However away from the higher ranges a number of more open habitats were sampled over dams, particularly on the North West Flinders Ranges Survey (Brandle 1998a). For this reason it is not possible to assess species patterns in relation to differing habitats. Up to seven of the ten bat species were recorded over an open water tank on a low hill behind Grindell's Hut near Weetootla Gorge in the Gammon Ranges National Park. Six species were recorded at another three creekline sites in the ranges to the north of the Gammons (one of these was well away from surface water). The most southerly site, east of Telowie Gorge Conservation Park, recorded five species. The most diverse trapping location away from the higher ranges revealed three species.

Nineteen trapping locations were along Red Gum creeklines (mostly over open water); nine were over tanks, of which five were in or adjacent to a major creekline (the other three were on an open low hill, in mallee and in dune country); and ten were over dams, of which nine were situated in low chenopod shrubland or grassland and the other in a Blue Gum forest. Three trapping localities away from creeks or water yielded captures, two mallee habitats and two Black Oak woodlands. A Finlayson's Cave Bat was also collected in an old mineshaft. Table 24 summarises the effort and results in each of the main trapping location types. The distribution of sites are summarised by Figure 147.

Table 24. Bat species, the number of captures, and the environments in which they were recorded (number of sites in brackets).

SPECIES	Creek	Dam	Tank	Mallee	Black Oak	Total
# sites	(19)	(10)	(9)	(2)	(2)	(42)
Chalinolobus gouldii	134	13	83	2		196
Chalinolobus morio	37	11	12			53
Mormopterus spp. (2 spp."big" and "little penis")	47	20	30	3	1	98
Nyctophilus geoffroyi	39	23	14	10	3	89
Scotorepens balstoni	1	2	1			4
Tadarida australis	11	1	1			13
Vespadelus baverstocki	22		15			37
Vespadelus finlaysoni	12		2			14
Vespadelus regulus		2				2
Total	**272**	**72**	**143**	**15**	**4**	**506**

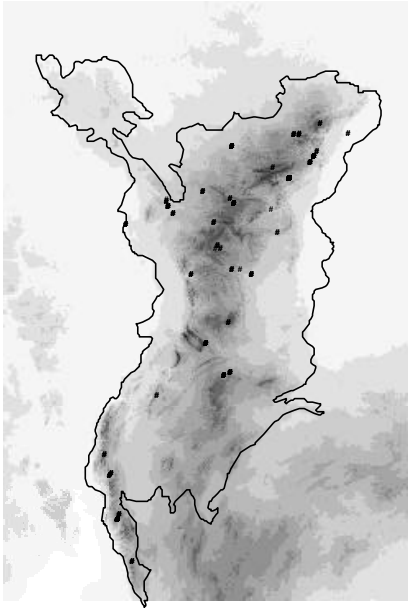


Figure 147. Map of bat record sites.

Patterns were difficult to discern as all of the more common species were spread across the whole study area. The two species of *Mormopterus* ("big" and "little" penis) were recorded most frequently in the northern Flinders though one site in the southern Flinders had good numbers of the "big penis" species. According to Reardon and Flavel (1987) "little penis" is less likely in the southern and central Flinders. Survey records from south of latitude 31° appear to confirm this pattern. Other species such as the *Chalinolobus morio and Vespadelus finlaysoni* have distributions that are closely associated with range country in the arid zone because they are cave-dwellers (Robinson *et al.* 2000). Both species were widely distributed through the hills and ranges in the study area.

Figure 148. Finlayson's Cave Bat is a common resident in the central and northern Flinders (*Photo: S Donnellan*).

Figure 149. Gould's Wattled Bat was the most widepread and common species captured (*Photo: AC Robinson*).

Figure 150. The Little Forest Bat has only been recorded in the south within the Flinders Ranges (*Photo: P Bird*).

INTRODUCED MAMMALS

Along with euros, introduced species are the most obvious mammals that people visiting the Flinders observe. The site data reflected this with rabbits, goats, house mice and foxes dominating the ten most frequently recorded species. Part of the explanation is that the larger species leave obvious signs, ie droppings diggings, burrows, tracks and bones. Ten species were recorded and include less readily observed species such as cats and rats, domestic animals which have gone wild including stock (sheep, cattle, horses and donkeys). The less readily observed species are discussed below.

Cats were recorded at twelve sites within the study area. Half of the observations were made at sites in creeklines, gorges or gullies. The most common vegetation type was mallee followed by River Red Gum and Tea-tree lined creeks. Only one observation was made in a low open shrubland. Cats are widespread and most likely to shelter in gullies and creeklines during the day. Ease of detection in mallee may relate to the open nature of the understorey making it more difficult for a cat to hide.

Donkeys were only detected at nine sites in the northern half of the Flinders Ranges amongst mountains and low hills. The habitats they range through vary from herblands and low shrublands to steep ridges and slopes of mountains. Donkeys were mostly observed on remote parts of stations well away from regular tourist routes. Horses were detected at 11 sites within the study area, mostly on gentler slopes amongst low hills and plains or in the valleys of mountains. The majority of records came from low shrublands and grasslands. Some animals recorded were likely to be station animals.

The dingo was not recorded at sites in the ranges. However the species was opportunely recorded in the Patawarta area (over 80km from the Dingo Fence) by their fresh tracks near camp. The pastoralist on this property has a regular problem with wild dogs (which he claims are dingos) attacking sheep, indicating there may be a resident population despite the regular eradication of individuals which cause stock losses.

The distribution and habitats in which Black Rats and House Mice were captured have been discussed in more detail under the Small Mammal section of this chapter. The relationship of these species to native small mammals and other fauna or plants is largely unknown. At the two sites where Black Rats were recorded no other small mammals were detected.

Rabbits and goats are two of the most common animals in the region. Both species occupy all habitats, with goats concentrating on the high ridges and gorges, and rabbits dominating softer soils and the plains. Both species have had and continue to have dramatic effects on recruitment and survival of many native species in the ranges (Davies and Henzell pers comm). On rocky ridges and in gorges, rabbits shelter amongst boulders and can often be disturbed by day.

Sheep and cattle are mostly present as livestock. Some feral sheep are present in parks such as the Flinders Ranges National Park and other destocked lands dedicated for conservation such as Warraweena.

Figure 151. Donkeys are a minor problem in the more remote parts of the northern Flinders (*Photo: D Armstrong*).

BIRDS

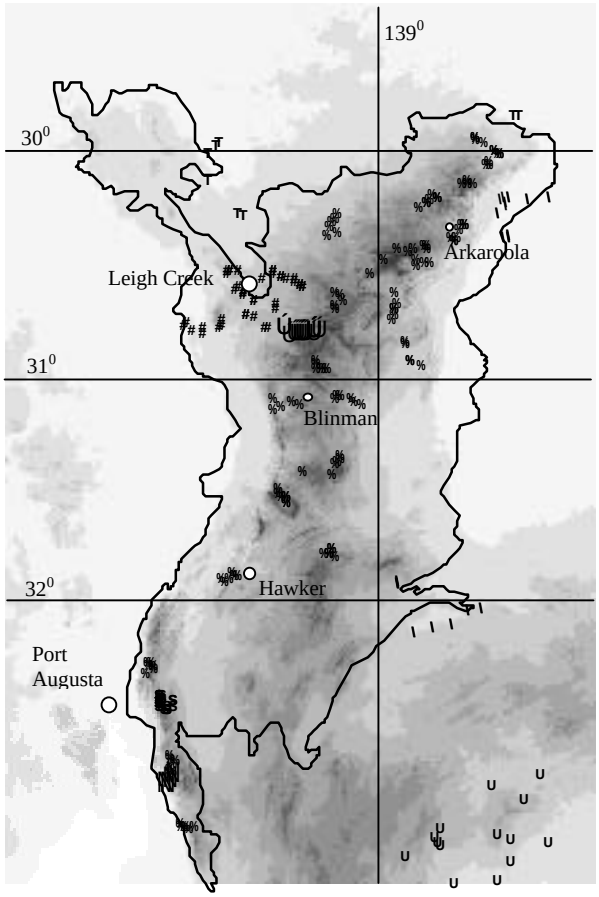
R Brandle[1]

The diversity of bird species and communities of the Flinders Ranges have been reasonably well documented in summaries by some of South Australia's foremost ornithologists in 'A Field Guide to the Flinders Ranges' (Corbett 1980) and 'Natural History of the Flinders Ranges' (Reid *et al.* 1996). This study will focus on the birds observed during the vertebrate surveys in relation to their distribution through the variety of habitats that were sampled. However the species collection at the SA Museum and the observations from the 'Australian Bird Atlas' (Blakers *et al.* 1984) are also summarised with regard to the species that were recorded within the study area as was defined by the Provinces and Associations described in the 'Environment of South Australia' (Laut *et al.* 1978 Figure 1).

Whilst the survey does not overcome the main impediment to gaining an authoritative understanding of the distribution of the region's avifauna as mentioned by Reid *et al.* (1996) (namely, the need for repeated monitoring of sites over all seasons), the standardised method of data collection during summer enables comparisons of habitat use by birds on a regional basis. Some quantitative comparisons on the relative abundance of species can also be drawn.

Bird survey data was drawn from seven distinct surveys as depicted in Figure 152. Summary of the survey dates and numbers of species is presented in Table 25. Obvious gaps in the survey coverage are the Willouran Ranges in the north west, and the south-eastern part of the study area. The avifauna of the Willouran Ranges and adjacent plains has been discussed by Badman (1981).

Figure 152. Distribution of bird survey sites within latitudes 29° 48' to 31° 18' and longitude 137° 48'



to 139° 48'. Open triangles = Stony Deserts, black squares = Flinders Ranges, black circles = North West Flinders Ranges, open stars = Warraweena (NCSSA), open pentagons with black centre = North Olary Plains, open circles = Mt Brown Survey (NCSSA), thin crosses = Mt Remarkable National Park (NPWS), and Open squares = South Olary Plains. Black line delineates the study area.

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

Table 25. Summary of bird surveys sites within and outside of the study area boundary as depicted in Figure 152. Data from outside the study area were included for comparison between related surrounding habitats and to show where the gaps are in the survey coverage.

Survey	Dates	# Species within/outside study area	Average # species/site	# Records per survey	# Sites sampled within/outside study area
24 South Olary Plains*	1991-92	0 / 73	17.8	248	0 / 14
66 Mt Brown (NCSSA)	1993	68/ 0	8.5	313	37 / 0
69 Stony Deserts*	1994-97	0 / 36	8.8	88	0 / 10
74 North Olary Plains**	1995-97	63 / 52	17.5	368	12 / 9
98 North West Flinders Ranges+	1997	63 / 18	7	331	44 / 3
104 Flinders Ranges	1998-99	127/ 0	15.6	2144	137/ 0
111 Warraweena	1999	48/ 0	16	224	14 / 0
114 Mt Remarkable NP	1983	21/ 0	8	32	4 / 0
TOTALS	-	143/ 88			244 / 36

* no sites in study area – but data included in PATN analysis
** 9 sites outside of study area – but data included in PATN analysis
+ 3 sites outside of study area – but data included in PATN analysis

TOTAL BIRD FAUNA

The most recent summary of Flinders Ranges birds (Reid *et al.* 1996) lists 283 species for the region in a slightly expanded review which includes the coastal plain to Spencer Gulf and the Olary Spur. This compares with the 224 listed by Paton in 1980 (Corbett 1980). As the current study has a more precisely defined study area boundary a combination of the Australian Bird Atlas Database, the South Australian Museum Bird Database and the Environmental Database's (Department for Environment and Heritage and Planning SA) Survey and Opportune data has been used to derive the total species list presented in Appendix 17.

The numbers of species on the four databases that were recorded within the study area were determined by overlaying the study area boundary over the point specific data. Some inaccuracies are likely to be present from low resolution point data, as was the case with some of the older Museum records, and through identification errors in the field. Most of the less likely records have been vetted. The total species list numbered 241 with 165 confirmed by South Australian Museum specimens. The Biological Survey Data contributed 143 species from 244 sites with 130 being recorded for the Opportune Database. The 'Atlas of Australian Birds' (Blakers *et al.* 1984) contributed 238 species that were considered likely to have been recorded in the study area. Some species on the list such as the oceanic shearwaters and gannets are obvious "blow-in" vagrants, but were left on the list because they were confirmed by specimens in the South Australian Museum.

To determine which species are likely to be resident in the study area all species were compared to categories assigned by Reid *et al.* (1996). These are presented in the species list in Appendix 17.

Table 26. Summary of residency status for birds known to occur in the study area.

Residency status (after Reid *et al.* 1996)	Number of Species
Resident – breeders	130
Spring-summer visitors – breeding	7
Winter visitors - non-breeding	2
Nomadic - opportunistic breeders when conditions suit	84
Vagrant - occasional visitors unlikely to breed	15
Total known for the study area	**241**

These 241 species belong to 65 Families from 19 Orders as presented by Horton in 'A List of the Vertebrates of South Australia' (Robinson *et al.* 2000) using Christidis and Boles (1994). The details to Sub-family level are summarised in Appendix 18.

The South Australian Museum database contained only two species, the Cape Petrel *Daption capense* and the Australasian Gannet *Morus serrator* which were not represented in the other databases. The 'Atlas of Australian Birds' data included 47 species not present in the other databases. The majority of these were likely to be sporadic visitors to the study area as 32 were species of water bird and five were introduced species. From the survey only the White-throated Gerygone *Gerygone olivacea* was not listed in other databases though it is known from the region (Reid *et al.* 1996). Comparisons within the survey between information collected at sites (Survey Database) and species recorded away from sites (Opportune Database), indicate that 165 species were recorded through the combined survey efforts. Fifteen were not recorded at the sites and 35 species that were noted at sites were not recorded for the Opportune Database.

COMMON SPECIES

The biological survey species site frequency data is biased toward the northern Flinders because of the greater number of sites surveyed in these areas. This sampling bias is partly due to the greater extent of the northern ranges compared to the southern and central regions. Also areas of intact natural habitat in the southern Flinders and some of the central Flinders are now almost totally confined to the steeper hills and rugged mountain ranges. The variation of habitats across and along the Flinders Ranges is reflected by the low number of birds that were present at more than a quarter of the sites (19 species listed in Table 27). All of these have widespread arid zone distributions. The numbers of sites and the abundance of species for each survey in the study area are listed in Table 27. The two most abundant birds, the Corella (recording rate 9%) and Zebra Finch (recording rate 4%), are not listed in Table 27 as they occurred at only 16% and 17% respectively. This reflects their preferences for the more open plains surrounding the ranges.

Table 27. The most frequently recorded bird species from six surveys in the study area. Data is presented as the number of survey sites at which bird species were encountered. Data in brackets indicate the numbers of individuals for each species observed. The total abundance was divided by the sum of abundances of all species to derive the recording rates. The survey numbers in the heading correspond to those detailed in Table 25.

		Survey Number								
SPECIES	**Common Name**	**66**	**74**	**98**	**104**	**111**	**114**	**Freq**	**Abundance**	**Record Rate**
Acanthiza apicalis	Inland Brown Thornbill	24 (123)	1 (9)	2 (2)	83 (563)	13 (166)	2	125	863	6%
Corvus coronoides	Australian Raven	5 (10)	7 (37)	16 (39)	67 (173)	12 (49)	2	109	308	2%
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	2 (4)	9 (27)	8 (15)	80 (220)	8 (37)		107	303	2%
Cacatua roseicapilla	Galah	8 (85)	11 (147)	18 (93)	63 (447)	1 (3)		101	775	6%
Pardalotus striatus	Striated Pardalote	19 (70)	3 (9)	4 (5)	68 (454)	5 (21)		99	559	4%
Gymnorhina tibicen	White-backed Magpie	11 (30)	6 (11)	13 (20)	58 (158)	8 (18)	2	98	237	2%
Smicrornis brevirostris	Weebill	11 (31)	4 (32)	9 (33)	64 (514)	6 (27)	1	95	637	5%
Petroica goodenovii	Red-capped Robin	4 (10)	4 (4)	7 (9)	70 (229)	10 (46)		95	298	2%
Pachycephala rufiventris	Rufous Whistler	6 (11)	3 (6)	1 (2)	74 (198)	9 (23)	1	94	240	2%
Colluricincla harmonica	Grey Shrike-thrush	9 (12)	4 (4)		64 (151)	4 (5)	1	82	172	1%
Malurus lamberti	Purple-backed Wren	10 (47)	5 (40)	10 (42)	53 (346)	1 (6)	2	81	481	3%
Aquila audax	Wedge-tailed Eagle	14 (22)	6 (9)	5 (6)	44 (78)	5 (9)		74	124	1%
Cracticus torquatus	Grey Butcherbird	4 (4)	2 (1)	8 (9)	51 (76)	8 (17)		73	107	1%
Lichenostomus virescens	Singing Honeyeater	7 (28)	9 (39)	12 (26)	39 (83)	5 (12)		72	188	1%
Barnardius zonarius	Port Lincoln Parrot	1 (2)	5 (7)	9 (58)	49 (147)	7 (38)		71	252	2%
Pomatostomus superciliosus	White-browed Babbler	4 (14)	4 (24)	4 (15)	49 (227)	9 (51)		70	331	2%
Petrochelidon nigricans	Tree Martin	3 (26)	4 (30)	3 (9)	42 (429)	11 (93)		63	587	4%
Falco cenchroides	Nankeen Kestrel	2 (3)	7 (11)	8 (15)	41 (59)	5 (6)		63	94	1%

An overall comparison of most common species is of limited value because of the geomorphological and climatic gradients across and along the ranges. To provide a better understanding of how the geo-climatic gradient influences the bird fauna, the ten most frequently encountered species have been presented in tables 27 to 29 detailing the percentage of sites within a major landform class in which the species was encountered. These are grouped into the three geographic regions of the Flinders: southern Flinders (south of Hawker and Latitude 32°, 79 sites), central Flinders (between Latitudes 32° and 31° or Hawker to Blinman, 41 sites) and northern Flinders (north of Latitude 31° and Blinman, 164 sites).

For example the Inland Thornbill was present at 44% of sites sampled across the region and most regularly in the mountains and hills whilst the Spiny-cheeked Honeyeater, present at 42% of sites was fairly common across the different landform types. When these species are compared across Tables 27-29 it becomes obvious that the Inland thornbill is very common in the habitats of the major ranges in the south and becomes sparser in the north with the Spiny-cheeked Honeyeater being less common in the south where it favours the more open plains and becoming dominant in the north where it favours the ranges. The balance of which species are abundant are likely to change over the course of a year as demonstrated by the July and August samples conducted at the Warraweena sites in the northern Flinders. Here the most abundant species in July was the Inland thornbill with a recording rate of 25% compared with 6% in October (Telfer 2000).

The site frequency for all species for each survey and selected habitat parameters (Landform pattern, latitude, vegetation structure, and vegetation map groups) are presented in Appendices 19 to 22 and can be used as a guide to the habitat usage by species in the Flinders Ranges during the warmer months of the year (sampling was mostly conducted between October and March).

Table 28. The percent frequency of survey sites at which bird species were encountered in different landform types in the southern Flinders Ranges (79 sites).

SPECIES	Common Name	Mountains	Hills	Low hills	Plain	Total
Acanthiza apicalis	Inland Thornbill	96%	69%	30%		46
Malurus lamberti	Variegated Wren	75%	31%	40%	50%	37
Pardalotus striatus	Striated Pardalote	71%	52%	40%	8%	37
Smicrornis brevirostris	Weebill	71%	38%	30%	50%	37
Cacatua roseicapilla	Galah	38%	38%	50%	83%	35
Platycercus elegans	Crimson Rosella	63%	38%	50%		31
Gymnorhina tibicen	Magpie	21%	38%	60%	50%	28
Colluricincla harmonica	Grey Shrike-thrush	63%	31%	30%		27
Aquila audax	Wedge-tailed Eagle	25%	38%	30%	50%	26
Lichenostomus chrysops	Yellow-faced Honeyeater	63%	31%	20%		26

Table 29. The percent frequency of survey sites at which bird species were encountered in different landform types in the Central Flinders Ranges (41 sites).

SPECIES	Common name	Mountains	Hills	Low hills	Plain	Total
Corvus coronoides	Australian Raven	63%	69%	75%	80%	31
Cacatua roseicapilla	Galah	75%	8%	75%	80%	29
Gymnorhina tibicen	Magpie	69%	15%	50%	100%	27
Acanthiza apicalis	Inland Thornbill	50%		50%	80%	26
Petroica goodenovii	Red-capped Robin	63%	23%	38%	80%	26
Aquila audax	Wedge-tailed Eagle	69%		75%		24
Smicrornis brevirostris	Weebill	56%		25%	60%	21
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	44%	8%	50%	20%	20
Barnardius zonarius	Ring-necked Parrot	50%	85%	38%	60%	19
Pardalotus striatus	Striated Pardalote	50%	8%	25%	40%	19

Table 30. The percent frequency of survey sites at which bird species were encountered in different landform types in the northern Flinders Ranges (164 sites).

SPECIES	Common name	Mountains	Hills	Low hills	Rises	Plain	Total
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	65%	54%	55%	47%	32%	81
Corvus coronoides	Australian Raven	56%	49%	50%	35%	57%	79
Lichenostomus virescens	Singing Honeyeater	24%	33%	37%	41%	61%	59
Cacatua roseicapilla	Galah	15%	31%	47%	35%	61%	58
Acanthiza apicalis	Inland Thornbill	62%	44%	34%	6%	4%	53
Pachycephala rufiventris	Rufous Whistler	65%	41%	29%	12%	7%	53
Petroica goodenovii	Red-capped Robin	38%	51%	45%	12%	4%	53
Gymnorhina tibicen	Magpie	26%	33%	50%	18%	29%	52
Falco cenchroides	Kestral	32%	15%	32%	24%	54%	48
Pardalotus striatus	Striated Pardalote	62%	26%	34%	6%		45

SPECIES RICHNESS

An average of the 13 species was recorded at the 284 sites containing bird information. The frequency histogram in Figure 153 indicates that 11 to 15 species were recorded at a quarter of sites with 40% of sites having fewer species and the remaining third having more.

Overall averages are relatively meaningless given the variety of habitats sampled. Table 31 compares averages on a north-south gradient between major structural vegetation categories. Whilst this comparison cannot be statistically rigorous (because of differences in observers, seasons, timing and effort between surveys) it is useful for highlighting broad trends. Woodland, mallee and tall shrubland communities tend to support more bird species than the structurally less diverse low shrublands and grasslands, with a minor gradient towards richer assemblages in the south. The maximum number of species recorded at a site was 44 in a Blue Gum Forest near a small dam in the southern Flinders. The next most species rich site was in the Red Gum creekline that leads into Weetootla Gorge in Gammon Ranges National Park in the northern Flinders. A number of the sites with less than five species appear to have been inadequately sampled, particularly secondary patches and sites within the Mount Brown Survey (#66).

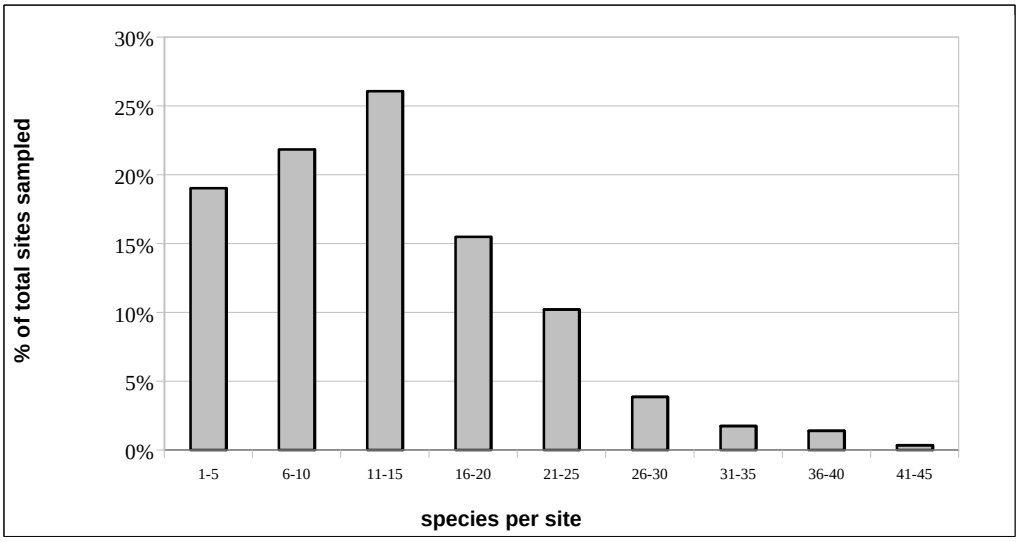


Figure 153. Frequency histogram of bird species per site for 284 survey sites in the Flinders Ranges.

Table 31. Average number of bird species for sites in the major landform types on a north to south (29^0 to 33^0 latitude) gradient. Vegetation types with less than four sites in a latitude category were excluded. * = data from one site only (not an average and may not be representative).

	Latitude class				
Vegetation type	**29^0**	**30^0**	**31^0**	**32^0**	**33^0**
Grassland		8		9	
Hummock grassland	17*	5	10	11	
Low shrubland	9	8	15	13	14
Shrubland	12	12	9	12	27*
Tall shrubland	18	10	15	19*	17
Low Mallee		15	15	21*	
Mallee	15*	14	19	15	27
Low woodland	14*	13	14	11	19
Woodland	27*	15	15	16	38

SIGNIFICANT SPECIES

Seventy of the 241 species identified for the study area have some form of conservation significance rating. At the national level two species were recognised as vulnerable (VU) to extinction in the wild under the Shedule 1-3 of the Commonwealth of Australia's 'Endagered Species Protection Act 1992' which has been replaced by the Environment Protection and Biodiversity Conservation Act 1999. At the State level an extra 18 species were considered Vulnerable (V) and 18 Rare (R) under the Shedules 7-8 of the South Australian 'National Parks and Wildlife Act 1972' as revised in 2000. Vulnerable is defined as "Likely to move into the Endangered category in the near future if causal factors continue to operate". Rare is defined as "Occurs in small populations that are not at present Endangered or Vulnerable but are at some risk due to their rarity (ie low numbers); this may include naturally scarce species that may require conservation consideration to ensure that they do not become Endangered or Vulnerable. One species, the Elegant Parrot, is considered as poorly known (K) at the State level. These species are listed in Table 32.

Species for which the study area is of highest conservation importance are those that are confined or have the bulk of their nesting population within the study area. Only one species, the Short-tailed Grasswren *Amytornis merrotsyi*, and one subspecies of Chestnut-rumped Heathwren *Calamanthus pyrrhopygius* ssp. *pedleri* fall into this category. These are discussed with the other conservation significant species. The Flinders Ranges are also significant for species distribution limits, isolated outliers and as the region of intergrade between the distributions of subspecies. These are discussed in the biogeography section.

Table 32. Conservation status of significant bird species in the study area.

Species	Common Name	Aus Status	SA Status	SA Museum	Survey	Opportune	Bird Atlas	Total
Amytornis textilis	Thick-billed Grasswren	VU	V	2	2		25	29
Pedionomus torquatus	Plains-wanderer	VU	E	1			4	5
Ardeotis australis	Australian Bustard		V	2			13	15
Burhinus grallarius	Bush Stone-curlew		V	2			5	7
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren		V	5	6	1	6	18
Falcunculus frontatus	Crested Shrike-tit		V		1		9	10
Gallinago hardwickii	Latham's Snipe		V				3	3
Glossopsitta pusilla	Little Lorikeet		V	2			2	4
Grus rubicunda	Brolga		V				4	4
Lophoictinia isura	Square-tailed Kite		V				2	2
Neophema chrysostoma	Blue-winged Parrot		V	1	3	1	8	13
Phaps histrionica	Flock Bronzewing		V				1	1
Stagonopleura guttata	Diamond Firetail		V	1	3	1	50	55
Turnix varia	Painted Button-quail		V	2	3	4	4	13
Amytornis merrotsyi	Short-tailed Grasswren		R	4	3	4	6	17
Anas rhynchotis	Blue-winged Shoveler		R				6	6
Aphelocephala pectoralis	Chestnut-breasted Whiteface		R	2			9	11
Chrysococcyx lucidus	Shining Bronze-Cuckoo		R			2	2	4
Cinclosoma castanotus	Chestnut Quail-thrush		R	1	3	1	9	14
Climacteris affinis	White-browed Treecreeper		R	6	5	6	15	32
Emblema pictum	Painted Finch		R	2			4	6
Falco hypoleucos	Grey Falcon		R	1			19	20
Falco peregrinus	Peregrine Falcon		R	4	4	6	45	59
Gerygone olivacea	White-throated Gerygone		R		1			1
Hamirostra melanosternon	Black-breasted Buzzard		R		1		9	10
Ixobrychus minutus	Little Bittern		R				1	1
Ninox connivens	Barking Owl		R	2			5	7
Oxyura australis	Blue-billed Duck		R				2	2
Plegadis falcinellus	Glossy Ibis		R	1			3	4
Podiceps cristatus	Great Crested Grebe		R	2			2	4
Pyrrholaemus brunneus	Redthroat		R	3	42	4	60	109
Rostratula benghalensis	Painted Snipe		R				2	2
Turnix pyrrhothorax	Red-chested Button-quail		R				1	1
Zoothera lunulata	Bassian Thrush		R	2	1		1	4
Neophema elegans	Elegant Parrot		K	19	10	3	79	111

Species	Common Name	Aus Status	SA Status	SA Museum	Survey	Opportune	Bird Atlas	Total
Totals	**Aus Vulnerable**			**2**	**2**	**1**	**3**	**3**
	SA Endangered			**1**	**0**	**0**	**1**	**1**
	Vulnerable			**9**	**5**	**5**	**13**	**13**
	Rare			**10**	**7**	**5**	**18**	**20**
	Poorly Known			**1**	**1**	**0**	**1**	**1**
	All			**22**	**15**	**11**	**34**	**35**

Endangered in Australia

Plains Wanderer *Pedionomus torquatus*
This distinctive member of the Plover Family is nomadic, being most often observed in grasslands and herbfields where it is also known to breed (Blakers *et al.* 1984). Within the study area there is one specimen in the South Australian Museum that was collected in 1965 from east of Blinman in the central Flinders. Three extra records are listed in the Atlas of Australian Birds with the earliest record from 1959 in the northern Flinders and the two most recent (1978 and 1980) from the southern Flinders east of Quorn. Blakers *et al.* (1984) document the decline of this species with a greatly reduced reporting area since 1976. This species was not recorded during the surveys and is rated as Endangered in South Australia.

Vulnerable in Australia

Thick-billed Grasswren *Amytornis textilis*
The central form of the Thick-billed Grasswren *A. textilis* ssp. *modestus* is an inhabitant of low open chenopod shrublands. This habitat runs in a belt from the southern Northern Territory around the south-western side of Lake Eyre and across to Western New South Wales (Schodde and Mason 1999). In South Australia the sub-species appears to be restricted to the southern and western plains of the stony deserts (Brandle 1998b) and the northern Flinders Ranges (Brandle 1998a). The Atlas of Australian Birds indicates that *A. t. modestus* and the western form *A. t. textilis* have significantly declined in range since the 1950's, with the central form having disappeared from east of the Flinders Ranges and New South Wales (Blakers *et al.* 1984). Adding weight to these observations, the species was not recorded during the Biological Survey of the North Olary Plains (Playfair and Robinson 1997). The species is considered to have contracted significantly since the advent of pastoralism (Reid and Fleming 1992).

Thick-billed Grasswrens were recorded at two sites within the Study Area. On the western side of the Ranges east of Leigh Creek, two birds were observed at site 98PUT00101in Bladder Saltbush low shrubland on a plain amongst low hills (Floristic Group 4 and Bird Assemblage 4). Thick-billed Grasswrens were also recorded in similar habitat during an impact assessment for a proposed magnasite mine north-east of Leigh Creek (G Kluske pers comm). The observation of five individuals observed on two occasions at site 104ERE00601 in Low Bluebush low open shrubland on the plains west of Wirrealpa Homestead represents the only record east of the Ranges in South Australia (Floristic Group 25 and Bird Assemblage 12). As in the stony deserts, other species which shared the site included the White-winged Wren and Cinnamon Quail-thrush. Galahs, Brown Falcons and Singing Honeyeaters were also present at both sites.

The margins of the Flinders Ranges represent the southern limits for this sub-species in South Australia. The presence of this sedentary species on the eastern margins of the central Flinders, is of conservation significance. These grasswrens may represent a remnant of the eastern South Australian population.

Vulnerable in South Australia

Australian Bustard *Ardeotis australis*
This large nomadic bird lives in open country with or without timber. European settlement and landuse appear to have reduced this species' abundance in southern South Australia (Blakers *et al.* 1984). Two collections of this species were lodged in the South Australian Museum from the northern edge of the study area in 1898 from the Willouran Ranges and in 1926 from Moolawatana. The Atlas of Australian Birds contains five records pre-1931 from the length of the Ranges and seven observations since 1972. Four of these come from the plains on the margins of the northern Flinders with one from the Chenopod shrublands in the hills east of Leigh Creek. Observations in the southern Flinders were made at two locations on the Willochra Plain. No Bustards were observed on the surveys which is not surprising given the generally dry conditions at this time. Their presence within the ranges is often associated with plagues of the Australian Plague Locust, on which they feed.

Bush Stone-curlew *Burhinus grallarius*
This large ground nesting bird appears to have dissappeared from the Flinders Ranges, probably due to habitat alteration for farming in the south and overgrazing of suitable habitat elsewhere. Both alterations are likely to have increased its susceptibility to predation by foxes during nesting. In Western Australia it is reported as surviving well in areas with

high fox numbers (Blakers *et al.* 1984). The historic presence in the study area by the Bush Thick-knee is confirmed by two museum specimens, one undated from Blinman and the other from Moolawatana on the north-eastern boundary in 1925. Historic records from the Atlas of Australian Birds indicate they were also present at Wilpena Pound and on the Southern Willochra Plain up to 1931. This species was not recorded during the surveys. However, the work of Operation Bounceback in restoring habitat and controlling feral animals in the main National Parks and surrounding lands may improve the habitat to a point where re-introduction is possible, as they still survive well on islands off South Australia.

Chestnut-rumped Heathwren
Calamanthus pyrrhopygius
The Chestnut-rumped Heathwren is a bassian species with an isolated sup-species surviving in the Mount Lofty and southern Flinders Ranges. The Flinders Ranges form has been described as *C. pyrrhopygius* ssp. *pedleri* (Schodde and Mason 1999). This heathy woodland ground dweller was recorded by the survey at six sites (one at Mount Brown, one above Alligator Gorge and four in and above Telowie Gorge). All sites were in Bird Assemblage Group 9 whilst the only site included in the vegetation analysis was in Floristic Group 65. The habitat varied from Eucalypt Forest dominated by Sugar Gums, Long-leaf Box and/or Blue Gums, or River Red Gums (one site) often with Drooping Sheoak over dense tall shrubs such as Dog Wattle, *Pultenaea graveolens*, *Cassinia uncata* and *Spyridium* spp.

This sub-species is endemic to the southern Flinders and its future is dependent on maintaining the heathy woodlands which typify the higher ridges between Beetaloo Valley and Dutchman's Stern Conservation Park. All but one of the site records for this species were from conservation reserves managed by National Parks and Wildlife SA. The other was in a Forest Reserve.

Crested Shrike-tit *Falcunculus frontatus*
This sedentary woodland species has been recorded at nine localities on the eastern flanks and foot slopes of the southern Flinders for the Atlas of Australian Birds Database. One was observed during the Mount Brown Survey in a Red Gum lined gully in Mt Brown Conservation Park.

Latham's Snipe *Gallinago hardwickii*
This migratory wader visits south eastern Australia during summer. There are only two old records (1931 and 1935) for the south-eastern margins of the study area in the Atlas of Australian Birds Database, indicating it is likely to be a vagrant.

Little Lorikeet *Glossopsitta pusilla*
The Atlas of Australian Birds indicates that the Little Lorikeet is now only known from the South East of South Australia, which suggests early observers may have confused it with the Purple-crowned Lorikeet (Blakers *et al.* 1984). However there are two museum specimens collected in 1929 from Quorn in the southern ranges.

Brolga *Grus rubicunda*
This large nomadic crane is an occasional vagrant to the study area preferring plains and swamp habitats. It was only recorded twice from the northern and southern edges of the study region during the mid 1920's and likewise in 1970 and 1980 (Atlas of Australian Bird Database).

Square-tailed Kite *Lophoictinia isura*
The Square-tailed Kite is also a vagrant to the study area with the only reliable records coming from MR Johnston on Motpena Station west of Parachilna Gorge in the central Flinders during 1978 and 1990. The species was also recorded by I May at the edge of Lake Callabonna east of the northern Flinders in 1971 and 1974 (Debus 1991). The two records in the northern Flinders reported for the Atlas of Australian Bird Database (1959 and 1971) were discounted by Debus (1991) as identification errors.

Blue-winged Parrot *Neophema chrysostoma*
This non-breeding winter visitor to the Flinders has been noted on eight occasions in the Atlas Database. Three records were from the southern Flinders from the 1930's and five records from the north-west Flinders from the late 1960's to 1980 (including two summer records which may have been confused with Elegant Parrots, and one winter record). Only one of the three survey site records noted above falls within the study area. This was in the Northern Flinders Ranges on the northern foot slope of Patawarta Hill amongst Triodia and scattered White-cypress Pine. The only specimen from the study area in the South Australian Museum comes from 30 km north in the Mt Hack area (1978).

Flock Bronzewing *Phaps histrionica*
The Flock Pigeon was once more common throughout the stony plains of South Australia. There is only one record from Moolawatana in 1931 listed in the Atlas of Australian Birds Database. Its vagrant status in the Ranges is discussed by Reid *et al.* (1990).

Diamond Firetail *Stagonopleura guttata*
All but four of the 50 records stored in the Atlas of Australian Birds Database for the Flinders Ranges occur in the southern Flinders. Two of the three records from Wilpena Pound were recorded in early spring 1955 and 1980 on the western end of the pound and the third on the eastern rim of the pound also in early spring 1955. The 1973 record from Arkaroola was possibly confused by the observer with the Painted Firetail *Emblema pictum* which has been reported as attempting to nest near Terrapinna Waterhole in the northern Flinders (Hornsby 1992). The only Flinders

Ranges specimen in the South Australian Museum was collected in 1894 from Telowie Gorge. The Survey detected this species at three sites in the southern Flinders, one from a grassy woodland in Mt Brown Conservation Park, another in Telowie Gorge Conservation Park and the third from Wirrabara Forest Reserve in Blue Gum forest with dense shrub understorey.

Painted Button-quail *Turnix varia*
This forest and woodland quail was collected for the South Australian Museum from Mambray Creek near Mt Cavern in 1992. The Atlas of Australian Birds contains four relatively recent records (1976-80) from Beetaloo Valley on the southern tip of the study area, Quorn and near Hawker in the southern part of the central Flinders, and also near Carrieton in the north east of the southern Flinders. The distribution of this species was summarised by Pedler (1982) which reported reliable observations of birds as far north as Mt Plantagenet east of Hawker. In 1996 the species was observed 60 km further north in *Acacia calamifolia* and *Cassinia laevis* shrubland in the Loves Mine Range (north east of Wilpena) (G Carpenter pers comm).

All survey records of the species were from southern Flinders woodlands with dense shrub understorey. These were in Mt Remarkable National Park 104MAM00201, in Blue Gum and Drooping Sheoak Woodland with a thick *Acacia* dominated shrub understorey; from a Sugar gum, Long-leaf Box and Drooping Sheoak woodland in Telowie Gorge Conservation Park 104TEL00501; and a Blue Gum forest to the east of Telowie on Forestry SA Land, 104TEL00601. The species is also known from Dutchman's Stern CP (Wally Klau personal records) and was opportunistically recorded in dense low mallee in the Alligator Pound of Mount Remarkable National Park.

Species with limited distributions for which the Flinders Ranges provide a major breeding area

Short-tailed Grasswren *Amytornis merrotsyi*
Until recently this species was considered a sub-species of the Striated Grasswren *A. striatus*. The Short-tailed Grasswren is endemic to the Flinders and Gawler Ranges (Schodde and Mason 1999). The species is associated with *Triodia* hummock grass with or without overstorey.

This species was recorded at only three survey sites in the north-eastern Flinders Ranges to the north and the south of the Gammon Ranges. Each site was characterised by a dense cover of *Triodia* with a shrub, mallee or low woodland overstorey. Two opportune records of this species were also from mallee over *Triodia* habitats. The most southerly of these was in the Black Range east of Hawker which suggests that the species extends south to Belton, where a specimen was collected for the Australian Museum in 1986 (Carpenter unpubl. Report). All records prior to 1996 were summarised by Carpenter who indicates that the species occurs in a northern Flinders cluster around the Gammon Ranges and Arkaroola, a central Flinders cluster in the Flinders Ranges National Park, and two clusters in the southern Flinders: one around Dutchman's Stern CP; and the other on the western flanks of the southern Flinders near the Bluff. This last population has not been reconfirmed since 1981. The one record from Belton and the Opportune Record from the Black Range 50 km to the north may represent a western cluster.

Elegant Parrot *Neophema elegans*
This small parrot is rated as "poorly known" for South Australia (NPWS 2000). The study area is a breeding stronghold for the species in South Australia. Both the Museum and the Bird Atlas indicate that the species is widespread throughout the Ranges. It was recorded at ten survey sites in a variety of woodland and grassland habitats.

Species with limited populations that may be Vulnerable in the Flinders Ranges

Striated Thornbill *Acanthiza lineata*
The Striated Thornbill was not generally accepted as occurring in the Flinders Ranges and Schodde and Mason (1999) draws the northern limit of the Mt Lofty subspecies *A. lineata* is restricted to the northern Mt Lofty Ranges. However, the Atlas of Australian Birds does hold a 1974 record for this species from east of the Bluff in the southern Flinders, and a more dubious 1958 record from Wilpena Pound. The species' was found at Mambray Creek by L Geelen and confirmed by D Hopton during the November survey (site 104MAM00701). Two birds were observed for 10-15 minutes feeding in dense tall shrubs around a wetland under River Red Gums in the late afternoon. Taxonomic and distributional work on this population is required to determine its validity, extent and to establish whether it represents a Flinders Ranges subspecies, as it is likely to be isolated from the Mt Lofty Ranges population.

Major Mitchell's Cockatoo *Cacatua leadbeateri*
Pink Cockatoos are known to inhabit a variety of habitats provided there is free water and hollow nesting trees (Blakers *et al.* 1984). The Atlas of Australian Birds has seven records from the margins of the northern Flinders coming as far south as Wilpena Pound. Two records date from the 1950's whilst the others were observed in the 1970's. Nick Baily reported that Major Mitchell's were nesting in the northern Flinders at Warraweena, where they were harvested for the pet trade, during the 1960's, and that they appear to have disappeared from the region (Telfer 2000). That none were observed during the surveys is of conservation concern for the Flinders Ranges population.

Chestnut Quail-thrush *Cinclosoma castanotus*

The ground dwelling Chestnut Quail-thrush appears to have declined within south Australia primarily due to habitat alteration or clearance for agriculture (Blakers *et al.* 1984). The South Australian Museum has one specimen from the study area near Mt Hack in the northern Flinders. The nine records in the Atlas of Australian Birds are scattered over the central and northern Flinders as far south as the Loves Mine Range north-east of Wilpena. The records are scattered across the decades starting from 1920 with the last two records, 1977 and 1980, being the most southerly.

The Biological Survey failed to record this species in the North Olary Plains (Playfair and Robinson 1997), but it was relatively common in the south Olary Plains in 19 of the 93 quadrats surveyed, mostly Black Oak low woodlands and Mallee habitats (Forward and Robinson 1996).

It was recorded at one site in the study area 104YUH006, Beaked Red-mallee over a patchy shrub layer of *Prostanthera*, *Dodonaea*, *Eremophila* and *Cassinia*, with a dense *Triodia* hummock grass understorey on a steep hill in the northern Flinders near Arkaroola. It was also recorded opportunistically in more open tall *Acacia* shrubland 6 km to the north.

Barking Owl *Ninox connivens*
The barking owl is considered a sedentary species and resident of the Flinders Ranges (Blakers *et al.* 1984, Reid *et al.* 1996). The few records of this species in the ranges are curious given its distinctive call. Blakers *et al.* (1984) suggests the species has contracted to the northern Flinders. The Atlas of Australian Birds has four locality records from the Gammon Ranges and Arkaroola area during the 1970's and one from north of Hawker in 1931. The only South Australian Museum record comes from Paralana, near Arkaroola in the northern Flinders (1893).

Bassian Thrush *Zoothera lunulata*
This species which is threatened in the Mt Lofty Ranges (South Australian subspecies *Z. l. halmaturina*) has isolated populations in the southern Flinders with records from Wirrabara Forest Reserve and Mt Remarkable (G Carpenter pers comm; Schodde and Mason 1999). The Atlas for Australian Birds Database holds one 1968 record of a Bassian Thrush from Telowie Gorge Conservation Park, the species was also recorded in the Wirrabara Forest Reserve (at Big Dam) to the east and south of Telowie Gorge during the 1980's (Forestry SA unpubl files). The species was again recorded at this location by L Pedler (site 104TEL00601) during the survey in November 1999. The site was dominated by dense Blue Gums with a thick understorey of Dog Wattle.

Species range extensions resulting from the survey that are not described above

Tawny Crowned Honeyeater *Gliciphila melanops*
The range of the Tawny-crowned Honeyeater was known to extend as far north as Wilpena Pound. The only record in the Atlas of Australian Birds Database north of Wilpena was from 1915 at Moolooloo Homestead at the northern limit of the central Flinders. Observations of this species by G Carpenter at two survey sites (October 1999) on the Gammon Plateau represents a range extension of 60km into the northern Flinders from Moolooloo or 120km from Wilpena. The habitat at site 104GAP00501 was Red Mallee over *Beyeria lechenaultii* shrubs, whilst site 104GAP00601 was Gum-barked Coolabah and Broombush Low open mallee over *Triodia scariosa* hummock grassland. Both these sites were on the south western arm of the Plateau. The species was also recorded at three sites in Dutchman's Stern Conservation Park and three sites in Mount Remarkable National Park in the southern Flinders. Habitat ranged from mallee to dense woodland.

White-eared Honeyeater *Lichenostomus leucotis*
Three of the four survey records for this species are from Wilpena Pound which was also the most northerly location for records in the Atlas of Australian Birds Database and the South Australian Museum Collection (one specimen 1975). The record of this species by G Carpenter at site 104GAP00501 during the survey on the Gammon Plateau (October 1999) represents a significant extension of 120km further north to its known range. The habitat at site 104GAP00501 was Red Mallee over *Beyeria lechenaultii* shrubs.

BIOGEOGRAPHY

The biogeography of the Flinders Ranges avifauna has been well summarised in the Natural History of the Flinders Ranges (Reid *et al.* 1996). Therefore, this section will provide lists of the species known to inhabit the study area that have Bassian temperate woodland, Bassian/Eyrean semi-arid woodland and mallee and Eyrean arid shrub and woodland affinities (refer to Vegetation Chapter and the Physical Environment Chapter for a summary of these concepts).

The richness and diversity of the Flinders Ranges bird fauna results from the position of the ranges and their effect on the local climate. They provide an effective bridge from more temperate climates into the arid north. This provides for a diverse range of climate, landform and habitat over very short distances, enabling arid Eyrean and temperate Bassian species to mix or live adjacently (Reid *et al.* 1996). The distributions of the Flinders Ranges birds within South Australia as depicted in 'A List of the Vertebrates of South Australia' (Robinson *et al.* 2000), 'The Atlas of Australian Birds' (Blakers 1984) and 'The Directory of Australian Birds' (Schodde and Mason 1999) have been compared to assign bio-climatic affinities to each species. Nomadic species vagrants and those with distributions covering the three bio-climatic groups have been ignored except where their distributions reach their eastern extent within the Flinders Ranges.

Of 241 birds listed, 19 were considered to be Bassian in nature. Of these the Flinders Ranges subspecies of Chestnut-rumped Heathwren is endemic to the southern Flinders, and this isolate is the northern most population of the species in South Australia. Fourteen others also have their northern limits in South Australia in the southern Flinders Ranges. These are listed in Table 33.

Nine species were considered to have Bassian to Bassian/Eyrean affinities of which three (Golden Whistler, New Holland Honeyeater, Spotted Pardalote) have their northern limit in the southern Flinders. A north and south subspecies of the Golden Whistler also has a subspecies overlap in the southern Flinders. Four species (Red Wattlebird, Brown-headed Honeyeater, Yellow Thornbill and Silvereye) reach their northern limits in the central Flinders. The Red Wattlebird and Brown-headed Honeyeater also have an east-west subspecies overlap along the Ranges. Peter Koch recorded the Red Wattlebird in the northern Flinders near Mt Hack in May 1997 (Telfer 2000) which follows a 1915 record from this area (Atlas of Australian Birds, Blakers *et al.* 1984). The Tawny-crowned Honeyeater and White-eared Honeyeater, which were also known to have their northern limits in the central region at Wilpena, were recorded by the survey on the wetter Gammon Plateau in the northern Flinders Ranges.

Thirteen species with Eyrean/Bassian or typically mallee distributions were recorded in the study area. Two species, the Grey Currawong and the White-winged Chough are only influenced by the ranges to a minor extent and have more northerly distribution limits in the mallee of western South Australia. Two species have their northern limits in the central Flinders. The Little Raven is known to occur as far north as Oraparinna to the north of Wilpena, and the Painted Button-quail at a similar latitude in the Loves Mine Range (G Carpenter pers comm; Pedler 1982). The remaining nine species extend their distributions along the length of the Flinders mostly associated with the wetter more densely vegetated higher ridges, valleys and plateaus and are listed in Table 33. Two species (Grey Currawong and Dusky Woodswallow) have overlapping eastern and western subspecies along the Ranges and the Brown Treecreeper is at its western limit.

Thirty-five of the species recorded in the Ranges were classed as Eyrean. Many of these species are associated with the habitats of the desert plains and only penetrate the Ranges in areas where similar habitats exist, ie the chenopod shrublands of the low hills and valleys, the open *Acacia victoriae* shrublands and grasslands. The Ranges are of most importance to those requiring ranges habitats. The Painted Firetail and the Little Woodswallow are both species requiring arid range habitats with populations in the northern to central Flinders. Both species are nomadic visitors to the Flinders and probably migrate south from the central Australian ranges along the western breakaways of the stony deserts along the Stuart Range and across to the Willouran Ranges.

The other six species with their southern and south eastern limits in the ranges are mostly stony plains or associated creekline inhabitants and included Chestnut-breasted Whiteface, Banded Whiteface, Thick-billed Grasswren, Letter-winged Kite, Black-breasted Buzzard and Red-browed Pardalote. This habitat meets the top of the ranges and continues down either side. The Chestnut-crowned Babbler is at its western limits of its distribution in the ranges. Three Eyrean species (Splendid Wren, White-browed Treecreeper, Grey-fronted Honeyeater) have eastern and western subspecies with overlapping distributions within or adjacent to the Ranges, and the Cinnamon Quail-thrush has a northern and southern subspecies overlap zone through the northern Flinders. The east-west overlapping distribution are evidence for the Eyrean Barrier to species dispersal on an evolutionary time scale.

The Short-tailed Grasswren represents an isolated population of Striated Grasswren which has evolved sufficiently to be considered a separate species that is now restricted to the Flinders and Gawler Ranges. The other Eyrean species not already mentioned are included in Table 33.

Table 33. Flinders Ranges birds with limited bio-climatic distributions in South Australia

Bassian	Bassian – Bassian/Eyrean	Eyrean/Bassian	Eyrean
Striated Thornbill	Golden Whistler	Grey Currawong	Painted Firetail
Eastern Spinebill	New Holland Honeyeater	White-winged Chough	Little Woodswallow
Eurasian Skylark	Spotted Pardalote	Little Raven	Chestnut-breasted Whiteface
Shining Bronze-Cuckoo	Red Wattlebird	Painted Button-quail	Banded Whiteface
Laughing Kookaburra	Brown-headed Honeyeater	Yellow-plumed Honeyeater	Thick-billed Grasswren
Crested Shrike-tit	Yellow Thornbill	Dusky Woodswallow	Letter-winged Kite
White-throated Gerygone	Silvereye	Fan-tailed Cuckoo	Black-breasted Buzzard
Musk Lorikeet	Tawny-crowned Honeyeater	Shy Heathwren	Red-browed Pardalote
Little Lorikeet	White-eared Honeyeater	Southern Scrub-robin	Chestnut-crowned Babbler
Scarlet Robin		Purple-crowned Lorikeet	Splendid Wren
Crimson Rosella		Gilbert's Whistler	White-browed Treecreeper
Diamond Firetail		Elegant Parrot	Grey-fronted Honeyeater
Rainbow Lorikeet		Brown Treecreeper	Cinnamon Quail-thrush
Bassian Thrush			Short-tailed Grasswren
Sulphur-crested Cockatoo			Australian Bustard
Yellow-faced Honeyeater			Australian Pratincole
			Black Honeyeater
			Bourke's Parrot
			Chestnut-rumped Thornbill
			Chirruping Wedgebill
			Crimson Chat
			Diamond Dove
			Flock Bronzewing
			Gibberbird
			Grey Falcon
			Ground Cuckoo-shrike
			Inland Dotterel
			Little Crow
			Major Mitchell's Cockatoo
			Orange Chat
			Pied Honeyeater
			Redthroat
			Scarlet-chested Parrot
			White-breasted Woodswallow
			White-winged Fairy-wren

Figure 154. Within the study area the Bassian Thrush *Zoothera lunata* is restricted to the forests and woodlands of the southern Flinders (*Photo: D Hopton*).

BIRD SPECIES PATTERNS

To investigate the structure of bird assemblages across the Flinders Ranges survey site presence/absence data was analysed using PATN (see methods). The surveys contributing to this analysis are listed in Table 25. Sites with fewer than four species (after species that were present at only one site were removed from the data) were left out of the analysis. Therefore 250 sites were analysed to investigate how 125 species related to each other and the recorded physical parameters of the sites.

Of the 12 PATN groups that were generated to cluster the data into interpretable assemblages, eight were considered to reflect the majority of assemblages that were apparent from the eight surveys. The other four groups each contained less than five sites and are unlikely to be representative of the broader patterns. The bird species which characterise the assemblages are listed in the descriptions for each group in order of their indicator value.

Interpretation of Dendrogram

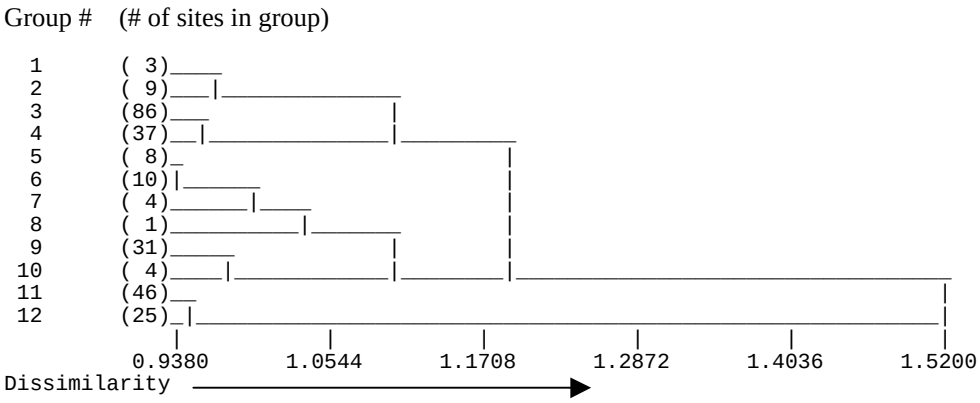


Figure 155. Dendrogram relating bird species presence/absence data from 264 sites into 12 groups based on similarity of the bird assemblages at those sites.

On the broadest level the PATN analysis as displayed in Figure 155 breaks into two groups: a woodland bird group associated with hills and mountains (groups 1-10); and a low shrubland to grassland group most common on plains and low hills (groups 11 and 12). At the next level the dendrogram breaks the woodland group into a northern (groups 1-4) and southern (groups 5-10) cluster.

The insignificant group 1 comprises arid mallee sites from the north-west of the study area and progresses into a low woodland assemblage of the northern Flinders with group 2. Group 3 represents the woodland, mallee and shrub assemblages characteristic of the higher ranges and mountains present in the northern Flinders. Group 4 characterises the assemblages of the bulk of the lower ranges woodland, mallee and low shrubland sites which mostly occurred on more gentle lower hill slopes and in particular creeklines.

Group 5 represents a transition from the bird assemblages of northern sites to those influenced by species restricted to the southern Flinders. The high ranges enable southern species such as the Tawny-crowned Honeyeater to be present as far north as the Gammon Ranges. Group 6 includes shrubland sites from the lower hills whilst groups 7 and 8 have too few members to consider in such an analysis. Group 9 represents the distinctive southern mountain forest and woodland bird assemblages. The insignificant group 10 leads into the open shrubland grassland groups. Group 11 represent the shrublands of the plains and sandplains that surround the study area whilst group 12 characterises the lower shrubland to grassland communities of the low hills and rises which fill the valleys and cover the foothills of the ranges.

Figure 156. The Chestnut-crowned Babbler *Pomatostomus ruficeps* is much rarer within the ranges than the related White-browed Babbler (*Photo: D Hopton*).

Table 34. Percent frequency of sites within each bird group presented as percentages against habitat variables. Where the observed percent is greater than would be expected if random the values are highlighted in bold. Relationships to vegetation mapping groups are presented in the group descriptions.

Number of sites/group	**3**	**9**	**86**	**37**	**8**	**10**	**4**	**1**	**31**	**4**	**46**	**25**	**264**
	Birds PATN groups												
Region	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Northern < 31 deg	**100%**	**89%**	**62%**	**78%**	50%	30%	25%	**100%**		25%	**78%**	48%	151 (57%)
Central 31-32 deg		11%	**30%**	11%	**25%**	10%			3%		4%	**20%**	42 (15%)
Southern > 32 deg			8%	11%	25%	**60%**	**75%**		**97%**	**75%**	17%	**32%**	71 (26%)
Lanform pattern	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
Mountains			**36%**	9%	**63%**	22%			**65%**	25%	2%	12%	66 (25%)
Hills	**33%**	**67%**	**38%**	17%	**38%**	22%	**75%**		**29%**	**50%**	9%	8%	71 (26%)
Low hills	**33%**	**33%**	15%	**37%**		**56%**			6%	**25%**	7%	**28%**	48 (18%)
Rises				**17%**			**25%**	**100%**			**17%**	**16%**	20 (7%)
Drainage line											**2%**	**4%**	2 (<1%)
Flood plain			1%	**11%**								**12%**	8 (3%)
Plain	**33%**		8%	9%							**57%**	**20%**	42 (15%)
Dunefield			1%								**7%**		4 (1%)
Landform unit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
hill crest		**11%**	**5%**			**11%**			3%		**9%**	4%	12 (4%)
rock outcrop (on hill)		**11%**				**11%**			**3%**			**4%**	4 (1%)
ridge			**6%**		**25%**				**13%**			4%	12 (4%)
hill slope	33%	33**%**	**50%**	33**%**	**63%**	**67%**	25%		**61%**	**100%**	15%	20%	106 (40%)
hill footslope			**5%**	**6%**		**11%**			3%			4%	9 (3%)
gorge			1%	**3%**			**25%**		**6%**				5 (1%)
gully	**33%**		**2%**				**25%**		**3%**				5 (1%)
stream channel		**22%**	**14%**	**31%**	**13%**				6%				28 (10%)
drainage depression			2%	3%							**15%**	**8%**	12 (4%)
flood out			1%	**8%**							**4%**	**8%**	8 (3%)
flat			2%	6%							**26%**		16 (6%)
plain (incl undulating plain)	**33%**		**7%**	3%							**11%**	**24%**	19 (7%)
stony plain		**22%**	3%	**8%**			**25%**				**11%**	**24%**	20 (7%)
rock outcrop (on plain)								**100%**					1 (<1%)
sandy plain											**2%**		1 (<1%)
dune/consolidated dune			1%								**9%**		5 (1%)
Vegetation Structure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total**
grassland			1%						**3%**			**17%**	6 (2%)
hummock grassland		**22%**	1%		13%	**10%**				**25%**	3%	**8%**	9 (3%)
low shrubland		11%	5%	**28%**		**20%**	**33%**				**38%**	**54%**	46 (17%)
shrubland		**11%**	**10%**	6%		**20%**		**100%**	6%		**35%**	**13%**	33 (12%)
tall shrubland			**11%**	**14%**	**13%**	**10%**			3%		**18%**	4%	25 (9%)
low mallee			**5%**		**13%**				**3%**				6 (2%)
mallee	**67%**	11%	**17%**	**22%**	**25%**	10%			3%	**25%**			30 (11%)
low woodland	**33%**	**33%**	**18%**	14%	13%	**20%**	**67%**		**23%**	**25%**	8%	4%	41 (15%)
woodland		11%	**16%**	**14%**	**25%**	10%			**26%**				30 (11%)
low forest			**12%**	3%					**16%**	**25%**			17 (6%)
forest			**4%**						**16%**				8 (3%)

GROUP DESCRIPTIONS

Detailed descriptions of the groups identified are set out in the following format:

- the bird assemblage number and title;
- the number of sites comprising the group;
- the number of species recorded for that group;
- the average number of species at sites for the group including the range (maximum and minimum) species richness recorded at sites within the group;
- the number of species recorded that have a South Australian conservation rating;
- a description of the group;
- a map showing the location of sites in a group relative to the study area boundary and elevation (sea level is white and the highest areas are dark grey);
- a table of species group statistics for species with site frequencies greater than 30% or an indicator value greater than 1; The Table comprises:
  Column 1 - species occurring in the group
  Column 2 - lists the common name of the species.
  Column 3 - The South Australian conservation status.
  Column 4 - indicator spp. derived from the observed frequency (O) minus the expected frequency (E) divided by the expected frequency which is multiplied by the ratio of the species frequency for all groups to the total frequency of all species multiplied by 100 ([O-E/E] x [freq. of sp.]/[total freq. of sp.] x 100). This formula decreases the bias the 0-E/E value (derived from TWAY in PATN) gives to infrequently encountered species by taking into account the number of sites a species occurs in within the group. This column was used to sort the species from highest to lowest.
  Column 5 - presents the percentage frequency of the sites within a group at which a species was recorded.
  Column 6 - presents the frequency of sites within the group in which the species was recorded.
  Column 7 - presents the number of groups in which a species was recorded. This provides an indication of how common a species was throughout the survey area.
  Column 8 - presents the combined frequency of a species in all groups. This helps to assess the importance of a species to that group;
- a table of species group statistics for site frequency by vegetation mapping groups, showing the map group code, description, number of sites and the Chi-squared value.

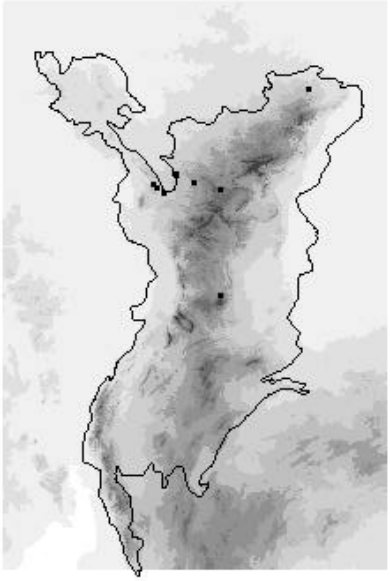
Alphabetical listings of bird species and the number of sites at which they were recorded within the bird assemblages are presented in Appendix 24.

Bird assemblage groups 1, 7, 8 and 10 are not discussed in the following descriptions.

Group 2. Northern open woodland and shrubland assemblage.

Number of sites in group: 9
Number of Species : 33
Average number of species per site: 11.9 Range: 6-20
Species with conservation significance: 0 SA

This group was most prominent on low hills and ranges in the north-west of the study area, most frequently in low open woodland. Vegetation types included Red Gum lined creeks, Black Oak woodland, mallee, shrublands and hummock grasslands, though. The prominent indicator species are a mix of common widespread open plains species such as the Magpie, Galah and Little Corella with widespread woodland species like the Yellow-throated Miner, Yellow-rumped Thornbill and Black-faced Cuckoo-shrike.

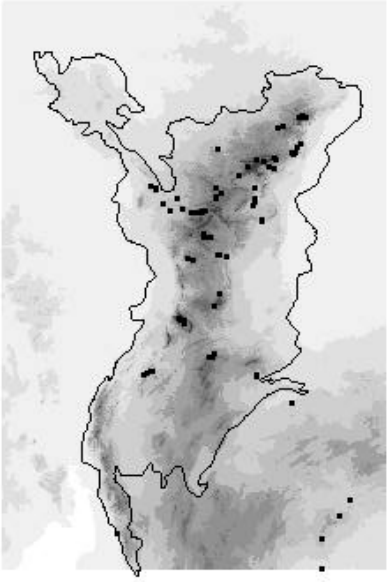


SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Gymnorhina tibicen	Australian Magpie		8.37	89	8	10	108
Manorina flavigula	Yellow-throated Miner		8.15	78	7	8	64
Cacatua roseicapilla	Galah		5.11	67	6	10	123
Cacatua sanguinea	Little Corella		4.42	44	4	7	42
Acanthiza chrysorrhoa	Yellow-rumped Thornbill		4.29	44	4	7	47
Coracina novaehollandiae	Black-faced Cuckoo-shrike		2.49	33	3	7	60
Corvus bennetti	Little Crow		1.67	22	2	6	43
Pachycephala rufiventris	Rufous Whistler		1.63	33	3	9	98
Petroica goodenovii	Red-capped Robin		1.61	33	3	9	97

Code	Vegetation Mapping group	# sites	Chi^2
14	+/- *Callitris glaucophylla*, +/- *Eucalyptus* spp., +/- *Acacia* spp., +/- *Melaleuca uncinata*, +/- *Xanthorrhoea quadrangulata* over *Triodia* spp. open hummock grassland	2	4.98
21	*Casuarina pauper* Low Open Woodland	2	2.63
22	*Callitris glaucophylla* Woodland	1	1.31
3	*Eucalyptus camaldulensis*, over +/- *Melaleuca glomerata*, +/- *Acacia* spp. Woodland	2	0.80
12	*Acacia victoriae*, *Acacia tetragonophylla*, +/- *Acacia oswaldii*, +/- *Sida petrophila* over *Ptilotus obovatus* Tall Open Shrubland	1	0.73

Figure 157. The Yellow-throated Miner *Manorina flavigula* is a common inhabitant of arid woodlands (*Photo: AC Robinson*).

Group 3. Northern and central ranges woodland assemblage.



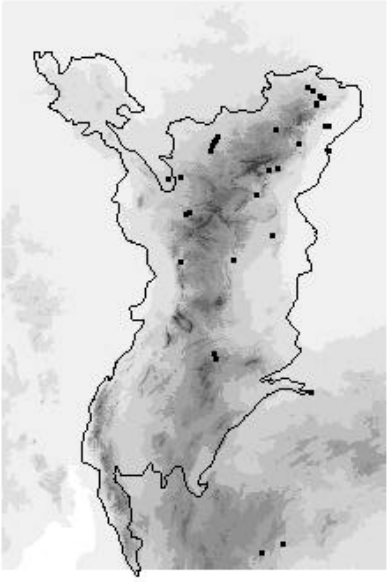
Number of sites in group: 82
Number of Species : 94
Average number of species per site: 19.4 Range: 6-42
Species with conservation significance: 6 SA

This assemblage is common in a variety of semi-arid woodlands occurring on the mountains, hill slopes and valleys along the main spine of the northern and central Flinders. Common vegetation types include: Acacia tall shrub and very low woodlands, White Cypress-pine and Black Oak low woodlands, Red Gum and Gum-barked Coolabah Woodlands, Red-beaked Mallee and a variety of *Melaleuca* shrublands. These woodlands and shrublands have a diversity of understorey types ranging from tall shrubland to hummock grasslands and scattered tussock grasses. The main indicator species are widespread and common woodland species. The large number of sites in this group encompass many species which were rarely encountered across the study area, including waterbirds such as Grey Teal and Nankeen Night-herons at some of the springs in the Red Gum creeklines. Hence the number of conservation significant species is high in this group. Another species for which this group was distinctive, though it was too sparsely recorded to feature in the table below, was the White-browed Tree-creeper, which was mostly found in Black Oak or Mallee and Black Oak low woodlands.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Petroica goodenovii	Red-capped Robin		2.15	76	62	9	97
Pachycephala rufiventris	Rufous Whistler		1.63	68	56	9	98
Acanthiza apicalis	Inland Thornbill		1.61	77	63	8	116
Cracticus torquatus	Grey Butcherbird		1.59	62	51	8	82
Acanthagenys rufogularis	Spiny-cheeked Honeyeater		1.32	72	59	8	119
Smicrornis brevirostris	Weebill		1.07	59	48	8	97
Pomatostomus superciliosus	White-browed Babbler		1.02	49	40	6	74
Barnardius zonarius	Australian Ringneck		1.01	49	40	9	73
Colluricincla harmonica	Grey Shrike-thrush		0.91	50	41	7	82
Acanthiza uropygialis	Chestnut-rumped Thornbill		0.82	39	32	6	59
Pardalotus striatus	Striated Pardalote		0.80	56	46	8	96
Corvus coronoides	Australian Raven		0.70	70	57	8	127
Dicaeum hirundinaceum	Mistletoebird		0.58	32	26	5	52
Manorina flavigula	Yellow-throated Miner		0.53	38	31	8	64
Aquila audax	Wedge-tailed Eagle		0.22	39	32	8	80
Petrochelidon nigricans	Tree Martin		0.20	34	28	8	71
Aphelocephala leucopsis	Southern Whiteface		0.17	32	26	6	63

Code	Vegetation Mapping group	# sites	Chi^2
21	*Casuarina pauper* Low Open Woodland	14	8.96
14	+/- *Callitris glaucophylla*, +/- *Eucalyptus* spp., +/- *Acacia* spp., +/- *Melaleuca uncinata*, +/- *Xanthorrhoea quadrangulata* over *Triodia* spp. open hummock grassland	9	4.52
22	*Callitris glaucophylla* Woodland	7	4.48
20	*Allocasuarina verticillata*, +/- *A. muelleriana*, +/- *Lepidosperma* spp. Tall Shrubland	3	4.31
3	*Eucalyptus camaldulensis*, over +/- *Melaleuca glomerata*, +/- *Acacia* spp. Woodland	15	2.18
19	*Eucalyptus intertexta*, +/- *Dodonaea* spp., +/- *Cassinia laevis*, +/- *Senna* spp. Open Woodland	3	2.30
17	*Eucalyptus flindersii*, +/- *Melaleuca uncinata*, +/- *Triodia* spp. Low Open Mallee	4	2.24
15	*Eucalyptus socialis*, +/- *E. dumosa*, +/- *E. gracilis* over *Eremophila* spp., +/- *Zygophyllum* spp. Mallee	9	1.38
s43	*Acacia pycnantha*, *Bursaria spinosa* Open Shrubland	1	1.44
16	*Eucalyptus gillii*, +/- *E. socialis*, +/- *Triodia* spp. Open Mallee	2	1.12
13	+/- *Acacia aneura*, +/- *Acacia* spp., +/-*Eremophila* spp., +/- *Senna* spp., +/- *Dodonaea* spp. over *Ptilotus obovatus* and Chenopodiaceae spp. Shrubland	6	0.51
18	*Eucalyptus porosa*, +/- *E. odorata* Mallee	1	0.20
s24	*Eucalyptus socialis*, +/- *E. gracilis* Open Mallee	1	0.20

Group 4. Northern low hills, creeks and plains woodland to low shrub assemblage.



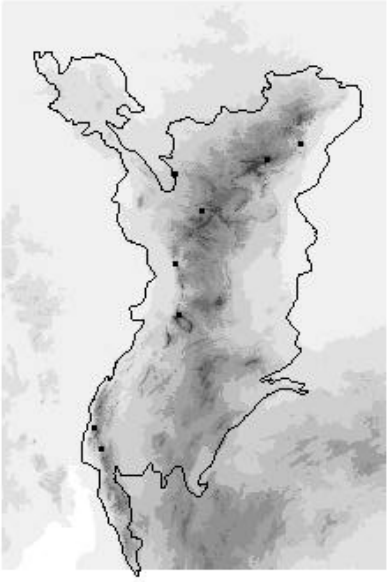
Number of sites in group: 35
Number of Species : 93
Average number of species per site: 22.2 Range: 9-46
Species with conservation significance: 7 SA 15 Region

This northern creekline and low hills woodland group is similar to the dry creekline woodland habitats of the stony deserts to the north (Brandle 1998). Mallee and chenopod shrubland bird species are also prominent in this assemblage. Species richness and the presence of conservation significant species were highest for this group of sites due to the combination of intact chenopod shrubland and mallee, bringing together conservation rated species that specialise in either of these habitat types.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Coracina novaehollandiae	Black-faced Cuckoo-shrike		1.49	63	22	7	60
Todiramphus pyrrhopygia	Red-backed Kingfisher		1.40	40	14	5	23
Acanthagenys rufogularis	Spiny-cheeked Honeyeater		1.32	89	31	8	119
Rhipidura leucophrys	Willie Wagtail		1.05	51	18	7	54
Cacatua sanguinea	Little Corella		1.05	43	15	7	42
Lichenostomus penicillatus	White-plumed Honeyeater		0.99	31	11	5	21
Taeniopygia guttata	Zebra Finch		0.95	46	16	6	49
Merops ornatus	Rainbow Bee-eater		0.82	31	11	8	27
Petrochelidon nigricans	Tree Martin		0.59	51	18	8	71
Manorina flavigula	Yellow-throated Miner		0.53	46	16	8	64
Psephotus varius	Mulga Parrot		0.48	34	12	7	43
Pomatostomus superciliosus	White-browed Babbler		0.41	49	17	6	74
Anthus novaeseelandiae	Richard's Pipit		0.37	31	11	6	44
Corvus bennetti	Little Crow		0.36	31	11	6	43
Acanthiza uropygialis	Chestnut-rumped Thornbill		0.33	40	14	6	59
Dicaeum hirundinaceum	Mistletoebird		0.29	34	12	5	52
Lichenostomus virescens	Singing Honeyeater		0.25	54	19	9	89
Barnardius zonarius	Australian Ringneck Parrot		0.20	46	16	9	73

Code	Vegetation Mapping group	# sites	Chi^2
3	*Eucalyptus camaldulensis*, over +/- *Melaleuca glomerata*, +/- *Acacia* spp. Woodland	13	16.67
s37	*Eucalyptus oleosa*, +/- *E. gracilis* Mallee	1	5.38
15	*Eucalyptus socialis*, +/- *E. dumosa*, +/- *E. gracilis* over *Eremophila* spp., +/- *Zygophyllum* spp. Mallee	6	4.35
9	+/- *Astrebla pectinata*, +/- *Sclerolaena* spp,. +/- *Enneapogon* spp. Open Tussock Grassland	3	1.45
16	*Eucalyptus gillii*, +/- *E. socialis*, +/- *Triodia* spp. Open Mallee	1	0.83
s25	*Eucalyptus gracilis*, +/- *E. socialis* Mallee	1	0.83
8	+/- *Atriplex vesicaria*, *Maireana astrotricha*, +/- *M. sedifolia*, +/- *M. pyramidata*, +/- *Zygophyllum aurantiacum* Low Shrubland	6	0.46
12	*Acacia victoriae*, *A. tetragonophylla*, +/- *A. oswaldii*, +/- *Sida petrophila* over *Ptilotus obovatus* Tall Open Shrubland	2	0.02

Group 5. Mountain low open woodland and mallee assemblage.



Number of sites in group: 8
Number of Species : 35
Average number of species per site: 10.4 Range: 5-18
Species with conservation significance: 1 SA

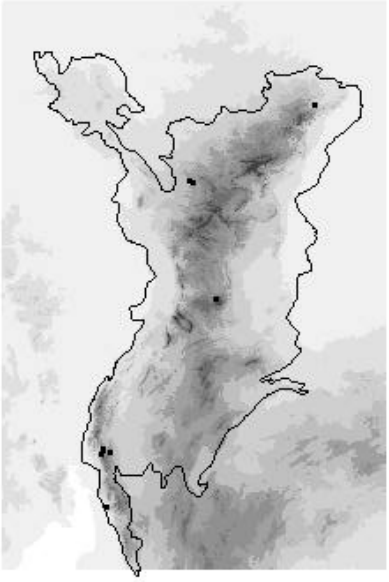
The sites creating this assemblage were mostly open woodlands on the steep slopes including rocky outcrops and ridges on mountains and high hills. Characteristic indicator species associated with this depauperate assemblage are the Little Woodswallow and Grey-fronted Honeyeater.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Acanthiza apicalis	Inland Thornbill		8.67	100	8	8	116
Petrochelidon nigricans	Tree Martin		5.31	63	5	8	71
Malurus lamberti	Variegated Fairy-wren		4.93	63	5	9	89
Pyrrholaemus brunneus	Redthroat	R	4.77	50	4	7	42
Corvus coronoides	Australian Raven		3.87	63	5	8	127
Falco cenchroides	Nankeen Kestrel		3.79	50	4	7	76
Lichenostomus plumulus	Grey-fronted Honeyeater		3.35	38	3	5	39
Artamus minor	Little Woodswallow		2.72	25	2	4	8
Hirundo neoxena	Welcome Swallow		2.62	25	2	7	12
Phaps chalcoptera	Common Bronzewing		1.88	25	2	7	40

Code	Vegetation Mapping group	# sites	Chi^2
17	*Eucalyptus flindersii*, +/- *Melaleuca uncinata*, +/- *Triodia* spp. Low Open Mallee	2	18.51
s17	*Eucalyptus cladocalyx* Low woodland	1	14.81
19	*Eucalyptus intertexta*, +/- *Dodonaea* spp., +/- *Cassinia laevis*, +/- *Senna* spp. Open Woodland	1	6.49
14	+/- *Callitris glaucophylla*, +/- *Eucalyptus* spp., +/- *Acacia* spp., +/- *Melaleuca uncinata*, +/- *Xanthorrhoea quadrangulata* over *Triodia* spp. open hummock grassland	2	5.99
23	*Triodia* spp. Hummock Grassland	1	3.00
15	*Eucalyptus socialis*, +/- *E. dumosa*, +/- *E. gracilis* over Eremophila spp., +/- *Zygophyllum* spp. Mallee	1	0.33

Figure 158. The Little Woodswallow *Artamus minor* is a nomadic inhabitant of the ranges and is mostly seen flying around rocky outcrops and ridge tops (*Photo: S Doyle*).

Group 6. Southern and northern low hills assemblage.



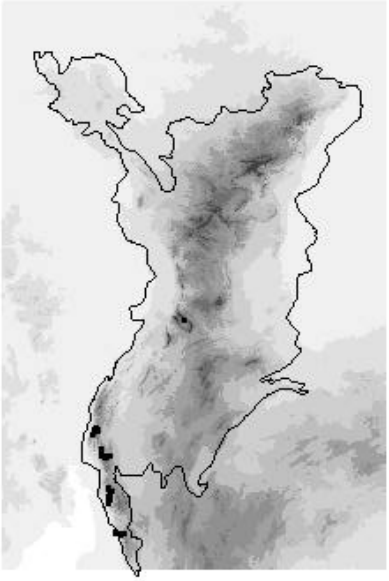
Number of sites in group: 10
Number of Species : 51
Average number of species per site: 12.3 Range: 5-25
Species with conservation significance: 2 SA

This assemblage, which has similarities with Groups 2 and 4, represents the fauna of a small number of northern and southern open shrubland to woodland sites that share a small proportion of species utilising lower hill slope sites. This is not a very representative assemblage as it is likely to reflect two assemblages: a northern and a more distinctive southern group. Most of the indicator species are widespread open woodland and shrubland species, with the exception of southern woodland species such as the Crimson Rosella, Yellow Thornbill, Little Raven and Red Wattlebird, which were only present in the southern sites.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Coracina novaehollandiae	Black-faced Cuckoo-shrike		3.82	60	6	7	60
Falco cenchroides	Nankeen Kestrel		3.37	60	6	7	76
Gymnorhina tibicen	Australian Magpie		3.29	70	7	10	108
Platycercus elegans	Crimson Rosella		2.87	40	4	3	28
Acanthiza nana	Yellow Thornbill		2.44	30	3	3	11
Corvus mellori	Little Raven		2.39	30	3	5	12
Lichenostomus penicillatus	White-plumed Honeyeater		2.15	30	3	5	21
Rhipidura leucophrys	Willie Wagtail		2.09	40	4	7	54
Malurus lamberti	Variegated Fairy-wren		1.97	50	5	9	89
Pardalotus striatus	Striated Pardalote		1.86	50	5	8	96
Psephotus haematonotus	Red-rumped Parrot		1.70	20	2	3	4
Microeca fascinans	Jacky Winter		1.59	20	2	6	8
Hieraaetus morphnoides	Little Eagle		1.57	20	2	5	9
Aquila audax	Wedge-tailed Eagle		1.33	40	4	8	80
Lichenostomus ornatus	Yellow-plumed Honeyeater		1.30	20	2	4	18
Anthochaera carunculata	Red Wattlebird		1.22	20	2	4	22
Corvus coronoides	Australian Raven		1.05	50	5	8	127

Code	Vegetation Mapping group	# sites	Chi^2
s7	+/- *Acacia calamifolia*, +/- *Zygophyllum confluens*, +/- *Lawrencia squamata*, +/- *Sida petrophila* Open Shrubland	2	49.68
s32	*Acacia victoriae* Tall Shrubland	1	24.84
s6	*Eucalyptus odorata*, +/- *E. leucoxylon*, +/- *Callitris preissii* Low Woodland	1	24.84
s24	*Eucalyptus socialis*, +/- *E. gracilis* Open Mallee	1	11.48
s25	*Eucalyptus gracilis*, +/- *E. socialis* Mallee	1	7.05
23	*Triodia* spp. Hummock Grassland	1	2.09
13	+/- *Acacia aneura*, +/- *Acacia* spp., +/-*Eremophila* spp., +/- *Senna* spp., +/- *Dodonaea* spp. over *Ptilotus obovatus* and Chenopodiaceae spp. Shrubland	1	0.44
21	*Casuarina pauper* Low Open Woodland	1	0.09

Group 9. Southern mountain woodland and forest assemblage.



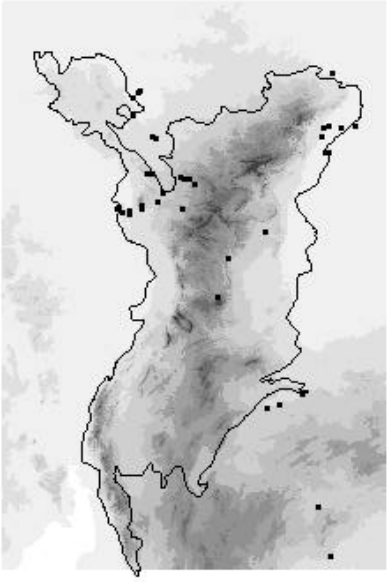
Number of sites in group: 31
Number of Species : 83
Average number of species per site: 20.1 Range: 5-44
Species with conservation significance: 5 SA

This distinctive assemblage describes the birds present across the variety of woodland and forest communities that dominate the ridges and slopes of the main mountain range of the southern Flinders. Indicator species such as the Crimson Rosella, Yellow-faced Honeyeater, Kookaburra, Red Wattlebird and Scarlet Robin have their northern distribution limits in the southern Flinders. This assemblage represents a northern outlier of a Bassian bird fauna restricted to the Mount Lofty Ranges and the south-east in South Australia.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Platycercus elegans	Crimson Rosella		2.94	74	23	3	28
Lichenostomus chrysops	Yellow-faced Honeyeater		2.91	71	22	2	25
Zosterops lateralis	Silvereye		2.37	68	21	5	39
Rhipidura albiscapa	Grey Fantail		2.24	55	17	2	18
Anthochaera carunculata	Red Wattlebird		2.13	55	17	4	22
Acanthiza apicalis	Inland Thornbill		1.93	100	31	8	116
Dacelo novaeguineae	Laughing Kookaburra		1.59	42	13	4	18
Strepera versicolor	Grey Currawong		1.44	39	12	6	18
Melithreptus brevirostris	Brown-headed Honeyeater		1.39	48	15	6	36
Colluricincla harmonica	Grey Shrike-thrush		1.36	71	22	7	82
Smicrornis brevirostris	Weebill		1.34	77	24	8	97
Pardalotus striatus	Striated Pardalote		1.33	77	24	8	96
Todiramphus sancta	Sacred Kingfisher		1.30	35	11	4	18
Malurus lamberti	Variegated Fairy-wren		1.23	74	23	9	89
Petroica multicolor	Scarlet Robin		1.05	26	8	2	9
Geopelia placida	Peaceful Dove		0.90	32	10	5	27
Pachycephala rufiventris	Rufous Whistler		0.81	68	21	9	98
Phaps chalcoptera	Common Bronzewing		0.66	35	11	7	40
Dicaeum hirundinaceum	Mistletoebird		0.29	35	11	5	52
Cracticus torquatus	Grey Butcherbird		0.23	52	16	8	82

Code	Vegetation Mapping group	# sites	Chi^2
s16	*Eucalyptus goniocalyx*, +/- *E. cladocalyx* Low Woodland	6	40.57
s9	*Eucalyptus leucoxylon*, +/- *E. odorata*, +/- *E. cladocalyx* Low Woodland	4	27.04
s11	*Acacia calamifolia*, +/- *Dodonaea viscosa* spp. *angustissima*, +/- *Beyeria lechenaultia*, +/- *Bursaria spinosa* Tall Open Shrubland	3	20.28
s21	*Eucalyptus camaldulensis*, +/- *E. leucoxylon* Open Forest	3	20.28
s4	*Eucalyptus microcarpa*, +/- *E. viridis* Woodland	3	20.28
s3	*Eucalyptus porosa*, +/- *Callitris* spp., +/- *E. leucoxylon*, +/- *E. socialis*, +/- *E. odorata* Open Mallee	3	13.91
s15	*Allocasuarina verticillata*, +/- *Xanthorrhoea quadrangulata*, +/- *Bursaria spinosa*, +/-*Eremophila longifolia*, +/- *Acacia pycnantha* Low Woodland	3	13.91
s49	Native grasslands and sedgelands	1	6.76
s17	*Eucalyptus cladocalyx* Low woodland	1	2.55
18	*Eucalyptus porosa*, +/- *E. odorata* Mallee	1	2.55
s18	*Callitris glaucophylla* Low Woodland	1	2.55

Group 11. Plains and rises grassland to tall open shrub assemblage.



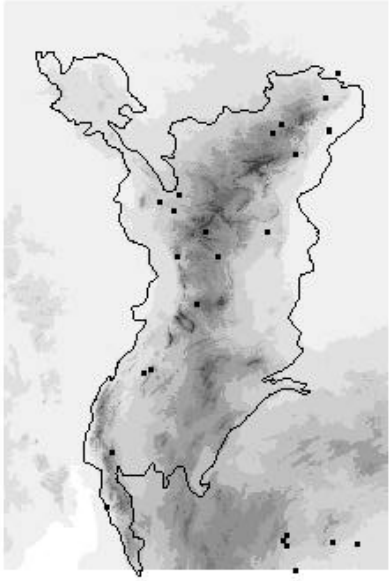
Number of sites in group: 38
Number of Species : 61
Average number of species per site: 13.8 Range: 5-28
Species with conservation significance: 1 SA

This assemblage encompasses birds associated with *Acacia victoriae* open tall shrublands over grasses and/or low shrubs as well as the Mitchell-grass and bindyii plains surrounding the northern ranges. Sandplains and dune assemblages are also encompassed in this group. The primary indicator species are all arid shrubland or grassland associated species.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Psophodes cristatus	Chirruping Wedgebill		5.42	68	26	4	40
Malurus leucopterus	White-winged Fairy-wren		5.36	74	28	5	57
Lichenostomus virescens	Singing Honeyeater		3.94	68	26	9	89
Artamus cinereus	Black-faced Woodswallow		3.69	50	19	5	37
Ocyphaps lophotes	Crested Pigeon		2.91	45	17	6	50
Taeniopygia guttata	Zebra Finch		2.71	42	16	6	49
Corvus coronoides	Australian Raven		2.46	63	24	8	127
Dromaius novaehollandiae	Emu		1.97	42	16	7	71
Anthus novaeseelandiae	Richard's Pipit		1.83	32	12	6	44
Cacatua roseicapilla	Galah		1.70	55	21	10	123
Aquila audax	Wedge-tailed Eagle		1.55	39	15	8	80
Cinclosoma cinnamomeum	Cinnamon Quail-thrush		1.40	18	7	5	13
Milvus migrans	Black Kite		1.36	18	7	5	14
Melopsittacus undulatus	Budgerigar		1.20	21	8	6	29
Calamanthus campestris	Rufous Fieldwren		1.19	16	6	2	11
Corvus bennetti	Little Crow		1.07	24	9	6	43
Malurus lamberti	Variegated Fairy-wren		0.99	37	14	9	89
Acanthagenys rufogularis	Spiny-cheeked Honeyeater		0.33	37	14	8	119

Code	Vegetation Mapping group	# sites	Chi^2
5	+/- *Nitraria billardierei*, +/- *Maireana pyramidata*, +/- *Atriplex nummularia* spp. *nummularia* Low Shrubland	6	13.61
10	*Acacia victoriae*, +/- *Eremophila duttonii*, +/- *Alectryon oleifolius* over Chenopodiaceae spp. or Gramineae spp. Tall Open Shrubland	5	13.45
4	*Acacia victoriae* over +/- *Maireana pyramidata*, +/- *M. aphylla* Tall Shrubland	5	13.45
8	+/- *Atriplex vesicaria*, *Maireana astrotricha*, +/- *M. sedifolia*, +/- *M. pyramidata*, +/- *Zygophyllum aurantiacum* Low Shrubland	14	9.99
0	None	5	10.45
2	+/- *Eragrostis australasica*, +/- *Muehlenbeckia florulenta*, +/- Samphire spp. Low Shrubland	2	3.71
13	+/- *Acacia aneura*, +/- *Acacia* spp., +/-*Eremophila* spp., +/- *Senna* spp., +/-*Dodonaea* spp. over *Ptilotus obovatus* and Chenopodiaceae spp. Shrubland	4	0.74
9	+/- *Astrebla pectinata*, +/- *Sclerolaena* spp,. +/- *Enneapogon* spp. Open Tussock Grassland	3	0.44
12	*Acacia victoriae*, *A. tetragonophylla*, +/- *A. oswaldii*, +/- *Sida petrophila* over *Ptilotus obovatus* Tall Open Shrubland	3	0.14

Group 12. Low hills and plains low shrub to grassland assemblage.



Number of sites in group: 25
Number of Species : 58
Average number of species per site: 11.2 Range: 5-21
Species with conservation significance: 3 SA

This low (mostly chenopod) shrubland assemblage was found on the slopes of low hills, rises and undulating plains throughout the ranges and includes sites from the Olary Spur to the south-east of the study area. This group differs from group 11 in that bird species associated with taller open shrublands are less prominent in the indicator species list.

SPECIES	Common Name	SA Status	Indicator value	% frequency	frequency	Occurrence in groups	Total frequency at sites
Anthus novaeseelandiae	Richard's Pipit		5.60	68	17	6	44
Falco cenchroides	Nankeen Kestrel		4.63	68	17	7	76
Malurus leucopterus	White-winged Fairy-wren		4.42	60	15	5	57
Aphelocephala leucopsis	Southern Whiteface		3.49	52	13	6	63
Cacatua roseicapilla	Galah		3.40	68	17	10	123
Gymnorhina tibicen	Australian Magpie		2.69	56	14	10	108
Ocyphaps lophotes	Crested Pigeon		2.63	40	10	6	50
Cincloramphus cruralis	Brown Songlark		2.57	28	7	3	9
Dromaius novaehollandiae	Emu		2.36	44	11	7	71
Melopsittacus undulatus	Budgerigar		2.01	28	7	6	29
Calamanthus campestris	Rufous Fieldwren		1.70	20	5	2	11
Taeniopygia guttata	Zebra Finch		1.49	28	7	6	49
Artamus personatus	Masked Woodswallow		1.26	16	4	5	12
Epthianura albifrons	White-fronted Chat		1.10	12	3	2	4
Falco berigora	Brown Falcon		1.05	16	4	4	20
Nymphicus hollandicus	Cockatiel		1.05	12	3	3	6
Lichenostomus virescens	Singing Honeyeater		0.74	32	8	9	89

Code	Vegetation Mapping group	# sites	Chi^2
8	+/- *Atriplex vesicaria, Maireana astrotricha,* +/- *M. sedifolia,* +/- *M. pyramidata,* +/- *Zygophyllum aurantiacum* Low Shrubland	10	15.56
11	*Cymbopogon ambiguus, Stipa nitida, Enneapogon* spp., *Aristida* spp., +/- *Asphodelus fistulosus* Open Tussock Grassland	2	10.57
9	+/- *Astrebla pectinata,* +/- *Sclerolaena* spp,. +/- *Enneapogon* spp. Open Tussock Grassland	4	8.62
s53	*Myoporum platycarpum, Eucalyptus gracilis* Very Low Open Woodland	1	8.81
23	*Triodia* spp. Hummock Grassland	2	2.78
2	+/- *Eragrostis australasica,* +/- *Muehlenbeckia florulenta,* +/- Samphire spp. Low Shrubland	1	1.85
12	*Acacia victoriae, A. tetragonophylla,* +/- *A. oswaldii,* +/- *Sida petrophila* over *Ptilotus obovatus* Tall Open Shrubland	2	0.51
4	*Acacia victoriae* over +/- *Maireana pyramidata,* +/- *M. aphylla* Tall Shrubland	1	0.35

Figure 159. The Flinders Ranges provide a refuge from the surrounding deserts that enable Brown Treecreepers *Climacteris picumnus* to extend their distribution into the arid zone (*Photo: D Hopton*).

Figure 160. The White-fronted Chat *Epthianura albifrons* is restricted to low mostly chenopod shrublands in and around the Ranges (*Photo: South Australian Ornithological Association*).

REPTILES

R Brandle[1]

As noted in the previous research section (page 13), two regional overviews of the herpetofauna of the Flinders Ranges have been published (Houston and Tyler 1980 in 'A Field Guide to the Flinders Ranges, and Hutchinson and Tyler 1996 in 'The Natural History of the Flinders Ranges'). In 1980 the region was known to support 88 species of reptiles and frogs and in 1996 this had grown to 96 species of reptiles and frogs. Hutchinson and Tyler (1996) provide a species list against seven basic habitat types. A search of the South Australian Museum records for the survey area, as defined in the vegetation section and displayed in Figure 161, indicates that 91 species had been collected prior to December 1997 when the Flinders Ranges Vertebrate Surveys began.

TOTAL SPECIES

Data from nine surveys in and around the Flinders Ranges Study Area was extracted from the Biological Survey Database for this analysis (Table 35) within the grid coordinates: latitudes 29^0 48' to 31^0 18' and longitude 137^0 48' to 139^0 48'. Seven of these were entirely or partly within the Study Area as shown in Figure 161.

Seventy-nine species from six families were recorded at survey sites within the study area. Of the 53 species recorded at sites in the surrounding plains, only nine were not recorded within the study area boundary. Of the 51 species recorded opportunistically (off-site) within the study area, four were not recorded at sites. The surveys added nine species to 86 previously reported for the Flinders Ranges (Hutchinson and Tyler 1996) and only six species previously known for the region were not recorded by the various survey teams. The site-based and non site-based ("opportune") collecting within the survey area since 1997 have added five species to the 91 held in the museum bringing the total known to occur in the region to 96. These include a gecko and three skinks in the north-west of the study area and one skink in the south. A summary of the number of species in each is presented in Table 36. A full species list sorted by family detailing the number of records in the South Australian Museum, the Opportune Database and the contributing Biological Surveys is presented in Appendix 25. New records for the study area resulting from the survey are marked with an asterisk (*).

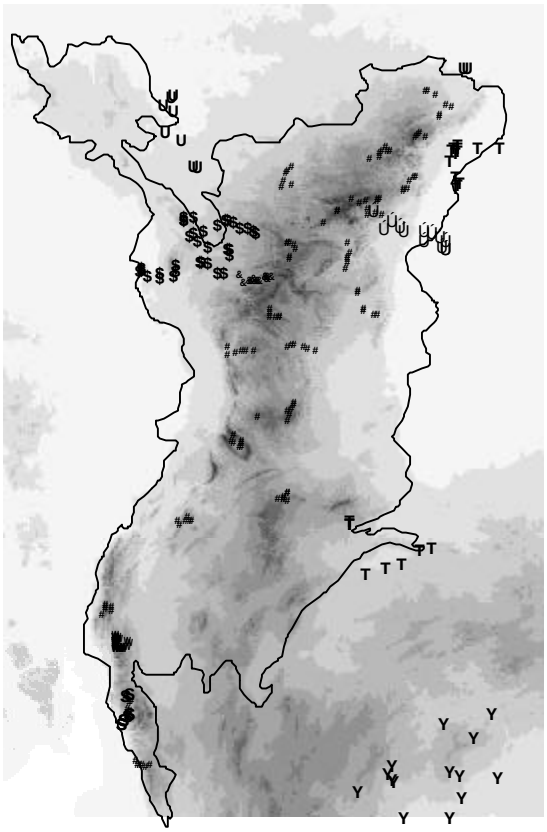


Figure 161. Distribution of vertebrate survey sites within latitudes 29° 48' to 31° 18' and longitude 137° 48' to 139° 48'. Open squares = Stony Deserts; black circles = Flinders Ranges; black triangles = North West Flinders Ranges; black pentagons = Warraweena (NCSSA); open triangles = North Olary Plains; open stars = Gammon Ranges (NCSSA); open hexagons = Mt Brown Survey (NCSSA); open circles = Mt Remarkable National Park (NPWS);, and circles with a centre point = South Olary Plains. The black line delineates the study area.

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

Table 35. Vertebrate surveys and the number of sites, reptile species richness, and average reptile species per site, within and surrounding the study area boundary as depicted in Figure 161. A number of sites had limited or no trapping data, particularly on the Mt Brown Survey (#66). For full trap effort details for each site refer to Appendix 11.

Survey number and title	Dates	# Sites sampled within/outside study area	# Species within/outside study area	Average # species/site	# Records per survey
24 South Olary Plains*	1991-92	0 / 14	0 / 33	6.4	129
66 Mt Brown (NCSSA)	1993	33 / 0	22 / 0	4	267
67 Gammon Ras NP (NCSSA)	1994	8 / 5	21 / 18	4.9	120
69 Stony Deserts*	1994-97	0 / 10	0 / 19	2.8	38
74 North Olary Plains**	1995-97	11 / 10	24 / 27	5.7	271
98 North West Flinders Ranges+	1997	31 / 3	38 / 12	5.2	438
104 Flinders Ranges	1998-99	127 / 0	61 / 0	6.8	2280
111 Warraweena	1999	13 / 0	30 / 0	7.5	223
114 Mt Remarkable NP	1983	9 / 0	26 / 0	6.9	187
Totals		232 / 42	80 / 53		

* no sites in study area – but data included in PATN analysis;
** 10 sites outside of study area – but data included in PATN analysis;
+ 3 sites outside of study area – but data included in PATN analysis.

Table 36. Family summary of Flinders Ranges reptiles. Total and (number from sites).

Family	Subfamily	Number of Species	
AGAMIDAE		11 (9)	
GEKKONIDAE		27 (25)	
	Diplodactylinae		12 (12)
	Gekkoninae		6 (5)
	Pygopodinae		9 (8)
SCINCIDAE		38 (33)	
VARANIDAE		2 (1)	
TYPHLOPIDAE		3 (2)	
BOIDAE		2 (0)	
ELAPIDAE		14 (9)	
	Total	**97 (79)**	

Figure 162. The Samphire Slender Blue-tongue *Cyclodomorphus venustus* has been rarely recorded within the Flinders Ranges (*Photo: PD Canty*).

COMMON SPECIES

The diversity of the Flinders Ranges reptile fauna is reflected in the relatively low frequency of occurrence of the most common species. Species that were located at more than 10% of sites are presented in Table 37. The three most commonly encountered species are amongst the most widespread and common arid-zone species in South Australia as they are able to survive in most woodland or rocky situations where tree bark and logs or rocks provide some cover. The Common Snake-eye is probably the most dependent on woodland situations, but is able to extend its distribution into even the most arid areas along wooded drainage lines (Henle 1989; Brandle and Hutchinson 1998). The common species that are distinctive inhabitants of ranges include the Southern Rock Dtella, Tawny Dragon, Red-barred Dragon and the Masked Rock Skink. None of these were present at more than 17% of the sites sampled. To some extent this reflects the proportion of rocky range habitats within the Flinders Ranges region, which has a greater proportion of non-rocky gently sloping hill or plains habitats. These flatter areas support species that are more typical of these habitat types elsewhere.

Table 37. Frequency and abundance of reptile species encountered at greater than 10% of sites.

SPECIES	Common Name	# Sites	% of 274 sites	# Records	Recording Rate
Morethia boulengeri	Common Snake-eye	123	45%	353	10%
Gehyra variegata	Tree Dtella	96	35%	308	9%
Heteronotia binoei	Bynoe's Gecko	87	32%	232	7%
Ctenotus robustus	Eastern Striped Skink	80	29%	195	6%
Tiliqua rugosa	Sleepy Lizard	71	26%	120	3%
Cryptoblepharus plagiocephalus	Desert Wall Skink	69	25%	151	4%
Diplodactylus vittatus	Eastern Stone Gecko	50	18%	123	3%
Ctenophorus decresii	Tawny Dragon	47	17%	159	5%
Gehyra sp.'2n=44'	Southern Rock Dtella	42	15%	115	3%
Ctenophorus vadnappa	Red-barred Dragon	39	14%	65	2%
Menetia greyii	Dwarf Skink	38	14%	117	3%
Lerista muelleri	Dwarf Three-toed Slider	35	13%	63	2%
Tympanocryptis tetraporophora	Eyrean Earless Dragon	34	12%	90	3%
Egernia striolata	Eastern Tree Skink	33	12%	86	2%
Egernia margaretae	Masked Rock Skink	27	10%	116	3%
Pogona vitticeps	Bearded Dragon	27	10%	29	1%

REPTILE SPECIES RICHNESS

On average six species were recorded from the 232 sites sampled within the Flinders Ranges region. The maximum number of species at a site was 15. In comparison the sites analysed that surround the study area averaged five species with a maximum of 13. Figure 163 presents the frequency with which sites were found to support a certain number of species. Some caution should be used in interpreting the following analyses as observation effort varies depending on the weather conditions, time of sampling and the skill of the observers. This holds true for trapping and searching. The spikes in Figure 163 at 12 and 15 species probably reflect the influence of a particularly skilled herpetologist being present on only one trip. Equally importantly, failure to record a species should not be regarded as evidence for the species' absence; inevitably, species will have been overlooked.

Analysis of the relationship between species richness and the site attributes enables only broad generalisations to be made. On average sites in regions recorded as mountainous produced the highest number of species records with an average of seven as apposed to six for other hilly areas and five for plains. The most species rich land units were gorges and dunes with an average of almost nine species per site. Both of these units were sampled at few sites (5 and 6 respectively). Stony plains, flats and floodouts were the poorest units with averages around five species per site.

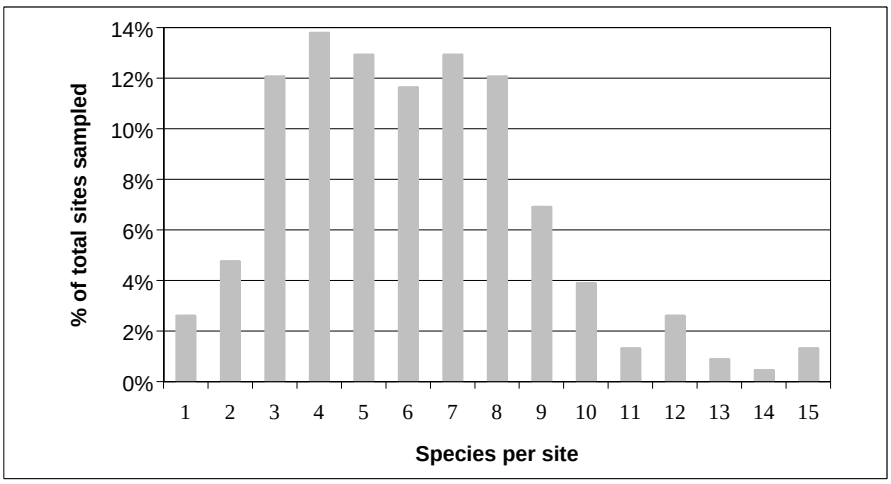


Figure 163. Frequency histogram of reptile species per site for 232 survey sites in the Flinders Ranges.

SIGNIFICANT SPECIES

Five reptile species that have been recorded in the Flinders Ranges region have been rated for their conservation significance, two are considered nationally threatened under the Endangered Species Protection Act 1992, and four are listed as threatened in South Australia (Hutchinson and Edwards 2000). Of these only one was recorded at sites and two away from sites. Whilst there is no official listing of regionally significant species it is worth noting the species for which the Flinders Ranges represents critical habitat for their long term survival. This includes endemic species, species which have limited distributions elsewhere and species which are at the limits of their distribution. This last category is discussed in the section on biogeography.

Nationally Vulnerable

Flinders Worm Lizard *Aprasia pseudopulchella*

This South Australian endemic species is restricted to almost continuous range country formed by the Mount Lofty, Olary and Flinders Ranges. Whilst rated as vulnerable to extinction in the regulations of the national Endangered Species Protection Act 1992, a recent review of reptile conservation status in South Australia has excluded it from listing as threatened in South Australia (Hutchinson and Edwards 2000). This exclusion is based on the frequency with which this species has now been reported from grazing land in the mid north in recent years (Hutchinson in Graham 2000, T Milne pers. comm.).

Within the study area there are five localities along the spine of the southern Flinders and three in the more arid parts of the Ranges. These are spread across from Barratta Station in the south east of the central Flinders (1978), Wilpena camping area (1989) and north of Yudnamutana Hill (1970) in the northern Flinders (SA Museum record 2000). This species was not recorded in these regions by the vertebrate surveys.

The Flinders Worm Lizard was recorded at four biological survey sites, three in the Mambray Creek Section of Mt Remarkable National Park and one on Mt Brown. All sites were described as hill slopes on mixed loam soils supporting a mix of vegetation structures from Hummock Grassland to Tall Woodland. The sites where hummock grasses were absent had thick layers of leaf litter. Tim Milne's observations that the species is difficult to detect in the grasslands of the mid north during warmer months may help explain why the Flinders Ranges Biological Survey failed to detect this species in the central and northern Flinders.

Black Tiger Snake *Notechis ater* – Flinders Ranges population

The most northerly population of the Black Tiger Snake is found as an isolated population in the southern Flinders Ranges where it is associated with denser vegetation in major drainage lines in and around Mt Remarkable National Park. Elsewhere in South Australia the species is restricted to near coastal regions including offshore islands. This species was not recorded during the survey.

The species is rated as nationally vulnerable to extinction in the regulations of the national Endangered Species Protection Act 1992. In South Australia the Flinders Ranges population is considered vulnerable (Hutchinson and Edwards 2000). The majority of habitat where this species is known to occur is now protected within Mt Remarkable National Park, a significant proportion of which was recently added to conserve this population.

Vulnerable in South Australia

Carpet Python *Morelia spilota*
The Carpet Python is confined to several disjunct areas of the state, one of which is the Flinders Ranges, where it is only occasionally encountered. In South Australia it is rated as Vulnerable (Hutchinson and Edwards 2000). Houston (1980) provides anecdotal evidence for a drastic decline in the species following European settlement of the region. A one week survey by the SA Herpetology Group during 1999 targeting this species, failed to locate any animals (G Kluske pers comm). Part of their apparent rarity may well reflect the secretive behaviour of this species except when conditions are optimal (warm and humid). Along with the fringing woodlands of the Murray River, the moister woodland and rocky habitats of the Flinders are likely to represent an important area for their long term viability in South Australia.

Carpet Pythons were not recorded during the various surveys, however recent observations from reliable observers were documented and entered into the opportune database. In the last five years the species has been observed in Telowie Gorge, Mambray Creek (several), Alligator Gorge, Wilpena Pound area (several) and possible sightings were reported by the managers of Burr Well and Puttapa Stations in the Leigh Creek area (Brandle 1998). The South Australian Museum has four specimens from the length of the Ranges: Willowie Forest (1988 - now in Mt Remarkable National Park), Dutchman's Stern (1988) from the southern Flinders and early undated records from Moolooloo and Mount Painter in the central and northern Flinders.

Rare in South Australia

Tree Goanna or Lace Monitor *Varanus varius*
This large goanna is common in the dry sclerophyll woodlands of eastern Australia but restricted to two small populations in South Australia. One is an extension of the eastern population along the Murray River, and the other is an isolated population in the southern Flinders. The most northerly record comes from Quorn. This species was not recorded during the vertebrate surveys though a road kill specimen was collected adjacent to River Red Gum and Grey Box grassy woodland north of Melrose. This arboreal species appears to be reliant on large areas of tall woodland that only occur in the wettest parts of the southern ranges. A significant portion of their remaining habitat is protected in the Mount Remarkable National Park. Of the four locality records within the study area that are represented by specimens in the South Australian Museum, three come from Mt Remarkable National Park and the other was killed on the road south west of Quorn. Other specimens that have been collected from the road north of Melrose fall just outside of the study area boundary.

Common Bandy-Bandy *Vermicella annulata*
This species is relatively common in the wetter parts of eastern Australia, but it is rare in South Australia. It has only been collected twice in the Flinders Ranges, north of Hawker in 1972 and on the western foot slopes of Wilpena Pound in 1981. The species was not recorded during the vertebrate surveys and is likely to be genuinely rare. The species has been collected from several localities in the Bookmark Biosphere Reserve on the South Olary Plains.

Endemics and species with limited distributions away from the Flinders Ranges.

There are no reptile species which are entirely confined to the Flinders Region as it has been defined for this study. Three that are traditionally considered endemic, the Red-barred Dragon *Ctenophorus vadnappa*, Masked Rock Skink *Egernia margaretae* ssp. *personata* and the Flinders Worm Lizard *Aprasia pseudopulchella*, also occur in similar habitat in adjacent regions. The Flinders Worm Lizard is probably most common in the grasslands of the Mid north immediately to the south of the study area and is discussed under the Nationally Vulnerable section. Three other species extend their distributions south into the Mt Lofty Ranges, the Tawny Dragon *Ctenophorus decresii*, the Adelaide Snake-lizard *Delma molleri* and the Southern Rock Dtella *Gehyra* sp"2n=44".

Red-barred Dragon *Ctenophorus vadnappa*
This true Flinders Ranges endemic occurs throughout the northern Flinders and Willouran Ranges with isolated populations scattered through the rocky hill country on Finniss Springs (an extension of the Willouran Ranges). The most southerly record was collected from west of the Elder Range (central Flinders) in 1947 and then from Wilpena Pound in 1983. The vertebrate surveys recorded this spectacular species at 37 sites north of Flinders Ranges National Park mostly on lower hills and outcrops supporting a variety of vegetation communities from low shrublands and hummock grasslands to woodlands.

Masked Rock Skink *Egernia margaretae*
The Flinders Ranges population of the Masked Rock Skink *Egernia margaretae personata* is separated from its relatives *E. m. margaretae* in the MacDonnell Ranges by more than 800km. The populations in northern South Australia in the Musgrave and Mann Ranges appear to be *E. m. personata* (M Hutchinson pers comm) which are more than 700km from the nearest Flinders populations. This large skink occurs along the length of the Flinders Ranges in rocky mountainous areas including ridge tops and gorges, mostly in woodland situations. The vertebrate survey recorded the species at 27 sites with the most southerly localion at Telowie Gorge and the most northern in a gorge south of Mount Fitton.

Tawny Dragon *Ctenophorus decresii*
The Tawny Dragon is essentially a cooler climate rock dragon and as such is common in the south of the study area, the Olary-Mount Lofty Ranges and Kangaroo Island. It also occurs in the ranges at Mootwingee, NSW. This species was recorded at 51 sites throughout the higher ranges of the study area. In the north of the study area Tawny Dragons were restricted to the higher mountain ridges and slopes in a variety of woodland and mallee vegetation types. The Tawny Dragon and Red-barred Dragon were sympatric at only one site on the lower slopes of Mt Hack in the central Flinders.

Adelaide Snake-lizard *Delma molleri*
The Adelaide Snake Lizard is endemic to South Australia with a limited distribution in the Mount Lofty and Olary Ranges and Yorke Peninsula. In the Flinders it has been recorded as far north as Orraparinna in the central Flinders. This species is common in the northern Mount Lofty Ranges grasslands also inhabited by the Flinders Worm Lizard (T Milne pers comm). The Adelaide Snake-lizard was recorded at 19 sites of which only two were north of Dutchman's Stern in the southern Flinders. Most sites were on ridges and slopes of high ranges in a variety of vegetation types ranging from hummock grassland to woodland.

Southern Rock Dtella *Gehyra* sp."2N=44"
This nocturnal gecko occurs in the Gawler Ranges as well as the higher woodland areas of the Flinders and Olary Ranges. In the Mount Lofty Ranges it is widespread and common in more open habitats (D Armstrong pers comm). It was recorded at 44 survey sites along the high spine of the Flinders, as far north as the Mawson Plateau. Most habitats were woodland or mallee with a few sites in shrub and tall shrub communities. The species has also been collected in the Willouran Ranges.

BIOGEOGRAPHY

Definitions of the three major biogeographic regions and their coverage of the Flinders Ranges are provided in the vegetation chapter of this report (page 62). The reptile species of the Flinders Ranges can be grouped on the basis of their distributions within these regions. The term Bassian is applied to the wettest temperate habitats and Eyrean to the dry arid centre. Between these two extremes is a zone dominated by winter rainfall that receives on average between 250 to 500 mm per annum. This region supports low woodlands and more commonly mallee. This region has been referred to as Bassian/Eyrean (Blakers *et al.* 1984). The southern Flinders cuts through this gradational zone, which has been pushed into the arid Eyrean zone by the central and northern ranges. In the south, the highest ridges are truly Bassian in nature whilst the lower ranges and surrounding plains have an Eyrean character. Species that are widely distributed in all zones have been classed as generalists.

Table 38. Summary of Flinders Ranges reptiles with distributions limited to one of the three bio-climatic zones defined for South Australia (refer to Figure 64 page 62).

Bio-climatic Region	Number of Species
Bassian – temperate woodlands	6
Bassian/Eyrean – mallee woodlands	24
Eyrean – arid	38

Table 39. The number of reptile species with distribution limits influenced by the Flinders Ranges.

Endemic Species and distributional limits in South Australia	Number of Species
Endemic	2
Western limit	3
Eastern limit	1
Northern limit	17
Southern limit	2

In South Australia, reptile diversity is lowest in the Bassian region and highest in the Eyrean. This is reflected by the numbers in Table 38, which to some extent also reflect the coverage of the three biogeographic zones within the study area. The 28 generalist species were widespread with distributions across the three zones. All of the Bassian species and half of the Bassian/Eyrean species had their northern distribution limits (within South Australia) in the Flinders Ranges, reflecting the influence of the ranges on climate. Whilst the Flinders-Mount Lofty Ranges and the Spencer Gulf represent a geographic barrier for many species only a few of these appear to utilise habitats within the ranges. This indicates that even in their weathered down form, the ranges still represent an effective barrier to many species. A list of species and how they relate to Table 39 is presented in Appendix 26. Distribution maps for these species have been published in 'A List of the Vertebrates of South Australia' (Robinson *et al.* 2000).

As for plants, areas associated with the highest ranges provide significant habitat islands for Bassian species to extend their distribution even further north than the southern Flinders. Notable examples of these are Wilpena Pound, Mt Hack and the Gammon Ranges. Species that appear to have population isolates on the Wilpena Range include: the Bull Skink *Egernia multiscutata* (not recorded during the survey) and the Three-toed Earless Skink *Hemiergis decresiensis* (First record this survey near St Mary Peak).

Figure 164. The Garden Skink *Lampropholis guichenoti* is restricted to high rainfall forest habitats in the southern Flinders Ranges (*Photo: AC Robinson*).

Figure 165. The Tessellated Gecko *Diplodactylus tessellatus* is an Eyrean inhabitant of the northern Flinders plains (*Photo: AC Robinson*).

SPECIES PATTERNS

Reptile presence/absence data was analysed using PATN (see methods) from sites in the surveys listed in Table 35 that contained three or more species after the exclusion of species that were only recorded at one site. Thus, 246 sites from nine surveys and 74 species were analysed to determine species assemblage patterns and their relationships to bio-physical habitat parameters. Of the twelve groups that were chosen from the analysis, nine reflect the reptile assemblages that are commonly encountered across the diversity of habitats in the study area. One group was marginal to the study area, reflecting the assemblages of neighbouring dune fields whilst the other two groups were comprised of only two sites each and did not appear to have ecological relevance.

Interpretation of Dendrogram

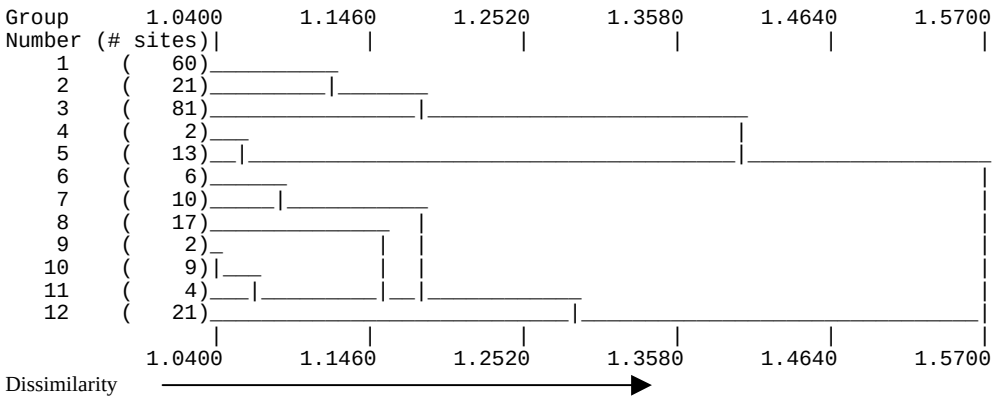


Figure 166. Dendrogram relating reptile species presence/absence data from 246 sites into 12 groups based on similarity of the reptile assemblages at those sites.

The dendrogram indicates two clusters on the broadest level. The first cluster, groups 1 to 5, includes the bulk of the sites. These were mostly located along the main spine of the Flinders Ranges and supported woodland vegetation which contained a significant component of species with temperate distributions. The major break between groups 3 and four separates the heathy woodland assemblages of the southern ridges from the more widespread ranges groups. Groups 6 to 12 represent the reptile assemblages of the more arid open shrubland and grassland habitats of the low hills and plains surrounding the main ranges.

The relationship of the reptile assemblage groups to the physical and biological characteristics of the sites are summarised in Tables 39 to 41. These indicate that the structuring of the dendrogram is most strongly influenced by landform pattern and latitude, which indicates that the mountainous parts of the ranges have a distinctive fauna when compared to lower ranges and associated plains, and that these differences between the high range assemblages from north to south are less pronounced. More detailed descriptions of the groups follow Table 42.

Table 40. Percent frequency of sites within each reptile group presented as percentages against latitude. Where the observed percent is greater than would be expected if random the values are highlighted in bold.

# sites	60	21	81	2	13	6	10	17	2	9	4	21	246
	Reptile assemblages % of sites in each region												
Latitude group	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**# Sites**
<29^0		5					10	6	50	**22**		10	8
29^0 -30^0 Northern Flinders	30	24	**65**			67	90	47		78	100	81	125
30^0 -31^0 Central Flinders	**30**	24	16					12				5	39
31^0 -32^0 Southern Flinders	**30**	24	17	100	85			29	50			5	57
>33^0	10	**24**	1		15	33		6					17

Table 41. Percent frequency of sites within each reptile group presented as percentages against habitat variables. The groups with the highest Chi^2 for each habitat variable have their percentages highlighted in bold.

Number In group	**60**	**21**	**81**	**2**	**13**	**6**	**10**	**17**	**2**	**9**	**4**	**21**	**246**
	Reptile assemblages % of sites in each physical category												
Landform Pattern	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**# Sites**
Mountains	**48**	24	21	50	69			12			25	5	65
Hills	35	19	**41**		23			18		33	75		70
Low hills	12	14	23	50	8			18	50	**56**		14	43
Rises		10	5			**33**	10	12				19	15
Pediment			1									**10**	3
Plain	3	19	9			33	60	18	50			**52**	36
Drainage line		5					**10**						2
Flood plain		10				33		**24**		11			9
Consolidated dunefield	**2**												1
Dunefield							**20**						2
Land Unit	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
hill crest	2		9		8			6			**25**	5	13
Ridge	8	**14**	1		23								12
rock outcrop (on hill)			**4**										3
hill slope	**60**	29	44	50	46	33		29	50	44	75	14	103
hill footslope	7	14	4	**50**									11
Gorge	3	**5**	2										4
Gully	**5**		2		8								6
stream channel	7		**16**		8			6		11			20
open depression	**2**												1
flood out		5	1			17	10	**24**					8
Swamp			**1**										1
drainage depression		**10**	5					6				**10**	9
Flat			2				30	18				**24**	13
stony plain	2	5	4			33		6		22		**24**	16
plain (incl undulating plain)	3	19	4		8	17	20	6	50	11		**24**	21
rock outcrop (on plain)										**11**			1
dune/consolidated dune	2						**40**						5
Surface Soil Texture	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
Skeletal	3		7					**12**		11		5	12
heavy clay		**5**											1
medium heavy clay	**2**												1
medium clay	2		2									**19**	7
light clay	7		5					12				**24**	15
clay loam	**17**	19	2					12		11		5	20
silty clay loam	7	**10**	4									5	11
clay loam, sandy	7		2			17				11	**50**	5	11
sandy clay loam	13	**33**	17		23	17	30	12		33		19	45
Loam	8	14	11					12			**25**	5	21
silt loam		**14**	2				10	12					8
sandy loam	18		14	**100**	31	33	10		**100**	11		10	36
clayey sand	10	5	17		15	**33**	20	6		11	25	5	31
loamy sand	2		9		**31**			18		11			17
Sand	5		6				**30**	6					12
Vegetation Structure	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
Herbland			**2**										2
Grassland			2									**4**	2
Hummock grassland	**10**	5	3					6			25		12
Low shrubland	4	21	9		13	60	15	50		43	25	**50**	44
Shrubland	15	11	9			20	31	11		**29**	25	13	31
Tall shrubland	8	11	12	**50**		20	15	6				4	22
Low Mallee	**12**				13								9
Mallee	25	32	14					6	**100**		25		37
Low woodland	23	16	28		**63**			6		14			50
Woodland	**4**	5	22	50	13		38	17		14		29	38

Table 42. Percent frequency of sites for reptile assemblages in each vegetation mapping group. Map group number relates to the numbers used for the vegetation maps included with this report, where the number is preceded with an "s" the sites occur below the current limit of the mapping and the groups relate to mapping in progress for the southern regions.

	# sites	**60**	**20**	**79**	**2**	**13**	**6**	**10**	**17**	**2**	**9**	**4**	**20**
		Reptile assemblages % of sites in each vegetation type											
# map group	**Vegetation Mapping Group Description**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2	+/- *Eragrostis australasica*, +/- *Muehlenbeckia florulenta*, +/- Samphire spp. Low Shrubland		5						6				
3	*Eucalyptus camaldulensis*, over +/- *Melaleuca glomerata*, +/- *Acacia* spp. Woodland	10		20					6				
4	*Acacia victoriae* over +/- *Maireana pyramidata*, +/- *M. aphylla* Tall Shrubland			4			17	10					10
5	+/- *Nitraria billardierei*, +/- *Maireana pyramidata*, +/- *Atriplex nummularia* spp. *nummularia* Low Shrubland		5						6		22		
6	*Acacia ligulata*, *Dodonaea viscosa* ssp. *angustissima*, +/- *Zygochloa paradoxa*, +/- *Casuarina pauper* Tall Open Shrubland							40					
8	+/- *Atriplex vesicaria*, *Maireana astrotricha*, +/- *M. sedifolia*, +/- *M. pyramidata*, +/- *Zygophyllum aurantiacum* Low Shrubland	3	10	5		8	33	10	41		11	25	35
9	+/- *Astrebla pectinata*, +/- *Sclerolaena* spp,. +/- *Enneapogon* spp. Open Tussock Grassland	2		3					6				35
10	*Acacia victoriae*, +/- *Eremophila duttonii*, +/- *Alectryon oleifolius* over *Chenopodiaceae* spp. or *Gramineae* spp. Tall Open Shrubland		5	1			17	10					10
11	*Cymbopogon ambiguus*, *Stipa nitida*, *Enneapogon* spp., *Aristida* spp., +/- *Asphodelus fistulosus* Open Tussock Grassland		5	1									
12	*Acacia victoriae*, *A. tetragonophylla*, +/- *A. oswaldii*, +/- *Sida petrophila* over *Ptilotus obovatus* Tall Open Shrubland			8			17	10			11		5
13	+/- *Acacia aneura*, +/- *Acacia* spp., +/-*Eremophila* spp., +/- *Senna* spp., +/-*Dodonaea* spp. over *Ptilotus obovatus* and Chenopodiaceae spp. Shrubland		5	8				20	6		22	25	5
14	+/- *Callitris glaucophylla*, +/- *Eucalyptus* spp., +/- *Acacia* spp., +/- *Melaleuca uncinata*, +/- *Xanthorrhoea quadrangulata* over *Triodia* spp. open hummock grassland	13		4					12			25	
15	*Eucalyptus socialis*, +/- *E. dumosa*, +/- *E. gracilis* over *Eremophila* spp., +/- *Zygophyllum* spp. Mallee	10	5	9					6				
16	*Eucalyptus gillii*, +/- *E. socialis*, +/- *Triodia* spp. Open Mallee	3		1						50			
17	*Eucalyptus flindersii*, +/- *Melaleuca uncinata*, +/- *Triodia* spp. Low Open Mallee	7	10									25	
18	*Eucalyptus porosa*, +/- *E. odorata* Mallee		10										
19	*Eucalyptus intertexta*, +/- *Dodonaea* spp., +/- *Cassinia laevis*, +/- *Senna* spp. Open Woodland	2											
20	*Allocasuarina verticillata*, +/-*A. muelleriana*, +/- *Lepidosperma* spp. Tall Shrubland			4									
21	*Casuarina pauper* Low Open Woodland	3		13			17			50	22		
22	*Callitris glaucophylla* Woodland	3	10	6							11		
23	*Triodia* spp. Hummock Grassland	8	5	3									
s3	*Eucalyptus porosa*, +/- *Callitris* spp., +/- *E. leucoxylon*, +/- *E. socialis*, +/- *E. odorata* Open Mallee	5				8							
s4	*Eucalyptus microcarpa*, +/- *E. viridis* Woodland			3		8							
s6	*Eucalyptus odorata*, +/- *E. leucoxylon*, +/- *Callitris preissi*i Low Woodland	2				8							
s7	+/- *Acacia calamifolia*, +/- *Zygophyllum confluens*, +/- *Lawrencia squamata*, +/- *Sida petrophila* Open Shrubland	3											
s9	*Eucalyptus leucoxylon*, +/- *E. odorata*, +/- *E. cladocalyx* Low Woodland			1		15			6				
s11	*Acacia calamifolia*, +/- *Dodonaea viscosa* spp. *angustissima*, +/- *Beyeria lechenaultia*, +/- *Bursaria spinosa* Tall Open Shrubland	5											
s15	*Allocasuarina verticillata*, +/-*Xanthorrhoea quadrangulata*, +/- *Bursaria spinosa*, +/-*Eremophila longifolia*, +/- *Acacia pycnantha* Low Woodland	5		1		8			6				
s16	*Eucalyptus goniocalyx*, +/- *E. cladocalyx* Low Woodland	3		3		23							
s17	*Eucalyptus cladocalyx* Low woodland	2				15							
s18	*Callitris glaucophylla* Low Woodland	2		1									
s21	*Eucalyptus camaldulensis*, +/- *E. leucoxylon* Open Forest	3				8							
s24	*Eucalyptus socialis*, +/- *E. gracilis* Open Mallee	2	5										
s25	*Eucalyptus gracilis*, +/- *E. socialis* Mallee	2	10	1									
s32	*Acacia victoriae* Tall Shrubland				100								
s37	*Eucalyptus oleosa*, +/- *E. gracilis* Mallee		5										
s43	*Acacia pycnantha*, *Bursaria spinosa* Open Shrubland	2											
s49	Native grasslands and sedgelands			1									
s53	*Myoporum platycarpum*, *Eucalyptus gracilis* Very Low Open Woodland		5										

Detailed descriptions of the groups identified are set out in the following format:

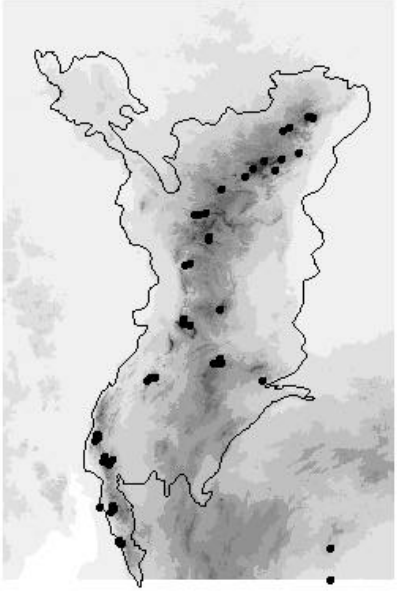
- the reptile assemblage number and title;
- the number of sites comprising the group;
- the number of species recorded for that group;
- the average number of species at sites for the group including the maximum and minimum species diversity recorded at sites within the group;
- a brief description of the group;
- a map showing the location of sites in a group relative to the study area boundary and elevation (sea level is white and the highest areas are dark grey);
- a table of species group statistics for those with an indicator value greater than 0;

  Column 1 - species occurring in the group
  Column 2 - lists the common name of the species.
  Column 3 - indicator spp. derived from the observed frequency (O) minus the expected frequency (E) divided by the expected frequency which is multiplied by the ratio of the species frequency for all groups to the total frequency of all species multiplied by 100 ([O-E/E] x [freq. of sp.]/[total freq. of sp.] x 100). This formula decreases the bias the 0-E/E value (derived from TWAY in PATN) gives to infrequently encountered species by taking into account the number of sites a species occurs in within the group. This column was used to sort the species from highest to lowest.
  Column 4 - presents the percentage frequency of the sites within a group at which a species was recorded.
  Column 5 - presents the frequency of sites within the group in which the species was recorded.
  Column 7 - presents the number of groups in which a species was recorded. This provides an indication of how common a species was throughout the survey area.
  Column 8 - presents the combined frequency of a species in all groups. This helps to assess the importance of a species to that group.

Alphabetical listings of reptile species and the number of sites at which they were recorded within the reptile assemblages, structural vegetation groups, landform units and vegetation mapping groups are presented in Appendices 27 to 30. Descriptions of mapping groups are presented in Table 42.

Figure 167. The majority of records for the Red-napped Snake *Furina diadema* are from the Flinders Ranges (*Photo: AC Robinson*).

1. Mountain slope and high rocky ridge assemblage.



Number of sites: 60
Number of species: 50
Average number species per site: 7.8 Max: 15 Min: 3

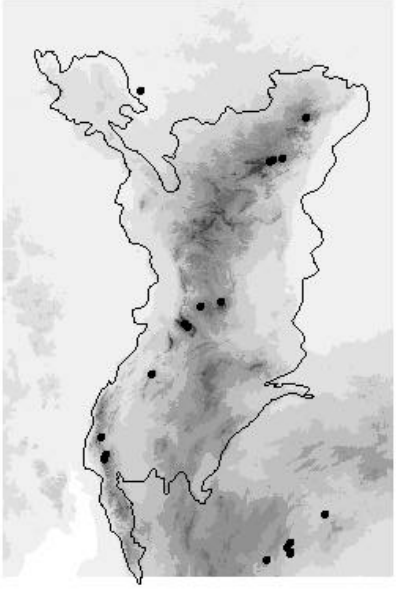
This dominant assemblage was characteristic of the southern ranges and northern high ridges where it is most commonly associated with rocky ridges and slopes. Clay loams and sandy loams were the most common surface soils. The assemblage uses the variety of low woodland, mallee and shrubland types that occur across the study area particularly where spinifex hummock grasses occur in the understorey. Two of the indicator species are confined to rock slab range environments: the Tawny Dragon and the Masked Rock Skink. Others such as the Spinifex Snake Lizard, Spinifex Slender Bluetongue and Jewelled Gecko are dependent on the presence of spinifex. This large assemblage is thus composed of at least two distinctive groups which are combined at many sites because of the co-occurrence of rock slab, spinifex and mallee woodland in the ranges. Most other species are characteristic of woodlands though some, like the Nobbi Dragon are rarely found away from mallee.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Ctenophorus decresii	Tawny Dragon	4.73	62	37	5	51
Ctenotus robustus	Eastern Striped Skink	4.10	72	43	8	80
Morethia boulengeri	Common Snake-eye	2.74	85	51	7	126
Egernia margaretae	Masked Rock Skink	2.29	30	18	3	24
Egernia striolata	Eastern Tree Skink	1.76	30	18	6	32
Gehyra sp.'2n=44'	Southern Rock Dtella	1.76	35	21	5	42
Delma australis	Barred Snake-lizard	1.50	18	10	3	12
Strophurus intermedius	Southern Spiny-tailed Gecko	1.50	20	12	5	16
Nephrurus milii	Barking Gecko	1.09	22	13	5	27
Lialis burtonis	Burton's Legless Lizard	0.98	13	7	4	10
Delma butleri	Spinifex Snake-lizard	0.84	13	7	3	13
Delma molleri	Adelaide Snake-lizard	0.77	15	9	4	18
Ctenotus orientalis	Spotted Ctenotus	0.74	13	7	5	14
Amphibolurus nobbi	Nobbi Dragon	0.47	10	6	3	12
Cyclodomorphus melanops	Spinifex Slender Bluetongue	0.45	8	4	3	9
Aprasia pseudopulchella	Flinders Worm Lizard	0.39	5	3	2	4
Diplodactylus vittatus	Eastern Stone Gecko	0.35	30	18	5	54
Strophurus elderi	Jewelled Gecko	0.28	5	3	3	5
Hemiergis millewae	Rusty Earless Skink	0.27	3	1	1	1
Ramphotyphlops australis	Southern Blind Snake	0.20	3	1	2	2
Pygopus lepidopodus	Common Scaly-foot	0.14	3	1	2	3
Demansia psammophis	Yellow-faced Whipsnake	0.14	5	3	5	7
Pseudechis australis	Mulga Snake	0.08	2	1	2	2
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake	0.07	3	1	4	4
Lerista edwardsae	Myall Slider	0.05	2	1	2	3

Figure 168. The Tawny Dragon *Ctenophorus decresii* is restricted to the Mt Lofty, Flinders and Barrier Ranges. This animal was from Dutchman's Stern (*Photo: AC Robinson*).

Figure 169. In the north of its range the Eastern Striped Skink *Ctenotus robustus* has more subdued colour patterns as demonstrated by this animal from Leigh Creek (*Photo: AC Robinson*).

2. Low slope and valley open shrub and mallee assemblage.



Number of sites: 21
Number of species: 29
Average number species per site: 6 Max: 12 Min: 3

This assemblage was found on low, gently sloping and flat areas amongst high ranges and mountains across the study area and appears to be common around the Olary Spur south East of the study area. Heavier soils such as clay to sandy clay loams dominate and support a variety of mallee and open shrub communities. The most common member, the dwarf skink is a wide spread species that is widely present in clay soil plains and drainage associated environments whilst the Sleepy Lizard is similarly wide spread across a range of plains habitats. Their presence together with range dwelling species such as the Tawny Dragon and Southern Rock Dtella and the Eastern Stone Gecko, define this group which is allied to the South Olary Plains Group 1 (Reptiles of open mixed woodlands) (Forward and Robinson 1996).

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Menetia greyii	Dwarf Skink	11.15	76	15	8	50
Tiliqua rugosa	Sleepy Lizard	5.98	62	13	9	88
Gehyra sp.'2n=44'	Southern Rock Dtella	5.37	43	9	5	42
Diplodactylus vittatus	Eastern Stone Gecko	3.67	38	7	5	54
Ctenophorus decresii	Tawny Dragon	2.91	33	6	5	51
Cryptoblepharus plagiocephalus	Desert Wall Skink	2.27	38	7	8	75
Pseudonaja textilis	Eastern Brown Snake	2.06	14	2	4	9
Ctenotus orientalis	Spotted Ctenotus	1.71	14	2	5	14
Morethia obscura	Mallee Snake-eye	0.81	5	1	2	2
Lerista dorsalis	Southern Four-toed Slider	0.78	5	1	2	2
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake	0.63	5	1	4	4
Lerista punctatovittata	Spotted Slider	0.52	10	2	5	21
Lialis burtonis	Burton's Legless Lizard	0.23	5	1	4	10
Amphibolurus nobbi	Nobbi Dragon	0.11	5	1	3	12
Delma australis	Barred Snake-lizard	0.10	5	1	3	12
Diplodactylus tessellatus	Tessellated Gecko	0.05	5	1	5	13

Figure 170. The Southern Rock Dtella *Gehyra* sp.“2n=44” is distinguishable from the closely related Tree Dtella by its more regular dot patterns (*Photo: AP Dudley*).

3. Northern low range, hill and creek woodland assemblage.

Number of sites: 81
Number of species: 52
Average number species per site: 6.3 Max: 11 Min: 3

This assemblage is most strongly associated with the woodlands of stream channels and the low woodlands on the slopes and crests of low hills and ranges in the northern half of the study area. Soils are dominated by sandy loams to clayey sands. The Tree Dtella, Bynoe's Gecko and Common Snake Eye are the dominant indicator species. The presence of the less common indicator species is determined by elements such as presence of rocky areas for species such as the Red-barred Dragon and the Centralian Striped Skink, extensive leaf litter for the three species of Slider, spinifex hummock grass understorey for the Leopard Skink or Black Oak woodland for the Velvet Gecko. This large assemblage can be separated into sub-groups on the basis of these habitat differences at sites where large areas of these attributes are not mixed. The presence of Mount Brown survey sites in this group probably reflects the absence of pitfall trapping at these sites as more intensive field work may well have differentiated these woodland communities from their northern relatives. The Marbled Gecko was the only species confined to these southern sites.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Gehyra variegata	Tree Dtella	5.37	74	59	9	101
Heteronotia binoei	Bynoe's Gecko	5.30	72	58	8	97
Morethia boulengeri	Common Snake-eye	3.03	70	56	7	126
Lerista muelleri	Dwarf Three-toed Slider	2.51	31	25	5	38
Ctenophorus vadnappa	Red-barred Dragon	2.36	30	24	4	38
Cryptoblepharus plagiocephalus	Desert Wall Skink	1.87	42	34	8	75
Diplodactylus vittatus	Eastern Stone Gecko	1.48	31	25	5	54
Lerista punctatovittata	Spotted Slider	1.22	16	12	5	21
Eremiascincus richardsonii	Broad-banded Sandswimmer	0.77	12	9	7	17
Oedura marmorata	Marbled Velvet Gecko	0.55	5	4	1	4
Ctenotus pantherinus	Leopard Skink	0.36	4	3	2	4
Amphibolurus nobbi	Nobbi Dragon	0.30	7	5	3	12
Ctenotus saxatilis	Centralian Striped Skink	0.25	4	3	3	6
Phyllodactylus marmoratus	Marbled Gecko	0.22	7	5	3	13
Lerista desertorum	Great Desert Slider	0.22	2	1	1	1
Rhynchoedura ornata	Beaked Gecko	0.20	9	7	4	19
Pogona vitticeps	Central Bearded Dragon	0.20	14	11	8	31
Nephrurus milii	Barking Gecko	0.17	12	9	5	27
Lerista dorsalis	Southern Four-toed Slider	0.15	2	1	2	2
Pseudechis australis	Mulga Snake	0.14	2	1	2	2
Ctenotus olympicus	Saltbush Ctenotus	0.07	11	8	5	26
Ctenotus regius	Eastern Desert Ctenotus	0.07	9	7	6	21
Cyclodomorphus melanops	Spinifex Slender Bluetongue	0.05	4	3	3	9
Suta spectabilis	Mallee Black-headed Snake	0.04	1	0	2	1

Figure 171. The Tree Dtella *Gehyra variegata* has highly variable markings across its range. This pattern was typical of northern Flinders Ranges animals (*Photo: AC Robinson*).

Figure 172. The Common Snake-eye *Morethia boulengeri* was the most frequently encountered species in the woodlands of the Flinders Ranges (*Photo: AC Robinson*).

5. Southern ranges heathy woodland assemblage.

Number of sites: 13
Number of species: 30
Average number species per site: 8 Max: 15 Min: 4

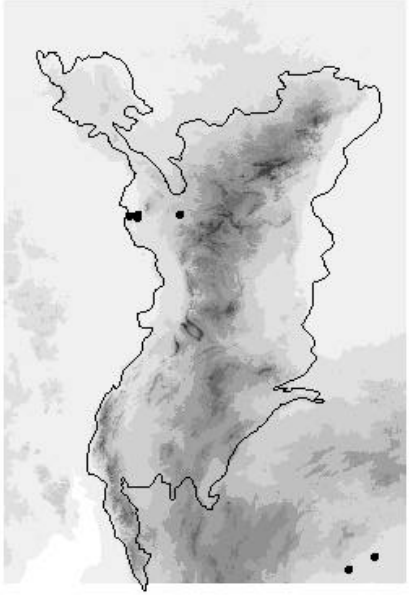
This southern heathy woodland assemblage is typical of the Sugar Gum, Long-leaf Box and Blue Gum Woodlands that characterise the high ridges and slopes of the southern Flinders. Soils range from loamy sands to sandy clay loams. A number of the indicator species such as the Three-toed Earless Skink and Garden Skink are temperate species that have their northern limits in the southern Flinders Ranges.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Lerista bougainvillii	Bougainville's Skink	11.10	92	11	2	16
Hemiergis decresiensis	Three-toed Earless Skink	10.05	85	11	3	18
Phyllodactylus marmoratus	Marbled Gecko	6.24	54	7	3	13
Lampropholis guichenoti	Garden Skink	5.71	46	5	1	5
Delma molleri	Adelaide Snake-lizard	4.91	46	5	4	18
Egernia striolata	Eastern Tree Skink	2.88	38	4	6	32
Pseudonaja textilis	Eastern Brown Snake	2.45	23	2	4	9
Lerista edwardsae	Myall Slider	1.78	15	1	2	3
Pygopus lepidopodus	Common Scaly-foot	1.74	15	1	2	3
Demansia psammophis	Yellow-faced Whipsnake	1.47	15	1	5	7
Gehyra sp.'2n=44'	Southern Rock Dtella	1.29	31	4	5	42
Ctenotus orientalis	Spotted Ctenotus	1.03	15	1	5	14
Suta spectabilis	Mallee Black-headed Snake	0.94	8	1	2	1
Morethia obscura	Mallee Snake-eye	0.92	8	1	2	2
Strophurus intermedius	Southern Spiny-tailed Gecko	0.88	15	1	5	16
Ramphotyphlops australis	Southern Blind Snake	0.87	8	1	2	2
Suta suta	Curl Snake	0.80	8	1	4	3
Aprasia pseudopulchella	Flinders Worm Lizard	0.79	8	1	2	4
Furina diadema	Red-naped Snake	0.79	8	1	4	4
Menetia greyii	Dwarf Skink	0.79	31	4	8	50
Morethia boulengeri	Common Snake-eye	0.78	69	8	7	126

Figure 173. The Three-toed Earless Skink *Hemiergis decresiensis* was common in the southern Flinders Ranges. The northern most record was on St Mary Peak, Wilpena Pound (*Photo: AC Robinson*).

6. North-west sandy loam/clay plain assemblage.

Number of sites: 6
Number of species: 19
Average number species per site: 6.3 Max: 10 Min: 3

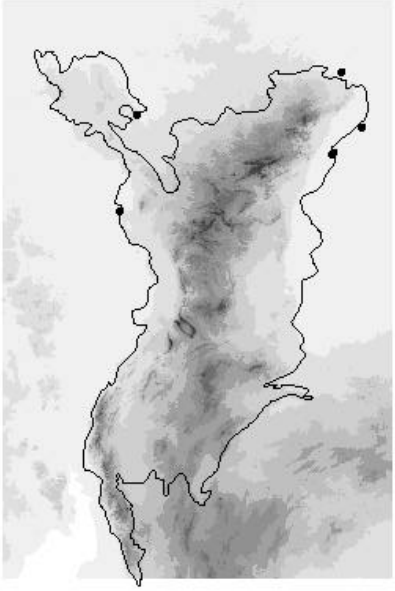


This combination of a southern and northern assemblage clumps mixed sandy loam/clay and stony plain sites from the north-west of the study area with sandy loam sites in the South Olary Plains. These two groups are not closely related as the Beaked Gecko is the only species common to both. Because of the low number of sites sampled in these habitats neither groups is likely to be representative. Other indicator species in the north-west assemblage (most relevant to the study area) are the Pink-blotched Gecko, Sandplain Gecko, Central Netted Dragon, Sandhill Ctenotus and Purple Dtella. The presence of surface sand at some of the sites enables the sandhill species to utilise these ecotonal areas.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Rhynchoedura ornata	Beaked Gecko	12.57	83	5	4	19
Diplodactylus stenodactylus	Sandplain Gecko	8.07	50	3	2	3
Diplodactylus byrnei	Pink-blotched Gecko	6.44	50	3	6	28
Ctenophorus nuchalis	Central Netted Dragon	5.30	33	2	2	2
Tympanocryptis intima	Smooth-snouted Earless Dragon	5.25	33	2	3	3
Ctenotus brooksi	Sandhill Ctenotus	5.17	33	2	2	4
Gehyra purpurascens	Purple Dtella	5.13	33	2	3	5
Lerista labialis	Eastern Two-toed Slider	5.13	33	2	4	5
Eremiascincus richardsonii	Broad-banded Sandswimmer	4.31	33	2	7	17
Ctenotus regius	Eastern Desert Ctenotus	4.10	33	2	6	21
Suta suta	Curl Snake	2.58	17	1	4	3
Ctenophorus pictus	Painted Dragon	2.38	17	1	3	6
Varanus gouldii	Sand Goanna	1.75	17	1	9	16
Ctenotus strauchii	Short-legged Ctenotus	1.71	17	1	4	17
Egernia striolata	Eastern Tree Skink	0.67	17	1	6	32
Tympanocryptis tetraporophora	Eyrean Earless Dragon	0.42	17	1	6	36

Figure 174. The Beaked Gecko *Rhynchoedura ornata* is common in areas where sand overlays other soil types such as dune swales and sandy floodouts (*Photo: AC Robinson*).

7. Sand dune and sand plain assemblage.



Number of sites: 10
Number of species: 22
Average number species per site: 7 Max: 13 Min: 3

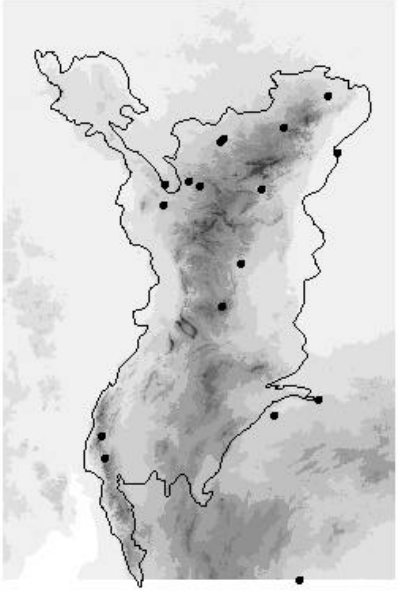
This assemblage occurs around the margins of the study area and is likely to be significant in the surrounding dunefields. The main indicator species are all associated with sandy soils, particularly the Mallee Dragon, Painted Dragon and Sandhill Ctenotus. The vegetation communities are mostly dominated by *Acacia* overstorey species such as Umbrella Bush or Mulga, however a sandy creekline with an overstorey of Red Gums and paperbarks also support this assemblage to the north of the study area.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Ctenotus schomburgkii	Sandplain Ctenotus	11.61	80	8	4	13
Ctenotus regius	Eastern Desert Ctenotus	9.54	70	7	6	21
Ctenophorus fordi	Mallee Dragon	7.42	50	5	2	6
Ctenophorus pictus	Painted Dragon	7.36	50	5	3	6
Diplodactylus damaeus	Beaded Gecko	5.99	40	4	1	4
Varanus gouldii	Sand Goanna	5.17	40	4	9	16
Ctenotus brooksi	Sandhill Ctenotus	4.36	30	3	2	4
Tiliqua rugosa	Sleepy Lizard	3.55	60	6	9	88
Strophurus ciliaris	Northern Spiny-tailed Gecko	2.94	20	2	2	2
Ctenotus strauchii	Short-legged Ctenotus	2.00	20	2	4	17
Ctenophorus nuchalis	Central Netted Dragon	1.37	10	1	2	2
Menetia greyii	Dwarf Skink	1.36	30	3	8	50
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake	1.24	10	1	4	4
Lerista labialis	Eastern Two-toed Slider	1.19	10	1	4	5
Ctenotus leonhardii	Common Desert Ctenotus	1.17	10	1	5	5
Lialis burtonis	Burton's Legless Lizard	0.85	10	1	4	10

Figure 175. The Sandplain Ctenotus *Ctenotus schomburgkii* (*Photo: S Doyle*).

8. Plain and floodout shrubland to low open woodland assemblage.

Number of sites: 17
Number of species: 24
Average number species per site: 5.2 Max: 10 Min: 3



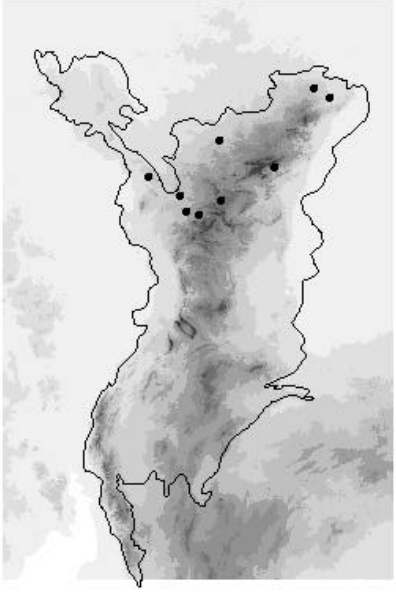
This broad generalist group was found on floodouts, plains and rises that surround the Flinders Ranges. Soils were variable and most of the vegetation ranged from low chenopod shrublands to low woodland and mallee with either a chenopod or spinifex understorey. The most common indicator species were the Sleepy Lizard, Central Bearded Dragon. Other species reflect the nature of the understorey soil type, with the Saltbush Ctenotus and Eyrean Earless Dragon being typical low shrubland species.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Tiliqua rugosa	Sleepy Lizard	13.13	94	15	9	88
Pogona vitticeps	Central Bearded Dragon	9.81	59	10	8	31
Diplodactylus byrnei	Pink-blotched Gecko	8.79	53	9	6	28
Ctenotus olympicus	Saltbush Ctenotus	5.33	35	5	5	26
Gehyra variegata	Tree Dtella	4.01	53	9	9	101
Tympanocryptis tetraporophora	Eyrean Earless Dragon	3.43	29	4	6	36
Ctenotus robustus	Eastern Striped Skink	2.95	41	6	8	80
Delma butleri	Spinifex Snake-lizard	1.56	12	2	3	13
Pseudonaja nuchalis	Western Brown Snake	1.02	6	1	3	2
Ctenotus regius	Eastern Desert Ctenotus	1.02	12	2	6	21
Suta suta	Curl Snake	0.95	6	1	4	3
Ctenotus leonhardii	Common Desert Ctenotus	0.82	6	1	5	5
Ctenophorus fordi	Mallee Dragon	0.81	6	1	2	6
Lialis burtonis	Burton's Legless Lizard	0.49	6	1	4	10
Diplodactylus tessellatus	Tessellated Gecko	0.31	6	1	5	13
Varanus gouldii	Sand Goanna	0.13	6	1	9	16
Strophurus intermedius	Southern Spiny-tailed Gecko	0.10	6	1	5	16
Ctenotus strauchii	Short-legged Ctenotus	0.08	6	1	4	17
Eremiascincus richardsonii	Broad-banded Sandswimmer	0.02	6	1	7	17

Figure 176. The Central Bearded Dragon *Pogona vitticeps* was most common in the valleys, plains and rises of the Flinders Ranges (*Photo: AC Robinson*).

10. Northern low hill rocky outcrop assemblage.

Number of sites: 9
Number of species: 21
Average number species per site: 5.7 Max: 8 Min: 3



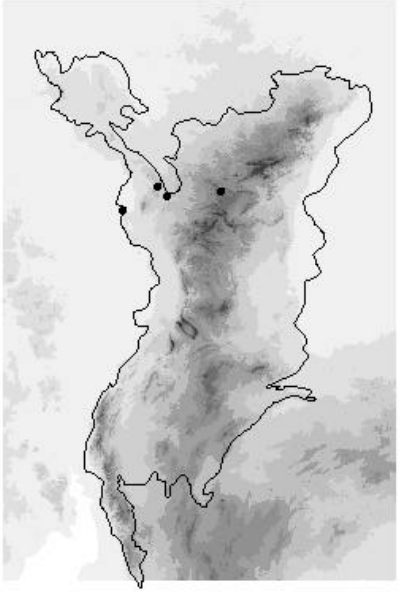
This rocky outcrop assemblage was found on the lower hills of the northern Flinders in shrubby Mulga and Black Oak woodland and chenopod shrublands. The common indicator species combine rock outcrop specialists such as the Red-barred Dragon and Gidgee Skink with plains species such as the Beaked Gecko and Eyrean Earless Dragon. Soils were mainly sandy clay loams.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Ctenophorus vadnappa	Red-barred Dragon	11.60	78	8	4	38
Rhynchoedura ornata	Beaked Gecko	6.71	44	4	4	19
Tympanocryptis tetraporophora	Eyrean Earless Dragon	5.56	44	4	6	36
Cryptoblepharus plagiocephalus	Desert Wall Skink	5.17	56	5	8	75
Gehyra sp.'2n=44'	Southern Rock Dtella	3.16	33	3	5	42
Egernia stokesii	Gidgee Skink	3.03	22	2	5	14
Eremiascincus richardsonii	Broad-banded Sandswimmer	2.80	22	2	7	17
Ctenotus olympicus	Saltbush Ctenotus	2.26	22	2	5	26
Pogona vitticeps	Central Bearded Dragon	1.90	22	2	8	31
Diplodactylus stenodactylus	Sandplain Gecko	1.73	11	1	2	3
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake	1.67	11	1	4	4
Demansia psammophis	Yellow-faced Whipsnake	1.48	11	1	5	7
Lerista muelleri	Dwarf Three-toed Slider	1.45	22	2	5	38
Gehyra variegata	Tree Dtella	1.29	44	4	9	101
Ctenotus orientalis	Spotted Ctenotus	1.04	11	1	5	14
Varanus gouldii	Sand Goanna	0.91	11	1	9	16
Menetia greyii	Dwarf Skink	0.66	22	2	8	50
Lerista punctatovittata	Spotted Slider	0.60	11	1	5	21
Tiliqua rugosa	Sleepy Lizard	0.15	33	3	9	88

Figure 177. The Red-barred Dragon *Ctenophorus vadnappa* occurs in the driest parts of the Flinders Ranges and rocky hills in the southern Lake Eyre Basin (*Photo: AC Robinson*).

11. North-west rock ridge top assemblage

Number of sites: 4
Number of species: 8
Average number species per site: 3.8 Max: 6 Min: 3



A north-west variation on group 10 which is restricted to hill crests and ridges. The presence of species that are restricted to the north west make this group distinctive. These include the Purple Dtella and the Central Striped Skink. Most of the sites are low open woodland with shrub understorey on silt clay loam to loam soils.

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Egernia stokesii	Gidgee Skink	27.62	100	4.00	5	14.47
Ctenotus robustus	Eastern Striped Skink	16.11	75	3.00	8	80.53
Gehyra purpurascens	Purple Dtella	13.92	50	2.00	3	5.60
Ctenotus saxatilis	Centralian Striped Skink	6.74	25	1.00	3	6.04
Varanus gouldii	Sand Goanna	6.06	25	1.00	9	16.37
Ctenophorus vadnappa	Red-barred Dragon	4.61	25	1.00	4	38.32
Ctenophorus decresii	Tawny Dragon	3.77	25	1.00	5	51.13
Tiliqua rugosa	Sleepy Lizard	1.32	25	1.00	9	88.25

Figure 178. The Gidgee Skink *Egernia stokesii* is well suited to the rock-piles of the Flinders (*Photo: S Doyle*).

12. Stony plains chenopod shrub assemblage.

Number of sites: 21
Number of species: 21
Average number species per site: 4.3 Max: 7 Min: 3

This assemblage of the plains, stony plains and rises surrounds the northern Flinders and is common in the Stony Plains to the north. The clay to sandy clay loam soils mostly support chenopod low open shrublands or tussock grassland. Indicator species include stony plain specialists such as the Short-legged Ctenotus, Tessellated Gecko and Smooth-snouted Earless-Dragon. This group is allied to the stony deserts groups 17 and 18 (Brandle and Hutchinson 1998).

SPECIES	Common name	Indicator value	% Frequency	Frequency	# Groups	# Sites in all groups
Tympanocryptis tetraporophora	Eyrean Earless Dragon	15.99	76	15	6	36
Ctenotus strauchii	Short-legged Ctenotus	13.89	62	13	4	17
Diplodactylus byrnei	Pink-blotched Gecko	13.12	62	13	6	28
Diplodactylus tessellatus	Tessellated Gecko	7.09	33	6	5	13
Ctenotus olympicus	Saltbush Ctenotus	4.09	24	5	5	26
Menetia greyii	Dwarf Skink	3.70	29	6	8	50
Rhynchoedura ornata	Beaked Gecko	2.12	14	2	4	19
Tympanocryptis intima	Smooth-snouted Earless Dragon	0.96	5	1	3	3
Lerista labialis	Eastern Two-toed Slider	0.84	5	1	4	5
Ctenotus leonhardii	Common Desert Ctenotus	0.82	5	1	5	5
Demansia psammophis	Yellow-faced Whipsnake	0.70	5	1	5	7
Nephrurus milii	Barking Gecko	0.63	10	2	5	27
Ctenotus schomburgkii	Sandplain Ctenotus	0.32	5	1	4	13
Varanus gouldii	Sand Goanna	0.13	5	1	9	16
Eremiascincus richardsonii	Broad-banded Sandswimmer	0.02	5	1	7	17

Figure 179. The Pink-blotched Gecko *Diplodactylus byrnei* was the most common reptile in the Leigh Creek area (*Photo: AC Robinson*).

FROGS

Robert Brandle[1]

INTRODUCTION

Ten species of frog have been documented for the greater Flinders Ranges region (Hutchinson and Tyler 1996). A review of the distribution of the 401 frogs specimens recorded on the South Australian Museum database indicates that nine of these have been recorded in the study area (Figure 180). The Water-holding Frog *Cyclorana platycephala* was excluded as it has only been recorded at Farina on the northern boundary of the study area by GC Gregory in 1967. Two of the eight species belong to the Hylidae or tree-frog family and the rest to the Leptodactylidae, which within the ranges are all ground or water based species.

Frog data is not collected very systematically at survey sites because of the behaviour or restricted habitat of most frog species. Many, such as the tree-frogs and burrowing frogs are only active following suitable rainfall and most of the others are restricted to aquatic situations and may only be active when conditions are suitable. Whilst pitfall trapping, spotlighting and herpetological searching techniques are applied at all sites, frogs may remain undetected during dry conditions, even in suitable habitat. However the survey has contributed significantly to the knowledge of frog distribution within the study area.

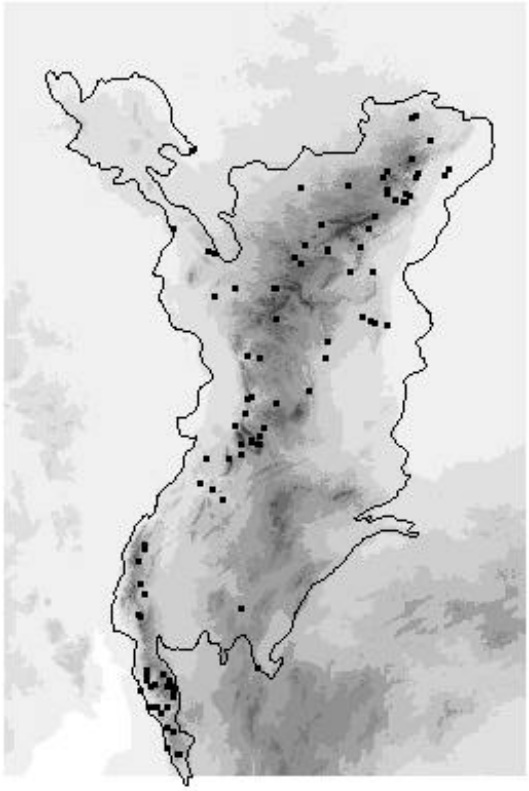


Figure 180. Localities from which 401 frog specimens have been collected for the South Australian Museum (includes 43 collected during the vertebrate survey since December 1997).

Figure 180. Red Tree-frogs at their southern most known locality in Brachina Gorge (*Photo: PD Canty*).

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

RESULTS

Eight of the nine frog species known for the study area were recorded during the survey (Table 43). The ninth, the Meeowing Frog *Neobatrachus pictus*, was recorded opportunistically for the Mount Brown Survey in 1995. Only three species were recorded at more than one site. To some extent this reflects the intensity of sampling in the northern region where springs and waterholes favoured by these species were targeted for sampling. Other species with distributions in the northern Flinders, such as the Brown Toadlet *Pseudophryne bibroni*, were restricted to the wetter higher habitats such as on the Mawson Plateau and in the Creeks of the Gammon Ranges (Arcoona Ck, P Bird pers comm), or live in other habitats, such as the Central Trilling Frog *Neobatrachus centralis* which prefers to burrow in the open plains. Where present all species can be abundant given suitable conditions. Hundreds of Streambank Froglets and tens of Red Tree-frogs were observed and heard around pools in a gorge near Yudnamutana Hill in the northern Flinders. The survey results are not an accurate indicator of relative frog abundance because of the variability in sampling dates and climatic conditions, and minimal sampling effort in the central (1 site) and southern Flinders (3 sites) compared with twelve sites in the north. The best guide to which species are common or rare are the records of the South Australian Museum (Table 43). On the whole, the South Australian Museum collection reflects the trends in the survey data with the exception that some southern species are much better represented.

Interesting records resulting from the survey include the collection of the Brown Toadlet *Pseudophryne bibroni* from the Mawson Plateau. This is a significant extension in range from the next nearest confirmed locality south of Mount Hack, 160km to the south-south-west. P Bird (pers comm) has also recorded the species during a Scientific Expedition Group trip between these two localities, in the Arcoona Creek of the Gammon Ranges National Park.

The collection of the Bull Frog *Limnodynastes dumerili* at Mambray Creek represents the most northern Museum record for this species. The most southerly records for the Red Tree-frog at Brachina Gorge were reconfirmed by opportunistic sighting in October 1999 (P Canty photographs) and October 2000.

Table 43. Frog species, the number of survey sites in which they were recorded and the number of animals held in the SA Museum spirit collection.

FAMILY	SPECIES	COMMON NAME	# Sites	#Records in the SA Museum
HYLIDAE	*Litoria ewingi*	Brown Tree Frog	1 (heard)	3
	Litoria rubella	Red Tree Frog	7 (14)	42
LEPTODACTYLIDAE	*Crinia riparia*	Streambank Froglet	9 (36 + 100's)	175
	Crinia signifera	Common Froglet	1 (2)	29
	Limnodynastes dumerili	Bull Frog	1 (1)	1
	Limnodynastes tasmaniensis	Spotted Grass Frog	7 (33)	91
	Neobatrachus centralis	Trilling Frog	1 (1)	6
	Neobatrachus pictus	Meeowing Frog	0	16
	Pseudophryne bibroni	Brown Toadlet	1 (2)	37

BIOGEOGRAPHY

The fauna is relatively diverse for South Australia as a result of the position of the ranges across bio-climatic zones. Both Eyrean (northern arid) and Bassian (southern temperate) species (Hutchinson and Tyler 1996) are present. Seven species are known for the southern Flinders, five for the Central Flinders and six for the Northern Flinders. Three Bassian species, the Common Froglet *Crinia signifera*, Bull Frog *Limnodynastes dumerilii* and Brown Tree-frog *Litoria ewingii* reach their northern limits in the southern Flinders. Two Eyrean species that have not been recorded in the southern Flinders are the red Tree-frog *Litoria rubella*, which reaches its southern limits in Brachina Creek in the Central Flinders north of Wilpena Pound (Robinson *et al.* 2000), and the Central Trilling Frog *Neobatrachus centralis*. This species was peripheral to the ranges and is distributed south east of the southern Flinders in the more arid Olary Spur and to the west on the coastal plain. In the central and northern region it has only been collected from the plains east of the ranges. One species, the Streambank Froglet is endemic to the Flinders Ranges.

Biological Survey of the Flinders Ranges

MACRO INSECT FAUNA

L. Queale[1]

INTRODUCTION

The insects of the Flinders Ranges occur in a wide range of habitats from plains to high mountain ridges. Many species are adapted to arid zone existence, while waterholes provide places for water beetles and dragonflies (Mincham 1980). Discussion of invertebrates of the Flinders Ranges have been included in a few general natural history publications (Corbett 1969, 1980, Davies *et al.* 1996). The discussion in this chapter reports on the results of the systematic survey of invertebrates.

At most vertebrate sites, micropitfalls were installed and invertebrates were collected from these as well as the larger vertebrate pitfall lines. This report is limited to the larger insects which have been pinned and incorporated in the Entomological collection at the S.A.Museum. The tiny specimens (< 6mm) remain in alcohol and are not sorted to genus as the taxonomy is often not clear. At many sites, few insects were collected (1-3). Others yielded a maximum of 19 species, which comprises the most diverse collection. The wide variation in numbers and diversity is due to a variety of factors including:

- phases of the moon;
- weather, as when conditions are cool or windy, insects are usually inactive;
- the absence of invertebrate specialists yields collections of a much smaller variety of specimens or;
- vertebrates in the pits may eat the invertebrates captured.

RESULTS

More than 168 species of insect from 10 orders and 48 families were collected during the survey. Orders yielding more than 100 specimens are Blattodea (cockroaches), Orthoptera (grasshoppers) and Coleoptera (beetles), with Hemiptera (sucking bugs) yielding 69 specimens. Species of the three main orders spend much of their time on the ground and are easily caught in pit traps or by hand (eg grasshoppers). Ants are excluded from this list. Other invertebrate orders do not yield high numbers because they contain few species, are usually very small species or spend more time off the ground (are good fliers) eg Diptera (flies), Lepidoptera (butterflies and moths) and some hymenoptera (wasps and bees).

- The families (by Order) yielding high numbers of genera and specimens (>9) are:
- Collembola: springtails were collected in large numbers at most sites as they abound in leaf litter;
- Blattodea: Blaberidae and Blattidae (both cockroaches);
- Orthoptera: Gryllidae (crickets), Acrididae (short-horned grasshoppers) and Gryllacrididae (raspy or tree crickets);
- Hemiptera: Notonectidae (water bugs), Pentatomidae (shield bugs) and Reduvidae (assassin bugs)
- Coleoptera: Scarabidae, Tenebrionidae, Curculionidae (weevils) and Carabidae (ground beetles).
- Hymenoptera: Ichneumonidae (parasitic wasps).

Noteworthy collections included:

- One scarab: *Anoplognathus flindersensis*, only the second specimen in the South Australian Museum collection.
- Seven Ithonidae 'moth lacewings', a rarely collected family of Neuropterans (lacewings), were collected at site site 104FLI00401 in the *Eucalyptus porosa* mallee common in the basin of Wilpena Pound.
- Six Endacusta 'long-legged crickets' at site 104LOV00601 amongst an *Acacia rigens* shrubland on shale valley slopes.
- Ten scarabs like the genus *Heteronyx* and five *Chrysopa* 'green lacewings' at site 104MAW00101 on the granitic Mawson Plateau.

Some genera predominate, eg *Netelia* (Ichneumonidae, Hymenoptera), *Lepidogryllus* (Gryllidae, Orthoptera), *Goniaea* (Acrididae, Orthoptera) and *Poecilometris* (Pentotmidae, Hemiptera).

Comments on site variation:
The site showing the greatest diversity was 104MAW00101 (near a creek line) with 19 species. This site on the Mawson Plateau was more intensively surveyed than other sites by invertebrate biologists who camped at the site for several days. Other sites with diverse insect fauna include: 104LOV006 (an *Acacia rigens* shrubland in the central Flinders); 104NUD003 (an *Acacia rigens* shrubland in the northern Flinders); 104PAT001 (a *Cymbopogon ambiguus* tussock grassland in the northern Flinders); 104TEL005 (a Sugar Gum *Eucalyptus cladocalyx* dominated forest in the southern Flinders). Camps, or groups of sites with

[1] Biodiversity Survey and Monitoring, National Parks and Wildlife SA, Department for Environment and Heritage, GPO Box 1047, Adelaide 5001.

diverse insect faunas included Mambray Creek (MAM) from the southern Flinders, Wilpena Pound (FLI) from the central Flinders, the Gammon Plateau (GAP), Mawson Plateau (MAW), Mulga View (MUL) and Reedy Hole (REH) from the northern Flinders.

Sites with high numbers of orthopterans were: FIT003/004/005, LOV006, MAW006, MUL006, PAT001/006 and REH002. Sites with high numbers of predatory beetles were: FLI004, MAW001/003, MUL004/006 and YOU003. FIT005 yielded cicadas. Cockroaches were present in abundance at most sites, especially at MAM001 and MAW003.

Species assemblage patterns

Site species presence/absence data for sites with more than five species was analysed using PATN and groups were examined for possible links with substrate type. However the results were difficult to interpret, as for most species site data was insufficient to enable clear conclusions to be drawn. In general the short-horned grasshoppers, cockraoches and Carabids. showed no specific association with soil type. The genera, *Choroicetes* (plague locust), *Calolampra* (common wingless cockroach), *Kapunda* (small "stink bug") and the family Gryllalcrididaae (raspy crickets) were similarly non-specific. There appeared to be some association between sandy substrates and Acridids: *Urnisa* and *Buforania*, Bostrychidae: *Bostrychicus jesuita*, and the Cicada, *Melampsalta*. Endacusta appeared to occur mostly on clay-loam substrates and the Acridid *Gonieae*, the cricket *Lepidogryllus*, and the cockroach: *Platyzosteria* on clay soils. Another cockroach *Zonioploca* and the blow fly *Calliphora dubia* were found at loamy soil sites. The Scarabs *Heteronyx* and *Hybrenia* were commonly found in a mixture of clay, loam and sand substrates.

Yen (1996,1997) suggests that soil factors are the most influential on insect diversity. Soil types give rise to the plant assemblages that may influence insect diversity. This may be particularly relevant, as we are dealing with largely ground fauna (pitfall trapping). Therefore the quality of leaf litter may also be important as a source of food and shelter. As Carabids, the predominant beetle family, are predators, plant availability may not be so important for them as their prey.

Tables of species presented against the various habitat parameters that were recorded are presented in Appendices 32-36

DISCUSSION

CONSERVATION SUMMARY

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The government conservation reserve system as it relates to the study area has been summarised in the Natural History of the Flinders Ranges (Bonython 1996). There are currently seven publicly owned and managed conservation reserves covering 2400 km^2 within the study area. The three largest are National Parks, three are Conservation Parks and the smallest results from a recent addition of the Ediacara Fossil Reserve to the area of land managed by National Parks and Wildlife SA (Figure 182). Two of the southern parks have recently expanded due to the incorporation of substantial Native Forest Reserves into Mount Remarkable National Park and Mount Brown Conservation Park. Forestry SA and SA Water still maintain substantial holdings of native vegetation along the eastern Flanks of the southern Ranges. Privately owned Heritage Agreements cover relatively small areas in the southern most parts of the study area and the Arkaroola Sanctuary in the northern Flinders is a modified Pastoral Lease that has sanctuary status and has been managed for conservation and tourism since 1968. More recently the area around Buckaringa Gorge at the northern boundary of the southern Flinders has been set up as a privately owned wildlife sanctuary. Due to ecological and economic non-viability as sheep stations, other northern pastoral properties have been destocked by the Pastoral Board under the Pastoral Land Management and Conservation Act 1990. The management of two of these have been refocussed with conservation and habitat restoration as primary goals. Warraweena has been set up as a wildlife sanctuary that provides for a variety of recreational opportunities which include hunting feral animals (refer to Telfer 2000 and White 2000). To the north east of Warraweena and adjoining the Gammon Ranges National Park, the old Nantawarrinna Pastoral Lease which is owned by the Nepabunna Aboriginal Community, has recently been declared an Indigenous Protected Area and is included on the register of the National Reserve System (Davies 1999). This is a 30 year agreement that involves the local community in the protection of the natural assets of the property. It also involves a funding commitment from the Commonwealth Government. Other areas of limited grazing potential such as the Mt Carnarvon area of Willow Springs Station adjacent to the eastern boundary of the Flinders Ranges National Park has recently been sold to the South Australian Sporting Shooters Association and will be managed for conservation purposes. An increasing reliance on tourism for economic viability is likely to result in more of the marginal hills grazing country being removed from pastoral grazing practices.

This chapter attempts to bring together the results from the various disciplines in an attempt to identify the regions of highest biological community and species diversity as well as areas containing high numbers of conservation significant species. To achieve this, the data has been reanalysed on a spatial basis and compared with existing conservation measures that have been employed in the ranges.

SPECIES RICHNESS

The species richness at sites was analysed for all taxa that were recorded systematically across the study area and is summarised in the various chapters. For plants, the habitats in the higher mountain regions were richer in species than other landforms, with the exception of some floodplain sites. This higher diversity was associated with structurally diverse woodlands and low mallee heaths on ridge tops and their associated gorges. A similar pattern was evident with birds, where woodland and mallee vegetation supported the highest diversities. For reptiles, the substrate diversity associated with rocky mountain areas also enables a greater number of species to inhabit sites in these habitats. Patterns with the mammal fauna were less clear because of the variation in trapping techniques and effort. However, for the macropods the rocky, steep hills and ranges are most likely to support three species. It is probable that at times, around waterholes in woodland areas, all four species would co-occur. With small mammals the most diverse habitats were the cracking clay plains surrounding the northern Flinders where up to four native species were caught at three sites in the Gammon Ranges National Park. The only hill sites to record three native small mammal species were on the Gammon Plateau and to the south in the Nantawarrinna Indigenous Protected Area. Both these areas supported fairly dense shrub associations. For mammals other than bats, the denser woodland areas within the Flinders were inhabited by relatively few species. Bats conversely were most commonly recorded in and around the woodlands associated with creeklines. Frog and fish species diversity is similarly tied to the maintenance of these creekline woodland environments. The most species rich sites for frogs were associated with relatively undisturbed creeks in the northern Flinders. It is likely that some creeks in the Parks of the southern Flinders would support up to five species at some locations.

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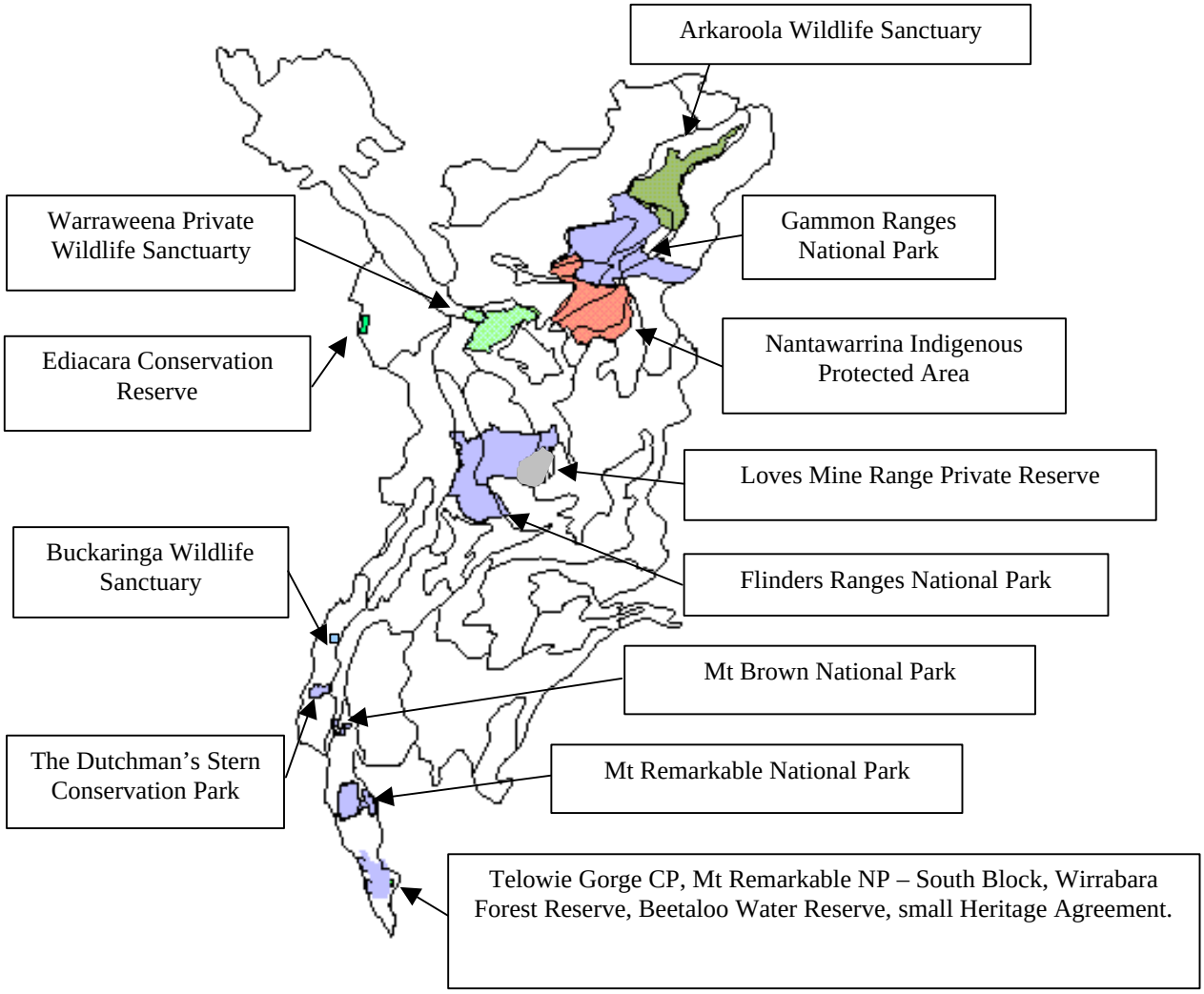

Figure 182. Public and private conservation reserves and the environmental association boundaries that define the study area.

A look at the vegetation map for the central and northern Flinders (included at the back of this report) provides an indication of the relatively limited extent of the more complex woodland groups (mapping groups 15 to 22) which hug the higher ranges and mountains or occur as fairly isolated pockets in the more outlying ranges. The pattern of drainage networks provide some structural connectivity for fauna to disperse between these patches and the main ranges.

CONSERVATION SIGNIFICANCE

Within the vegetation and vertebrate fauna chapters the species that have been rated as being of specific conservation concern as well as those considered endemic to the ranges have been discussed. The 19 plant species with the bulk of their distribution in the Flinders Ranges were found across the study area. Several species were restricted to either the north or the south whilst others were found along the length of the ranges. Most of these were associated with either the climatic refuges of the higher ranges or are associated with particular geological sequences and soil types (eg *Maireana melanocarpa* and *Eucalyptus gillii*).

The only native mammal species reliant on the Flinders for its long-term survival, the Yellow-footed Rock-wallaby, inhabits the steeper rocky hills and ranges across the study area. Two bird species can be considered as endemic to the study area. The Short-tailed Grasswren occurs in the spinifex grasslands across the study area whilst the Flinders subspecies of Chestnut-rumped Heathwren is restricted to the main range of the southern Flinders. The study area also contains the bulk of the populations for two reptile species. The Masked Rock Skink occurs along the entire length of the ranges but is restricted to the higher ranges whilst the Red-barred Dragon is widespread throughout the low rocky hills and ranges of the northern and central Flinders.

Two regions, the north eastern highland complex (Gammon Ranges and Arkaroola area) and the high western range of the southern Flinders, stand out as supporting the greatest diversity of endemic species. To determine which habitats are of higher importance to

conservation significant species, chi-squared analyses were used for conservation significant plant and bird species. Significant reptile and mammal species were not analysed using this technique because of the low number of records. Forest, woodland, tall shrubland, sedgeland and the low mallee formations that occur on ridgetops, support a disproportionately high concentration of significant plant species. Most of these habitats related to the higher ranges/mountain and drainage lines. For birds of conservation significance, forests and low mallee formations were highlighted as important areas of diversity. These were associated with gorges, footslopes and ridges within the ranges.

All groups were investigated by their distribution within the thirty environmental associations (Laut *et al.* 1977) that span the study area. Chi-squared analyses were performed on the number of significant species to the number of sites sampled in each association. To only look at the number of significant species can give an erroneous impression of the importance of an association as it may have been under-sampled and therefore many species may not have been recorded. Conversely environmental associations that are well sampled and have reached a plateau in the accumulation of significant species will be highlighted as having a low significant species per site ratio. For this reason Table 44 includes the number of sites sampled, the number of species recorded and an indication of significance from the chi-squared analysis. Conservation significant reptile species were not well sampled by the survey and are therefore not included in Table 44. Only one of the five rated species was recorded at sites within the Mt Remarkable Association.

Table 44. Summary of significant plant and vertebrate species by Environmental Associations (Laut *et al.* 1977 refer to Figure 1 page 2 for locations). Associations are ordered from south to north. Significance symbols >> = much greater than expected value (Chi-squared analysis) *p*<0.001, and > = greater than expected value *p*<0.05. Reverse symbols relate to less than expected values.

Environmental Associations			Plants			Vertebrates				
Area (sqkm)	Province Region Association	Name	# sites	# plant species	Significance	#sites	# bird species	Significance	# mammal species	Significance
1180	3.3.19	Mt Remarkable Environmental Association	201	66	>>	34	13		2	
720	6.1.1	Buckaringa Environmental Association	28	21	>>	6	6	>>	2	
1290	6.1.2	Willochra Environmental Association	45	12	>>	0	0		0	
950	6.1.3	Quorn Environmental Association	87	35	>>	26	12		0	
2460	6.1.4	Moochra Environmental Association	73	19	>>	0	0		0	
500	6.1.5	Walloway Environmental Association	9	2		0	0		0	
590	6.1.6	Cradock Environmental Association	8	1		0	0		0	
1380	6.1.7	Worumba Environmental Association	40	11	>>	9	5		0	
550	6.1.8	Buckalowie Environmental Association	9	1		0	0		0	
410	6.1.10	Orama Environmental Association	3	1		1	1		0	
170	6.1.9	Barrata Environmental Association	5	1		0	0		0	
1690	6.1.11	Brachina Environmental Association	68	3		0	0		0	
370	6.1.12	Merna Mora Environmental Association	12	1		0	0		0	
390	6.1.13	Arkaba Environmental Association	24	5		0	0		0	
2430	6.1.14	Oraparinna Environmental Association	112	10		6	0		0	
3070	6.1.15	Wirrealpa Environmental Association	82	4		2	0		0	
1170	6.1.16	Wilpena Environmental Association	114	23	>>	9	3		1	
350	6.1.17	Moolooloo Environmental Association	27	1		2	0		0	
1130	6.2.1	Ediacara Environmental Association	20	1		12	3		1	
1940	6.2.2	Warraweena Environmental Association	277	27		32	7		2	
350	6.2.3	Narina Environmental Association	36	3		5	4		1	
660	6.2.4	Outouie Environmental Association	87	6		4	0		0	
1990	6.2.5	Balcanoona Environmental Association	140	12		13	1		3	
330	6.2.6	Erragoona Environmental Association	43	5		2	0		0	
4350	6.2.7	Yerelina Environmental Association	554	30	<<	36	8		4	
3960	6.2.8	Willouran Environmental Association	50	1		9	2		0	
400	6.2.9	Gammon Environmental Association	51	24	>>	10	7		4	>>
940	6.2.10	Yudnamutana Environmental Association	123	16		9	5		2	
370	6.2.11	Mundawatana Environmental Association	12	4	>	3	3		0	
1000	6.2.12	Barilla Environmental Association	5	1		1	0		0	

From Table 44 it becomes obvious that for significant plants most of the environmental associations in the southern Flinders contain important areas with Mt Remarkable, Quorn and Buckaringa being the most diverse. Two associations in the central Flinders (Worumba and Wilpena) and two in the northern Flinders (Gammons and Mundawatana) stand out. Warraweena with 27 significant species from 277 sites should also be included. The Quorn association straddles the southern and central Flinders boundary with a number of sites containing significant species being in the central Flinders portion in the ranges east of Hawker. The environmental associations with the highest numbers of nationally significant plant species were: Mt Remarkable 10 and Quorn 7 in the south to central Flinders; Wilpena 5 and Warraweena 5 in the central to northern Flinders; and Yerelina 9, Yudnamutana 6 and Gammons 6 in the northern Flinders Ranges.

For birds only the under-sampled Buckaringa Association had a significantly greater diversity of conservation rated bird species. However, two of the adjoining associations (Mt Remarkable and Quorn) had relatively high numbers of species when compared with some of the better sampled associations in the north. In the central Flinders the Worumba association had the highest number of species whilst the Gammons Association stood out in the north. Regionally significant mammal species displayed inverse trends to the birds with the northern associations supporting the highest diversities. Only the Gammons Association had significantly more species than would be expected if they were randomly distributed. The Yerelina Association also supported four significant species but over a much larger area and the Balcanoona plains Association supported three.

Analysis of the five rated reptile species can only be done using the Museum records and the limited information collected for these rarer species during the survey period. The southern Flinders, particularly the Mount Remarkable Association provides the main area of habitat for two species (Kreft's Tiger Snake *Notechis ater* and the Lace Monitor *Varanus varius*) as well as being a region where the Flinders Worm Lizard *Aprasia pseudopulchella* and the Carpet Python *Morelia spilota* are consistently sighted. Both of these species are less frequently reported from the central and northern Flinders. The fifth species (Common Bandy-bandy *Vermicella annulata*) has only been recorded from the central Flinders in the Wilpena Association.

These analyses, while still relatively simplistic, provide a guide to the location of important regions from a general conservation perspective, but only for those parts of the study area that were sampled. The southern regions support the highest number of conservation significant plant species largely because more species are rated in the heavily cleared agricultural areas and sites are concentrated within the remnant areas. A similar argument can be extended for the trend with birds which mirror the vegetation. The opposite is apparent for mammals as most of the species that were once present in the south have now been lost or are extremely rare, whereas some are still present in the continuous matrix of "natural" habitats characteristic of the northern Flinders.

BIOGEOGRAPHIC SIGNIFICANCE

From a biogeographic perspective the Flinders Ranges are of most significance in providing a chain of climatic refuges from the more arid regions that surround them. For the vegetation, mammals, birds, reptiles and frogs this has enabled species that occur in the more temperate southern regions to extend their distributions into the interior and has provided habitat for species adapted to arid ranges including several endemics. These areas are best described by the following environmental associations: Mt Remarkable 3.3.19 and Buckaringa 6.1.1 in the southern Flinders; Wilpena 6.1.16 and Worumba 6.1.7 in the central Flinders; Warraweena 6.2.2, Gammon 6.2.9 and Yudnamutana 6.2.10 in the northern Flinders.

THREATENING PROCESSES

Threatening Processes can be separated into two categories; those that happen on a habitat scale and those that happen at species level.

Habitat Scale threatening processes are those that caused the major changes to the habitats of the Flinders following European settlement of the region. These include severe overgrazing by introduced herbivores including stock, rabbits and goats; land clearance for agriculture; and over much smaller areas, open cut mining and infrastructure development; as well as large-scale catastrophic fires. All of these processes remain a threat to the biodiversity of habitats in the ranges if they are not properly evaluated and managed.

Species Scale threatening processes for plants are dominantly selective grazing by herbivores. These can be introduced or native herbivores, and operate across all forms of land tenure and management. Grazing pressure from native herbivores, such as kangaroos and euros, as well as rabbits and goats can be as damaging to specific plant populations as normal stocking levels on pastoral runs. For the fauna that was not pushed to extinction by competition from introduced herbivores, the main threat comes from introduced carnivores which have the capacity

to reduce and fragment populations to unsustainable levels. The main culprit appears to be the fox, particularly in the case of Yellow-footed Rock-wallabies, but cats are also likely to play an important role.

Another potentially threatening process affecting rare species populations are collectors. This applies particularly to species with limited populations such as Orchids. Tourists can also present problems, particularly where species are restricted to limited habitats such as wetlands. These types of areas are often subject to high visitation and the associated chronic disturbance this involves when not managed effectively. Major programs such as Operation Bounceback, the Aroona Catchment Management Project, The Pastoral Lease Assessment Program, The Heritage Agreement Scheme, Private Sanctuaries and National Parks Management are beginning to address some of the threats to the biodiversity in the region. However, the emphasis needs to be put into continuing and expanding appropriate management of threats to habitats and species populations to ensure their survival.

ADEQUACY OF THE RESERVE SYSTEM

The National Parks and Wildlife SA reserve system covers 6.2% (2312 km^2) of the 37090 km^2 study area and is represented in 14 of 30 environmental associations. Despite this small percentage, from the point of view of protecting scenic and high biodiversity value habitats it seems to be reasonably well targeted. However, these habitats are also largely unaffected by other land uses in non-park situations and the main threats to the biodiversity of these areas is similar regardless of tenure (feral herbivores and predators which need to be managed in both situations). Of the 66 floristic groups identified for the study area, 17 are unlikely to occur in the parks system. Of these, only nine are significantly distributed within the study area and would likely benefit from conservation oriented management (Table 45). Most of these floristic groups are associated with lower habitats that until recently have been more highly valued by the pastoral industry, or are limited in extent. The fewer conservation significant species that occur in these habitats are potentially subject to a greater range of threatening processes. The potential for local extinction of species in these habitats is also greater compared with those occurring in the steeper ranges habitats. It is therefore important that representative examples of these lower profile habitats are also managed for conservation. The inclusion of the Mitchell Grass plains and other lowland habitats in the purchase of Balcanoona Station for the Gammon Ranges National Park in 1979 was as important for biodiversity conservation as the reservation of the scenic parts of the ranges which were the sole focus of the acquisition at that time.

New conservation management initiatives in the Flinders Ranges should therefore specifically target the remaining unconserved low altitude floristic groups as well as conservation significant populations that are identified as requiring management actions.

Table 45. Floristic groups with poor representation in existing conservation reserves.

Group 4. *Casuarina pauper* Black Oak / *Alectryon oleifolius* Bullock Bush Very low open woodland with *Acacia victoriae* Elegant Wattle over *Maireana pyramidata* Black Bluebush / *Rhagodia spinescens* Spiny Saltbush/ *Enchylaena tomentosa* Ruby Saltbush Low shrubland. (eastern low hills)
Group13. *Cymbopogon ambiguus* Lemon-grass with *Senecio magnificus* Showy Groundsel +/- *Callitris glaucophylla* White Cypress-pine/ *Melaleuca lanceolata* Dryland Tea-tree/ Mallee spp. overstorey.(north west, in Warraweena)
Group 33. *Maireana pyramidata* Black Bluebush/ *Enchylaena tomentosa* Ruby Saltbush / *Rhagodia spinescens* Spiny Saltbush Low shrubland +/- emergent *Acacia victoriae* Elegant Wattle. (western outwash plains)
Group 37. *Boerhavia dominii* Tar-vine/ *Danthonia caespitosa* Common Wallaby-grass herbland/grassland +/- a *Muehlenbeckia florulenta* Lignum and/or *Eragrostis australasica* Cane-grass overstorey. (Hawker Lagoon)
Group 38. *Nitraria billardierei* Nitre-bush +/- *Atriplex vesicaria* Bladder Saltbush/ *Rhagodia spinescens* Spiny Saltbush Low shrubland. (Willochra Plain,)
Group 45. *Danthonia caespitosa* Common Wallaby-grass/ *Eriochiton sclerolaenoides* Woolly-fruit Bluebush Tussock grassland/Low shrubland +/- *Maireana sedifolia* Pearl Bluebush low shrub overstorey. (valley flats of southern Flinders)
Group 46. *Stipa nitida* Balcarra Spear-grass Tussock grassland +/- *Myoporum platycarpum* False Sandlewood / *Eucalyptus socialis* Beaked Red Mallee. (south eastern Flinders)
Group 53. *Sclerolaena brachyptera* Short-wing Bindyi / *Sclerolaena divaricata* Tangled Bindyi Dwarf-shrubland. (margins of the ranges)
Group 58. *Eucalyptus intertexta* Gum-barked Coolibah / *Callitris glaucophylla* White Cypress-pine Open woodland over *Acacia rivalis* Silver Wattle/ *Senna artemisioides* Desert Senna with *Dodonaea lobulata* Lobed-leaf Hop-bush and *Sclerolaena patenticuspis* Spear-fruit Bindyi / *Danthonia caespitosa* Common Wallaby-grass in the understorey. (mostly Angepena in northern Flinders, examples of group conserved in Flinders Ranges National Park)

SUMMARY

The Flinders Ranges cover an uplifted area of approximately 37000km^2 from Crystal Brook to Mount Hopeless, a distance of about 400km. The complex geology and topography has given rise to a high diversity of habitats, plants and animals, due partly to the influence of the higher ranges on the local rainfall which progresses from over 600mm in the south to less than 200mm in the north. For the Biological Survey of the Flinders Ranges, the study area boundaries were defined by Environmental Province 6 (Flinders Ranges) and Environmental Association 3.3.19 (Mt Remarkable) of Environmental Province 3 (Mt Lofty Block), covering a total of 37,090 km^2.

The primary aim of the Biological Survey of the Flinders Ranges was to determine for the Flinders Ranges region (from north of Crystal Brook in the south to Mt Hopeless in the north) the diversity, distribution and extent of biological communities for vegetation and vertebrate fauna. This information enables the investigation of:

- species richness within different habitats
- species distributions
- species habitat requirements within the ranges
- the conservation status of species and communities.

The secondary aim was to map the structural vegetation communities across the study area.

These aims were achieved through two primary methods:

- The collation and analysis of existing data - 23 different surveys contributed to 3271 vegetation sites occurring in and around the ranges as shown in Figure 40 (page 46). Of these, 2732 sites from 17 surveys fell within the Flinders Ranges study area. This vegetation information was analysed for floristic communities using PATN exploratory software. In contrast, general vertebrate information was scant for the high range country and biological survey sites were restricted to a few scattered regions on the margins of the study area.
- The recently completed vertebrate survey sampled 272 vegetation sites of which 204 were sampled for fauna. (this includes 72 sites from the North-West Flinders Ranges Survey, 183 from the Flinders Ranges Survey and 19 from the Warraweena Survey). Earlier surveys contributed to the other sites which are detailed in the methods.
- Mapping utilised vegetation site data, satellite imagery, aerial photography and existing digital line work from the Flinders Ranges Management Review and other surveys abutting the study area. This led to complete vegetation coverage for the Copley and Parachilna 1:250,000 map sheets at a scale of 1:100,000. The mapping was edge-matched with vegetation mapping from the Stony Deserts in the north and the North Olary Plains in the east. Mapping of the Orroroo and Burra 1:250,000 map sheets is in progress by the Geographic Analysis and Research Unit of the Department of Transport, Urban Planning and Arts as part of their agricultural region vegetation mapping program.

Figure 183. The eastern wall of Wilpena Pound (*Photo: PD Canty*).

RESULTS

Vegetation

The 2732 sites within the study area contained 1361 plant taxa. The vegetation sampling associated with the vertebrate surveys recorded 726 distinct taxa from 279 sites and added 69 new taxa to the 1315 already in the Biological Survey Database.

The species common to the most sites were the Silver Mulla Mulla *Ptilotus obovatus* (34% of sites), Ruby Saltbush *Enchylaena tomentosa* (31% of sites) and Elegant or Prickly Wattle *Acacia victoriae* (27%). This does not necessarily make them the most abundant species in the ranges or those with the greatest canopy cover. Most of the species that characterise the vegetation of the Flinders were present at more than 10% of sites, eg White Cypress Pine *Callitris glaucophylla*, Beaked Red-mallee *Eucalyptus socialis*, Spinifex *Triodia* spp. and Blackoak *Casuarina pauper*.

Notable common species that occur at less than 10% of sites reflect the extent of their favoured habitat. Apparently common features, such as high steep ridges and major creeklines, cover a relatively small percentage of the study area, and this is reflected in the sampling effort (Mountains 6% and Drainage Channels 4%). Thus apparently locally common or dominant species, such as the Gum-barked Coolabah *Eucalyptus intertexta* on the northern ridges, and Sugar Gums *Eucalyptus cladocalyx* or South Australian Blue Gum *Eucalyptus leucoxylon* on the southern ranges, are relatively restricted in the area they cover. The River Red Gum *Eucalyptus camaldulensis* is the classic example, being restricted to creeklines, which cover relatively small areas.

Mammals

The pre-European mammals of the Flinders Ranges are well documented, mostly through the efforts of Graham Medlin and Dorothy Tunbridge with the publication of 'The Story of the Flinders Ranges Mammals'. Approximately 50 species were known to inhabit the region. In contrast the South Australian Museum collection only held 25 species of which 4 are known to be extinct. Most of these records were from the margins of the ranges or concentrated in three National Parks, with the exception of macropods and bats.

The current surveys recorded 26 native species which includes seven that were previously unknown within the ranges: two carnivorous marsupials, the Little Long-tailed Dunnart *Sminthopsis dolichura*, and the Common Dunnart *S. murina*; four species of native rodent, Bolam's Mouse *Pseudomys bolami*, the Sandy Inland Mouse *P. hermansburgensis*, the Desert Mouse *Pseudomys desertor* and Forrest's Mouse *Leggadina forresti*; and one bat species, the King River Bat *Vespadelus regulus*. Of these the location of the Desert Mouse in heathy woodland vegetation of the southern Flinders represents the most significant and perplexing range extension.

The most commonly encountered species were the Euro *Macropus robustus* and the Red Kangaroo *M. rufus*. Also species such as the Narrow Nosed Planigale *Planigale tenuirostris* and the Echidna *Tachyglossus aculeatus* are now known to be widespread within the Ranges.

Birds

Bird species are better documented than other vertebrates (~200 known from the region), though authors in natural history texts indicate that there is little published material on which to base their regional overviews. However the Atlas of Australian Birds allows for a more comprehensive analysis of distribution than is available for other groups.

One hundred and forty species were recorded at survey sites and more than 30 other species (mostly waterbirds) were also recorded away from sites. The 15 most commonly encountered species were : Australian Raven, Spiny-cheeked Honeyeater, Inland Thornbill, Red-capped Robin, Galah, Rufous Whistler, Australian Magpie, Weebill, Striated Pardalote, Grey Shrike-thrush, Ring-necked Parrot, White-browed Babbler, Variegated Wren, Grey Butcherbird, and Singing Honeyeater.

One species, the Striated Thornbill *Acanthiza lineata*, not previously recorded in the ranges was found on a ridge near Alligator Gorge in the southern Flinders. Two southern distributed species were found in the northern ranges on the 1000m high Gammon Plateau, the White-eared Honeyeater *Lichenostomus leucotis* and Tawny-crowned Honeyeater *Gliciphila melanops*.

Reptiles

Eighty-eight reptile species were known for the region prior to the surveys (SA Museum specimens). The surveys recorded 74 reptiles species at sites, as well as other species such as the Common Bluetongue *Tiliqua scincoides* away from sites. The most commonly detected species were: Common Snake-eye *Morethia boulengeri*, Bynoe's Gecko *Heteronotia binoei*, Tree Dtella *Gehyra variegata*, Desert Wall Skink *Cryptoblepharus plagiocephalus*, Eastern Striped Skink *Ctenotus robustus*, Sleepy Lizard *Tiliqua rugosa*, Eastern Stone Gecko *Diplodactylus vittatus*, Southern Rock Dtella *Gehyra* sp."2n=44".

The only species not previously recorded within the region was the Desert Skink *Egernia inornata*, which was found at Warraweena – well away from the nearest dunefield where they more commonly occur. Significant extensions to the known range of the Velvet Gecko *Odeura marmorata* in the northern Flinders and the Three-toed Earless Skink *Hemiergis decresiensis* on

the rim of Wilpena Pound also resulted from the survey.

Frogs
Eight species of frogs are known to occur in the Flinders Ranges. Seven of these were captured and one was heard calling. The most common was the endemic Streambank Froglet *Crinia riparia* which occurs along the length and breadth of the ranges in suitable streams and springs. This was followed by the Marbled Frog *Limnodynastes tasmaniensis* which is reliant on permanent waterholes or springs, and the Red Tree Frog *Litoria rubella* which lives in River Red Gum creeklines as far south as Brachina Gorge.

Scattered records of the Brown Toadlet *Pseudophryne bibronii* in drainage lines on the wetter highest ranges, as far north as the Mawson Plateau, substantially extended the known range of this species. The other wetter region species (Brown Froglet *Crinia signifera*, Bull Frog *Limnodynastes dumerili*) were only recorded as far north as Mambray Creek, and the Brown Tree Frog *Litoria ewingii* was heard calling near the headwaters of Telowie Gorge.

SPECIES COMMUNITIES

Plants
Five-hundred and thirty-five of the 1361 taxa recorded at sites were considered to be perennial or long lived readily detectable ephemerals. These were selected for floristic analyses. PATN, an exploratory analysis program, was used to classify 3079 sites into 66 groups based on the similarity of their floristic composition.

These 66 floristic groups were discussed as six general clusters that relate to broad environmental parameters. Each cluster can be split into alliances of groups that are often recognisable by a common suite of dominant species or are characteristic of a number of environmental parameters, and therefore share species that typify these floristic groups. It should be noted that vegetation communities are present in the landscape as a continuum of various associations with one grading into another. A brief summary is detailed below:

Cluster 1: 5 alliances, 18 groups, 1164 sites (38%).
Groups 1 to 18 cover the majority of the low, rocky and shale hills and range communities of the northern Flinders. Includes Mulga and other *Acacia* very low woodlands and tall shrublands which are present over a variety of shrubs such as Silver Mulla Mulla, Rock Sida, Hop Bush and Bluebush, and the Native Pine woodlands with open grassy undertorey.

Cluster 2: 5 alliances, 20 groups, 800 sites (26%).
Groups 19 to 38 describe the vegetation associations of the dunefields, sandplains, alluvial plains and rises that surround the Flinders. Includes the low chenopod shrublands of the rises and plains, the open Elegant Wattle tall shrublands with grassy or chenopod understorey and the Umbrella Wattle and Senna shrublands of the sand country.

Cluster 3: 3 alliances, 14 groups, 369 sites (12%).
Groups 39 to 52 describe the drier mallee and grassy shrub to woodland habitats of the lower ranges, hills and plains throughout the Flinders.

Cluster 4: 1 alliance, 2 groups, 82 sites (3%).
Groups 53 to 54 describe the distinctive vegetation associations restricted to clay plains that surround the Flinders. The Bindyi sub-shrublands and Mitchell Grass grasslands are largely devoid of trees and shrubs and are characteristic vegetation communities in the Stony Deserts to the north.

Cluster 5: 2 alliance, 5 groups, 240 sites (8%).
Groups 55 to 59 describe the vegetation associations typical of the hills, mountains and elevated plains of the central spine of the northern Flinders and western flank of the main range in the southern Flinders. Includes the low mallee heaths of the highest ridges, the eucalypt and pine woodlands over shrubby Curry and Hopbush dominated understorey.

Cluster 6: 2 alliances, 10 groups, 414 sites (13%).
Groups 60 to 69 describe the grassy woodlands, forests and hummock grasslands which characterise the most southerly section of the southern Flinders.

Mammals
For the larger native mammals the rocky hills provide habitat for the Euro *Macropus robustus* and in a more restricted sense Yellow-footed Rock Wallaby *Petrogale xanthopus* along the length of the ranges. These habitats also appear to be important for Echidnas *Tachyglossus aculeatus*, though signs of this species were found across all habitats. The open plains habitats are dominated by Red Kangaroos *Macropus rufus* which penetrate into the ranges where the vegetative cover remains sparse. The Grey Kangaroo *M. fuliginosus* was most common in the southern Flinders and penetrated into the northern ranges where woodlands were present.

Analyses of small ground dwelling mammals identified ten assemblages that broadly cluster into five general habitat categories. The first assemblage was characterised by the Fat-tailed Dunnart *Sminthopsis crassicaudata* where it inhabited open chenopod shrub and herblands in the low lands and open shrub and woodland hill habitats in the northern and central Flinders (Vegetation cluster 2). Four diverse assemblages represented the woodland and forest

communities. Blackoak woodlands over chenopods in the north supported an assemblage dominated by Bolam's Mouse *Pseudomys bolami* (Vegetation cluster 3). Higher rainfall mallee habitats in the central and northern Flinders supported a rare assemblage characterised by the Common Dunnart *S. murina* (Vegetation cluster 5). Heathy woodlands and forests on the southern most ranges supported an assemblage characterised by the Desert Mouse *Pseudomys desertor* and another that was characterised by the introduced Black Rat *Rattus rattus* (Vegetation cluster 6). The Narrow-nosed Planigale *Planigale tenuirostris* defined an assemblage found in a variety of open to dense high range woodlands (Vegetation clusters 5 and 6). The Mitchell-grass clay plains (Vegetation cluster 4) support a diverse and distinctive mammal assemblage dominated by Forrest's Mouse *Leggadina forresti*, the Stripe-faced Dunnart *S. macroura* and the Fat-tailed Dunnart. A Stripe-faced Dunnart and Fat-tailed Dunnart assemblage inhabited the low hills and ranges supporting low shrublands and Tall shrublands with dense low shrub understorey in the northern and central Flinders (Vegetation cluster 1). A Stripe-faced Dunnart dominated assemblage was widespread in a variety of landforms with shrubland and hummock grasslands from north of the northern southern Flinders (Vegetation clusters 1, 2 and 5). The introduced House Mouse *Mus musculus* was often the only species present in a wide variety of disturbed habitats such as creeklines.

Birds

The analysis of bird assemblages at sites indicated two broad clusters, those associated with woodlands or tall shrublands (193 sites), and those characteristic of low shrublands and grasslands (71 sites). The large woodland group is made up of six assemblages. Open woodlands of the northern creeks and low hills were characterised by Magpies *Gymnohrina tibicen*, Yellow-throated Miners *Manorina flavigula*, whilst the denser more extensive woodlands of the valleys and slopes of the northern and central Flinders hills and mountains were characterised by the Red-capped Robin *Petroica goodenovii*, Rufous Whistler *Pachycephala rufiventris*, Inland Thornbill *Acanthiza apicalis*, Grey Butcherbird *Cracticus torquatus*, and Spiny-cheeked Honeyeater *Acanthagenys rufogularis*. Woodlands with low chenopod shrub understorey on the lower hills and creeklines fringing the northern ranges supported an assemblage characterised by the Black-faced Cuckoo-shrike *Coracina novaehollandiae*, Red-backed Kingfisher *Todiramphus phyrropygia* and Spiny-cheeked Honeyeater. The southern mountain woodlands and forests supported a distinctive assemblage characterised by Crimson Rosella *Platycercus elegans*, Yellow-faced Honeyeater *Lichenostomus chrysops*, Silvereye *Zosterops lateralis*, Grey Fantail *Rhipidura albiscapa* and Red Wattlebird *Anthochaera carunculata*. On the plains and rises on the margins of the study area the low to tall shrub habitats were characterised by Chirruping Wedgebill *Psophodes cristatus*, White-winged Fairy-wren *Malurus leucopterus*, Singing Honeyeater *Lichenostomus penicillatus*, Black-faced Woodswallow *Artamus cinereus*, Crested Pigeon *Ocyphaps lophotes* and Zebra Finch *Taeniopygia guttata*. The more open low shrub and grassy habitats were characterised by Richard's Pipit *Anthus novaezealandiae*, Australian Kestrel *Falco cenchroides*, and White-winged Fairy-wren and Southern Whiteface *Aphelocephala leucopsis*.

Reptiles

Reptile assemblages separated clearly between mallee to woodland habitats of the main ranges (177 sites) and the more arid open shrublands and grasslands of the lower hills and plains (69 sites). Mountain slopes and high rocky ridges supporting low woodland or mallee over denser shrub and hummock grasslands were characterised by the Tawny Dragon *Ctenophorus decresii*, Eastern Striped Skink *Ctenotus robustus*, Masked Rock Skink *Egernia margaretae* and Common Snake-eye *Morethia boulengeri*. The lower valley open shrub and mallee habitats along the main range were characterised by the Dwarf Skink *Menetia greyii*, Sleepy Lizard *Tiliqua rugosa* and Southern Rock Dtella *Gehyra* sp."2n=44". Woodlands of the lower hills and creeks were characterised by Tree Dtella *Gehyra variegata*, Bynoes Gecko *Heteronotia binoei*, Common Snake-eye, Dwarf Three-toed Slider *Lerista muelleri* and Red-barred Dragon *Ctenophorus vadnappa*. The dense woodlands and forests of the southern ranges supported a distinctive assemblage characterised by temperate species such as Bougainville's Skink *Lerista bougainvillii*, Three-toed Earless Skink *Heniergis decresiensis*, Marbled Gecko *Christinus marmoratus* and the Garden Skink *Lampropholis guichenoti*. The sandy habitats fringing the northern half of the study area were characterised by Sandplain Ctenotus *Ctenotus schomburgkii*, Eastern Desert Ctenotus *C. regius*, Mallee Dragon *Ctenophorus fordi* and Painted Dagon *C. pictus*. The most common assemblage of the floodouts and open low shrub plains was characterised by the Sleepy Lizard, Central Bearded Dragon *Pogona vitticeps*. Pink-blotched Gecko *Diplodactylus byrnei* and Saltbush Ctenotus *Ctenotus olympicus*. Low rocky outcrops common in the northern Flinders were characterised by Red-barred Dragons, Beaked Gecko *Rhynchoedura ornata* and Eyrean Earless Dragon *Tympanocryptis tetraporophora*. A small distinctive group on the ridgetops of the north-western ranges was characterised by the Purple Dtella *Gehyra purpurascens*, Gidgee Skink *Egernia stokesii* and Centralian Striped Skink *Ctenotus saxatilis*.

SPECIES WITH CONSERVATION RATINGS

Plants

Eighteen plant taxa are endemic to the Flinders Ranges and the adjacent ranges (Northern Lofty and Olary Spur). Some of these are locally very common, usually restricted to specific habitats, whilst others are more sparsely present and have been given specific conservation significance ratings.

Of the 1361 plant taxa recorded by the various surveys, 221 plant species have some form of conservation rating. Table 46 compares these at the three levels with the known conservation significant plants for the Flinders Ranges Region.

Table 46. Summary table of the number of species with conservation ratings sampled by: all surveys, the current surveys 98, 111 and 104, and listed for the Flinders Ranges Herbarium region (Lang and Kraehenbuehl 1997).

	Australian	South Australian	Regional - FR	Total
All Survey Efforts	29	107	211	221*
Current Survey 98, 111 & 104	15	55	113	117
SA Herbarium Flinders Region	58	201	367	337

* Some species rated at the State level are not rated within the region as it may be common within the region.

Mammals

Only one species of mammal, the Yellow-footed Rock-wallaby *Petrogale xanthopus*, has a national and state conservation rating (vulnerable). As half of the mammal fauna that was once known for the ranges are now extinct the surviving species have been assessed at the regional level on the basis of this study and other recent collections. Fifteen species were rated as being vulnerable (2), rare (7) or uncommon (6). Of immediate conservation concern are the vulnerable species which will require focussed management to ensure their long-term future. The Yellow-footed Rock-wallaby is the target of current conservation activity whilst the Brush-tailed Possum *Trichosurus vulpecula* is continuing to decline to isolated populations in the southern Flinders.

Birds

Fifteen species have a South Australian conservation rating: seven are rated as vulnerable, four as rare and four as uncommon. The only bird which is endemic to the Flinders and Gawler Ranges, the Short-tailed Grass-wren *Amytornis merrotsyi* was recorded at several new locations - the most significant being in the Black Range 50km east of Hawker. Location of the Thick-billed Grass-wren east of Blinman on the chenopod plains was also a significant record.

Reptiles

Several species are near endemic to the Flinders Ranges. These include the Red-barred Dragon *Ctenophorus vadnappa*, the Masked Rock-skink *Egernia margaretae*, the Flinders Worm Lizard *Apraisia pseudopulchella.*

Five species known to occur in the region have conservation ratings: the Flinders Worm lizard, which was recorded at sites; the Lace Monitor *Varanus varius* which was collected as a road kill near Melrose; and three species that were not collected or observed by the survey teams, the Black Tiger Snake *Notechis ater*, the Carpet Python *Morelia spilota* and the not so common Common Bandy-bandy *Vermicella annulata*.

BIOGEOGRAPHY

The main element defining biogeographic patterns in the Flinders is the influence of elevation on the climate, in particular rainfall. Southern climatic patterns are effectively moved north into the arid centre of South Australia. This influence is reflected in the average annual rainfall, vegetation and fauna assemblages throughout the higher parts of the ranges. The influence of the ranges as barrier between east and west is expressed by non-range dwelling species that occur on plains country either side of the ranges. Many of the species with eastern affinities also utilise ranges habitats. The Flinders also serve as a refuge to species that are adapted to arid rocky ranges. Species are often shared with the Gawler Ranges, Barrier Ranges and/or Central Australian Ranges. Their long isolation from each other is expressed by the recognition of distinctive subspecies.

RECOMMENDATIONS

Further Research

The Biological Survey of the Flinders Ranges was far from comprehensive, particularly in relation to the vertebrate survey. Ideally, a comprehensive survey would sample each habitat at a number of locations across its distributional range and include sampling across the seasons.

Several areas of the study area were poorly sampled or as is the case with the north eastern regions of the southern Flinders – not at all. High ridges along the main spine of the Flinders were also poorly sampled with proper vertebrate sites being restricted to the Gammon and Mawson Plateaus, Loves Mine Range, parts of Mt Remarkable National Park and Telowie Gorge Conservation Park. Some priority areas for future general survey work are (from south to north): south of the Bluff in the southern Flinders; the Ranges north of Dutchman's Stern Conservation Park; the ranges, remnant mallee, chenopod shrublands and grasslands north of Orrorroo and south of Hawker; in the central Flinders, the Bibliando region east of Hawker, the Elder Range, the rim of Wilpena Pound, the Heysen Range, ridges of the Bunkers Range and the western outwash plains. In general the northern Flinders were more heavily sampled because of the larger area and inclusion of data from the North West Flinders Ranges and Warraweena Surveys. However in the area south of the Gammon Ranges, high ridges were not adequately sampled; and the Willouran Ranges in the north west.

To gain a thorough understanding of the plants and animals that contribute to the biodiversity of the Flinders, more intensive sampling on a park, property, habitat or species basis is required, particularly if there is a desire to manage an area to benefit particular species or assemblages. Specific projects should be conducted on all of the species of conservation significance, particularly endangered and vulnerable species (refer to specific chapters for listings), to determine the extent and size of the remaining populations, and to determine which threats to their survival are manageable. Given the historic decline of mammals in the ranges, further efforts should be made to assess the extent, and habitat requirements of the three species of small ground dwelling mammal that had not previously been recorded in the study area. The Desert Mouse *Pseudomys desertor* in the Southern Ranges, The Common Dunnart *Sminthopsis murina* at Wilpena Pound and the Gammon Plateau and the Little Long-tailed Dunnart At Dutchman's Stern *Sminthopsis dolichura*. The status and distribution of the Sandy Inland Mouse *Pseudomys hermannsburgensis* in the Ranges is also poorly understood. More detailed surveys of both the Brush-tailed Possum *Trichosurus vulpecula* and the Ring-tailed Possum *Pseudocheirus peregrinus* are required in the southern Flinders to determine the feasibility of recovering local populations of either species.

Management

Management for conservation of biodiversity in the ranges has greatly improved in recent years with the injection of resources into control of foxes, cats, rabbits and goats under Operation Bounceback in and around the Flinders Ranges and Gammon Ranges National Parks and similar work by the Aroona Catchment Group in the North West Flinders. The impact of Rabbit Haemorrhagic Disease (Calicivirus) on the rabbit populations has also been a positive influence on the regeneration of many perennial species since 1995. The implementation of the Pastoral Land Management and Conservation Act through the assessment process is also likely to lead to improvements in grazing practices and has been influential in non-economically viable properties being taken out of commercial stock grazing, which may enable substantial areas of degraded habitats to recover, provided feral and native herbivores are kept under control. The lack of native predators such as dingoes makes such management an ongoing necessity.

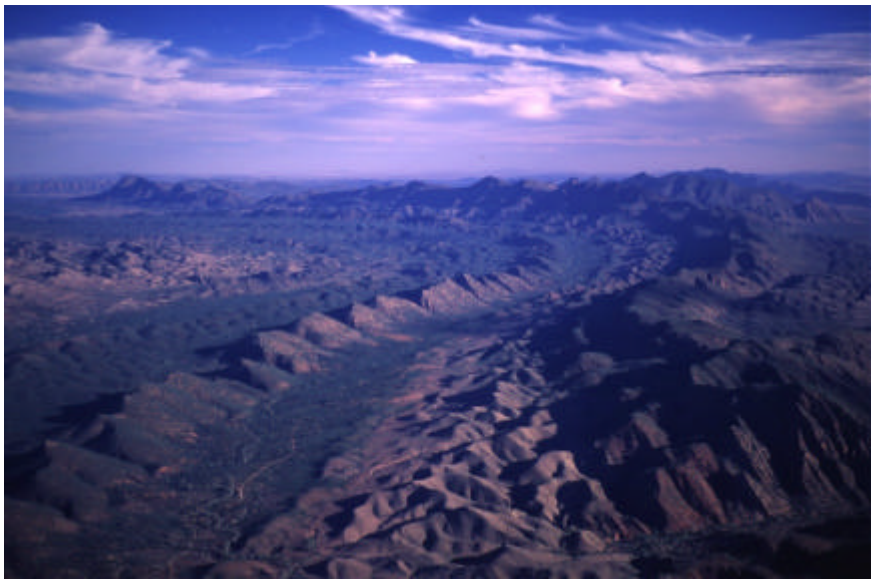

Figure 184. View south along the Heysen and ABC Ranges to Wilpena pound (*Photo: PD Canty*).

RESOURCES AND BIBLIOGRAPHY

Anon (1994). *National River Processes and Management Program. Monitoring River Health Initiative. River Bioassessment Manual. Version 1.* Dept Environment, Sport and Territories/Land & Water Resources Research & Development Corporation/Commonwealth Environment Protection Agency: Canberra.

ANZECC/ARMCANZ (1999). *National Water Quality Management Strategy. Draft Australian and New Zealand guidelines for fresh and marine waters.* Australian and New Zealand Environment and Conservation Council, and Agricultural and Resource Management Council of Australia and New Zealand.

Austin A.D., Baker, G.H., Coleman, R.H., Fisher, R.H., Harvey, M.S., Hirst, D.B., Locket, N.A. and Reay, F. (1996). Terrestrial Invertebrates. pp. 113-127. In 'Natural History of the Flinders Ranges' (Ed. Davies M., Twidale C.R. and Tyler M.J.). Royal Society of South Australia (Inc).

Badman, F. J. (1995). *Plants of the Marla-Oodnadatta Soil Conservation District.* Marla-Oodnadata Soil Conservation Board. Primary Industries South Australia, Port Augusta.

Ball, D. (1978). *The Northern Flinders Ranges*. Nature Conservation Society of South Australia Inc, Adelaide.

Barker, S., McCaskill, M. and Ward, B. (1995). *Explore the Flinders Ranges.* Royal Geographical Society of Australasia (SA Branch), Adelaide, South Australia.

Baulderstone, C. (1999). *Gammon Ranges*. Nature Conservation Society of South Australia Inc, Adelaide.

Belbin, L. (1992). PATN: Pattern Analysis Package (User's Guide). CSIRO Division of Wildlife and Ecology, Canberra.

Blakers, M., Davies, S.J.J.F. and Reilly, P.N. (1984). *The Atlas of Australian Birds*. Melbourne University Press, Melbourne.

Boulton, A.J. and Williams W.D. (1996). *Aquatic Biota.* pp. 102-112 in 'Natural History of the Flinders Ranges.' (Ed. Davies, M., Twidale, C.R. and Tyler M.J.). Royal Society of South Australia Inc.

Brandle, R. (1998). *Biological Survey of the North West Flinders Ranges, South Australia*. Department for Environment, Heritage and Aboriginal Affairs, Adelaide.

Brandle, R. (1998). *Biological Survey of the Stony Deserts in South Australia*. Department of Environment, Heritage and Aboriginal Affairs, Adelaide.

Brandle, R. and Hutchinson, M.K. (1998). *Reptiles*. pp. 235-280 in 'Biological Survey of the Stony Deserts in South Australia.', (Ed. R. Brandle). Department of Environment, Heritage and Aboriginal Affairs, Adelaide.

Brandle, R. and Moseby, K.E. (1999). Comparative ecology of two populations of *Pseudomys australis* in northern South Australia. *Wildlife Research 26*, 541-564.

Briggs, J.D. and Leigh, J.H. (1995). *Rare or Threatened Australian Plants*. Australian National Parks and Wildlife Service, Canberra.

Campbell, I.C. (1982). *Biological water quality monitoring: an Australian viewpoint.* pp. 39-66 in 'Water Quality management. Monitoring Programs and Diffuse Runoff.' (Ed. Hart B.T.). Water Studies Centre, Chisholm Institute of Technology/Australian Society for Limnology, Melbourne.

Cannon, W.A. (1921). *Plant habits and habitats in the arid portions of South Australia*. Carnegie Institution of Wachington, Washington.

Carruthers, S.M. (1995). *Special Vegetation Surveys NPWS Reserves of the Mid North, South Australia*. Geographic Analysis and Research Unit Information and Data Analysis Branch of Department of Housing and Urban Development, Adelaide.

Cogger, H.G., Cameron, E., Sadlier, R. and Eggler, P. (1993). *The Action Plan for Australian Reptiles*. Australian Nature Conservation Agency, Canberra.

Cooling, M.P. and Boulton A.J. (1993). Aspects of the hyporheic zone below the terminus of a South Australian arid zone stream. *Australian Journal of Marine and Freshwater Research 44*, 411-426.

Copley, P. (1981). *Distribution and Status of the Yellow-footed Rock-wallaby, Petrogale xanthopus, in the Flinders Ranges, South Australia,* World Wildlife Fund and Nature Conservation Society of South Australia, Adelaide.

Copley, P. (1988). *The Stick-nest Rats of Australia.* South Australian Department of Environment and Planning, Adelaide.

Copley, P.B. and Kemper, C.M. (1992). *A Biological Survey of the Yellabinna Region of South Australia*. South Australian National Parks and Wildlife Service/Department of Environment and Land Management/South Australian Museum.

Corbett, D. (1980). *A Field Guide to the Flinders Ranges*. Rigby Ltd, Adelaide.

Corbett, D.W.P. (1969). *The Natural History of the Flinders Ranges*. Libraries Board of South Australia, Adelaide.

Davies, M., Twidale, C.R., and Tyler, M.J. (1996). *Natural History of the Flinders Ranges*. Royal Society of South Australia, Adelaide.

Davies, R.J.P. (1990). *Gammon Ranges National Park - Vegetation Monitoring and Rare and Threatened Plant Species Survey, 1987*. Nature Conservation Soceity of South Australia Inc, Adelaide.

Davies, R.J.P. (1995). *Threatened Plant Species Management in the Arid Pastoral Zone of South Australia.* Pastoral Management Branch, South Australian Department of Environment and Natural Resources, Adelaide.

Davies, R.J.P. (1982). *The Conservation of Major Plant Associations in South Australia.* Conservation Council of South Australia, Adelaide.

DEH. (1999). *Flinders Ranges Bounceback - Progress Report Stage 1*. Department for Environment and Heritage, Adelaide.

Forward, L.R. and Robinson, A.C. (1996). *A biological survey of the South Olary Plains, South Australia.* Department of Environment and Natural Resources, Adelaide.

Garnett, S. (1992). *The Action Plan for Australian Birds.* Australian National Parks and Wildlife Service, Canberra.

Gell, P.A. and Bickford, S. (1996). *Vegetation*. In 'Natural History of the Flinders Ranges.', (Ed. Davies M., Twidale C.R. and Tyler M.J.). Royal Society of South Australia, Adelaide.

Graham, A. (2000). *Regional Biodiversity Plan for the Northern Agricultural Districts of South Australia.* Department for Environment & Heritage, South Australia, Adelaide.

Greenwood, G., Pitts, B. and Mitchell, L. (1989). *Flinders Ranges Management Review Investigation Report*. Department of Environment and Planning, Adelaide.

Gullan, P.K., Busby, J.R. and Churchill, D.M. (1976). *Some aspects of the vegetation of the Dandenong Ranges, Victoria*. pp. 49-58 in '*Proceedings of the Royal Society of Victoria*'.

Heard, L. and Channon, B. (1997). *Guide to a Native Vegetation Survey Using the Biological Survey of South Australia*. Geographic Analysis and Research Unit, Department for Housing, Urban Development.

Heathgate Resources (1998). *Beverley Uranium Mine Environmental Impact Statement*, Adelaide.

Herbert, A. (2000). *Mt Brown Vertebrate Survey*, Nature Conservation Society of South Australia, Adelaide.

Hnatiuk, R.J. (1990). *Census of Australian Vascular Plants*. Australian Government Publishing Service, Canberra 1990.

Houston, T. (1980). *Reptiles*. pp. 231-262 in 'A Field Guide to the Flinders Ranges.', (Ed. Corbett D.). Rigby Ltd, Adelaide.

Hutchinson, M.K. (1993). *Threatened Reptiles in South Australia*. In 'Threatened Species and Habitats in South Australia, A Catalyst for Community Action.', (Ed. Tay S.P.). South Australian Advisory Committee on Threatened Species, Adelaide.

Hutchinson, M.K., and Tyler, M.J. (1996). *Reptiles and amphibians*. In 'Natural History of the Flinders Ranges.', (Ed. Davies M., Twidale C.R. and Tyler M.J.) Royal Society of South Australia, Adelaide.

Hutchinson, M., and Edwards, A. (2000). *Reptiles and Amphibians.* pp. 101-128 in 'A List of the Vertebrates of South Australia.', (Ed. Robinson A., Casperson K., and Hutchinson M.). Department for Environment & Heritage: Adelaide.

Hyde, M. (1995). *The Temperate Grasslands of South Australia their Composition and Conservation Status*, World Wide Fund for Nature Australia, Sydney.

Hyde, M.K. (1994). *A Vegetation Survey of Disused Railway Corridors in the Mid-North Region of South Australia*, Nature Conservation Society of South Australia, Adelaide.

Jessop, J.P. (1993). *A List of the Vascular Plants of South Australia (Edition IV)*. Botanic Gardens of Adelaide and State Herbarium, Adelaide.

Kaczan, C. (1981). *The Southern Flinders Ranges*. Nature Conservation Society of South Australia: Adelaide.

Kemper, C. and Foulkes, J. (1996). Distribution and Conservation of the Common Brushtail Possum in South Australia. *Seminar and Workshop on the Management of the Common Brushtail Possum*, Adelaide.

Kerle, J.A., Foulkes, J.N., Kimber, R.G. and Papenfus, D. (1992). The decline of the brushtail possum Trichosurus vulpecula (Kerr 1792) in arid Australia. *Rangelands Journal 14*, 107-27.

Kolkwitz, R. and Marsson M. (1908). Okologie der pflanzlichen Saprobien. *Berichte der Deutschen Botanischen Gesellschaft 26*, 505-519.

Kuchel, R.H. (1980). *Vegetation*. In 'A Field Guide to the Flinders Ranges.', (Ed. Corbett D.) Rigby LTD: Adelaide.

Kuchel, R.H., and Kenny, M. (1969). *The Vegetation of the Flinders Ranges*. In 'The Natural History of the Flinders Ranges.', (Ed. Corbett D.W.P.). Libraries Board of South Australia, Adelaide.

Lang, P.J. and Kraehenbuehl, D.N. (1997). Plants of Particular Conservation Significance in South Australia. Department of Environment and Natural Resources, Adelaide.

Laut, P., Heyligers, P.C., Keig, G., Loffler, E., Margules, C., Scott, R.M., and Sullivan, M.E. (1977). *Environments of South Australia, Province 3 Mt Lofty Block*. CSIRO Division of Land Use Research, Canberra, Australia.

Laut, P., Keig, G., Lazarides, M., Loffler, E., Murgules, C., Scott, R.M. and Sullivan, M.E. (1977). *Environments of South Australia, Province 6, Flinders Ranges*, CSIRO Division of Land Use Research: Canberra, Australia.

Lemon, N.M. (1996). *Geology*. In 'Natural History of the Flinders Ranges', (Ed. Davies M., Twidale C.R., and Tyler M.J.). Royal Society of South Australia, Adelaide.

Lenat, D.R. (1988). Water quality assessment of streams using a qualitative collection method for benthic macroinvertebrates. *Journal of the North American Benthological Society 7*, 222-233.

Maier, H.R., and Wright, C.J. (1996). *Rainfall Monitoring in the Gammon Ranges*. In 'Expedition Gammon Ranges - July 1996.', Scientific Expedition Group, Adelaide.

Marchant, R., Barmuta, L. and Chessman B. (1994). Preliminary study of the ordination and classification of macroinvertebrate communities from running waters in Victoria, Australia. *Australian Journal of Marine and Freshwater Research 45*, 945-962.

Matthews, E.G. (1980). *A Guide to the Genera of Beetles of South Australia.* Special Edition Bulletin Series South Australian Museum, Adelaide.

Maxwell, S., Burbidge, A.A., and Morris, K. (1996). *The 1996 Action Plan for Australian Marsupials and Monotremes*, Wildlife Australia.

McEvoy, P. (2000). *Aquatic Worms of South Australia.* Report to the Wildlife Conservation Fund, Department for Environment, Heritage and Aboriginal Affairs, South Australia.

McKenzie, N.L., and Robinson, A.C. (1987). *A Biological Survey of the Nullarbor Region South and Western Australia in 1984*, South Australian Department of Environment and Planning, Western Australian Department of Conservation and Land Management, Australian National Parks and Wildlife Service, Adelaide.

Medlin, G.C. (1993). *A Field Guide to Chambers Gorge - Flinders Ranges*, South Australian Museum: Adelaide.

Morton, S.R. (1990). The impact of European settlement on the vertebrate animals of arid Australia: a conceptual model. *Proceedings of the Ecological Society of Australia 16*, 201-213.

Morton, S.R., Brown, J.H., Kelt, D.A., and Reid, J.R.W. (1994). Comparisons of community structure among small mammals of North American and Australian deserts. *Australian Journal of Zoology 42*, 501-525.

Moss, D., Furse, M.T., Wright, J.F. and Armitage P.D. (1987). The prediction of the macro-invertebrate fauna of unpolluted running-water sites in Great Britain using environmental data. *Freshwater Biology 17*, 41-52.

National Parks and Wildlife Service (1983). *Flinders Ranges National Park Management Plan*, Department of Environment and Planning, Adelaide.

National Parks and Wildlife Service (1995). *Flinders Ranges National Park Background Information*, Department of Environment and Natural Resources.

NCSSA. (1971). *Oraparinna National Park, a survey of its natural values*, Nature Conservation Society of South Australia, Adelaide.

Neagle, N. (1995). *An Update of the Conservation Status of the Major Plant Associations of South Australia*, Department of Environment and Natural Resources, South Australia.

Newsome, A.E., and Corbett, L.K. (1975). *Outbreaks of rodents in semi-arid and arid Australia: causes, preventions and evolutionary considerations.* pp. 117-153 in 'Rodents in Desert Environments.', (Ed. Prakash I. and Ghosh.) P.K, Junk: The Hague.

NFRSCB (1997). *Northern Flinders Ranges Soil Conservation Board District Plan*, Primary Industries and Resources South Australia.

Nix, H. (1982). *Environmental determinants of biogeography and evolution in Terra Australis*. In 'Evolution of the Flora and Fauna of Arid Australia.', (Ed. Barker W.R. and Greenslade P.J.M.), Peacock Publications: Adelaide.

Norris, R.H. and Georges A. (1986). *Design and analysis for assessment of water quality.* pp. 555-572 in 'Limnology in Australia.' (Ed. De Deckker P. and Williams W.D.) CSIRO, Melbourne and Junk Publishers, Dordrecht, The Netherlands.

Norris, R.H. and Norris K.R. (1995). The need for biological assessment of water quality: Australian perspective. *Australian Journal of Ecology 20*, 1-6

O'Malley, C., and Sheldon, F. (1990). *Biological Survey of the Chowilla Floodplains*, Nature Conservation Society of South Australia Inc, Adelaide.

Oppermann, A., and Bates, R. (1995). *Mount Brown Conservation Park Vegetation Survey*, Nature Conservation Society of South Australia Inc, Adelaide.

Owens, H. (2000). *Guidelines for Vertebrate Surveys in South Australia: using the Biological Survey of South Australia*, National Parks and Wildlife SA, Adelaide.

Pahl, L. (1984). *Diet preference, diet composition and population density of the Ringtail Possum (Pseudocheirus peregrinus cooki) in several plant communities in Southern Victoria*. pp. 252-260 in 'Possums and Gliders.', (Ed. Smith A. and Hume I.), Surrey Beatty & Sons Pty Ltd and Australian Mammal Society.

Papenfus, D. (1990). "Is the Common Brushtail Possum Still Common in South Australia?" BSc Hons. Thesis Thesis. South Australian College of Advanced Education, Salisbury.

Paton, J.B. (1980). *Birds*. In 'A Field Guide to the Flinders Ranges.', (Ed. Corbett D.). Rigby Ltd, Adelaide.

Pinder, A. and Brinkhurst R.O. (1997). Review of Phreodrilidae (Annelida: Oligochaeta: Tubificidae) of Australia. *Invertebrate Taxonomy 11*, 443-523.

Plafkin, J.L., Barbour, M.T., Porter, K.D., Gross, S.K. and Hughes R.M. (1989). *Rapid Bioassessment Protocols for Use in Streams and Rivers. Benthic Macroinvertebrates and Fish*. EPA/444/4-89/001. US EPA, Washington DC.

Playfair, R. (1992). *Flinders Ranges integrated Land Resource Survey*, Internal Report, Pastoral Management Branch, Department of Environment and Planning.

Playfair, R.M. and Robinson, A.C. (1997). *A Biological Survey of the North Olary Plains, South Australia, 1995-1997*, Department of Environment and Natural Resources, Adelaide.

Reardon, T.B., and Flavel, S.C. (1987). *A Guide to the Bats of South Australia*, South Australian Museum. Field Naturalists of South Australia.

Reid, J. and Flemming, M. (1992). The conservation status of birds in arid Australia. *Australian Rangelands Jornal 14*, 65-91.

Reid, J. and Gillen, J. (1988). *The Coongie Lakes Study*, Department of Environment and Planning, Adelaide.

Ried, J.R.W., Carpenter, G.A. and Pedler, L.P. (1996). *Birds*. In 'Natural History of the Flinders Ranges.', (Ed. Davies M., Twidale C.R. and Tyler M. J.). Royal Society of South Australia, Adelaide.

Robertson, M.A. (1998). *A Biological Survey of Grasslands and Grassy Woodlands of the Lofty Block Bioregion of South Australia*, Department for Environment, Heritage and Aboriginal Affairs, Adelaide.

Robinson, A.C., Casperson, K.D., Canty, P.D. and Macdonald, C.A. (1988). *A Biological Survey of the Gawler Ranges South Australia in October 1985*, South Australian Department of Environment and Planning, Department of

Arts South Australia, Adelaide.
Robinson, A., Casperson, K. and Hutchinson, M. (2000). *A list of the vertebrates of South Australia*, Department for Environment and Heritage, Adelaide.
Robinson, A., Kemper, C., Medlin, G. and Watts, C. (2000). The rodents of South Australia. *Wildlife Research 27*, 379-404.
RSAP (n.d.) *Vegetation Survey of the Gammon Ranges National Park*, Department of Environment and Planning.
Schodde, R. and Mason, I. (1999). *The Directory of Australian Birds - Passerines*, CSIRO Publishing: Canberra.
Schwerdtfeger, P. and Curran, E. (1996). *Climate of the Flinders Ranges*. In 'Natural History of the Flinders Ranges.', (Ed. Davies M., Twidale C.R. and Tyler M.J.). Royal Society of South Australia, Adelaide.
SEG. (1996). *Expedition Gammon Ranges - July 1996*, Scientific Expedition Group, Adelaide.
Smith, M. J. (1996). *Mammals of the Flinders Ranges*. In 'Natural History of the Flinders Ranges.',(Ed. Davies M., Twidale C.R. and Tyler M. J.). Royal Society of South Australia, Adelaide.
Smith, M. and Medlin, G. (1982). *Dasyurids of the northern Flinders Ranges before pastoral development.* pp. 563-572 in 'Carnivorous Marsupials - Volume 2', (Ed. Archer M.). Royal Zoological Society of New South Wales, NSW.
Southgate, R. and Masters, P. (1996). Fluctuations of rodent populations in response to rainfall and fire in a central Australian hummock grassland dominated by *Pletrachne schinzii*. *Wildlife Research 23*, 289-303.
Sparrow, A. D. (1989). “A geobotanical study of the remnant natural vegetation of temperate South Australia,” Ph. D. Thesis, University of Adelaide, Adelaide.
Specht, R. L. (1972). *The Vegetation of South Australia*, (Government Printer: Adelaide).
Strahan, R. (1996). *The Mammals of Australia.* Reed Books Australia, Sydney, 756.
Suter, P.J. (1980). “The Taxonomy of the Ephemeroptera (Mayflies) of South Australia.” Ph.D. Thesis, University of Adelaide (Unpubl.).
Telfer, W. (2000). *A Biodiversity Inventory for Warraweena*, Nature Conservation Society of South Australia, Adelaide.
Tunbridge, D. (1991). *The Story of the Flinders Ranges Mammals*, Kangaroo Press, Kenshurst.
Tynan, R. (1999). *The Wilkawillana exclosures, Flinders Ranges National Park 1985-1997: What have we learned from them?* In 'Proceedings of the Flinders Ranges National Park Vegetation Management Workshop - Oraparinna March 10-11 1998.', (Ed. Alexander P., Arkell B. and Edmunds L.). Department for Environment, Heritage and Aboriginal Affairs, Adelaide.
Watts, C.H.S. (1990). *A List of the Vertebrates of South Australia*. South Australian Department of Environment and Planning, Adelaide.
Watts, C.H.S., and Aslin, H.J. (1981). *The Rodents Of Australia.* Angus and Robertson, Sydney.
Watts, C.H.S. (1978). A revision of the Australian Dytiscidae (Coleoptera). *Australian Journal of Zoology Supp Series 57*, 1-166.
Watts, C.H.S. (1997). *Preliminary Guide to the Identification of Adult and Larval Dytiscidae and Adult Aquatic Hydrophilidae (Insecta: Coleoptera).* Cooperative Research Centre for Freshwater Ecology Identification Guide No 19, Thurgoona, Australia.
Wells, A. (1985). Larvae and pupae of Australian Hydroptilidae (Trichoptera), with observations on general biology and relationships. *Australian Journal of Zoology Supplementary Series 113*, 1-69.
Whitelock, D. (1972). *The Flinders Ranges - Problems and Prospects. The Future of the Flinders Ranges*, University of Adelaide.
Wright, J.F., Moss, D., Armitage, P.D. and Furse M.T. (1984). A preliminary classification of running-water sites in Great Britain based on macro-invertebrate species and the prediction of community using environmental data. *Freshwater Biology 14*, 221-256.
Yen A.L., Reid J.R.W. and Wainer J. (1997). A Pitfall Trap Survey of Ground Dwelling Invertebrates, pp139-159 in ‘Monitoring theVertebrate Fauna of Uluru – Kata Tjuta National Park’ (Ed. Reid J.R.W. and Hobbs T.J.) CSIRO Division of Wildlife Ecology.
Yen A.L. (1996). The contribution of the Horn Expedition to our knowledge of terrestrial invertebrates in centrral Australia, pp. 230-244 in: ‘Exploring central Australia: society, the environment and the 1894 Horn Expedition’ (Ed. Morton S.R. and Mulvaney D.J.). Surrey Beatty & Sons, Chipping Norton.

APPENDICES

APPENDIX 1. Environmental Association descriptions (Laut *et al* 1977) for the study area.

Mt. Lofty Block - Province			
Mid-north Wheatlands Region			
Association	3.3.19	Mt. Remarkable	High quartzite strike ridges and lower rounded ridges on shale. Cover - forest, parkland and some woodland.
Flinders Ranges - Province			
Southern Basins and Ranges Region			
Association	6.1.1	Buckaringa	Northerly trending hogback ridges and valleys. Cover is low open woodland with an understorey of grasses and ephemeral forbs used for extensive livestock grazing.
	6.1.2	Willochra	Flat to gently undulating intramontane alluvial plain and marginal fans with minor rock outcrops. Cover is low chenopod shrubland, low open woodland, and small areas of cereal cropland.
	6.1.3	Quorn	Strike ridges and undulating intramontane plains with marginal fans. Cover of low open woodland and woodland with an understorey of grasses and ephemeral forbs, low chenopod shrubland and small areas of cereal cropland.
	6.1.4	Moockra	Strike ridges and intramontane plains comprising footslopes and fans. Mixed cover of low open woodland and tall shrubland with grass understorey, grassland, low chenopod shrubland and minor cereal cropland.
	6.1.5	Walloway	Coalescing fans merging with alluvial plains. Cover shrubland and cereal cropland.
	6.1.6	Cradock	An intramontane plain comprising fans, footslopes and floodplain. Cover tall shrubland with grass understorey and woodland fringing floodplains.
	6.1.7	Worumba	High quartzite ridges and narrow vales and lower rounded ridges and hills on shale. Cover is low open woodland and tall shrubland over grasses and ephemeral forbs or saltbush.
	6.1.8	Buckalowie	Intramontane basin with fans and floodplains and minor low hills. Mixed cover of low open woodland, floodplain fringing woodland over grasses and ephemeral forbs, and low chenopod shrubland.
	6.1.9	Barrata	Low shale hills and higher quartzite ridges. Main cover tall shrubland over grassess and ephemeral forbs, with some low open woodland and chenopod shrubland.
	6.1.10	Orama	Low ranges on interbedded siltstone and tillite. Mixed cover mainly chenopod shrubland, or tall shrubland and low open woodland with a chenopod, grass and ephemeral forb understorey.
	6.1.11	Brachina	Coalescing fans and floodplains. Cover of low chenopod shrubland, and low woodland or tall shrubland over chenopod shrubs, grasses and forbs.
	6.1.12	Merna Mora	Quartzite ridges, lower dissected shale ridges and fans. Cover is chenopod shrubland and low open woodland over chenopod shrubs.
	6.1.13	Arkaba	Shale hills and dissected footslopes with occasional quartzite strike ridges. Mixed cover of low chenopod shrubland, tall shrubland or low open woodland over grasses and chenopod shrubs. Woodlands fringe floodplains.
	6.1.14	Oraparinna	A complex of undulating plains and low hills on shales, with low limestone or sandstone hogback ridges. Cover of low open woodlands and tall shrublands with mixed understorey of low chenopod shrubs, grasses and ephemeral forbs, and grasslands.
	6.1.15	Wirrealpa	Coalescing low angle fans with broad floodplains, incised near the ranges. Cover of low chenopod shrubland, tall shrubland with low chenopod understorey and fringing woodland.
	6.1.16	Wilpena	Prominent quartzite hogback ridges with narrow intervening valleys and local basins. Mixed cover of tall shrubland, open woodland and low open woodland with an understorey of low chenopods and grasses, or grasses and ephemeral forbs.
	6.1.17	Moolooloo	Rounded ridges and hills on limestone and shale. Cover mainly chenopod shrubland with some low open woodland over grasses, ephemeral forbs and chenopods, and fringing woodlands.
Northern Complex Region			
Association	6.2.1	Ediacara	Ridges on quartzite and dolomite, and long fans occasionally overlain with dunes. Mixed cover of low chenopod shrubland, grassland and low open woodland with a shrub understorey, tall shrubland with grass and ephemeral forb understorey, and fringing woodland.

	6.2.2	Warraweena	High quartzite strike ridges and intervening corridors, and lower ranges on shale. Cover of tall shrubland and low open woodland with an understorey of grasses and ephemeral forbs, and fringing woodlands.
	6.2.3	Narina	Low hills and ridges on limestone and siltstone. Cover of low open woodland with an understorey of grasses, ephemeral forbs and chenopods.
	6.2.4	Outouie	Rounded strike ridges on shale and siltstone and hogbacks on quartzite and limestone. Cover is low open woodland with an understorey of grasses and ephemeral forbs, or fringing woodlands.
	6.2.5	Balcanoona	Coalescing fans bordering the ranges and minor outlying ridges. Mixed cover of low chenopod shrubland, grassland, tall shrubland over grasses and ephemeral forbs, and fringing woodland.
	6.2.6	Erragoona	Low hills and ridges on limestone and siltstone. Cover of low open woodland with an understorey of grasses, ephemeral forbs and chenopods.
	6.2.7	Yerelina	Low ranges and hills with some higher hogback ridges, and undulating to rolling plains. Mixed cover of low open woodland over shrubs, low chenopod shrubland, tall open mallee scrub and fringing woodland.
	6.2.8	Willouran	Low quartzite and dolomite strike ridges with small fans, and plains with isolated dunes. Mixed cover of low open woodland over chenopod shrubs, low chenopod shrubland over grasses and forbs, grassland, and fringing woodland.
	6.2.9	Gammon	A steep-sided quarzite plateau with a well developed erosion surface and dissected margins. Cover is low open woodland and tall shrubland with an understorey of grasses and ephemeral forbs.
	6.2.10	Yudnamutana	Quartzite strike ridges interspersed with lower ridges on softer rocks. Where this association is not bare, cover is low open woodland with an understorey of grasses, ephemeral forbs and sparse low shrubs, mostly chenopods, or fringing woodlands.
	6.2.11	Mundawatana	Hills and ranges on granite and tillite with some plains. Cover of tall shrubland, low open woodland and low shrubland over grasses, forbs and chenopod shrubs.
	6.2.12	Barilla	Undulating plain with low ridges and hills. Cover of low chenopod shrubland, low open woodland over chenopod shrubs, and fringing woodland.

APPENDIX 2. Site locations, survey dates, floristic analysis group numbers and physical descriptions.

Numbers and letters in brackets behind vegetation species refers to cover abundance estimates (N=not many 1-10 plants, cover < 5%; T=sparsely distributed, cover < 5%); 1=plentiful, cover less than 5%, 2= cover 5-25%; 3=cover 25-50%; 4=cover 50-75%; 5=cover >75%).

Survey number	Site	Visit date	Easting zone 54	Northing	Plant group	Landform	Land unit	Surface soil	Overstorey plants and cover abundance codes
104	BLA00101	19.11.1999	292096	6482620		Low hills	hill slope	clay	Zygophyllum aurantiacum ssp. verticillatum(2)
104	BLA00201	19.11.1999	292000	6482020		Low hills	hill slope	clay/sand	Triodia irritans(4)
104	BLA00301	18.11.1999	287640	6479120		Hills	hill slope	clay/sand/loam	Callitris glaucophylla(3),Eucalyptus intertexta(T)
104	BLA00401	18.11.1999	290190	6479520		Hills	hill slope	loam/sand	Xanthorrhoea quadrangulata(2),Dodonaea viscosa ssp. angustissima(1),Cassinia laevis(1)
104	BLA00402	18.11.1999	290190	6479950		Hills	rock outcrop (on hill)	clay/sand	Eucalyptus intertexta(2),Eucalyptus flindersii(1)
104	BLA00501	17.11.1999	290600	6479220		Low hills	gully	clay/sand	Eucalyptus socialis(2),Alectryon oleifolius ssp. canescens(2),Eucalyptus leptophylla(1)
104	BLA00601	17.11.1999	292530	6478420		Low hills	hill slope	clay/sand	Eucalyptus socialis(3)
104	BLA00701	19.11.1999	293636	6482344		Hills	hill slope	sand	Codonocarpus pyramidalis(1)
104	DUT00101	22.11.1999	781000	6419550		Low hills	hill slope	silt/clay/loam	Eucalyptus aff. viridis(3)
104	DUT00201	22.11.1999	780920	6421150		Mountains	hill slope	skeletal	Eucalyptus cladocalyx(4),Eucalyptus leucoxylon ssp. pruinosa(1)
104	DUT00301	22.11.1999	779060	6422030		Hills	hill slope	silt/clay/loam	Eucalyptus leucoxylon ssp. pruinosa(2),Eucalyptus porosa(2)
104	DUT00401	23.11.1999	778410	6422410		Hills	hill slope	clay	Triodia irritans(3)
104	DUT00501	23.11.1999	778740	6420970		Mountains	hill slope	clay/sand	Acacia quornensis(3),Cassinia laevis(3)
104	DUT00601	23.11.1999	776930	6417650		Mountains	hill slope	clay/sand/loam	Eucalyptus porosa(2),Eucalyptus leucoxylon ssp. pruinosa(1),Allocasuarina verticillata(1)
104	ERE00101	22.03.1999	290880	6557960	1	Low hills	hill crest	clay/sand/loam	Zygophyllum aurantiacum ssp. verticillatum(2),Sida petrophila(1)
104	ERE00201	23.03.1999	292830	6558500	9	Hills	stream channel	loam/sand	Eucalyptus camaldulensis var.(4),Callitris glaucophylla(3)
104	ERE00301	24.03.1999	293730	6558770	1	Hills	hill crest	clay/sand/loam	Acacia tetragonophylla(1),Casuarina pauper(1),Eremophila oppositifolia var.(1)
104	ERE00401	23.03.1999	298150	6557690	4	Low hills	hill slope	clay/sand/loam	Casuarina pauper(3)
104	ERE00501	24.03.1999	300050	6556860	4	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp.(2)
104	ERE00601	22.03.1999	303420	6555550	4	Plain	stony plain	clay/sand/loam	Maireana astrotricha(3)
104	FIT00101	19.11.1998	351210	6690210	5	Low hills	stream channel	skeletal	Eremophila scoparia(2),Senna artemisioides nothossp. artemisioides(2),Eremophila freelingii(1)
104	FIT00102	19.11.1998	351150	6689970	5	Low hills	cliff	skeletal	Triodia scariosa ssp.(3)
104	FIT00103	19.11.1998	351120	6690340	5	Low hills	hill slope	skeletal	Eremophila freelingii(2),Senna artemisioides ssp. helmsii(2),Acacia kempeana(1)
104	FIT00201	19.11.1998	354480	6688460	19	Rises	hill crest	skeletal	Maireana melanocarpa(2)
104	FIT00202	19.11.1998	353950	6688520	14	Rises	stream channel	not recorded	Eucalyptus camaldulensis var.(3)
104	FIT00301	19.11.1998	359270	6683420	2	Low hills	hill slope	skeletal	Acacia tetragonophylla(2)
104	FIT00302	19.11.1998	359290	6683350	24	Rises	hill slope	skeletal	Acacia tetragonophylla(2)
104	FIT00303	20.11.1998	360190	6683710	3	Hills	hill slope	skeletal	Triodia irritans(3)
104	FIT00401	18.11.1998	361650	6682880	23	Flood plain	plain (incl undulating)	clay/loam	Rhagodia spinescens(3),Maireana pyramidata(3)
104	FIT00402	18.11.1998	361110	6682980	14	Flood plain	stream channel	not recorded	Eucalyptus camaldulensis var.(3)
104	FIT00403	18.11.1998	361640	6682890	23	Plain	stony plain	clay	Rhagodia spinescens(2)
104	FIT00501	18.11.1998	356690	6678880	14	Low hills	stream channel	sand	Eucalyptus camaldulensis var.(3),Eucalyptus intertexta(T)
104	FIT00601	18.11.1998	356390	6677150	3	Mountains	rock outcrop (on hill)	skeletal	Triodia irritans(4)
104	FIT00602	18.11.1998	356790	6677010	14	Mountains	stream channel	sand	Eucalyptus camaldulensis var.(3)
104	FIT00701	19.11.1998	350450	6690460	5	Low hills	hill slope	not recorded	Eucalyptus gillii(3)
104	FLI00101	17.11.1999	278260	6520610		Low hills	hill slope	clay/loam	Triodia irritans(3)
104	FLI00201	19.11.1999	271263	6507670		Mountains	hill slope	clay/loam	Eucalyptus flindersii(2),Eucalyptus aff. viridis(2),Eucalyptus leptophylla(1)
104	FLI00301	19.11.1999	271300	6508050		Mountains	gorge	loam/sand	Eucalyptus camaldulensis var. camaldulensis(4)
104	FLI00401	17.11.1999	271050	6505130		Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus porosa(4)
104	FLI00402	17.11.1999	270975	6504990		Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus camaldulensis var. camaldulensis(3)
104	FLI00501	19.11.1999	268200	6507750		Plain	plain (incl undulating)	clay/sand/loam	Callitris glaucophylla(3),Eucalyptus intertexta(2)
104	FLI00601	18.11.1999	267200	6508720		Hills	hill slope	clay/sand/loam	Allocasuarina verticillata(2),Acacia pycnantha(2),Eucalyptus flindersii(1)
104	FLI00701	18.11.1999	267500	6511700		Mountains	ridge	clay/sand/loam	Eucalyptus flindersii(2)
104	GAP00201	23.10.1999	317657	6634302		Mountains	hill crest	clay	Eucalyptus socialis(2)
104	GAP00301	21.10.1999	324062	6633720		Mountains	ridge	clay/sand/loam	Melaleuca uncinata(3),Eucalyptus flindersii(2),Allocasuarina muelleriana ssp. alticola(2)
104	GAP00401	21.10.1999	321868	6632310		Mountains	ridge	clay/sand/loam	Melaleuca uncinata(3),Allocasuarina muelleriana ssp. alticola(2),Eucalyptus flindersii(2)
104	GAP00402	21.10.1999	321750	6632418		Mountains	gorge	clay/sand/loam	Callitris glaucophylla(2),Eucalyptus flindersii(2)
104	GAP00501	24.10.1999	311449	6627642		Plateau	depression	clay	Eucalyptus dumosa(3)
104	GAP00502	24.10.1999	311467	6627954		Mountains	cliff	clay	Eucalyptus flindersii(2)
104	GAP00503	24.10.1999	311386	6627902		Mountains	gully	clay	Callitris glaucophylla(2)
104	GAP00601	22.10.1999	305605	6621822		Mountains	ridge	clay/loam	Eucalyptus intertexta(2),Melaleuca uncinata(2)
104	GAP00602	22.10.1999	305708	6621821		Mountains	hill slope	clay/loam	Eucalyptus socialis(2)
104	LOV00101	22.03.1999	291240	6519510	55	Mountains	stream channel	loam/sand	Eucalyptus camaldulensis var. obtusa(3),Callitris glaucophylla(2)
104	LOV00201	23.03.1999	292290	6522220	55	Mountains	hill slope	loam	Eucalyptus intertexta(2)
104	LOV00301	22.03.1999	291850	6524550	55	Mountains	hill slope	loam	Cassinia laevis(3),Haeckeria punctulata(2)
104	LOV00401	24.03.1999	293420	6526030	55	Mountains	hill crest	loam	Sida petrophila(2)
104	LOV00501	24.03.1999	293950	6527200	55	Hills	hill crest	loam	Callitris glaucophylla(3)
104	LOV00601	23.03.1999	294360	6528620	3	Hills	hill slope	clay/loam	Acacia rigens(3)
104	MAM00101	22.11.1999	225400	6368150		Mountains	hill slope	clay/sand/loam	Eucalyptus odorata(3),Eucalyptus percostata(T)
104	MAM00201	22.11.1999	224670	6369150		Mountains	hill slope	silt/clay/loam	Allocasuarina verticillata(2),Eucalyptus leucoxylon ssp. pruinosa(2)
104	MAM00301	22.11.1999	225750	6371800		Mountains	hill slope	clay/sand/loam	Eucalyptus leucoxylon ssp. pruinosa(2)
104	MAM00401	22.11.1999	226000	6372650		Mountains	hill crest	loam/sand	Allocasuarina verticillata(3)
104	MAM00501	22.11.1999	223700	6375170		Low hills	hill slope	loam/sand	Eucalyptus cladocalyx(2)
104	MAM00601	22.11.1999	223400	6375840		Mountains	hill slope	clay/sand	Eucalyptus goniocalyx(2)
104	MAM00701	24.11.1999	224700	6364400		Mountains	stream channel	loam/sand	Eucalyptus camaldulensis var.(4)
104	MAM00801	24.11.1999	224870	6365374		Mountains	sandy plain	sand	Callitris glaucophylla(3),Eucalyptus odorata(2)
104	MAW00101	24.10.1999	347395	6667852		Mountains	gully	clay/sand/loam	Eucalyptus camaldulensis var. obtusa(2),Eucalyptus intertexta(T)
104	MAW00201	24.10.1999	347875	6668520		Mountains	hill slope	clay/sand/loam	Eucalyptus flindersii(1)
104	MAW00301	21.10.1999	350544	6667036		Mountains	hill slope	loam/sand	Melaleuca uncinata(1)
104	MAW00601	21.10.1999	345745	6666738		Mountains	stony plain	clay/sand/loam	Eucalyptus dumosa(2)
104	MUD00101	24.11.1998	289620	6611540	11	Mountains	hill slope	clay/sand	Triodia scariosa ssp.(4)
104	MUD00102	23.11.1998	289620	6611000	57	Mountains	hill crest	clay/sand	Eucalyptus intertexta(2)
104	MUD00201	25.11.1998	290470	6611470	58	Hills	stream channel	clay/sand/loam	Eucalyptus camaldulensis var. obtusa(2)
104	MUD00202	25.11.1998	290230	6611510	11	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(4)
104	MUD00301	24.11.1998	292000	6610110	58	Low hills	stony plain	clay/sand/loam	Acacia victoriae ssp.(2)
104	MUD00302	24.11.1998	291800	6609810	58	Low hills	hill crest	clay/sand	Dodonaea lobulata(2)
104	MUD00401	25.11.1998	293640	6607810	58	Low hills	depression	loam	Eucalyptus intertexta(2)
104	MUD00402	24.11.1998	293790	6607550	58	Low hills	hill slope	not recorded	Acacia rivalis(4)
104	MUD00501	23.11.1998	290750	6604130	58	Low hills	hill slope	clay/sand/loam	Eucalyptus intertexta(2)
104	MUD00502	23.11.1998	290420	6604020	58	Low hills	depression	not recorded	Callitris glaucophylla(2),Eucalyptus intertexta(2)

Appendix 2 (continued)

104	MUD00601	23.11.1998	290800	6602730	58	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(4)
104	MUD00602	23.11.1998	290980	6602940	58	Low hills	stream channel	clay/sand/loam	Callitris glaucophylla(2),Eucalyptus intertexta(2)
104	MUL00101	17.03.1999	321160	6586540	6	Hills	hill slope	clay/sand	Casuarina pauper(4),Exocarpos aphyllus(2)
104	MUL00201	17.03.1999	321020	6585840	1	Hills	hill slope	clay/sand	Acacia cibaria(3),Acacia ayersiana var.(2)
104	MUL00301	18.03.1999	324410	6578230	24	Plain	stony plain	clay	Astrebla lappacea(4),Solanum esuriale(2)
104	MUL00401	18.03.1999	324150	6577080	14	Plain	flood out	clay	Acacia victoriae ssp.(2)
104	MUL00501	19.03.1999	330360	6574350	14	Low hills	rock outcrop (on hill)	skeletal	Acacia rivalis(2)
104	MUL00601	19.03.1999	328650	6574740	14	Hills	swamp	clay/sand	Melaleuca glomerata(2),Eucalyptus camaldulensis var. obtusa(2),Melaleuca dissitiflora(1)
104	NAN00101	17.03.1999	316290	6611520	2	Low hills	hill slope	clay/sand/loam	Maireana sedifolia(2)
104	NAN00201	17.03.1999	317100	6606480	14	Hills	stream channel	loam/sand	Eucalyptus camaldulensis var. obtusa(2)
104	NAN00301	17.03.1999	316420	6604140	5	Hills	hill slope	clay/sand	Casuarina pauper(3)
104	NAN00401	18.03.1999	316690	6603030	5	Low hills	hill slope	clay/sand	Eucalyptus socialis(2),Eucalyptus gillii(2)
104	NAN00501	18.03.1999	316930	6601470	1	Low hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(2),Senna artemisioides ssp. filifolia(2)
104	NAN00601	18.03.1999	315810	6598200	4	Low hills	hill slope	clay/sand/loam	Senna artemisioides ssp. filifolia(2),Dodonaea microzyga var. microzyga(2)
104	NAN00602	18.03.1999	315700	6598580	1	Low hills	hill crest	clay/sand/loam	Eremophila freelingii(2)
104	NUD00101	23.11.1998	341080	6639890	5	Mountains	hill slope	skeletal	Eucalyptus gillii(3)
104	NUD00102	23.11.1998	340790	6640860	5	Mountains	stream channel	sand	Melaleuca glomerata(3)
104	NUD00103	23.11.1998	340880	6640170	2	Mountains	hill slope	skeletal	Acacia araneosa(1)
104	NUD00201	23.11.1998	341500	6638600	2	Mountains	rock outcrop (on hill)	skeletal	Eremophila freelingii(2)
104	NUD00202	24.11.1998	341670	6638520	14	Mountains	stream channel	skeletal	Melaleuca glomerata(3)
104	NUD00203	24.11.1998	341960	6638620	14	Mountains	stream channel	skeletal	Eucalyptus camaldulensis var.(3)
104	NUD00204	24.11.1998	341710	6638220	2	Mountains	hill slope	skeletal	Acacia victoriae ssp.(1),Acacia rivalis(1)
104	NUD00301	23.11.1998	342750	6639520	2	Hills	hill slope	skeletal	Acacia rivalis(2)
104	NUD00302	23.11.1998	343090	6639650	2	Hills	hill slope	skeletal	Acacia aneura var.(2)
104	NUD00303	23.11.1998	342960	6639620	14	Hills	stream channel	skeletal	Melaleuca glomerata(2)
104	NUD00401	26.11.1998	344080	6643850	2	Hills	hill slope	skeletal	Casuarina pauper(3)
104	NUD00402	25.11.1998	344060	6644010	2	Hills	hill slope	skeletal	Eremophila latrobei ssp.(2),Eremophila freelingii(2)
104	NUD00403	25.11.1998	344490	6643830	14	Hills	stream channel	skeletal	Eucalyptus camaldulensis var.(1)
104	NUD00404	25.11.1998	344530	6643960	2	Hills	hill slope	skeletal	Eremophila freelingii(2)
104	NUD00501	24.11.1998	345800	6646730	14	Mountains	stream channel	sand	Eucalyptus camaldulensis var.(2)
104	NUD00502	24.11.1998	345840	6646780	2	Mountains	hill slope	skeletal	Acacia aneura var.(1),Hakea ednieana(T),Alectryon oleifolius ssp. canescens(T)
104	NUD00503	24.11.1998	345740	6646840	3	Mountains	hill slope	skeletal	Callitris glaucophylla(2),Eucalyptus intertexta(N)
104	NUD00601	24.11.1998	346340	6646730	2	Mountains	hill slope	skeletal	Eucalyptus intertexta(1),Callitris glaucophylla(T)
104	NUD00602	24.11.1998	346560	6646900	14	Mountains	stream channel	sand	Eucalyptus intertexta(2)
104	PAR00101	23.03.1999	264346	6556835	9	Mountains	hill slope	clay/sand	Acacia victoriae ssp.(2),Acacia rivalis(1)
104	PAR00102	23.03.1999	264553	6557077	9	Mountains	rock outcrop (on hill)	clay/loam	Eucalyptus socialis(2)
104	PAR00201	21.03.1999	264560	6552340	56	Mountains	hill slope	clay/sand/loam	Hakea ednieana(1),Callitris glaucophylla(T),Eucalyptus intertexta(T)
104	PAR00202	22.03.1999	264530	6552140	15	Mountains	stream channel	loam/sand	Eucalyptus camaldulensis var. obtusa(3)
104	PAR00301	22.03.1999	267570	6553500	15	Hills	stream channel	clay/sand	Eucalyptus camaldulensis var. obtusa(2),Callitris glaucophylla(T)
104	PAR00302	22.03.1999	267570	6553900	9	Hills	hill slope	loam/sand	Acacia ligulata(2),Eremophila alternifolia(1),Dodonaea lobulata(1)
104	PAR00401	24.03.1999	270820	6555060	9	Hills	hill slope	clay/loam	Triodia irritans(3)
104	PAR00402	24.03.1999	270580	6554780	9	Hills	hill slope	loam	
104	PAR00501	23.03.1999	272590	6555510	55	Hills	hill slope	loam/sand	Callitris glaucophylla(3)
104	PAR00601	23.03.1999	275330	6555170	39	Hills	hill slope	loam/sand	Eucalyptus socialis(2),Eucalyptus dumosa(2)
104	PAR00602	23.03.1999	275550	6555200	9	Hills	hill crest	clay/sand/loam	Melaleuca lanceolata ssp. lanceolata(T),Eucalyptus socialis(T)
104	PAR00701	24.03.1999	264080	6555200	9	Hills	hill slope	clay/sand	Acacia ligulata(2),Eremophila freelingii(1),Acacia victoriae ssp.(T)
104	PAT00101	19.03.1999	282606	6577402	10	Mountains	hill slope	sand	
104	PAT00201	18.03.1999	282837	6575220	59	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(1)
104	PAT00202	18.03.1999	283010	6575400	15	Mountains	stream channel	loam/sand	Eucalyptus camaldulensis var.(2),Callitris glaucophylla(2)
104	PAT00301	19.03.1999	282659	6572770	57	Mountains	hill slope	clay/sand	Acacia havilandii(2),Eucalyptus sp. Y(1),Casuarina pauper(1)
104	PAT00302	19.03.1999	282758	6572953	39	Mountains	hill slope	clay/loam	Eucalyptus dumosa(2),Eucalyptus socialis(2)
104	PAT00401	18.03.1999	285450	6573137	39	Mountains	hill slope	clay/sand/loam	Myoporum platycarpum ssp.(2),Casuarina pauper(1),Eucalyptus intertexta(T)
104	PAT00402	18.03.1999	285583	6573160	10	Mountains	hill slope	clay/sand/loam	Sclerolaena patenticuspis(1),Dissocarpus paradoxus(1),Enneapogon polyphyllus(1)
104	PAT00501	17.03.1999	286505	6572809	39	Mountains	hill slope	clay/sand	Eucalyptus dumosa(2),Eucalyptus socialis(2)
104	PAT00502	17.03.1999	286530	6572592	57	Mountains	hill slope	clay/sand	Eucalyptus intertexta(1),Eucalyptus socialis(T),Eucalyptus dumosa(T)
104	PAT00601	17.03.1999	287270	6573050	39	Mountains	hill slope	clay	Casuarina pauper(2),Myoporum platycarpum ssp.(N)
104	PAT00602	17.03.1999	287305	6573377	39	Mountains	hill slope	clay/sand/loam	Eucalyptus dumosa(2),Eucalyptus socialis(2)
104	REH00101	20.11.1998	290920	6650700	23	Low hills	hill slope	clay/sand/loam	
104	REH00201	18.11.1998	289000	6648400	5	Low hills	hill slope	loam/sand	Casuarina pauper(2)
104	REH00301	20.11.1998	288580	6647170	25	Low hills	hill slope	clay/loam	Atriplex vesicaria ssp.(2)
104	REH00401	19.11.1998	287200	6643590	39	Low hills	hill slope	clay/sand	Eucalyptus socialis(2)
104	REH00501	19.11.1998	290800	6641490	14	Low hills	stream channel	sand	Melaleuca glomerata(2)
104	REH00601	18.11.1998	286420	6640510	3	Hills	hill slope	clay/sand	Solanum ellipticum(1),Ptilotus obovatus var. obovatus(1)
104	REH00602	20.11.1998	286450	6639700	3	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3)
104	TEL00101	23.11.1999	229370	6342050		Mountains	gorge	clay/sand/loam	Eucalyptus camaldulensis var. camaldulensis(4)
104	TEL00201	23.11.1999	229710	6340530		Mountains	hill footslope	clay/sand/loam	Acacia ligulata(4)
104	TEL00301	22.11.1999	230920	6340000		Mountains	hill slope	clay	Acacia pycnantha(1)
104	TEL00401	22.11.1999	231390	6340360		Mountains	ridge	clay/sand/loam	Acacia gracilifolia(1)
104	TEL00501	24.11.1999	233350	6339150		Mountains	ridge	loam/sand	Eucalyptus cladocalyx(3),Eucalyptus goniocalyx(2),Allocasuarina verticillata(2)
104	TEL00601	24.11.1999	234870	6339900		Mountains	hill slope	loam/sand	Eucalyptus leucoxylon ssp. leucoxylon(4)
104	WET00101	25.11.1998	329460	6634830	56	Mountains	hill slope	clay/loam	Melaleuca uncinata(2)
104	WET00102	25.11.1998	329560	6634800	56	Mountains	hill crest	clay/loam	Eucalyptus socialis(4)
104	WET00201	25.11.1998	330480	6635140	56	Mountains	hill slope	clay/loam	Callitris glaucophylla(4)
104	WET00301	26.11.1998	329750	6633450	56	Hills	hill slope	silt/clay/loam	Eucalyptus intertexta(3),Callitris glaucophylla(2)
104	WET00401	23.11.1998	325250	6628960	3	Hills	hill slope	clay/sand/loam	Sida petrophila(3)
104	WET00501	25.11.1998	325560	6626380	24	Plain	stony plain	clay	Sclerolaena eriacantha(2)
104	WET00601	23.11.1998	328800	6627050	14	Mountains	gorge	clay/sand/loam	Eucalyptus camaldulensis var.(2)
104	WET00701	24.11.1998	331200	6626500	14	Mountains	gorge	loam/sand	Eucalyptus camaldulensis var.(3)
104	WET00702	26.11.1998	330070	6626100	2	Mountains	hill slope	silt/clay/loam	Acacia aneura var. aneura(3)
104	YOU00101	17.11.1999	243910	6466230		Low hills	stony plain	clay/loam	Sclerolaena longicuspis(2),Maireana pyramidata(1)
104	YOU00102	19.11.1999	243833	6466130		Low hills	hill slope	clay	Zygophyllum aurantiacum ssp.(3),Sida petrophila(2),Ptilotus obovatus var.(2)
104	YOU00103	19.11.1999	243958	6466335		Low hills	hill slope	clay	Ptilotus obovatus var.(3),Sida petrophila(3)
104	YOU00201	17.11.1999	245160	6464330		Mountains	ridge	loam/sand	Eucalyptus odorata(2),Eucalyptus socialis(1)
104	YOU00301	17.11.1999	247380	6466695		Dunefield	dune	sand	Eucalyptus socialis(2),Eucalyptus percostata(1)
104	YOU00302	19.11.1999	247704	6466588		Dunefield	dune	sand	Eucalyptus socialis(3),Eucalyptus odorata(2),Eucalyptus percostata(1)

Appendix 2 (continued)

104	YOU00401	19.11.1999	248340	6468570		Flood plain	depression	clay	Eragrostis australasica(2),Muehlenbeckia florulenta(2)
104	YOU00501	18.11.1999	249550	6467120		Hills	hill slope	clay/loam	Casuarina pauper(3)
104	YOU00601	18.11.1999	250340	6466833		Hills	hill slope	loam/sand	Eucalyptus aff. viridis(2),Eucalyptus flindersii(2)
104	YOU00602	18.11.1999	250300	6466972		Hills	hill slope	clay/loam	Casuarina pauper(3)
104	YOU00603	18.11.1999	250300	6467172		Hills	hill slope	clay/loam	Callitris glaucophylla(1)
104	YUH00101	20.11.1998	334190	6659650	56	Mountains	hill crest	clay/sand	Eucalyptus intertexta(2)
104	YUH00102	20.11.1998	334060	6659540	14	Mountains	stream channel	sand	Eucalyptus camaldulensis var. obtusa(3),Callitris glaucophylla(T)
104	YUH00103	20.11.1998	333970	6659770	56	Mountains	stream channel	sand	Callitris glaucophylla(2),Eucalyptus camaldulensis var. obtusa(2)
104	YUH00201	18.11.1998	332330	6661210	16	Low hills	hill slope	clay/sand/loam	Sida petrophila(3)
104	YUH00202	18.10.1998	332350	6661190	11	Plain	stony plain	clay/loam	Zygophyllum aurantiacum ssp.(3)
104	YUH00401	20.11.1998	330810	6659310	14	Hills	stream channel	sand	Melaleuca glomerata(4),Melaleuca dissitiflora(3)
104	YUH00402	20.11.1998	330870	6659340	39	Plain	hill footslope	clay/sand/loam	Eucalyptus socialis(3)
104	YUH00501	19.11.1998	329910	6657930	39	Plain	hill footslope	loam	Eucalyptus socialis(4)
104	YUH00502	19.11.1998	330010	6658310	30	Alluvial plain	stream channel	loam	Alectryon oleifolius ssp. canescens(2)
104	YUH00601	19.11.1998	330250	6656710	55	Hills	hill slope	clay/loam	Eucalyptus socialis(3)
104	YUH00602	19.11.1998	330320	6656660	1	Hills	hill slope	clay/loam	Casuarina pauper(3)
104	YUH00701	18.11.1998	326000	6654880	16	Low hills	stony plain	silt/loam	*Centaurea melitensis(1),Salsola kali(1),Sclerolaena obliquicuspis(1)
104	YUH00702	18.11.1998	325770	6654950	16	Low hills	depression	clay/loam	Acacia victoriae ssp.(2)
19	TE00101	18.09.1990	371400	6689700	2		Not recorded	not recorded	
19	TE00102	18.09.1990	371000	6690000	15	Flood plain	stream channel	not recorded	
19	TE00201	18.09.1990	366600	6683900	2		hill crest	not recorded	
19	TE00301	18.09.1990	362100	6684500	53	Plain	plain (incl undulating)	not recorded	
24	BD00101	25.07.1991	330000	6338450	60	Plain	depression	silt/loam	Eucalyptus dumosa(2),Eucalyptus porosa(2),Eucalyptus gracilis(2)
24	BD00102	25.07.1991	330400	6338450	42	Low hills	hill slope	clay/loam	
24	BD00103	25.07.1991	330900	6338450	42	Hills	ridge	clay/loam	Eucalyptus socialis(T),Eucalyptus gracilis(T)
24	BD00104	25.07.1991	329700	6338650	55	Rises	hill footslope	clay/loam	Eucalyptus porosa(T)
24	BD00105	25.07.1991	329350	6338850	55	Hills	ridge	loam	Eucalyptus porosa(T)
24	BG00101	25.07.1991	357000	6326350	34	Plain	plain (incl undulating)	clay/sand/loam	Maireana sedifolia(2)
24	BG00102	25.07.1991	357000	6326400	31	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(3)
24	BG00201	24.07.1991	346600	6322450	45	Plain	plain (incl undulating)	clay/sand/loam	Myoporum platycarpum ssp.(T)
24	BG00301	25.07.1991	355700	6328000	27	Flood plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2)
24	BR00101	22.07.1991	365000	6339200	55	Hills	ridge	loam/sand	Eucalyptus porosa(2)
24	BR00102	22.07.1991	365500	6339200	55	Hills	hill slope	loam/sand	Eucalyptus socialis(2),Eucalyptus porosa(2)
24	BR00103	22.07.1991	366220	6339050	41	Plain	flood out	clay/sand/loam	Myoporum platycarpum ssp.(T),Alectryon oleifolius ssp. canescens(T)
24	BR00201	24.07.1991	371870	6336110	7	Hills	ridge	loam/sand	Cassinia laevis(T),Solanum ellipticum(T),Solanum petrophilum(T)
24	BR00202	24.07.1991	371400	6336100	7	Low hills	hill slope	clay/sand/loam	Atriplex vesicaria ssp.(3),Ptilotus obovatus var. obovatus(2)
24	BR00203	24.07.1991	370750	6336300	42	Plain	plain (incl undulating)	loam/sand	Eucalyptus socialis(4)
24	BR00204	24.07.1991	370450	6336350	31	Plain	plain (incl undulating)	loam/sand	Maireana trichoptera(2),Rhagodia ulicina(T)
24	BR00301	24.07.1991	369850	6330200	31	Low hills	hill crest	silt/clay/loam	Maireana sedifolia(3)
24	BR00302	24.07.1991	370370	6330460	31	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(3)
24	BR00401	22.07.1991	371300	6325800	31	Rises	hill slope	clay/sand/loam	Casuarina pauper(T)
24	BR00501	23.07.1991	368650	6323300	31	Plain	plain (incl undulating)	loam/sand	Maireana sedifolia(4)
24	BR00502	23.07.1991	368880	6323780	31	Flood plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(3)
24	BR00601	22.07.1991	366090	6315570	31	Rises	plain (incl undulating)	loam/sand	Maireana sedifolia(3)
24	BR00602	22.07.1991	365910	6315470	31	Plain	plain (incl undulating)	loam/sand	Casuarina pauper(4)
24	CL00301	30.07.1991	346420	6314980	31	Plain	plain (incl undulating)	clay/loam	Maireana sedifolia(2),Maireana pyramidata(1)
24	FH00101	23.07.1991	386900	6335500	31	Plain	plain (incl undulating)	loam/sand	Maireana sedifolia(2)
24	FH00102	23.07.1991	387200	6336000	31	Plain	plain (incl undulating)	clay/loam	Maireana sedifolia(2)
24	FH00103	23.07.1991	387300	6336400	30	Plain	plain (incl undulating)	clay/loam	Maireana astrotricha(3)
24	FH00201	22.07.1991	383100	6326200	31	Plain	plain (incl undulating)	loam	Casuarina pauper(2)
24	FH00202	22.07.1991	382900	6325900	31	Plain	plain (incl undulating)	loam	Maireana sedifolia(2)
24	FH00203	22.07.1991	383500	6325700	31	Plain	playa/pan	loam	Casuarina pauper(1)
24	FH00205	22.07.1991	383900	6325900	27	Flood plain	stream channel	loam	Maireana sedifolia(2)
24	FR00101	26.07.1991	319400	6328000	35	Plain	hill footslope	silt/clay/loam	Rhagodia ulicina(3)
24	FR00201	26.07.1991	315350	6330000	43	Low hills	ridge	silt/loam	Eucalyptus socialis(2),Eucalyptus oleosa(2)
24	FR00202	26.07.1991	315600	6330300	43	Low hills	ridge	silt/loam	Eucalyptus socialis(T)
24	GR00101	23.07.1991	365000	6373250	7	Hills	ridge	skeletal	Cassinia laevis(2)
24	GR00201	24.07.1991	362750	6363500	31	Plain	hill crest	clay/sand/loam	Maireana sedifolia(2)
24	GR00202	24.07.1991	363000	6363500	31	Plain	depression	clay/sand/loam	Maireana pyramidata(2)
24	MN00101	22.07.1991	383600	6369400	31	Hills	hill slope	clay/sand	Casuarina pauper(4)
24	MN00102	22.07.1991	384100	6369400	7	Hills	hill slope	clay/sand	Atriplex vesicaria ssp.(3),Maireana sedifolia(2),Maireana pyramidata(2)
24	MN00103	22.07.1991	383800	6369200	34	Plain	hill footslope	loam/sand	Myoporum platycarpum ssp.(T),Alectryon oleifolius ssp. canescens(T)
24	MN00201	23.07.1991	385000	6359700	31	Plain	hill crest	loam/sand	Myoporum platycarpum ssp.(T)
24	MW00102	26.07.1991	318000	6314400	42	Plain	plain (incl undulating)	silt/loam	Eucalyptus oleosa(3),*Carrichtera annua(T)
24	OP00201	23.07.1991	386000	6389200	8	Hills	hill footslope	silt/loam	Maireana pyramidata(3)
24	PN00101	22.07.1991	376000	6390500	35	Flood plain	plain (incl undulating)	clay	Maireana pyramidata(2)
24	PN00201	22.07.1991	374250	6389250	28	Flood plain	plain (incl undulating)	clay	Maireana pyramidata(T)
24	PN00401	22.07.1991	367750	6388500	32	Flood plain	hill footslope	clay	Eremophila sturtii(2)
24	PP00101	25.07.1991	325000	6329000	43	Plain	plain (incl undulating)	loam	Atriplex stipitata(3)
24	PP00102	26.07.1991	325650	6328100	43	Hills	hill slope	clay/sand	Eucalyptus gracilis(2),Eucalyptus oleosa(2),Eucalyptus socialis(2)
24	PP00103	26.07.1991	325750	6328200	43	Hills	ridge	skeletal	Eremophila oppositifolia var. oppositifolia(2)
24	PR00101	23.07.1991	363200	6384000	36	Rises	hill footslope	clay	Maireana pyramidata(2),Atriplex vesicaria ssp. macrocystidia(2)
24	PR00201	23.07.1991	364700	6381000	31	Flood plain	stream channel	silt/clay/loam	Casuarina pauper(2)
24	PT00101	25.07.1991	354850	6341300	35	Plain	hill footslope	loam	*Asphodelus fistulosus(2)
24	PT00102	25.07.1991	354500	6341850	42	Rises	hill footslope	loam/sand	Myoporum platycarpum ssp.(T)
24	PT00103	25.07.1991	354200	6341200	34	Plain	hill footslope	loam/sand	Maireana pyramidata(2)
24	SD00101	24.07.1991	366200	6357000	30	Hills	hill footslope	clay/sand	Maireana sedifolia(3)
24	SD00102	24.07.1991	366500	6357200	42	Hills	hill footslope	clay/sand	Eucalyptus oleosa(2),Eucalyptus gracilis(2),Eucalyptus socialis(2)
24	SD00201	24.07.1991	368500	6358000	55	Hills	ridge	loam/sand	Eucalyptus porosa(2)
24	SD00301	24.07.1991	375000	6357000	30	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Rhagodia ulicina(2),Lycium australe(2)
24	SD00302	24.07.1991	376000	6356500	30	Plain	plain (incl undulating)	loam/sand	Casuarina pauper(3)
24	SE00101	26.07.1991	340650	6333750	8	Low hills	hill slope	skeletal	Ptilotus obovatus var. obovatus(T),Solanum ellipticum(T),Solanum petrophilum(T)
24	SE00103	26.07.1991	340250	6334200	42	Rises	hill footslope	silt/loam	Eucalyptus socialis(2),Eucalyptus gracilis(2)
24	SE00201	25.07.1991	332300	6330800	43	Hills	hill footslope	loam/sand	Eucalyptus socialis(2),Eucalyptus gracilis(2),Eucalyptus oleosa(2)
24	SE00202	25.07.1991	332700	6331800	43	Hills	hill slope	loam/sand	Sclerolaena diacantha(1),Enchylaena tomentosa var. tomentosa(1)
24	SE00203	25.07.1991	333600	6328300	42	Plain	plain (incl undulating)	loam	Myoporum platycarpum ssp.(T)

Appendix 2 (continued)

24	SE00301	26.07.1991	334000	6334750	42	Plain	plain (incl undulating)	loam	Eucalyptus oleosa(2)
24	TI00201	24.07.1991	381000	6377500	41	Rises	hill slope	loam	Atriplex vesicaria ssp.(2)
24	TI00202	24.07.1991	381800	6376500	35	Plain	plain (incl undulating)	loam	Bromus sp.(4)
24	TL00101	26.07.1991	340800	6341250	42	Rises	hill footslope	clay/loam	Eucalyptus socialis(T)
24	TL00102	26.07.1991	340500	6341100	34	Rises	hill footslope	loam	Atriplex vesicaria ssp.(2)
24	TL00201	26.07.1991	338300	6337000	8	Low hills	hill footslope	loam/sand	Maireana pyramidata(2)
24	TL00202	26.07.1991	338250	6337650	8	Low hills	hill footslope	loam	Maireana pyramidata(T)
24	TL00203	26.07.1991	338800	6337850	7	Hills	ridge	silt/loam	Sida petrophila(1)
24	TO00101	25.07.1991	350250	6329850	27	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2)
24	TW00101	26.07.1991	318600	6339600	43	Hills	ridge	skeletal	Eucalyptus socialis(3)
24	TW00102	26.07.1991	318500	6339300	60	Hills	hill slope	skeletal	Alectryon oleifolius ssp. canescens(2)
24	TW00103	26.07.1991	318750	6339250	60	Plain	plain (incl undulating)	loam/sand	Myoporum platycarpum ssp.(T),Alectryon oleifolius ssp. canescens(T)
24	TW00104	26.07.1991	318700	6337800	42	Rises	hill footslope	clay/sand	Eucalyptus socialis(2),Eucalyptus gracilis(2),Eucalyptus oleosa(2)
24	WN00101	22.07.1991	379000	6399000	8	Rises	hill footslope	loam	Maireana sedifolia(2),Maireana pyramidata(2)
24	WN00102	22.07.1991	378500	6398500	8	Low hills	hill slope	silt/loam	Maireana pyramidata(2)
31	DEPMW52	12.03.1980	241500	6322100	64		Not recorded	not recorded	Allocasuarina verticillata,Eucalyptus leucoxylon (NC),Eucalyptus cladocalyx
31	DEPMW53	13.03.1980	244500	6313000	64		Not recorded	not recorded	Allocasuarina verticillata
31	DEPMW54	13.03.1980	243200	6336300	64		Not recorded	not recorded	Eucalyptus odorata
31	DEPMW55	13.03.1980	236700	6335300	64		Not recorded	not recorded	Eucalyptus camaldulensis var.,Eucalyptus cladocalyx,Eucalyptus leucoxylon (NC)
31	DEPMW58	31.03.1980	263200	6418700	49		Not recorded	not recorded	Acacia victoriae ssp.
31	DEPMW59	31.03.1980	245400	6401600	43		Not recorded	not recorded	Casuarina pauper
31	DEPMW60	01.04.1980	225200	6415300	30		Not recorded	not recorded	Acacia victoriae ssp.
31	DEPMW61	01.04.1980	234400	6372100	66		Not recorded	not recorded	Eucalyptus camaldulensis var.,Eucalyptus cladocalyx,Eucalyptus odorata
31	DEPMW62	01.04.1980	245700	6343200	50		Not recorded	not recorded	Eucalyptus odorata
31	DEPMW63	01.04.1980	279200	6361300	42		Not recorded	not recorded	Eucalyptus odorata
31	DEPMW64	01.04.1980	292900	6365200	43		Not recorded	not recorded	Eucalyptus socialis
31	DEPMW65	01.04.1980	270800	6390600	50		Not recorded	not recorded	Callitris glaucophylla
31	DEPMW66	02.04.1980	278600	6394800	43		Not recorded	not recorded	Eucalyptus socialis
31	DEPMW67	02.04.1980	287400	6350400	43		Not recorded	not recorded	Callitris glaucophylla
31	DEPMW68	02.04.1980	306500	6367000	43		Not recorded	not recorded	Eucalyptus socialis
31	DEPMW69	02.04.1980	309300	6356300	43		Not recorded	not recorded	Eucalyptus gracilis
31	DEPMW70	02.04.1980	315000	6351000	43		Not recorded	not recorded	Eucalyptus socialis
31	DEPMW71	02.04.1980	293500	6341600	42		Not recorded	not recorded	Eucalyptus odorata
46	TG041	29.10.1992	312600	6338300	62		plain (incl undulating)	not recorded	Dodonaea viscosa ssp. angustissima(T),Maireana aphylla(T),Acacia victoriae ssp. victoriae(N)
49	BOO0101	28.10.1992	249804	6365743	42		plain (incl undulating)	clay/loam	Eucalyptus oleosa(3)
49	BOO0201	26.10.1992	252285	6366654	44		plain (incl undulating)	clay/loam	Callitris preissii(2)
49	BOO0301	26.10.1992	254344	6371277	43		plain (incl undulating)	clay/loam	Eucalyptus socialis(3),Eucalyptus oleosa(3),Eucalyptus gracilis(1)
49	BOO0401	26.10.1992	252765	6360286	46		plain (incl undulating)	clay/loam	Eucalyptus socialis(3),Eucalyptus porosa(T)
49	BOO0501	26.10.1992	258901	6364247	46		plain (incl undulating)	loam/sand	Eucalyptus socialis(2)
49	BOO0601	27.10.1992	258601	6361881	46		plain (incl undulating)	clay/loam	Eucalyptus odorata(2)
49	BOO0701	29.10.1992	243276	6358107	60		hill slope	clay	Eucalyptus odorata(1)
49	BOO0801	28.10.1992	243987	6356815	65		hill crest	loam	Allocasuarina verticillata(2),Eucalyptus odorata(1)
49	BOO0901	26.10.1992	265235	6354722	68		hill slope	loam/sand	Eucalyptus odorata(2),Eucalyptus leucoxylon (NC)(1)
49	BOO1001	27.10.1992	247957	6349203	63		hill slope	loam	Allocasuarina verticillata(2),Eucalyptus odorata(1)
49	BOO1101	27.10.1992	265856	6352131	69		hill slope	clay/loam	Allocasuarina verticillata(2)
49	BOO1201	27.10.1992	264761	6350190	68		hill footslope	clay/loam	Eucalyptus odorata(2)
49	BUN0101	19.10.1992	273053	6314346	67		hill slope	loam/sand	Eucalyptus leucoxylon (NC)(4)
49	BUN0201	19.10.1992	290377	6318192	68		hill footslope	clay/loam	Eucalyptus leucoxylon (NC)(3)
49	CRY0101	19.10.1992	228734	6312331	41		ridge	loam/sand	Eucalyptus dumosa(2),Eucalyptus gracilis(2)
49	CRY0301	20.10.1992	237505	6317305	68		hill slope	loam/sand	Eucalyptus socialis(1),Eucalyptus odorata(1)
49	CRY0401	20.10.1992	238730	6317068	65		hill slope	loam/sand	Allocasuarina verticillata(2),Eucalyptus odorata(1)
49	GLA0101	22.10.1992	244582	6315633	68		hill crest	loam/sand	Eucalyptus odorata(2)
49	GLA0301	22.10.1992	244705	6313231	69		hill slope	clay/loam	Allocasuarina verticillata(2),Eucalyptus leucoxylon (NC)(1)
49	GLA1001	22.10.1992	244569	6313600	64		hill slope	loam/sand	Allocasuarina verticillata(2)
49	GLA1201	22.10.1992	247812	6315262	69		hill crest	loam/sand	Lepidosperma viscidum(3)
49	GLA1D20	23.10.1992	244340	6315865	68		hill slope	loam/sand	Eucalyptus odorata(3),Eucalyptus socialis(1)
49	JAM0101	20.10.1992	271704	6345939	68		hill footslope	loam	Eucalyptus odorata(3)
49	JAM0201	20.10.1992	274667	6345088	65		hill slope	loam	Triodia sp.(5)
49	JAM0203	20.10.1992	275472	6344957	64		hill slope	loam	Eucalyptus leucoxylon (NC)(2)
49	JAM0401	21.10.1992	273289	6336010	69		hill slope	loam	Triodia sp.(4)
49	JAM0402	21.10.1992	273900	6336144	69		hill slope	loam	Xanthorrhoea quadrangulata(3)
49	JAM0601	20.10.1992	287524	6337832	49		hill footslope	loam	Acacia victoriae ssp. victoriae(T)
49	JAM0801	23.10.1992	271754	6323089	20		hill footslope	loam	Acacia ligulata (NC)(3),Allocasuarina verticillata(1)
49	JAM1001	20.10.1992	289380	6320741	68		hill footslope	loam	Eucalyptus leucoxylon (NC)(3)
49	LAU0101	28.10.1992	246498	6345347	60		plain (incl undulating)	clay/loam	Callitris glaucophylla(2),Eucalyptus odorata(1)
49	LAU0201	28.10.1992	246065	6342522	63		ridge	loam/sand	Eucalyptus microcarpa(2)
49	LAU0301	28.10.1992	249722	6343822	60		plain (incl undulating)	loam	Eucalyptus odorata(2),Callitris glaucophylla(2)
49	LAU0401	29.10.1992	247748	6338718	63		plain (incl undulating)	loam	Eucalyptus odorata(2)
49	LAU0501	30.10.1992	243929	6335634	64		hill slope	loam/sand	Eucalyptus odorata(3)
49	LAU0601	29.10.1992	244856	6333620	64		hill slope	loam	Eucalyptus leucoxylon (NC)(2),Eucalyptus cladocalyx(1)
49	LAU0701	30.10.1992	244189	6332443	64		hill crest	loam	Eucalyptus leucoxylon (NC)(2)
49	LAU0801	29.10.1992	244909	6331611	64		hill slope	clay/loam	Eucalyptus odorata(2)
49	LAU0901	30.10.1992	245014	6329538	64		plain (incl undulating)	loam	Eucalyptus odorata(3),Eucalyptus camaldulensis var.(2),Eucalyptus leucoxylon (NC)(1)
49	LAU1001	30.10.1992	245308	6318347	64		hill slope	loam/sand	Eucalyptus leucoxylon (NC)(2),Eucalyptus socialis(1),Eucalyptus leptophylla(1)
49	LAU1101	29.10.1992	257351	6321048	50		plain (incl undulating)	clay/loam	Acacia salicina(3)
49	MEL0101	30.10.1992	219206	6370751	44		hill crest	loam	Eucalyptus porosa(2)
49	MEL0201	30.10.1992	219409	6370719	69		hill slope	clay/loam	Triodia sp.(4)
49	MEL0202	30.10.1992	219417	6370629	69		hill slope	clay/loam	Acacia calamifolia(2),Cassinia laevis(2)
49	MEL0302	26.10.1992	222950	6371601	64		hill slope	loam	Eucalyptus goniocalyx(1),Allocasuarina verticillata(1)
49	MEL0303	26.10.1992	223057	6371348	64		hill slope	loam/sand	Eucalyptus cladocalyx(2),Eucalyptus goniocalyx(1)
49	MEL0401	27.10.1992	222196	6365724	61		hill slope	loam	Eucalyptus socialis(2),Eucalyptus gracilis(1)
49	MEL0501	29.10.1992	225094	6368371	68		hill footslope	clay/loam	Eucalyptus odorata(1)
49	MEL0601	29.10.1992	225223	6369930	68		hill footslope	clay/loam	Eucalyptus odorata(3)
49	MEL0701	29.10.1992	225588	6371080	64		hill slope	loam/sand	Eucalyptus leucoxylon (NC)(1),Eucalyptus cladocalyx(1)
49	MEL0702	29.10.1992	225765	6371081	64		hill footslope	clay/sand/loam	Eucalyptus cladocalyx(2)
49	MEL0801	28.10.1992	227139	6366317	64		ridge	clay/sand/loam	Eucalyptus leucoxylon ssp. pruinosa(1),Eucalyptus leucoxylon hybrid(1),Allocasuarina verticillata(1)
49	MEL0901	28.10.1992	227522	6367776	64		ridge	clay/sand/loam	Eucalyptus goniocalyx(2)

Appendix 2 (continued)

49	MEL1001	28.10.1992	228289	6368298	64		ridge	clay/sand/loam	Eucalyptus cladocalyx(2),Eucalyptus goniocalyx(1)
49	MEL1101	28.10.1992	229189	6368104	64		hill slope	clay/sand/loam	Eucalyptus goniocalyx(2)
49	MEL1201	26.10.1992	235304	6370705	66		hill footslope	loam	Eucalyptus camaldulensis var.(3)
49	MEL1202	26.10.1992	235339	6370354	66		hill footslope	loam	Callitris glaucophylla(1),Eucalyptus cladocalyx(1),Eucalyptus camaldulensis var.(T)
49	MEL1301	27.10.1992	222318	6363543	55		hill slope	clay/loam	Allocasuarina verticillata(1)
49	MEL1501	27.10.1992	222780	6361505	44		hill footslope	clay/loam	Eucalyptus odorata(1)
49	MEL1601	27.10.1992	223288	6359979	55		hill crest	clay/loam	Eucalyptus socialis(2)
49	MEL1701	30.10.1992	224802	6358663	60		hill slope	clay/sand/loam	Acacia calamifolia(3)
49	MEL1901	28.10.1992	230466	6364125	67		hill slope	clay/sand/loam	Eucalyptus cladocalyx(2),Eucalyptus goniocalyx(2)
49	MEL2101	26.10.1992	240086	6359665	62		plain (incl undulating)	clay/loam	Eucalyptus odorata(2)
49	MEL2201	30.10.1992	225064	6350961	44		hill footslope	clay/loam	Eucalyptus porosa(2)
49	MEL2501	29.10.1992	220068	6345299	42		plain (incl undulating)	loam	Eucalyptus odorata(2)
49	MEL2601	28.10.1992	227675	6349041	61		hill slope	loam	Eucalyptus oleosa(2),Eucalyptus gracilis(2)
49	MEL2701	26.10.1992	229888	6348395	69		hill slope	loam	Acacia ligulata (NC)(2)
49	MEL2801	26.10.1992	228494	6347671	65		hill slope	loam	Allocasuarina verticillata(1)
49	MEL2A17	29.10.1992	225620	6370065	68		hill footslope	sand	Eucalyptus odorata(2)
49	MEL2E06	27.10.1992	230143	6345412	64		hill slope	loam/sand	Eucalyptus cladocalyx(3)
49	PIR0101	27.10.1992	222352	6342876	42		plain (incl undulating)	clay/loam	Eucalyptus oleosa(1)
49	PIR0201	27.10.1992	222781	6338407	44		Not recorded	sand	Acacia ligulata (NC)(2),Pimelea microcephala ssp. microcephala(1)
49	PIR0301	27.10.1992	224653	6337707	50		plain (incl undulating)	loam/sand	Eucalyptus camaldulensis var.(2)
49	PIR0401	27.10.1992	228794	6344238	63		hill slope	loam	Eucalyptus socialis(2),Eucalyptus percostata(1)
49	PIR0501	27.10.1992	229265	6344747	65		hill slope	loam	Allocasuarina verticillata(3)
49	PIR0701	29.10.1992	233236	6342365	64		hill footslope	loam/sand	Eucalyptus leucoxylon (NC)(2),Eucalyptus cladocalyx(1)
49	PIR0801	27.10.1992	231093	6338065	55		hill footslope	clay/loam	Eucalyptus odorata(3)
49	PIR0901	27.10.1992	231099	6337726	55		hill footslope	clay/loam	Cassinia laevis(3)
49	PIR1001	26.10.1992	236610	6339770	64		hill slope	loam/sand	Eucalyptus cladocalyx(2),Eucalyptus leucoxylon ssp. pruinosa(2)
49	PIR1101	28.10.1992	230857	6334453	66		hill footslope	loam/sand	Callitris glaucophylla(2)
49	PIR1201	28.10.1992	231571	6336262	65		hill slope	loam/sand	Cassinia laevis(1),Acacia ligulata (NC)(1),Olearia decurrens(1)
49	PIR1202	28.10.1992	231601	6336196	65		hill slope	loam	Eucalyptus porosa(2)
49	PIR1301	28.10.1992	232712	6337226	64		ridge	loam/sand	Eucalyptus cladocalyx(3)
49	PIR1401	29.10.1992	234372	6336995	64		hill slope	loam/sand	Eucalyptus goniocalyx(3)
49	PIR1601	29.10.1992	229252	6328012	44		plain (incl undulating)	clay	Casuarina pauper(3)
49	PIR1701	27.10.1992	231147	6330757	66		hill footslope	loam/sand	Callitris glaucophylla(1)
49	PIR1902	29.10.1992	234317	6330034	64		ridge	loam/sand	Eucalyptus cladocalyx(2)
49	PIR2001	29.10.1992	230289	6326739	49		Not recorded	clay/loam	Eucalyptus camaldulensis var.(2)
49	PIR2101	30.10.1992	235767	6325431	64		hill slope	loam/sand	Eucalyptus cladocalyx(2)
49	PIR2102	30.10.1992	235963	6325726	64		hill slope	loam/sand	Eucalyptus goniocalyx(3)
49	PIR2201	30.10.1992	237758	6324065	67		hill footslope	clay/loam	Eucalyptus leucoxylon (NC)(4)
49	PIR2401	28.10.1992	228743	6320412	44		plain (incl undulating)	loam/sand	Eucalyptus porosa(2)
49	PIR2501	30.10.1992	237468	6318943	51		hill slope	loam	Eucalyptus brachycalyx(3)
49	PIR2502	30.10.1992	237587	6318030	61		hill slope	loam/sand	Acacia calamifolia(4)
49	PIR2601	30.10.1992	242194	6318116	65		hill slope	loam	Allocasuarina verticillata(2)
49	PIR2701	30.10.1992	243059	6335147	64		hill crest	clay/loam	Eucalyptus leucoxylon (NC)(2),Eucalyptus cladocalyx(2)
49	PIR2E16	29.10.1992	233551	6329674	64		hill slope	loam/sand	Allocasuarina verticillata(4)
49	QUO0101	27.10.1992	219704	6426397	55		hill slope	loam/sand	Eucalyptus socialis(3)
49	QUO0201	27.10.1992	218982	6423160	65		hill crest	loam/sand	Callitris glaucophylla(2)
49	QUO0301	26.10.1992	224303	6426033	43		hill footslope	loam/sand	Casuarina pauper(4)
49	QUO0302	26.10.1992	224347	6425842	30		hill slope	sand	Senna artemisioides nothossp. coriacea(3)
49	QUO0401	26.10.1992	227525	6426095	34		ridge	sand	Maireana sedifolia(2)
49	QUO0501	26.10.1992	228345	6426333	34		plain (incl undulating)	sand	Maireana pyramidata(2)
49	QUO0601	29.10.1992	232526	6425788	38		plain (incl undulating)	clay/loam	Nitraria billardierei(2)
49	QUO0701	29.10.1992	240066	6422812	30		plain (incl undulating)	loam/sand	*Carrichtera annua(2),Stipa sp.(1)
49	QUO0801	27.10.1992	218999	6417364	63		hill slope	loam/sand	Eucalyptus odorata(3),Eucalyptus socialis(T)
49	QUO0901	28.10.1992	218373	6414169	63		hill crest	loam/sand	Eucalyptus socialis(2),Eucalyptus odorata(2)
49	QUO1001	28.10.1992	218917	6412829	63		hill slope	loam/sand	Eucalyptus odorata(2)
49	QUO1101	26.10.1992	223314	6416201	30		plain (incl undulating)	loam/sand	Senna artemisioides nothossp. coriacea(4)
49	QUO1201	29.10.1992	223019	6413842	40		hill slope	loam/sand	Casuarina pauper(2)
49	QUO1301	26.10.1992	225196	6415382	45		plain (incl undulating)	loam/sand	Casuarina pauper(2)
49	QUO1401	29.10.1992	232211	6416474	38		plain (incl undulating)	clay	Nitraria billardierei(1),Rhagodia spinescens(1)
49	QUO1501	29.10.1992	231613	6414351	38		plain (incl undulating)	loam/sand	Nitraria billardierei(3)
49	QUO1601	27.10.1992	222551	6410355	63		hill slope	loam/sand	Eucalyptus odorata(3)
49	QUO1701	29.10.1992	225119	6409033	43		hill slope	loam/sand	Casuarina pauper(4)
49	QUO1801	28.10.1992	219328	6403953	65		ridge	loam/sand	Allocasuarina verticillata(2)
49	QUO1901	28.10.1992	221538	6405112	63		hill slope	loam/sand	Eucalyptus odorata(2)
49	QUO2001	26.10.1992	228265	6415379	8		hill slope	loam/sand	Maireana sedifolia(2)
49	WIL0101	26.10.1992	218378	6399041	67		hill slope	clay/loam	Eucalyptus goniocalyx(2)
49	WIL0201	26.10.1992	221508	6394226	65		hill slope	clay/loam	Eucalyptus microcarpa(T)
49	WIL0202	26.10.1992	221253	6394193	65		hill slope	clay/loam	Eucalyptus microcarpa(2),Allocasuarina verticillata(2)
49	WIL0301	27.10.1992	226631	6394545	63		hill slope	loam/sand	Eucalyptus odorata(2)
49	WIL0401	27.10.1992	231150	6394343	47		plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(4)
49	WIL0501	27.10.1992	235547	6397770	38		plain (incl undulating)	clay/loam	Nitraria billardierei(2),*Lycium ferocissimum(T)
49	WIL0801	27.10.1992	240929	6399327	40		plain (incl undulating)	clay/loam	Casuarina pauper(2)
49	WIL0901	26.10.1992	221339	6390739	65		hill slope	loam/sand	Allocasuarina verticillata(2)
49	WIL1001	26.10.1992	224525	6388753	69		hill slope	loam/sand	Allocasuarina verticillata(T)
49	WIL1201	30.10.1992	238627	6385782	30		plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(2),Eucalyptus camaldulensis var.(N)
49	WIL1301	29.10.1992	219346	6380876	61		ridge	loam	Eucalyptus socialis(3)
49	WIL1302	29.10.1992	219542	6380159	69		hill slope	loam	Acacia pycnantha(T)
49	WIL1401	29.10.1992	223528	6382910	68		hill slope	loam	Eucalyptus odorata(2)
49	WIL1501	27.10.1992	230348	6384759	63		plain (incl undulating)	loam/sand	Eucalyptus odorata(2)
49	WIL1701	30.10.1992	239756	6385794	48		plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(4)
49	WIL1801	29.10.1992	219132	6377993	61		hill slope	loam	Eucalyptus socialis(3)
49	WIL1901	30.10.1992	225666	6377509	64		ridge	loam/sand	Eucalyptus goniocalyx(2)
49	WIL2001	30.10.1992	226071	6375790	64		ridge	loam	Eucalyptus goniocalyx(2),Eucalyptus leucoxylon ssp. pruinosa(T)
49	WIL2101	28.10.1992	226967	6378503	64		ridge	loam	Allocasuarina verticillata(2)
49	WIL2201	28.10.1992	228477	6378847	63		hill slope	loam	Eucalyptus odorata(3)
49	WIL2301	28.10.1992	228682	6377917	64		hill slope	clay/loam	Eucalyptus cladocalyx(2)
49	WIL2401	28.10.1992	231307	6374524	65		ridge	loam	Eucalyptus leucoxylon ssp. pruinosa(T)
49	WIL2402	28.10.1992	231459	6374578	65		ridge	loam	Eucalyptus leucoxylon ssp. pruinosa(T)
49	WIL2501	29.10.1992	229246	6382649	66		plain (incl undulating)	clay/loam	Callitris glaucophylla(3)
51	NCS011	08.09.1992	223530	6323162	38		plain (incl undulating)	clay	Atriplex lindleyi ssp. lindleyi(2)
51	NCS012	09.09.1992	222400	6417608	30		ridge	clay	Senna artemisioides nothossp. coriacea(3),Acacia victoriae ssp. victoriae(T)
51	NCS013	09.09.1992	224435	6416862	30		plain (incl undulating)	clay/loam	Senna artemisioides nothossp. coriacea(1)

Appendix 2 (continued)

51	NCS014	09.09.1992	228696	6415128	30		hill footslope	clay/loam	Eremophila longifolia(2)
51	NCS015	09.09.1992	235677	6405387	43		plain (incl undulating)	clay	Acacia oswaldii(T)
51	NCS016	09.09.1992	233899	6406358	22		plain (incl undulating)	clay/loam	Acacia victoriae ssp.(T)
51	NCS017	10.09.1992	240745	6402437	30		plain (incl undulating)	clay/loam	Senna artemisioides nothossp. coriacea(T)
51	NCS018	10.09.1992	256790	6404442	45		plain (incl undulating)	clay	Acacia victoriae ssp.(T)
51	NCS019	10.09.1992	269009	6402574	62		hill footslope	clay/loam	Eremophila longifolia(1)
51	NCS020	10.09.1992	275064	6381970	30		plain (incl undulating)	clay/loam	Eremophila longifolia(3)
51	NCS021	11.09.1992	282109	6368566	49		plain (incl undulating)	clay	Acacia victoriae ssp.(T)
51	NCS022	11.09.1992	290494	6356143	62		hill footslope	loam/sand	Callitris preissii(T),Eucalyptus porosa(T)
51	NCS023	11.09.1992	291621	6353209	62		plain (incl undulating)	clay	Eucalyptus porosa(1)
51	NCS024	15.09.1992	252600	6355150	62		plain (incl undulating)	clay	Acacia pycnantha(1)
51	NCS025	15.09.1992	250911	6351430	62		plain (incl undulating)	clay/loam	Acacia pycnantha(2)
51	NCS026	16.09.1992	250850	6360030	62		stream channel	clay	Callitris glaucophylla(1),Eucalyptus porosa(1)
51	NCS027	16.09.1992	236933	6367777	66		hill footslope	clay	Eucalyptus camaldulensis var.(2)
51	NCS028	16.09.1992	234025	6373280	48		plain (incl undulating)	clay/loam	Acacia victoriae ssp.(3)
51	NCS029	16.09.1992	229335	6382834	66		stream channel	not recorded	Eucalyptus camaldulensis var.(3)
51	NCS030	16.09.1992	229308	6382864	48		plain (incl undulating)	clay	Eucalyptus odorata(2)
51	NCS031	17.09.1992	247832	6327675	48		plain (incl undulating)	clay	Eucalyptus camaldulensis var.(T)
51	NCS032	17.09.1992	245879	6337983	62		plain (incl undulating)	clay/loam	Acacia brachybotrya(2)
51	NCS033	17.09.1992	248725	6346900	62		ridge	clay/loam	Acacia pycnantha(1)
51	NCS034	17.09.1992	247020	6335022	48		Not recorded	not recorded	Eucalyptus leucoxylon (NC)(2)
51	NCS035	18.09.1992	249265	6320375	62		plain (incl undulating)	clay/loam	Acacia ligulata(2)
51	NCS036	22.09.1992	300175	6341781	62		hill footslope	clay/loam	Stipa nitida(2),Dianella revoluta (NC)(1),Senna artemisioides ssp. petiolaris(T)
51	NCS037	22.09.1992	303100	6336997	62		hill slope	skeletal	Acacia pycnantha(2)
51	NCS038	22.09.1992	304898	6327226	49		plain (incl undulating)	clay/loam	Acacia victoriae ssp.(1)
51	NCS061	13.10.1992	254080	6314393	62		hill footslope	clay/loam	*Pinus halepensis(2)
54	GWL003	12.11.1993	247700	6338600	63		hill footslope	clay/loam	Eucalyptus odorata(2)
54	GWL006	25.11.1993	267050	6351000	62		hill slope	clay/sand	Eucalyptus porosa(3)
54	GWL007	26.11.1993	218825	6411000	63		hill slope	skeletal	Eucalyptus odorata(2)
58	058TER01	25.10.1995	301850	6341000	62	Hills	hill footslope	clay/loam	Aristida behriana(3),Danthonia eriantha(2),Stipa scabra ssp. falcata(2)
58	058TER02	25.10.1995	302050	6341150	62	Hills	hill footslope	clay/loam	Cryptandra amara var. longiflora(N)
58	058TER03	14.11.1996	301850	6341150	62	Hills	hill slope	clay/loam	
6	0124	27.05.1986	352416	6690994	5	Hills	hill crest	not recorded	Eucalyptus socialis(1)
6	0128	25.05.1986	362543	6689893	4	Drainage line	depression	not recorded	Eucalyptus gillii(T)
6	ANG1395	27.05.1988	305900	6604700	3	Low hills	hill slope	clay/loam	Dodonaea lobulata(T)
6	ANG1606	30.08.1990	307100	6615000	27	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Maireana astrotricha(1)
6	ANG1692	03.05.1991	306500	6614300	10	Low hills	hill slope	skeletal	Senna artemisioides nothossp. coriacea(1),Dodonaea lobulata(T)
6	ANG1693	03.05.1991	307300	6614900	17	Low hills	hill crest	loam	Acacia tetragonophylla(T),Eremophila alternifolia(T)
6	ANG1694	03.05.1991	307100	6616300	11	Hills	hill slope	skeletal	Acacia tetragonophylla(1),Eremophila alternifolia(1)
6	ANG1695	03.05.1991	305750	6618300	50	Drainage line	plain (incl undulating)	loam/sand	Callitris glaucophylla(1),Eucalyptus camaldulensis var. camaldulensis(1)
6	ANG1696	03.05.1991	307400	6618400	17	Low hills	hill crest	not recorded	Acacia tetragonophylla(T),Eremophila alternifolia(T)
6	ANG1697	03.05.1991	306500	6618600	40	Low hills	hill footslope	clay/loam	Casuarina pauper(1)
6	ANG1698	04.05.1991	303700	6613700	1	Low hills	hill crest	skeletal	Acacia tetragonophylla(1),Senna artemisioides ssp. filifolia(T)
6	ANG1699	04.05.1991	303500	6614450	1	Rises	hill crest	loam/sand	Casuarina pauper(2)
6	ANG1700	04.05.1991	303750	6615800	39	Rises	hill slope	clay/loam	Eucalyptus dumosa(1)
6	ANG1701	04.05.1991	302400	6614600	57	Hills	hill slope	loam	Callitris glaucophylla(1),Eucalyptus flindersii(1)
6	ANG1702	04.05.1991	302450	6614700	57	Hills	hill slope	not recorded	Eucalyptus flindersii(T)
6	ANG1705	04.05.1991	297800	6611350	39	Hills	hill footslope	not recorded	Casuarina pauper(2)
6	ANG1706	04.05.1991	297500	6614700	40	Hills	hill footslope	loam/sand	Casuarina pauper(2)
6	ANG1708	05.05.1991	296800	6616500	36	Low hills	hill slope	loam	Rhagodia ulicina(1),Atriplex vesicaria ssp.(1)
6	ANG1709	05.05.1991	297100	6617600	11	Rises	hill slope	not recorded	Acacia victoriae ssp. victoriae(1)
6	ANG1710	06.05.1991	296850	6617100	22	Rises	hill crest	not recorded	Acacia aneura (NC)(T)
6	ANG1712	05.05.1991	298300	6619200	16	Low hills	hill footslope	not recorded	Casuarina pauper(T)
6	ANG1713	05.05.1991	301100	6622200	33	Plain	plain (incl undulating)	loam	*Carrichtera annua(1),Stipa sp.(1)
6	ANG1715	06.05.1991	299050	6622100	59	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(1),Olearia decurrens(1)
6	ANG1717	07.05.1991	296750	6620500	28	Plain	plain (incl undulating)	loam/sand	Casuarina pauper(1)
6	ANG1718	07.05.1991	297700	6620400	1	Low hills	hill slope	not recorded	Eremophila duttonii(1)
6	ANG1719	05.06.1991	296250	6620500	36	Low hills	hill footslope	clay/sand	Stipa sp.(1)
6	ANG1720	07.05.1991	292750	6616600	22	Low hills	hill slope	not recorded	Acacia victoriae ssp. victoriae(1)
6	ANG1721	07.05.1991	292150	6617800	16	Low hills	hill slope	clay	Casuarina pauper(1)
6	ANG1722	07.05.1991	293150	6618100	11	Low hills	hill slope	loam/sand	Dodonaea lobulata(1)
6	ANG1723	07.05.1991	293800	6618800	11	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1)
6	ANG1725	06.05.1991	294150	6620850	18	Rises	plain (incl undulating)	clay/loam	Enneapogon avenaceus(1),Stipa nodosa(1)
6	ANG1727	06.05.1991	294650	6621400	16	Low hills	hill footslope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	ANG1730	06.05.1991	292500	6620750	59	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(2),Casuarina pauper(T)
6	ANG1732	03.06.1991	287300	6620400	1	Hills	hill crest	skeletal	Casuarina pauper(1)
6	ANG1734	05.05.1991	301500	6620600	40	Hills	hill footslope	loam	Casuarina pauper(2)
6	ANG1737	07.05.1991	290000	6613550	12	Low hills	hill footslope	clay/sand/loam	Eucalyptus intertexta(T)
6	ANG1738	07.05.1991	292500	6615200	11	Low hills	hill crest	skeletal	Acacia victoriae ssp. victoriae(1),Eremophila alternifolia(1)
6	ANG1740	08.05.1991	290050	6612800	12	Hills	hill slope	skeletal	Callitris glaucophylla(1)
6	ANG1742	08.05.1991	290550	6612500	59	Hills	hill crest	skeletal	Eucalyptus socialis(1)
6	ANG1743	07.05.1991	291200	6614500	32	Low hills	hill footslope	clay	Rhodanthe corymbiflora(2)
6	ANG1744	07.05.1991	295550	6614350	30	Plain	plain (incl undulating)	clay	Atriplex vesicaria ssp.(1)
6	ANG1745	09.05.1991	304050	6600950	11	Low hills	hill footslope	loam/sand	Acacia victoriae ssp. victoriae(1)
6	ANG1746	09.05.1991	305000	6600100	1	Hills	hill slope	skeletal	Acacia aneura (NC)(2)
6	ANG1747	09.05.1991	304500	6600300	1	Hills	hill slope	skeletal	Casuarina pauper(1)
6	ANG1748	09.05.1991	303800	6600400	11	Low hills	hill slope	skeletal	Senna artemisioides ssp. filifolia(1),Senna artemisioides ssp. petiolaris(1),Dodonaea lobulata(1)
6	ANG1750	09.05.1991	304350	6606300	11	Low hills	hill slope	loam/sand	Acacia aneura (NC)(1)
6	ANG1751	09.05.1991	303700	6608650	11	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1)
6	ANG1752	29.05.1991	299850	6609800	59	Hills	hill crest	skeletal	Senna artemisioides nothossp. artemisioides(1),Dodonaea lobulata(1)
6	ANG1754	29.05.1991	302950	6608300	39	Low hills	hill footslope	clay/sand/loam	Eucalyptus socialis(1)
6	ANG1755	29.05.1991	301400	6609650	50	Rises	hill slope	skeletal	Callitris glaucophylla(2)
6	ANG1758	29.05.1991	307100	6609750	1	Hills	hill footslope	clay/sand/loam	Casuarina pauper(1),Eucalyptus socialis(1)
6	ANG1759	28.05.1991	302150	6599700	12	Low hills	hill crest	not recorded	Acacia rivalis(1)
6	ANG1760	28.05.1991	300850	6599800	11	Low hills	hill slope	skeletal	Acacia aneura (NC)(T)
6	ANG1762	28.05.1991	299150	6600300	1	Hills	hill slope	skeletal	Eremophila freelingii(T)
6	ANG1763	28.05.1991	298500	6600500	11	Low hills	hill slope	skeletal	Eucalyptus dumosa(T)
6	ANG1764	28.05.1991	300600	6602600	1	Low hills	hill crest	skeletal	Ptilotus obovatus (NC)(1)
6	ANG1766	29.05.1991	299500	6605300	11	Hills	hill slope	skeletal	Dodonaea lobulata(2)
6	ANG1768	30.05.1991	291800	6607200	58	Low hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Acacia rivalis(1),Acacia aneura (NC)(T)
6	ANG1769	30.05.1991	292200	6607250	59	Low hills	hill slope	skeletal	Dodonaea lobulata(1),Senna artemisioides nothossp.

Appendix 2 (continued)

									coriacea(1),Senna artemisioides nothossp. artemisioides(1)
6	ANG1770	30.05.1991	293250	6607650	59	Low hills	hill footslope	skeletal	Eucalyptus dumosa(1)
6	ANG1771	30.05.1991	294800	6607700	58	Low hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Callitris glaucophylla(1),Acacia aneura var.(1)
6	ANG1773	30.05.1991	294600	6609000	18	Low hills	hill footslope	clay	Acacia victoriae ssp. victoriae(T)
6	ANG1774	30.05.1991	296800	6609350	39	Hills	hill footslope	clay	Eucalyptus socialis(1)
6	ANG1775	30.05.1991	296750	6609450	59	Hills	hill slope	loam/sand	Eucalyptus socialis(1)
6	ANG1776	30.05.1991	296600	6609750	57	Hills	hill crest	skeletal	Eucalyptus dumosa(1)
6	ANG1777	30.05.1991	291500	6610700	47	Rises	hill crest	loam/sand	Acacia victoriae ssp. victoriae(T)
6	ANG1778	31.05.1991	290550	6602300	59	Rises	hill slope	skeletal	Callitris glaucophylla(1)
6	ANG1779	31.05.1991	293300	6601850	59	Low hills	hill slope	skeletal	Dodonaea lobulata(1),Acacia rivalis(1)
6	ANG1781	31.05.1991	293850	6596500	11	Hills	hill slope	clay/sand	Acacia victoriae ssp. victoriae(1)
6	ANG1782	31.05.1991	294350	6598450	59	Hills	hill slope	skeletal	Olearia decurrens(1)
6	ANG1784	31.05.1991	293000	6598900	11	Low hills	hill slope	skeletal	Solanum sturtianum(1),Cymbopogon ambiguus(1)
6	ANG1787	01.06.1991	287800	6601150	59	Hills	hill slope	loam/sand	Dodonaea lobulata(1)
6	ANG1788	01.06.1991	285500	6602800	11	Hills	hill slope	loam/sand	Acacia rivalis(1),Dodonaea lobulata(1)
6	ANG1789	01.06.1991	285150	6601800	39	Hills	hill slope	skeletal	Triodia irritans var. (NC)(1)
6	ANG1790	01.06.1991	285500	6601800	39	Hills	hill slope	skeletal	Eucalyptus socialis(1)
6	ANG1791	01.06.1991	289400	6605000	11	Hills	hill slope	skeletal	Dodonaea lobulata(1)
6	ANG1793	01.06.1991	289900	6604600	58	Hills	hill crest	skeletal	Acacia rivalis(1)
6	ANG1794	02.06.1991	291700	6608700	59	Hills	hill crest	skeletal	Dodonaea lobulata(1),Solanum sturtianum(1)
6	ANG1795	02.06.1991	291850	6609500	12	Low hills	depression	clay/loam	Stipa sp.(1),Bromus sp.(1)
6	ANG1798	02.06.1991	289500	6611250	59	Hills	hill slope	skeletal	Dodonaea lobulata(1)
6	ANG1799	02.06.1991	289250	6611450	59	Hills	hill slope	skeletal	Triodia irritans var. (NC)(2)
6	ANG1800	02.06.1991	289200	6611250	57	Hills	hill slope	skeletal	Eucalyptus dumosa(1)
6	ANG1801	02.06.1991	296200	6615850	1	Hills	hill slope	skeletal	Acacia aneura (NC)(T)
6	ANG1802	02.06.1991	290250	6617500	1	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1)
6	ANG1803	03.06.1991	290050	6616950	16	Rises	hill slope	skeletal	Acacia tetragonophylla(1)
6	ANG1804	03.06.1991	289550	6616450	59	Hills	hill crest	loam/sand	Eucalyptus socialis(1)
6	ANG1805	03.06.1991	289050	6618500	1	Low hills	hill slope	skeletal	Acacia victoriae ssp. victoriae(1)
6	ANG1806	03.06.1991	286100	6621450	33	Rises	hill slope	loam	Sclerolaena obliquicuspis(1)
6	ARR0534	07.04.1987	340700	6594600	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	ARR0535	07.04.1987	339800	6590400	23	Drainage line	depression	not recorded	Eucalyptus camaldulensis var.(T),Melaleuca glomerata(T),Acacia ligulata (NC)(T)
6	ARR0536	07.04.1987	339700	6588700	23	Plain	plain (incl undulating)	clay/sand	Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T)
6	ARR0537	07.04.1987	337600	6585200	22	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eremophila freelingii(T)
6	ARR0538	07.04.1987	336500	6584700	4	Rises	hill slope	loam/sand	Eucalyptus gillii(2),Acacia victoriae ssp. victoriae(T),Melaleuca lanceolata ssp. lanceolata(T)
6	ARR0539	08.04.1987	333500	6585000	6	Rises	hill slope	loam/sand	Acacia tetragonophylla(T),Eremophila freelingii(T),Acacia rivalis(T)
6	ARR0540	08.04.1987	333300	6584700	14	Drainage line	depression	not recorded	Melaleuca glomerata(2),Melaleuca dissitiflora(T),Eucalyptus camaldulensis var.(T)
6	ARR0541	08.04.1987	334900	6584500	6	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T),Eremophila freelingii(T)
6	ARR0542	08.04.1987	332700	6586300	6	Low hills	hill crest	loam/sand	Acacia aneura (NC)(T),Acacia tetragonophylla(T),Eremophila freelingii(T)
6	ARR0543	09.04.1987	334900	6585500	2	Hills	hill slope	loam/sand	Casuarina pauper(1),Acacia aneura (NC)(T)
6	ARR0544	09.04.1987	335575	6584550	6	Low hills	hill slope	loam	Acacia aneura (NC)(T),Santalum lanceolatum(T),Eremophila freelingii(T)
6	ARR0545	09.04.1987	337200	6583500	6	Low hills	hill slope	loam/sand	Eremophila duttonii(T),Eremophila freelingii(T),Santalum lanceolatum(T)
6	ARR0546	09.04.1987	337500	6583500	6	Plain	plain (incl undulating)	loam/sand	Acacia aneura (NC)(1),Senna artemisioides ssp. helmsii(T),Eremophila freelingii(N)
6	ARR0547	09.04.1987	337000	6582400	6	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Eremophila freelingii(T)
6	ARR0548	09.04.1987	336700	6582400	6	Low hills	hill crest	clay/sand/loam	Eremophila freelingii(1),Acacia aneura (NC)(T),Acacia tetragonophylla(T)
6	ARR0549	09.04.1987	335200	6582100	6	Hills	hill crest	loam/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T),Senna artemisioides nothossp. artemisioides(T)
6	ARR0601	09.04.1987	335400	6582200	6	Low hills	hill slope	loam/sand	Acacia tetragonophylla(T),Senna artemisioides nothossp. coriacea(T),Acacia victoriae ssp. victoriae(T)
6	ARR0602	10.04.1987	335900	6582200	6	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(1),Acacia aneura (NC)(T),Acacia tetragonophylla(T)
6	ARR0603	10.04.1987	337600	6581600	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1),Rhagodia spinescens(T)
6	ARR0604	10.04.1987	336400	6576400	6	Hills	hill crest	clay/sand/loam	Eremophila freelingii(T),Senna glutinosa ssp. pruinosa(T)
6	ARR0605	10.04.1987	336200	6575700	4	Low hills	hill slope	not recorded	Acacia tetragonophylla(T),Eucalyptus gillii(T)
6	ARR0606	10.04.1987	335000	6572300	15	Drainage line	plain (incl undulating)	not recorded	Eucalyptus camaldulensis var.(2),Melaleuca glomerata(T),Acacia salicina(T)
6	ARR0607	10.04.1987	334600	6573000	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Eremophila freelingii(T),Acacia aneura (NC)(T)
6	ARR0608	10.04.1987	335600	6572600	2	Hills	hill crest	loam/sand	Casuarina pauper(1),Acacia aneura (NC)(T)
6	ARR0609	11.04.1987	336600	6573500	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Maireana pyramidata(T)
6	ARR0610	11.04.1987	336700	6572200	16	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	ARR0611	11.04.1987	340000	6571200	23	Drainage line	depression	silt/clay	Maireana aphylla(1),Acacia victoriae ssp. victoriae(T),Rhagodia spinescens(T)
6	ARR0612	11.04.1987	345900	6570000	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Maireana pyramidata(T),Senna artemisioides ssp. petiolaris(T)
6	ARR0613	11.04.1987	346500	6596200	23	Sand plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1),Acacia ligulata (NC)(T)
6	ARR0614	11.04.1987	346500	6577800	22	Drainage line	depression	loam	Eucalyptus camaldulensis var.(T),Acacia victoriae ssp. victoriae(T)
6	ARR0615	12.04.1987	351100	6576100	23	Plain	plain (incl undulating)	loam/sand	Eremophila duttonii(T),Acacia victoriae ssp. victoriae(T),Eremophila sturtii(T)
6	ARR0616	12.04.1987	354300	6579000	27	Plain	hill slope	loam/sand	Maireana astrotricha(1),Maireana pyramidata(T),Atriplex vesicaria ssp.(T)
6	ARR0617	12.04.1987	354200	6579100	22	Drainage line	depression	not recorded	Casuarina pauper(T),Melaleuca glomerata(T)
6	ARR0618	12.04.1987	355000	6582300	38	Drainage line	depression	not recorded	Melaleuca glomerata(2)
6	ARR0619	12.04.1987	351900	6584400	22	Alluvial plain	plain (incl undulating)	loam/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T),Pittosporum phylliraeoides var. microcarpa(T)
6	ARR0620	12.04.1987	354600	6584600	27	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Maireana astrotricha(T),Maireana pyramidata(T)
6	ARR0621	12.04.1987	355300	6583600	38	Drainage line	depression	not recorded	Atriplex vesicaria ssp.(T),Halosarcia halocnemoides ssp. halocnemoides(T),Nitraria billardierei(T)
6	ARR0622	12.04.1987	355300	6581500	38	Plain	depression	not recorded	*Datura leichhardtii(1),Sclerostegia tenuis(T),Atriplex lindleyi ssp.(T)
6	ARR0623	13.04.1987	352100	6595800	23	Sand plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Senna artemisioides nothossp. coriacea(T),Maireana pyramidata(T)
6	ARR0624	13.04.1987	356100	6594100	23	Plain	hill slope	loam/sand	Casuarina pauper(1),Senna artemisioides nothossp.

Appendix 2 (continued)

									coriacea(T),Eremophila duttonii(T)
6	ARR0625	13.04.1987	356100	6594300	23	Sand plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T),Eremophila sturtii(T)
6	ARR0626	13.04.1987	350400	6589700	22	Flood plain	plain (incl undulating)	silt/clay/loam	Maireana aphylla(2),Acacia victoriae ssp. victoriae(T),Maireana pyramidata(T)
6	ARR0627	13.04.1987	350100	6588800	22	Drainage line	depression	silt/clay/loam	Eucalyptus camaldulensis var.(T),Acacia victoriae ssp. victoriae(T),Acacia salicina(T)
6	ARR0635	11.04.1987	347300	6578700	23	Flood plain	plain (incl undulating)	not recorded	Acacia victoriae ssp. victoriae(2)
6	ARR0636	12.04.1987	351500	6576100	23	Plain	plain (incl undulating)	not recorded	Maireana pyramidata(2),Maireana astrotricha(1)
6	ARR0637	12.04.1987	353800	6574200	33	Drainage line	depression	not recorded	Maireana pyramidata(1),Nitraria billardierei(T)
6	ARR0666	17.06.1987	325825	6579250	4	Flood plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	ARR1153	28.02.1988	334350	6595600	2	Rises	hill slope	loam/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	ARR1154	28.02.1988	333850	6595600	6	Low hills	hill slope	clay/sand/loam	Eucalyptus gillii(T)
6	ARR1155	28.02.1988	334500	6594250	6	Low hills	hill slope	clay/sand/loam	Eucalyptus gillii(1),Acacia aneura (NC)(T)
6	ARR1156	28.02.1988	335200	6592550	23	Plain	hill slope	loam/sand	Eremophila freelingii(1),Maireana astrotricha(1),Eremophila duttonii(T)
6	ARR1157	28.02.1988	337950	6595350	2	Plain	hill slope	clay/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	ARR9534	07.04.1987	340350	6595550	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	ARR9537	07.04.1987	339200	6595650	22	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eremophila freelingii(T)
6	BAL0522	04.04.1987	332600	6619100	23	Plain	plain (incl undulating)	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	BAL1612	10.10.1990	333300	6621600	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	BAL1612		271600	6599000	2	Rises	plain (incl undulating)	not recorded	
6	BAL1613	10.10.1990	335300	6622850	14	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	BAL1613		267600	6608600	14	Plain	plain (incl undulating)	not recorded	
6	BAL1614	10.10.1990	333700	6624100	14	Low hills	hill footslope	loam/sand	Eremophila duttonii(1)
6	BAL1615	10.10.1990	334900	6624900	14	Drainage line	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BAL1616	10.10.1990	336600	6622650	14	Rises	hill footslope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BAL1616		273300	6617700	14	Low hills	hill slope	not recorded	
6	BAL1617	10.10.1990	336650	6623500	26	Rises	hill footslope	clay/loam	Astrebla pectinata(1)
6	BAL1617		274800	6614900	26	Plain	plain (incl undulating)	not recorded	
6	BAL1618		270100	6611800	41	Rises	hill slope	not recorded	
6	BAL1618	10.10.1990	337300	6621200	41	Low hills	hill footslope	silt/loam	Eucalyptus gillii(1)
6	BAL1619		270200	6611800	54	Plain	plain (incl undulating)	not recorded	
6	BAL1619	11.10.1990	336300	6617000	54	Plain	plain (incl undulating)	loam/sand	Sclerolaena longicuspis(T),Astrebla pectinata(T)
6	BAL1620	11.10.1990	336400	6618200	54	Plain	plain (incl undulating)	loam/sand	Sclerolaena longicuspis(T),Astrebla pectinata(T)
6	BAL1620		265000	6603100	54	Rises	hill slope	not recorded	
6	BAL1621	11.10.1990	334800	6620000	23	Plain	hill footslope	loam/sand	Maireana sedifolia(T)
6	BAL1621		262600	6605100	23	Rises	hill slope	not recorded	
6	BAL1622	11.10.1990	338100	6611700	26	Plain	hill footslope	clay/sand/loam	Senna artemisioides nothossp. sturtii(T),Senna artemisioides nothossp. coriacea(T)
6	BAL1623	12.10.1990	335500	6610300	15	Drainage line	plain (incl undulating)	loam/sand	Melaleuca glomerata(1)
6	BAL1624	12.10.1990	340600	6613800	6	Rises	hill slope	loam/sand	Maireana sedifolia(1)
6	BAL1625	12.10.1990	340400	6613200	4	Alluvial plain	hill footslope	skeletal	Eremophila freelingii(N)
6	BAL1626	12.10.1990	338200	6611900	6	Low hills	hill footslope	loam/sand	Senna artemisioides nothossp. coriacea(1)
6	BAL1627	12.10.1990	342100	6612850	26	Low hills	hill footslope	loam/sand	Eremophila freelingii(1),Eremophila duttonii(1)
6	BAL1628	12.10.1990	340000	6608400	26	Low hills	plain (incl undulating)	loam/sand	Astrebla lappacea(1)
6	BAL1629	12.10.1990	340400	6607100	23	Low hills	hill footslope	loam/sand	Maireana astrotricha(T)
6	BAL1630	13.10.1990	339250	6610350	23	Drainage line	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	BAL1631	26.10.1990	340400	6604500	6	Low hills	hill footslope	loam/sand	Dodonaea microzyga var. microzyga(1)
6	BAL1632	26.10.1990	340750	6603150	6	Low hills	hill slope	loam/sand	Senna artemisioides nothossp. coriacea(1)
6	BAL1633	26.10.1990	341000	6603100	26	Low hills	hill footslope	loam/sand	Maireana astrotricha(T)
6	BAL1634	26.10.1990	341250	6603000	6	Low hills	hill slope	clay/sand	Senna artemisioides nothossp. coriacea(T),Eremophila freelingii(T)
6	BAL1635	26.10.1990	341300	6601600	24	Alluvial plain	plain (incl undulating)	loam/sand	Sclerolaena limbata(T)
6	BAL1636	26.10.1990	341600	6601700	36	Plain	plain (incl undulating)	loam/sand	*Carrichtera annua(2)
6	BAL1637	26.10.1990	340900	6599700	26	Rises	plain (incl undulating)	loam	Eremophila duttonii(T)
6	BAL1638	26.10.1990	340200	6599750	7	Hills	hill crest	skeletal	Eremophila freelingii(1)
6	BAL1639	27.10.1990	342300	6622500	26	Plain	plain (incl undulating)	clay/loam	Eragrostis eriopoda(1),Rhodanthe floribunda(T)
6	BAL1640	27.10.1990	347500	6623000	26	Plain	plain (incl undulating)	loam/sand	Rhodanthe floribunda(T),Eragrostis eriopoda(T),Eragrostis xerophila(T)
6	BAL1641	27.10.1990	349600	6621400	26	Plain	plain (incl undulating)	loam/sand	Rhodanthe floribunda(T),Eragrostis eriopoda(T),Eragrostis xerophila(T)
6	BAL1642	27.10.1990	352200	6620250	26	Plain	plain (incl undulating)	loam/sand	Rhodanthe floribunda(T),Eragrostis eriopoda(T),Eragrostis xerophila(T)
6	BAL1643	27.10.1990	353600	6620000	26	Plain	plain (incl undulating)	clay/sand/loam	Sclerolaena limbata(1),Enneapogon avenaceus(1),Enneapogon cylindricus(1)
6	BAL1644	27.10.1990	355800	6619800	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BAL1645	27.10.1990	356050	6620100	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BAL1646	27.10.1990	356300	6620500	23	Plain	plain (incl undulating)	loam/sand	*Sisymbrium erysimoides(2),*Acetosa vesicaria(1)
6	BAL1647	27.10.1990	356300	6621000	22	Alluvial plain	plain (incl undulating)	loam/sand	Eucalyptus camaldulensis var. obtusa(1)
6	BAL1648	27.10.1990	355800	6622100	23	Plain	hill slope	loam/sand	Sclerolaena limbata(1)
6	BAL1649	28.10.1990	340800	6620400	54	Plain	plain (incl undulating)	clay/loam	Brachycome dentata(1),Eragrostis eriopoda(1),Eragrostis setifolia(1)
6	BAL1650	28.10.1990	339800	6619000	23	Flood plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BAL1651	28.10.1990	344100	6619400	6	Rises	hill slope	loam/sand	Eucalyptus gillii(T)
6	BAL1652	28.10.1990	350100	6617700	24	Plain	plain (incl undulating)	loam/sand	Maireana aphylla(T)
6	BAL1653	28.10.1990	350200	6615400	23	Flood plain	plain (incl undulating)	loam/sand	Eremophila freelingii(1),Acacia aneura (NC)(T)
6	BAL1654	28.10.1990	348500	6614900	54	Plain	plain (incl undulating)	clay/sand/loam	Rhodanthe floribunda(1),Rhodanthe microglossa(T),Compositae sp.(T)
6	BAL1655	28.10.1990	342400	6616950	6	Rises	plain (incl undulating)	loam/sand	Maireana sedifolia(T),Senna artemisioides nothossp. coriacea(T)
6	BAL1656	31.10.1990	340800	6597800	26	Plain	plain (incl undulating)	loam/sand	Enneapogon avenaceus(1),Enneapogon cylindricus(1)
6	BAL1657	01.05.1991	337900	6599350	26	Rises	hill slope	clay/loam	Maireana astrotricha(N)
6	BAL1658	01.05.1991	337550	6598750	26	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Maireana astrotricha(1)
6	BAL1659	01.05.1991	337350	6598500	33	Drainage line	plain (incl undulating)	loam/sand	Melaleuca glomerata(2)
6	BAL1660	01.05.1991	336700	6597600	26	Plain	plain (incl undulating)	clay/loam	Sclerolaena longicuspis(1),Sclerolaena divaricata(1)
6	BAL1661	01.05.1991	337200	6601800	26	Low hills	hill slope	clay/loam	Sclerolaena divaricata(1),Sclerolaena longicuspis(1),Frankenia serpyllifolia(1)
6	BAL1662	01.05.1991	336950	6602900	6	Low hills	hill slope	loam/sand	Casuarina pauper(1)

Appendix 2 (continued)

6	BAL1663	01.05.1991	335400	6604700	26	Low hills	hill slope	loam/sand	Eremophila duttonii(1)
6	BAL1664	01.05.1991	335300	6604900	6	Rises	hill footslope	loam/sand	Senna artemisioides nothossp. coriacea(1),Senna artemisioides nothossp. artemisioides(1),Eremophila duttonii(1)
6	BAL1665	01.05.1991	334300	6604950	23	Plateau	plain (incl undulating)	silt/loam	Eriochiton sclerolaenoides(1),Sclerolaena obliquicuspis(1),Sclerolaena longicuspis(1)
6	BAL1666	29.10.1990	350700	6613850	23	Plain	plain (incl undulating)	loam/sand	Eremophila freelingii(1),Eremophila duttonii(T)
6	BAL1667	29.10.1990	350800	6612800	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	BAL1668	29.10.1990	351100	6611300	23	Plain	plain (incl undulating)	loam/sand	Eremophila duttonii(1)
6	BAL1669	29.10.1990	351300	6611000	23	Flood plain	plain (incl undulating)	sand	Eucalyptus camaldulensis var. obtusa(1)
6	BAL1670	29.10.1990	346500	6611500	26	Plain	plain (incl undulating)	loam/sand	Rhodanthe floribunda(1),Eragrostis sp.(T)
6	BAL1671	29.10.1990	344200	6611500	54	Rises	hill footslope	clay/sand/loam	Rhodanthe floribunda(1),Eragrostis setifolia(T)
6	BAL1672	29.10.1990	343250	6612500	6	Plateau	plain (incl undulating)	loam/sand	Senna artemisioides nothossp. coriacea(T),Eremophila freelingii(T),Senna artemisioides ssp. helmsii(T)
6	BAL1673	02.05.1991	336800	6606300	26	Plain	plain (incl undulating)	loam	Maireana pyramidata(T)
6	BAL1674	02.05.1991	337600	6607050	6	Plain	plain (incl undulating)	skeletal	Dodonaea microzyga var. microzyga(1),Senna artemisioides ssp. oligophylla(1)
6	BAL1675	31.10.1990	340850	6598350	26	Plain	plain (incl undulating)	loam/sand	Dissocarpus paradoxus(1),Sclerolaena limbata(1)
6	BAL1676	30.10.1990	352300	6600100	23	Plain	plain (incl undulating)	loam/sand	Enneapogon cylindricus(1),Stipa sp.(T)
6	BAL1677	30.10.1990	347700	6606250	22	Flood plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	BAL1678	30.10.1990	348100	6607800	21	Alluvial plain	plain (incl undulating)	loam/sand	Dodonaea microzyga var. microzyga(1),Senna artemisioides nothossp. sturtii(1)
6	BAL1680	30.10.1990	345200	6604100	23	Plain	plain (incl undulating)	loam/sand	Senna artemisioides ssp. quadrifolia(1),Senna artemisioides ssp. petiolaris(T)
6	BAL1681	30.10.1990	339500	6622800	6	Low hills	hill slope	skeletal	Maireana sedifolia(1),Sida ammophila (NC)(1),Maireana astrotricha(1)
6	BAL1682	30.04.1991	354200	6599250	23	Plain	plain (incl undulating)	loam/sand	Sclerolaena obliquicuspis(1)
6	BAL1683	30.04.1991	354500	6600100	23	Plain	plain (incl undulating)	loam/sand	Senna artemisioides nothossp. coriacea(1),Senna artemisioides ssp. petiolaris(1)
6	BAL1685	30.04.1991	355900	6603900	30	Plain	plain (incl undulating)	sand	Eremophila sturtii(1),Senna artemisioides ssp. petiolaris(1)
6	BAL1686	30.04.1991	355150	6605850	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1),Senna artemisioides nothossp. artemisioides(1),Senna artemisioides nothossp. sturtii(1)
6	BAL1687	30.04.1991	350050	6599300	23	Plain	plain (incl undulating)	sand	Senna artemisioides ssp. petiolaris(1)
6	BAL1688	30.04.1991	349700	6598850	23	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(1),Maireana aphylla(1)
6	BAL1689	30.04.1991	343100	6597850	23	Plain	plain (incl undulating)	silt/loam	Senna artemisioides nothossp. sturtii(1),Senna artemisioides ssp. quadrifolia(1)
6	BAL1690	01.05.1991	338200	6601600	23	Rises	hill slope	loam/sand	Eremophila duttonii(1),Acacia aneura (NC)(T)
6	BAL1691	01.05.1991	336900	6603650	6	Low hills	hill slope	loam/sand	Dodonaea microzyga var. microzyga(1),Senna artemisioides ssp. oligophylla(1)
6	BAL1700	26.10.1990	340200	6599750	4	Hills	hill slope	not recorded	Casuarina pauper(1)
6	BEL1609	30.08.1990	244400	6576300	23	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1)
6	BEN1191	08.03.1988	321550	6568450	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	BLI0025	18.04.1986	273400	6560400	11	Hills	hill slope	loam/sand	Callitris glaucophylla(2),Acacia calamifolia(1)
6	BLI0026	19.04.1986	271200	6564200	40	Rises	hill slope	loam/sand	Callitris glaucophylla(1),Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	BLI0027	18.04.1986	280600	6555700	9	Hills	hill slope	loam/sand	Acacia calamifolia(1)
6	BLI0028	18.04.1986	274900	6557900	39	Low hills	hill slope	loam/sand	Eucalyptus dumosa(2),Eucalyptus socialis(2)
6	BLI0029	18.04.1986	275400	6558300	40	Low hills	hill slope	loam/sand	Acacia calamifolia(2),Senna artemisioides ssp. quadrifolia(1)
6	BLI0030	19.04.1986	274300	6564700	41	Low hills	hill slope	clay/sand	Eucalyptus socialis(1),Eucalyptus dumosa(1),Casuarina pauper(1)
6	BLI0032	18.04.1986	284300	6551800	11	Plain	plain (incl undulating)	clay/sand/loam	Acacia rivalis(1),Callitris glaucophylla(T)
6	BLI0033	18.04.1986	284800	6550500	5	Plain	hill slope	clay/sand	Acacia rivalis(1),Acacia victoriae ssp. victoriae(T),Acacia calamifolia(T)
6	BLI0477	20.09.1984	272800	6540400	12	Low hills	hill slope	loam	Callitris glaucophylla(2),Acacia victoriae ssp. victoriae(T)
6	BLI0489	22.08.1984	276300	6545900	12	Alluvial plain	plain (incl undulating)	loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	BLI0490	04.10.1984	278400	6542700	12	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T),Pittosporum phylliraeoides var. microcarpa(T)
6	BLI0493	04.10.1984	278550	6542550	12	Alluvial plain	depression	loam/sand	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T),*Nicotiana glauca(T)
6	BLI0496	23.08.1984	282600	6543400	16	Rises	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T)
6	BLI0497	23.08.1984	279300	6545000	12	Alluvial plain	plain (incl undulating)	loam/sand	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	BLI0773	06.08.1987	262400	6554100	9	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	BLI0774	06.08.1987	262600	6555950	11	Rises	hill slope	loam/sand	Callitris glaucophylla(1),Hakea ednieana(T)
6	BLI0775	06.08.1987	262300	6556000	9	Low hills	hill slope	silt/loam	Hakea ednieana(T),Callitris glaucophylla(T)
6	BLI0776	07.08.1987	263200	6553400	9	Hills	depression	clay/sand	Eucalyptus camaldulensis var.(1),Hakea ednieana(T),Casuarina pauper(T)
6	BLI0777	07.08.1987	265300	6552800	21	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T),Acacia ligulata (NC)(T)
6	BLI0790	09.08.1987	265100	6560050	9	Rises	hill slope	loam	Eucalyptus camaldulensis var.(T),Senna artemisioides nothossp. artemisioides(T)
6	BLI0791	10.08.1987	280100	6551600	9	Low hills	hill slope	loam/sand	Zygophyllum aurantiacum (NC)(1),*Asphodelus fistulosus(1),Solanum sturtianum(T)
6	BLI0792	10.08.1987	272200	6549400	50	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	BLI0793	10.08.1987	273050	6549600	55	Low hills	hill slope	clay/sand/loam	Olearia decurrens(3),Stipa breviglumis(2)
6	BLI0794	10.08.1987	275600	6549100	12	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Callitris glaucophylla(T)
6	BLI0798	11.08.1987	271700	6544900	9	Low hills	hill slope	loam/sand	Acacia calamifolia(T)
6	BLI0799	11.08.1987	270800	6543950	11	Low hills	hill slope	clay/sand	Callitris glaucophylla(2)
6	BLI0800	11.08.1987	266800	6541200	56	Low hills	hill slope	clay/sand/loam	Cassinia laevis(1),Olearia decurrens(1),Acacia calamifolia(1)
6	BLI0801	12.08.1987	272800	6562500	9	Hills	hill slope	loam	Acacia victoriae ssp. victoriae(T),Callitris glaucophylla(T),Acacia calamifolia(T)
6	BLI0802	12.08.1987	267400	6565400	1	Low hills	hill slope	clay/sand/loam	
6	BLI0803	12.08.1987	267400	6565900	9	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	BLI0804	12.08.1987	266950	6565350	11	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	BLI0805	13.08.1987	266500	6565450	12	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T),Acacia rivalis(T)
6	BLI0806	13.08.1987	270200	6565600	11	Rises	hill slope	loam/sand	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	BLI0807	13.08.1987	270750	6565600	11	Rises	hill slope	loam/sand	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	BLI0808	13.08.1987	272900	6564350	41	Low hills	hill slope	clay/loam	Casuarina pauper(1),Alectryon oleifolius ssp. canescens(T)
6	BLI0809	13.08.1987	284400	6557750	9	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia rivalis(T)
6	BLI0810	14.08.1987	285200	6565500	56	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	BLI0811	14.08.1987	284550	6565100	56	Hills	hill slope	loam/sand	Callitris glaucophylla(1)
6	BLI0812	14.08.1987	284400	6564700	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T)
6	BLI0813	14.08.1987	283900	6564800	11	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1),Acacia rivalis(T)
6	BLI0909	12.08.1987	275700	6541100	9	Low hills	hill slope	loam/sand	Callitris glaucophylla(T),Acacia calamifolia(T),Alectryon oleifolius ssp. canescens(T)

Appendix 2 (continued)

6	BLI1601	28.08.1990	280700	6555100	10	Flood plain	plain (incl undulating)	clay/sand/loam	Acacia rigens(T)
6	BOO0137	14.07.1986	256800	6354600	49	Low hills	hill slope	not recorded	Eucalyptus odorata(T),Eremophila longifolia(T),Allocasuarina verticillata(T)
6	BOO0139	15.07.1986	247300	6346900	68	Low hills	hill slope	not recorded	Eucalyptus odorata(2),Callitris glaucophylla(T)
6	BOO0142	16.07.1986	250800	6362700	43	Low hills	hill slope	not recorded	Senna artemisioides nothossp. coriacea(2),Eucalyptus odorata(T)
6	BOO0143	16.07.1986	250200	6368300	43	Plain	plain (incl undulating)	not recorded	Senna artemisioides nothossp. coriacea(1),Templetonia egena(1),Callitris glaucophylla(1)
6	BUN0047	22.04.1986	287100	6531800	9	Hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	BUN0048	22.04.1986	287100	6530700	41	Low hills	hill slope	loam/sand	Eucalyptus socialis(2),Myoporum platycarpum (NC)(1)
6	BUN0064	21.04.1986	290200	6523800	55	Hills	hill slope	loam/sand	Eucalyptus socialis(2),Eucalyptus dumosa(1)
6	BUN0066	21.04.1986	290100	6524100	52	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	BUN0067	21.04.1986	288850	6523400	59	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(1),Eucalyptus intertexta(T)
6	BUN0068	21.04.1986	288700	6528500	59	Low hills	hill slope	loam/sand	Eucalyptus dumosa(3),Senna artemisioides nothossp. coriacea(T),Senna artemisioides ssp. petiolaris(T)
6	BUN0069	22.04.1986	295100	6530900	9	Drainage line	depression	loam/sand	Melaleuca glomerata(3),Eucalyptus camaldulensis var.(T),Acacia ligulata (NC)(T)
6	BUN0070	22.04.1986	299500	6530600	1	Hills	hill crest	silt/loam	Eremophila freelingii(1)
6	BUN0086	22.04.1986	306800	6531700	6	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	BUN0087	22.04.1986	302100	6531200	25	Plain	hill crest	clay/sand	Maireana astrotricha(1),Atriplex vesicaria ssp.(T)
6	BUN0088	22.04.1986	298600	6538700	56	Mountains	hill slope	clay/sand/loam	Hakea ednieana(T),Acacia victoriae ssp. victoriae(T),Myoporum platycarpum (NC)(T)
6	BUN0089	22.04.1986	299300	6538500	5	Mountains	hill crest	clay/sand/loam	Eucalyptus socialis(1)
6	BUN0304	21.04.1986	297000	6533600	9	Low hills	hill slope	clay/sand/loam	Eremophila longifolia(1),Eremophila oppositifolia var. oppositifolia(T)
6	BUN0305	21.04.1986	294800	6530800	2	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Acacia tetragonophylla(T),Acacia rigens(T)
6	BUN0306	23.04.1986	293600	6514200	26	Plain	hill slope	clay/sand/loam	Atriplex vesicaria ssp.(2),Maireana pyramidata(T)
6	BUN0308	16.07.1985	299000	6515900	25	Plain	hill slope	loam/sand	Acacia tetragonophylla(T)
6	BUN0311	31.05.1985	299400	6515900	25	Alluvial plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	BUN0313	29.10.1985	307400	6513500	25	Alluvial plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(T),Acacia victoriae ssp. victoriae(T)
6	BUN0314	23.10.1985	301600	6519500	25	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	BUN0315	29.10.1985	304900	6520800	25	Plain	hill slope	clay/sand/loam	Myoporum platycarpum (NC)(T),Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T)
6	BUN0421	28.10.1985	295800	6514800	25	Alluvial plain	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	BUN0424	23.10.1985	298900	6525800	11	Plain	hill slope	clay/sand	Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T)
6	BUN0455	24.09.1986	300000	6523800	7	Low hills	hill slope	not recorded	Eremophila freelingii(2),Santalum acuminatum(T),Eremophila alternifolia(T)
6	BUN0456	24.09.1986	300500	6524200	18	Plain	plain (incl undulating)	not recorded	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	BUN0457	24.09.1986	300900	6524300	6	Hills	hill slope	not recorded	Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T)
6	BUN0467	22.04.1986	298500	6526400	1	Low hills	hill slope	not recorded	Callitris glaucophylla(T)
6	BUN0471	22.04.1986	296300	6520200	50	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Callitris glaucophylla(1),Casuarina pauper(T)
6	BUN0472	22.10.1985	291500	6523400	57	Hills	hill slope	loam/sand	Allocasuarina verticillata(T)
6	BUN0473	22.04.1986	292700	6522300	12	Hills	hill slope	loam/sand	Eucalyptus intertexta(T),Eucalyptus socialis(T),Callitris glaucophylla(T)
6	BUN0479	16.07.1985	290200	6513100	12	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Eucalyptus socialis(T),Acacia victoriae ssp. victoriae(T)
6	BUN0495	16.10.1984	286200	6540400	47	Alluvial plain	plain (incl undulating)	silt/clay/loam	Acacia victoriae ssp. victoriae(T)
6	BUN0630	31.03.1987	296800	6538300	35	Alluvial plain	plain (incl undulating)	clay/sand/loam	Nitraria billardierei(T)
6	BUN0733	08.09.1987	292800	6535450	25	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Nitraria billardierei(T)
6	BUN0734	09.09.1987	292350	6534700	2	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Senna artemisioides ssp. petiolaris(1),Senna artemisioides nothossp. coriacea(T)
6	BUN0735	09.09.1987	287400	6536400	11	Rises	hill slope	clay/sand/loam	
6	BUN0736	10.09.1987	295750	6534250	3	Hills	hill slope	loam/sand	Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T)
6	BUN0737	10.09.1987	298150	6538200	3	Low hills	hill slope	loam/sand	Callitris glaucophylla(1),Acacia aneura (NC)(T)
6	BUN0738	10.09.1987	298100	6537900	3	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T)
6	BUN0739	11.09.1987	304900	6530600	4	Plain	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T),Myoporum platycarpum (NC)(T)
6	BUN0740	11.09.1987	307000	6532600	25	Rises	hill slope	loam/sand	Casuarina pauper(T)
6	BUN0741	11.09.1987	307900	6531800	25	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(2)
6	BUN0742	11.09.1987	308250	6536100	25	Plain	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(2),Maireana astrotricha(1)
6	BUN0743	11.09.1987	306000	6540650	23	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	BUN0744	12.09.1987	303900	6540300	4	Rises	hill slope	loam/sand	Acacia oswaldii(T),Casuarina pauper(T),Eucalyptus socialis(T)
6	BUN0745	12.09.1987	305000	6540750	2	Low hills	hill slope	clay/sand	Casuarina pauper(T),Eremophila freelingii(T)
6	BUN0746	12.09.1987	307200	6540800	4	Low hills	hill slope	clay/sand	Eremophila freelingii(T),Acacia aneura (NC)(T)
6	BUN0747	12.09.1987	302700	6516050	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	BUN0748	13.09.1987	303450	6515450	15	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(T)
6	BUN0749	13.09.1987	302650	6515800	18	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	BUN0750	13.09.1987	302600	6516650	25	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Maireana pyramidata(T)
6	BUN0751	13.09.1987	308550	6522550	26	Alluvial plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(T),Maireana astrotricha(T)
6	BUN0752	14.09.1987	295250	6532100	3	Hills	hill slope	loam/sand	Acacia tetragonophylla(T),Senna artemisioides nothossp. coriacea(T),Eremophila longifolia(T)
6	BUN0753	14.09.1987	293750	6529500	3	Rises	hill slope	loam/sand	Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T),Eremophila alternifolia(T)
6	BUN0754	14.09.1987	292500	6527900	55	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(2),Alectryon oleifolius ssp. canescens(T)
6	BUN0755	15.09.1987	290600	6523800	56	Mountains	hill crest	clay/sand/loam	Eucalyptus socialis(1),Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	BUN0756	15.09.1987	296300	6529700	56	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	BUN0757	15.09.1987	296400	6529300	56	Mountains	hill crest	clay/sand/loam	Eucalyptus socialis(T)
6	BUN0758	16.09.1987	294700	6529400	3	Hills	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Eucalyptus socialis(T),Casuarina pauper(T)
6	BUN0759	16.09.1987	298700	6530100	3	Plain	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T),Eucalyptus intertexta(T)
6	BUN0760	16.09.1987	298950	6527050	3	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)

Appendix 2 (continued)

6	BUN0761	16.09.1987	299300	6523100	1	Plain	hill slope	clay/sand	Hakea ednieana(T),Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T)
6	BUN9067	21.04.1986	289000	6523300	59	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(1),Eucalyptus intertexta(T)
6	BUR1004	09.04.1988	283650	6624500	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	CAD1890	29.07.1991	264150	6595350	27	Low hills	hill footslope	loam/sand	Maireana pyramidata(1),Maireana sedifolia(T)
6	CAD1891	30.07.1991	262300	6593200	27	Rises	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Maireana pyramidata(1)
6	CAD1892	30.07.1991	263600	6593700	25	Hills	hill slope	loam/sand	Maireana pyramidata(1),Sida petrophila(T)
6	CAD1893	30.07.1991	264250	6594700	33	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	CAD1894	30.07.1991	264700	6594800	29	Hills	hill footslope	clay	Casuarina pauper(1)
6	CAD1895	30.07.1991	265700	6594850	6	Hills	hill slope	clay	Eremophila freelingii(1)
6	CAD1896	30.07.1991	267300	6594350	27	Hills	hill footslope	clay/sand/loam	Maireana astrotricha(1)
6	CAD1897	30.07.1991	267400	6594600	50	Drainage line	plain (incl undulating)	loam/sand	Eucalyptus camaldulensis var.(1)
6	CAD1898	30.07.1991	270550	6593700	57	Hills	hill slope	clay/sand	Callitris glaucophylla(1)
6	CAD1899	31.07.1991	271700	6592950	27	Rises	hill slope	clay	Atriplex vesicaria ssp.(1),Maireana astrotricha(T)
6	CAD1900	31.07.1991	270750	6592400	25	Low hills	hill slope	clay	Maireana pyramidata(T)
6	CAD1901	31.07.1991	270700	6591800	25	Hills	hill slope	loam/sand	Frankenia serpyllifolia(1)
6	CAD1902	31.07.1991	269700	6591750	6	Hills	hill slope	loam/sand	Casuarina pauper(1)
6	CAD1903	31.07.1991	270450	6591000	27	Low hills	hill slope	clay/loam	Atriplex vesicaria ssp.(2)
6	CAD1904	31.07.1991	269950	6591250	1	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(1)
6	CAD1905	31.07.1991	271600	6594500	33	Alluvial plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1)
6	CAD1906	01.08.1991	272900	6595550	29	Plain	plain (incl undulating)	not recorded	Casuarina pauper(T)
6	CAD1907	01.08.1991	273850	6595500	29	Hills	hill footslope	clay	Casuarina pauper(1)
6	CAD1908	01.08.1991	273900	6595400	1	Hills	hill slope	clay	Acacia aneura (NC)(1)
6	CAD1909	01.08.1991	273300	6594600	25	Low hills	hill footslope	loam/sand	Maireana sedifolia(1)
6	CAD1910	01.08.1991	276200	6594300	56	Hills	hill slope	loam/sand	Callitris glaucophylla(1),Casuarina pauper(1)
6	CAD1911	01.08.1991	280500	6595700	3	Hills	hill footslope	clay/sand/loam	Callitris glaucophylla(T)
6	CAD1912	01.08.1991	279350	6595600	11	Hills	hill slope	loam/sand	Cymbopogon ambiguus(1)
6	CAD1913	02.08.1991	279100	6594600	1	Hills	hill slope	loam/sand	Callitris glaucophylla(T)
6	CAD1914	02.08.1991	279950	6594600	1	Hills	hill slope	loam/sand	Dodonaea lobulata(1)
6	CAD1915	02.08.1991	278900	6594950	11	Hills	hill slope	loam/sand	Olearia decurrens(1),Dodonaea viscosa ssp. angustissima(1)
6	CAD1916	02.08.1991	275700	6591850	11	Hills	hill footslope	loam/sand	Zygophyllum aurantiacum (NC)(1),Zygophyllum ammophilum (NC)(1)
6	CAD1917	02.08.1991	277350	6591500	11	Hills	hill slope	skeletal	Cymbopogon ambiguus(1)
6	CAD1918	02.08.1991	279000	6591850	11	Low hills	depression	skeletal	Callitris glaucophylla(2)
6	CAD1919	02.08.1991	279750	6583750	13	Low hills	hill slope	silt/clay/loam	Callitris glaucophylla(1)
6	CAD1920	03.08.1991	280100	6581900	57	Hills	hill footslope	loam/sand	Callitris glaucophylla(1),Eucalyptus odorata(1)
6	CAD1921	03.08.1991	280200	6581800	57	Hills	hill slope	loam/sand	Eucalyptus odorata(1),Eucalyptus flindersii(1)
6	CAD1922	03.08.1991	279650	6583900	13	Rises	hill slope	clay/sand/loam	Stipa sp.(1),Cymbopogon ambiguus(T)
6	CAD1923	03.08.1991	277100	6587800	11	Hills	hill footslope	loam/sand	Acacia rivalis(1)
6	CAD1924	03.08.1991	274250	6587600	11	Hills	hill slope	clay	Cymbopogon ambiguus(1)
6	CAD1925	03.08.1991	273850	6587600	11	Hills	hill slope	skeletal	Triodia irritans var. (NC)(1)
6	CAD1926	04.08.1991	273000	6591150	29	Plain	plain (incl undulating)	clay	Atriplex vesicaria ssp.(1),Zygophyllum aurantiacum (NC)(N)
6	CAD1927	04.08.1991	271400	6590250	1	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	CAD1928	04.08.1991	269100	6586300	29	Rises	hill slope	clay	Casuarina pauper(1)
6	CAD1929	04.08.1991	268450	6584000	11	Rises	hill slope	clay/sand/loam	Cymbopogon ambiguus(1)
6	CAD1930	04.08.1991	269950	6583550	11	Low hills	hill footslope	clay/sand/loam	Acacia rivalis(1)
6	CAD1931	04.08.1991	270600	6584350	11	Hills	hill slope	skeletal	Callitris glaucophylla(1),Acacia rivalis(T)
6	CAD1932	04.08.1991	268150	6584950	29	Rises	hill slope	clay/sand/loam	Maireana pyramidata(1)
6	CAD1933	04.08.1991	268800	6586450	1	Hills	hill slope	not recorded	Olearia decurrens(1),Atriplex vesicaria ssp.(1),Atriplex sp.(1)
6	CAD1934	04.08.1991	269900	6587800	7	Hills	hill slope	clay	Atriplex vesicaria ssp.(1),Zygophyllum aurantiacum (NC)(1)
6	CAD1935	05.08.1991	264800	6588500	29	Rises	hill slope	clay/loam	Sclerolaena divaricata(1),Atriplex vesicaria ssp.(1)
6	CAD1936	05.08.1991	263950	6586400	1	Low hills	hill slope	clay/loam	Atriplex vesicaria ssp.(1),Sida petrophila(1)
6	CAD1937	05.08.1991	265550	6581300	11	Hills	hill slope	clay/sand/loam	Cymbopogon ambiguus(1)
6	CAD1938	05.08.1991	265700	6579400	11	Hills	hill crest	clay/sand/loam	Cymbopogon ambiguus(2),Rhagodia spinescens(1)
6	CAD1939	05.08.1991	265650	6578000	11	Hills	hill footslope	skeletal	Acacia rivalis(1),Acacia victoriae ssp. victoriae(1)
6	CAD1940	05.08.1991	266000	6575500	11	Hills	hill slope	skeletal	Callitris glaucophylla(1),Acacia rivalis(T)
6	CAD1941	05.08.1991	265300	6573350	11	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia rivalis(T)
6	CAD1943	06.08.1991	263950	6572850	30	Hills	hill slope	skeletal	Casuarina pauper(1)
6	CAD1944	06.08.1991	262900	6569500	1	Rises	hill slope	skeletal	Acacia victoriae ssp. victoriae(1)
6	CAD1945	06.08.1991	263800	6571750	33	Hills	hill slope	clay	Zygophyllum aurantiacum (NC)(1),Maireana pyramidata(1)
6	CAD1946	06.08.1991	263250	6572900	39	Hills	hill footslope	silt/loam	Eucalyptus socialis(1)
6	CAD1947	06.08.1991	262350	6572900	11	Hills	hill slope	not recorded	Acacia victoriae ssp. victoriae(1)
6	CAD1948	21.08.1991	269800	6568750	11	Low hills	hill footslope	clay/sand/loam	Cymbopogon ambiguus(2)
6	CAD1949	21.08.1991	269800	6568850	11	Low hills	hill footslope	clay/sand/loam	Acacia rivalis(1)
6	CAD1950	22.08.1991	271400	6569000	11	Low hills	hill slope	clay/sand/loam	Acacia rivalis(1)
6	CAD1951	22.08.1991	272050	6568800	11	Low hills	hill slope	not recorded	Acacia victoriae ssp. victoriae(1),Acacia rivalis(1)
6	CAD1952	22.08.1991	273150	6570700	11	Hills	hill slope	skeletal	Cymbopogon ambiguus(1)
6	CAD1954	22.08.1991	274500	6573750	11	Hills	hill slope	clay	Cymbopogon ambiguus(1)
6	CAD1955	22.08.1991	274250	6573750	65	Hills	hill slope	loam	Callitris glaucophylla(1)
6	CAD1956	22.08.1991	281100	6569200	11	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	CAD1958	23.08.1991	277050	6572850	40	Hills	hill slope	loam	Eucalyptus socialis(1)
6	CAD1960	23.08.1991	279200	6573500	59	Hills	hill footslope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(1)
6	CAD1961	23.08.1991	280250	6574400	39	Rises	plain (incl undulating)	loam/sand	Eucalyptus dumosa(1),Eucalyptus socialis(1)
6	CAD1968	24.08.1991	282950	6593800	57	Hills	hill slope	loam/sand	Callitris glaucophylla(1)
6	CHA0084	23.04.1986	291500	6504300	51	Low hills	hill slope	clay/loam	Eucalyptus socialis(1),Eucalyptus oleosa(1)
6	CHA0426	30.05.1985	288200	6498800	12	Low hills	hill slope	loam/sand	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T),*Nicotiana glauca(T)
6	CHA0427	30.05.1985	293100	6497100	29	Rises	hill slope	clay/sand/loam	Acacia oswaldii(T),Myoporum platycarpum (NC)(T),Senna artemisioides nothossp. coriacea(T)
6	CHA0428	01.06.1985	296200	6495500	56	Mountains	hill crest	loam/sand	Acacia aneura (NC)(T),Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	CHA0429	01.06.1985	295800	6496200	4	Plain	hill slope	clay/sand/loam	Casuarina pauper(T),Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	CHA0430	01.06.1985	291600	6496000	25	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum acuminatum(T)
6	CHA0443	21.09.1986	289900	6493700	59	Mountains	hill crest	loam/sand	Eucalyptus intertexta(T),Eucalyptus socialis(T),Acacia aneura (NC)(T)
6	CHA0444	21.09.1986	289900	6493500	57	Hills	hill slope	loam/sand	Eucalyptus intertexta(T),Callitris glaucophylla(T),Eremophila longifolia(T)
6	CHA0445	21.09.1986	290000	6493500	40	Hills	hill slope	not recorded	Casuarina pauper(1),Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	CHA0446	21.09.1986	287000	6492300	40	Rises	plain (incl undulating)	clay/sand/loam	Alectryon oleifolius ssp. canescens(1),Callitris glaucophylla(T),Eucalyptus socialis(T)
6	CHA0448	22.09.1986	293600	6489300	1	Low hills	hill slope	loam/sand	Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	CHA0450	22.09.1986	293500	6489700	1	Low hills	hill slope	loam/sand	Codonocarpus pyramidalis(T),Hakea ednieana(T),Acacia tetragonophylla(T)

Appendix 2 (continued)

6	CHA0451	23.09.1986	300600	6485600	8	Hills	hill slope	loam/sand	Acacia aneura (NC)(T)
6	CHA0452	23.09.1986	300900	6488700	8	Alluvial plain	plain (incl undulating)	loam/sand	Myoporum platycarpum (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	CHA0453	23.09.1986	305900	6493400	23	Low hills	hill crest	clay/sand	Acacia tetragonophylla(T),Eremophila duttonii(T),Acacia victoriae ssp. victoriae(T)
6	CHA0454	23.09.1986	310000	6505300	25	Low hills	depression	loam/sand	Acacia victoriae ssp. victoriae(1),Casuarina pauper(T),Pittosporum phylliraeoides var. microcarpa(T)
6	CHA0475	22.09.1986	300700	6490500	41	Low hills	hill crest	clay/sand/loam	Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	CHA0478	24.10.1986	290500	6512500	12	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	CHA0480	28.10.1986	292500	6509400	12	Low hills	hill slope	clay/loam	Callitris glaucophylla(T),Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T)
6	CHA0487	23.04.1986	293600	6502700	11	Hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	CHA0488	23.09.1986	307400	6510000	6	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	CHA0494	24.10.1985	290200	6512500	9	Hills	hill crest	clay/sand/loam	Pittosporum phylliraeoides var. microcarpa(T),Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	CHA0716	13.08.1987	299100	6498100	15	Drainage line	depression	loam/sand	Melaleuca glomerata(2)
6	CHA0717	13.08.1987	296200	6498850	9	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	CHA0718	13.08.1987	297100	6500300	25	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	CHA0719	13.08.1987	294300	6500900	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(2),Melaleuca glomerata(1)
6	CHA0720	13.08.1987	294100	6501200	1	Hills	hill slope	clay/sand/loam	Acacia tetragonophylla(T),Dodonaea lobulata(T)
6	CHA0721	14.08.1987	289600	6511900	1	Hills	hill crest	clay/sand/loam	Dodonaea lobulata(1)
6	CHA0722	14.08.1987	296800	6511800	8	Plain	plain (incl undulating)	clay/sand/loam	Maireana sedifolia(1),Maireana astrotricha(1)
6	CHA0723	15.08.1987	305300	6512200	26	Plain	hill slope	clay/sand/loam	Eucalyptus socialis(T),Eucalyptus gracilis(T)
6	CHA0724	15.08.1987	305900	6511800	26	Flood plain	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	CHA0727	16.08.1987	300600	6489100	26	Plain	hill slope	clay/sand/loam	Eucalyptus socialis(1)
6	CHA0728	16.08.1987	308200	6492400	25	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(T)
6	CHA0729	16.08.1987	308200	6490900	25	Rises	hill slope	clay/sand/loam	Maireana pyramidata(1)
6	CHA0730	16.08.1987	309800	6496200	25	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(2)
6	COP1608	30.08.1990	248300	6609800	18	Low hills	hill slope	loam/sand	Maireana sp.(N)
6	DAV0388	09.09.1986	770400	6391400	25	Plain	plain (incl undulating)	not recorded	Acacia papyrocarpa(2)
6	DAV0391	15.09.1986	777700	6390700	49	Drainage line	depression	not recorded	Eucalyptus camaldulensis var.(1)
6	DAV0392	15.09.1986	777200	6391200	27	Plain	hill slope	not recorded	Maireana pyramidata(1),Atriplex vesicaria ssp.(1)
6	DAV0393	15.09.1986	771700	6389400	31	Plain	plain (incl undulating)	not recorded	Eucalyptus leptophylla(1),Eucalyptus oleosa(1)
6	EDE0055	20.04.1986	252600	6538700	33	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1),Rhagodia spinescens(T)
6	EDE0414	24.09.1986	248300	6536200	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	EDE0415	24.09.1986	252700	6533500	33	Plain	plain (incl undulating)	loam/sand	Acacia ligulata (NC)(T),Acacia victoriae ssp. victoriae(T)
6	EDE0416	24.09.1986	256300	6513300	4	Dunefield	plain (incl undulating)	clay/sand	Alectryon oleifolius ssp. canescens(T)
6	EDE0417	24.09.1986	254800	6522200	28	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	EDE0418	24.09.1986	254700	6528400	28	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	EDE0420	24.09.1986	248300	6518700	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0481	25.09.1986	245200	6514200	28	Plain	plain (incl undulating)	loam/sand	Atriplex spongiosa(1)
6	EDE0482	25.09.1986	245300	6514300	26	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(1),Acacia tetragonophylla(T)
6	EDE0500	24.02.1986	257300	6532600	33	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T),Senna artemisioides nothossp. coriacea(T)
6	EDE0911	15.08.1987	259900	6534300	33	Sand plain	plain (incl undulating)	sand	Dodonaea viscosa ssp. angustissima(1),Senna artemisioides nothossp. coriacea(T)
6	EDE0912	15.08.1987	261200	6538300	6	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(1),Acacia tetragonophylla(T),Casuarina pauper(T)
6	EDE0913	15.08.1987	260500	6531800	26	Sand plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T)
6	EDE0914	16.08.1987	261300	6539800	6	Plain	hill slope	loam/sand	Acacia tetragonophylla(T),Santalum lanceolatum(T)
6	EDE0915	16.08.1987	260000	6539300	8	Plain	hill slope	clay/sand/loam	Eremophila duttonii(T),Acacia victoriae ssp. victoriae(T)
6	EDE0916	16.08.1987	255500	6536600	33	Sand plain	plain (incl undulating)	loam/sand	Eremophila duttonii(1),Senna artemisioides nothossp. coriacea(1)
6	EDE0917	16.08.1987	245500	6530100	33	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0918	16.08.1987	244200	6530000	33	Sand plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0919	17.08.1987	239800	6526900	33	Dunefield	plain (incl undulating)	loam/sand	Acacia ligulata (NC)(1),Acacia oswaldii(T)
6	EDE0921	17.08.1987	243800	6521300	33	Sand plain	plain (incl undulating)	sand	Acacia victoriae ssp. victoriae(T),Acacia ligulata (NC)(T)
6	EDE0922	17.08.1987	243300	6516900	33	Drainage line	depression	clay/sand/loam	Acacia victoriae ssp. victoriae(2)
6	EDE0923	17.08.1987	242000	6514400	28	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0924	17.08.1987	250900	6522500	26	Plain	depression	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	EDE0925	17.08.1987	260500	6516000	8	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	EDE0926	17.08.1987	261900	6515700	8	Low hills	hill slope	clay/sand/loam	Casuarina pauper(T)
6	EDE0927	18.08.1987	254500	6517100	6	Low hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(T),Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T)
6	EDE0928	18.08.1987	255600	6512600	27	Plain	hill slope	clay/sand/loam	Maireana pyramidata(T),Maireana astrotricha(T)
6	EDE0929	17.08.1987	254000	6512900	8	Low hills	hill crest	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	EDE0930	15.08.1987	261200	6533000	26	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0931	15.08.1987	262200	6522800	8	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Casuarina pauper(T)
6	EDE0932	15.08.1987	261100	6533100	11	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(1)
6	EDE0934	16.08.1987	248700	6530900	33	Sand plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	EDE0935	17.08.1987	254900	6512700	6	Low hills	hill slope	clay/sand/loam	Acacia tetragonophylla(T)
6	GOD1605	29.08.1990	271400	6618400	53	Rises	hill slope	loam/sand	Atriplex vesicaria ssp.(T)
6	GOD1807	04.06.1991	283250	6618100	41	Low hills	hill crest	loam	Eucalyptus socialis(1)
6	GOD1808	04.06.1991	282200	6618600	41	Rises	hill slope	clay	Eucalyptus socialis(1),Eucalyptus dumosa(1)
6	GOD1809	04.06.1991	281100	6619100	59	Low hills	hill slope	loam/sand	Acacia aneura (NC)(2)
6	GOD1810	04.06.1991	280800	6619000	39	Hills	hill slope	clay/loam	Eucalyptus socialis(1),Eucalyptus dumosa(T)
6	GOD1811	04.06.1991	280500	6619500	59	Plain	plain (incl undulating)	skeletal	Acacia aneura (NC)(1)
6	GOD1812	04.06.1991	280000	6619800	59	Hills	hill footslope	not recorded	Eucalyptus dumosa(1)
6	GOD1813	05.06.1991	278900	6619700	59	Hills	hill slope	skeletal	Eucalyptus intertexta(1),Eucalyptus dumosa(T)
6	GOD1814	05.06.1991	278850	6619900	59	Hills	hill slope	not recorded	Eucalyptus socialis(1)
6	GOD1815	05.06.1991	281800	6622100	11	Rises	hill crest	clay	Acacia victoriae ssp. victoriae(1)
6	GOD1816	05.06.1991	282500	6622700	16	Rises	hill slope	clay/sand/loam	Casuarina pauper(T)
6	GOD1817	05.06.1991	283000	6623100	41	Hills	hill slope	skeletal	Casuarina pauper(1)
6	GOD1818	05.06.1991	282100	6621850	59	Hills	hill slope	skeletal	Dodonaea viscosa ssp. angustissima(1)
6	GOD1819	05.06.1991	280350	6621300	25	Hills	hill footslope	loam/sand	Eucalyptus socialis(1)
6	GOD1820	24.06.1991	272200	6619200	16	Low hills	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Atriplex stipitata(1)
6	GOD1821	24.06.1991	272850	6620100	33	Low hills	hill footslope	silt/loam	Atriplex vesicaria ssp.(1)
6	GOD1822	25.06.1991	263750	6621600	27	Low hills	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Atriplex vesicaria ssp.(1)
6	GOD1824	25.06.1991	262300	6621100	29	Hills	hill slope	clay/loam	Casuarina pauper(1)

Appendix 2 (continued)

6	GOD1825	25.06.1991	262500	6621050	41	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(1)
6	GOD1826	25.06.1991	265350	6620550	21	Hills	hill slope	skeletal	Eremophila freelingii(1)
6	GOD1827	25.06.1991	265100	6620300	21	Hills	hill slope	skeletal	Acacia aneura (NC)(1)
6	GOD1828	25.06.1991	266500	6620400	7	Hills	hill slope	clay/sand/loam	Maireana astrotricha(1),Atriplex vesicaria ssp.(1)
6	GOD1829	25.06.1991	266600	6620800	27	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(2)
6	GOD1830	25.06.1991	266300	6620900	27	Hills	hill slope	loam/sand	Zygophyllum aurantiacum (NC)(1),Eremophila freelingii(1)
6	GOD1831	25.06.1991	266800	6621500	27	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(1)
6	GOD1832	25.06.1991	266600	6623300	25	Low hills	hill footslope	clay/loam	Atriplex vesicaria ssp.(1)
6	GOD1833	25.06.1991	265150	6619600	27	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(1)
6	GOD1834	26.06.1991	268200	6622300	1	Hills	hill slope	clay/sand	Acacia aneura (NC)(1)
6	GOD1835	26.06.1991	270100	6621160	2	Hills	hill crest	clay	Atriplex vesicaria ssp.(T)
6	GOD1836	26.06.1991	270200	6621500	1	Hills	hill slope	clay	Eremophila freelingii(1)
6	GOD1837	26.06.1991	271400	6621200	32	Plain	plain (incl undulating)	clay/loam	Eucalyptus socialis(1)
6	GOD1838	26.06.1991	271600	6620650	16	Low hills	hill slope	loam/sand	Atriplex stipitata(2)
6	GOD1839	26.06.1991	272250	6622050	16	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	GOD1840	26.06.1991	275850	6622500	1	Hills	hill slope	not recorded	Acacia victoriae ssp. victoriae(1),Acacia tetragonophylla(1)
6	GOD1841	26.06.1991	268850	6615400	7	Hills	hill slope	loam	Sida petrophila(1)
6	GOD1842	27.06.1991	270400	6614700	7	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1),Sida petrophila(1)
6	GOD1843	27.06.1991	270450	6617300	27	Low hills	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1844	26.06.1991	272100	6617100	1	Hills	hill slope	loam/sand	Eremophila alternifolia(1)
6	GOD1845	27.06.1991	273150	6616600	53	Hills	hill footslope	clay/sand/loam	Frankenia serpyllifolia(1)
6	GOD1846	27.06.1991	272900	6616200	7	Hills	hill slope	loam	Eremophila freelingii(1),Sida petrophila(1)
6	GOD1847	27.06.1991	278400	6612300	29	Plain	plain (incl undulating)	not recorded	Casuarina pauper(1)
6	GOD1848	27.06.1991	279300	6612400	2	Hills	hill slope	clay/loam	Eremophila freelingii(1),Sida petrophila(1)
6	GOD1849	27.06.1991	281500	6614700	1	Hills	hill slope	loam/sand	Ptilotus obovatus (NC)(1),Sida petrophila(1)
6	GOD1850	28.06.1991	281750	6615600	1	Hills	hill slope	loam	Dodonaea lobulata(1)
6	GOD1851	28.06.1991	282100	6616150	59	Hills	hill slope	loam/sand	Acacia aneura (NC)(1),Eucalyptus dumosa(1)
6	GOD1852	28.06.1991	282100	6616300	59	Hills	hill slope	clay/sand/loam	Eucalyptus dumosa(1),Eucalyptus intertexta(1)
6	GOD1853	28.06.1991	283050	6613700	46	Low hills	plain (incl undulating)	loam/sand	*Desmazeria rigida(1)
6	GOD1855	28.06.1991	276700	6609900	11	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(1),Sida petrophila(1)
6	GOD1856	28.06.1991	266500	6608400	29	Alluvial plain	plain (incl undulating)	clay/loam	Atriplex vesicaria ssp.(1)
6	GOD1857	28.06.1991	265100	6609050	15	Alluvial plain	plain (incl undulating)	sand	Eucalyptus camaldulensis var.(1)
6	GOD1858	29.06.1991	272500	6604750	36	Hills	hill footslope	loam	Atriplex vesicaria ssp.(2)
6	GOD1859	29.06.1991	272150	6604700	7	Hills	hill slope	loam/sand	Eremophila freelingii(1)
6	GOD1860	29.06.1991	273050	6601200	6	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1)
6	GOD1861	29.06.1991	272700	6599600	1	Rises	hill slope	clay	Eremophila freelingii(1)
6	GOD1862	29.06.1991	272300	6599000	27	Rises	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1863	29.06.1991	279400	6601100	18	Low hills	hill footslope	clay/sand/loam	Zygophyllum aurantiacum (NC)(2)
6	GOD1864	29.06.1991	282100	6602500	11	Hills	hill slope	clay/loam	Zygophyllum aurantiacum (NC)(1),Cymbopogon ambiguus(1)
6	GOD1865	29.06.1991	276600	6603300	30	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(1)
6	GOD1866	29.06.1991	276550	6605500	30	Low hills	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Zygophyllum aurantiacum (NC)(T)
6	GOD1867	30.06.1991	274700	6597400	21	Hills	hill slope	loam/sand	Olearia decurrens(1),Dodonaea viscosa ssp. angustissima(1)
6	GOD1868	30.06.1991	274550	6597450	40	Hills	hill crest	clay	Eucalyptus socialis(1)
6	GOD1869	30.06.1991	274600	6597500	6	Hills	hill slope	not recorded	Casuarina pauper(1)
6	GOD1870	30.06.1991	274900	6596800	21	Hills	hill crest	clay/sand	Acacia aneura (NC)(1)
6	GOD1871	30.06.1991	272700	6596700	29	Low hills	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Sclerolaena longicuspis(1)
6	GOD1872	30.06.1991	268400	6596800	7	Hills	hill slope	clay/sand	Eremophila freelingii(1),Acacia burkittii(1)
6	GOD1873	01.07.1991	268600	6598500	27	Rises	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2),Maireana astrotricha(1)
6	GOD1874	01.07.1991	267650	6599050	27	Rises	hill slope	clay/loam	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1875	01.07.1991	267250	6599750	7	Low hills	hill footslope	not recorded	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1876	01.07.1991	265500	6602600	29	Low hills	hill footslope	clay/sand/loam	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1877	01.07.1991	266500	6600700	27	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2)
6	GOD1878	01.07.1991	264700	6604200	27	Hills	hill footslope	clay/loam	Atriplex vesicaria ssp.(1)
6	GOD1879	01.07.1991	263250	6606300	33	Alluvial plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Rhagodia spinescens(1)
6	GOD1880	01.07.1991	262200	6609500	7	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(1)
6	GOD1881	01.07.1991	262200	6610800	33	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	GOD1882	01.07.1991	261400	6612900	33	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(1)
6	GOD1883	01.07.1991	261550	6613800	27	Low hills	hill slope	loam/sand	Maireana astrotricha(1)
6	GOD1884	01.07.1991	262550	6595900	29	Low hills	hill slope	clay	Atriplex vesicaria ssp.(1)
6	GOD1885	02.07.1991	260500	6605750	7	Hills	hill crest	clay/sand/loam	Atriplex vesicaria ssp.(1)
6	GOD1886	02.07.1991	260800	6604800	28	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Maireana pyramidata(1)
6	GOD1887	02.07.1991	260800	6602800	29	Low hills	hill crest	clay/sand/loam	Atriplex vesicaria ssp.(1)
6	GOD1888	02.07.1991	261400	6600650	27	Low hills	hill footslope	loam/sand	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	GOD1889	02.07.1991	262200	6598000	29	Hills	hill slope	clay/loam	Atriplex vesicaria ssp.(1)
6	HAW0092	15.04.1986	243500	6478500	27	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(N)
6	HAW0093	15.04.1986	245500	6480600	33	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Senna artemisioides nothossp. coriacea(T)
6	ILL1099	06.06.1988	318300	6651300	18	Low hills	hill slope	silt/clay/loam	Sida petrophila(1)
6	ILL1100	06.06.1988	315700	6648700	16	Low hills	hill slope	silt/clay/loam	Acacia victoriae ssp. victoriae(T)
6	ILL1101	06.06.1988	313700	6647800	15	Drainage line	depression	silt/clay/loam	Melaleuca glomerata(2)
6	ILL1102	07.06.1988	311100	6649300	56	Hills	hill slope	clay/sand	Hakea ednieana(1),Eremophila freelingii(T)
6	ILL1103	07.06.1988	311500	6649300	56	Hills	hill slope	clay	Cassinia laevis(1),Hakea ednieana(1),Dodonaea viscosa ssp. angustissima(1)
6	ILL1104	07.06.1988	309500	6648100	18	Plain	plain (incl undulating)	clay/loam	Zygophyllum apiculatum(1)
6	ILL1105	07.06.1988	310900	6642900	30	Low hills	hill slope	clay	Sclerolaena longicuspis(2)
6	ILL1106	07.06.1988	315200	6637300	3	Rises	hill slope	silt/clay/loam	Zygophyllum aurantiacum (NC)(2),Atriplex vesicaria ssp.(1)
6	ILL1107	08.06.1988	315700	6638200	39	Rises	hill slope	silt/clay/loam	Eucalyptus socialis(2)
6	ILL1108	08.06.1988	318100	6644200	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eucalyptus intertexta(T)
6	ILL1109	08.06.1988	317500	6644200	3	Low hills	hill slope	loam/sand	Acacia aneura (NC)(1)
6	ILL1110	08.06.1988	323000	6640600	30	Plain	plain (incl undulating)	clay	Atriplex lindleyi ssp.(1),Sclerolaena divaricata(1)
6	ILL1290	02.06.1988	330500	6650950	3	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(T)
6	ILL1291	02.06.1988	330350	6651200	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Callitris glaucophylla(T)
6	ILL1292	02.06.1988	330150	6651450	3	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T),Eucalyptus intertexta(T),Casuarina pauper(T)
6	ILL1293	02.06.1988	329600	6651900	56	Hills	hill slope	clay/sand/loam	Hakea leucoptera ssp. leucoptera(T),Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	ILL1294	02.06.1988	329800	6651650	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	ILL1295	03.06.1988	331350	6651950	3	Low hills	hill slope	loam/sand	Eremophila longifolia(T),Acacia aneura (NC)(T)
6	ILL1296	03.06.1988	328800	6651250	3	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T)
6	ILL1297	03.06.1988	327450	6650800	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Eucalyptus

Appendix 2 (continued)

									socialis(T),Eucalyptus gillii(T)
6	ILL1298	03.06.1988	326900	6651650	3	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eucalyptus gillii(T),Eucalyptus socialis(T)
6	ILL1301	04.06.1988	324850	6650950	3	Rises	hill slope	clay/sand/loam	Eucalyptus gillii(1),Myoporum platycarpum (NC)(T),Eucalyptus socialis(T)
6	ILL1302	04.06.1988	322550	6650300	41	Plain	hill slope	loam/sand	Eucalyptus socialis(1),Myoporum platycarpum (NC)(T)
6	ILL1303	04.06.1988	323000	6649000	2	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	ILL1304	04.06.1988	322850	6648150	3	Hills	hill slope	clay/sand/loam	Acacia rivalis(T),Acacia aneura (NC)(T)
6	ILL1305	05.06.1988	328750	6648200	3	Low hills	hill slope	clay/sand/loam	Eucalyptus gillii(T),Acacia aneura (NC)(T),Hakea ednieana(T)
6	ILL1306	05.06.1988	330150	6647000	41	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1),Melaleuca lanceolata ssp. lanceolata(T),Myoporum platycarpum (NC)(T)
6	ILL1307	05.06.1988	331200	6647250	14	Flood plain	plain (incl undulating)	clay/sand/loam	Eucalyptus camaldulensis var.(T),Myoporum platycarpum (NC)(N)
6	ILL1309	05.06.1988	329400	6645250	3	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	ILL1310	06.06.1988	329800	6646250	18	Hills	hill slope	loam/sand	Eucalyptus gillii(T)
6	ILL1311	06.06.1988	329050	6644500	3	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Callitris glaucophylla(T)
6	ILL1312	06.06.1988	326950	6643650	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	ILL1313	06.06.1988	322550	6645850	3	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Acacia tetragonophylla(T)
6	ILL1318	07.06.1988	331550	6640100	3	Plain	hill slope	clay/sand/loam	Eucalyptus intertexta(T),Eucalyptus gillii(T),Eucalyptus socialis(T)
6	ILL1319	08.06.1988	324250	6641900	16	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	ILL1320	08.06.1988	324200	6641500	3	Low hills	hill slope	loam/sand	Eremophila alternifolia(T),Alectryon oleifolius ssp. canescens(T)
6	ILL1321	08.06.1988	325900	6641350	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	ILL1322	08.06.1988	326600	6641000	3	Plain	hill slope	clay/sand	Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T)
6	ILL1323	08.06.1988	327800	6639950	3	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T),Eucalyptus intertexta(T)
6	ILL1324	09.06.1988	329400	6629550	2	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	ILL1325	09.06.1988	328250	6639550	2	Hills	hill slope	clay/sand	Callitris glaucophylla(T),Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	ILL1326	09.06.1988	328600	6639050	3	Hills	hill slope	clay/sand	Acacia aneura (NC)(T),Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	ILL1327	10.08.1988	328700	6640550	3	Rises	hill slope	silt/clay/loam	Callitris glaucophylla(1),Hakea ednieana(T),Alectryon oleifolius ssp. canescens(T)
6	ILL1328	30.07.1988	315500	6636350	56	Low hills	hill slope	clay	Casuarina pauper(T),Acacia aneura (NC)(T),Eucalyptus intertexta(T)
6	ILL1329	30.07.1988	315250	6635550	57	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(2),Callitris glaucophylla(T),Eucalyptus flindersii(T)
6	ILL1330	30.07.1988	315300	6635100	57	Hills	hill slope	clay/sand/loam	Melaleuca uncinata(1),Eucalyptus intertexta(T)
6	ILL1331	31.07.1988	315800	6634300	57	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(T)
6	ILL1332	31.07.1988	315650	6634500	57	Hills	hill slope	clay/sand	Eucalyptus socialis(1),Melaleuca uncinata(T),Eucalyptus odorata(T)
6	ILL1333	31.07.1988	315750	6634150	57	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Callitris glaucophylla(1)
6	ILL1334	31.07.1988	315400	6633950	57	Rises	hill slope	clay/sand/loam	Eucalyptus odorata(T),Melaleuca uncinata(T),Eucalyptus flindersii(T)
6	ILL1335	31.07.1988	315650	6633850	55	Plain	hill slope	clay/sand	Callitris glaucophylla(T),Eucalyptus socialis(T),Eucalyptus odorata(T)
6	ILL1336	31.07.1988	316125	6633525	57	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(T),Eucalyptus intertexta(T)
6	ILL1337	01.08.1988	317950	6634200	55	Rises	hill slope	loam/sand	Eucalyptus socialis(T),Callitris glaucophylla(T)
6	ILL1338	02.08.1988	325950	6636850	57	Hills	hill slope	clay/sand	Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	ILL1339	01.08.1988	322950	6634550	57	Hills	hill slope	clay/sand/loam	Eucalyptus flindersii(1),Melaleuca uncinata(1),Allocasuarina muelleriana ssp.(T)
6	ILL1340	03.08.1988	314850	6638400	25	Plain	hill slope	clay	Atriplex vesicaria ssp.(1),Sclerolaena divaricata(1)
6	ILL1396	28.05.1988	311100	6637500	3	Rises	hill slope	clay	Acacia victoriae ssp. victoriae(T)
6	ILL1397	28.05.1988	309450	6639200	16	Plain	plain (incl undulating)	clay/loam	
6	ILL1398	28.05.1988	308700	6639300	3	Rises	hill slope	clay/loam	Eucalyptus socialis(T),Pittosporum phylliraeoides var. microcarpa(T)
6	ILL1399	28.05.1988	315000	6639100	49	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	ILL1400	28.05.1988	318600	6639900	16	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	ILL1401	28.05.1988	314000	6638800	16	Drainage line	depression	clay/sand/loam	Eucalyptus intertexta(1)
6	ILL1406	29.05.1988	312900	6640800	16	Low hills	hill slope	clay/sand	
6	ILL1407	30.05.1988	309500	6630200	57	Drainage line	depression	loam/sand	Callitris glaucophylla(2),Eucalyptus intertexta(T)
6	ILL1408	30.05.1988	309900	6629200	55	Hills	hill slope	clay	Eucalyptus socialis(2)
6	ILL1411	30.05.1988	314600	6643900	16	Low hills	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(1)
6	ILL1412	31.05.1988	315800	6645000	3	Hills	hill slope	clay/sand/loam	Sida petrophila(T)
6	ILL1419	03.06.1988	324400	6626300	3	Hills	hill slope	clay/sand/loam	Eucalyptus gillii(T),Acacia tetragonophylla(T)
6	ILL1420	03.06.1988	325400	6626500	24	Plateau	plain (incl undulating)	clay	Neobassia proceriflora(2)
6	ILL1421	03.06.1988	323800	6626300	3	Alluvial plain	plain (incl undulating)	silt/clay	Acacia victoriae ssp. victoriae(1),Acacia aneura (NC)(T),Acacia oswaldii(T)
6	ILL1422	03.06.1988	325000	6626900	3	Rises	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Eucalyptus gillii(T)
6	ILL1423	03.06.1988	327100	6627100	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	ILL1424	03.06.1988	327300	6626900	2	Hills	hill slope	clay/sand	Acacia tetragonophylla(T),Hakea ednieana(T)
6	ILL1425	04.06.1988	322350	6631400	57	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T)
6	ILL1426	04.06.1988	322500	6631500	57	Mountains	hill slope	clay/sand	Callitris glaucophylla(1),Eucalyptus flindersii(T)
6	ILL1427	04.06.1988	324300	6629200	2	Hills	hill slope	clay/sand	Callitris glaucophylla(T)
6	ILL1428	05.06.1988	329500	6626500	56	Hills	hill slope	clay/sand/loam	Hakea ednieana(1),Callitris glaucophylla(T)
6	ILL1429	05.06.1988	329600	6626000	2	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1),Hakea ednieana(T),Acacia tetragonophylla(T)
6	ILL1430	06.06.1988	318300	6651700	16	Plain	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(1)
6	ILL1457	04.06.1988	327350	6648600	41	Plain	hill slope	loam/sand	Eucalyptus socialis(1),Myoporum platycarpum (NC)(T)
6	ILL1458	06.06.1988	324400	6643600	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	KAN1611	31.08.1990	246600	6448200	53	Rises	plain (incl undulating)	not recorded	Maireana pyramidata(1)
6	LAU0197	07.08.1986	247300	6345300	68	Low hills	plain (incl undulating)	not recorded	Eucalyptus odorata(2),Eucalyptus microcarpa(1),Callitris glaucophylla(1)
6	LAU0198	07.08.1986	248100	6343200	69	Low hills	hill slope	not recorded	Eucalyptus odorata(1),Allocasuarina verticillata(1),Eucalyptus leucoxylon ssp.(T)
6	MAM0390	12.09.1986	773400	6365600	31	Low hills	hill slope	not recorded	Eucalyptus oleosa(1)
6	MEL0190	22.07.1986	239400	6372600	50	Drainage line	plain (incl undulating)	not recorded	Eucalyptus camaldulensis var.(3)
6	MEL0191	23.07.1986	226000	6372100	64	Hills	hill slope	not recorded	Eucalyptus leucoxylon ssp.(2),Eucalyptus cladocalyx(T),Eucalyptus goniocalyx(T)
6	MEL0194	28.07.1986	235400	6364700	64	Mountains	hill slope	not recorded	Eucalyptus leucoxylon ssp.(2)
6	MEL0195	28.07.1986	235300	6364800	64	Mountains	hill slope	not recorded	Eucalyptus goniocalyx(2)
6	MEL0196	28.07.1986	235100	6365000	64	Mountains	hill slope	not recorded	Eucalyptus goniocalyx(2),Eucalyptus cladocalyx(T)
6	MEL0200	07.08.1986	227900	6346600	55	Hills	hill slope	not recorded	Allocasuarina verticillata(T)

Appendix 2 (continued)

6	MEL0255	07.08.1986	228100	6346400	64	Hills	hill crest	not recorded	Eucalyptus socialis(T),Allocasuarina verticillata(T),Eucalyptus leucoxylon ssp.(T)
6	MEL0301	08.08.1986	222800	6346700	30	Alluvial plain	plain (incl undulating)	not recorded	Maireana sedifolia(1),Maireana pyramidata(T),Acacia victoriae ssp. victoriae(T)
6	MEL0389	10.09.1986	227000	6345400	43	Plain	hill slope	not recorded	Eucalyptus porosa(2)
6	MEL0550	20.03.1987	228500	6348300	69	Low hills	hill slope	not recorded	Allocasuarina verticillata(T)
6	MEL0551	26.03.1987	227500	6346500	42	Low hills	hill slope	not recorded	Eucalyptus oleosa(2),Eucalyptus gracilis(2),Pittosporum phylliraeoides var. microcarpa(T)
6	MEL0552	26.03.1987	230400	6345800	64	Hills	hill slope	not recorded	Eucalyptus microcarpa(1),Eucalyptus leucoxylon ssp.(T)
6	MEL0553	26.03.1987	230900	6346100	46	Hills	hill slope	not recorded	Eucalyptus microcarpa(1),Eucalyptus cladocalyx(T)
6	MEL0554	27.03.1987	226900	6351200	69	Hills	hill slope	not recorded	Cassinia laevis(1)
6	MEL0555	27.03.1987	226400	6353200	55	Hills	hill crest	not recorded	Eucalyptus porosa(T),Eucalyptus socialis(T)
6	MEL0556	27.03.1987	225700	6355200	44	Hills	hill crest	not recorded	Eucalyptus porosa(T)
6	MEL0560	29.04.1987	220700	6362400	50	Drainage line	depression	not recorded	Eucalyptus camaldulensis var.(1),Callitris glaucophylla(T)
6	MEL0561	29.04.1987	222900	6366000	64	Hills	hill slope	not recorded	Allocasuarina verticillata(1),Eucalyptus porosa(T)
6	MEL0562	29.04.1987	222200	6369400	64	Mountains	hill slope	not recorded	Eucalyptus cladocalyx(T),Allocasuarina verticillata(T)
6	MEL0563	29.04.1987	223200	6371400	64	Low hills	hill crest	not recorded	Eucalyptus goniocalyx(T),Allocasuarina verticillata(T),Exocarpos cupressiformis(T)
6	MEL0564	30.04.1987	225500	6365600	64	Hills	hill slope	not recorded	Callitris glaucophylla(1),Eucalyptus microcarpa(T)
6	MEL0565	30.04.1987	225400	6365700	57	Plateau	hill slope	not recorded	Eucalyptus odorata(T)
6	MEL0567	30.04.1987	227600	6368600	64	Mountains	hill slope	not recorded	Eucalyptus cladocalyx(T),Eucalyptus goniocalyx(T),Exocarpos cupressiformis(T)
6	MEL0568	30.04.1987	229200	6368200	64	Hills	hill slope	not recorded	Eucalyptus cladocalyx(T),Eucalyptus goniocalyx(T),Eucalyptus microcarpa(T)
6	MOR0091	17.01.1987	222800	6398900	49	Low hills	hill crest	not recorded	Eucalyptus microcarpa(T),Allocasuarina verticillata(T)
6	MOR0094	15.04.1986	250700	6493600	33	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	MOR0095	15.04.1986	254600	6506400	30	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	MOR0348	21.09.1986	256700	6492700	7	Low hills	hill slope	clay/sand/loam	Zygophyllum aurantiacum (NC)(1)
6	MOR0349	21.09.1986	257300	6492600	1	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Hakea ednieana(T),Casuarina pauper(T)
6	MOR0350	21.09.1986	258200	6493700	40	Hills	hill slope	loam/sand	Callitris glaucophylla(1),Casuarina pauper(T)
6	MOR0351	21.09.1986	259700	6493750	57	Mountains	hill slope	loam/sand	Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	MOR0352	21.09.1986	259100	6493600	57	Mountains	hill slope	loam/sand	Eucalyptus intertexta(1)
6	MOR0353	21.09.1986	258550	6493800	59	Mountains	hill slope	loam/sand	Eucalyptus dumosa(T)
6	MOR0399	20.09.1986	260400	6505400	1	Hills	hill crest	loam/sand	Callitris glaucophylla(T)
6	MOR0401	20.09.1986	259000	6505300	5	Drainage line	depression	loam/sand	Acacia ligulata (NC)(T),Acacia tetragonophylla(T)
6	MOR0402	21.09.1986	259700	6508400	29	Plain	plain (incl undulating)	clay	Sclerolaena longicuspis(1),Maireana pyramidata(T)
6	MOR0403	21.09.1986	261000	6509400	40	Low hills	hill slope	loam/sand	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T)
6	MOR0404	21.09.1986	253500	6493400	53	Plain	plain (incl undulating)	loam	*Carrichtera annua(2),Sclerolaena obliquicuspis(T)
6	MOR0677	03.08.1987	248200	6486600	33	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	MOR0678	04.08.1987	248400	6485200	8	Low hills	hill crest	loam/sand	Maireana sedifolia(1),Maireana pyramidata(1)
6	MOR0679	04.08.1987	248600	6486800	33	Plain	plain (incl undulating)	sand	Dodonaea viscosa ssp. angustissima(1)
6	MOR0680	04.08.1987	253400	6492300	33	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(T)
6	MOR0681	04.08.1987	254300	6490600	8	Plain	plain (incl undulating)	clay/sand/loam	Maireana sedifolia(T)
6	MOR0682	04.08.1987	250300	6496400	8	Rises	hill slope	clay/sand	Maireana sedifolia(1),Maireana pyramidata(T)
6	MOR0683	05.08.1987	254600	6485100	56	Mountains	hill crest	loam/sand	Eremophila santalina(T),Eremophila longifolia(T),Callitris glaucophylla(T)
6	MOR0684	05.08.1987	256700	6485300	7	Hills	hill slope	clay/sand/loam	Zygophyllum aurantiacum (NC)(3)
6	MOR0685	05.08.1987	257800	6485300	11	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T)
6	MOR0686	05.08.1987	257900	6484800	10	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	MOR0687	06.08.1987	247200	6496100	6	Rises	hill slope	clay/sand/loam	Maireana astrotricha(1),Atriplex vesicaria ssp.(1)
6	MOR0688	06.08.1987	246400	6495800	27	Rises	hill slope	clay/sand/loam	Maireana astrotricha(1)
6	MOR0689	06.08.1987	243400	6494400	27	Hills	hill crest	clay/sand	Maireana astrotricha(1)
6	MOR0690	06.08.1987	239700	6498100	44	Dunefield	plain (incl undulating)	sand	Dodonaea viscosa ssp. angustissima(T)
6	MOR0691	07.08.1987	260100	6508400	9	Drainage line	depression	loam/sand	Callitris glaucophylla(1),Eucalyptus camaldulensis var.(1)
6	MOR0692	07.08.1987	257400	6511600	27	Alluvial plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1)
6	MOR0693	07.08.1987	253100	6511100	8	Low hills	hill slope	loam/sand	Eremophila scoparia(T),Allocasuarina verticillata(T)
6	MOR0694	07.08.1987	252500	6508200	7	Hills	hill slope	clay/sand/loam	Maireana pyramidata(1)
6	MOR0696	08.08.1987	248700	6508800	6	Rises	hill slope	clay/sand/loam	Acacia tetragonophylla(T)
6	MOR0697	08.08.1987	249500	6509000	6	Low hills	hill crest	clay/sand/loam	Maireana pyramidata(T)
6	MOR0698	08.08.1987	250900	6510300	6	Low hills	hill slope	clay/sand/loam	Maireana astrotricha(1)
6	MOR0699	08.08.1987	248200	6502700	8	Rises	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(1),Maireana pyramidata(1)
6	MOT0050	18.04.1986	237700	6548300	33	Dunefield	hill slope	clay/sand	Acacia ligulata (NC)(1),Hakea leucoptera ssp. leucoptera(1)
6	MOT0051	19.04.1986	237700	6548100	27	Dunefield	plain (incl undulating)	loam/sand	Eremophila duttonii(T),Acacia victoriae ssp. victoriae(T)
6	MOT0052	19.04.1986	234500	6552300	33	Dunefield	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia ligulata (NC)(T)
6	MOT0053	19.04.1986	234300	6552300	21	Dunefield	hill slope	sand	Acacia ligulata (NC)(1)
6	MOT0054	19.04.1986	234600	6552400	21	Dunefield	hill slope	sand	Acacia aneura (NC)(1),Acacia ligulata (NC)(1),Alectryon oleifolius ssp. canescens(T)
6	NAR1185	05.03.1988	307750	6583150	2	Mountains	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Callitris glaucophylla(T)
6	NAR1965	23.08.1991	285750	6581750	12	Hills	hill footslope	clay/loam	Acacia calamifolia(1)
6	NAR1966	23.08.1991	286150	6584150	41	Plain	plain (incl undulating)	clay	Eucalyptus dumosa(1),Eucalyptus socialis(1)
6	NAR1967	23.08.1991	286700	6584850	39	Plain	plain (incl undulating)	clay/loam	Eucalyptus dumosa(2)
6	NAR1969	24.08.1991	284900	6593000	59	Low hills	hill slope	clay/sand	Eucalyptus dumosa(1)
6	NAR1971	24.08.1991	289400	6590550	40	Low hills	hill slope	skeletal	Casuarina pauper(2)
6	NAR1972	24.08.1991	291650	6592700	59	Hills	hill slope	skeletal	Callitris glaucophylla(1)
6	NAR1973	24.08.1991	291750	6592750	65	Hills	hill slope	not recorded	Callitris glaucophylla(T)
6	NAR1974	24.08.1991	293150	6593200	59	Plain	plain (incl undulating)	clay/sand/loam	Acacia rivalis(1)
6	NAR1975	25.08.1991	292350	6592300	57	Hills	hill crest	skeletal	Eucalyptus flindersii(1)
6	NAR1976	25.08.1991	292200	6592600	59	Hills	hill footslope	skeletal	Casuarina pauper(2)
6	NAR1977	25.08.1991	292000	6592350	59	Hills	hill slope	skeletal	Eucalyptus socialis(T)
6	NAR1978	25.08.1991	292450	6592450	59	Hills	hill slope	skeletal	Eucalyptus odorata(1)
6	NAR1979	25.08.1991	294350	6594750	1	Hills	hill slope	skeletal	Acacia aneura (NC)(1),Callitris glaucophylla(T)
6	NAR1981	25.08.1991	294850	6594700	12	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T)
6	NAR1982	25.08.1991	295050	6593500	59	Low hills	hill footslope	skeletal	Eucalyptus socialis(1)
6	NAR1983	26.08.1991	295000	6593250	59	Low hills	hill slope	clay/sand	Eucalyptus socialis(1),Callitris glaucophylla(1)
6	NAR1984	26.08.1991	295350	6593200	11	Hills	hill slope	skeletal	Eremophila freelingii(1)
6	NAR1985	26.08.1991	295800	6591400	1	Hills	hill slope	skeletal	Casuarina pauper(1)
6	NAR1986	26.08.1991	295250	6591450	59	Rises	plain (incl undulating)	loam	Callitris glaucophylla(1),Eucalyptus socialis(1)
6	NAR1987	26.08.1991	297400	6592250	1	Hills	hill slope	skeletal	Acacia aneura (NC)(T)
6	NAR1988	26.08.1991	297750	6592950	1	Hills	hill slope	skeletal	Acacia aneura (NC)(1)
6	NAR1990	26.08.1991	299150	6592650	1	Hills	hill slope	skeletal	Acacia aneura (NC)(1)
6	NAR1991	26.08.1991	299300	6592600	1	Hills	hill slope	skeletal	Acacia aneura (NC)(1),Hakea ednieana(T)
6	NAR1992	27.08.1991	300500	6592450	56	Hills	hill slope	skeletal	Hakea ednieana(T),Callitris glaucophylla(T)
6	NAR1993	27.08.1991	301100	6592200	1	Hills	hill slope	skeletal	Eucalyptus socialis(1),Casuarina pauper(1)

Appendix 2 (continued)

6	NAR1994	27.08.1991	301800	6592850	57	Hills	hill slope	skeletal	Callitris glaucophylla(1)
6	NAR1995	27.08.1991	301900	6592600	1	Hills	hill slope	skeletal	Eremophila freelingii(1)
6	NAR1996	27.08.1991	301600	6591500	1	Hills	hill slope	skeletal	Senna artemisioides nothossp. artemisioides(1),Dodonaea lobulata(1)
6	NAR1997	27.08.1991	301850	6590250	1	Hills	hill slope	skeletal	Sida petrophila(1),Zygophyllum aurantiacum (NC)(1)
6	NAR1998	27.08.1991	302200	6589850	1	Hills	hill slope	skeletal	Dodonaea lobulata(1),Senna artemisioides nothossp. artemisioides(1)
6	NAR1999	27.08.1991	303750	6588650	1	Hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. artemisioides(1)
6	NAR2000	27.08.1991	304300	6589200	16	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	NAR2002	28.08.1991	305100	6588800	10	Low hills	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	NAR2003	28.08.1991	307850	6587600	3	Hills	hill footslope	clay/sand/loam	Acacia aneura (NC)(1)
6	NAR2004	28.08.1991	307450	6587150	1	Hills	hill slope	silt/loam	Acacia victoriae ssp. victoriae(T)
6	NAR2005	28.08.1991	306100	6584200	1	Hills	hill slope	skeletal	Acacia victoriae ssp. victoriae(1)
6	NAR2006	28.08.1991	306000	6584300	1	Hills	hill slope	loam/sand	Callitris glaucophylla(T)
6	NAR2007	28.08.1991	298850	6577450	39	Low hills	hill slope	skeletal	Eucalyptus socialis(1),Eucalyptus dumosa(1)
6	NAR2008	28.08.1991	297950	6577800	39	Low hills	hill footslope	skeletal	Eucalyptus socialis(T)
6	NAR2009	28.08.1991	295700	6579250	16	Low hills	hill slope	loam	Alectryon oleifolius ssp. canescens(1),Acacia victoriae ssp. victoriae(1)
6	NAR2011	28.08.1991	294150	6582000	40	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	NAR2014	29.08.1991	288350	6583050	13	Hills	hill slope	skeletal	Casuarina pauper(1)
6	NAR2017	29.08.1991	292800	6579300	10	Hills	hill slope	clay	Cymbopogon ambiguus(1)
6	NAR2018	29.08.1991	293800	6578200	10	Hills	hill slope	clay/loam	Acacia victoriae ssp. victoriae(1)
6	NAR2019	11.09.1991	307350	6572700	23	Hills	hill footslope	skeletal	Acacia ligulata (NC)(1)
6	NAR2020	11.09.1991	307200	6572550	2	Hills	hill slope	skeletal	Acacia victoriae ssp. victoriae(1)
6	NAR2021	12.09.1991	306450	6573550	1	Hills	hill slope	skeletal	Acacia victoriae ssp. victoriae(T),Senna artemisioides nothossp. artemisioides(T),Acacia rivalis(T)
6	NAR2022	12.09.1991	303100	6578000	1	Hills	hill slope	skeletal	Casuarina pauper(1)
6	NAR2023	12.09.1991	303550	6577950	1	Hills	hill slope	skeletal	Solanum sturtianum(2)
6	NAR2024	12.09.1991	303800	6578050	1	Hills	hill slope	skeletal	Zygophyllum aurantiacum (NC)(1),Zygophyllum ammophilum (NC)(1),Solanum sturtianum(T)
6	NAR2025	12.09.1991	304450	6577950	11	Rises	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	NAR2026	12.09.1991	305150	6577750	2	Plain	plain (incl undulating)	skeletal	Acacia victoriae ssp. victoriae(T)
6	NAR2027	12.09.1991	305400	6580350	1	Rises	hill crest	clay/sand/loam	Acacia aneura (NC)(1),Acacia rivalis(1)
6	NAR2028	12.09.1991	305150	6580450	1	Rises	hill slope	not recorded	Acacia rivalis(1),Acacia victoriae ssp. victoriae(1)
6	NAR2029	12.09.1991	304250	6583650	5	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1)
6	NAR2030	12.09.1991	303800	6584000	1	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(1),Acacia rivalis(T)
6	NAR2031	13.09.1991	303550	6583150	1	Hills	hill slope	skeletal	Eremophila freelingii(1)
6	NAR2032	13.09.1991	302350	6582200	8	Plain	plain (incl undulating)	clay	Alectryon oleifolius ssp. canescens(1)
6	NAR2033	13.09.1991	301800	6581350	1	Hills	hill slope	skeletal	Acacia rivalis(1)
6	NAR2034	13.09.1991	301850	6581250	5	Drainage line	plain (incl undulating)	not recorded	Callitris glaucophylla(1),Eucalyptus camaldulensis var. obtusa(1)
6	NAR2035	13.09.1991	301200	6580700	40	Low hills	hill slope	not recorded	Casuarina pauper(1)
6	NAR2036	13.09.1991	299000	6576850	16	Low hills	hill slope	skeletal	Eremophila alternifolia(1),Alectryon oleifolius ssp. canescens(1)
6	NAR2039	13.09.1991	296150	6570700	11	Hills	hill slope	not recorded	*Asphodelus fistulosus(1),Cymbopogon ambiguus(T)
6	NAR2040	14.09.1991	287150	6574750	9	Hills	hill footslope	not recorded	Zygophyllum aurantiacum (NC)(1)
6	NAR2042	14.09.1991	286350	6572750	39	Hills	hill footslope	skeletal	Eucalyptus socialis(1),Eucalyptus dumosa(1)
6	NAR2043	14.09.1991	286600	6572700	39	Hills	hill slope	skeletal	Casuarina pauper(1)
6	NAR2044	14.09.1991	286600	6572550	57	Hills	hill slope	skeletal	Callitris glaucophylla(1)
6	NAR2045	14.09.1991	289900	6572950	10	Rises	hill slope	skeletal	*Asphodelus fistulosus(1)
6	NAR2046	14.09.1991	290550	6569650	59	Hills	hill slope	clay	Dodonaea lobulata(1),Olearia decurrens(1)
6	NEP0499	02.04.1987	331900	6617700	54	Plain	plain (incl undulating)	silt/clay/loam	Astrebla pectinata(2)
6	NEP0512	02.04.1987	330100	6618600	6	Low hills	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	NEP0513	04.04.1987	331300	6617400	24	Rises	hill slope	loam/sand	Acacia tetragonophylla(T),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	NEP0514	03.04.1987	329900	6619300	6	Low hills	hill slope	silt/loam	Eucalyptus gillii(2)
6	NEP0515	03.04.1987	330050	6619600	2	Hills	hill crest	clay/sand/loam	Acacia aneura (NC)(T),Hakea ednieana(T)
6	NEP0516	03.04.1987	329900	6620900	2	Low hills	hill slope	loam/sand	Casuarina pauper(1)
6	NEP0517	03.04.1987	330100	6621700	5	Low hills	hill slope	not recorded	Eucalyptus gillii(1),Acacia tetragonophylla(T)
6	NEP0518	03.04.1987	329400	6621700	14	Alluvial plain	hill slope	not recorded	Acacia victoriae ssp. victoriae(1),Alectryon oleifolius ssp. canescens(T)
6	NEP0519	03.04.1987	328500	6622200	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Acacia tetragonophylla(T),Hakea ednieana(T)
6	NEP0520	04.04.1987	331500	6620600	5	Rises	hill slope	loam/sand	Eucalyptus gillii(T)
6	NEP0521	04.04.1987	330900	6620600	14	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Eucalyptus gillii(T),Alectryon oleifolius ssp. canescens(T)
6	NEP0523	05.04.1987	325400	6611050	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(1),Hakea ednieana(T),Casuarina pauper(T)
6	NEP0524	05.04.1987	322300	6612300	1	Hills	hill slope	loam/sand	Acacia aneura (NC)(1),Hakea ednieana(T),Acacia tetragonophylla(T)
6	NEP0525	05.04.1987	322300	6612400	1	Drainage line	depression	not recorded	Eucalyptus camaldulensis var.(T),Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T)
6	NEP0526	05.04.1987	323400	6611100	2	Low hills	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	NEP0527	05.04.1987	323900	6611100	41	Low hills	hill slope	silt/clay/loam	Eucalyptus gillii(1),Melaleuca lanceolata ssp. lanceolata(T),Senna artemisioides ssp.(T)
6	NEP0528	05.04.1987	324400	6611300	9	Drainage line	hill slope	loam/sand	Eucalyptus camaldulensis var.(T),Melaleuca glomerata(T),Eucalyptus intertexta(T)
6	NEP0529	05.04.1987	325200	6610800	2	Hills	hill slope	not recorded	Acacia aneura (NC)(1),Callitris glaucophylla(T),Casuarina pauper(T)
6	NEP0530	06.04.1987	326900	6610600	2	Hills	hill slope	loam/sand	Casuarina pauper(1),Alectryon oleifolius ssp. canescens(T)
6	NEP0531	06.04.1987	326300	6611200	2	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T),Eucalyptus gillii(T)
6	NEP0532	06.04.1987	326200	6611450	2	Hills	hill crest	loam/sand	Casuarina pauper(T),Hakea ednieana(T),Alectryon oleifolius ssp. canescens(T)
6	NEP0533	07.04.1987	328400	6609100	23	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	NEP0938	02.03.1988	323600	6617350	40	Hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	NEP0939	02.03.1988	323550	6617000	1	Hills	hill slope	loam/sand	Casuarina pauper(1)
6	NEP0940	02.03.1988	323700	6617850	56	Mountains	hill crest	clay/sand/loam	Callitris glaucophylla(1)
6	NEP0941	02.03.1988	323600	6617150	15	Drainage line	depression	loam/sand	Melaleuca glomerata(1),Eucalyptus camaldulensis var.(1)
6	NEP0942	03.03.1988	315700	6603700	5	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1),Eucalyptus gillii(1)
6	NEP0943	03.03.1988	317600	6602600	2	Hills	hill crest	clay/sand/loam	Acacia tetragonophylla(1),Acacia aneura (NC)(1)
6	NEP0944	03.03.1988	317100	6601800	2	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	NEP0945	03.03.1988	316800	6601700	41	Low hills	hill slope	clay/sand/loam	Eucalyptus gillii(1)
6	NEP0946	03.03.1988	316200	6603350	15	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(2)
6	NEP0947	03.03.1988	316500	6600800	2	Rises	hill slope	clay/sand/loam	Eucalyptus gillii(1)
6	NEP0948	04.03.1988	317300	6601700	2	Hills	hill crest	clay/sand/loam	Acacia tetragonophylla(1)
6	NEP0949	04.03.1988	316100	6600100	14	Plain	hill slope	clay/sand/loam	Casuarina pauper(T)

Appendix 2 (continued)

6	NEP0950	04.03.1988	316200	6598400	2	Plain	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(1)
6	NEP0951	04.03.1988	310800	6598200	5	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	NEP0952	04.03.1988	313400	6601100	16	Plain	hill slope	clay/sand/loam	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T)
6	NEP0953	04.03.1988	313200	6601300	40	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	NEP0954	05.03.1988	316400	6607600	2	Mountains	hill crest	clay/sand/loam	Acacia aneura (NC)(1),Casuarina pauper(T)
6	NEP0955	05.03.1988	315600	6607450	2	Mountains	hill crest	clay/sand	Acacia aneura (NC)(2)
6	NEP0956	05.03.1988	316000	6607600	2	Mountains	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP0957	05.03.1988	316750	6607500	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP0958	06.03.1988	325650	6617950	24	Plain	plain (incl undulating)	clay	Acacia victoriae ssp. victoriae(T)
6	NEP0959	06.03.1988	325300	6619950	2	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	NEP0960	06.03.1988	324950	6620000	2	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia aneura (NC)(T)
6	NEP0961	06.03.1988	324800	6620200	2	Mountains	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Callitris glaucophylla(T)
6	NEP0962	07.03.1988	323900	6617200	2	Mountains	hill crest	clay/sand/loam	Casuarina pauper(T)
6	NEP0963	07.03.1988	321600	6616700	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	NEP0964	07.03.1988	318400	6614800	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(2)
6	NEP0965	07.03.1988	317550	6613250	2	Low hills	hill slope	clay/sand/loam	Eucalyptus gillii(T),Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	NEP0966	07.03.1988	313450	6614200	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(2)
6	NEP0967	07.03.1988	313100	6613900	40	Low hills	hill crest	clay/sand/loam	Myoporum platycarpum (NC)(T)
6	NEP0968	08.03.1988	321750	6615400	2	Mountains	hill crest	clay/sand/loam	Callitris glaucophylla(1)
6	NEP0969	08.03.1988	321800	6614850	2	Mountains	hill crest	clay/sand/loam	Callitris glaucophylla(1)
6	NEP0970	08.03.1988	322100	6614500	57	Mountains	hill crest	clay/sand/loam	Melaleuca uncinata(1),Calytrix tetragona(1)
6	NEP0971	09.03.1988	331850	6604700	5	Plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(T)
6	NEP0972	09.03.1988	331800	6605150	1	Alluvial plain	hill slope	clay/sand/loam	Dodonaea microzyga var. microzyga(1),Senna artemisioides nothossp. coriacea(1)
6	NEP0973	09.03.1988	322900	6601250	2	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP0974	09.03.1988	326800	6605750	2	Low hills	hill slope	clay/sand/loam	Acacia tetragonophylla(1)
6	NEP0975	10.03.1988	329800	6603700	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP0976	10.03.1988	330300	6603700	2	Rises	hill slope	clay/sand/loam	Dodonaea microzyga var. microzyga(1),Senna artemisioides nothossp. coriacea(1)
6	NEP0977	10.03.1988	329300	6603800	2	Hills	hill crest	clay/sand/loam	Eremophila freelingii(1)
6	NEP0978	10.03.1988	328600	6603600	2	Hills	hill slope	clay/sand/loam	Acacia tetragonophylla(1)
6	NEP0979	10.03.1988	329300	6604200	15	Drainage line	depression	not recorded	Melaleuca glomerata(1)
6	NEP0980	10.03.1988	326000	6604800	2	Low hills	hill slope	clay/sand	Dodonaea microzyga var. microzyga(1)
6	NEP0981	11.03.1988	324300	6618900	2	Mountains	hill crest	clay/sand/loam	Casuarina pauper(1),Callitris glaucophylla(1),Acacia aneura (NC)(1)
6	NEP0982	11.03.1988	324000	6619000	2	Mountains	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Acacia burkittii(1)
6	NEP0983	11.03.1988	323900	6618300	56	Rises	depression	clay/sand/loam	Casuarina pauper(2)
6	NEP0984	11.03.1988	323750	6618200	2	Mountains	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP0985	11.03.1988	324300	6618450	14	Drainage line	depression	loam/sand	Melaleuca glomerata(2),Callitris glaucophylla(T)
6	NEP0986	12.03.1988	316200	6612700	2	Low hills	hill slope	clay/sand/loam	Acacia tetragonophylla(1),Eremophila alternifolia(1)
6	NEP0987	12.03.1988	313300	6613200	2	Low hills	hill slope	loam/sand	Dodonaea microzyga var. microzyga(1),Senna artemisioides nothossp. coriacea(1),Senna artemisioides nothossp. artemisioides(1)
6	NEP0988	12.03.1988	309500	6615600	2	Low hills	hill slope	clay/sand/loam	Acacia tetragonophylla(1)
6	NEP1149	27.02.1988	330850	6599850	2	Rises	hill slope	loam/sand	Acacia tetragonophylla(T),Eremophila freelingii(T),Acacia oswaldii(T)
6	NEP1150	27.02.1988	330500	6600000	2	Low hills	hill slope	loam/sand	Eremophila freelingii(1),Senna artemisioides nothossp. coriacea(1),Acacia aneura (NC)(T)
6	NEP1151	27.02.1988	330950	6600150	2	Rises	hill slope	clay/sand/loam	Casuarina pauper(T)
6	NEP1152	28.02.1988	330250	6599150	2	Rises	hill slope	loam/sand	Eucalyptus gillii(1),Acacia aneura (NC)(T)
6	NEP1158	29.02.1988	327650	6597450	2	Rises	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T),Eucalyptus gillii(T)
6	NEP1159	29.02.1988	327750	6597500	14	Drainage line	depression	sand	Eucalyptus camaldulensis var.(1)
6	NEP1160	29.02.1988	328050	6597250	2	Rises	hill slope	clay/sand/loam	Casuarina pauper(1)
6	NEP1163	01.03.1988	326400	6598150	16	Plain	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia aneura (NC)(T)
6	NEP1164	01.03.1988	326850	6597200	2	Low hills	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia aneura (NC)(T)
6	NEP1173	03.03.1988	314200	6601750	14	Alluvial plain	plain (incl undulating)	loam/sand	Eucalyptus camaldulensis var.(T)
6	NEP1288	01.06.1988	330950	6616900	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	NEP1289	01.06.1988	330950	6616750	14	Flood plain	plain (incl undulating)	clay/sand/loam	Eucalyptus camaldulensis var.(T),Alectryon oleifolius ssp. canescens(T),Callitris glaucophylla(T)
6	NEP1375	11.05.1988	311300	6617800	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	NEP1376	11.05.1988	311900	6617800	3	Plateau	hill crest	clay/sand	Casuarina pauper(2)
6	NEP1377	11.05.1988	312200	6618550	3	Low hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. artemisioides(1),Zygophyllum aurantiacum (NC)(1)
6	NEP1378	11.05.1988	311700	6618700	2	Rises	hill slope	silt/clay	Acacia aneura (NC)(1)
6	NEP1386	25.05.1988	315400	6623600	57	Plateau	hill slope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus flindersii(1)
6	NEP1387	25.05.1988	314800	6622800	56	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(T)
6	NEP1388	26.05.1988	314700	6621800	57	Drainage line	depression	loam/sand	Callitris glaucophylla(2),Eucalyptus camaldulensis var.(T)
6	NEP1389	26.05.1988	314500	6621900	56	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Callitris glaucophylla(1)
6	NEP1390	26.05.1988	314400	6621600	3	Low hills	hill slope	clay/sand/loam	Casuarina pauper(2)
6	NEP1391	26.05.1988	314200	6619300	14	Drainage line	depression	clay/sand/loam	Callitris glaucophylla(2),Eucalyptus camaldulensis var.(1)
6	NEP1392	26.05.1988	314000	6619400	3	Plain	hill slope	clay/loam	Eucalyptus intertexta(T),Pittosporum phylliraeoides var. microcarpa(T)
6	NEP1393	27.05.1988	308800	6603800	56	Hills	hill slope	clay/loam	Casuarina pauper(1),Callitris glaucophylla(T)
6	NEP1394	27.05.1988	308700	6604600	56	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(2),Callitris glaucophylla(T),Casuarina pauper(T)
6	NEP1413	01.06.1988	320700	6622400	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	NEP1414	01.06.1988	322500	6622000	2	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	NEP1415	02.05.1988	322200	6620900	56	Rises	hill slope	clay/sand/loam	Casuarina pauper(2)
6	NEP1416	02.06.1988	321300	6620400	2	Rises	hill slope	clay/loam	Casuarina pauper(T)
6	NEP1417	02.05.1988	323200	6622400	3	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Casuarina pauper(T)
6	NEP1418	02.05.1988	323700	6623300	3	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T)
6	NEP1604	29.08.1990	319900	6615800	1	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	ORA0045	20.04.1986	270400	6537200	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(2),Eucalyptus intertexta(1)
6	ORA0046	20.04.1986	274700	6535200	59	Low hills	hill slope	loam/sand	Acacia rivalis(1),Callitris glaucophylla(T)
6	ORA0049	22.04.1986	285700	6528200	11	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	ORA0056	20.04.1986	263600	6530700	27	Low hills	hill slope	clay/sand/loam	Maireana pyramidata(2),Eremophila duttonii(T)
6	ORA0057	20.04.1986	266600	6530100	7	Hills	hill slope	loam/sand	Eremophila freelingii(1),Maireana pyramidata(T),Alectryon oleifolius ssp. canescens(T)

Appendix 2 (continued)

6	ORA0058	20.04.1986	266300	6529800	1	Hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(1),Hakea ednieana(T)
6	ORA0059	20.04.1986	266700	6530200	44	Alluvial plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(T),Pittosporum phylliraeoides var. microcarpa(T),Senna artemisioides nothossp. coriacea(T)
6	ORA0061	20.04.1986	268500	6536300	60	Hills	hill slope	loam/sand	Callitris glaucophylla(1),Rhagodia parabolica(1)
6	ORA0062	20.04.1986	270300	6534700	12	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(1),Callitris glaucophylla(T)
6	ORA0063	21.04.1986	274400	6520500	12	Low hills	hill slope	loam/sand	Eucalyptus intertexta(2)
6	ORA0097	26.04.1986	268500	6531500	57	Mountains	hill slope	loam/sand	Callitris glaucophylla(2),Eucalyptus intertexta(T)
6	ORA0098	26.04.1986	267900	6533700	57	Mountains	hill crest	clay/sand/loam	Eucalyptus flindersii(2),Allocasuarina verticillata(T)
6	ORA0419	24.09.1986	264600	6530700	6	Low hills	hill slope	not recorded	Acacia tetragonophylla(T)
6	ORA0476	19.09.1984	267500	6539800	11	Rises	hill slope	loam/sand	Callitris glaucophylla(1),Acacia victoriae ssp. victoriae(1)
6	ORA0507	25.02.1986	272900	6530400	30	Alluvial plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T),Maireana pyramidata(T),Maireana astrotricha(N)
6	ORA0508	25.02.1986	282900	6534600	9	Low hills	hill slope	clay/loam	Eucalyptus socialis(1),Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T)
6	ORA0509	25.02.1986	283200	6534500	9	Low hills	hill crest	loam/sand	Callitris glaucophylla(T),Senna artemisioides nothossp. coriacea(T),Acacia victoriae ssp. victoriae(T)
6	ORA0510	25.02.1986	283300	6534400	1	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T),Callitris glaucophylla(T)
6	ORA0731	08.09.1987	276100	6513250	50	Plain	hill slope	clay/sand/loam	Callitris glaucophylla(2)
6	ORA0732	08.09.1987	280500	6532250	9	Low hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Dodonaea lobulata(T),Callitris glaucophylla(T)
6	ORA0795	14.08.1987	265700	6521700	56	Hills	hill slope	loam/sand	Eucalyptus intertexta(1),Callitris glaucophylla(1)
6	ORA0796	14.08.1987	266100	6525900	56	Hills	hill slope	loam/sand	Eucalyptus intertexta(1),Casuarina pauper(1)
6	ORA0797	14.08.1987	264800	6522300	31	Low hills	hill slope	clay/sand/loam	Zygophyllum aurantiacum (NC)(1),Sclerolaena patenticuspis(T)
6	ORA0885	14.08.1987	265600	6522000	9	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia ligulata (NC)(T),Acacia victoriae ssp. victoriae(T)
6	ORA0886	14.08.1987	265200	6525800	29	Plain	hill slope	clay/sand/loam	Eremophila duttonii(T)
6	ORA0887	14.08.1987	264400	6522300	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Acacia victoriae ssp. victoriae(T),Pimelea microcephala ssp. microcephala(N)
6	ORA0888	12.08.1987	271400	6536900	11	Low hills	hill slope	loam/sand	Callitris glaucophylla(1),Acacia rivalis(T),Alectryon oleifolius ssp. canescens(T)
6	ORA0889	12.08.1987	270500	6532400	15	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(1),Acacia victoriae ssp. victoriae(T),Callitris glaucophylla(T)
6	ORA0890	12.08.1987	268700	6526300	1	Low hills	hill slope	loam	Senna artemisioides ssp.(T),Senna artemisioides nothossp. coriacea(T)
6	ORA0891	12.08.1987	268800	6520500	11	Low hills	hill slope	loam/sand	Acacia rivalis(1),Callitris glaucophylla(T)
6	ORA0894	11.08.1987	281600	6515300	12	Low hills	hill slope	loam	Acacia victoriae ssp. victoriae(1),Callitris glaucophylla(T)
6	ORA0895	11.08.1987	271900	6523900	12	Rises	hill slope	loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	ORA0896	12.08.1987	269400	6520700	10	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Acacia rivalis(T),Acacia victoriae ssp. victoriae(T)
6	ORA0897	12.08.1987	268500	6524000	11	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1),Acacia rivalis(1),Acacia victoriae ssp. victoriae(T)
6	ORA0898	11.08.1987	279000	6520300	69	Low hills	hill slope	loam/sand	Eucalyptus intertexta(T),Acacia continua(T)
6	ORA0899	11.08.1987	281900	6524300	12	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	ORA0902	13.08.1987	285000	6529000	11	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Callitris glaucophylla(T)
6	ORA0904	13.08.1987	275800	6531400	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Acacia victoriae ssp. victoriae(T)
6	ORA0905	13.08.1987	282500	6527500	11	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	ORA0907	13.08.1987	284800	6530800	18	Low hills	hill slope	clay/sand/loam	Acacia calamifolia(T),Alectryon oleifolius ssp. canescens(T)
6	ORA0908	12.08.1987	279300	6535400	50	Drainage line	depression	loam/sand	Callitris glaucophylla(1),Eucalyptus camaldulensis var.(T)
6	ORA0910	12.08.1987	272700	6537800	11	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia tetragonophylla(T)
6	ORA0933	15.08.1987	263600	6523700	8	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T)
6	ORA0937	16.08.1987	262700	6539500	8	Plain	hill slope	clay/sand/loam	Eremophila duttonii(T)
6	PAR0031	19.04.1986	252000	6552600	33	Plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(1)
6	PAR0085	24.04.1986	250900	6553600	33	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Sida petrophila(1),Eremophila duttonii(T)
6	PAR0090	24.04.1986	250400	6552300	33	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1),Eremophila duttonii(1),Eremophila freelingii(T)
6	PAR0358	23.09.1986	260600	6547800	21	Alluvial plain	plain (incl undulating)	clay/sand	Acacia aneura (NC)(T)
6	PAR0359	23.09.1986	258600	6546900	23	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(T)
6	PAR0360	23.09.1986	258700	6553000	26	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	PAR0410	23.09.1986	250200	6563500	15	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(T)
6	PAR0411	23.09.1986	249800	6565600	26	Plain	plain (incl undulating)	loam/sand	Eremophila duttonii(T)
6	PAR0412	23.09.1986	254000	6564500	25	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T)
6	PAR0413	24.09.1986	249900	6559000	23	Plain	plain (incl undulating)	silt/clay	Acacia victoriae ssp. victoriae(T)
6	PAR0765	04.08.1987	253400	6540800	23	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
6	PAR0766	04.08.1987	255150	6541500	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Maireana pyramidata(1)
6	PAR0767	05.08.1987	260100	6550600	9	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(1),Maireana astrotricha(1),Sida petrophila(T)
6	PAR0768	05.08.1987	259400	6551050	8	Flood plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	PAR0769	05.08.1987	243600	6561300	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(1),Acacia victoriae ssp. victoriae(T)
6	PAR0770	05.08.1987	240500	6561200	26	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(1),Maireana pyramidata(T)
6	PAR0771	06.08.1987	238500	6543750	21	Plain	plain (incl undulating)	loam/sand	Acacia aneura (NC)(T),Acacia ligulata (NC)(T)
6	PAR0772	06.08.1987	240800	6542600	21	Dunefield	hill slope	clay/sand	Acacia ligulata (NC)(T),Acacia aneura (NC)(T)
6	PAR0778	07.08.1987	254500	6567400	8	Rises	hill slope	clay/sand/loam	Maireana astrotricha(T),Maireana sedifolia(T),Maireana pyramidata(T)
6	PAR0779	08.08.1987	257600	6566400	1	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	PAR0780	08.08.1987	257250	6567255	6	Low hills	hill slope	clay/sand/loam	Casuarina pauper(T)
6	PAR0781	08.08.1987	257950	6567250	1	Rises	hill slope	clay/sand/loam	Hakea ednieana(T),Acacia aneura (NC)(T),Acacia tetragonophylla(T)
6	PAR0782	08.08.1987	259000	6567600	1	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Acacia tetragonophylla(T)
6	PAR0783	08.08.1987	259100	6565800	1	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Acacia aneura (NC)(T)
6	PAR0784	08.08.1987	258550	6565400	1	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Acacia tetragonophylla(T),Acacia aneura (NC)(T)
6	PAR0785	08.08.1987	257400	6566800	15	Drainage line	hill slope	clay/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	PAR0786	08.08.1987	257400	6567400	1	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Acacia aneura (NC)(T)
6	PAR0787	09.08.1987	255400	6566850	6	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Casuarina pauper(T)
6	PAR0788	09.08.1987	255800	6566100	4	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Casuarina pauper(T)
6	PAR0789	09.08.1987	255500	6566100	6	Low hills	hill slope	loam/sand	Casuarina pauper(T)
6	PIR0193	25.07.1986	235700	6335100	64	Hills	hill slope	not recorded	Eucalyptus leucoxylon ssp.(T)
6	PIR0302	08.08.1986	233000	6339200	64	Mountains	hill crest	not recorded	Allocasuarina verticillata(2),Eucalyptus cladocalyx(1)

Appendix 2 (continued)

6	PIR0303	08.08.1986	230900	6340100	64	Mountains	hill slope	not recorded	Eucalyptus oleosa(2),Allocasuarina verticillata(1)
6	SER0361	08.08.1986	303600	6624500	16	Low hills	hill slope	loam/sand	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T)
6	SER0362	08.08.1986	304050	6625800	11	Drainage line	depression	loam/sand	Callitris glaucophylla(2)
6	SER0363	08.08.1986	303300	6628500	10	Low hills	hill slope	clay/loam	Acacia victoriae ssp. victoriae(T)
6	SER0364	09.08.1986	302500	6632300	41	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(1)
6	SER0365	09.08.1986	302200	6633600	30	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Hakea leucoptera ssp. leucoptera(T)
6	SER0366	09.08.1986	301500	6633800	8	Hills	hill slope	clay/sand/loam	Allocasuarina verticillata(T)
6	SER0367	09.08.1986	301250	6634650	56	Hills	hill slope	clay/sand/loam	Allocasuarina verticillata(T)
6	SER0368	10.08.1986	303700	6635700	41	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(1),Myoporum platycarpum (NC)(T)
6	SER0369	10.08.1986	284200	6628300	1	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(2),Acacia aneura (NC)(T)
6	SER0370	10.08.1986	284600	6628400	1	Low hills	hill crest	loam/sand	Acacia aneura (NC)(1),Acacia tetragonophylla(T)
6	SER0371	10.08.1986	284500	6628300	25	Low hills	hill slope	clay/sand	Alectryon oleifolius ssp. canescens(T)
6	SER0372	10.08.1986	284400	6627700	1	Hills	hill crest	clay	Eremophila freelingii(1)
6	SER0381	12.08.1986	287800	6634500	1	Hills	hill slope	loam/sand	Casuarina pauper(1),Acacia tetragonophylla(T)
6	SER0382	12.08.1986	287700	6633300	25	Low hills	hill slope	clay/loam	Alectryon oleifolius ssp. canescens(T)
6	SER0384	13.08.1986	287900	6631900	1	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T),Acacia aneura (NC)(T)
6	SER0385	13.08.1986	287000	6629000	1	Low hills	hill slope	clay/sand/loam	Eremophila alternifolia(1)
6	SER0386	13.08.1986	287000	6629900	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(T)
6	SER0405	10.08.1986	302000	6636600	41	Low hills	depression	loam/sand	Allocasuarina verticillata(T)
6	SER0406	12.08.1986	303600	6635600	1	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Acacia aneura (NC)(T)
6	SER0407	13.08.1986	292100	6642500	16	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	SER0408	13.08.1986	292000	6642800	16	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	SER0409	13.08.1986	296300	6641500	39	Low hills	hill slope	loam/sand	Eucalyptus socialis(1)
6	SER0989	06.04.1988	293700	6625300	3	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Acacia tetragonophylla(1),Hakea ednieana(T)
6	SER0990	06.04.1988	293600	6624500	3	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(1),Acacia victoriae ssp. victoriae(T)
6	SER0991	06.04.1988	293400	6624500	3	Alluvial plain	plain (incl undulating)	clay	Acacia victoriae ssp. victoriae(1)
6	SER0992	06.04.1988	292800	6625650	18	Plain	plain (incl undulating)	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	SER0993	07.04.1988	291600	6626500	13	Rises	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(T)
6	SER0994	07.04.1988	295900	6625000	3	Hills	hill crest	clay/sand	Acacia tetragonophylla(1),Acacia aneura (NC)(1),Eremophila freelingii(T)
6	SER0995	07.04.1988	297250	6624450	4	Plain	hill slope	clay	Casuarina pauper(2)
6	SER0996	07.04.1988	297700	6624000	3	Mountains	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Callitris glaucophylla(T),Hakea ednieana(T)
6	SER0997	07.04.1988	297700	6624500	4	Plain	hill slope	clay	Zygophyllum aurantiacum (NC)(2),Sclerolaena tricuspis(1)
6	SER0998	07.04.1988	291100	6628200	18	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	SER0999	08.04.1988	293100	6627200	3	Hills	hill slope	clay	Solanum sturtianum(2),Acacia tetragonophylla(1)
6	SER1000	08.04.1988	293300	6627400	3	Hills	hill slope	clay	Dodonaea lobulata(2),Prostanthera striatiflora(1)
6	SER1001	08.04.1988	289100	6630800	16	Plain	plain (incl undulating)	silt/clay	Eucalyptus socialis(T),Melaleuca lanceolata ssp. lanceolata(T)
6	SER1002	08.04.1988	287600	6629600	3	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	SER1003	08.04.1988	285600	6627500	16	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	SER1005	09.04.1988	284500	6625200	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T)
6	SER1006	09.04.1988	284800	6625600	3	Hills	hill slope	silt/clay/loam	Acacia victoriae ssp. victoriae(T)
6	SER1007	09.04.1988	284300	6624300	3	Low hills	hill slope	clay	Acacia aneura (NC)(T)
6	SER1008	09.04.1988	284100	6625950	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Acacia tetragonophylla(T)
6	SER1009	09.04.1988	284400	6626400	3	Low hills	hill crest	silt/clay/loam	Acacia aneura (NC)(T)
6	SER1010	10.04.1988	286000	6626950	4	Rises	hill crest	silt/clay/loam	Casuarina pauper(T)
6	SER1011	10.04.1988	288200	6625800	25	Plain	hill slope	clay/sand	Alectryon oleifolius ssp. canescens(T),Eucalyptus socialis(T)
6	SER1012	10.04.1988	287900	6625600	6	Low hills	hill crest	clay/sand/loam	Casuarina pauper(T)
6	SER1013	10.04.1988	286200	6627100	16	Flood plain	plain (incl undulating)	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	SER1014	10.04.1988	286800	6626900	16	Plain	hill slope	clay	Alectryon oleifolius ssp. canescens(T)
6	SER1015	10.04.1988	286600	6626750	16	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(T)
6	SER1016	11.04.1988	285300	6626400	3	Low hills	hill crest	clay/sand/loam	Eremophila alternifolia(T)
6	SER1017	11.04.1988	284200	6626700	3	Hills	hill crest	clay/sand/loam	Casuarina pauper(T)
6	SER1018	11.04.1988	287700	6632800	25	Rises	hill slope	clay	Sclerolaena obliquicuspis(2)
6	SER1019	12.04.1988	287500	6633600	25	Plain	hill slope	clay	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	SER1020	12.04.1988	287600	6633600	3	Plain	hill slope	clay	
6	SER1021	12.04.1988	288100	6635600	3	Low hills	hill slope	clay/sand/loam	Stipa nitida(2),Zygophyllum aurantiacum (NC)(1)
6	SER1022	12.04.1988	288100	6636650	18	Plain	plain (incl undulating)	clay/sand	Zygophyllum aurantiacum (NC)(1),Osteocarpum dipterocarpum(T)
6	SER1023	13.04.1988	292900	6650800	3	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1)
6	SER1024	13.04.1988	292800	6650600	56	Hills	hill crest	clay/sand/loam	Olearia decurrens(T),Eremophila freelingii(T)
6	SER1025	13.04.1988	291100	6650800	23	Plain	hill slope	clay/sand/loam	Sclerolaena ventricosa(2),Sclerolaena tricuspis(1)
6	SER1026	13.04.1988	289000	6649100	5	Low hills	hill slope	clay/sand/loam	Maireana astrotricha(1),Atriplex vesicaria ssp.(T)
6	SER1027	13.04.1988	289600	6647250	5	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	SER1028	14.04.1988	283800	6649300	25	Low hills	hill slope	clay/sand/loam	Maireana astrotricha(1),Atriplex vesicaria ssp.(T)
6	SER1029	14.04.1988	284500	6646900	5	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1),Acacia rivalis(T)
6	SER1030	14.04.1988	285050	6644700	3	Hills	hill slope	clay/sand	Eremophila freelingii(T),Acacia aneura (NC)(T)
6	SER1031	14.04.1988	288800	6641200	3	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(T)
6	SER1032	14.04.1988	289900	6643400	2	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	SER1033	15.04.1988	286000	6640000	3	Hills	hill slope	clay	Eremophila freelingii(1)
6	SER1034	04.05.1988	300600	6634600	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	SER1035	05.05.1988	300200	6634300	3	Hills	hill crest	clay	Eremophila freelingii(2),Acacia aneura (NC)(1)
6	SER1036	05.05.1988	300500	6633800	14	Plain	hill slope	clay/sand/loam	Casuarina pauper(T)
6	SER1037	05.05.1988	298800	6640500	5	Hills	hill slope	clay/sand/loam	Hakea ednieana(1)
6	SER1341	03.08.1988	304850	6627100	3	Rises	hill slope	clay/sand/loam	Danthonia caespitosa(1),Atriplex acutibractea ssp.(1)
6	SER1351	04.05.1988	302600	6631700	14	Drainage line	depression	clay/sand/loam	Callitris glaucophylla(1),Melaleuca glomerata(1)
6	SER1352	05.05.1988	301100	6640900	3	Hills	hill slope	clay/sand/loam	Acacia rivalis(2)
6	SER1353	05.05.1988	301300	6641200	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(2)
6	SER1354	06.05.1988	301900	6642800	3	Plateau	hill crest	clay/sand/loam	Eremophila freelingii(1)
6	SER1355	06.05.1988	301400	6643100	3	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(2)
6	SER1356	06.05.1988	300500	6644400	3	Plain	hill slope	clay/sand/loam	Acacia rivalis(1)
6	SER1357	06.05.1988	304400	6643200	41	Plain	plain (incl undulating)	clay	Eucalyptus socialis(2)
6	SER1358	06.05.1988	305200	6642100	30	Plain	plain (incl undulating)	clay	Eucalyptus socialis(T)
6	SER1359	06.05.1988	305350	6641900	16	Drainage line	depression	loam/sand	Acacia victoriae ssp. victoriae(T)
6	SER1360	07.05.1988	300600	6637700	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	SER1361	07.05.1988	303600	6644950	3	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)

Appendix 2 (continued)

6	SER1362	07.05.1988	303300	6646400	3	Low hills	hill slope	clay/sand/loam	
6	SER1363	07.05.1988	301800	6647800	16	Rises	hill slope	clay/sand/loam	Salsola kali(1)
6	SER1364	07.05.1988	302100	6648200	31	Flood plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(2),Salsola kali(1)
6	SER1365	07.05.1988	300100	6650100	3	Hills	hill crest	clay/sand/loam	Eremophila freelingii(T)
6	SER1366	08.05.1988	300200	6649900	16	Drainage line	depression	loam/sand	Melaleuca glomerata(1),Eucalyptus camaldulensis var.(T)
6	SER1367	08.05.1988	300300	6650700	3	Rises	hill slope	clay/sand/loam	Sclerolaena obliquicuspis(1),Salsola kali(1)
6	SER1368	08.05.1988	303200	6649300	3	Rises	hill slope	clay/sand/loam	
6	SER1369	08.05.1988	307400	6649300	3	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	SER1370	08.05.1988	306150	6650200	3	Low hills	hill slope	clay/sand	Acacia aneura (NC)(T)
6	SER1371	08.05.1988	305500	6651500	5	Low hills	hill slope	clay/sand/loam	
6	SER1372	08.05.1988	305700	6651600	6	Plain	plain (incl undulating)	clay/sand/loam	Sclerolaena obliquicuspis(1)
6	SER1373	09.05.1988	306100	6631500	56	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	SER1374	09.05.1988	306300	6631700	57	Escarpment	hill crest	clay/sand/loam	Eucalyptus flindersii(T),Callitris glaucophylla(T)
6	SER1379	12.05.1988	290050	6640800	3	Low hills	hill slope	clay/sand/loam	Dodonaea microzyga var. microzyga(2)
6	SER1380	12.05.1988	287900	6645500	6	Low hills	hill slope	clay	Eremophila freelingii(1)
6	SER1381	12.05.1988	288400	6645100	23	Plain	hill slope	clay/sand	Maireana astrotricha(1)
6	SER1382	12.05.1988	290800	6644700	56	Hills	hill slope	clay/sand/loam	Olearia decurrens(1)
6	SER1383	12.05.1988	293100	6642700	26	Plain	plain (incl undulating)	clay	Eucalyptus socialis(T)
6	SER1384	13.05.1988	303700	6634800	14	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	SER1385	13.05.1988	303400	6634500	3	Low hills	hill slope	silt/clay/loam	Zygophyllum aurantiacum (NC)(1)
6	SER1402	29.05.1988	306800	6633250	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	SER1403	29.05.1988	307200	6633000	57	Plateau	hill crest	clay/sand/loam	Melaleuca uncinata(2),Eucalyptus flindersii(1)
6	SER1404	29.05.1988	306800	6633500	57	Mountains	hill slope	clay/sand	Eucalyptus intertexta(1)
6	SER1405	29.05.1988	306600	6634200	14	Drainage line	depression	loam/sand	Callitris glaucophylla(T),Eucalyptus camaldulensis var.(T)
6	SER1409	30.05.1988	307100	6630400	56	Hills	hill slope	clay	Callitris glaucophylla(1),Acacia aneura (NC)(1),Casuarina pauper(T)
6	SER1410	31.05.1988	307700	6629500	39	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1)
6	UMB0165	16.05.1986	353600	6630400	4	Low hills	hill slope	loam/sand	Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	UMB1038	08.03.1988	319900	6653500	11	Low hills	hill crest	not recorded	Acacia tetragonophylla(T),Acacia aneura (NC)(T)
6	UMB1039	08.03.1988	319500	6654200	18	Low hills	hill footslope	loam	Acacia rivalis(T),Acacia victoriae ssp. victoriae(T),Hakea leucoptera ssp. leucoptera(T)
6	UMB1040	08.03.1988	319400	6656400	1	Low hills	hill footslope	loam	Acacia aneura (NC)(2)
6	UMB1041	08.03.1988	320300	6657800	1	Low hills	hill footslope	skeletal	Dodonaea lobulata(1),Acacia aneura (NC)(T),Acacia rivalis(T)
6	UMB1042	09.03.1988	317600	6659100	6	Hills	hill slope	skeletal	Acacia aneura (NC)(T),Eremophila freelingii(T),Acacia tetragonophylla(T)
6	UMB1043	09.03.1988	322800	6659600	15	Drainage line	depression	sand	Eucalyptus camaldulensis var.(1)
6	UMB1044	09.03.1988	324000	6664200	1	Hills	hill slope	clay	Acacia aneura (NC)(T),Acacia tetragonophylla(T),Eremophila freelingii(T)
6	UMB1045	09.03.1988	323200	6665000	1	Hills	hill crest	loam/sand	Eremophila alternifolia(T)
6	UMB1046	10.03.1988	316700	6665700	25	Alluvial plain	plain (incl undulating)	loam	*Nicotiana glauca(1)
6	UMB1048	10.03.1988	322000	6666400	6	Hills	hill slope	skeletal	Acacia aneura (NC)(T),Acacia tetragonophylla(T),Eremophila freelingii(T)
6	UMB1049	10.03.1988	321600	6669900	15	Drainage line	depression	skeletal	Eucalyptus camaldulensis var.(2)
6	UMB1050	10.03.1988	321200	6667500	33	Plain	hill footslope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	UMB1051	28.06.1988	312100	6666700	33	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	UMB1052	10.03.1988	311300	6666600	23	Low hills	hill footslope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eremophila freelingii(T)
6	UMB1053	28.06.1988	311500	6667300	4	Low hills	hill footslope	loam/sand	Eremophila freelingii(T)
6	UMB1054	28.06.1988	311500	6667100	6	Hills	hill slope	clay/loam	Eremophila freelingii(T)
6	UMB1055	08.08.1988	311300	6664800	16	Flood plain	hill footslope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T)
6	UMB1056	28.06.1988	308900	6663300	1	Hills	hill crest	skeletal	Eremophila freelingii(T)
6	UMB1058	11.03.1988	309200	6662700	41	Low hills	hill footslope	skeletal	Eremophila freelingii(T),Zygophyllum aurantiacum (NC)(T),Maireana appressa(T)
6	UMB1059	08.08.1988	307700	6661800	33	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1060	12.03.1988	317700	6652500	11	Low hills	hill footslope	clay	Acacia aneura (NC)(T),Dodonaea lobulata(T),Acacia rivalis(T)
6	UMB1061	11.03.1988	317800	6652900	16	Low hills	hill footslope	loam/sand	Alectryon oleifolius ssp. canescens(T)
6	UMB1062	12.03.1988	313700	6652500	16	Low hills	hill footslope	skeletal	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	UMB1064	12.03.1988	324800	6656500	18	Hills	hill slope	skeletal	Acacia victoriae ssp. victoriae(T)
6	UMB1065	12.03.1988	324800	6655800	16	Low hills	hill footslope	clay/loam	Alectryon oleifolius ssp. canescens(1)
6	UMB1066	13.03.1988	329600	6654200	1	Low hills	hill footslope	loam/sand	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	UMB1067	28.06.1988	329700	6654550	4	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(1),Alectryon oleifolius ssp. canescens(T)
6	UMB1068	13.03.1988	330600	6656100	59	Hills	hill slope	skeletal	Eucalyptus intertexta(1)
6	UMB1070	13.03.1988	325800	6674500	6	Low hills	hill footslope	loam/sand	Acacia aneura (NC)(T),Eremophila freelingii(T)
6	UMB1071	14.03.1988	325900	6676300	33	Drainage line	depression	skeletal	Alectryon oleifolius ssp. canescens(1),Melaleuca glomerata(1)
6	UMB1073	14.03.1988	325400	6676300	28	Flood plain	hill footslope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1074	14.03.1988	323200	6678500	33	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1075	14.03.1988	328900	6679100	6	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eremophila freelingii(T)
6	UMB1076	14.03.1988	329100	6679600	6	Low hills	hill footslope	loam/sand	Acacia aneura (NC)(1)
6	UMB1077	14.03.1988	321700	6679400	25	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1078	14.03.1988	321300	6679500	33	Alluvial plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
6	UMB1079	14.03.1988	320200	6679500	28	Low hills	hill footslope	skeletal	Atriplex vesicaria ssp.(T),Maireana astrotricha(T),Zygophyllum aurantiacum (NC)(T)
6	UMB1080	14.03.1988	321500	6671600	25	Low hills	hill footslope	clay/sand/loam	Casuarina pauper(T)
6	UMB1081	14.03.1988	321500	6671000	28	Rises	hill footslope	skeletal	Acacia victoriae ssp. victoriae(T)
6	UMB1082	15.03.1988	321200	6668900	28	Plain	hill slope	clay/loam	Acacia victoriae ssp. victoriae(T)
6	UMB1084	15.03.1988	320100	6669600	28	Plain	hill slope	clay/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1085	15.03.1988	320200	6670000	1	Low hills	hill footslope	clay/sand/loam	Eremophila freelingii(T)
6	UMB1086	15.03.1988	320400	6672900	33	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	UMB1087	15.03.1988	320400	6674700	33	Plain	hill slope	loam	Acacia victoriae ssp. victoriae(T)
6	UMB1088	15.03.1988	319500	6675800	33	Drainage line	depression	loam	Santalum lanceolatum(T),Acacia victoriae ssp. victoriae(T)
6	UMB1089	15.03.1988	317600	6677900	33	Alluvial plain	plain (incl undulating)	loam	Acacia victoriae ssp. victoriae(2)
6	UMB1090	14.03.1988	319100	6677300	27	Low hills	hill footslope	skeletal	Maireana astrotricha(T),Atriplex vesicaria ssp.(T)
6	UMB1091	15.03.1988	315100	6677800	53	Plain	plain (incl undulating)	clay/loam	Atriplex vesicaria ssp.(T)
6	UMB1092	15.03.1988	314900	6675600	25	Low hills	hill footslope	skeletal	Maireana astrotricha(1)
6	UMB1093	16.03.1988	315000	6676800	25	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)

Appendix 2 (continued)

6	UMB1095	28.06.1988	317300	6672500	27	Rises	hill footslope	skeletal	Atriplex vesicaria ssp.(T),Maireana astrotricha(T)
6	UMB1096	28.06.1988	316100	6673500	33	Alluvial plain	plain (incl undulating)	not recorded	Acacia victoriae ssp. victoriae(T)
6	UMB1097	16.03.1988	314400	6674800	33	Alluvial plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	UMB1098	16.03.1988	308800	6675600	27	Hills	hill slope	skeletal	Eremophila freelingii(T)
6	UMB1299	04.06.1988	325600	6652650	3	Hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	UMB1300	04.06.1988	325950	6652200	3	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Eucalyptus intertexta(T)
6	UMB1508	29.08.1988	356806	6676194	3	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1)
6	UMB1607	30.08.1990	308400	6677500	53	Rises	hill slope	clay/sand/loam	Atriplex vesicaria ssp.(1)
6	WAR0449	22.09.1986	274000	6482300	1	Hills	hill slope	loam/sand	Callitris glaucophylla(T),Eremophila longifolia(T)
6	WER0629	13.04.1987	330800	6574300	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(T),Hakea ednieana(T),Eremophila freelingii(T)
6	WER0638	07.06.1987	318325	6570200	4	Plain	hill slope	loam/sand	Nitraria billardierei(1),Maireana brevifolia(1)
6	WER0639	07.06.1987	319150	6570880	4	Plain	hill slope	loam/sand	Eucalyptus oleosa(1),Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	WER0640	08.06.1987	329600	6574500	14	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1),Acacia rivalis(1),Acacia tetragonophylla(T)
6	WER0641	08.06.1987	329425	6574150	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	WER0642	08.06.1987	329550	6573850	4	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Acacia oswaldii(T)
6	WER0643	08.06.1987	329800	6573400	2	Hills	hill slope	clay/loam	Acacia aneura (NC)(T),Hakea ednieana(T)
6	WER0644	09.06.1987	331250	6574900	3	Hills	hill slope	loam/sand	Hakea ednieana(1),Eremophila freelingii(1),Acacia tetragonophylla(T)
6	WER0645	09.06.1987	330825	6574500	14	Drainage line	depression	loam/sand	Melaleuca dissitiflora(1),Melaleuca glomerata(T)
6	WER0646	09.06.1987	331250	6574100	3	Hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1),Hakea ednieana(1),Eremophila alternifolia(1)
6	WER0647	09.06.1987	331300	6573900	2	Hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	WER0648	09.06.1987	331475	6573500	2	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Eremophila freelingii(T),Dodonaea viscosa ssp. angustissima(T)
6	WER0649	09.06.1987	331750	6573375	2	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Acacia victoriae ssp. victoriae(T)
6	WER0650	10.06.1987	327475	6575450	14	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1),Casuarina pauper(T)
6	WER0651	10.06.1987	327450	6576440	14	Plain	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T)
6	WER0652	10.06.1987	327000	6575850	14	Low hills	hill slope	clay/sand	Acacia victoriae ssp. victoriae(1)
6	WER0653	10.06.1987	324900	6572325	4	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Dodonaea microzyga var. microzyga(T)
6	WER0654	10.08.1987	325075	6571225	25	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WER0655	10.08.1987	324970	6571700	4	Rises	hill slope	loam/sand	Dodonaea microzyga var. microzyga(T),Acacia victoriae ssp. victoriae(T)
6	WER0656	12.06.1987	325175	6570350	2	Plain	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(1),Acacia aneura (NC)(T),Eucalyptus gillii(T)
6	WER0657	13.06.1987	323500	6573700	25	Rises	hill crest	clay/sand	Eremophila freelingii(T),Casuarina pauper(T),Eremophila longifolia(T)
6	WER0658	12.06.1987	323700	6573075	25	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WER0659	14.06.1987	326050	6571250	4	Rises	hill slope	clay/sand	Eucalyptus gillii(1)
6	WER0660	15.06.1987	325275	6573625	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Acacia victoriae ssp. victoriae(1)
6	WER0661	16.08.1987	330700	6584800	2	Hills	hill slope	clay/sand	Eremophila freelingii(1),Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	WER0662	16.06.1987	330600	6584550	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	WER0663	16.06.1987	329200	6586200	14	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia tetragonophylla(T)
6	WER0664	16.06.1987	329250	6585950	14	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(1)
6	WER0665	16.06.1987	326000	6579100	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	WER0667	17.06.1987	325700	6579175	14	Rises	hill slope	loam/sand	Dodonaea microzyga var. microzyga(1)
6	WER0668	18.06.1987	318925	6571075	4	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T),Eremophila sturtii(T)
6	WER0669	18.06.1987	318000	6572600	24	Plain	plain (incl undulating)	clay	Sclerolaena longicuspis(2),Sclerolaena divaricata(T)
6	WER0670	18.06.1987	317650	6573425	14	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(T),Melaleuca glomerata(T)
6	WER0671	18.06.1987	320350	6572825	4	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(1),Alectryon oleifolius ssp. canescens(T),Eremophila sturtii(T)
6	WER0672	19.06.1987	319525	6572325	23	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(1),Senna artemisioides nothossp. coriacea(T),Acacia victoriae ssp. victoriae(T)
6	WER0673	19.06.1987	322675	6575750	24	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T)
6	WER0674	19.06.1987	322100	6576200	24	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T)
6	WER0675	19.06.1987	326300	6579700	4	Flood plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Senna artemisioides nothossp. coriacea(T)
6	WER0676	19.06.1987	324200	6577000	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Senna artemisioides nothossp. coriacea(1)
6	WER1138	24.02.1988	320000	6584100	6	Low hills	hill slope	clay/loam	Casuarina pauper(1),Acacia aneura (NC)(1),Exocarpos aphyllus(T)
6	WER1139	24.02.1988	320025	6583840	6	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	WER1140	24.02.1988	328575	6584500	2	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1),Acacia aneura (NC)(T),Melaleuca dissitiflora(T)
6	WER1141	24.02.1988	328150	6584450	14	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	WER1142	24.02.1988	327500	6584050	14	Plain	hill slope	loam/sand	Acacia tetragonophylla(T),Eremophila alternifolia(T),Acacia victoriae ssp. victoriae(T)
6	WER1143	25.02.1988	326900	6583550	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T)
6	WER1144	25.02.1988	326400	6583800	2	Hills	hill slope	clay/sand/loam	Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	WER1145	25.02.1988	326400	6583150	14	Plain	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T)
6	WER1146	26.02.1988	328400	6590700	2	Mountains	hill slope	loam/sand	Casuarina pauper(1),Callitris glaucophylla(T)
6	WER1147	26.02.1988	328150	6590750	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(1),Casuarina pauper(1)
6	WER1148	27.02.1988	330500	6590350	2	Low hills	hill slope	loam/sand	Eremophila freelingii(T),Acacia tetragonophylla(T),Acacia aneura (NC)(T)
6	WER1161	29.02.1988	322150	6594200	2	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Acacia victoriae ssp. victoriae(T)
6	WER1162	29.02.1988	322350	6594550	2	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T),Eremophila freelingii(T)
6	WER1165	01.03.1988	318200	6591300	25	Rises	depression	clay/loam	Acacia victoriae ssp. victoriae(T),Hakea leucoptera ssp. leucoptera(T),Casuarina pauper(T)
6	WER1166	01.03.1988	318600	6590550	16	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T)
6	WER1167	02.03.1988	319350	6588450	6	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Casuarina pauper(T)
6	WER1168	02.03.1988	318750	6588300	6	Rises	hill slope	loam/sand	Casuarina pauper(1)
6	WER1169	02.03.1988	318850	6589700	2	Plain	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	WER1170	02.03.1988	317750	6594100	23	Rises	hill slope	loam/sand	Acacia aneura (NC)(T)
6	WER1171	02.03.1988	318325	6594650	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)

Appendix 2 (continued)

6	WER1172	02.03.1988	317050	6596325	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	WER1174	03.03.1988	310750	6596300	2	Plain	hill slope	loam/sand	Eucalyptus camaldulensis var.(T),Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	WER1175	03.03.1988	309000	6594350	40	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(1)
6	WER1176	03.03.1988	310400	6589550	2	Hills	hill slope	clay/sand	Acacia aneura (NC)(1)
6	WER1177	04.03.1988	324500	6582350	4	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T)
6	WER1178	04.03.1988	317100	6581000	2	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1),Santalum acuminatum(T)
6	WER1179	04.03.1988	313500	6584800	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Casuarina pauper(T)
6	WER1180	04.03.1988	313050	6584600	4	Rises	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T),Eucalyptus gillii(T)
6	WER1181	05.03.1988	311950	6583200	2	Hills	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Eucalyptus gillii(T),Casuarina pauper(T)
6	WER1182	05.03.1988	311500	6583450	4	Plain	hill slope	loam/sand	Casuarina pauper(T)
6	WER1183	25.02.1988	329000	6590500	1	Hills	hill slope	clay/sand/loam	Eucalyptus gillii(1),Acacia aneura (NC)(1),Casuarina pauper(T)
6	WER1184	05.03.1988	311240	6583350	2	Low hills	hill slope	loam	Acacia aneura (NC)(T),Santalum lanceolatum(T),Casuarina pauper(T)
6	WER1186	06.03.1988	309750	6572550	2	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T),Santalum acuminatum(T)
6	WER1187	06.03.1988	310500	6571850	4	Rises	hill slope	loam/sand	Eucalyptus gillii(1),Alectryon oleifolius ssp. canescens(T),Myoporum platycarpum (NC)(T)
6	WER1188	06.03.1988	309550	6570400	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(T),Pittosporum phylliraeoides var. microcarpa(T),Eucalyptus gillii(T)
6	WER1189	06.03.1988	309100	6570600	2	Hills	hill slope	silt/loam	Eucalyptus gillii(T),Casuarina pauper(T)
6	WER1190	06.03.1988	313050	6569050	4	Plain	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T),Casuarina pauper(T)
6	WER1192	08.03.1988	329100	6569225	2	Hills	hill slope	loam/sand	Casuarina pauper(T),Hakea ednieana(T),Alectryon oleifolius ssp. canescens(T)
6	WER1193	08.03.1988	317400	6569200	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Casuarina pauper(T)
6	WER1603	29.08.1990	328300	6582500	21	Plain	plain (incl undulating)	loam/sand	Acacia aneura (NC)(1)
6	WIL0145	16.07.1986	249200	6381200	49	Alluvial plain	plain (incl undulating)	not recorded	Maireana tomentosa ssp. urceolata(1)
6	WIL0146	16.07.1986	245000	6378800	49	Plain	plain (incl undulating)	not recorded	Acacia victoriae ssp. victoriae(1)
6	WIL0149	17.07.1986	253700	6385400	49	Low hills	hill slope	not recorded	Sclerolaena obliquicuspis(T),Maireana tomentosa ssp. urceolata(T)
6	WIL0176	17.07.1986	258900	6385500	9	Drainage line	hill slope	not recorded	Callitris glaucophylla(T)
6	WIL0177	17.07.1986	259200	6385700	49	Hills	hill crest	not recorded	Eremophila longifolia(T)
6	WIL0180	18.07.1986	248500	6383400	31	Plain	plain (incl undulating)	not recorded	Casuarina pauper(T),Myoporum platycarpum (NC)(T)
6	WIL0181	18.07.1986	245400	6391400	49	Rises	hill slope	not recorded	Maireana tomentosa ssp. urceolata(1)
6	WIL1600	27.08.1990	223100	6431400	49	Low hills	hill slope	loam/sand	Callitris glaucophylla(T)
6	WIR0001	16.04.1986	288300	6559500	1	Hills	hill slope	clay/loam	Acacia aneura (NC)(2)
6	WIR0002	16.04.1986	288700	6559100	1	Hills	hill slope	loam/sand	Eremophila freelingii(1),Cassinia laevis(1)
6	WIR0003	16.04.1986	288650	6560250	59	Plain	plain (incl undulating)	loam/sand	Eucalyptus socialis(2),Cassinia laevis(T)
6	WIR0004	16.04.1986	288700	6560600	10	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	WIR0005	16.04.1986	289250	6563250	57	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T)
6	WIR0006	16.04.1986	288900	6563100	57	Hills	hill slope	loam/sand	Callitris glaucophylla(T)
6	WIR0007	16.04.1986	289700	6566500	10	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(1),Alectryon oleifolius ssp. canescens(T)
6	WIR0008	16.04.1986	297200	6563800	40	Hills	hill slope	loam/sand	Casuarina pauper(2),Eucalyptus socialis(1)
6	WIR0009	16.04.1986	299400	6558500	2	Low hills	hill slope	loam/sand	Acacia burkittii(1),Acacia victoriae ssp. victoriae(T)
6	WIR0010	18.04.1986	296000	6545200	16	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WIR0011	18.04.1986	296300	6545600	1	Hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	WIR0012	18.04.1986	295200	6547400	2	Plain	hill slope	loam/sand	Eucalyptus camaldulensis var.(T)
6	WIR0013	18.04.1986	295200	6547600	9	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	WIR0014	18.04.1986	294000	6553500	2	Rises	hill slope	clay	Acacia aneura (NC)(1)
6	WIR0015	17.04.1986	296800	6554000	1	Mountains	hill slope	clay/sand/loam	Casuarina pauper(2),Acacia aneura (NC)(1),Hakea ednieana(T)
6	WIR0016	17.04.1986	286300	6558800	11	Low hills	hill slope	loam/sand	Callitris glaucophylla(2),Alectryon oleifolius ssp. canescens(1)
6	WIR0017	17.04.1986	286400	6558600	40	Low hills	hill slope	loam/sand	Eucalyptus socialis(2)
6	WIR0018	17.04.1986	297000	6557800	40	Plain	plain (incl undulating)	loam/sand	Myoporum platycarpum (NC)(T)
6	WIR0019	17.04.1986	295900	6557900	2	Hills	hill slope	clay/sand	Acacia aneura (NC)(T)
6	WIR0020	17.04.1986	295800	6558000	40	Hills	hill slope	clay/sand/loam	Casuarina pauper(2),Alectryon oleifolius ssp. canescens(T),Exocarpos aphyllus(T)
6	WIR0021	17.04.1986	295950	6558200	9	Drainage line	depression	loam/sand	Melaleuca glomerata(3),Melaleuca lanceolata ssp. lanceolata(3),Eucalyptus camaldulensis var.(T)
6	WIR0022	17.04.1986	297500	6555600	16	Plain	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	WIR0034	18.04.1986	287000	6549400	1	Hills	hill crest	loam/sand	Dodonaea lobulata(T),Acacia calamifolia(T)
6	WIR0036	18.04.1986	289100	6548700	16	Rises	hill slope	clay/sand	Eucalyptus socialis(1),Alectryon oleifolius ssp. canescens(T)
6	WIR0037	17.04.1986	299500	6545800	2	Hills	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Eremophila freelingii(T)
6	WIR0038	17.04.1986	300300	6545800	18	Plain	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	WIR0040	17.04.1986	301900	6547300	4	Plain	hill slope	sand	Acacia ligulata (NC)(T),Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	WIR0041	17.04.1986	302200	6547300	6	Mountains	hill crest	clay/sand/loam	Casuarina pauper(T),Exocarpos aphyllus(T)
6	WIR0042	17.04.1986	300400	6548400	4	Plain	hill slope	sand	Acacia victoriae ssp. victoriae(T),Eremophila sturtii(T)
6	WIR0043	17.04.1986	305400	6552300	23	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WIR0096	18.04.1986	292700	6542900	1	Hills	hill slope	clay/sand/loam	Ptilotus obovatus var. obovatus(1),Acacia victoriae ssp. victoriae(T),Eremophila freelingii(N)
6	WIR0458	24.09.1986	307200	6543500	33	Plain	plain (incl undulating)	clay/sand/loam	Acacia oswaldii(T),Acacia victoriae ssp. victoriae(T),Acacia ligulata (NC)(T)
6	WIR0459	24.09.1986	306200	6543700	8	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eremophila freelingii(T),Alectryon oleifolius ssp. canescens(T)
6	WIR0460	24.09.1986	305800	6543800	4	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Casuarina pauper(T),Santalum acuminatum(T)
6	WIR0461	24.09.1986	306400	6543700	26	Plain	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	WIR0462	25.09.1986	298450	6561900	1	Low hills	hill slope	clay/sand/loam	Eremophila alternifolia(T),Pimelea glauca(T),Dodonaea lobulata(T)
6	WIR0463	24.09.1986	297550	6562100	40	Low hills	hill slope	loam/sand	Eucalyptus socialis(T),Eucalyptus intertexta(T),Eucalyptus porosa(T)
6	WIR0464	25.09.1986	296500	6562900	1	Low hills	hill slope	loam/sand	Acacia tetragonophylla(1),Acacia victoriae ssp. victoriae(T),Pittosporum phylliraeoides var. microcarpa(T)
6	WIR0465	25.09.1986	301600	6563500	40	Low hills	hill slope	not recorded	Casuarina pauper(2),Acacia calamifolia(1),Myoporum platycarpum (NC)(T)
6	WIR0466	25.09.1986	301100	6567100	10	Low hills	hill slope	not recorded	Eucalyptus porosa(T),Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	WIR0468	25.09.1986	306300	6564000	2	Hills	hill slope	not recorded	Casuarina pauper(T),Exocarpos aphyllus(T),Acacia tetragonophylla(T)

Appendix 2 (continued)

6	WIR0469	25.09.1986	306200	6563350	1	Hills	hill slope	loam/sand	Acacia aneura (NC)(2),Eremophila longifolia(T),Eremophila freelingii(T)
6	WIR0470	25.09.1986	306200	6563700	2	Drainage line	plain (incl undulating)	clay/sand/loam	Eucalyptus camaldulensis var.(T),Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	WIR0814	15.08.1987	287000	6563900	40	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(1),Callitris glaucophylla(T)
6	WIR0815	15.08.1987	290600	6566500	10	Rises	hill slope	clay/sand/loam	Acacia calamifolia(T),Senna artemisioides nothossp. coriacea(T),Senna artemisioides nothossp. artemisioides(T)
6	WIR0816	15.08.1987	294150	6564700	10	Rises	hill slope	clay/sand/loam	Acacia tetragonophylla(T),Acacia victoriae ssp. victoriae(T),Senna artemisioides nothossp. artemisioides(T)
6	WIR0817	15.08.1987	298900	6562250	40	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eucalyptus socialis(T)
6	WIR0818	15.08.1987	300100	6562100	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(2),Casuarina pauper(1)
6	WIR0819	16.08.1987	299000	6563550	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Acacia aneura (NC)(T)
6	WIR0820	16.08.1987	298900	6567800	34	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WIR0821	16.08.1987	306150	6564300	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(1),Alectryon oleifolius ssp. canescens(T)
6	WIR0822	16.08.1987	307500	6563300	2	Rises	hill slope	clay/sand/loam	Casuarina pauper(T),Myoporum platycarpum (NC)(N)
6	WIR0823	16.08.1987	306700	6562700	2	Rises	hill slope	clay/sand/loam	Casuarina pauper(T)
6	WIR0824	17.08.1987	307700	6558650	4	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	WIR0825	17.08.1987	307000	6547650	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum acuminatum(T)
6	WIR0826	17.08.1987	298900	6550600	3	Low hills	hill slope	loam/sand	Casuarina pauper(T)
6	WIR0827	17.08.1987	298700	6550500	2	Hills	hill slope	loam/sand	Casuarina pauper(T),Acacia ligulata (NC)(T)
6	WIR0828	17.08.1987	298100	6550900	3	Plain	hill slope	loam/sand	Eucalyptus socialis(T),Casuarina pauper(T),Eucalyptus dumosa(T)
6	WIR0829	18.08.1987	294650	6558950	3	Hills	hill slope	loam	Alectryon oleifolius ssp. canescens(T),Acacia tetragonophylla(T),Eremophila alternifolia(T)
6	WIR0830	18.08.1987	292500	6558500	40	Rises	hill slope	loam/sand	Casuarina pauper(1),Exocarpos aphyllus(T),Senna artemisioides nothossp. coriacea(T)
6	WIR0831	18.08.1987	294600	6543400	2	Hills	hill slope	clay/sand/loam	Acacia tetragonophylla(T)
6	WIR0832	18.08.1987	294200	6542900	11	Rises	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia tetragonophylla(T),Acacia aneura (NC)(T)
6	WIR0833	18.08.1987	295500	6545200	2	Plain	plain (incl undulating)	clay/sand/loam	Callitris glaucophylla(T),Acacia victoriae ssp. victoriae(T)
6	WIR0834	19.08.1987	289700	6541200	1	Hills	hill slope	clay/sand/loam	Ptilotus obovatus (NC)(1),Sida petrophila(1)
6	WIR0835	19.08.1987	290550	6541200	1	Rises	hill slope	silt/loam	Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T)
6	WIR1602	28.08.1990	304300	6555100	8	Rises	hill slope	loam/sand	Maireana sedifolia(2)
6	WLM0091	24.04.1986	252800	6502800	8	Low hills	hill slope	loam/sand	Acacia burkittii(T)
6	WLM0182	18.07.1986	236200	6385800	30	Alluvial plain	plain (incl undulating)	not recorded	Acacia victoriae ssp. victoriae(T)
6	WLM0183	18.07.1986	236100	6386000	30	Alluvial plain	plain (incl undulating)	not recorded	Acacia victoriae ssp. victoriae(1),Eucalyptus camaldulensis var.(T)
6	WLM0184	21.07.1986	224900	6397500	49	Low hills	hill slope	not recorded	Eucalyptus microcarpa(1),Callitris glaucophylla(T)
6	WLM0185	21.07.1986	224900	6400400	50	Low hills	depression	not recorded	Eucalyptus camaldulensis var.(4)
6	WLM0186	21.07.1986	221800	6377800	69	Hills	hill slope	not recorded	Eucalyptus porosa(T),Eucalyptus leucoxylon ssp.(T)
6	WLM0187	22.07.1986	219700	6387600	49	Drainage line	hill slope	not recorded	Eucalyptus camaldulensis var.(2)
6	WLM0188	22.07.1986	220300	6387300	49	Hills	hill slope	not recorded	Zygophyllum eremaeum(2),Rhagodia parabolica(1)
6	WLM0189	22.07.1986	221400	6385000	49	Hills	hill slope	not recorded	Eucalyptus porosa(T)
6	WLM0192	23.07.1986	225800	6373500	64	Drainage line	hill slope	not recorded	Callitris glaucophylla(3),Eucalyptus camaldulensis var.(T)
6	WLM0501	13.01.1987	222000	6397800	49	Hills	hill slope	not recorded	Allocasuarina verticillata(T),Eucalyptus microcarpa(T)
6	WLM0502	13.01.1987	223500	6397800	50	Drainage line	hill slope	not recorded	Eucalyptus camaldulensis var.(1)
6	WLM0503	14.01.1987	223300	6397500	69	Low hills	hill slope	not recorded	Eucalyptus odorata(T),Eucalyptus camaldulensis var.(T)
6	WLP0035	22.09.1986	266300	6492300	50	Rises	hill slope	loam/sand	Eucalyptus porosa(T)
6	WLP0071	23.04.1986	271900	6508500	66	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(1),Acacia pycnantha(T),Acacia rivalis(T)
6	WLP0072	23.04.1986	272300	6507600	57	Mountains	hill slope	clay/sand/loam	Eucalyptus flindersii(2),Eucalyptus intertexta(T)
6	WLP0073	23.04.1986	271300	6507450	57	Hills	hill slope	clay/sand	Eucalyptus oleosa(3),Acacia rigens(2)
6	WLP0077	24.04.1986	268900	6487700	30	Plain	hill crest	loam/sand	Acacia victoriae ssp. victoriae(T)
6	WLP0080	23.04.1986	275200	6494800	49	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T)
6	WLP0081	23.04.1986	281050	6494700	11	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1),Acacia rivalis(T),Santalum lanceolatum(T)
6	WLP0082	23.04.1986	286200	6495900	27	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WLP0083	23.04.1986	286250	6496150	30	Low hills	hill slope	clay/sand/loam	Casuarina pauper(1)
6	WLP0348	20.09.1986	276400	6499700	40	Low hills	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Eucalyptus dumosa(T),Eucalyptus socialis(T)
6	WLP0354	22.09.1986	268100	6496900	60	Rises	hill slope	loam/sand	Callitris glaucophylla(2),Acacia victoriae ssp. victoriae(T),Acacia rivalis(T)
6	WLP0394	19.09.1986	265800	6502700	9	Hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	WLP0395	19.09.1986	266200	6502700	57	Mountains	hill crest	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(T)
6	WLP0396	19.09.1986	266650	6503400	57	Mountains	hill slope	clay/sand/loam	Allocasuarina verticillata(2),Eucalyptus flindersii(2)
6	WLP0397	20.09.1986	264300	6499200	1	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	WLP0398	20.09.1986	263800	6498700	9	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T)
6	WLP0425	30.05.1985	277500	6497800	58	Hills	hill crest	loam/sand	Callitris glaucophylla(1),Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	WLP0431	18.09.1986	272400	6493300	1	Hills	hill slope	loam/sand	Dodonaea lobulata(2),Eremophila alternifolia(T),Acacia tetragonophylla(T)
6	WLP0432	19.09.1986	279700	6491800	57	Mountains	hill crest	loam/sand	Callitris glaucophylla(1),Eucalyptus flindersii(1)
6	WLP0433	19.09.1986	279800	6492300	57	Mountains	hill slope	loam/sand	Eucalyptus intertexta(1),Callitris glaucophylla(T),Eucalyptus socialis(T)
6	WLP0434	19.09.1986	279600	6492800	57	Hills	hill slope	loam/sand	Callitris glaucophylla(1),Eucalyptus intertexta(1),Eucalyptus dumosa(1)
6	WLP0435	19.09.1986	277500	6494200	10	Plain	plain (incl undulating)	silt/clay	Acacia victoriae ssp. victoriae(T),Maireana trichoptera(T),Senna artemisioides ssp. petiolaris(T)
6	WLP0436	19.09.1986	277100	6492800	40	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(2),Senna artemisioides ssp. petiolaris(1)
6	WLP0438	20.09.1986	273800	6499700	57	Mountains	hill slope	loam/sand	Allocasuarina verticillata(1),Eucalyptus flindersii(1),Acacia continua(1)
6	WLP0440	21.09.1986	276200	6509000	18	Hills	hill crest	loam/sand	Callitris glaucophylla(T),Eucalyptus intertexta(T),Eremophila longifolia(T)
6	WLP0442	21.09.1986	281200	6494500	40	Plain	plain (incl undulating)	loam/sand	Eucalyptus intertexta(T),Acacia victoriae ssp. victoriae(T),Eucalyptus socialis(T)
6	WLP0447	22.09.1986	285300	6492200	49	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
6	WLP0483	26.09.1986	270100	6488200	1	Low hills	hill slope	clay/sand/loam	Dodonaea lobulata(2),Acacia rivalis(1)
6	WLP0484	26.09.1986	264600	6486300	46	Low hills	hill slope	loam/sand	Eucalyptus socialis(3)
6	WLP0485	26.09.1986	264300	6485900	42	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(T),Alectryon oleifolius ssp. canescens(T),Eucalyptus gracilis(T)
6	WLP0486	26.09.1986	274100	6495200	18	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	WLP0491	02.06.1985	284000	6512200	12	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Callitris glaucophylla(T),Eucalyptus intertexta(T)

Appendix 2 (continued)

6	WLP0631	01.04.1987	273300	6510400	49	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T)
6	WLP0632	01.04.1987	269200	6507600	48	Plain	plain (incl undulating)	loam/sand	Callitris glaucophylla(T)
6	WLP0633	01.04.1987	273900	6510000	12	Low hills	hill slope	loam/sand	Callitris glaucophylla(T)
6	WLP0634	02.04.1987	264600	6487000	30	Alluvial plain	plain (incl undulating)	loam/sand	Atriplex eichleri(1)
6	WLP0700	09.08.1987	275800	6509200	48	Rises	plain (incl undulating)	loam/sand	Callitris glaucophylla(2)
6	WLP0701	09.08.1987	280000	6511800	44	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(3)
6	WLP0703	09.08.1987	279100	6511200	12	Rises	hill slope	loam/sand	Eucalyptus intertexta(T),Acacia victoriae ssp. victoriae(T)
6	WLP0704	09.08.1987	277600	6510900	47	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	WLP0705	09.08.1987	271150	6507800	66	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(3)
6	WLP0706	10.08.1987	274700	6496200	49	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(2),Callitris glaucophylla(T)
6	WLP0707	10.08.1987	269300	6491300	15	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	WLP0708	10.08.1987	263400	6491700	55	Hills	hill crest	clay/sand/loam	Callitris glaucophylla(1)
6	WLP0710	10.08.1987	263800	6500500	11	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(1),Acacia rivalis(1)
6	WLP0712	11.08.1987	282300	6501700	12	Low hills	hill crest	clay/sand/loam	Callitris glaucophylla(T)
6	WLP0713	12.08.1987	271600	6498100	9	Mountains	hill slope	clay/sand/loam	Callitris glaucophylla(1)
6	WLP0714	12.08.1987	272100	6498600	57	Mountains	hill crest	clay/sand/loam	Callitris glaucophylla(T)
6	WLP0715	12.08.1987	276000	6492800	9	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Senna artemisioides nothossp. artemisioides(T),Senna artemisioides nothossp. coriacea(T)
6	WLP0725	15.08.1987	285400	6485300	9	Rises	hill slope	clay/sand/loam	*Asphodelus fistulosus(1),Callitris glaucophylla(T)
6	WLP0726	15.08.1987	284800	6485700	12	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Callitris glaucophylla(T)
6	WLP9394	19.09.1986	265700	6502700	9	Hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1194	12.04.1988	342100	6625100	24	Plain	plain (incl undulating)	clay/sand/loam	Acacia tetragonophylla(T),Santalum lanceolatum(T)
6	WOO1195	12.04.1988	346400	6624900	24	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides ssp. petiolaris(T),Eremophila longifolia(T),Acacia victoriae ssp. victoriae(T)
6	WOO1196	12.04.1988	343850	6626050	24	Plain	plain (incl undulating)	loam/sand	Eremophila duttonii(T),Eremophila freelingii(T),Santalum lanceolatum(T)
6	WOO1197	13.04.1988	342750	6627500	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(2)
6	WOO1198	13.04.1988	341950	6627600	2	Low hills	hill slope	loam/sand	Eucalyptus socialis(T),Acacia aneura (NC)(T),Casuarina pauper(T)
6	WOO1199	13.04.1988	342050	6627350	2	Hills	hill slope	loam/sand	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1200	13.04.1988	342550	6626900	2	Low hills	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T)
6	WOO1201	13.04.1988	343350	6627100	2	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	WOO1202	14.04.1988	344550	6627350	24	Plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(T),Senna artemisioides ssp.(T),Senna artemisioides nothossp. coriacea(T)
6	WOO1203	14.04.1988	349700	6629600	24	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(1),Eremophila freelingii(1)
6	WOO1204	14.04.1988	352250	6626050	24	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T)
6	WOO1205	14.04.1988	351700	6627250	14	Flood plain	depression	clay/sand/loam	Santalum lanceolatum(T)
6	WOO1206	14.04.1988	350600	6628825	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1)
6	WOO1207	14.04.1988	350250	6627850	24	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Santalum lanceolatum(T)
6	WOO1208	14.04.1988	347800	6631600	24	Plain	plain (incl undulating)	clay/sand/loam	Acacia aneura (NC)(T),Santalum lanceolatum(T)
6	WOO1209	15.04.1988	343600	6633350	2	Rises	hill slope	loam/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1210	15.04.1988	344650	6632250	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Hakea ednieana(T),Santalum lanceolatum(T)
6	WOO1211	15.04.1988	344450	6630800	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(1)
6	WOO1212	15.04.1988	354500	6634850	24	Plain	plain (incl undulating)	clay/sand	Santalum lanceolatum(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1213	15.04.1988	352650	6632300	24	Alluvial plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(1),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1214	15.04.1988	350250	6632550	24	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eremophila duttonii(T)
6	WOO1215	16.04.1988	350600	6637500	24	Plain	plain (incl undulating)	loam/sand	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1216	16.04.1988	350500	6637800	2	Drainage line	depression	clay/sand	Melaleuca glomerata(1),Eucalyptus camaldulensis var.(T)
6	WOO1217	16.04.1988	351350	6639350	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Eucalyptus gillii(T)
6	WOO1218	16.04.1988	351550	6640350	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	WOO1219	16.04.1988	351650	6643400	2	Rises	hill slope	clay/sand/loam	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1220	17.04.1988	344250	6643650	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(1),Casuarina pauper(1),Alectryon oleifolius ssp. canescens(T)
6	WOO1221	17.04.1988	344300	6644700	2	Rises	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T),Acacia aneura (NC)(T)
6	WOO1222	17.04.1988	345650	6645500	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(1),Alectryon oleifolius ssp. canescens(T),Hakea ednieana(T)
6	WOO1223	17.04.1988	347590	6647450	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(1),Alectryon oleifolius ssp. canescens(T),Santalum lanceolatum(T)
6	WOO1224	17.04.1988	350700	6645800	24	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1225	18.04.1988	350200	6644200	2	Hills	hill slope	loam/sand	Hakea ednieana(T),Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1226	18.04.1988	350000	6644450	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1)
6	WOO1227	18.04.1988	351050	6644700	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(T)
6	WOO1228	18.04.1988	350500	6647100	2	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T),Casuarina pauper(T)
6	WOO1229	19.04.1988	350000	6650100	24	Plain	plain (incl undulating)	clay/loam	Panicum decompositum var. decompositum(1),Enneapogon polyphyllus(T)
6	WOO1230	19.04.1988	351950	6649600	24	Plain	depression	clay/loam	Acacia aneura (NC)(T),Santalum lanceolatum(T)
6	WOO1231	19.04.1988	354200	6648850	14	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(1),Melaleuca glomerata(T)
6	WOO1232	19.04.1988	353800	6650250	24	Plain	hill slope	clay/sand/loam	Santalum lanceolatum(T),Acacia aneura (NC)(T)
6	WOO1233	19.04.1988	348150	6650150	1	Plain	plain (incl undulating)	clay/sand/loam	Acacia aneura (NC)(T)
6	WOO1234	20.04.1988	355300	6644300	24	Rises	hill slope	loam/sand	Eremophila duttonii(1),Senna artemisioides ssp. helmsii(T),Senna artemisioides nothossp. coriacea(T)
6	WOO1235	20.04.1988	355600	6644150	24	Plain	plain (incl undulating)	clay/sand/loam	Astrebla pectinata(T)
6	WOO1236	20.04.1988	354650	6643250	14	Flood plain	plain (incl undulating)	clay/sand/loam	Eucalyptus camaldulensis var.(T),Hakea ednieana(T)
6	WOO1237	20.04.1988	353300	6641300	24	Plain	plain (incl undulating)	clay/sand/loam	Santalum lanceolatum(T)
6	WOO1238	05.05.1988	336700	6625300	24	Plain	hill slope	clay/sand/loam	Eremophila freelingii(T),Eremophila duttonii(T),Santalum lanceolatum(T)
6	WOO1239	06.05.1988	339450	6631950	24	Plain	plain (incl undulating)	clay/sand	Astrebla pectinata(1)
6	WOO1240	06.05.1988	339100	6632350	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Eucalyptus gillii(T)
6	WOO1241	06.05.1988	340000	6633900	14	Plain	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	WOO1242	06.05.1988	337500	6627600	14	Rises	hill slope	loam/sand	Eucalyptus gillii(1),Alectryon oleifolius ssp.

Appendix 2 (continued)

									canescens(T),Casuarina pauper(T)
6	WOO1243	07.05.1988	342250	6634600	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1244	07.06.1988	345650	6638300	2	Hills	hill slope	clay/sand/loam	Hakea ednieana(T),Acacia aneura (NC)(T)
6	WOO1245	07.05.1988	346150	6638800	2	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Hakea ednieana(T)
6	WOO1246	07.05.1988	343300	6637100	2	Low hills	hill slope	clay/sand/loam	Acacia rivalis(1),Eucalyptus gillii(T)
6	WOO1247	07.05.1988	342800	6637400	2	Rises	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia aneura (NC)(T),Acacia rivalis(T)
6	WOO1248	08.05.1988	332750	6625100	2	Hills	hill slope	loam/sand	Eucalyptus gillii(1),Acacia rivalis(T)
6	WOO1249	08.05.1988	335300	6629750	2	Mountains	hill slope	clay/sand/loam	Acacia tetragonophylla(1),Acacia aneura (NC)(T),Casuarina pauper(T)
6	WOO1250	08.05.1988	335150	6630250	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(T),Eremophila longifolia(T)
6	WOO1251	08.05.1988	335200	6630050	14	Drainage line	depression	loam/sand	Melaleuca glomerata(3)
6	WOO1252	08.05.1988	332100	6628675	2	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T),Hakea ednieana(T)
6	WOO1253	09.05.1988	338250	6628300	14	Flood plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1)
6	WOO1254	09.05.1988	342250	6637300	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Acacia rivalis(T),Casuarina pauper(T)
6	WOO1255	09.05.1988	341000	6636650	2	Plain	hill slope	loam/sand	Acacia rivalis(T),Acacia aneura (NC)(T),Acacia victoriae ssp. victoriae(T)
6	WOO1256	09.05.1988	342300	6638750	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Acacia rivalis(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1257	09.05.1988	341200	6643700	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Santalum lanceolatum(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1258	10.05.1988	347950	6649900	2	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Santalum lanceolatum(T)
6	WOO1259	10.05.1988	346800	6649050	2	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	WOO1260	10.05.1988	345050	6649150	56	Mountains	hill slope	clay/sand/loam	Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T),Callitris glaucophylla(T)
6	WOO1261	11.05.1988	344200	6647800	5	Rises	hill slope	clay/sand/loam	Eucalyptus gillii(1)
6	WOO1262	11.05.1988	344400	6645650	2	Hills	hill slope	loam/sand	Acacia aneura (NC)(1),Casuarina pauper(T)
6	WOO1263	11.05.1988	341200	6644600	56	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1264	11.05.1988	340050	6649950	2	Rises	hill slope	loam/sand	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T),Santalum lanceolatum(T)
6	WOO1265	11.05.1988	340600	6648350	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Hakea ednieana(T),Eucalyptus intertexta(T)
6	WOO1266	12.05.1988	343250	6648200	2	Hills	hill slope	clay/sand/loam	Hakea ednieana(T)
6	WOO1267	12.05.1988	339600	6646950	2	Mountains	hill slope	loam/sand	Hakea ednieana(T),Callitris glaucophylla(T)
6	WOO1268	12.05.1988	337250	6646200	3	Rises	hill slope	clay/sand/loam	Eucalyptus gillii(T),Alectryon oleifolius ssp. canescens(T),Eucalyptus socialis(T)
6	WOO1269	12.05.1988	334600	6647400	3	Rises	hill slope	clay/sand/loam	Acacia rivalis(1),Eucalyptus intertexta(T)
6	WOO1270	12.05.1988	333300	6648600	2	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1271	13.05.1988	334600	6649800	57	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1),Eucalyptus intertexta(1)
6	WOO1272	13.05.1988	334350	6650300	57	Hills	hill slope	loam/sand	Eucalyptus intertexta(T)
6	WOO1273	14.05.1988	334650	6649050	56	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(1),Hakea leucoptera ssp. leucoptera(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1274	14.05.1988	335150	6647200	3	Hills	hill slope	loam/sand	Acacia rivalis(T),Acacia tetragonophylla(T),Dodonaea lobulata(T)
6	WOO1275	14.05.1988	337600	6647000	3	Rises	hill slope	loam/sand	Eucalyptus gillii(1),Eucalyptus intertexta(T),Melaleuca lanceolata ssp. lanceolata(T)
6	WOO1276	15.05.1988	335650	6649700	56	Hills	hill slope	clay/sand/loam	Hakea ednieana(T),Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	WOO1277	15.05.1988	336250	6649250	56	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	WOO1278	15.05.1988	336750	6649350	56	Hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Callitris glaucophylla(T),Hakea ednieana(T)
6	WOO1279	15.05.1988	337050	6649100	3	Low hills	hill slope	clay/sand/loam	Hakea ednieana(T),Eremophila alternifolia(T),Acacia aneura (NC)(T)
6	WOO1280	16.05.1988	337650	6645150	5	Low hills	hill slope	clay/loam	Casuarina pauper(2)
6	WOO1281	16.05.1988	337700	6644800	3	Rises	hill slope	loam/sand	Eucalyptus gillii(1),Myoporum platycarpum (NC)(T),Acacia rivalis(T)
6	WOO1282	16.05.1988	341350	6643250	2	Hills	hill slope	clay/sand/loam	Santalum lanceolatum(T),Acacia araneosa(T)
6	WOO1283	17.05.1988	339500	6640800	56	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T),Hakea ednieana(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1284	17.05.1988	333150	6627950	3	Rises	hill slope	clay/sand/loam	Hakea ednieana(T),Eucalyptus intertexta(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1285	18.05.1988	332425	6631975	2	Hills	hill slope	clay/sand/loam	Casuarina pauper(T),Hakea ednieana(T),Eucalyptus gillii(T)
6	WOO1286	18.05.1988	334600	6637150	3	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	WOO1287	18.05.1988	334700	6637800	14	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(T)
6	WOO1308	05.06.1988	333700	6647800	3	Rises	hill slope	loam/sand	Acacia aneura (NC)(1)
6	WOO1314	07.06.1988	337100	6641600	3	Low hills	hill slope	clay/sand/loam	Casuarina pauper(T)
6	WOO1315	07.06.1988	333900	6642550	3	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(T),Eucalyptus gillii(T),Alectryon oleifolius ssp. canescens(T)
6	WOO1316	07.06.1988	333950	6642200	3	Low hills	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T)
6	WOO1317	07.06.1988	334200	6639450	2	Hills	hill slope	loam/sand	Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	YUD1111	16.08.1988	332100	6660550	55	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	YUD1112	16.08.1988	332100	6660300	3	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T)
6	YUD1113	16.08.1988	332400	6660850	3	Rises	hill crest	clay/sand	Acacia victoriae ssp. victoriae(T)
6	YUD1114	17.08.1988	333850	6660900	3	Hills	hill slope	clay	Eucalyptus intertexta(T)
6	YUD1115	17.08.1988	333300	6659050	56	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1),Melaleuca lanceolata ssp. lanceolata(T)
6	YUD1116	17.08.1988	333500	6658700	3	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Callitris glaucophylla(T)
6	YUD1117	17.08.1988	334500	6660450	3	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T),Acacia victoriae ssp. victoriae(T)
6	YUD1118	17.08.1988	339300	6661350	56	Rises	hill slope	clay/sand/loam	Eucalyptus gillii(2),Melaleuca lanceolata ssp. lanceolata(T)
6	YUD1119	18.08.1988	337700	6661600	3	Rises	hill slope	clay/sand	Acacia aneura (NC)(T),Hakea ednieana(T)
6	YUD1120	18.08.1988	337850	6661100	56	Hills	hill slope	clay/sand/loam	Eucalyptus gillii(1)
6	YUD1121	18.08.1988	340700	6662900	56	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1)
6	YUD1122	18.08.1988	334050	6660950	56	Drainage line	depression	clay/sand/loam	Eucalyptus camaldulensis var.(2)
6	YUD1123	19.08.1988	333800	6654400	57	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Callitris glaucophylla(T),Eucalyptus socialis(T)
6	YUD1124	19.08.1988	335050	6656000	57	Plateau	hill crest	clay/sand/loam	Eucalyptus intertexta(1)
6	YUD1125	20.08.1988	332700	6662950	3	Low hills	hill slope	clay	Acacia aneura (NC)(T)
6	YUD1126	20.08.1988	332900	6664700	57	Hills	hill slope	silt/clay	Eremophila freelingii(T),Eucalyptus intertexta(T)
6	YUD1127	20.08.1988	332700	6664150	3	Rises	hill slope	clay/sand/loam	Alectryon oleifolius ssp. canescens(T),Acacia aneura (NC)(T)
6	YUD1128	21.08.1988	333500	6662650	3	Rises	hill slope	silt/clay/loam	Eremophila freelingii(T)
6	YUD1129	21.08.1988	340150	6653500	56	Hills	hill slope	clay/sand/loam	Acacia tetragonophylla(T),Hakea ednieana(T),Acacia rivalis(T)
6	YUD1130	22.08.1988	339800	6653800	56	Hills	hill slope	clay/sand	Acacia victoriae ssp. victoriae(T),Acacia tetragonophylla(T),Hakea ednieana(T)
6	YUD1131	22.08.1988	343100	6657100	56	Hills	hill slope	clay/sand/loam	Acacia confluens(1),Eucalyptus intertexta(T)

Appendix 2 (continued)

6	YUD1132	23.08.1988	345800	6659350	56	Hills	hill slope	clay/sand/loam	Acacia confluens(1),Eucalyptus intertexta(1)
6	YUD1133	23.08.1988	345650	6658150	3	Hills	hill slope	clay/sand	Eucalyptus intertexta(T)
6	YUD1134	23.08.1988	347000	6658500	14	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(2)
6	YUD1135	24.08.1988	349200	6659100	2	Plateau	hill crest	silt/clay	Acacia aneura (NC)(1),Eremophila freelingii(T)
6	YUD1136	24.08.1988	348950	6659050	2	Low hills	hill slope	clay/sand	Eremophila freelingii(2),Acacia aneura (NC)(T)
6	YUD1137	24.08.1988	350700	6660400	2	Rises	hill slope	clay/sand	Acacia aneura (NC)(1),Acacia tetragonophylla(1),Eremophila freelingii(1)
6	YUD1342	17.08.1988	338050	6663800	4	Rises	hill slope	clay/sand/loam	Casuarina pauper(T),Alectryon oleifolius ssp. canescens(T),Acacia victoriae ssp. victoriae(T)
6	YUD1343	17.08.1988	339600	6664250	56	Rises	hill slope	loam/sand	Acacia aneura (NC)(T),Acacia confluens(T)
6	YUD1344	17.08.1988	339450	6663900	56	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(T)
6	YUD1345	16.08.1988	349400	6653850	24	Plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(T),Hakea leucoptera ssp. leucoptera(T),Senna artemisioides ssp. petiolaris(T)
6	YUD1346	16.08.1988	334000	6661550	3	Low hills	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T),Acacia tetragonophylla(T)
6	YUD1347	17.08.1988	334200	6662100	3	Low hills	hill slope	loam/sand	Acacia rivalis(T),Acacia aneura (NC)(T)
6	YUD1348	17.08.1988	336900	6662600	3	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(T),Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	YUD1349	17.08.1988	341100	6664950	3	Rises	hill slope	loam/sand	Acacia rivalis(T),Acacia aneura (NC)(T),Alectryon oleifolius ssp. canescens(T)
6	YUD1350	18.08.1988	340700	6663750	56	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(T),Acacia tetragonophylla(T),Acacia confluens(T)
6	YUD1431	25.08.1988	353950	6669700	57	Mountains	hill slope	clay/sand/loam	Eucalyptus intertexta(T)
6	YUD1432	25.08.1988	353200	6669900	57	Plateau	hill slope	clay/sand/loam	Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	YUD1433	25.08.1988	351850	6670300	57	Drainage line	depression	loam/sand	Eucalyptus camaldulensis var.(1),Melaleuca dissitiflora(T)
6	YUD1434	26.08.1988	355200	6668700	18	Plain	hill slope	clay	Eucalyptus gillii(2)
6	YUD1435	26.08.1988	355200	6668400	3	Plain	plain (incl undulating)	clay	Alectryon oleifolius ssp. canescens(T),Casuarina pauper(T),Acacia tetragonophylla(T)
6	YUD1436	26.08.1988	355300	6667500	3	Hills	hill slope	clay	Eucalyptus intertexta(T)
6	YUD1437	27.08.1988	334000	6679600	3	Low hills	hill slope	silt/clay	Acacia aneura (NC)(1)
6	YUD1438	27.08.1988	334000	6679100	3	Low hills	hill slope	silt/clay/loam	Eremophila freelingii(T),Acacia tetragonophylla(T)
6	YUD1439	27.08.1988	334100	6678850	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1)
6	YUD1440	27.08.1988	334100	6678650	3	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(T)
6	YUD1441	28.08.1988	334100	6678600	3	Low hills	hill slope	clay/sand/loam	Eremophila freelingii(T)
6	YUD1442	28.08.1988	334000	6677900	17	Rises	hill slope	silt/clay/loam	Maireana astrotricha(1)
6	YUD1443	28.08.1988	334900	6677400	3	Low hills	hill slope	silt/clay/loam	Acacia tetragonophylla(T)
6	YUD1444	28.08.1988	334900	6676600	3	Low hills	hill slope	silt/clay/loam	Triodia irritans var. (NC)(T)
6	YUD1445	30.08.1988	339900	6678300	3	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(T),Acacia aneura (NC)(T)
6	YUD1446	30.08.1988	339600	6678000	3	Plain	plain (incl undulating)	silt/clay/loam	Senecio magnificus(T)
6	YUD1447	30.08.1988	337900	6678000	3	Rises	hill slope	clay	Acacia aneura (NC)(1),Eucalyptus socialis(T)
6	YUD1448	30.08.1988	339700	6668400	55	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(1),Eucalyptus intertexta(T)
6	YUD1449	31.08.1988	343700	6671950	5	Drainage line	depression	loam/sand	Melaleuca glomerata(2)
6	YUD1450	31.08.1988	343550	6672000	3	Rises	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Eucalyptus intertexta(T),Acacia tetragonophylla(T)
6	YUD1451	31.08.1988	343200	6672200	3	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(T)
6	YUD1452	31.08.1988	337200	6670750	3	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	YUD1453	31.08.1988	337700	6671000	3	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(T)
6	YUD1454	31.08.1988	338400	6670550	3	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
6	YUD1455	31.08.1988	336700	6671300	3	Hills	hill slope	clay/sand/loam	Sida petrophila(1)
6	YUD1456	25.08.1988	350900	6666800	57	Escarpment	hill crest	clay/sand/loam	Callitris glaucophylla(T)
6	YUD1459	24.08.1988	347800	6655800	3	Hills	hill slope	clay/sand	Eucalyptus intertexta(T)
6	YUD1471	18.08.1988	341900	6667050	55	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(1)
6	YUD1472	18.08.1988	341800	6666475	55	Plain	hill slope	clay/sand/loam	Eucalyptus socialis(1),Eucalyptus dumosa(T)
6	YUD1473	18.08.1988	341500	6665700	3	Rises	hill slope	loam/sand	Acacia aneura (NC)(2),Eucalyptus intertexta(T)
6	YUD1474	18.08.1988	341250	6668000	3	Rises	hill slope	loam/sand	Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	YUD1475	19.08.1988	333250	6654250	56	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Callitris glaucophylla(T)
6	YUD1476	19.08.1988	333300	6655500	57	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	YUD1477	19.08.1988	332500	6655500	56	Drainage line	depression	loam/sand	Melaleuca dissitiflora(2),Callitris glaucophylla(T),Eucalyptus intertexta(T)
6	YUD1478	20.08.1988	334900	6671075	26	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(1),Alectryon oleifolius ssp. canescens(T)
6	YUD1479	20.08.1988	335800	6670250	16	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(T),Alectryon oleifolius ssp. canescens(T)
6	YUD1480	20.08.1988	336200	6669750	11	Rises	hill slope	loam/sand	Acacia victoriae ssp. victoriae(T)
6	YUD1481	20.08.1988	335700	6667500	4	Rises	hill slope	loam/sand	Eucalyptus socialis(1)
6	YUD1482	20.08.1988	335600	6667250	3	Low hills	hill slope	loam/sand	Eucalyptus socialis(T),Casuarina pauper(T)
6	YUD1483	21.08.1988	336000	6664250	56	Hills	depression	clay/sand/loam	Eucalyptus camaldulensis var.(1)
6	YUD1484	21.08.1988	335500	6663750	3	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(1),Casuarina pauper(T)
6	YUD1485	22.08.1988	340100	6655300	56	Mountains	hill slope	loam/sand	Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	YUD1486	21.08.1988	341950	6654750	56	Mountains	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Callitris glaucophylla(T)
6	YUD1487	23.08.1988	349250	6654800	2	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Hakea leucoptera ssp. leucoptera(T)
6	YUD1488	23.08.1988	350950	6657500	4	Plain	hill slope	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Eucalyptus socialis(T)
6	YUD1489	23.08.1988	351050	6657850	2	Plain	hill slope	clay/sand/loam	Casuarina pauper(T),Acacia aneura (NC)(T)
6	YUD1490	23.08.1988	350300	6657025	24	Rises	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Acacia aneura (NC)(T)
6	YUD1491	23.08.1988	352250	6656600	24	Plain	hill slope	clay/loam	Acacia victoriae ssp. victoriae(T)
6	YUD1492	24.08.1988	353900	6658700	19	Flood plain	plain (incl undulating)	loam/sand	Eucalyptus camaldulensis var.(T),Melaleuca glomerata(T)
6	YUD1493	24.08.1988	354150	6658850	14	Drainage line	depression	clay/sand	Eucalyptus camaldulensis var.(1),Hakea ednieana(T)
6	YUD1494	24.08.1988	353950	6659600	19	Plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(T),Hakea leucoptera ssp. leucoptera(T)
6	YUD1495	25.08.1988	342550	6670750	3	Rises	hill slope	loam/sand	Acacia aneura (NC)(1),Alectryon oleifolius ssp. canescens(T),Eucalyptus intertexta(T)
6	YUD1496	25.08.1988	342750	6670500	3	Hills	hill slope	loam/sand	Eucalyptus intertexta(1),Eucalyptus socialis(T)
6	YUD1497	26.08.1988	344250	6666650	57	Plateau	hill slope	clay/sand/loam	Eucalyptus flindersii(T)
6	YUD1498	26.08.1988	344300	6666825	57	Hills	hill slope	clay/sand/loam	Eucalyptus dumosa(2),Melaleuca uncinata(2),Eucalyptus flindersii(T)
6	YUD1499	26.08.1988	345450	6666550	55	Plain	plain (incl undulating)	loam/sand	Eucalyptus dumosa(2),Alectryon oleifolius ssp. canescens(T)
6	YUD1500	27.08.1988	345900	6666450	57	Rises	hill slope	clay/sand/loam	Melaleuca uncinata(T)
6	YUD1501	27.08.1988	343800	6667225	57	Hills	hill slope	loam/sand	Melaleuca uncinata(1),Eucalyptus flindersii(T)
6	YUD1502	27.08.1988	342800	6667200	57	Drainage line	depression	clay/sand	Eucalyptus intertexta(T),Callitris glaucophylla(T)
6	YUD1503	28.08.1988	345950	6672700	5	Low hills	hill slope	clay/loam	Casuarina pauper(2)
6	YUD1504	28.08.1988	349600	6676350	16	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(1),Melaleuca lanceolata ssp. lanceolata(1)
6	YUD1505	28.08.1988	349200	6676800	56	Hills	hill slope	clay/sand/loam	Eucalyptus intertexta(1),Acacia aneura (NC)(T)
6	YUD1506	28.08.1988	350625	6676550	3	Low hills	hill slope	loam/sand	Acacia aneura (NC)(T)

Appendix 2 (continued)

6	YUD1507	28.08.1988	352750	6678250	3	Hills	hill slope	clay/sand/loam	Acacia aneura (NC)(1),Eucalyptus intertexta(T)
62	CAR1601	28.10.1994	331152	6318991	45	Low hills	hill footslope	loam	Atriplex vesicaria ssp.(3),Maireana pyramidata(2)
62	CAR1701	24.10.1994	325072	6317260	42	Rises	hill footslope	loam/sand	Eucalyptus socialis(2),Eucalyptus gracilis(2),Eucalyptus brachycalyx(1)
62	CAR1801	24.10.1994	324178	6317254	42	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(2),Eucalyptus gracilis(T),Eucalyptus oleosa(N)
62	CAR1901	25.10.1994	319188	6315221	60	Low hills	hill slope	loam/sand	Dodonaea lobulata(3)
62	CAR2001	28.10.1994	316780	6314206	42	Plain	plain (incl undulating)	clay/loam	Eucalyptus oleosa(3),Eucalyptus gracilis(2)
62	CAR2101	25.10.1994	319454	6317174	42	Plain	plain (incl undulating)	loam/sand	Eucalyptus socialis(2),Eucalyptus gracilis(2),Eucalyptus brachycalyx(1)
62	CAR2201	29.10.1994	314025	6317574	42	Low hills	hill slope	loam/sand	Eucalyptus oleosa(3),Eucalyptus brachycalyx(2),Eucalyptus gracilis(T)
62	FRA0101	28.10.1994	331261	6324901	42	Plain	plain (incl undulating)	loam/sand	Eucalyptus brachycalyx(2),Eucalyptus gracilis(2),Eucalyptus oleosa(2)
62	FRA0102	28.10.1994	330275	6324215	42	Rises	plain (incl undulating)	loam/sand	Eucalyptus oleosa(2),Eucalyptus gracilis(2)
62	FRA0201	28.10.1994	329468	6324967	45	Hills	hill slope	loam/sand	Atriplex vesicaria ssp.(3),Rhagodia ulicina(2)
62	FRA0301	25.10.1994	321630	6325919	60	Plain	plain (incl undulating)	loam/sand	Dodonaea viscosa ssp. angustissima(2),Acacia nyssophylla(T)
62	FRA0401	25.10.1994	314600	6325645	42	Rises	hill slope	loam	Eucalyptus oleosa(2),Eucalyptus brachycalyx(2),Eucalyptus gracilis(2)
62	FRA0501	28.10.1994	332022	6333304	60	Low hills	hill crest	clay/sand/loam	Rhagodia ulicina(2),Ptilotus obovatus var.(1),Sida petrophila(1)
62	FRA0602	28.10.1994	330099	6331896	60	Plain	plain (incl undulating)	clay/sand/loam	Stipa nodosa(2),*Asphodelus fistulosus(2)
62	FRA0701	25.10.1994	321144	6330140	49	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(2)
62	FRA0901	27.10.1994	323763	6331480	60	Rises	hill slope	clay/sand/loam	Dodonaea lobulata(3),Acacia wilhelmiana(2)
62	FRA1201	26.10.1994	327070	6340454	60	Plain	plain (incl undulating)	loam/sand	Dodonaea viscosa ssp. angustissima(2)
62	FRA1301	26.10.1994	325930	6340018	60	Hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. artemisioides(2),Dodonaea lobulata(2)
62	FRA1401	27.10.1994	316584	6334719	61	Plain	plain (incl undulating)	loam	Eucalyptus brachycalyx(3),Eucalyptus socialis(2),Eucalyptus gracilis(T)
62	FRA1501	26.10.1994	329983	6343965	60	Alluvial plain	plain (incl undulating)	loam/sand	Callitris glaucophylla(3)
62	FRA1601	26.10.1994	329830	6343351	60	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(2),Senna artemisioides nothossp. artemisioides(1),Senna artemisioides nothossp. coriacea(1)
62	FRA1701	27.10.1994	328371	6342259	42	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(2),Eucalyptus gracilis(2)
62	FRA1801	26.10.1994	324111	6344258	49	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp.(1)
62	FRA1901	27.10.1994	319307	6344520	60	Low hills	hill slope	loam/sand	Acacia wilhelmiana(2),Dodonaea lobulata(2),Dodonaea viscosa ssp. spatulata(1)
62	HAL2201	29.10.1994	312681	6318336	42	Low hills	hill slope	clay/loam	Eucalyptus socialis(3),Eucalyptus gracilis(2)
62	PET0101	25.10.1994	297711	6350726	63	Rises	hill slope	clay/sand	Callitris preissii(3)
62	PET0201	25.10.1994	296406	6346940	60	Rises	hill slope	clay/sand	Senna artemisioides nothossp. coriacea(3),Dodonaea viscosa ssp. angustissima(2)
62	PET0202	25.10.1994	296717	6346901	60	Rises	hill slope	clay/sand	Callitris preissii(2)
62	TER0101	24.10.1994	303635	6320125	63	Plain	plain (incl undulating)	loam/sand	Stipa blackii(2),Atriplex vesicaria ssp.(1)
62	TER0201	24.10.1994	303078	6318453	49	Plain	plain (incl undulating)	clay/sand	Maireana aphylla(2)
62	TER0501	24.10.1994	299686	6330731	62	Hills	hill slope	clay/sand	Lomandra multiflora ssp. dura(2)
62	TER0502	24.10.1994	299187	6330012	62	Low hills	hill slope	loam/sand	Lomandra multiflora ssp. dura(2)
62	TER0801	24.10.1994	309639	6337076	45	Plain	plain (incl undulating)	loam/sand	Maireana aphylla(3)
62	TER1001	27.10.1994	306824	6338252	62	Hills	hill slope	loam/sand	Lomandra effusa(3),Maireana turbinata(2),*Asphodelus fistulosus(2)
62	TER1101	26.10.1994	302210	6339750	62	Hills	hill slope	loam/sand	Stipa blackii(3),Lomandra multiflora ssp. dura(2),Cryptandra amara var. amara(2)
62	TER1201	26.10.1994	300720	6337374	62	Hills	hill slope	clay/sand	Chrysocephalum semipapposum(3),Lomandra multiflora ssp. dura(2),Maireana aphylla(2)
62	TER1301	26.10.1994	300460	6339014	63	Hills	hill crest	loam/sand	Lomandra multiflora ssp. dura(2)
62	TER1401	25.10.1994	298686	6333959	62	Low hills	hill slope	clay/sand	Lomandra multiflora ssp. dura(2),Cryptandra amara var. amara(2),Lomandra effusa(2)
62	TER1701	26.10.1994	302378	6342532	62	Low hills	hill slope	clay/sand	Cryptandra amara var. amara(3)
62	TER1702	27.10.1994	302219	6342315	62	Rises	hill footslope	loam/sand	Stipa nitida(3),Stipa blackii(1)
62	TER1C12	25.10.1994	298708	6336018	63	Rises	hill slope	clay/sand	Acacia pycnantha(3)
62	TER2001	27.10.1994	311855	6343486	60	Low hills	hill slope	loam/sand	Dodonaea viscosa ssp. angustissima(4),Senna artemisioides nothossp. coriacea(2)
62	TER2002	27.10.1994	311798	6343109	43	Low hills	hill slope	loam/sand	Eucalyptus socialis(3)
63	WAN0201	21.09.1994	772873	6311876	44	Alluvial plain	stream channel	clay/loam	Eucalyptus camaldulensis var. camaldulensis(4)
63	WAN2D16	22.09.1994	766766	6315711	38	Tidal flat	plain (incl undulating)	clay	Atriplex vesicaria ssp. macrocystidia(2),Halosarcia halocnemoides ssp. halocnemoides(2)
66	MBS0101	01.10.1994	219300	6404000	65	Hills	hill slope	loam/sand	Allocasuarina verticillata(4)
66	MBS0102	01.10.1994	219000	6404600	65	Hills	ridge	loam	Allocasuarina verticillata(T)
66	MBS0103	01.10.1994	219100	6404900	65	Hills	hill slope	loam	Allocasuarina verticillata(3)
66	MBS0104	01.10.1994	218550	6403950	49	Low hills	hill slope	loam	Lycium australe(1),Sida petrophila(1),Zygophyllum confluens(T)
66	MBS0105	02.10.1994	219250	6405850	65	Hills	cliff	loam	
66	MBS0106	02.10.1994	219000	6406400	65	Hills	ridge	loam/sand	Allocasuarina verticillata(3),Eucalyptus dumosa(T)
66	MBS0107	02.10.1994	218700	6406500	65	Hills	hill slope	loam	Eucalyptus aff. viridis(2),Eucalyptus leucoxylon ssp.(1),Eucalyptus odorata(T)
66	MBS0108	02.10.1994	218650	6406350	65	Hills	ridge	loam	Allocasuarina verticillata(2)
66	MBS0109	03.10.1994	218750	6405850	65	Hills	hill slope	loam	Eucalyptus cladocalyx(3)
66	MBS0110	03.10.1994	218400	6406150	65	Hills	gully	loam/sand	Callitris glaucophylla(2)
66	MBS0111	03.10.1994	218300	6405850	65	Low hills	hill footslope	loam/sand	Callitris glaucophylla(2)
66	MBS0112	03.10.1994	218200	6405550	61	Low hills	hill crest	loam	Eucalyptus socialis(2),Melaleuca lanceolata ssp. lanceolata(2)
66	MBS0113	23.10.1994	220000	6405250	62	Low hills	hill slope	loam/sand	Acacia victoriae ssp.(1)
66	MBS0114	23.10.1994	219200	6403800	65	Hills	cliff	loam/sand	Bursaria spinosa(1)
66	MBS0115	23.10.1994	219600	6405100	68	Low hills	hill footslope	loam	Eucalyptus microcarpa(T)
66	MBS0116	23.10.1994	219600	6405900	63	Low hills	hill footslope	loam	Eucalyptus odorata(1)
66	MBS0117	22.10.1994	218500	6405900	65	Hills	hill slope	not recorded	Callitris glaucophylla(3)
66	MBS0118	22.10.1994	218800	6406100	65	Hills	hill slope	loam/sand	Callitris glaucophylla(4)
66	MBS0119	22.10.1994	218200	6405300	65	Hills	hill footslope	loam/sand	Callitris glaucophylla(3),Eucalyptus microcarpa(T)
66	MBS0120	22.10.1994	218200	6408200	60	Hills	hill footslope	loam/sand	Callitris glaucophylla(2)
66	MBS0121	23.10.1994	218600	6404200	65	Hills	gully	sand	Eucalyptus camaldulensis var.(3)
66	MBS0201	01.10.1994	218330	6403650	61	Hills	hill slope	loam/sand	Acacia calamifolia(2),Melaleuca lanceolata ssp. lanceolata(T)
66	MBS0202	01.10.1994	218150	6403500	61	Hills	hill slope	loam/sand	Eucalyptus gracilis(3)
66	MBS0203	01.10.1994	218100	6403750	61	Hills	hill slope	clay/loam	Lawrencia squamata(3),Eremophila alternifolia(1)
66	MBS0204	01.10.1994	218450	6402900	61	Hills	hill slope	clay/loam	Eucalyptus gracilis(3),Eucalyptus socialis(1)
66	MBS0205	02.10.1994	218300	6402500	61	Hills	hill slope	clay/loam	Eucalyptus gracilis(3),Eucalyptus socialis(2)
66	MBS0206	02.10.1994	218630	6402670	61	Hills	hill slope	clay/loam	Eucalyptus gracilis(3),Eucalyptus socialis(2)
66	MBS0207	22.10.1994	218500	6403500	69	Low hills	hill slope	loam	Triodia irritans(3)
66	MBS0208	22.10.1994	218550	6402350	61	Hills	hill slope	loam/sand	Zygophyllum confluens(1)
66	MBS0209	22.10.1994	218500	6402650	61	Hills	hill slope	loam/sand	Acacia calamifolia(1),Eremophila alternifolia(1)
66	MBS0210	22.10.1994	218450	6402800	61	Hills	hill slope	loam/sand	Melaleuca lanceolata ssp. lanceolata(2)
66	MBS0301	01.10.1994	219100	6399600	64	Mountains	hill slope	loam/sand	Eucalyptus goniocalyx(2)

Appendix 2 (continued)

66	MBS0302	02.10.1994	219150	6400450	65	Mountains	hill slope	loam/sand	Eucalyptus microcarpa(2)
66	MBS0303	02.10.1994	218650	6400700	65	Mountains	hill slope	loam	Eucalyptus microcarpa(2)
66	MBS0304	02.10.1994	218900	6401300	65	Mountains	ridge	loam/sand	Eucalyptus microcarpa(2)
66	MBS0305	03.10.1994	218800	6401450	65	Hills	hill slope	loam/sand	Eucalyptus microcarpa(2)
66	MBS0306	03.10.1994	218150	6401450	60	Hills	ridge	loam/sand	Eucalyptus microcarpa(2)
66	MBS0307	03.10.1994	219050	6401450	65	Hills	hill slope	loam/sand	Eucalyptus microcarpa(3)
66	MBS0308	20.10.1994	218900	6399800	64	Hills	hill slope	loam/sand	Eucalyptus microcarpa(2)
66	MBS0309	21.10.1994	219200	6401700	65	Hills	depression	loam/sand	Eucalyptus camaldulensis var.(2)
66	MBS0310	21.10.1994	219000	6401200	65	Low hills	depression	loam/sand	Bursaria spinosa(2)
66	MBS0311	20.10.1994	219900	6400900	65	Hills	ridge	loam/sand	Eucalyptus microcarpa(2)
66	MBS0312	20.10.1994	220100	6400100	64	Hills	hill slope	loam/sand	Eucalyptus goniocalyx(3)
66	MBS0401	01.10.1994	222500	6400650	65	Hills	hill slope	loam	Eucalyptus microcarpa(T)
66	MBS0402	02.10.1994	222150	6400750	65	Hills	hill slope	loam	Eucalyptus aff. viridis(3)
66	MBS0403	02.10.1994	221300	6400600	65	Hills	hill slope	loam	Allocasuarina verticillata(2)
66	MBS0404	03.10.1994	222350	6399650	69	Hills	hill slope	loam	Themeda triandra(1),Stipa sp.(1),Stipa sp.(1)
66	MBS0405	03.10.1994	221600	6399900	64	Mountains	cliff	loam	Eucalyptus goniocalyx(T)
66	MBS0406	03.10.1994	221650	6400050	65	Mountains	hill slope	loam	Eucalyptus microcarpa(1),Eucalyptus goniocalyx(T)
66	MBS0407	21.10.1994	221010	6399500	64	Mountains	hill slope	loam/sand	Eucalyptus goniocalyx(4)
66	MBS0408	21.10.1994	220900	6399700	64	Mountains	hill slope	loam/sand	Eucalyptus goniocalyx(3),Eucalyptus microcarpa(3)
66	MBS0409	21.10.1994	220800	6399500	64	Mountains	hill slope	loam/sand	Eucalyptus goniocalyx(2)
66	MBS0501	01.10.1994	224000	6401000	65	Hills	ridge	clay/loam	Callitris glaucophylla(2),Allocasuarina verticillata(2),Eucalyptus microcarpa(T)
66	MBS0502	01.10.1994	222500	6402150	65	Hills	hill slope	loam	Eucalyptus microcarpa(2)
66	MBS0503	02.10.1994	222450	6402450	65	Hills	hill slope	clay/loam	Allocasuarina verticillata(1),Eucalyptus microcarpa(T)
66	MBS0504	02.10.1994	222350	6402500	65	Hills	ridge	clay/loam	Eucalyptus microcarpa(1)
66	MBS0505	02.10.1994	221650	6402700	65	Low hills	ridge	clay/loam	Eucalyptus microcarpa(T)
66	MBS0506	03.10.1994	221400	6401070	65	Low hills	hill crest	loam	Eucalyptus microcarpa(3),Eucalyptus aff. viridis(2)
66	MBS0507	03.10.1994	221150	6401100	65	Hills	hill slope	clay/loam	Allocasuarina verticillata(2),Eucalyptus microcarpa(1)
66	MBS0508	03.10.1994	221450	6401200	65	Hills	hill slope	loam	Eucalyptus microcarpa(1),Allocasuarina verticillata(1)
66	MBS0509	22.10.1994	221300	6402150	65	Low hills	hill slope	clay/loam	Eucalyptus microcarpa(2)
66	MBS0510	22.10.1994	221600	6401450	65	Hills	hill slope	loam	Eucalyptus microcarpa(1)
66	MBS0511	22.10.1994	221200	6402100	65	Hills	hill slope	clay/loam	Eucalyptus microcarpa(T)
66	MBS0601	01.10.1994	224400	6403300	69	Low hills	hill slope	clay/loam	Triodia irritans(3),Themeda triandra(2)
66	MBS0602	01.10.1994	224600	6403400	37	Low hills	hill slope	clay/loam	*Avena fatua(3),Aristida behriana(2),*Bromus rubens(2)
66	MBS0603	02.10.1994	224020	6403040	69	Low hills	ridge	clay/loam	Triodia irritans(3)
66	MBS0604	02.10.1994	224030	6403060	69	Low hills	hill slope	clay/loam	Bursaria spinosa(3)
66	MBS0605	02.10.1994	224070	6404040	69	Low hills	hill crest	clay/loam	Acacia calamifolia(2)
66	MBS0606	03.10.1994	222080	6403080	65	Hills	hill crest	loam	Eucalyptus microcarpa(2)
66	MBS0607	03.10.1994	222060	6404020	65	Hills	ridge	loam	Eucalyptus microcarpa(2)
66	MBS0608	03.10.1994	223000	6404020	65	Hills	hill slope	loam/sand	Eucalyptus microcarpa(2)
66	MBS0609	03.10.1994	223030	6404030	65	Hills	hill slope	loam	Eucalyptus leucoxylon ssp. leucoxylon(2),Eucalyptus microcarpa(2)
66	MBS0610	21.10.1994	224800	6404300	63	Low hills	hill footslope	clay/loam	Stipa elegantissima(T),Danthonia sp.(T),Aristida behriana(T)
67	N3/23	23.09.1993	341150	6617360	6	Rises	hill slope	clay/sand/loam	Eremophila duttonii(T),Eremophila freelingii(T),Senna artemisioides nothossp. coriacea(T)
67	N3/27	22.09.1993	358230	6609260	22	Plain	plain (incl undulating)	silt/clay/loam	Maireana aphylla(2),Senna artemisioides ssp. filifolia(T),Senna artemisioides nothossp. sturtii(T)
67	N3/28	20.09.1993	360030	6607720	23	Rises	dune	clay/sand	Acacia aneura var.(T)
67	N3/29	20.09.1993	359970	6607780	23	Plain	plain (incl undulating)	clay/sand	Atriplex vesicaria ssp.(3),Maireana astrotricha(3),Acacia victoriae ssp.
67	N3/30	20.09.1993	360540	6612410	23	Plain	plain (incl undulating)	clay/sand	Senna artemisioides nothossp. artemisioides(T)
67	N3/31	22.09.1993	357240	6614590	36	Plain	plain (incl undulating)	silt/loam	Acacia aneura var.(1)
67	N3/32	20.09.1993	353930	6609060	23	Plain	plain (incl undulating)	clay/sand	Acacia aneura var.(1)
67	N3/33	19.09.1993	353930	6616480	23	Plain	plain (incl undulating)	clay/sand/loam	Santalum lanceolatum(T)
67	N3/34	19.09.1993	350050	6617580	24	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides nothossp. coriacea(T)
67	N3/35	19.09.1993	350860	6612610	23	Plain	plain (incl undulating)	silt/clay/loam	Acacia victoriae ssp.(1),Santalum lanceolatum(T)
67	N3/37	23.09.1993	339820	6618920	14	Flood plain	plain (incl undulating)	silt/clay/loam	Alectryon oleifolius ssp. canescens(2),Acacia victoriae ssp.(2),Eucalyptus camaldulensis var.(N)
67	N3/38	23.09.1993	338670	6620020	54	Plain	plain (incl undulating)	clay/sand/loam	Astrebla lappacea(1)
67	N3/39	23.09.1993	332160	6617970	54	Plain	plain (incl undulating)	clay/loam	Astrebla lappacea(1)
67	N3/40	22.09.1993	335620	6622820	24	Low hills	hill crest	clay/sand/loam	Acacia victoriae ssp.(T)
67	N3/41	24.09.1993	325790	6617840	24	Escarpment	ridge	clay	Acacia victoriae ssp.(T)
67	N3/42	23.09.1993	327870	6627560	5	Hills	hill footslope	not recorded	Eucalyptus gillii(2)
67	N3/43	21.09.1993	327450	6628050	14	Low hills	hill crest	clay/loam	Acacia aneura var.,Acacia victoriae ssp.
67	N3/44	20.09.1993	328130	6627650	14	Drainage line	stream channel	loam/sand	Eucalyptus camaldulensis var.
67	N3/45	21.09.1993	327700	6629190	11	Mountains	hill slope	clay/sand	Callitris glaucophylla(2)
67	N3/46	23.09.1993	324680	6627820	5	Hills	hill slope	loam	Eucalyptus gillii(2),Alectryon oleifolius ssp. canescens(2)
67	N3/47	24.09.1993	324840	6627440	5	Hills	hill slope	clay/sand/loam	Casuarina pauper(2)
67	N3/48	23.09.1993	324550	6626630	5	Hills	hill slope	not recorded	Eucalyptus gillii(2)
69	LH00101	01.11.1994	249000	6648500	29	Plain	stony plain	clay	Maireana pyramidata(1)
69	LH00201	03.11.1994	246793	6649799	38	Plain	plain (incl undulating)	not recorded	Halosarcia sp.(2)
69	LH00301	03.11.1994	241508	6662926	29	Plain	stony plain	loam	Atriplex vesicaria ssp.(2),Maireana pyramidata(1),Zygophyllum aurantiacum (NC)(1)
69	LH00401	03.11.1994	233437	6666585	20	Dunefield	dune	sand	Dodonaea viscosa ssp. angustissima(2),Acacia ligulata(1)
69	LH00402	03.11.1994	234000	6667300	20	Dunefield	swale	not recorded	Acacia tetragonophylla(T),Acacia ligulata(T)
69	LH00501	04.11.1994	232824	6679729	28	Sand plain	sandy plain	sand	Nitraria billardierei(1)
69	LH00502	04.11.1994	232800	6679600	38	Dunefield	playa/pan	clay/sand	Halosarcia pluriflora(1)
69	LH00601	02.11.1994	237146	6685256	28	Plain	stony plain	clay/sand	Gunniopsis quadrifida(1),Atriplex vesicaria ssp.(1),Maireana aphylla(T)
69	LH00701	02.11.1994	235764	6684699	23	Drainage line	flood out	not recorded	Atriplex nummularia ssp.(2)
69	LH00801	02.11.1994	237658	6677256	54	Plain	plain (incl undulating)	silt/clay/loam	Atriplex angulata(1),Sclerolaena divaricata(1),Sclerolaena ventricosa(1)
69	YH00101	17.11.1994	367569	6702515	54	Plain	plain (incl undulating)	clay/loam	Sclerolaena ventricosa(2)
69	YH00102	17.11.1994	367700	6702500	54	Drainage line	flood out	clay/sand/loam	Rhagodia spinescens(1)
69	YH00201	17.11.1994	369341	6702536	33	Drainage line	flood out	loam/sand	Acacia victoriae ssp.(1)
74	BU011000	21.12.1997	365280	6660040	23	Rises	depression	clay	Acacia tetragonophylla(2),Acacia victoriae ssp.(1)
74	BU012000	21.12.1997	365190	6660860	22	Rises	depression	clay/sand/loam	Melaleuca glomerata(2),Loranthaceae sp.(1),Melaleuca sp.(N)
74	BU013000	21.12.1997	363230	6660350	22	Plain	stream channel	clay/sand/loam	Melaleuca glomerata(3)
74	BU014000	21.12.1997	364760	6658260	53	Rises	plain (incl undulating)	clay	Astrebla pectinata(2),Sclerolaena divaricata(1),Brachyachne ciliaris(1)
74	BU015000	21.12.1997	362480	6658600	53	Rises	plain (incl undulating)	not recorded	
74	CUR01201	21.07.1995	362410	6509740	27	Alluvial plain	plain (incl undulating)	loam/sand	Maireana astrotricha(2),Maireana pyramidata(T)
74	CUR01301	21.07.1995	362440	6499820	23	Alluvial	plain (incl undulating)	silt/clay/loam	Acacia victoriae ssp.(1)

Appendix 2 (continued)

						plain			
74	CUR06201	22.07.1995	361400	6492860	45	Alluvial plain	plain (incl undulating)	clay/sand/loam	Enneapogon polyphyllus(1),Sclerolaena obliquicuspis(1),Eriochiton sclerolaenoides(1)
74	CUR06401	20.07.1995	367630	6496680	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Dodonaea microzyga var. microzyga(1),Senna artemisioides nothossp. coriacea(1),Eremophila sturtii(T)
74	CUR06501	21.07.1995	370560	6488740	23	Alluvial plain	plain (incl undulating)	clay	Dodonaea microzyga var. microzyga(1),Eremophila sturtii(1),Acacia victoriae ssp.(1)
74	CUR07101	20.07.1995	381100	6492790	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(1)
74	CUR09201	21.07.1995	371480	6478150	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Acacia ayersiana var. latifolia(1)
74	CUR11101	06.07.1995	379560	6461090	23	Alluvial plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(2)
74	CUR14201	22.07.1995	381720	6466840	26	Alluvial plain	sandy plain	loam/sand	Eremophila sturtii(1)
74	CUR14301	22.07.1995	385020	6468510	33	Low hills	hill crest	loam/sand	Acacia tetragonophylla(1),Acacia ayersiana var. latifolia(T),Eremophila sturtii(T)
74	FRO01101	29.08.1995	367460	6623910	23	Plain	plain (incl undulating)	loam/sand	Senna artemisioides ssp. quadrifolia(N)
74	FRO01201	29.08.1995	367250	6612110	28	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(3),Gunniopsis quadrifida(1)
74	FRO01301	30.08.1995	363870	6606720	27	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(3),Maireana astrotricha(2)
74	FRO01401	30.08.1995	361750	6607140	33	Plain	dune	sand	Eremophila sturtii(2),Acacia ligulata(1),Dodonaea viscosa ssp. angustissima(T)
74	FRO02101	29.08.1995	375260	6622380	27	Plain	plain (incl undulating)	clay	Sclerolaena divaricata(2),Atriplex holocarpa(2)
74	FRO02201	29.08.1995	374560	6622390	27	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Gunniopsis quadrifida(2),Maireana astrotricha(2)
74	FRO02301	29.08.1995	372280	6622360	23	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Maireana astrotricha(T)
74	FRO03101	30.08.1995	356870	6606490	21	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides nothossp. artemisioides(2),Senna artemisioides ssp. petiolaris(2)
74	FRO03201	30.08.1995	359950	6601680	23	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Maireana astrotricha(2)
74	KOO02101	12.09.1995	321950	6456010	26	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(1)
74	KOO02201	12.09.1995	322000	6456010	34	Low hills	hill footslope	loam/sand	Sclerolaena obliquicuspis(2),Eriochiton sclerolaenoides(2)
74	KOO05101	13.09.1995	347220	6454410	41	Hills	hill slope	clay/sand/loam	Zygophyllum aurantiacum (NC)(3)
74	KOO06101	13.09.1995	355990	6452880	16		plain (incl undulating)	loam/sand	Eucalyptus socialis(2),Alectryon oleifolius ssp. canescens(1)
74	KOO06101	02.09.1996	355990	6452880	16		plain (incl undulating)	loam/sand	
74	KOO08101	12.09.1995	326080	6447860	33	Plain	plain (incl undulating)	clay/loam	Atriplex vesicaria ssp.(3),Maireana pyramidata(1)
74	KOO09101	13.09.1995	330380	6449060	31	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(2)
74	KOO10101	13.09.1995	342170	6444660	31	Plain	plain (incl undulating)	loam/sand	Eremophila sturtii(1)
74	KOO11101	13.09.1995	350570	6452160	45	Plain	plain (incl undulating)	clay/sand/loam	Maireana sedifolia(3)
74	KOO11101	02.09.1996	350570	6452160	45	Plain	plain (incl undulating)	clay/sand/loam	
74	KOO11201	13.09.1995	343360	6444420	31	Plain	plain (incl undulating)	loam/sand	Acacia ayersiana var. latifolia(1),Casuarina pauper(1)
74	KOO11201	01.09.1996	343360	6444420	31	Plain	plain (incl undulating)	loam/sand	
74	KOO12101	13.09.1995	355900	6448600	45	Plain	plain (incl undulating)	clay/sand/loam	Enneapogon sp.(2),Eriochiton sclerolaenoides(2),Stipa nitida(1)
74	KOO12201	13.09.1995	353380	6447830	31	Plain	plain (incl undulating)	clay/sand	Acacia burkittii(1),Eremophila sturtii(1)
74	KOO14101	12.09.1995	327550	6439800	34	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Nitraria billardierei(1)
74	KOO14101	01.09.1996	327550	6439800	34	Plain	plain (incl undulating)	loam/sand	
74	KOO15101	12.09.1995	335880	6443040	33	Plain	depression	clay	Muehlenbeckia florulenta(4)
74	KOO15101	01.09.1996	335880	6443040	33	Plain	depression	clay	
74	KOO16101	14.09.1995	348390	6441920	31	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2),Atriplex stipitata(1),Maireana pyramidata(T)
74	KOO18101	14.09.1995	314990	6431860	27	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2),Maireana astrotricha(1)
74	KOO18201	15.09.1995	315800	6434920	40	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(1)
74	KOO24101	14.09.1995	314780	6427190	27	Plain	plain (incl undulating)	clay	Maireana aphylla(1)
74	KOO27101	14.09.1995	339270	6425700	34	Hills	hill slope	clay/sand/loam	Atriplex vesicaria ssp.(4)
74	KOO29101	14.09.1995	352180	6425230	34	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(2)
74	KOO30101	14.09.1995	316640	6416460	45	Rises	hill slope	clay/sand/loam	*Asphodelus fistulosus(4)
74	KOO30201	14.09.1995	316640	6416440	35	Plain	plain (incl undulating)	clay	Acacia victoriae ssp.(2)
74	KOO33101	15.09.1995	335790	6418190	34	Plain	plain (incl undulating)	clay	Maireana pyramidata(2)
74	KOO34101	15.09.1995	347000	6420210	34	Rises	hill slope	loam/sand	Atriplex vesicaria ssp.(3)
74	KOO35101	15.09.1995	355130	6416040	41	Hills	hill slope	loam/sand	Eucalyptus socialis(2)
74	KOO37101	14.09.1995	327940	6413570	34	Plain	plain (incl undulating)	clay/sand/loam	Atriplex stipitata(2)
74	KOO38101	15.09.1995	332800	6412870	34	Hills	hill footslope	loam/sand	Atriplex stipitata(1),Sida petrophila(1)
74	KOO40101	15.09.1995	348640	6410440	34	Low hills	hill slope	loam/sand	*Medicago minima var. minima(3),*Carrichtera annua(3),*Asphodelus fistulosus(2)
74	KOO41101	15.09.1995	358390	6409170	34	Plain	plain (incl undulating)	clay	Maireana pyramidata(2)
74	PAR01401	18.08.1995	383950	6665960	32	Plain	dune	sand	Eremophila duttonii(1),Eremophila sturtii(1)
74	PAR03101	18.08.1995	374180	6659960	54	Plain	plain (incl undulating)	clay	Astrebla pectinata(2),Sclerolaena ventricosa(2),Sclerolaena bicornis(1)
74	PAR03101	28.08.1996	374180	6659960	54	Plain	plain (incl undulating)	clay	Sclerolaena ventricosa(2),Astrebla pectinata(2),Sclerolaena bicornis(1)
74	PAR03201	19.08.1995	383690	6660410	19	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(2),Rhagodia spinescens(1)
74	PAR03201	28.08.1996	383690	6660410	19	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(2),Rhagodia spinescens(1)
74	PAR05101	28.08.1996	364620	6644860	54	Plain	plain (incl undulating)	clay	
74	PAR05101	18.08.1995	364620	6644860	54	Plain	plain (incl undulating)	clay	Maireana aphylla(1)
74	PAR05201	18.08.1995	371790	6644730	19	Plain	dune	clay/sand	Dodonaea viscosa ssp. angustissima(2)
74	PAR05301	18.08.1995	374980	6652910	22	Plain	plain (incl undulating)	clay/sand	Acacia victoriae ssp.(2)
74	PAR07101	19.08.1995	373140	6630820	26	Dunefield	swale	clay/sand/loam	Maireana aphylla(1),Maireana astrotricha(T)
74	PAR07201	28.08.1995	366130	6640890	23	Flood plain	flood out	clay	Senecio cunninghamii var.(4),Enteropogon acicularis(2),Rhagodia spinescens(1)
74	PAR07201	28.08.1996	366130	6640890	23	Flood plain	flood out	clay	Senecio cunninghamii var.(4),Enteropogon acicularis(2),Rhagodia spinescens(1)
74	PAR07301	28.08.1996	365570	6640620	23	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides ssp. filifolia(1),Senna artemisioides ssp. petiolaris(1)
74	PAR07301	28.08.1995	365570	6640620	23	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides ssp. petiolaris(1),Senna artemisioides ssp. filifolia(1)
74	PAR07401	29.08.1995	364060	6639640	19	Plain	dune	sand	Eremophila duttonii(1),Senna artemisioides ssp. petiolaris(1)
74	PAR07401	28.08.1996	364060	6639640	19	Plain	dune	sand	Eremophila duttonii(1),Senna artemisioides ssp. petiolaris x nothossp. sturtii(1)
74	PAR08101	19.08.1995	382510	6633500	33	Dunefield	dune	sand	Acacia ligulata(1),Senna artemisioides ssp. petiolaris(1),Dodonaea viscosa ssp. angustissima(1)
74	PAR09101	18.08.1995	360310	6664350	53	Plain	plain (incl undulating)	clay	Sclerolaena divaricata(3),Sclerolaena ventricosa(2),Astrebla pectinata(2)
74	PAR10101	28.08.1996	361410	6652580	19	Plain	depression	clay	Acacia tetragonophylla(2),Eremophila duttonii(1)
74	PAR10101	18.08.1995	361410	6652580	19	Plain	depression	clay	Eremophila duttonii(1)
74	PAR11101	29.08.1995	360100	6637190	19	Plain	plain (incl undulating)	loam/sand	Senna artemisioides ssp. petiolaris(2),Eremophila duttonii(1)
74	PAR11201	29.08.1995	360090	6629140	19	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(2)
74	PAS01101	02.08.1995	363240	6556180	22	Flood plain	stream channel	clay	Atriplex nummularia ssp.(5),Acacia victoriae ssp.(T)
74	PAS01201	02.08.1995	360040	6562470	23	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(1),Maireana pyramidata(1)
74	PAS06101	02.08.1995	375090	6545580	32	Alluvial plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2)

Appendix 2 (continued)

74	PAS06201	02.08.1995	362970	6546390	27	Plain	plain (incl undulating)	loam/sand	Maireana astrotricha(2),Atriplex vesicaria ssp.(2)
74	PAS06301	03.08.1995	362440	6546450	33	Plain	depression	clay	Maireana aphylla(2),Rhagodia spinescens(1),Maireana pyramidata(1)
74	PAS06401	03.08.1995	362970	6546390	27	Plain	plain (incl undulating)	loam/sand	Maireana astrotricha(1),Maireana pyramidata(1)
74	PAS10101	05.08.1995	371660	6534230	53	Plain	swamp	clay	Eragrostis australasica(4)
74	PAS12101	05.08.1995	361390	6524270	27	Plain	plain (incl undulating)	loam/sand	Maireana astrotricha(2),Atriplex vesicaria ssp.(2)
74	PAS13101	05.08.1995	369860	6528480	33	Plain	depression	clay/sand	Maireana pyramidata(2),Rhagodia spinescens(1)
74	REA01101	31.08.1995	329000	6555120	6	Low hills	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(2),Maireana astrotricha(2),Dodonaea microzyga var. microzyga(1)
74	REA01201	31.08.1995	328390	6554800	6	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides nothossp. coriacea(1),Dodonaea microzyga var. microzyga(1)
74	REA01301	31.08.1995	324720	6558150	41	Low hills	hill slope	loam/sand	Eucalyptus gillii(2)
74	REA01401	31.08.1995	324170	6560450	41	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(2)
74	REA01501	31.08.1995	311680	6562510	23	Plain	flood out	loam/sand	Acacia victoriae ssp.(1)
74	REA02101	03.08.1995	343220	6565870	23	Plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(1),Rhagodia spinescens(1),Maireana astrotricha(1)
74	REA02201	03.08.1995	340970	6561140	23	Plain	plain (incl undulating)	loam/sand	Acacia ayersiana var. latifolia(1)
74	REA02301	04.08.1995	344690	6557840	23	Plain	plain (incl undulating)	loam/sand	Eremophila sturtii(1)
74	REA02401	30.08.1995	342900	6557770	26	Plain	plain (incl undulating)	loam/sand	Eremophila duttonii(1)
74	REA02501	30.08.1995	338420	6558530	23	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(3),Eremophila freelingii(2)
74	REA02701	30.08.1995	331400	6556900	6	Hills	hill footslope	clay/sand/loam	Eremophila sturtii(1),Eremophila freelingii(1),Eremophila duttonii(1)
74	REA03101	03.08.1995	347080	6559630	23	Plain	plain (incl undulating)	loam/sand	Senna artemisioides ssp. petiolaris(1)
74	REA03201	03.08.1995	350480	6563900	22	Flood plain	flood out	silt/clay/loam	Eucalyptus camaldulensis var.(2)
74	REA03301	03.08.1995	347730	6568260	23	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides ssp. petiolaris(1)
74	REA04101	31.08.1995	320310	6549830	23	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(2),Maireana pyramidata(2)
74	REA04201	31.08.1995	324360	6543680	8	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(3),Maireana tomentosa ssp. urceolata(2)
74	REA05101	04.08.1995	339940	6545280	26	Plain	plain (incl undulating)	clay	Nitraria billardierei(1)
74	REA06101	02.08.1995	356060	6552090	22	Flood plain	flood out	silt/clay/loam	Eucalyptus camaldulensis var.(2)
74	REA06201	03.08.1995	345550	6553590	23	Plain	plain (incl undulating)	loam/sand	Senna artemisioides ssp. petiolaris(2)
74	REA07201	31.08.1995	328900	6534370	33	Flood plain	flood out	clay	Nitraria billardierei(2)
74	REA07301	31.08.1995	330820	6530470	27	Plain	plain (incl undulating)	clay	Atriplex vesicaria ssp.(3),Maireana astrotricha(2),Maireana pyramidata(1)
74	REA07401	01.09.1995	330810	6527670	2	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1),Eremophila duttonii(T)
74	REA08101	04.08.1995	344340	6539240	22	Plain	plain (incl undulating)	clay	Maireana aphylla(2)
74	REA08201	04.08.1995	344990	6538740	22	Plain	flood out	clay	Eucalyptus camaldulensis var.(2)
74	REA08301	04.08.1995	344830	6535740	23	Plain	plain (incl undulating)	clay	Sida intricata(2),Atriplex pseudocampanulata(1)
74	REA09101	01.09.1995	317640	6522010	26	Plain	plain (incl undulating)	clay	Maireana pyramidata(2),Maireana astrotricha(1)
74	REA09201	01.09.1995	312170	6527610	22	Plain	plain (incl undulating)	clay/sand/loam	Maireana astrotricha(3)
74	REA10101	01.09.1995	335290	6524100	17	Low hills	hill slope	silt/loam	Maireana astrotricha(2)
74	REA10201	01.09.1995	337400	6522810	14	Low hills	plain (incl undulating)	clay/loam	Acacia victoriae ssp.(1),Acacia tetragonophylla(T)
74	REA10301	01.09.1995	327870	6515380	6	Hills	hill slope	clay/sand/loam	Eremophila freelingii(1)
74	REA11101	04.08.1995	342280	6525550	27	Alluvial plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(1),Maireana astrotricha(1)
74	REA11201	04.08.1995	340880	6523100	25	Alluvial plain	plain (incl undulating)	clay/sand/loam	Eremophila duttonii(1)
74	REA11301	05.08.1995	343110	6515500	33	Flood plain	flood out	clay/sand/loam	Acacia victoriae ssp.(1)
74	WIL01101	01.09.1995	322240	6505810	33	Plain	plain (incl undulating)	clay	Maireana pyramidata(2),Nitraria billardierei(1)
74	WIL01201	01.09.1995	327430	6504350	6	Hills	hill slope	clay/loam	Eremophila freelingii(1)
74	WIL02101	19.07.1995	346000	6513290	23	Alluvial plain	plain (incl undulating)	loam/sand	Maireana pyramidata(1)
74	WIL02201	19.07.1995	343500	6501080	26	Alluvial plain	plain (incl undulating)	clay	Maireana astrotricha(1),Maireana aphylla(1)
74	WIL02301	04.08.1995	333150	6512350	27	Flood plain	flood out	clay/sand/loam	Nitraria billardierei(2),Maireana pyramidata(T)
74	WIL02401	19.07.1995	343740	6507110	23	Alluvial plain	plain (incl undulating)	clay	Maireana aphylla(2)
74	WIL02501	19.07.1995	343900	6512080	23	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp.(1)
74	WIL03101	11.09.1995	329460	6490780	8	Low hills	hill slope	clay/loam	Maireana sedifolia(2),Maireana astrotricha(T)
74	WIL03201	11.09.1995	318390	6489520	31	Hills	hill slope	clay/sand/loam	Casuarina pauper(2)
74	WIL03301	12.09.1995	313680	6490980	8	Plain	plain (incl undulating)	clay/loam	Maireana astrotricha(2),Maireana pyramidata(2)
74	WIL03401	12.09.1995	323230	6498870	6	Hills	hill slope	clay/sand/loam	Eremophila freelingii(2)
74	WIL04101	19.07.1995	343130	6491750	28	Alluvial plain	plain (incl undulating)	loam/sand	Maireana astrotricha(1),Atriplex vesicaria ssp.(T),Maireana turbinata(T)
74	WIL04201	11.09.1995	337670	6486510	53	Plain	plain (incl undulating)	clay	Atriplex vesicaria ssp.(3)
74	WIL06101	18.09.1995	320770	6473470	7	Mountains	ridge	clay/sand/loam	Dodonaea lobulata(2)
74	WIL06201	18.09.1995	323470	6475820	45	Mountains	hill footslope	loam/sand	Eucalyptus gillii(2),Casuarina pauper(1),Myoporum platycarpum ssp.(T)
74	WIL06301	18.09.1995	324050	6477180	1	Mountains	hill slope	clay/sand	Casuarina pauper(3)
74	WIL06401	18.09.1995	323850	6477560	2	Mountains	hill slope	clay/sand/loam	Acacia aneura var. aneura(3)
74	WIL08101	18.07.1995	354490	6476100	23	Hills	hill footslope	loam/sand	Maireana astrotricha(1),Maireana pyramidata(T)
74	WIL08201	18.07.1995	354490	6476100	6	Hills	hill slope	clay/loam	Sida petrophila(1),Eremophila freelingii(1)
74	WIL08301	19.07.1995	354240	6479440	28	Alluvial plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Maireana astrotricha(1)
74	WIL09101	18.09.1995	321230	6459530	7	Hills	hill slope	loam/sand	Sida petrophila(1)
74	WIL09201	18.09.1995	319900	6465020	3	Mountains	ridge	loam/sand	Dodonaea lobulata(2),Cassinia laevis(2)
74	WIL09201	01.09.1996	319900	6465020	3	Mountains	ridge	loam/sand	
74	WIL09301	01.09.1996	319730	6465480	69	Mountains	stream channel	sand	
74	WIL09301	18.09.1995	319730	6465480	69	Mountains	stream channel	sand	Eucalyptus camaldulensis var.(3)
74	WIL09401	02.09.1996	319660	6466600	59	Mountains	hill footslope	silt/clay/loam	
74	WIL09401	18.09.1995	319660	6466600	59	Mountains	hill footslope	silt/clay/loam	Eucalyptus socialis(3)
74	WIL09501	18.09.1995	320500	6470560	60	Mountains	hill footslope	silt/clay/loam	Eucalyptus gillii(2),Eucalyptus gracilis(1),Eucalyptus largiflorens(1)
74	WIL09601	18.09.1995	320440	6472010	40	Mountains	plain (incl undulating)	clay/sand/loam	Casuarina pauper(4)
74	WIN01101	06.07.1995	374960	6454570	33	Rises	hill slope	sand	Eremophila sturtii(1)
74	WIN01201	06.07.1995	368920	6451230	23	Alluvial plain	hill footslope	clay/sand/loam	Dodonaea microzyga var. microzyga(2)
74	WIN01301	06.07.1995	370790	6450060	36	Alluvial plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(1),Atriplex vesicaria ssp.(1)
74	WIN01401	06.07.1995	373620	6444330	34	Alluvial plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2)
74	WIN01501	06.07.1995	375380	6442220	27	Alluvial plain	hill slope	loam/sand	Atriplex vesicaria ssp.(2)
74	WIN05301	07.07.1995	378670	6436660	27	Alluvial plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2)
74	WIN08101	15.09.1995	380330	6426340	38	Plain	plain (incl undulating)	clay/loam	Nitraria billardierei(3)
74	WIN08201	08.07.1995	370460	6423900	41	Low hills	hill slope	clay/loam	Eucalyptus socialis(1)
74	WIN10101	08.07.1995	359940	6407280	31	Low hills	hill footslope	clay/loam	Maireana pyramidata(1),Maireana sedifolia(1)
74	WIN10201	08.07.1995	362510	6405400	34	Alluvial	plain (incl undulating)	clay/sand/loam	Atriplex stipitata(1),Atriplex vesicaria ssp.(T)

Appendix 2 (continued)

						plain			
74	WIN10301	08.07.1995	362510	6405400	35	Alluvial plain	plain (incl undulating)	clay	*Critesion sp.(4),*Asphodelus fistulosus(2),*Salvia verbenaca form A(1)
74	WIN11101	03.07.1995	378830	6406860	7	Hills	hill slope	not recorded	Acacia calamifolia(1),Cassinia laevis(1)
74	WIN11201	08.07.1995	384710	6404060	31	Alluvial plain	plain (incl undulating)	loam/sand	Eucalyptus socialis(1),Eucalyptus gracilis(1)
82	DAV00101	15.09.1997	762410	6373770	42	Low hills	hill slope	loam/sand	Myoporum platycarpum ssp.(3),Acacia papyrocarpa(2)
83	LBGBOO01	27.11.1996	251348	6352079	62	Rises	plain (incl undulating)	clay/sand	Acacia pycnantha(2)
83	LBGBOO02	27.11.1996	245395	6348071	63	Rises	hill slope	loam	Eucalyptus microcarpa(2)
83	LBGBUN01	22.02.1996	277373	6316295	63	Low hills	hill slope	loam/sand	
83	LBGJAM01	21.02.1996	275953	6344019	63	Hills	hill slope	clay/sand/loam	Eucalyptus microcarpa(2),Eucalyptus leucoxylon ssp. pruinosa(1)
83	LBGJAM02	22.02.1996	278834	6335695	63	Rises	hill slope	loam/sand	Stipa nitida(3)
83	LBGJAM03	22.02.1996	274421	6333914	63	Low hills	hill slope	clay/sand/loam	Allocasuarina verticillata(1)
83	LBGJAM05	22.02.1996	279275	6336968	63	Low hills	hill slope	clay/sand/loam	Themeda triandra(3),Stipa blackii(2)
83	LBGJAM06	22.02.1996	279059	6337362	63	Low hills	hill slope	loam/sand	Bursaria spinosa(2)
83	LBGLAU02	20.02.1996	248430	6335330	63	Low hills	hill slope	loam	Allocasuarina verticillata(2)
83	LBGLAU03	20.02.1996	249734	6335615	63	Low hills	hill slope	loam	Allocasuarina verticillata(2)
83	LBGLAU04	20.02.1996	246761	6333768	63	Rises	hill crest	loam/sand	Eucalyptus odorata(4)
83	LBGMEL01	01.10.1995	235750	6370150	63	Plain	plain (incl undulating)	clay/sand	Eucalyptus odorata(2)
83	LBGMEL02	20.02.1996	238145	6351971	63	Low hills	hill slope	clay/sand/loam	Allocasuarina verticillata(2),Eucalyptus microcarpa(2)
83	LBGMEL03	20.02.1996	236335	6364643	63	Hills	hill slope	loam/sand	Eucalyptus microcarpa(2),Eucalyptus odorata(T)
83	LBGMEL04	25.11.1996	235512	6358971	67	Low hills	hill slope	loam/sand	Eucalyptus albens(2)
83	LBGMEL05	25.11.1996	233752	6362547	67	Hills	hill slope	loam	Eucalyptus camaldulensis var. camaldulensis(2)
83	LBGPEK01	30.12.1995	267500	6350500	63	Rises	hill slope	loam	Eucalyptus odorata(2),Callitris preissii(T)
83	LBGPEK02	31.12.1995	267900	6350700	63	Rises	hill slope	loam/sand	Eucalyptus leucoxylon ssp. pruinosa(T)
83	LBGPEK03	18.01.1996	267070	6363540	62	Hills	hill slope	loam	Stipa blackii(2),Stipa nodosa(2)
83	LBGPEK04	19.01.1996	267870	6361040	63	Low hills	hill footslope	loam	Eucalyptus leucoxylon ssp. pruinosa(3)
83	LBGPEK05	19.01.1996	267200	6361250	63	Low hills	hill footslope	loam/sand	Allocasuarina verticillata(2)
83	LBGPEK06	25.01.1996	269240	6346930	63	Low hills	hill slope	loam/sand	Eucalyptus leucoxylon ssp. pruinosa(2)
83	LBGPET01	14.12.1995	305350	6345770	62	Low hills	hill footslope	clay	Stipa blackii(2),Lomandra effusa(1),Stipa nodosa(1)
83	LBGPET02	14.12.1995	303610	6348020	62	Low hills	hill crest	clay/loam	Stipa eremophila(2),Stipa blackii(2),Cryptandra amara var.(2)
83	LBGPET03	15.12.1995	290710	6354700	62	Hills	hill slope	clay/sand	Callitris preissii(2)
83	LBGPET04	29.12.1995	310520	6368920	60	Plain	plain (incl undulating)	clay	Stipa nitida(3),Maireana aphylla(2)
83	LBGPIR01	19.02.1996	241781	6335981	67	Low hills	hill slope	loam/sand	Eucalyptus leucoxylon ssp. leucoxylon(2),Eucalyptus microcarpa(2),Eucalyptus leucoxylon ssp. pruinosa(1)
83	LBGPIR02	21.02.1996	237850	6326300	67	Low hills	hill slope	clay/loam	Eucalyptus leucoxylon ssp. pruinosa(2)
83	LBGPIR03	21.02.1996	242792	6321544	64	Low hills	hill slope	loam/sand	Eucalyptus leucoxylon ssp. pruinosa(2),Allocasuarina verticillata(2)
83	LBGPIR04	21.02.1996	243535	6321138	64	Low hills	hill slope	loam/sand	Allocasuarina verticillata(3)
83	LBGPIR05	27.11.1996	241210	6337481	67	Low hills	plain (incl undulating)	loam/sand	Eucalyptus leucoxylon ssp. pruinosa(3),Eucalyptus microcarpa(2)
83	LBGPIR06	27.11.1996	241730	6335976	67	Low hills	plain (incl undulating)	loam/sand	Eucalyptus microcarpa(2),Eucalyptus leucoxylon ssp. pruinosa(2),Eucalyptus camaldulensis var. camaldulensis(2)
83	LBGQUO01	22.10.1995	225000	6404000	62	Low hills	hill slope	clay	Danthonia caespitosa(2),Stipa scabra ssp. falcata(2)
83	LBGQUO02	31.12.1995	220960	6402820	63	Hills	ridge	clay/sand/loam	Eucalyptus odorata(2)
83	LBGQUO03	16.01.1996	237000	6412470	45	Plain	plain (incl undulating)	clay/sand/loam	
83	LBGQUO04	16.01.1996	237130	6411400	45	Plain	plain (incl undulating)	clay/loam	Stipa eremophila(2)
83	LBGQUO05	16.01.1996	237010	6406420	47	Plain	plain (incl undulating)	clay/loam	
83	LBGQUO06	17.01.1996	218680	6421610	63	Hills	hill footslope	not recorded	Eucalyptus odorata(3)
83	LBGQUO07	17.01.1996	221330	6421360	63	Alluvial plain	hill footslope	loam	Eucalyptus odorata(2)
83	LBGWIL01	12.12.1995	248480	6393970	45	Plain	plain (incl undulating)	clay	Stipa eremophila(2),Danthonia caespitosa(2)
83	LBGWIL02	13.12.1995	246240	6389900	45	Plain	plain (incl undulating)	clay/loam	Stipa scabra ssp. falcata(2),Stipa eremophila(1)
83	LBGWLM01	26.11.1996	227514	6374117	67	Low hills	hill slope	loam	Eucalyptus camaldulensis var. camaldulensis(T)
83	LBGWLM02	26.11.1996	227648	6374715	67	Low hills	hill slope	loam	Eucalyptus cladocalyx(2)
83	LBGWLM03	26.11.1996	228285	6384268	63	Plain	plain (incl undulating)	loam/sand	Eucalyptus microcarpa(3)
83	LBGYED01	13.12.1995	287560	6431540	45	Plain	plain (incl undulating)	clay	Stipa eremophila(2)
86	CAR00101	24.10.1996	272450	6423382	60	Low hills	hill slope	clay	Casuarina pauper(2)
86	CAR00201	24.10.1996	272230	6422927	45	Low hills	hill crest	clay	Maireana aphylla(2),Maireana sedifolia(1)
86	CAR00301	25.10.1996	279825	6422172	47	Plain	stream channel	loam/sand	Callitris glaucophylla(2)
86	CAR00401	25.10.1996	287686	6426503	47	Plain	plain (incl undulating)	loam/sand	Casuarina pauper(2)
86	CAR00501	24.10.1996	272594	6419223	45	Low hills	hill footslope	clay/sand/loam	Maireana sedifolia(2)
86	CAR00601	24.10.1996	274767	6419428	48	Flood plain	plain (incl undulating)	clay/sand/loam	Acacia victoriae ssp. victoriae(2)
86	CAR00801	24.10.1996	276534	6418955	47	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(2)
86	CAR01001	21.10.1996	265973	6408811	60	Rises	hill slope	clay/sand/loam	Senna artemisioides nothossp. coriacea(2),Senna artemisioides ssp. petiolaris(2),Acacia calamifolia(T)
86	CAR01101	23.10.1996	277028	6411089	60	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(3)
86	CAR01201	23.10.1996	278131	6410369	60	Rises	hill slope	clay/sand/loam	Callitris glaucophylla(3)
86	CAR01301	23.10.1996	278281	6415535	43	Plain	plain (incl undulating)	clay/loam	Eucalyptus porosa(2)
86	CAR01302	23.10.1996	277989	6416547	60	Hills	hill slope	not recorded	Acacia calamifolia(1),Eremophila longifolia(1)
86	CAR01401	25.10.1996	281193	6413911	61	Low hills	hill slope	loam	Acacia calamifolia(2)
86	CAR01601	22.10.1996	273392	6407113	60	Low hills	hill slope	clay/sand/loam	Callitris glaucophylla(2)
86	CAR01701	22.10.1996	274844	6406437	60	Low hills	hill slope	loam/sand	Callitris glaucophylla(2)
86	CAR01801	22.10.1996	278036	6404999	69	Hills	hill slope	loam/sand	Acacia pycnantha(1)
86	CAR01901	22.10.1996	279039	6404167	60	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(2),Eucalyptus porosa(1)
86	KAN00101	16.10.1996	241621	6448772	63	Hills	gully	clay/sand	Acacia papyrocarpa(2)
86	KAN00201	16.10.1996	241981	6450145	60	Hills	hill slope	clay/sand	Eucalyptus socialis(3)
86	KAN00301	16.10.1996	242690	6450321	1	Hills	gully	clay/sand	Callitris glaucophylla(2)
86	KAN00401	18.10.1996	247365	6455394	47	Low hills	hill slope	clay/sand/loam	*Asphodelus fistulosus(2)
86	KAN00501	17.10.1996	249591	6456148	10	Low hills	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2),Zygophyllum aurantiacum ssp. verticillatum(2)
86	KAN00601	18.10.1996	249962	6451509	1	Hills	hill slope	loam/sand	Acacia aneura var. aneura(3)
86	KAN00701	18.10.1996	252618	6453659	60	Low hills	hill slope	clay/sand	Callitris glaucophylla(3)
86	KAN00801	17.10.1996	258287	6450553	30	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(2)
86	KAN00901	17.10.1996	260923	6450246	30	Plain	plain (incl undulating)	loam	Acacia victoriae ssp. victoriae(2)
86	KAN01001	17.10.1996	262902	6452276	45	Plain	plain (incl undulating)	clay/sand/loam	Atriplex stipitata(2)
86	KAN01101	15.10.1996	244518	6445976	50	Plain	stream channel	loam/sand	Eucalyptus camaldulensis var. camaldulensis(3)
86	KAN01201	16.10.1996	247300	6447167	40	Low hills	hill slope	loam/sand	Casuarina pauper(3)
86	KAN01301	17.10.1996	248517	6446603	33	Low hills	hill slope	clay/sand/loam	Maireana pyramidata(2)
86	KAN01401	17.10.1996	260692	6449446	46	Plain	plain (incl undulating)	clay/sand/loam	Maireana aphylla(2)
86	KAN01501	17.10.1996	263942	6445381	30	Plain	plain (incl undulating)	loam	Acacia victoriae ssp. victoriae(1)
86	KAN01601	15.10.1996	241671	6442464	53	Plain	plain (incl undulating)	loam/sand	Atriplex angulata(2)
86	KAN01801	18.10.1996	249659	6441694	45	Plain	plain (incl undulating)	loam	Maireana pyramidata(2)
86	KAN02001	14.10.1996	242971	6433239	49	Plain	depression	clay/sand	Eucalyptus camaldulensis var. camaldulensis(2)
86	KAN02101	15.10.1996	242757	6428887	33	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(2),Maireana turbinata(2)
86	KAN02201	14.10.1996	258027	6429926	43	Hills	depression	loam/sand	Hakea leucoptera ssp. leucoptera(2)

Appendix 2 (continued)

86	MOO00101	14.10.1996	250567	6421922	45	Low hills	hill slope	clay/sand/loam	Maireana sedifolia(3)
86	MOO00201	18.10.1996	254455	6423452	48	Low hills	hill slope	clay/loam	Maireana aphylla(2)
86	MOO00202	17.10.1996	254831	6423446	49	Low hills	stream channel	silt/clay/loam	Eucalyptus camaldulensis var. camaldulensis(2)
86	MOO00301	18.10.1996	256516	6422233	45	Hills	hill slope	clay	Sida petrophila(2),Maireana pyramidata(1),Maireana aphylla(T)
86	MOO00401	18.10.1996	261778	6420967	30	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(3),*Lycium ferocissimum(1)
86	MOO00601	14.10.1996	248595	6420626	34	Low hills	hill slope	clay/sand/loam	Maireana sedifolia(3),Maireana pyramidata(2)
86	MOO00602	14.10.1996	249221	6420353	53	Low hills	hill footslope	clay/sand/loam	Atriplex angulata(3),Dissocarpus biflorus var. biflorus(2)
86	MOO00701	18.10.1996	263023	6421510	45	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(3),Atriplex vesicaria ssp.(2),Lawrencia squamata(2)
86	MOO00901	16.10.1996	250937	6410286	63	Mountains	hill slope	clay/sand/loam	Dodonaea viscosa ssp. angustissima(3),Olearia decurrens(2),Hakea leucoptera ssp. leucoptera(1)
86	MOO01001	16.10.1996	251269	6409823	43	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3),Pimelea microcephala ssp. microcephala(2),Beyeria lechenaultii(2)
86	MOO01002	16.10.1996	251413	6409425	43	Hills	hill slope	clay/sand/loam	Casuarina pauper(3)
86	MOO01003	16.10.1996	251442	6408997	63	Hills	hill slope	loam/sand	Acacia calamifolia(4),Senna artemisioides nothossp. artemisioides(2),Pimelea microcephala ssp. microcephala(2)
86	MOO01101	15.10.1996	253742	6408217	63	Hills	rock outcrop (on hill)	clay/sand/loam	Callitris glaucophylla(2),Eucalyptus porosa(2)
86	MOO01202	18.10.1996	256274	6412589	63	Hills	hill slope	clay/sand/loam	Eucalyptus porosa(3)
86	MOO01401	15.10.1996	254358	6407475	60	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3),Senna artemisioides nothossp. coriacea(3),Pimelea microcephala ssp. microcephala(2)
86	MOO01501	15.10.1996	256604	6406336	60	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3),Senna artemisioides nothossp. coriacea(3)
86	MOO01601	17.10.1996	256171	6402489	60	Low hills	hill slope	loam	Senna artemisioides nothossp. coriacea(4)
86	MOO01801	17.10.1996	259066	6407989	63	Low hills	hill slope	loam	Callitris glaucophylla(2)
86	MOO01901	17.10.1996	245491	6401201	43	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(3)
86	MOO01B18	18.10.1996	256217	6412445	63	Mountains	hill slope	clay/sand/loam	Dodonaea viscosa ssp. angustissima(3),Olearia decurrens(3),Pomaderris paniculosa ssp. paniculosa(2)
86	MOO01B19	18.10.1996	256388	6412515	63	Mountains	hill crest	clay/sand/loam	Allocasuarina verticillata(2)
86	ORR00201	23.10.1996	271011	6395916	62	Low hills	hill crest	clay/sand/loam	Senna artemisioides ssp. filifolia(2),Hakea leucoptera ssp. leucoptera(2)
86	ORR00401	23.10.1996	268074	6390634	60	Plain	plain (incl undulating)	loam	Callitris glaucophylla(3)
86	ORR00501	25.10.1996	274434	6388921	47	Plain	stream channel	silt/loam	Eucalyptus socialis(4),Eucalyptus calycogona var. calycogona(2),Eucalyptus percostata(2)
86	ORR00602	23.10.1996	273085	6386929	62	Low hills	hill slope	clay/sand/loam	Stipa eremophila(3),Stipa pilata(3)
86	ORR00702	21.10.1996	287614	6393857	38	Plain	plain (incl undulating)	silt/clay/loam	Atriplex vesicaria ssp.(3),Nitraria billardierei(2)
86	ORR00801	21.10.1996	266085	6381647	60	Rises	hill footslope	clay/sand/loam	Callitris glaucophylla(3)
86	ORR01101	21.10.1996	285598	6382665	46	Plain	plain (incl undulating)	clay/loam	Casuarina pauper(2)
86	ORR01201	24.10.1996	288259	6375960	43	Plain	plain (incl undulating)	clay/loam	Casuarina pauper(3)
86	ORR01401	24.10.1996	282552	6376224	52	Plain	stream channel	silt/clay/loam	Juncus kraussii(3),Bolboschoenus caldwellii(2)
86	ORR01601	21.10.1996	275081	6374208	60	Low hills	hill slope	loam/sand	Eucalyptus porosa(3)
86	ORR01602	21.10.1996	275224	6374157	60	Hills	hill slope	clay/sand	Acacia calamifolia(3)
86	ORR01701	24.10.1996	270434	6374764	62	Hills	hill slope	clay/sand/loam	Acacia calamifolia(2)
86	ORR01702	24.10.1996	269905	6375029	62	Hills	hill slope	clay/sand/loam	Xanthorrhoea quadrangulata(2)
86	ORR02A01	21.10.1996	275880	6392800	60	Low hills	hill slope	clay/loam	Eucalyptus socialis(4)
86	ORR02A02	21.10.1996	275610	6393080	60	Low hills	hill slope	loam	Callitris glaucophylla(3),Eucalyptus socialis(2)
86	ORR02B08	23.10.1996	275057	6381916	30	Plain	plain (incl undulating)	loam	Eremophila longifolia(2)
86	ORR02D10	23.10.1996	272776	6387969	62	Low hills	hill slope	clay/sand/loam	Lomandra effusa(2),Stipa pilata(2)
86	ORR02D13	24.10.1996	272938	6386934	50	Flood plain	stream channel	clay/sand/loam	Typha domingensis(4),Juncus kraussii(2)
86	ORR02D15	25.10.1996	284240	6377937	46	Plain	plain (incl undulating)	clay/sand/loam	Scaevola spinescens(2)
86	PEK00101	23.10.1996	268445	6366630	69	Low hills	hill slope	loam	Allocasuarina verticillata(2)
86	PEK00201	22.10.1996	278370	6370215	61	Hills	gully	clay/sand/loam	Eucalyptus socialis(3),Eucalyptus gracilis(3)
86	PEK00202	22.10.1996	278393	6370032	69	Hills	hill slope	clay/sand	Triodia scariosa ssp. bunicola(4)
86	PEK00401	22.10.1996	288778	6369925	61	Low hills	hill footslope	clay/sand/loam	Stipa drummondii(2),Stipa eremophila(2),*Bromus rubens(2)
86	PEK00402	22.10.1996	288790	6369636	46	Low hills	hill slope	sand	Eucalyptus gracilis(2),Eucalyptus socialis(2)
86	PEK00502	25.10.1996	278529	6363042	61	Low hills	hill slope	loam/sand	Eucalyptus socialis(3),Melaleuca lanceolata ssp. lanceolata(3)
86	PEK00601	23.10.1996	277200	6361223	63	Low hills	hill slope	loam/sand	Bursaria spinosa(2)
86	PEK00701	22.10.1996	273000	6367391	62	Low hills	hill footslope	loam/sand	Lomandra effusa(2),Lomandra multiflora ssp. dura(2),Stipa eremophila(2)
86	PEK00801	25.10.1996	270818	6364349	62	Plain	plain (incl undulating)	clay/loam	Lomandra multiflora ssp. dura(2)
86	PEK00901	22.10.1996	269156	6363322	49	Rises	hill footslope	clay/loam	Stipa scabra ssp. falcata(2),Stipa blackii(2),Triodia scariosa ssp. bunicola(1)
86	PEK01101	25.10.1996	272302	6357542	67	Low hills	stream channel	loam/sand	Eucalyptus leucoxylon ssp. pruinosa(2)
86	PEK01201	24.10.1996	278509	6356701	63	Hills	hill slope	loam/sand	Eucalyptus porosa(3)
86	PEK01202	24.10.1996	278715	6356963	65	Hills	hill slope	loam	Acacia wattsiana(3),Bursaria spinosa(3)
86	PEK01301	25.10.1996	278692	6354520	65	Low hills	hill slope	loam	Acacia pycnantha(3)
86	PEK01401	24.10.1996	280212	6354764	63	Plain	hill footslope	silt/loam	Rhagodia parabolica(2),Grevillea ilicifolia var. ilicifolia(2)
86	PEK01601	25.10.1996	275337	6352809	69	Hills	hill slope	loam	Allocasuarina verticillata(2)
86	PEK02B12	24.10.1996	280113	6354729	62	Plain	hill footslope	silt/loam	Eucalyptus porosa(2)
86	PEK02B17	25.10.1996	272310	6357620	63	Low hills	hill slope	loam/sand	Bursaria spinosa(2)
86	PET00101	25.10.1996	293132	6373735	7	Hills	hill slope	loam	Sida petrophila(2),Ptilotus obovatus var. obovatus(2)
86	PET00201	24.10.1996	296691	6370065	61	Low hills	hill slope	clay/loam	Eucalyptus socialis(4),Eucalyptus gracilis(3)
86	PET00202	24.10.1996	298108	6369898	60	Low hills	plain (incl undulating)	clay/loam	Senna artemisioides ssp. petiolaris(3),Acacia calamifolia(2)
86	PET00301	23.10.1996	310338	6371245	30	Plain	hill footslope	clay/loam	Stipa puberula(4)
86	PET00302	23.10.1996	310306	6371034	62	Low hills	hill crest	clay/loam	Dodonaea lobulata(3),Senna artemisioides nothossp. artemisioides(2)
86	PET00401	23.10.1996	310372	6366028	30	Plain	plain (incl undulating)	clay/loam	Stipa eremophila(3)
86	PET00501	22.10.1996	297696	6365602	62	Low hills	hill slope	clay/loam	Acacia pycnantha(3),Acacia calamifolia(3)
86	PET00502	22.10.1996	297625	6365124	61	Low hills	hill slope	clay/loam	Eucalyptus socialis(4)
86	PET00601	22.10.1996	299875	6366677	44	Low hills	hill slope	clay/loam	Eucalyptus porosa(3)
86	PET00701	24.10.1996	290171	6362096	43	Plain	plain (incl undulating)	clay/loam	Casuarina pauper(3)
86	PET00901	25.10.1996	296640	6358532	62	Low hills	hill footslope	clay/loam	Lomandra effusa(2),Lomandra multiflora ssp. dura(2)
86	PET01001	25.10.1996	305061	6355743	62	Plain	plain (incl undulating)	loam/sand	Callitris glaucophylla(2)
86	PET01002	25.10.1996	305579	6355106	62	Plain	plain (incl undulating)	clay/loam	Lomandra multiflora ssp. dura(2),Cryptandra amara var. longiflora(1)
86	PET01003	23.10.1996	306893	6353237	62	Low hills	hill slope	clay/loam	Bursaria spinosa(2),Maireana aphylla(2)
86	PET01201	23.10.1996	312930	6353587	44	Flood plain	plain (incl undulating)	silt/loam	Eucalyptus largiflorens(4)
86	PET01501	25.10.1996	302246	6355476	62	Plain	plain (incl undulating)	clay/loam	Stipa eremophila(2),Stipa scabra ssp.(1)
86	PET02A09	22.10.1996	298763	6366731	62	Plain	hill footslope	clay/loam	Lomandra effusa(3),Stipa eremophila(2)
86	PET02A10	22.10.1996	299383	6367640	63	Plain	hill footslope	clay/loam	Callitris glaucophylla(4)
86	PET02A14	23.10.1996	309325	6356021	62	Plain	plain (incl undulating)	silt/clay/loam	*Vulpia myuros forma myuros(3),*Bromus rubens(3)
86	WIC00101	18.10.1996	220039	6450607	39	Low hills	hill footslope	clay/loam	Eucalyptus socialis(4),Eucalyptus dumosa(3)
86	WIC00201	18.10.1996	220159	6449231	45	Hills	hill footslope	clay/sand/loam	Zygophyllum aurantiacum (NC)(2)
86	WIC00202	18.10.1996	220216	6448600	69	Mountains	hill slope	clay/loam	Ptilotus obovatus var. obovatus(2)
86	WIC00203	18.10.1996	220841	6448344	61	Mountains	hill slope	clay/loam	Acacia calamifolia(4)
86	WIC00301	16.10.1996	224759	6449704	43	Hills	hill slope	clay/loam	Casuarina pauper(3)
86	WIC00302	16.10.1996	224456	6448784	57	Mountains	ridge	clay/loam	Callitris glaucophylla(2)
86	WIC00303	16.10.1996	224195	6448492	63	Mountains	hill slope	loam	Callitris glaucophylla(2)
86	WIC00401	16.10.1996	224635	6454470	40	Plain	plain (incl undulating)	clay/loam	Casuarina pauper(4)
86	WIC00501	17.10.1996	233853	6454594	45	Low hills	plain (incl undulating)	clay/loam	Sida petrophila(2),Ptilotus obovatus var. obovatus(1)

Appendix 2 (continued)

86	WIC00502	17.10.1996	233833	6454965	40	Low hills	hill slope	clay/loam	Casuarina pauper(3)
86	WIC00601	17.10.1996	221097	6445402	55	Escarpment	hill footslope	loam	Triodia scariosa ssp. bunicola(4)
86	WIC00701	14.10.1996	220095	6443009	65	Mountains	hill slope	clay/loam	Callitris glaucophylla(2)
86	WIC00801	14.10.1996	221629	6442358	60	Mountains	hill slope	clay/loam	Dodonaea lobulata(4),Eremophila alternifolia(T)
86	WIC01001	17.10.1996	227288	6446964	45	Low hills	hill crest	clay	Maireana pyramidata(3)
86	WIC01101	17.10.1996	232234	6441940	53	Plain	plain (incl undulating)	clay	Nitraria billardierei(3)
86	WIC01201	14.10.1996	218630	6435153	50	Low hills	stream channel	loam	Eucalyptus camaldulensis var. camaldulensis(3)
86	WIC01301	17.10.1996	233757	6435160	23	Plain	plain (incl undulating)	clay/loam	Maireana brevifolia(2),Maireana pyramidata(2)
86	WIC01401	15.10.1996	220588	6429154	63	Low hills	hill slope	clay/loam	Eucalyptus porosa(3),Eucalyptus dumosa(2),Callitris glaucophylla(2)
86	WIC01501	15.10.1996	219991	6430852	55	Low hills	hill slope	clay/loam	Eucalyptus dumosa(2)
86	WIC01601	15.10.1996	222512	6431352	60	Mountains	hill slope	clay/loam	Dodonaea lobulata(4),Acacia calamifolia(2)
86	WIC01701	14.10.1996	219782	6432964	63	Hills	hill slope	clay/loam	Callitris glaucophylla(3),Eucalyptus odorata(2)
86	WIC01801	15.10.1996	225556	6432977	48	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(2)
86	WIC01901	15.10.1996	238316	6429458	22	Plain	plain (incl undulating)	clay/loam	Maireana aphylla(2)
86	WIL00101	24.10.1996	246419	6399242	49	Plain	stream channel	clay/sand	Eucalyptus camaldulensis var. camaldulensis(2)
86	WIL00201	21.10.1996	250921	6399908	30	Low hills	plain (incl undulating)	clay	Atriplex vesicaria ssp.(2)
86	WIL00301	24.10.1996	255688	6396484	48	Low hills	hill slope	clay/sand	Dodonaea lobulata(3),Bursaria spinosa(1),Alectryon oleifolius ssp. canescens(N)
86	WIL00401	23.10.1996	261236	6399751	63	Low hills	hill footslope	clay/sand/loam	Stipa blackii(2),Danthonia caespitosa(2),Stipa nitida(2)
86	WIL00402	23.10.1996	261485	6399639	60	Low hills	stream channel	silt/loam	Callitris glaucophylla(4)
86	WIL00501	23.10.1996	263614	6395134	60	Plain	plain (incl undulating)	loam	Eucalyptus porosa(2),Eucalyptus socialis(1)
86	WIL00502	23.10.1996	264512	6394771	62	Plain	plain (incl undulating)	loam/sand	Callitris glaucophylla(3)
86	WIL00601	24.10.1996	249473	6387910	45	Plain	plain (incl undulating)	loam	Maireana sedifolia(2)
86	WIL00701	24.10.1996	247360	6386089	45	Plain	plain (incl undulating)	loam/sand	Templetonia egena(2)
86	WIL00801	25.10.1996	250438	6383881	45	Plain	plain (incl undulating)	clay/sand	Senna artemisioides nothossp. coriacea(2),Templetonia egena(2)
86	WIL00802	21.10.1996	249586	6382565	46	Plain	plain (incl undulating)	loam/sand	Senna artemisioides nothossp. coriacea(3),Templetonia egena(T)
86	WIL00902	25.10.1996	257144	6380414	60	Low hills	hill slope	clay/loam	Dodonaea lobulata(3),Pimelea microcephala ssp. microcephala(2)
86	WIL01001	24.10.1996	265244	6376738	62	Plain	plain (incl undulating)	clay/loam	*Avena barbata(3)
86	WIL011a1	22.10.1996	263531	6375932	62	Low hills	hill footslope	loam	*Avena barbata(2),Maireana trichoptera(1)
86	WIL01301	21.10.1996	257001	6378375	46	Plain	plain (incl undulating)	silt/loam	Senna artemisioides nothossp. coriacea(3),Templetonia egena(1),Acacia hakeoides(N)
86	WIL01401	21.10.1996	254384	6376147	49	Plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(4)
86	WIL01601	21.10.1996	253581	6373815	31	Plain	plain (incl undulating)	loam/sand	Eucalyptus oleosa(3)
86	WIL01801	24.10.1996	248997	6399086	45	Plain	plain (incl undulating)	loam	Stipa eremophila(1),Stipa nitida(1)
86	WIL02D02	21.10.1996	248848	6399514	30	Plain	plain (incl undulating)	clay	Enchylaena tomentosa var. tomentosa(1)
86	YAL00101	23.10.1996	292874	6399084	42	Plain	plain (incl undulating)	clay/loam	Eucalyptus gracilis(2)
86	YAL00102	23.10.1996	292876	6400247	30	Plain	plain (incl undulating)	clay/loam	Eremophila longifolia(3)
86	YAL00201	24.10.1996	291981	6394848	38	Plain	stream channel	clay	Nitraria billardierei(2)
86	YAL00301	23.10.1996	297834	6395841	42	Plain	plain (incl undulating)	clay/sand/loam	Atriplex stipitata(1),Atriplex vesicaria ssp.(1)
86	YAL00302	23.10.1996	298046	6395519	42	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus gracilis(2),Eucalyptus socialis(N)
86	YAL00401	23.10.1996	296728	6396038	43	Plain	stream channel	clay/sand/loam	Eucalyptus porosa(4)
86	YAL00801	24.10.1996	304560	6391671	42	Plain	plain (incl undulating)	clay/loam	Eucalyptus gracilis(2),Eucalyptus socialis(T)
86	YAL00901	22.10.1996	298854	6390035	42	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus oleosa(2),Eucalyptus gracilis(2)
86	YAL01001	24.10.1996	298429	6392672	30	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2)
86	YAL01101	22.10.1996	296662	6389016	60	Hills	hill crest	clay/sand/loam	Rhagodia ulicina(2)
86	YAL01201	22.10.1996	294412	6385327	42	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus gracilis(2),Eucalyptus socialis(2)
86	YAL01202	21.10.1996	294431	6383761	60	Plain	plain (incl undulating)	clay	Acacia nyssophylla(2)
86	YAL01301	21.10.1996	294928	6381389	30	Plain	plain (incl undulating)	clay/sand/loam	Maireana sedifolia(2)
86	YAL01302	21.10.1996	295042	6381034	43	Plain	plain (incl undulating)	clay/sand/loam	Casuarina pauper(2),Alectryon oleifolius ssp. canescens(1),Exocarpos aphyllus(T)
86	YAL01401	25.10.1996	303574	6381999	60	Plain	plain (incl undulating)	loam/sand	Dodonaea viscosa ssp. angustissima(3)
86	YAL01501	25.10.1996	311756	6375539	30	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2)
86	YAL01502	25.10.1996	311649	6375569	60	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3)
86	YAL01601	25.10.1996	310461	6377277	60	Hills	hill slope	clay/sand/loam	Dodonaea lobulata(3)
86	YAL01701	24.10.1996	291784	6380004	30	Plain	plain (incl undulating)	clay/sand/loam	Senna artemisioides nothossp. coriacea(2),Senna artemisioides ssp. petiolaris(2)
86	YAL02E05	22.10.1996	294508	6385292	46	Plain	plain (incl undulating)	clay/sand/loam	Acacia nyssophylla(2)
86	YED00101	14.10.1996	273726	6449557	30	Plain	plain (incl undulating)	clay	Senna artemisioides nothossp. coriacea(3)
86	YED00201	14.10.1996	274558	6454581	46	Low hills	hill slope	clay	Acacia argyrophylla(3)
86	YED00202	14.10.1996	274728	6454405	46	Low hills	hill slope	clay/sand/loam	Eucalyptus socialis(4)
86	YED00301	14.10.1996	281842	6455394	69	Low hills	hill slope	clay/loam	Triodia scariosa ssp. bunicola(2)
86	YED00601	17.10.1996	271458	6448060	30	Sand plain	sandy plain	clay	Lawrencia squamata(3),Zygophyllum crenatum(2),Stipa elegantissima(1)
86	YED00901	17.10.1996	267190	6437877	45	Plain	plain (incl undulating)	loam/sand	Maireana sedifolia(2)
86	YED01001	16.10.1996	280636	6439475	60	Flood plain	stream channel	clay/loam	Callitris glaucophylla(3),Alectryon oleifolius ssp. canescens(T)
86	YED01101	25.10.1996	287755	6440690	47	Rises	hill footslope	clay/loam	Eucalyptus socialis(2)
86	YED01201	17.10.1996	265809	6434370	61	Hills	hill slope	clay/loam	Acacia calamifolia(3)
86	YED01301	17.10.1996	267045	6433883	47	Plain	plain (incl undulating)	clay/loam	Casuarina pauper(3),Alectryon oleifolius ssp. canescens(N)
86	YED01401	16.10.1996	274615	6431126	69	Hills	hill slope	clay/loam	Triodia scariosa ssp. bunicola(3)
86	YED01701	15.10.1996	285530	6435382	46	Low hills	hill slope	silt/clay/loam	Senna artemisioides nothossp. coriacea(2)
86	YED01702	15.10.1996	285866	6435826	60	Low hills	ridge	silt/clay/loam	Callitris glaucophylla(3)
87	DAV00301	18.10.1996	763413	6399629	38	Dunefield	dune	clay/sand/loam	Nitraria billardierei(2),Sclerostegia tenuis(2)
87	DAV00401	18.10.1996	766971	6400232	30	Plain	plain (incl undulating)	loam/sand	Acacia ligulata(2)
87	DAV00501	18.10.1996	768568	6394626	33	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(3)
87	DAV00701	25.10.1996	779007	6398373	43	Low hills	hill footslope	loam	Dodonaea lobulata(2),Pimelea microcephala ssp. microcephala(2),Senna artemisioides nothossp. coriacea(2)
87	DAV00801	22.10.1996	780291	6393466	44	Low hills	hill footslope	silt/loam	Geijera linearifolia(3)
87	DAV00901	22.10.1996	780517	6392112	49	Low hills	stream channel	loam/sand	Eucalyptus camaldulensis var. camaldulensis(3)
87	DAV01001	22.10.1996	781331	6390003	47	Hills	stream channel	loam/sand	Alectryon oleifolius ssp. canescens(4)
87	DAV01701	18.10.1996	780205	6379794	60	Low hills	hill slope	loam/sand	Acacia calamifolia(2)
87	DAV01801	17.10.1996	780759	6376647	61	Hills	hill slope	loam/sand	Eucalyptus socialis(3),Eucalyptus porosa(T)
87	DAV01901	17.10.1996	780224	6375581	55	Low hills	hill slope	loam/sand	Eucalyptus socialis(3),Eucalyptus percostata(T)
87	DAV02001	17.10.1996	778271	6373363	60	Hills	hill footslope	loam/sand	Dodonaea lobulata(2),Pimelea microcephala ssp. microcephala(2)
87	DAV02101	17.10.1996	777890	6373664	43	Hills	hill crest	loam/sand	Eucalyptus socialis(2)
87	DAV02201	16.10.1996	773255	6375264	44	Plain	plain (incl undulating)	loam/sand	Acacia ligulata(3),Pimelea microcephala ssp. microcephala(3)
87	DAV02301	16.10.1996	771655	6379718	38	Plain	plain (incl undulating)	silt/loam	Atriplex vesicaria ssp.(3)
87	DAV02401	16.10.1996	768966	6378555	31	Dunefield	dune	sand	Myoporum platycarpum ssp.(2)
87	DAV02C08	22.10.1996	781161	6390222	60	Hills	hill footslope	loam/sand	Rhagodia spinescens(2),Zygophyllum confluens(2)
87	MAM00101	15.10.1996	779747	6371092	60	Low hills	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(2)
87	MAM00201	15.10.1996	779012	6367669	66	Low hills	hill slope	loam/sand	Dodonaea lobulata(3)
87	MAM00301	15.10.1996	777661	6369548	44	Low hills	hill slope	loam	Casuarina pauper(3)
87	MAM00401	16.10.1996	776792	6369062	31	Plain	plain (incl undulating)	loam	Casuarina pauper(2)
87	MAM00501	15.10.1996	773269	6365216	44	Low hills	hill slope	loam/sand	Eucalyptus oleosa(2)
87	MAM00601	14.10.1996	772722	6361484	44	Dunefield	dune	sand	Acacia ligulata(3)

Appendix 2 (continued)

87	MAM00701	14.10.1996	773612	6358418	44	Dunefield	dune	sand	*Lycium ferocissimum(2),Acacia ligulata(2),Myoporum insulare(2)
87	MAM00801	14.10.1996	777495	6352142	42	Dunefield	swale	loam	Eucalyptus oleosa(2)
87	MAM00901	14.10.1996	778538	6348560	42	Plain	plain (incl undulating)	loam/sand	Nitraria billardierei(2),Atriplex stipitata(2)
87	MAM01001	14.10.1996	774784	6350708	44	Dunefield	dune	sand	Acacia ligulata(2),Pittosporum phylliraeoides var. microcarpa(2)
87	PTA00101	16.10.1996	770196	6426542	31	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Sclerolaena obliquicuspis(1)
87	PTA00201	14.10.1996	781008	6421036	65	Hills	hill slope	loam/sand	Eucalyptus cladocalyx(3)
87	PTA00202	14.10.1996	780768	6421289	65	Hills	hill slope	loam/sand	Callitris glaucophylla(2),Allocasuarina verticillata(1)
87	PTA00301	14.10.1996	779099	6421574	65	Hills	hill slope	loam	Acacia quornensis(2),Cassinia laevis(2)
87	PTA00401	15.10.1996	778338	6419228	65	Hills	hill slope	loam	Eucalyptus cladocalyx(3)
87	PTA00501	15.10.1996	777377	6418254	65	Low hills	hill slope	loam	Eucalyptus leucoxylon ssp. pruinosa(3)
87	PTA00801	17.10.1996	765854	6418721	31	Dunefield	dune	sand	Eucalyptus socialis(2),Eucalyptus oleosa(2)
87	PTA00901	18.10.1996	764610	6419074	31	Dunefield	swale	sand	Acacia burkittii(1)
87	PTA00902	18.10.1996	764421	6418954	31	Plain	plain (incl undulating)	clay/loam	Maireana pyramidata(3)
87	PTA01001	17.10.1996	767057	6413295	32	Dunefield	dune	sand	Callitris glaucophylla(2)
87	PTA01002	17.10.1996	766872	6413462	32	Dunefield	dune	sand	Acacia burkittii(2)
87	PTA01101	17.10.1996	765779	6414093	53	Plain	plain (incl undulating)	clay/loam	Maireana pyramidata(2)
87	PTA01102	17.10.1996	765502	6414172	53	Plain	plain (incl undulating)	clay/loam	Halosarcia halocnemoides ssp. halocnemoides(2)
87	PTA01201	18.10.1996	774254	6412774	63	Hills	hill slope	loam/sand	Acacia pycnantha(2)
87	PTA01202	18.10.1996	773982	6412808	42	Hills	hill slope	loam/sand	Eucalyptus brachycalyx(3),Eucalyptus gracilis(3)
87	PTA01701	15.10.1996	779627	6410598	69	Low hills	hill slope	loam	Triodia scariosa ssp. bunicola(5)
87	PTA01901	15.10.1996	780751	6405529	42	Hills	hill slope	clay/loam	Eucalyptus gracilis(3)
87	PTA02001	16.10.1996	772629	6402226	44	Flood plain	stream channel	loam/sand	Eucalyptus camaldulensis var. camaldulensis(3)
87	PTA02002	16.10.1996	772708	6402024	23	Flood plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
87	PTA02101	16.10.1996	767908	6408347	27	Plain	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Sclerostegia tenuis(1)
87	PTA02201	16.10.1996	765802	6402979	44	Dunefield	dune	sand	Acacia ligulata(2)
89	CRT02101	03.11.1996	297537	6452544	37	Rises	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(3)
89	CRT03101	03.11.1996	309399	6451743	45	Plain	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(2)
89	CRT03201	03.11.1996	310736	6450451	42	Plain	plain (incl undulating)	loam/sand	Eucalyptus socialis(2),Eucalyptus gracilis(1)
89	CRT05101	02.11.1996	295304	6446070	45	Plain	plain (incl undulating)	loam/sand	*Carrichtera annua(4),*Critesion murinum ssp. glaucum(3)
89	CRT07101	02.11.1996	289155	6440765	61	Low hills	plain (incl undulating)	loam	Eucalyptus dumosa(2),Eucalyptus gracilis(1),Eucalyptus socialis(T)
89	CRT07201	02.11.1996	289731	6441075	61	Hills	hill slope	not recorded	Eucalyptus socialis(1),Melaleuca lanceolata ssp. lanceolata(1),Eucalyptus gracilis(1)
89	CRT08101	02.11.1996	302179	6440763	53	Plain	plain (incl undulating)	clay	*Carrichtera annua(5),*Medicago minima var. minima(2)
89	CRT08201	03.11.1996	303349	6442419	45	Low hills	hill slope	loam	Maireana sedifolia(1)
89	CRT10101	02.11.1996	290028	6433772	46	Plain	plain (incl undulating)	clay/loam	*Critesion murinum ssp. glaucum(5),*Medicago polymorpha var. polymorpha(3)
89	CRT11101	02.11.1996	296543	6430282	60	Low hills	hill slope	clay/loam	Callitris glaucophylla(3)
89	CRT12101	02.11.1996	301120	6432852	60	Low hills	hill slope	not recorded	Dodonaea lobulata(2),Acacia calamifolia(2)
89	CRT14101	10.10.1996	289524	6426601	47	Plain	plain (incl undulating)	clay/loam	*Critesion murinum ssp. glaucum(4),*Bromus rubens(4)
89	CRT14201	10.10.1996	293899	6426634	60	Low hills	hill slope	not recorded	Sida petrophila(2),Solanum ellipticum(1)
89	CRT17101	09.10.1996	293849	6422583	60	Hills	hill slope	not recorded	Dodonaea viscosa ssp. angustissima(2),Rhagodia parabolica(1),Acacia rigens(T)
89	CRT19101	09.10.1996	304626	6417751	53	Plain	plain (incl undulating)	silt/clay/loam	Atriplex vesicaria ssp.(3),Sclerolaena divaricata(2)
89	CRT20101	09.10.1996	294469	6413739	42	Hills	hill crest	loam/sand	Eucalyptus gracilis(2),Eucalyptus socialis(2)
89	CRT21101	09.10.1996	303025	6411803	53	Rises	plain (incl undulating)	clay/sand/loam	Atriplex vesicaria ssp.(1),Sclerolaena divaricata(T)
89	CRT21201	09.10.1996	298070	6413943	59	Hills	ridge	loam/sand	Eucalyptus socialis(2),Eucalyptus dumosa(2)
89	CRT24101	09.10.1996	293989	6404615	42	Hills	hill slope	loam/sand	Eucalyptus gracilis(2),Eucalyptus socialis(2),Eucalyptus oleosa(1)
89	CRT24201	09.10.1996	301226	6408599	53	Plain	plain (incl undulating)	silt/clay/loam	Atriplex vesicaria ssp.(1),Maireana sedifolia(1)
89	HWK02101	06.11.1996	222410	6480341	16	Dunefield	dune	loam/sand	Bromus arenarius(1),Sclerolaena divaricata(T)
89	HWK03101	06.11.1996	232880	6479928	53	Hills	hill footslope	loam/sand	Sclerolaena divaricata(2),Sclerostegia tenuis(1)
89	HWK05101	05.11.1996	248539	6480633	1	Hills	hill slope	loam/sand	Dodonaea lobulata(2),Maireana pyramidata(2)
89	HWK08101	07.11.1996	220019	6471067	33	Dunefield	swale	loam/sand	Maireana pyramidata(3)
89	HWK10101	06.11.1996	236237	6472773	25	Hills	hill crest	loam/sand	Casuarina pauper(3)
89	HWK10301	06.11.1996	233312	6474911	53	Hills	hill footslope	clay	Atriplex vesicaria ssp.(3),Sclerostegia tenuis(1)
89	HWK11201	05.11.1996	240432	6475711	33	Plain	plain (incl undulating)	clay/loam	Maireana pyramidata(3)
89	HWK13101	05.11.1996	260309	6474256	30	Plain	plain (incl undulating)	loam	*Critesion murinum ssp. glaucum(4),*Avena barbata(4)
89	HWK13201	05.11.1996	254679	6476526	57	Hills	hill slope	loam/sand	Eucalyptus gracilis(2),Callitris glaucophylla(1),Eucalyptus odorata(T)
89	HWK17101	05.11.1996	245188	6464393	57	Hills	hill crest	loam/sand	Eucalyptus porosa(2),Callitris glaucophylla(1)
89	HWK18101	06.11.1996	250518	6466625	57	Hills	hill crest	loam/sand	Callitris glaucophylla(1)
89	HWK18201	06.11.1996	248495	6468624	37	Plain	depression	loam/sand	Muehlenbeckia florulenta(2),Eragrostis australasica(2)
89	HWK21101	07.11.1996	225346	6462387	8	Hills	hill slope	not recorded	Maireana astrotricha(3)
89	HWK22101	06.11.1996	234352	6462866	33	Plain	plain (incl undulating)	clay/sand/loam	Maireana pyramidata(2)
89	HWK25101	06.11.1996	253297	6461821	61	Hills	hill footslope	loam/sand	Casuarina pauper(2)
89	PTO01101	09.10.1996	312547	6401973	30	Plain	plain (incl undulating)	clay/loam	Acacia victoriae ssp. victoriae(1)
89	PTO05101	08.10.1996	347238	6399059	59	Hills	hill slope	loam/sand	Eucalyptus socialis(2)
89	PTO07101	08.10.1996	312883	6394005	41	Rises	plain (incl undulating)	loam/sand	Eucalyptus socialis(2),Eucalyptus gracilis(2)
89	PTO07201	08.10.1996	315820	6392172	49	Plain	plain (incl undulating)	silt/clay/loam	Acacia victoriae ssp. victoriae(1)
89	PTO08101	08.10.1996	326269	6395895	45	Hills	hill crest	loam/sand	Maireana sedifolia(2),Maireana pyramidata(1)
89	PTO11101	08.10.1996	346945	6393076	41	Low hills	hill slope	loam/sand	Maireana pyramidata(1)
89	PTO11201	08.10.1996	347802	6390770	8	Hills	hill slope	loam/sand	Maireana sedifolia(2),Maireana pyramidata(1)
89	PTO11301	08.10.1996	347796	6390958	31	Hills	hill slope	loam/sand	Casuarina pauper(2)
89	PTO14201	08.10.1996	328724	6382543	45	Rises	plain (incl undulating)	clay/sand/loam	*Carrichtera annua(4),*Bromus rubens(4)
89	PTO16101	07.10.1996	340709	6386910	32	Plain	plain (incl undulating)	loam/sand	Eremophila sturtii(1),Acacia victoriae ssp. victoriae(T)
89	PTO17101	07.10.1996	349887	6386222	32	Plain	plain (incl undulating)	loam/sand	Eremophila sturtii(1)
89	PTO17201	07.10.1996	350501	6384882	8	Low hills	hill slope	loam/sand	*Carrichtera annua(4),*Asphodelus fistulosus(1)
89	PTO20101	08.10.1996	322849	6378659	42	Low hills	plain (incl undulating)	clay/loam	Eucalyptus socialis(2),Eucalyptus gracilis(1)
89	PTO23101	07.10.1996	348966	6378920	30	Plain	plain (incl undulating)	loam/sand	Maireana pyramidata(3),Rhagodia spinescens(T)
89	PTO23201	07.10.1996	348300	6378600	1	Hills	hill slope	not recorded	Maireana pyramidata(2)
89	PTO25101	05.10.1996	318726	6372832	30	Plain	plain (incl undulating)	clay/loam	Senna artemisioides ssp. petiolaris(2),Acacia rigens(T)
89	PTO26101	06.10.1996	320866	6374748	42	Rises	plain (incl undulating)	loam	Eucalyptus gracilis(2),Eucalyptus socialis(2),Eucalyptus brachycalyx(T)
89	PTO27101	06.10.1996	330237	6373569	60	Hills	hill slope	loam	Ptilotus obovatus var.(1),Cymbopogon ambiguus(T),Dodonaea viscosa ssp. angustissima(N)
89	PTO29201	07.10.1996	343175	6369286	1	Hills	hill slope	clay/loam	Sida petrophila(1),Dodonaea lobulata(T)
89	PTO30101	07.10.1996	355431	6369782	45	Low hills	ridge	loam/sand	Maireana sedifolia(2),Maireana pyramidata(1)
89	PTO32101	05.10.1996	316511	6365222	60	Hills	hill slope	silt/clay/loam	Dodonaea lobulata(3),Acacia rigens(2)
89	PTO34101	06.10.1996	334359	6365056	60	Low hills	hill crest	clay/loam	Dodonaea viscosa ssp. angustissima(T)
89	PTO37101	07.10.1996	352821	6363126	31	Low hills	hill slope	clay/loam	Atriplex vesicaria ssp.(3)
89	PTO39101	05.10.1996	323525	6355944	49	Low hills	hill slope	loam	*Critesion murinum ssp. glaucum(3),*Bromus rubens(2)
89	PTO40101	06.10.1996	335517	6360534	31	Rises	hill slope	clay/sand/loam	Eucalyptus socialis(2),Eucalyptus gracilis(2)
89	PTO44101	07.10.1996	355403	6360753	45	Plain	plain (incl undulating)	clay/loam	Maireana pyramidata(2)
89	PTO45101	05.10.1996	315452	6350844	60	Rises	plain (incl undulating)	clay/loam	Eucalyptus porosa(2),Eucalyptus socialis(2),Eucalyptus gracilis(1)

Appendix 2 (continued)

89	PTO45201	05.10.1996	320784	6350809	60	Low hills	hill footslope	clay/loam	Senna artemisioides ssp. petiolaris(2),Acacia calamifolia(2),Acacia wilhelmiana(1)
89	PTO46101	05.10.1996	324948	6349359	49	Alluvial plain	plain (incl undulating)	silt/clay/loam	*Critesion murinum ssp. glaucum(3),*Vulpia myuros forma(3)
89	PTO48101	06.10.1996	338729	6353913	42	Flood plain	plain (incl undulating)	not recorded	Eucalyptus socialis(2),Eucalyptus gracilis(2)
89	PTO48201	06.10.1996	338625	6349491	42	Low hills	hill slope	loam	Eucalyptus gracilis(2),Eucalyptus socialis(1)
89	PTO48301	06.10.1996	345149	6350648	31	Plain	plain (incl undulating)	loam	Maireana sedifolia(2),Maireana pyramidata(1)
89	PTO49101	06.10.1996	354559	6350631	31	Plain	plain (incl undulating)	clay/loam	Lycium australe(2),Rhagodia spinescens(1)
89	WPN01101	04.11.1996	272558	6479889	47	Low hills	hill slope	loam	*Asphodelus fistulosus(2),*Bromus rubens(2)
89	WPN01301	05.11.1996	272479	6480749	60	Hills	hill slope	clay/sand/loam	Callitris glaucophylla(2)
89	WPN03101	04.11.1996	283316	6479886	60	Hills	hill crest	loam	Callitris glaucophylla(3)
89	WPN03201	04.11.1996	280550	6482840	11	Low hills	ridge	loam	Dodonaea lobulata(1)
89	WPN05101	04.11.1996	296756	6482951	45	Low hills	hill slope	loam	Ptilotus obovatus var.(2),Sida petrophila(1)
89	WPN06101	04.11.1996	303005	6482435	45	Low hills	hill slope	loam	Eriochiton sclerolaenoides(2),Danthonia caespitosa(1),Enneapogon avenaceus(1)
89	WPN11101	04.11.1996	291421	6478747	60	Hills	hill slope	loam	Callitris glaucophylla(2),Eucalyptus socialis(1)
89	WPN11201	04.11.1996	293022	6478325	55	Low hills	hill crest	loam/sand	Eucalyptus socialis(2),Eucalyptus porosa(1)
89	WPN11301	03.11.1996	293823	6476519	55	Low hills	hill slope	clay/loam	Eucalyptus porosa(2)
89	WPN11401	04.11.1996	297214	6476681	43	Low hills	hill crest	loam/sand	Casuarina pauper(3)
89	WPN14101	05.11.1996	268083	6466912	47	Plain	plain (incl undulating)	clay/loam	*Medicago minima var. minima(5),*Critesion murinum ssp. glaucum(3),*Medicago polymorpha var. polymorpha(1)
89	WPN16101	05.11.1996	276696	6468095	61	Hills	hill slope	loam	Eucalyptus porosa(3),Eucalyptus gracilis(2)
89	WPN16201	05.11.1996	280883	6467304	69	Hills	hill slope	clay/sand/loam	Triodia scariosa ssp. bunicola(5)
89	WPN17101	05.11.1996	286023	6468880	60	Rises	plain (incl undulating)	loam/sand	Eucalyptus porosa(3),Eucalyptus gracilis(2)
89	WPN19101	03.11.1996	300158	6468899	7	Low hills	hill slope	loam/sand	*Asphodelus fistulosus(4),Zygophyllum aurantiacum ssp. verticillatum(2)
89	WPN26101	03.11.1996	297364	6460926	18	Low hills	hill crest	loam	Zygophyllum aurantiacum (NC)(3)
98	ARO00101	04.12.1997	242660	6620560	6	Hills	hill slope	clay/sand/loam	Casuarina pauper(2),Myoporum platycarpum ssp.(T)
98	ARO00102	04.12.1997	242570	6620330	25	Hills	plain (incl undulating)	clay/sand/loam	
98	ARO00103	04.12.1997	242670	6620710	6	Hills	hill slope	clay/sand/loam	Eucalyptus socialis(2)
98	ARO00201	04.12.1997	242920	6621470	41	Low hills	gully	clay/sand/loam	Eucalyptus socialis(2)
98	ARO00202	04.12.1997	242620	6621980	41	Low hills	stream channel	clay/sand/loam	Eucalyptus socialis(2)
98	ARO00301	04.12.1997	243360	6620810	27	Plain	plain (incl undulating)	clay/sand/loam	
98	ARO00302	04.12.1997	243900	6621400	6	Low hills	hill crest	clay/sand/loam	
98	ARO00303	04.12.1997	243300	6620800	41	Plain	plain (incl undulating)	clay/sand/loam	Eucalyptus socialis(2)
98	ARO00401	05.12.1997	247700	6613500	1	Hills	hill slope	clay/sand/loam	Triodia irritans(2),Eremophila freelingii(1)
98	ARO00402	05.12.1997	247600	6613550	1	Hills	stream channel	clay/sand/loam	Eucalyptus camaldulensis var.(T)
98	ARO00403	05.12.1997	247920	6613700	29	Hills	hill slope	clay	Halosarcia halocnemoides ssp.(2)
98	ARO00404	05.12.1997	248240	6613790	25	Hills	hill slope	clay/sand/loam	Dodonaea microzyga var. microzyga(2),Ptilotus obovatus var.(1)
98	ARO00501	03.12.1997	247500	6622100	26	Rises	stony plain	loam/sand	Maireana astrotricha(1),Atriplex vesicaria ssp.(1)
98	ARO00601	03.12.1997	252400	6614700	25	Flood plain	flood out	clay/sand	Halosarcia halocnemoides ssp.(2),Maireana pyramidata(2),Rhagodia spinescens(2)
98	ARO00701	03.12.1997	249300	6609800	6	Hills	hill crest	loam/sand	Acacia aneura var.(T)
98	ARO00702	03.12.1997	249200	6609600	2	Hills	plain (incl undulating)	loam/sand	Casuarina pauper(2)
98	ARO00703	06.12.1997	249200	6610200	14	Hills	stream channel	clay/sand	Eucalyptus camaldulensis var.(2)
98	ARO00801	05.12.1997	245610	6612140	15	Hills	stream channel	clay/sand	Eucalyptus camaldulensis var.(1)
98	ARO00802	05.12.1997	246260	6612720	50	Hills	stream channel	clay/sand	Eucalyptus camaldulensis var.(1)
98	ARO00803	05.12.1997	245510	6612950	2	Hills	stony plain	clay/loam	Ptilotus obovatus var.(1)
98	ARO00804	05.12.1997	246400	6612580	1	Hills	hill slope	clay/sand/loam	Eremophila freelingii(2)
98	ARO00901	11.12.1997	246400	6613600	56	Hills	hill crest	loam/sand	Triodia irritans(3)
98	ARO00902	11.12.1997	246430	6613770	1	Hills	gully	sand	Casuarina pauper(2)
98	COF00101	09.12.1997	258400	6617700	14	Low hills	stream channel	loam/sand	Melaleuca glomerata(3)
98	COF00102	09.12.1997	258440	6617680	6	Low hills	hill footslope	loam/sand	Acacia victoriae ssp.(2)
98	COF00103	11.12.1997	258280	6617610	14	Low hills	stream channel	clay/sand	Eucalyptus camaldulensis var.(3)
98	COF00201	09.12.1997	262190	6621230	29	Hills	hill slope	loam/sand	Casuarina pauper(2)
98	COF00202	09.12.1997	262200	6621200	6	Hills	hill slope	loam/sand	Dodonaea microzyga var. microzyga(1)
98	COF00203	09.12.1997	262260	6621210	41	Hills	hill slope	loam/sand	Eucalyptus socialis(3)
98	COF00301	09.12.1997	263140	6621050	41	Hills	hill slope	clay/sand	Eucalyptus socialis(3)
98	COF00302	09.12.1997	263150	6621070	6	Hills	rock outcrop (on)	loam/sand	Eremophila freelingii(3)
98	COF00401	09.12.1997	265810	6619700	14	Low hills	stream channel	loam/sand	Eucalyptus camaldulensis var.(3)
98	COF00402	09.12.1997	265860	6619760	7	Low hills	hill crest	loam/sand	Acacia aneura var.(1)
98	COF00403	09.12.1997	265710	6619700	25	Low hills	hill slope	loam/sand	Maireana astrotricha(2)
98	COF00501	08.12.1997	268400	6617500	27	Rises	plain (incl undulating)	silt/loam	Atriplex vesicaria ssp.(3)
98	COF00502	08.12.1997	268590	6617540	25	Rises	depression	loam/sand	Santalum lanceolatum(2)
98	COF00601	10.12.1997	271920	6617150	1	Low hills	hill crest	not recorded	Sida petrophila(3)
98	COF00602	10.12.1997	271890	6617120	6	Low hills	hill slope	clay/sand/loam	Maireana astrotricha,Atriplex vesicaria ssp.
98	COF00603	10.12.1997	271880	6617030	15	Low hills	stream channel	clay/sand/loam	Melaleuca glomerata(3)
98	COF00701	10.12.1997	274850	6614980	29	Low hills	hill slope	clay/sand/loam	Sclerolaena divaricata(2)
98	COF00702	10.12.1997	274940	6615050	29	Low hills	hill slope	clay/sand/loam	Casuarina pauper(2)
98	COF00703	10.12.1997	275060	6615340	14	Low hills	stream channel	clay/sand/loam	Eucalyptus camaldulensis var.(2)
98	COF00704	10.12.1997	274700	6614640	7	Low hills	hill slope	clay/loam	Eremophila freelingii(2)
98	COF00801	08.12.1997	275760	6613840	30	Rises	depression	silt/loam	Acacia victoriae ssp.(1)
98	COF00802	10.12.1997	275760	6613880	30	Rises	hill slope	clay/sand/loam	Atriplex vesicaria ssp.(3)
98	COF00803	10.12.1997	275980	6613690	1	Rises	rock outcrop (on)	clay/sand/loam	Sida petrophila(2)
98	DEC00101	04.12.1997	225300	6594700	6	Hills	hill slope	clay/sand/loam	Eremophila freelingii(2)
98	DEC00102	05.12.1997	225200	6594900	21	Dunefield	dune	sand	Senna artemisioides nothossp. coriacea(T),Senna artemisioides ssp. petiolaris(T),Acacia ligulata(T)
98	DEC00201	04.12.1997	224200	6592800	21	Dunefield	dune	sand	Senna artemisioides ssp. petiolaris(2),Acacia ligulata(2)
98	DEC00301	05.12.1997	227700	6590800	28	Rises	hill slope	clay/sand	Maireana pyramidata(T),Atriplex vesicaria ssp.(T),Maireana astrotricha(T)
98	DEC00401	05.12.1997	232900	6592700	54	Plain	stony plain	clay/sand/loam	Eremophila duttonii(T)
98	DEC00402	06.12.1997	232500	6592300	23	Plain	depression	clay/sand/loam	Acacia victoriae ssp.(2),Acacia tetragonophylla(2)
98	DEC00501	05.12.1997	232800	6590000	54	Plain	stony plain	clay/sand	Maireana aphylla(2)
98	DEC00601	04.12.1997	239700	6591800	6	Plain	stony plain	clay	Sclerolaena divaricata(2)
98	DEC00602	04.12.1997	239400	6592000	1	Rises	depression	loam/sand	Eremophila freelingii(2),Acacia tetragonophylla(2)
98	DEC00701	04.12.1997	240300	6593800	1	Rises	hill slope	loam/sand	Acacia tetragonophylla(2),Acacia victoriae ssp.(2),Acacia aneura var.(2)
98	DEC00702	04.12.1997	239800	6593700	1	Rises	gully	loam/sand	Melaleuca glomerata(3)
98	DEC00801	05.12.1997	240100	6596300	2	Hills	hill slope	loam/sand	Acacia victoriae ssp.(2),Acacia tetragonophylla(2)
98	PUT00101	09.12.1997	263700	6605500	25	Low hills	plain (incl undulating)	loam/sand	Atriplex vesicaria ssp.(3)
98	PUT00102	09.12.1997	263700	6605600	25	Low hills	stream channel	loam/sand	Acacia victoriae ssp.(1)
98	PUT00103	09.12.1997	263300	6605700	7	Low hills	rock outcrop (on)	loam/sand	Maireana astrotricha(2),Atriplex vesicaria ssp.(2),Maireana pyramidata(N)
98	PUT00201	09.12.1997	264200	6602800	25	Low hills	stream channel	loam	Eucalyptus camaldulensis var.(2)
98	PUT00202	09.12.1997	264300	6602900	25	Low hills	flood out	clay/loam	Rhagodia spinescens(2),Maireana pyramidata(2)
98	PUT00203	09.12.1997	263200	6603000	25	Low hills	stony plain	clay/sand/loam	Atriplex vesicaria ssp.(3)
98	PUT00301	10.12.1997	254200	6606300	6	Hills	hill slope	loam	Maireana sedifolia(2),Ptilotus obovatus var.(2)

Appendix 2 (continued)

98	PUT00302	10.12.1997	254300	6606400	25	Hills	stony plain	loam/sand	Atriplex vesicaria ssp.(2),Maireana astrotricha(2),Maireana pyramidata(T)
98	PUT00303	10.12.1997	254500	6606500	4	Hills	stream channel	loam/sand	Eucalyptus camaldulensis var.(2),Casuarina pauper(T)
98	PUT00401	10.12.1997	254700	6598000	6	Hills	hill slope	loam/sand	Casuarina pauper(2),Alectryon oleifolius ssp. canescens(T)
98	PUT00402	10.12.1997	254800	6598400	6	Hills	stony plain	loam	Atriplex vesicaria ssp.(3),Maireana astrotricha(2)
98	PUT00501	11.12.1997	259300	6592800	25	Flood plain	flood out	loam/sand	Acacia victoriae ssp.(2)
98	PUT00502	11.12.1997	259100	6592800	25	Flood plain	stream channel	sand	Eucalyptus camaldulensis var.(2),Melaleuca glomerata(1)
98	PUT00503	11.12.1997	258700	6592700	25	Plain	stony plain	clay/loam	Atriplex velutinella(2),Minuria cunninghamii
98	PUT00601	11.12.1997	261100	6593000	25	Plain	stony plain	clay	Atriplex vesicaria ssp.(3),Maireana astrotricha(2),Maireana pyramidata(T)
98	PUT00701	10.12.1997	251600	6599300	6	Hills	hill crest	loam	Triodia irritans(3),Ptilotus obovatus var.(2)
98	PUT00702	10.12.1997	251500	6599300	7	Hills	hill slope	loam	Maireana astrotricha(2)
98	PUT00703	10.12.1997	251800	6599200	26	Hills	stream channel	loam/sand	Acacia victoriae ssp.(1),Alectryon oleifolius ssp. canescens(T)
98	PUT00801	10.12.1997	250700	6599300	29	Plain	stony plain	clay	Atriplex vesicaria ssp.(3),Sclerolaena divaricata(2)
PMB	PMB1130		348000	6585300	28	Plain	plain (incl undulating)	clay/sand	
PMB	PMB1312				12				
PMB	PMB1313				25				
PMB	PMB1419				40				
PMB	PMB1431				18				
PMB	PMB1432				18				
PMB	PMB1433				25				
PMB	PMB1434				47				
PMB	PMB1490				18				
PMB	PMB1491				25				
PMB	PMB1492				25				
PMB	PMB1493		309840	6515970	25	Plain	plain (incl undulating)	not recorded	
PMB	PMB1494				18				
PMB	PMB1495				25				
PMB	PMB1496				25				
PMB	PMB1517				2				
PMB	PMB1518				25				
PMB	PMB1519				54				
PMB	PMB1520				5				
PMB	PMB1521				14				
PMB	PMB1522				27				
PMB	PMB1523		366450	6686250	1	Rises	hill slope	not recorded	
PMB	PMB1524				28				
PMB	PMB1525		346500	6683500	37	Plain	plain (incl undulating)	not recorded	
PMB	PMB1526				2				
PMB	PMB1527				2				
PMB	PMB1528				18				
PMB	PMB1529				18				
PMB	PMB1530				23				
PMB	PMB1631		319500	6654300	18	Low hills	hill slope	not recorded	
PMB	PMB1632				28				
PMB	PMB1642				25				
PMB	PMB1643				27				
PMB	PMB1644				18				
PMB	PMB1645				2				
PMB	PMB1646				2				
PMB	PMB1647				29				
PMB	PMB1648				25				
PMB	PMB1649				29				
PMB	PMB1650				25				
PMB	PMB1653				25				
PMB	PMB1654				6				
PMB	PMB1655				41				
PMB	PMB1656				29				
PMB	PMB1657				25				
PMB	PMB1658				25				
PMB	PMB1659				2				
PMB	PMB1660				12				
PMB	PMB1661				30				
PMB	PMB1662				1				
PMB	PMB1663				25				
PMB	PMB1670				25				
PMB	PMB1671				1				
PMB	PMB1672				18				
PMB	PMB1673				2				
PMB	PMB1674				28				
PMB	PMB1675				28				
PMB	PMB1676				28				
PMB	PMB1677				6				
PMB	PMB1679				28				
PMB	PMB1680		326400	6654700	18	Low hills	hill slope	not recorded	
PMB	PMB1681				2				
PMB	PMB1682				18				
PMB	PMB1683				58				
PMB	PMB1684				58				
PMB	PMB1685				47				
PMB	PMB1686				32				
PMB	PMB1687				12				
PMB	PMB1688				18				
PMB	PMB1689				3				
PMB	PMB1690				37				
PMB	PMB1691				30				
PMB	PMB1692				30				
PMB	PMB1693				27				
PMB	PMB1694				29				
PMB	PMB1695				29				
PMB	PMB1696				26				
PMB	PMB1697				7				
PMB	PMB1715				12				
PMB	PMB1716				46				
PMB	PMB1717				29				
PMB	PMB1718				29				
PMB	PMB1719				17				

Appendix 2 (continued)

PMB	PMB1720				24				
PMB	PMB1722		266200	6628300	35	Alluvial plain	plain (incl undulating)	clay/sand	
PMB	PMB1764				29				
PMB	PMB1765				8				
PMB	PMB1766				24				
PMB	PMB1767				26				
PMB	PMB1768				24				
PMB	PMB1769				2				
PMB	PMB1770				24				
PMB	PMB1771				4				
PMB	PMB1772				18				
PMB	PMB1773				59				
PMB	PMB1774				1				
PMB	PMB1775				1				
PMB	PMB1776				2				
PMB	PMB1777				5				
PMB	PMB1778				2				
PMB	PMB1779				23				
PMB	PMB1780				5				
PMB	PMB1781				23				
PMB	PMB1782				2				
PMB	PMB1783				25				
PMB	PMB1784				27				
PMB	PMB1785				25				
PMB	PMB1786				2				
PMB	PMB1787				25				
PMB	PMB1788				25				
PMB	PMB1789				25				
PMB	PMB1790				5				
PMB	PMB1791				47				
PMB	PMB1792				47				
PMB	PMB1793		302100	6699700	12	Hills	hill crest	not recorded	
PMB	PMB1794				47				
PMB	PMB1795				58				
PMB	PMB1796				58				
PMB	PMB1797		289300	6604700	58	Hills	hill slope	not recorded	
PMB	PMB1798				58				
PMB	PMB1799				2				
PMB	PMB1854				29				
PMB	PMB1855				25				
PMB	PMB1856				25				
PMB	PMB1857				25				
PMB	PMB1858				6				
PMB	PMB1859				6				
PMB	PMB1860				25				
PMB	PMB1861				25				
PMB	PMB1862				18				
PMB	PMB1863				25				
PMB	PMB1864				16				
PMB	PMB1865				16				
PMB	PMB1866				3				
PMB	PMB1867		295000	6626900	1	Rises	hill crest	not recorded	
PMB	PMB1868				1				
PMB	PMB1869				18				
PMB	PMB1870				53				
PMB	PMB1871				5				
PMB	PMB1872				25				
PMB	PMB1873				5				
PMB	PMB1874				23				
PMB	PMB1875				53				
PMB	PMB1876				38				
PMB	PMB1877				6				
PMB	PMB1878				18				
PMB	PMB1879				25				
PMB	PMB1880				18				
PMB	PMB1881				6				
PMB	PMB1944				29				
PMB	PMB1945				27				
PMB	PMB1946				29				
PMB	PMB1947				6				
PMB	PMB1950				25				
PMB	PMB1957				25				
PMB	PMB1958				26				
PMB	PMB1959				2				
PMB	PMB1960				18				
PMB	PMB1961				18				
PMB	PMB1962				3				
PMB	PMB1963				14				
PMB	PMB1964				25				
PMB	PMB1965				2				
PMB	PMB1966				2				
PMB	PMB1967				2				
PMB	PMB1968				17				
PMB	PMB1970				41				
PMB	PMB1971				17				
PMB	PMB1972				18				
PMB	PMB1973				28				
PMB	PMB1974				47				
PMB	PMB1975				53				
PMB	PMB1976				11				
PMB	PMB1977				12				
PMB	PMB1978				11				
PMB	PMB1979		277200	6582100	11	Hills	hill slope	not recorded	
PMB	PMB1980				13				
PMB	PMB1981				13				
PMB	PMB1982				12				

Appendix 2 (continued)

PMB	PMB1983				1				
PMB	PMB1984				25				
PMB	PMB1985				3				
PMB	PMB1986				29				
PMB	PMB1987				25				
PMB	PMB1988				29				
PMB	PMB2921		294900	6629600	11	Hills	plain (incl undulating)	not recorded	
PMB	PMB3936				2				
PMB	PMB3937		282700	6578700	47	Low hills	plain (incl undulating)	not recorded	
PMB	PMB3938				47				
PMB	PMB3939				18				
PMB	PMB3940				40				
PMB	PMB3941				47				
PMB	PMB3942				18				
PMB	PMB3943				47				
PMB	PMB4051				5				
PMB	PMB4052				2				
PMB	PMB4053				7				
PMB	PMB4054				7				
PMB	PMB4055				16				
PMB	PMB4056				6				
PMB	PMB4057				25				
PMB	PMB4058				5				
PMB	PMB4059				6				
PMB	PMB4060				6				
PMB	PMB4062				2				
PMB	PMB4063				41				
PMB	PMB4064				6				
PMB	PMB4138		318200	6665000	18	Rises		not recorded	
PMB	PMB4139		303700	6649200	28	Alluvial plain	hill slope	not recorded	
PMB	PMB4144		313400	6641200	11	low hills	hill slope	not recorded	
PMB	PMB4145		296900	6641400	25	Hills	hill slope	sand	
PMB	PMB4146		292400	6654300	28	Plain	depression	not recorded	
PMB	PMB4147		299700	6651200	28	low hills	hill slope	not recorded	
PMB	PMB4148		320100	6640900	4	Rises	hill slope	not recorded	
PMB	PMB4149		306000	6636700	47	low hills	hill slope	not recorded	
PMB	PMB4150		310700	6637800	25	Rises	hill slope	not recorded	
PMB	PMB4170		304300	6643100	39	Plain	plain (incl undulating)	not recorded	
PMB	PMB4304		284475	6596582	11	Plain	hill slope	not recorded	
PMB	PMB4305				27				
PMB	PMB4306	10.10.1990	333300	6621600	27	Low hills	hill slope	clay/sand/loam	Acacia aneura (NC)(T)
PMB	PMB4306		271600	6599000	27	Rises	plain (incl undulating)	not recorded	
PMB	PMB4307		267600	6608600	27	Plain	plain (incl undulating)	not recorded	
PMB	PMB4307	10.10.1990	335300	6622850	27	Alluvial plain	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(1)
PMB	PMB4308	10.10.1990	333700	6624100	27	Low hills	hill footslope	loam/sand	Eremophila duttonii(1)
PMB	PMB4309	10.10.1990	334900	6624900	25	Drainage line	plain (incl undulating)	loam/sand	Acacia victoriae ssp. victoriae(T)
PMB	PMB4310	10.10.1990	336600	6622650	1	Rises	hill footslope	loam/sand	Acacia victoriae ssp. victoriae(T)
PMB	PMB4310		273300	6617700	1	Low hills	hill slope	not recorded	
PMB	PMB4311	10.10.1990	336650	6623500	29	Rises	hill footslope	clay/loam	Astrebla pectinata(1)
PMB	PMB4311		274800	6614900	29	Plain	plain (incl undulating)	not recorded	
PMB	PMB4313	11.10.1990	336300	6617000	25	Plain	plain (incl undulating)	loam/sand	Sclerolaena longicuspis(T),Astrebla pectinata(T)
PMB	PMB4313		270200	6611800	25	Plain	plain (incl undulating)	not recorded	
PMB	PMB4314	11.10.1990	336400	6618200	25	Plain	plain (incl undulating)	loam/sand	Sclerolaena longicuspis(T),Astrebla pectinata(T)
PMB	PMB4314		265000	6603100	25	Rises	hill slope	not recorded	
PMB	PMB4315		262600	6605100	25	Rises	hill slope	not recorded	
PMB	PMB4315	11.10.1990	334800	6620000	25	Plain	hill footslope	loam/sand	Maireana sedifolia(T)
PMB	PMB4316	11.10.1990	338100	6611700	59	Plain	hill footslope	clay/sand/loam	Senna artemisioides nothossp. sturtii(T),Senna artemisioides nothossp. coriacea(T)
PMB	PMB4650		268800	6565560	47	Plain	plain (incl undulating)	not recorded	
PMB	PMB4651		274400	6574100	12	Plain	hill slope	not recorded	
PMB	PMB4652		278300	6573160	12	Rises	hill slope	not recorded	
PMB	PMB4653		273500	6568400	11	Low hills	hill slope	not recorded	
PMB	PMB4654		260000	6568700	1	Rises	hill slope	not recorded	
PMB	PMB4655		263900	6566400	7	Rises	hill slope	not recorded	
PMB	PMB4656				26				
PMB	PMB4657		253900	6563900	7	Plain	plain (incl undulating)	not recorded	
PMB	PMB4658				29				
PMB	PMB4659				6				
PMB	PMB4660				25				
PMB	PMB4661		264900	6588500	29	Plain	plain (incl undulating)	not recorded	
PMB	PMB4662				25				
PMB	PMB4663		264100	6571700	25	Rises	hill slope	not recorded	
PMB	PMB4664		265400	6573200	18	Rises	hill slope	not recorded	
PMB	PMB4665		352700	6640600	54	Plain	plain (incl undulating)	silt/clay/sand	
PMB	PMB4666		358100	6647500	54	Plain	plain (incl undulating)	silt/clay/sand	
PMB	PMB4667		356400	6648800	54	Plain	plain (incl undulating)	silt/clay/sand	
PMB	PMB4668		352200	6655200	24	Plain	plain (incl undulating)	clay	
PMB	PMB4669		363500	6651400	54	Plain	hill slope	clay/sand	
PMB	PMB4670		362100	6661100	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4671		368000	6660100	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4672		380100	6671100	54	Flood plain	plain (incl undulating)	not recorded	
PMB	PMB4673		383900	6659300	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4674		390600	6654800	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4675		391800	6662000	19	Dunefield	hill crest	sand	
PMB	PMB4676		383000	6651300	19	Sand plain	plain (incl undulating)	sand	
PMB	PMB4677		388100	6646000	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4678		382500	6643100	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4679		375500	6636300	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4680		373300	6631000	23	Sand plain	plain (incl undulating)	silt/sand	
PMB	PMB4681		372500	6629000	23	Sand plain	plain (incl undulating)	silt/sand	
PMB	PMB4682		378500	6627700	23	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4683		366800	6618100	23	Rises	plain (incl undulating)	silt/sand	
PMB	PMB4684				26				
PMB	PMB4685				24				

Appendix 2 (continued)

PMB	PMB4686		352900	6625600	26	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4687		363000	6626800	23	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4688		365900	6634900	19	Dunefield	hill crest	silt/sand	
PMB	PMB4689		360300	6638200	19	Plain	plain (incl undulating)	silt/sand	
PMB	PMB4690		364500	6644900	54	Flood plain	plain (incl undulating)	not recorded	
PMB	PMB4691		357700	6631600	22	Flood plain	plain (incl undulating)	silt/sand	
PMB	PMB4692		340400	6632700	24	Alluvial plain	plain (incl undulating)	clay	
PMB	PMB4693		336800	6626100	23	Rises	hill slope	clay	
PMB	PMB4694		404300	6691400	19	Drainage line	plain (incl undulating)	not recorded	
PMB	PMB4695		388300	6696750	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4696		399400	6689300	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4697		392450	6692750	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4698		379900	6687600	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4699		380150	6687950	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4704				25				
PMB	PMB4705		258600	6633700	26	Rises	plain (incl undulating)	not recorded	
PMB	PMB4706		260400	6636900	26	Plain	plain (incl undulating)	not recorded	
PMB	PMB4707		271500	6643500	25	Rises	hill slope	not recorded	
PMB	PMB4708		264200	6641700	26	Plain	plain (incl undulating)	not recorded	
PMB	PMB4709		255800	6639900	53	Plain	plain (incl undulating)	not recorded	
PMB	PMB4710		252500	6638000	29	Plain	plain (incl undulating)	not recorded	
PMB	PMB4711		252400	6631000	25	Sand plain	hill slope	not recorded	
PMB	PMB4712		256700	6629700	29	Plain	plain (incl undulating)	not recorded	
PMB	PMB4713		260100	6617600	25	Low hills	hill slope	not recorded	
PMB	PMB4714		257000	6617200	28	Rises	hill slope	not recorded	
PMB	PMB4860		255100	6620100	7	Low hills	hill slope	not recorded	
PMB	PMB4861		222980	6653500	28	Plain	plain (incl undulating)	clay	
PMB	PMB4862		235300	6656500	28	Sand plain	plain (incl undulating)	not recorded	
PMB	PMB4863		235300	6656400	28	Sand plain	plain (incl undulating)	not recorded	
PMB	PMB4864		238900	6651400	28	Plain	plain (incl undulating)	not recorded	
PMB	PMB4865		231500	6644200	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB4866		245100	6631600	29	Hills	hill slope	not recorded	
PMB	PMB4867		245100	6631700	29	Hills	hill slope	not recorded	
PMB	PMB4868		243900	6619800	34	Plain	hill slope	not recorded	
PMB	PMB4869		237700	6637700	28	Rises	hill crest	not recorded	
PMB	PMB4870		238900	6641200	29	Rises	hill crest	not recorded	
PMB	PMB4871		244600	6638700	25	Plain	plain (incl undulating)	not recorded	
PMB	PMB4872		235400	6619400	54	Plain	hill slope	not recorded	
PMB	PMB5112		336250	6610050	6	Badlands	plain (incl undulating)	clay/sand	
PMB	PMB5113		350600	6605600	23	Sand plain	plain (incl undulating)	sand	
PMB	PMB5114		358600	6602250	23	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5115		358300	6602350	23	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5116		357900	6597100	23	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5117		354700	6598900	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5118		351700	6597300	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5119		354400	6592700	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5120		348550	6601350	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5121		324850	6566150	23	Flood plain	plain (incl undulating)	not recorded	
PMB	PMB5122		375650	6557300	26	Sand plain	plain (incl undulating)	clay/sand	
PMB	PMB5137		329600	6586900	1	Plain	plain (incl undulating)	not recorded	
PMB	PMB5138		337150	6577900	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5139		336700	6563950	23	Plain	plain (incl undulating)	not recorded	
PMB	PMB5140		347250	6567800	23	Flood plain	plain (incl undulating)	not recorded	
PMB	PMB5141				23				
PMB	PMB5142		357600	6557300	27	Plain	plain (incl undulating)	sand	
PMB	PMB5143		360300	6551900	27	Flood plain	plain (incl undulating)	sand	
PMB	PMB5145		363550	6546400	32	Sand plain	plain (incl undulating)	sand	
PMB	PMB5147		369800	6552800	32	Sand plain	hill slope	sand	
PMB	PMB5148		366650	6554750	27	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5149		359850	6561200	27	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5150		356400	6572350	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5335		385200	6681250	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB5336		383650	6679500	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5337		391800	6677900	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5338		391500	6676700	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5339		396900	6673800	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5340		396900	6673800	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5341		399400	6669850	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5342		405000	6674900	54	Plain	plain (incl undulating)	silt/sand	
PMB	PMB5343		402000	6681900	54	Plain	plain (incl undulating)	silt/clay	
PMB	PMB5344		398100	6680800	54	Plain	plain (incl undulating)	silt/clay	
PMB	PMB5345		394800	6682800	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB5346		385300	6689600	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB5347		374200	6694200	54	Rises	hill slope	not recorded	
PMB	PMB5348		365600	6698200	23	Plain	plain (incl undulating)	not recorded	
PMB	PMB5349				54				
PMB	PMB5351		345000	6581900	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5352		350650	6585400	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5353		341950	6585550	54	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5354		341950	6585500	53	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5355		335850	6589200	6	Rises	hill slope	clay/sand	
PMB	PMB5356		344500	6592700	54	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5357		343700	6596300	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5358		341500	6600450	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5359		335700	6596450	23	Rises	hill slope	clay/sand	
PMB	PMB5360		334200	6600400	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5361		334250	6605100	23	Plain	plain (incl undulating)	not recorded	
PMB	PMB5362		327800	6609350	2	Rises	hill slope	clay	
PMB	PMB5363		344400	6605400	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB5403		305700	6519900	25	Plain	plain (incl undulating)	not recorded	
PMB	PMB5404		287143	6518900	12	Hills	hill crest	not recorded	
PMB	PMB7001				11				
PMB	PMB7003				12				
PMB	PMB7006				22				
PMB	PMB7007				23				

Appendix 2 (continued)

PMB	PMB7008				23				
PMB	PMB7009				23				
PMB	PMB7010				36				
PMB	PMB7011				21				
PMB	PMB7012				23				
PMB	PMB7013				24				
PMB	PMB7014				23				
PMB	PMB7015				6				
PMB	PMB7016				16				
PMB	PMB7017		338672	6620019	54	Plain	plain (incl undulating)	not recorded	
PMB	PMB7018				54				
PMB	PMB7019				24				
PMB	PMB7020				24				
PMB	PMB7021				18				
PMB	PMB7022				14				
PMB	PMB7023				14				
PMB	PMB7024				11				
PMB	PMB7025				5				
PMB	PMB7026				5				
PMB	PMB7027				18				
PMB	PMB794		344600	6557550	23	Plain	plain (incl undulating)	sand	
PMB	PMB795		338450	6563600	23	Plain	plain (incl undulating)	not recorded	
PMB	PMB796		348000	6569700	23	Plain	plain (incl undulating)	not recorded	
PMB	PMB797		339850	6571250	23	Plain	plain (incl undulating)	clay/sand	
PMB	PMB798		336100	6572700	6	Plain	hill slope	clay/sand	
PMB	PMB799		328350	6584450	14	Rises	hill slope	not recorded	
PMB	PMB800		323900	6582100	26	Plain	plain (incl undulating)	not recorded	

APPENDIX 3. All plant taxa recorded at sites in Family order with updated and grouped names as used throughout this report.

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
ACANTHACEAE	*Rostellularia adscendens* ssp. *adscendens*	Rostellularia adscendens ssp. adscendens	pink tongue	16
ACANTHACEAE	*Rostellularia adscendens* ssp. *adscendens* var. *pogonanthera*	Rostellularia adscendens ssp. adscendens	pink tongue	42
ADIANTACEAE	*Adiantum aethiopicum*	Adiantum aethiopicum	common maiden-hair	2
ADIANTACEAE	*Anogramma leptophylla*	Anogramma leptophylla	annual fern	4
ADIANTACEAE	*Cheilanthes austrotenuifolia*	Cheilanthes austrotenuifolia	annual rock-fern	243
ADIANTACEAE	*Cheilanthes distans*	Cheilanthes distans	bristly cloak-fern	50
ADIANTACEAE	*Cheilanthes lasiophylla*	Cheilanthes lasiophylla	woolly cloak-fern	765
ADIANTACEAE	*Cheilanthes sieberi* ssp.	Cheilanthes sieberi ssp. sieberi	narrow rock-fern	43
ADIANTACEAE	*Cheilanthes sieberi* ssp. *sieberi*	Cheilanthes sieberi ssp. sieberi	narrow rock-fern	359
ADIANTACEAE	*Paraceterach reynoldsii*	Paraceterach reynoldsii	scaly rock-fern	67
AIZOACEAE	*Carpobrotus aequilaterus*	Carpobrotus aequilaterus	angled pigface	2
AIZOACEAE	*Carpobrotus rossii*	Carpobrotus rossii	native pigface	2
AIZOACEAE	*Disphyma crassifolium* ssp. *clavellatum*	Disphyma crassifolium ssp. clavellatum	round-leaf pigface	28
AIZOACEAE	*Galenia pubescens* var. *pubescens*	Galenia pubescens var. pubescens	coastal galenia	11
AIZOACEAE	*Galenia secunda*	Galenia secunda	galenia	2
AIZOACEAE	*Glinus lotoides*	Glinus lotoides	hairy carpet-weed	4
AIZOACEAE	*Gunniopsis calva*	Gunniopsis calva		2
AIZOACEAE	*Gunniopsis quadrifida*	Gunniopsis quadrifida	Sturt's pigface	22
AIZOACEAE	*Gunniopsis septifraga*	Gunniopsis septifraga	green pigface	2
AIZOACEAE	*Mesembryanthemum aitonis*	Mesembryanthemum aitonis	angled iceplant	2
AIZOACEAE	*Mesembryanthemum crystallinum*	Mesembryanthemum crystallinum	common iceplant	18
AIZOACEAE	*Mesembryanthemum nodiflorum*	Mesembryanthemum nodiflorum	slender iceplant	106
AIZOACEAE	*Sarcozona praecox*	Sarcozona praecox	sarcozona	6
AIZOACEAE	*Tetragonia eremaea*	Tetragonia eremaea	desert spinach	510
AIZOACEAE	*Tetragonia eremaea/tetragonoides*	Tetragonia eremaea/tetragonoides	native spinach	58
AIZOACEAE	*Tetragonia implexicoma*	Tetragonia implexicoma	bower spinach	10
AIZOACEAE	*Tetragonia tetragonioides*	Tetragonia tetragonioides	New Zealand spinach	706
AIZOACEAE	*Trianthema triquetra*	Trianthema triquetra	red spinach	45
AIZOACEAE	*Zaleya galericulata*	Zaleya galericulata	hogweed	10
AMARANTHACEAE	*Alternanthera denticulata*	Alternanthera denticulata	lesser joyweed	1
AMARANTHACEAE	*Alternanthera nodiflora*	Alternanthera nodiflora	common joyweed	2
AMARANTHACEAE	*Amaranthus albus*	Amaranthus albus	stiff tumbleweed	4
AMARANTHACEAE	*Ptilotus decipiens*	Ptilotus decipiens		10
AMARANTHACEAE	*Ptilotus erubescens*	Ptilotus erubescens	hairy-tails	4
AMARANTHACEAE	*Ptilotus exaltatus* var.	Ptilotus exaltatus var.	pink mulla mulla	289
AMARANTHACEAE	*Ptilotus exaltatus* var. *exaltatus*	Ptilotus exaltatus var.	pink mulla mulla	4
AMARANTHACEAE	*Ptilotus macrocephalus*	Ptilotus macrocephalus	feather-heads	6
AMARANTHACEAE	*Ptilotus nobilis* var.	Ptilotus nobilis var.	yellow-tails	20
AMARANTHACEAE	*Ptilotus nobilis* var. *angustifolius*	Ptilotus nobilis var.	yellow-tails	4
AMARANTHACEAE	*Ptilotus nobilis* var. *nobilis*	Ptilotus nobilis var.	yellow-tails	8
AMARANTHACEAE	*Ptilotus obovatus* var.	Ptilotus obovatus var.	silver mulla mulla	686
AMARANTHACEAE	*Ptilotus obovatus* var. *griseus*	Ptilotus obovatus var.	silver mulla mulla	9
AMARANTHACEAE	*Ptilotus obovatus* var. *obovatus*	Ptilotus obovatus var.	silver mulla mulla	197
AMARANTHACEAE	*Ptilotus obovatus*(NC)	Ptilotus obovatus var.	silver mulla mulla	1402
AMARANTHACEAE	*Ptilotus parvifolius* var.	Ptilotus parvifolius var.	small-leaf mulla mulla	3
AMARANTHACEAE	*Ptilotus parvifolius* var. *laetus*	Ptilotus parvifolius var.	small-leaf mulla mulla	10
AMARANTHACEAE	*Ptilotus seminudus*	Ptilotus seminudus	rabbit-tails	2
AMARANTHACEAE	*Ptilotus sessilifolius* var. *sessilifolius*	Ptilotus sessilifolius var. sessilifolius	crimson-tails	2
AMARANTHACEAE	*Ptilotus spathulatus forma*	Ptilotus spathulatus forma	pussy-tails	135
AMARANTHACEAE	*Ptilotus spathulatus forma spathulatus*	Ptilotus spathulatus forma	pussy-tails	240
AMARYLLIDACEAE	*Calostemma purpureum*	Calostemma purpureum	pink garland-lily	62
AMARYLLIDACEAE	*Crinum flaccidum*	Crinum flaccidum	Murray Lily	2
ANACARDIACEAE	*Schinus areira*	Schinus areira	pepper-tree	29
APOCYNACEAE	*Alyxia buxifolia*	Alyxia buxifolia	sea box	2
APOCYNACEAE	*Nerium oleander*	Nerium oleander	oleander	2
ASCLEPIADACEAE	*Cynanchum floribundum*	Cynanchum floribundum	desert cynanchum	15
ASCLEPIADACEAE	*Marsdenia australis*	Marsdenia australis	native pear	475
ASCLEPIADACEAE	*Rhyncharrhena linearis*	Rhyncharrhena linearis	climbing purple-star	24
ASCLEPIADACEAE	*Sarcostemma viminale* ssp. *australe*	Sarcostemma viminale ssp. australe	caustic bush	20
ASPLENIACEAE	*Asplenium flabellifolium*	Asplenium flabellifolium	necklace fern	3
ASPLENIACEAE	*Pleurosorus rutifolius*	Pleurosorus rutifolius	blanket fern	214
BLECHNACEAE	*Doodia caudata*	Doodia caudata	small rasp-fern	2
BORAGINACEAE	*Buglossoides arvensis*	Buglossoides arvensis	sheepweed	50
BORAGINACEAE	*Cynoglossum australe*	Cynoglossum australe	Australian hound's-tongue	9
BORAGINACEAE	*Cynoglossum suaveolens*	Cynoglossum suaveolens	sweet hound's-tongue	8
BORAGINACEAE	*Echium plantagineum*	Echium plantagineum	Salvation Jane	1065
BORAGINACEAE	*Halgania andromedifolia*	Halgania andromedifolia	scented blue-flower	2
BORAGINACEAE	*Halgania cyanea*	Halgania cyanea	rough blue-flower	48
BORAGINACEAE	*Heliotropium asperrimum*	Heliotropium asperrimum	rough heliotrope	50
BORAGINACEAE	*Heliotropium curassavicum*	Heliotropium curassavicum	smooth heliotrope	7

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
BORAGINACEAE	*Heliotropium europaeum*	Heliotropium europaeum	common heliotrope	138
BORAGINACEAE	*Neatostema apulum*	Neatostema apulum	hairy sheepweed	16
BORAGINACEAE	*Omphalolappula concava*	Omphalolappula concava	burr stickseed	703
BORAGINACEAE	*Plagiobothrys plurisepaleus*	Plagiobothrys plurisepaleus	white rochelia	18
BORAGINACEAE	*Trichodesma zeylanicum*	Trichodesma zeylanicum	camel bush	180
CACTACEAE	*Opuntia cylindrica*	Opuntia cylindrica	Cane cactus	2
CACTACEAE	*Opuntia microdasys*	Opuntia microdasys	bunny-ears	2
CACTACEAE	*Opuntia robusta*	Opuntia robusta	wheel pear	6
CACTACEAE	*Opuntia stricta* var. *stricta*	Opuntia stricta var. stricta	erect prickly pear	12
CAMPANULACEAE	*Isotoma petraea*	Isotoma petraea	rock isotome	42
CAMPANULACEAE	*Lobelia gibbosa*	Lobelia gibbosa	tall lobelia	14
CAMPANULACEAE	*Wahlenbergia aridicola*	Wahlenbergia aridicola	dryland bluebell	11
CAMPANULACEAE	*Wahlenbergia communis*	Wahlenbergia communis	tufted bluebell	254
CAMPANULACEAE	*Wahlenbergia gracilenta*	Wahlenbergia gracilenta	annual bluebell	195
CAMPANULACEAE	*Wahlenbergia luteola*	Wahlenbergia luteola	yellow-wash bluebell	456
CAMPANULACEAE	*Wahlenbergia multicaulis*	Wahlenbergia multicaulis	Tadgell's bluebell	8
CAMPANULACEAE	*Wahlenbergia queenslandica*	Wahlenbergia queenslandica		1
CAMPANULACEAE	*Wahlenbergia stricta* ssp. *stricta*	Wahlenbergia stricta ssp. stricta	tall bluebell	153
CAMPANULACEAE	*Wahlenbergia tumidifructa*	Wahlenbergia tumidifructa	swollen-fruit bluebell	61
CAPPARACEAE	*Capparis mitchellii*	Capparis mitchellii	native orange	88
CAPPARACEAE	*Cleome viscosa*	Cleome viscosa	tickweed	12
CARYOPHYLLACEAE	*Cerastium balearicum*	Cerastium balearicum	chickweed	1
CARYOPHYLLACEAE	*Cerastium glomeratum*	Cerastium glomeratum	common mouse-ear chickweed	36
CARYOPHYLLACEAE	*Gypsophila tubulosa*	Gypsophila tubulosa	annual chalkwort	35
CARYOPHYLLACEAE	*Herniaria cinerea*	Herniaria cinerea	rupturewort	80
CARYOPHYLLACEAE	*Minuartia mediterranea*	Minuartia mediterranea	slender sandwort	2
CARYOPHYLLACEAE	*Petrorhagia nanteuilii*	Petrorhagia nanteuilii		6
CARYOPHYLLACEAE	*Petrorhagia velutina*	Petrorhagia velutina	velvet pink	61
CARYOPHYLLACEAE	*Polycarpon tetraphyllum*	Polycarpon tetraphyllum	four-leaf allseed	36
CARYOPHYLLACEAE	*Sagina apetala*	Sagina apetala	annual pearlwort	16
CARYOPHYLLACEAE	*Scleranthus pungens*	Scleranthus pungens	prickly knawel	111
CARYOPHYLLACEAE	*Silene apetala*	Silene apetala	sand catchfly	6
CARYOPHYLLACEAE	*Silene gallica* var.	Silene gallica var.	French catchfly	32
CARYOPHYLLACEAE	*Silene gallica* var. *gallica*	Silene gallica var.	French catchfly	6
CARYOPHYLLACEAE	*Silene gallica* var. *gallica*(NC)	Silene gallica var.	French catchfly	2
CARYOPHYLLACEAE	*Silene gallica* var. *quinquevulnera*	Silene gallica var.	French catchfly	2
CARYOPHYLLACEAE	*Silene nocturna*	Silene nocturna	Mediterranean catchfly	319
CARYOPHYLLACEAE	*Silene tridentata*	Silene tridentata		34
CARYOPHYLLACEAE	*Spergularia diandra*	Spergularia diandra	lesser sand-spurrey	148
CARYOPHYLLACEAE	*Spergularia marina*	Spergularia marina	salt sand-spurrey	8
CARYOPHYLLACEAE	*Spergularia rubra*	Spergularia rubra	red sand-spurrey	46
CARYOPHYLLACEAE	*Stellaria media*	Stellaria media	chickweed	33
CARYOPHYLLACEAE	*Stellaria palustris* var.	Stellaria palustris var.	swamp starwort	18
CARYOPHYLLACEAE	*Stellaria palustris* var. *palustris*	Stellaria palustris var.	swamp starwort	2
CASUARINACEAE	*Allocasuarina muelleriana* ssp.	Allocasuarina muelleriana ssp.	common oak-bush	15
CASUARINACEAE	*Allocasuarina muelleriana* ssp. *alticola*	Allocasuarina muelleriana ssp.	common oak-bush	6
CASUARINACEAE	*Allocasuarina muelleriana* ssp. *muelleriana*	Allocasuarina muelleriana ssp.	common oak-bush	1
CASUARINACEAE	*Allocasuarina verticillata*	Allocasuarina verticillata	drooping sheoak	174
CASUARINACEAE	*Casuarina pauper*	Casuarina pauper	black oak	366
CENTROLEPIDACEAE	*Centrolepis aristata*	Centrolepis aristata	pointed centrolepis	5
CENTROLEPIDACEAE	*Centrolepis strigosa*	Centrolepis strigosa	hairy centrolepis	5
CHENOPODIACEAE	*Atriplex acutibractea* ssp.	Atriplex acutibractea ssp.	pointed saltbush	106
CHENOPODIACEAE	*Atriplex acutibractea* ssp. *acutibractea*	Atriplex acutibractea ssp.	pointed saltbush	20
CHENOPODIACEAE	*Atriplex acutiloba*	Atriplex acutiloba		4
CHENOPODIACEAE	*Atriplex angulata*	Atriplex angulata	fan saltbush	203
CHENOPODIACEAE	*Atriplex eardleyae*	Atriplex eardleyae	Eardley's saltbush	54
CHENOPODIACEAE	*Atriplex eichleri*	Atriplex eichleri	Eichler's saltbush	26
CHENOPODIACEAE	*Atriplex fissivalvis*	Atriplex fissivalvis	gibber saltbush	22
CHENOPODIACEAE	*Atriplex holocarpa*	Atriplex holocarpa	pop saltbush	168
CHENOPODIACEAE	*Atriplex leptocarpa*	Atriplex leptocarpa	slender-fruit saltbush	6
CHENOPODIACEAE	*Atriplex limbata*	Atriplex limbata	spreading saltbush	72
CHENOPODIACEAE	*Atriplex lindleyi* ssp.	Atriplex lindleyi ssp.	baldoo	220
CHENOPODIACEAE	*Atriplex lindleyi* ssp. *conduplicata*	Atriplex lindleyi ssp.	baldoo	8
CHENOPODIACEAE	*Atriplex lindleyi* ssp. *inflata*	Atriplex lindleyi ssp.	baldoo	24
CHENOPODIACEAE	*Atriplex lindleyi* ssp. *lindleyi*	Atriplex lindleyi ssp.	baldoo	14
CHENOPODIACEAE	*Atriplex morrisii*	Atriplex morrisii		2
CHENOPODIACEAE	*Atriplex muelleri*	Atriplex muelleri	Mueller's saltbush	4
CHENOPODIACEAE	*Atriplex nummularia* ssp.	Atriplex nummularia ssp.	old-man saltbush	1
CHENOPODIACEAE	*Atriplex nummularia* ssp. *nummularia*	Atriplex nummularia ssp.	old-man saltbush	8
CHENOPODIACEAE	*Atriplex nummularia* ssp. *omissa*	Atriplex nummularia ssp.	old-man saltbush	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
CHENOPODIACEAE	*Atriplex paludosa* ssp. *cordata*	Atriplex paludosa ssp. cordata	marsh saltbush	2
CHENOPODIACEAE	*Atriplex paludosa* ssp. *paludosa*	Atriplex paludosa ssp. paludosa	marsh saltbush	2
CHENOPODIACEAE	*Atriplex prostrata*	Atriplex prostrata	creeping saltbush	6
CHENOPODIACEAE	*Atriplex pseudocampanulata*	Atriplex pseudocampanulata	spreading saltbush	10
CHENOPODIACEAE	*Atriplex pumilio*	Atriplex pumilio	mat saltbush	2
CHENOPODIACEAE	*Atriplex semibaccata*	Atriplex semibaccata	berry saltbush	74
CHENOPODIACEAE	*Atriplex spongiosa*	Atriplex spongiosa	pop saltbush	182
CHENOPODIACEAE	*Atriplex stipitata*	Atriplex stipitata	bitter saltbush	357
CHENOPODIACEAE	*Atriplex suberecta*	Atriplex suberecta	lagoon saltbush	12
CHENOPODIACEAE	*Atriplex velutinella*	Atriplex velutinella	sandhill saltbush	23
CHENOPODIACEAE	*Atriplex vesicaria* ssp.	Atriplex vesicaria ssp.	bladder saltbush	747
CHENOPODIACEAE	*Atriplex vesicaria* ssp. *calcicola*	Atriplex vesicaria ssp.	bladder saltbush	2
CHENOPODIACEAE	*Atriplex vesicaria* ssp. *macrocystidia*	Atriplex vesicaria ssp.	bladder saltbush	2
CHENOPODIACEAE	*Atriplex vesicaria*(NC)	Atriplex vesicaria ssp.	bladder saltbush	16
CHENOPODIACEAE	*Chenopodium auricomum*	Chenopodium auricomum	golden goosefoot	5
CHENOPODIACEAE	*Chenopodium cristatum*	Chenopodium cristatum	crested goosefoot	42
CHENOPODIACEAE	*Chenopodium curvispicatum*	Chenopodium curvispicatum	cottony goosefoot	80
CHENOPODIACEAE	*Chenopodium desertorum* ssp.	Chenopodium desertorum ssp.	desert goosefoot	28
CHENOPODIACEAE	*Chenopodium desertorum* ssp. *anidiophyllum*	Chenopodium desertorum ssp.	desert goosefoot	22
CHENOPODIACEAE	*Chenopodium desertorum* ssp. *desertorum*	Chenopodium desertorum ssp.	desert goosefoot	48
CHENOPODIACEAE	*Chenopodium desertorum* ssp. *microphyllum*	Chenopodium desertorum ssp.	desert goosefoot	55
CHENOPODIACEAE	*Chenopodium gaudichaudianum*	Chenopodium gaudichaudianum	scrambling goosefoot	2
CHENOPODIACEAE	*Chenopodium glaucum*	Chenopodium glaucum	glaucous goosefoot	2
CHENOPODIACEAE	*Chenopodium melanocarpum forma*	Chenopodium melanocarpum forma	black-fruit goosefoot	21
CHENOPODIACEAE	*Chenopodium melanocarpum forma melanocarpum*	Chenopodium melanocarpum forma	black-fruit goosefoot	20
CHENOPODIACEAE	*Chenopodium murale*	Chenopodium murale	nettle-leaf goosefoot	43
CHENOPODIACEAE	*Chenopodium nitrariaceum*	Chenopodium nitrariaceum	nitre goosefoot	16
CHENOPODIACEAE	*Chenopodium pumilio*	Chenopodium pumilio	clammy goosefoot	3
CHENOPODIACEAE	*Chenopodium truncatum*	Chenopodium truncatum		2
CHENOPODIACEAE	*Dissocarpus biflorus* var.	Dissocarpus biflorus var.	two-horn saltbush	77
CHENOPODIACEAE	*Dissocarpus biflorus* var. *biflorus*	Dissocarpus biflorus var.	two-horn saltbush	50
CHENOPODIACEAE	*Dissocarpus fontinalis*	Dissocarpus fontinalis		2
CHENOPODIACEAE	*Dissocarpus latifolius*	Dissocarpus latifolius		2
CHENOPODIACEAE	*Dissocarpus paradoxus*	Dissocarpus paradoxus	ball bindyi	827
CHENOPODIACEAE	*Einadia nutans* ssp.	Einadia nutans ssp.	climbing saltbush	287
CHENOPODIACEAE	*Einadia nutans* ssp. *nutans*	Einadia nutans ssp.	climbing saltbush	219
CHENOPODIACEAE	*Einadia nutans* ssp. *nutans*	Einadia nutans ssp. nutans	climbing saltbush	4
CHENOPODIACEAE	*Enchylaena tomentosa* var.	Enchylaena tomentosa var.	ruby saltbush	666
CHENOPODIACEAE	*Enchylaena tomentosa* var. *tomentosa*	Enchylaena tomentosa var.	ruby saltbush	1589
CHENOPODIACEAE	*Eriochiton sclerolaenoides*	Eriochiton sclerolaenoides	woolly-fruit bluebush	510
CHENOPODIACEAE	*Halosarcia halocnemoides* ssp.	Halosarcia halocnemoides ssp.	grey samphire	10
CHENOPODIACEAE	*Halosarcia halocnemoides* ssp. *halocnemoides*	Halosarcia halocnemoides ssp.	grey samphire	18
CHENOPODIACEAE	*Halosarcia indica* ssp.	Halosarcia indica ssp.	brown-head samphire	4
CHENOPODIACEAE	*Halosarcia indica* ssp. *bidens*	Halosarcia indica ssp.	brown-head samphire	2
CHENOPODIACEAE	*Halosarcia indica* ssp. *leiostachya*	Halosarcia indica ssp.	brown-head samphire	6
CHENOPODIACEAE	*Halosarcia pergranulata* ssp. *pergranulata*	Halosarcia pergranulata ssp. pergranulata	black-seed samphire	10
CHENOPODIACEAE	*Halosarcia pruinosa*	Halosarcia pruinosa	bluish samphire	2
CHENOPODIACEAE	*Halosarcia pterygosperma* ssp. *pterygosperma*	Halosarcia pterygosperma ssp. pterygosperma	winged-seed samphire	2
CHENOPODIACEAE	*Maireana aphylla*	Maireana aphylla	cotton-bush	267
CHENOPODIACEAE	*Maireana appressa*	Maireana appressa	pale-fruit bluebush	108
CHENOPODIACEAE	*Maireana astrotricha*	Maireana astrotricha	low bluebush	1000
CHENOPODIACEAE	*Maireana brevifolia*	Maireana brevifolia	short-leaf bluebush	314
CHENOPODIACEAE	*Maireana campanulata*	Maireana campanulata	bell-fruit bluebush	24
CHENOPODIACEAE	*Maireana cannonii*	Maireana cannonii	Cannon's bluebush	4
CHENOPODIACEAE	*Maireana carnosa*	Maireana carnosa	cottony bluebush	6
CHENOPODIACEAE	*Maireana ciliata*	Maireana ciliata	hairy fissure-plant	12
CHENOPODIACEAE	*Maireana coronata*	Maireana coronata	crown fissure-plant	26
CHENOPODIACEAE	*Maireana enchylaenoides*	Maireana enchylaenoides	wingless fissure-plant	370
CHENOPODIACEAE	*Maireana eriantha*	Maireana eriantha	woolly bluebush	22
CHENOPODIACEAE	*Maireana erioclada*	Maireana erioclada	rosy bluebush	66
CHENOPODIACEAE	*Maireana excavata*	Maireana excavata	bottle fissure-plant	72
CHENOPODIACEAE	*Maireana georgei*	Maireana georgei	satiny bluebush	238
CHENOPODIACEAE	*Maireana georgei/turbinata*	Maireana sp.	bluebush/fissure-plant	42
CHENOPODIACEAE	*Maireana integra*	Maireana integra	entire-wing bluebush	42
CHENOPODIACEAE	*Maireana lobiflora*	Maireana lobiflora	lobed bluebush	46
CHENOPODIACEAE	*Maireana melanocarpa*	Maireana melanocarpa	black-fruit bluebush	29
CHENOPODIACEAE	*Maireana microcarpa*	Maireana microcarpa	swamp bluebush	4
CHENOPODIACEAE	*Maireana oppositifolia*	Maireana oppositifolia	salt bluebush	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
CHENOPODIACEAE	*Maireana ovata*	Maireana ovata		42
CHENOPODIACEAE	*Maireana pentagona*	Maireana pentagona	slender fissure-plant	4
CHENOPODIACEAE	*Maireana pentatropis*	Maireana pentatropis	erect mallee bluebush	242
CHENOPODIACEAE	*Maireana planifolia*	Maireana planifolia	flat-leaf bluebush	4
CHENOPODIACEAE	*Maireana pyramidata*	Maireana pyramidata	black bluebush	1146
CHENOPODIACEAE	*Maireana radiata*	Maireana radiata	radiate bluebush	18
CHENOPODIACEAE	*Maireana rohrlachii*	Maireana rohrlachii	Rohrlach's bluebush	12
CHENOPODIACEAE	*Maireana sedifolia*	Maireana sedifolia	bluebush	457
CHENOPODIACEAE	*Maireana spongiocarpa*	Maireana spongiocarpa	spongy-fruit bluebush	21
CHENOPODIACEAE	*Maireana tomentosa* ssp. *urceolata*	Maireana tomentosa ssp. urceolata		58
CHENOPODIACEAE	*Maireana trichoptera*	Maireana trichoptera	hairy-fruit bluebush	201
CHENOPODIACEAE	*Maireana triptera*	Maireana triptera	three-wing bluebush	4
CHENOPODIACEAE	*Maireana turbinata*	Maireana turbinata	top-fruit bluebush	228
CHENOPODIACEAE	*Maireana villosa*	Maireana villosa	silky bluebush	10
CHENOPODIACEAE	*Malacocera albolanata*	Malacocera albolanata	woolly soft-horns	1
CHENOPODIACEAE	*Malacocera biflora*	Malacocera biflora	two-flower soft-horns	4
CHENOPODIACEAE	*Malacocera gracilis*	Malacocera gracilis	slender soft-horns	2
CHENOPODIACEAE	*Malacocera tricornis*	Malacocera tricornis	goat-head soft-horns	40
CHENOPODIACEAE	*Neobassia proceriflora*	Neobassia proceriflora	desert glasswort	22
CHENOPODIACEAE	*Osteocarpum acropterum* var.	Osteocarpum acropterum var.	bonefruit	279
CHENOPODIACEAE	*Osteocarpum acropterum* var. *acropterum*	Osteocarpum acropterum var.	bonefruit	36
CHENOPODIACEAE	*Osteocarpum dipterocarpum*	Osteocarpum dipterocarpum	two-wing bonefruit	18
CHENOPODIACEAE	*Osteocarpum salsuginosum*	Osteocarpum salsuginosum	inland bonefruit	2
CHENOPODIACEAE	*Rhagodia crassifolia*	Rhagodia crassifolia	fleshy saltbush	2
CHENOPODIACEAE	*Rhagodia parabolica*	Rhagodia parabolica	mealy saltbush	687
CHENOPODIACEAE	*Rhagodia spinescens*	Rhagodia spinescens	spiny saltbush	1599
CHENOPODIACEAE	*Rhagodia ulicina*	Rhagodia ulicina	intricate saltbush	198
CHENOPODIACEAE	*Salsola kali*	Salsola kali	buckbush	1500
CHENOPODIACEAE	*Sarcocornia blackiana*	Sarcocornia blackiana	thick-head samphire	6
CHENOPODIACEAE	*Sarcocornia quinqueflora*	Sarcocornia quinqueflora	beaded samphire	4
CHENOPODIACEAE	*Scleroblitum atriplicinum*	Scleroblitum atriplicinum	starry goosefoot	2
CHENOPODIACEAE	*Sclerolaena bicornis*	Sclerolaena bicornis	goathead bindyi	24
CHENOPODIACEAE	*Sclerolaena bicuspis*	Sclerolaena bicuspis	two-spine bindyii	4
CHENOPODIACEAE	*Sclerolaena brachyptera*	Sclerolaena brachyptera	short-wing bindyi	727
CHENOPODIACEAE	*Sclerolaena constricta*	Sclerolaena constricta		48
CHENOPODIACEAE	*Sclerolaena convexula*	Sclerolaena convexula	tall bindyi	125
CHENOPODIACEAE	*Sclerolaena cuneata*	Sclerolaena cuneata	tangled bindyi	39
CHENOPODIACEAE	*Sclerolaena decurrens*	Sclerolaena decurrens	green bindyi	26
CHENOPODIACEAE	*Sclerolaena deserticola*	Sclerolaena deserticola	desert bindyi	2
CHENOPODIACEAE	*Sclerolaena diacantha*	Sclerolaena diacantha	grey bindyi	621
CHENOPODIACEAE	*Sclerolaena diacantha/uniflora*	Sclerolaena diacantha	grey bindyi	126
CHENOPODIACEAE	*Sclerolaena diacantha/uniflora*	Sclerolaena sp.	bindyi	50
CHENOPODIACEAE	*Sclerolaena divaricata*	Sclerolaena divaricata	tangled bindyi	787
CHENOPODIACEAE	*Sclerolaena eriacantha*	Sclerolaena eriacantha	silky bindyi	9
CHENOPODIACEAE	*Sclerolaena holtiana*	Sclerolaena holtiana	Holt's bindyi	31
CHENOPODIACEAE	*Sclerolaena intricata*	Sclerolaena intricata	tangled bindyi	22
CHENOPODIACEAE	*Sclerolaena lanata*	Sclerolaena lanata	wooly bindyi	4
CHENOPODIACEAE	*Sclerolaena lanicuspis*	Sclerolaena lanicuspis	spinach bindyi	484
CHENOPODIACEAE	*Sclerolaena limbata*	Sclerolaena limbata	pearl bindyi	586
CHENOPODIACEAE	*Sclerolaena longicuspis*	Sclerolaena longicuspis	long-spine bindyi	417
CHENOPODIACEAE	*Sclerolaena muricata* var. *villosa*	Sclerolaena muricata var. villosa	five-spine bindyi	2
CHENOPODIACEAE	*Sclerolaena obliquicuspis*	Sclerolaena obliquicuspis	oblique-spined bindyi	1852
CHENOPODIACEAE	*Sclerolaena parallelicuspis*	Sclerolaena parallelicuspis	western bindyi	81
CHENOPODIACEAE	*Sclerolaena patenticuspis*	Sclerolaena patenticuspis	spear-fruit bindyi	974
CHENOPODIACEAE	*Sclerolaena tatei*	Sclerolaena tatei	Tate's bindyi	6
CHENOPODIACEAE	*Sclerolaena tricuspis*	Sclerolaena tricuspis	three-spine bindyi	230
CHENOPODIACEAE	*Sclerolaena uniflora*	Sclerolaena diacantha	grey bindyi	37
CHENOPODIACEAE	*Sclerolaena ventricosa*	Sclerolaena ventricosa	salt bindyi	474
CHENOPODIACEAE	*Sclerostegia arbuscula*	Sclerostegia arbuscula	shrubby samphire	2
CHENOPODIACEAE	*Sclerostegia disarticulata*	Sclerostegia disarticulata		18
CHENOPODIACEAE	*Sclerostegia medullosa*	Sclerostegia medullosa		2
CHENOPODIACEAE	*Sclerostegia tenuis*	Sclerostegia tenuis	slender samphire	26
CHENOPODIACEAE	*Suaeda australis*	Suaeda australis	austral seablite	6
CHENOPODIACEAE	*Threlkeldia diffusa*	Threlkeldia diffusa	coast bonefruit	10
COMPOSITAE	*Actinobole uliginosum*	Actinobole uliginosum	flannel cudweed	267
COMPOSITAE	*Anemocarpa podolepidium*	Anemocarpa podolepidium	rock everlasting	26
COMPOSITAE	*Angianthus glabratus*	Angianthus glabratus	smooth angianthus	2
COMPOSITAE	*Angianthus tomentosus*	Angianthus tomentosus	hairy angianthus	7
COMPOSITAE	*Arctotheca calendula*	Arctotheca calendula	Cape weed	164
COMPOSITAE	*Artemisia arborescens*	Artemisia arborescens	silver wormwood	2
COMPOSITAE	*Aster subulatus*	Aster subulatus	aster-weed	10
COMPOSITAE	*Asteridea athrixioides forma*	Asteridea athrixioides forma	wirewort	3

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
COMPOSITAE	*Asteridea athrixioides forma athrixioides*	Asteridea athrixioides forma	wirewort	30
COMPOSITAE	*Blennospora drummondii*	Blennospora drummondii	dwarf button-flower	2
COMPOSITAE	*Brachycome ciliaris* var.	Brachycome ciliaris var.	variable daisy	30
COMPOSITAE	*Brachycome ciliaris* var. *brachyglossa*	Brachycome ciliaris var.	variable daisy	18
COMPOSITAE	*Brachycome ciliaris* var. *ciliaris*	Brachycome ciliaris var. ciliaris	variable daisy	278
COMPOSITAE	*Brachycome ciliaris* var. *lanuginosa*	Brachycome ciliaris var. lanuginosa	woolly variable daisy	189
COMPOSITAE	*Brachycome ciliaris* var. *lyrifolia*	Brachycome ciliaris var. lyrifolia	lyrate-leaf daisy	150
COMPOSITAE	*Brachycome ciliaris* var. *subintegrifolia*	Brachycome ciliaris var. subintegrifolia		24
COMPOSITAE	*Brachycome dentata*	Brachycome dentata	lobe-seed daisy	67
COMPOSITAE	*Brachycome dichromosomatica* var. *dichromosomatica*	Brachycome dichromosomatica var. dichromosomatica	large hard-head daisy	26
COMPOSITAE	*Brachycome exilis*	Brachycome exilis	slender daisy	4
COMPOSITAE	*Brachycome goniocarpa*	Brachycome goniocarpa	dwarf daisy	4
COMPOSITAE	*Brachycome leptocarpa*	Brachycome leptocarpa	small hairy daisy	12
COMPOSITAE	*Brachycome lineariloba*	Brachycome lineariloba	hard-head daisy	498
COMPOSITAE	*Brachycome perpusilla*	Brachycome perpusilla	tiny daisy	2
COMPOSITAE	*Brachycome trachycarpa*	Brachycome trachycarpa	smooth daisy	3
COMPOSITAE	*Bracteantha bracteata*	Bracteantha bracteata	golden everlasting	36
COMPOSITAE	*Calendula arvensis*	Calendula arvensis	field marigold	56
COMPOSITAE	*Calocephalus citreus*	Calocephalus citreus	lemon beauty-heads	38
COMPOSITAE	*Calocephalus platycephalus*	Calocephalus platycephalus	western beauty-heads	10
COMPOSITAE	*Calotis ancyrocarpa*	Calotis ancyrocarpa	anchor burr-daisy	2
COMPOSITAE	*Calotis cymbacantha*	Calotis cymbacantha	showy burr-daisy	16
COMPOSITAE	*Calotis erinacea*	Calotis erinacea	tangled burr-daisy	13
COMPOSITAE	*Calotis hispidula*	Calotis hispidula	hairy burr-daisy	865
COMPOSITAE	*Calotis lappulacea*	Calotis lappulacea	yellow burr-daisy	8
COMPOSITAE	*Calotis latiuscula*	Calotis latiuscula	leafy burr-daisy	38
COMPOSITAE	*Calotis plumulifera*	Calotis plumulifera	woolly-headed burr-daisy	32
COMPOSITAE	*Calotis scabiosifolia* var. *scabiosifolia*	Calotis scabiosifolia var. scabiosifolia	rough burr-daisy	4
COMPOSITAE	*Carduus pycnocephalus*	Carduus pycnocephalus	shore thistle	1
COMPOSITAE	*Carduus tenuiflorus*	Carduus tenuiflorus	slender thistle	76
COMPOSITAE	*Carthamus lanatus*	Carthamus lanatus	saffron thistle	668
COMPOSITAE	*Cassinia arcuata*	Cassinia arcuata	drooping cassinia	12
COMPOSITAE	*Cassinia laevis*	Cassinia laevis	curry bush	629
COMPOSITAE	*Cassinia uncata*	Cassinia uncata	sticky cassinia	114
COMPOSITAE	*Centaurea melitensis*	Centaurea melitensis	Malta thistle	1270
COMPOSITAE	*Centaurea solstitialis*	Centaurea solstitialis	St Barnaby's thistle	2
COMPOSITAE	*Centipeda cunninghamii*	Centipeda cunninghamii	common sneezeweed	5
COMPOSITAE	*Centipeda thespidioides*	Centipeda thespidioides	desert sneezeweed	4
COMPOSITAE	*Chrysanthemoides monilifera*	Chrysanthemoides monilifera	boneseed	2
COMPOSITAE	*Chrysocephalum apiculatum*	Chrysocephalum apiculatum	common everlasting	197
COMPOSITAE	*Chrysocephalum eremaeum*	Chrysocephalum eremaeum	sand button-bush	6
COMPOSITAE	*Chrysocephalum pterochaetum*	Chrysocephalum pterochaetum	shrub everlasting	59
COMPOSITAE	*Chrysocephalum semicalvum* ssp.	Chrysocephalum semicalvum ssp. semicalvum	scented button-bush	32
COMPOSITAE	*Chrysocephalum semicalvum* ssp. *semicalvum*	Chrysocephalum semicalvum ssp. semicalvum	scented button-bush	779
COMPOSITAE	*Chrysocephalum semipapposum*	Chrysocephalum semipapposum	clustered everlasting	229
COMPOSITAE	*Chthonocephalus pseudevax*	Chthonocephalus pseudevax	ground-heads	5
COMPOSITAE	*Cirsium vulgare*	Cirsium vulgare	spear thistle	23
COMPOSITAE	*Conyza bonariensis*	Conyza bonariensis	flaxleaf fleabane	2
COMPOSITAE	*Cotula australis*	Cotula australis	common cotula	10
COMPOSITAE	*Cotula coronopifolia*	Cotula coronopifolia	water buttons	12
COMPOSITAE	*Craspedia glauca*	Craspedia glauca	billy-buttons	58
COMPOSITAE	*Craspedia sp.*(NC)	Craspedia glauca	billy-buttons	2
COMPOSITAE	*Cratystylis conocephala*	Cratystylis conocephala	bluebush daisy	8
COMPOSITAE	*Crepis foetida* ssp. *foetida*	Crepis foetida ssp. foetida	stinking hawksbeard	2
COMPOSITAE	*Crupina vulgaris*	Crupina vulgaris		1
COMPOSITAE	*Cymbonotus preissianus*	Cymbonotus preissianus	austral bear's-ear	28
COMPOSITAE	*Cynara cardunculus*	Cynara cardunculus	artichoke thistle	16
COMPOSITAE	*Dichromochlamys dentatifolius*	Dichromochlamys dentatifolius		14
COMPOSITAE	*Dittrichia graveolens*	Dittrichia graveolens	stinkweed	136
COMPOSITAE	*Elachanthus pusillus*	Elachanthus pusillus	elachanth	52
COMPOSITAE	*Eriochlamys behrii*	Eriochlamys behrii	woolly mantle	16
COMPOSITAE	*Erodiophyllum elderi*	Erodiophyllum elderi	Koonamore daisy	46
COMPOSITAE	*Euchiton gymnocephalus*	Euchiton gymnocephalus	creeping cudweed	5
COMPOSITAE	*Euchiton gymnocephalus*(NC)	Euchiton gymnocephalus	creeping cudweed	4
COMPOSITAE	*Euchiton involucratus*	Euchiton involucratus	star cudweed	2
COMPOSITAE	*Euchiton sphaericus*	Euchiton sphaericus	annual cudweed	54
COMPOSITAE	*Flaveria australasica*	Flaveria australasica	yellow twin-stem	24
COMPOSITAE	*Glossogyne tannensis*	Glossogyne tannensis	native cobbler's-pegs	31
COMPOSITAE	*Gnaphalium diamantinense*	Gnaphalium diamantinense	Diamantina cudweed	1

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
COMPOSITAE	*Gnaphalium indutum*	Gnaphalium indutum	tiny cudweed	2
COMPOSITAE	*Gnephosis arachnoidea*	Gnephosis arachnoidea	spidery button-flower	242
COMPOSITAE	*Gnephosis drummondii*	Gnephosis drummondii	slender golden-tip	2
COMPOSITAE	*Gnephosis eriocarpa*	Gnephosis eriocarpa	native camomile	8
COMPOSITAE	*Gnephosis tenuissima*	Gnephosis tenuissima	dwarf golden-tip	8
COMPOSITAE	*Haeckeria cassiniaeformis*	Haeckeria cassiniaeformis	dogwood haeckeria	4
COMPOSITAE	*Haeckeria punctulata*	Haeckeria punctulata	sticky haeckeria	23
COMPOSITAE	*Hedypnois rhagadioloides*	Hedypnois rhagadioloides	Cretan weed	216
COMPOSITAE	*Helichrysum leucopsideum*	Helichrysum leucopsideum	satin everlasting	18
COMPOSITAE	*Hyalosperma demissum*	Hyalosperma demissum	dwarf sunray	16
COMPOSITAE	*Hyalosperma glutinosum* ssp. *glutinosum*	Hyalosperma glutinosum ssp. glutinosum	golden sunray	42
COMPOSITAE	*Hyalosperma semisterile*	Hyalosperma semisterile	orange sunray	156
COMPOSITAE	*Hypochaeris glabra*	Hypochaeris glabra	smooth cat's ear	756
COMPOSITAE	*Hypochaeris radicata*	Hypochaeris radicata	rough cat's ear	102
COMPOSITAE	*Isoetopsis graminifolia*	Isoetopsis graminifolia	grass cushion	118
COMPOSITAE	*Ixiochlamys cuneifolia*	Ixiochlamys cuneifolia	Silverton daisy	240
COMPOSITAE	*Ixiochlamys filicifolia*	Ixiochlamys filicifolia		2
COMPOSITAE	*Ixiochlamys nana*	Ixiochlamys nana	small fuzzweed	2
COMPOSITAE	*Ixiolaena brevicompta*	Ixiolaena brevicompta	plains plover-daisy	16
COMPOSITAE	*Ixiolaena chloroleuca*	Ixiolaena chloroleuca	pale plover-daisy	17
COMPOSITAE	*Ixiolaena leptolepis*	Ixiolaena leptolepis	narrow plover-daisy	317
COMPOSITAE	*Ixiolaena leptolepis/tomentosa*	Ixiolaena sp.	plover-daisy	16
COMPOSITAE	*Ixiolaena tomentosa*	Ixiolaena tomentosa	woolly plover-daisy	74
COMPOSITAE	*Ixodia flindersica*	Ixodia flindersica	Flinders Ranges ixodia	16
COMPOSITAE	*Lactuca serriola*	Lactuca serriola	prickly lettuce	29
COMPOSITAE	*Lagenifera huegelii*	Lagenifera huegelii	coarse bottle-daisy	91
COMPOSITAE	*Lemooria burkittii*	Lemooria burkittii	wires-and-wool	12
COMPOSITAE	*Leontodon taraxacoides* ssp. *taraxacoides*	Leontodon taraxacoides ssp. taraxacoides	lesser hawkbit	2
COMPOSITAE	*Leptorhynchos scabrus*	Leptorhynchos scabrus	annual buttons	2
COMPOSITAE	*Leptorhynchos squamatus*	Leptorhynchos squamatus	scaly buttons	64
COMPOSITAE	*Leptorhynchos tetrachaetus*	Leptorhynchos tetrachaetus	little buttons	42
COMPOSITAE	*Leptorhynchos waitzia*	Leptorhynchos waitzia	button immortelle	4
COMPOSITAE	*Logfia gallica*	Logfia gallica	narrow cudweed	6
COMPOSITAE	*Microseris lanceolata*	Microseris lanceolata	yam daisy	161
COMPOSITAE	*Millotia greevesii* ssp. *greevesii* var. *greevesii*	Millotia greevesii ssp. greevesii var. greevesii	creeping millotia	18
COMPOSITAE	*Millotia greevesii* ssp. *kempei* var. *helmsii*	Millotia greevesii ssp. kempei var. helmsii		2
COMPOSITAE	*Millotia macrocarpa*	Millotia macrocarpa	large-fruit millotia	4
COMPOSITAE	*Millotia myosotidifolia*	Millotia myosotidifolia	broad-leaf millotia	26
COMPOSITAE	*Millotia tenuifolia* var.	Millotia tenuifolia var. tenuifolia	soft millotia	2
COMPOSITAE	*Millotia tenuifolia* var. *tenuifolia*	Millotia tenuifolia var. tenuifolia	soft millotia	12
COMPOSITAE	*Minuria annua*	Minuria annua	annual minuria	12
COMPOSITAE	*Minuria cunninghamii*	Minuria cunninghamii	bush minuria	307
COMPOSITAE	*Minuria denticulata*	Minuria denticulata	woolly minuria	14
COMPOSITAE	*Minuria integerrima*	Minuria integerrima	smooth minuria	34
COMPOSITAE	*Minuria leptophylla*	Minuria leptophylla	minnie daisy	130
COMPOSITAE	*Minuria rigida*	Minuria rigida		4
COMPOSITAE	*Olearia axillaris*	Olearia axillaris	coast daisy-bush	4
COMPOSITAE	*Olearia brachyphylla*(NC)	Olearia minor	heath daisy-bush	2
COMPOSITAE	*Olearia calcarea*	Olearia calcarea	crinkle-leaf daisy-bush	10
COMPOSITAE	*Olearia decurrens*	Olearia decurrens	winged daisy-bush	540
COMPOSITAE	*Olearia floribunda* var. *floribunda*	Olearia floribunda var. floribunda	heath daisy-bush	2
COMPOSITAE	*Olearia minor*	Olearia minor	heath daisy-bush	4
COMPOSITAE	*Olearia muelleri*	Olearia muelleri	Mueller's daisy-bush	44
COMPOSITAE	*Olearia pannosa* ssp.	Olearia pannosa ssp.	silver daisy-bush	10
COMPOSITAE	*Olearia pannosa* ssp. *cardiophylla*	Olearia pannosa ssp.	silver daisy-bush	2
COMPOSITAE	*Olearia pannosa* ssp. *pannosa*	Olearia pannosa ssp.	silver daisy-bush	10
COMPOSITAE	*Olearia picridifolia*	Olearia picridifolia	rasp daisy-bush	2
COMPOSITAE	*Olearia pimeleoides* ssp.	Olearia pimeleoides ssp.	pimelea daisy-bush	63
COMPOSITAE	*Olearia pimeleoides* ssp. *pimeleoides*	Olearia pimeleoides ssp.	pimelea daisy-bush	136
COMPOSITAE	*Olearia ramulosa*	Olearia ramulosa	twiggy daisy-bush	53
COMPOSITAE	*Olearia subspicata*	Olearia subspicata	spiked daisy-bush	1
COMPOSITAE	*Olearia tubuliflora*	Olearia tubuliflora	rayless daisy-bush	2
COMPOSITAE	*Onopordum acanthium* ssp. *acanthium*	Onopordum acanthium ssp. acanthium	Scotch thistle	10
COMPOSITAE	*Onopordum acaulon*	Onopordum acaulon	horse thistle	65
COMPOSITAE	*Osteospermum calendulaceum*	Osteospermum calendulaceum		1
COMPOSITAE	*Osteospermum clandestinum*	Osteospermum clandestinum	tripteris	8
COMPOSITAE	*Othonna gregorii*	Othonna gregorii	fleshy groundsel	12
COMPOSITAE	*Ozothamnus retusus*	Ozothamnus retusus	notched bush-everlasting	16
COMPOSITAE	*Ozothamnus scaber*	Ozothamnus scaber	rough bush-everlasting	16
COMPOSITAE	*Pentzia incana*	Pentzia incana	African sheep bush	4
COMPOSITAE	*Picnomon acarna*	Picnomon acarna	soldier thistle	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
COMPOSITAE	*Picris squarrosa*	Picris squarrosa	squat picris	2
COMPOSITAE	*Pluchea dentex*	Pluchea dentex	bowl daisy	38
COMPOSITAE	*Podolepis canescens*	Podolepis canescens	grey copper-wire daisy	6
COMPOSITAE	*Podolepis capillaris*	Podolepis capillaris	wiry podolepis	165
COMPOSITAE	*Podolepis jaceoides*	Podolepis jaceoides	showy copper-wire daisy	4
COMPOSITAE	*Podolepis muelleri*	Podolepis muelleri	button podolepis	12
COMPOSITAE	*Podolepis rugata* var. *rugata*	Podolepis rugata var. rugata	pleated copper-wire daisy	2
COMPOSITAE	*Podotheca angustifolia*	Podotheca angustifolia	sticky long-heads	2
COMPOSITAE	*Pogonolepis muelleriana*	Pogonolepis muelleriana	stiff cup-flower	68
COMPOSITAE	*Polycalymma stuartii*	Polycalymma stuartii	poached-egg daisy	16
COMPOSITAE	*Pseudognaphalium luteoalbum*	Pseudognaphalium luteoalbum	Jersey cudweed	21
COMPOSITAE	*Pterocaulon sphacelatum*	Pterocaulon sphacelatum	apple-bush	328
COMPOSITAE	*Pycnosorus globosus*	Pycnosorus globosus	drumsticks	1
COMPOSITAE	*Pycnosorus pleiocephalus*	Pycnosorus pleiocephalus	soft billy-buttons	148
COMPOSITAE	*Reichardia tingitana*	Reichardia tingitana	false sowthistle	4
COMPOSITAE	*Rhodanthe corymbiflora*	Rhodanthe corymbiflora	paper everlasting	152
COMPOSITAE	*Rhodanthe floribunda*	Rhodanthe floribunda	white everlasting	190
COMPOSITAE	*Rhodanthe laevis*	Rhodanthe laevis	smooth daisy	16
COMPOSITAE	*Rhodanthe microglossa*	Rhodanthe microglossa	clustered everlasting	258
COMPOSITAE	*Rhodanthe moschata*	Rhodanthe moschata	musk daisy	239
COMPOSITAE	*Rhodanthe polygalifolia*	Rhodanthe polygalifolia	milkwort everlasting	44
COMPOSITAE	*Rhodanthe pygmaea*	Rhodanthe pygmaea	pigmy daisy	1048
COMPOSITAE	*Rhodanthe stricta*	Rhodanthe stricta	slender everlasting	108
COMPOSITAE	*Rhodanthe stuartiana*	Rhodanthe stuartiana	clay everlasting	8
COMPOSITAE	*Rhodanthe troedelii*	Rhodanthe troedelii	small paper-everlasting	12
COMPOSITAE	*Rhodanthe uniflora*	Rhodanthe uniflora	woolly daisy	8
COMPOSITAE	*Rutidosis helichrysoides*	Rutidosis helichrysoides	grey wrinklewort	18
COMPOSITAE	*Rutidosis multiflora*	Rutidosis multiflora	small wrinklewort	2
COMPOSITAE	*Scorzonera laciniata*	Scorzonera laciniata	scorzonera	2
COMPOSITAE	*Senecio anethifolius*	Senecio anethifolius	feathery groundsel	18
COMPOSITAE	*Senecio cunninghamii* var.	Senecio cunninghamii var.	shrubby groundsel	20
COMPOSITAE	*Senecio cunninghamii* var. *cunninghamii*	Senecio cunninghamii var.	shrubby groundsel	6
COMPOSITAE	*Senecio cunninghamii* var. *serratus*	Senecio cunninghamii var.	shrubby groundsel	10
COMPOSITAE	*Senecio glossanthus*	Senecio glossanthus	annual groundsel	318
COMPOSITAE	*Senecio laceratus*	Senecio laceratus	cut-leaf groundsel	2
COMPOSITAE	*Senecio lautus*	Senecio lautus	variable groundsel	131
COMPOSITAE	*Senecio magnificus*	Senecio magnificus	showy groundsel	1004
COMPOSITAE	*Senecio odoratus* var.	Senecio odoratus var.	scented groundsel	2
COMPOSITAE	*Senecio odoratus* var. *odoratus*	Senecio odoratus var.	scented groundsel	11
COMPOSITAE	*Senecio quadridentatus*	Senecio quadridentatus	cotton groundsel	272
COMPOSITAE	*Senecio tenuiflorus*	Senecio tenuiflorus	woodland groundsel	80
COMPOSITAE	*Sigesbeckia australiensis*	Sigesbeckia australiensis	Australian sigesbeckia	35
COMPOSITAE	*Sigesbeckia orientalis* ssp. *orientalis*	Sigesbeckia orientalis ssp. orientalis	oriental sigesbeckia	116
COMPOSITAE	*Silybum marianum*	Silybum marianum	variegated thistle	28
COMPOSITAE	*Sonchus asper* ssp.	Sonchus asper ssp.	rough sow-thistle	22
COMPOSITAE	*Sonchus asper* ssp. *asper*	Sonchus asper ssp.	rough sow-thistle	4
COMPOSITAE	*Sonchus asper* ssp. *glaucescens*	Sonchus asper ssp.	rough sow-thistle	4
COMPOSITAE	*Sonchus hydrophilus*	Sonchus hydrophilus	native sow-thistle	1
COMPOSITAE	*Sonchus oleraceus*	Sonchus oleraceus	common sow-thistle	1197
COMPOSITAE	*Sonchus tenerrimus*	Sonchus tenerrimus	clammy sow-thistle	57
COMPOSITAE	*Streptoglossa adscendens*	Streptoglossa adscendens	desert daisy	24
COMPOSITAE	*Streptoglossa liatroides*	Streptoglossa liatroides	Wertaloona daisy	40
COMPOSITAE	*Stuartina hamata*	Stuartina hamata	prickly cudweed	6
COMPOSITAE	*Stuartina muelleri*	Stuartina muelleri	spoon cudweed	30
COMPOSITAE	*Taraxacum officinale*	Taraxacum officinale	dandelion	2
COMPOSITAE	*Trichanthodium skirrophorum*	Trichanthodium skirrophorum	woolly yellow-heads	5
COMPOSITAE	*Triptilodiscus pygmaeus*	Triptilodiscus pygmaeus	small yellow-heads	178
COMPOSITAE	*Urospermum picroides*	Urospermum picroides	false hawkbit	129
COMPOSITAE	*Vittadinia arida*	Vittadinia arida		70
COMPOSITAE	*Vittadinia australasica* var.	Vittadinia australasica var.	sticky New Holland daisy	18
COMPOSITAE	*Vittadinia australasica* var. *australasica*	Vittadinia australasica var.	sticky New Holland daisy	2
COMPOSITAE	*Vittadinia blackii*	Vittadinia blackii	narrow-leaf New Holland daisy	59
COMPOSITAE	*Vittadinia cervicularis* var. *cervicularis*	Vittadinia cervicularis var. cervicularis	waisted New Holland daisy	82
COMPOSITAE	*Vittadinia condyloides*	Vittadinia condyloides	club-hair New Holland daisy	18
COMPOSITAE	*Vittadinia cuneata* var.	Vittadinia cuneata var.	fuzzy New Holland daisy	221
COMPOSITAE	*Vittadinia cuneata* var. *cuneata forma cuneata*	Vittadinia cuneata var.	"	343
COMPOSITAE	*Vittadinia cuneata* var. *morrisii*	Vittadinia cuneata var.	"	40
COMPOSITAE	*Vittadinia dissecta* var. *hirta*	Vittadinia dissecta var. hirta	dissected New Holland	1

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
COMPOSITAE	*Vittadinia eremaea*	Vittadinia eremaea	desert New Holland daisy	155
COMPOSITAE	*Vittadinia gracilis*	Vittadinia gracilis	woolly New Holland daisy	365
COMPOSITAE	*Vittadinia megacephala*	Vittadinia megacephala	giant New Holland daisy	2
COMPOSITAE	*Vittadinia pterochaeta*	Vittadinia pterochaeta	rough New Holland daisy	48
COMPOSITAE	*Vittadinia sulcata*	Vittadinia sulcata	furrowed New Holland daisy	208
COMPOSITAE	*Waitzia acuminata* var. *acuminata*	Waitzia acuminata var. acuminata	orange immortelle	6
COMPOSITAE	*Xanthium spinosum*	Xanthium spinosum	Bathurst burr	9
CONVOLVULACEAE	*Convolvulus aff. erubescens "linear lobes"*	Convolvulus aff. erubescens "linear lobes"	grassland bindweed	10
CONVOLVULACEAE	*Convolvulus arvensis*	Convolvulus arvensis	field bindweed	4
CONVOLVULACEAE	*Convolvulus erubescens*	Convolvulus erubescens	Australian bindweed	80
CONVOLVULACEAE	*Convolvulus erubescens*(NC)	Convolvulus erubescens	Australian bindweed	144
CONVOLVULACEAE	*Convolvulus erubescens/remotus*	Convolvulus erubescens/remotus	native bindweed	68
CONVOLVULACEAE	*Convolvulus eyreanus*	Convolvulus eyreanus	silver bindweed	12
CONVOLVULACEAE	*Convolvulus microsepalus*	Convolvulus microsepalus	small-flower bindweed	18
CONVOLVULACEAE	*Convolvulus microsepalus/remotus*	Convolvulus microsepalus/remotus		28
CONVOLVULACEAE	*Convolvulus remotus*	Convolvulus remotus	grassy bindweed	1281
CONVOLVULACEAE	*Cressa cretica*	Cressa cretica	rosinweed	2
CONVOLVULACEAE	*Cuscuta australis*(NC)	Cuscuta victoriana		4
CONVOLVULACEAE	*Dichondra repens*	Dichondra repens	kidney weed	28
CONVOLVULACEAE	*Evolvulus alsinoides* var. *decumbens*	Evolvulus alsinoides var. decumbens	tropical speedwell	17
CONVOLVULACEAE	*Evolvulus alsinoides* var. *villosicalyx*	Evolvulus alsinoides var. villosicalyx		8
CONVOLVULACEAE	*Wilsonia rotundifolia*	Wilsonia rotundifolia	round-leaf wilsonia	2
CRASSULACEAE	*Crassula colorata* var.	Crassula colorata var.	dense crassula	124
CRASSULACEAE	*Crassula colorata* var. *acuminata*	Crassula colorata var.	dense crassula	228
CRASSULACEAE	*Crassula colorata* var. *colorata*	Crassula colorata var.	dense crassula	12
CRASSULACEAE	*Crassula colorata/sieberana*	Crassula colorata/sieberana	crassula	10
CRASSULACEAE	*Crassula decumbens* var. *decumbens*	Crassula decumbens var. decumbens	spreading crassula	12
CRASSULACEAE	*Crassula sieberiana* ssp.	Crassula sieberiana ssp.	Australian stonecrop	24
CRASSULACEAE	*Crassula sieberiana* ssp. *sieberiana*	Crassula sieberiana ssp.	Australian stonecrop	4
CRASSULACEAE	*Crassula sieberiana* ssp. *tetramera*	Crassula sieberiana ssp.	Australian stonecrop	207
CRUCIFERAE	*Alyssum linifolium*	Alyssum linifolium	flax-leaf alyssum	162
CRUCIFERAE	*Arabidella filifolia*	Arabidella filifolia	thread-leaf cress	24
CRUCIFERAE	*Arabidella glaucescens*	Arabidella glaucescens		6
CRUCIFERAE	*Arabidella nasturtium*	Arabidella nasturtium	yellow cress	44
CRUCIFERAE	*Arabidella trisecta*	Arabidella trisecta	shrubby cress	242
CRUCIFERAE	*Blennodia canescens*	Blennodia canescens	native stock	4
CRUCIFERAE	*Brassica juncea*	Brassica juncea	Indian mustard	2
CRUCIFERAE	*Brassica tournefortii*	Brassica tournefortii	wild turnip	171
CRUCIFERAE	*Cakile maritima* ssp. *maritima*	Cakile maritima ssp. maritima	two-horned sea rocket	2
CRUCIFERAE	*Capsella bursapastoris*	Capsella bursapastoris	shepherd's purse	10
CRUCIFERAE	*Carrichtera annua*	Carrichtera annua	Ward's weed	1334
CRUCIFERAE	*Geococcus pusillus*	Geococcus pusillus	earth cress	36
CRUCIFERAE	*Harmsiodoxa blennodioides*	Harmsiodoxa blennodioides	hairypod cress	6
CRUCIFERAE	*Harmsiodoxa brevipes* var.	Harmsiodoxa brevipes var.	short cress	7
CRUCIFERAE	*Harmsiodoxa brevipes* var. *brevipes*	Harmsiodoxa brevipes var. brevipes	short cress	10
CRUCIFERAE	*Harmsiodoxa puberula*	Harmsiodoxa puberula	scented cress	4
CRUCIFERAE	*Hymenolobus procumbens*	Hymenolobus procumbens	oval purse	12
CRUCIFERAE	*Lepidium africanum*	Lepidium africanum	common peppercress	64
CRUCIFERAE	*Lepidium fasciculatum*	Lepidium fasciculatum	bundled peppercress	4
CRUCIFERAE	*Lepidium muelleri-ferdinandi*	Lepidium muelleri-ferdinandi	Mueller's peppercress	4
CRUCIFERAE	*Lepidium oxytrichum*	Lepidium oxytrichum	green peppercress	303
CRUCIFERAE	*Lepidium oxytrichum/papillosum*	Lepidium sp.	peppercress	12
CRUCIFERAE	*Lepidium papillosum*	Lepidium papillosum	warty peppercress	78
CRUCIFERAE	*Lepidium phlebopetalum*	Lepidium phlebopetalum	veined peppercress	164
CRUCIFERAE	*Lepidium pseudohyssopifolium*	Lepidium pseudohyssopifolium		2
CRUCIFERAE	*Lepidium pseudotasmanicum*	Lepidium pseudotasmanicum	shade peppercress	2
CRUCIFERAE	*Phlegmatospermum cochlearinum*	Phlegmatospermum cochlearinum	downy cress	16
CRUCIFERAE	*Raphanus raphanistrum*	Raphanus raphanistrum	wild radish	2
CRUCIFERAE	*Rapistrum rugosum* ssp. *rugosum*	Rapistrum rugosum ssp. rugosum	turnip weed	70
CRUCIFERAE	*Rorippa nasturtium-aquaticum*	Rorippa nasturtium-aquaticum	watercress	4
CRUCIFERAE	*Sisymbrium erysimoides*	Sisymbrium erysimoides	smooth mustard	1366
CRUCIFERAE	*Sisymbrium irio*	Sisymbrium irio	London mustard	73
CRUCIFERAE	*Sisymbrium officinale*	Sisymbrium officinale	hedge mustard	2
CRUCIFERAE	*Sisymbrium orientale*	Sisymbrium orientale	Indian hedge mustard	128
CRUCIFERAE	*Stenopetalum anfractum*	Stenopetalum anfractum	inland thread-petal	14
CRUCIFERAE	*Stenopetalum lineare*	Stenopetalum lineare	narrow thread-petal	222
CRUCIFERAE	*Stenopetalum sphaerocarpum*	Stenopetalum sphaerocarpum	round-fruit thread-petal	4
CUCURBITACEAE	*Citrullus colocynthis*	Citrullus colocynthis	colocynth	89
CUCURBITACEAE	*Citrullus lanatus*	Citrullus lanatus	bitter melon	80
CUCURBITACEAE	*Cucumis melo*	Cucumis melo	Ulcardo melon	4

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
CUCURBITACEAE	*Cucumis myriocarpus*	Cucumis myriocarpus	paddy melon	6
CUCURBITACEAE	*Mukia maderaspatana*	Mukia maderaspatana	snake vine	54
CUPRESSACEAE	*Callitris glaucophylla*	Callitris glaucophylla	white cypress-pine	724
CUPRESSACEAE	*Callitris preissii*	Callitris preissii	southern cypress pine	32
CUPRESSACEAE	*Callitris verrucosa*	Callitris verrucosa	scrub cypress pine	3
CYPERACEAE	*Baumea arthrophylla*	Baumea arthrophylla	swamp twig-rush	1
CYPERACEAE	*Baumea articulata*	Baumea articulata	jointed twig-rush	1
CYPERACEAE	*Carex appressa*	Carex appressa	tall sedge	10
CYPERACEAE	*Carex breviculmis*	Carex breviculmis	short-stem sedge	20
CYPERACEAE	*Carex gaudichaudiana*	Carex gaudichaudiana	fen sedge	4
CYPERACEAE	*Carex inversa* var.	Carex inversa var.	knob sedge	1
CYPERACEAE	*Carex inversa* var. *inversa*	Carex inversa var.	knob sedge	2
CYPERACEAE	*Carex inversa* var. *major*	Carex inversa var.	knob sedge	2
CYPERACEAE	*Carex tereticaulis*	Carex tereticaulis	rush sedge	11
CYPERACEAE	*Cyperus alterniflorus*	Cyperus alterniflorus	umbrella flat-sedge	9
CYPERACEAE	*Cyperus alterniflorus*(NC)	Cyperus alterniflorus	umbrella flat-sedge	8
CYPERACEAE	*Cyperus bifax*	Cyperus bifax	downs flat-sedge	2
CYPERACEAE	*Cyperus bulbosus*	Cyperus bulbosus	bulbous flat-sedge	10
CYPERACEAE	*Cyperus exaltatus*	Cyperus exaltatus	splendid flat-sedge	2
CYPERACEAE	*Cyperus gunnii* ssp. *gunnii*	Cyperus gunnii ssp. gunnii	flecked flat-sedge	4
CYPERACEAE	*Cyperus gymnocaulos*	Cyperus gymnocaulos	spiny flat-sedge	53
CYPERACEAE	*Cyperus iria*	Cyperus iria		4
CYPERACEAE	*Cyperus rotundus*	Cyperus rotundus	nut-grass	2
CYPERACEAE	*Cyperus vaginatus*	Cyperus vaginatus	stiff flat-sedge	69
CYPERACEAE	*Eleocharis acuta*	Eleocharis acuta	common spike-rush	2
CYPERACEAE	*Eleocharis pallens*	Eleocharis pallens	pale spike-rush	2
CYPERACEAE	*Eleocharis sphacelata*	Eleocharis sphacelata	tall spike-rush	1
CYPERACEAE	*Fimbristylis dichotoma*	Fimbristylis dichotoma	common fringe-rush	1
CYPERACEAE	*Isolepis cernua*	Isolepis cernua	nodding club-rush	1
CYPERACEAE	*Isolepis inundata*	Isolepis inundata	swamp club-rush	2
CYPERACEAE	*Isolepis marginata*	Isolepis marginata	little club-rush	8
CYPERACEAE	*Lepidosperma laterale*(NC)	Lepidosperma viscidum		30
CYPERACEAE	*Lepidosperma viscidum*	Lepidosperma viscidum	sticky sword-sedge	69
CYPERACEAE	*Schoenoplectus litoralis*	Schoenoplectus litoralis	shore club-rush	6
CYPERACEAE	*Schoenoplectus validus*	Schoenoplectus validus	river club-rush	1
CYPERACEAE	*Schoenus apogon*	Schoenus apogon	common bog-rush	24
DILLENIACEAE	*Hibbertia exutiacies*	Hibbertia exutiacies	prickly guinea-flower	117
DILLENIACEAE	*Hibbertia incana*	Hibbertia incana		13
DILLENIACEAE	*Hibbertia riparia*	Hibbertia riparia	guinea-flower	22
DILLENIACEAE	*Hibbertia riparia (canescens)*	Hibbertia riparia	guinea-flower	16
DILLENIACEAE	*Hibbertia sericea* var.	Hibbertia incana		4
DIPSACACEAE	*Scabiosa atropurpurea*	Scabiosa atropurpurea	pincushion	14
DROSERACEAE	*Drosera auriculata*	Drosera auriculata	tall sundew	22
DROSERACEAE	*Drosera glanduligera*	Drosera glanduligera	scarlet sundew	4
DROSERACEAE	*Drosera macrantha* ssp. *planchonii*	Drosera macrantha ssp. planchonii	climbing sundew	24
DROSERACEAE	*Drosera peltata*	Drosera peltata	pale sundew	18
EPACRIDACEAE	*Acrotriche patula*	Acrotriche patula	prickly ground-berry	9
EPACRIDACEAE	*Astroloma conostephioides*	Astroloma conostephioides	flame heath	18
EPACRIDACEAE	*Astroloma humifusum*	Astroloma humifusum	cranberry heath	213
EPACRIDACEAE	*Brachyloma ciliatum*	Brachyloma ciliatum	fringed brachyloma	2
EPACRIDACEAE	*Lissanthe strigosa*	Lissanthe strigosa	peach heath	3
EUPHORBIACEAE	*Beyeria lechenaultii*	Beyeria lechenaultii	pale turpentine bush	72
EUPHORBIACEAE	*Euphorbia australis*	Euphorbia australis	hairy caustic weed	416
EUPHORBIACEAE	*Euphorbia dendroides*	Euphorbia dendroides	tree spurge	2
EUPHORBIACEAE	*Euphorbia drummondii*	Euphorbia drummondii	caustic weed	898
EUPHORBIACEAE	*Euphorbia mitchelliana* var. *mitchelliana*	Euphorbia mitchelliana var. mitchelliana		2
EUPHORBIACEAE	*Euphorbia parvicaruncula*	Euphorbia parvicaruncula	rough-seeded spurge	14
EUPHORBIACEAE	*Euphorbia peplus*	Euphorbia peplus	petty spurge	2
EUPHORBIACEAE	*Euphorbia stevenii*	Euphorbia stevenii	bottletree spurge	92
EUPHORBIACEAE	*Euphorbia tannensis* ssp. *eremophila*	Euphorbia tannensis ssp. eremophila	desert spurge	174
EUPHORBIACEAE	*Euphorbia tannensis* ssp.(NC)	Euphorbia tannensis ssp. eremophila	desert spurge	12
EUPHORBIACEAE	*Euphorbia terracina*	Euphorbia terracina	false caper	4
EUPHORBIACEAE	*Phyllanthus australis*	Phyllanthus australis	southern spurge	22
EUPHORBIACEAE	*Phyllanthus fuernrohrii*	Phyllanthus fuernrohrii	sand spurge	8
EUPHORBIACEAE	*Phyllanthus lacunarius*	Phyllanthus lacunarius	lagoon spurge	96
EUPHORBIACEAE	*Phyllanthus saxosus*	Phyllanthus saxosus	rock spurge	54
EUPHORBIACEAE	*Phyllanthus sp. aff. lacunarius*	Phyllanthus lacunarius	lagoon spurge	4
EUPHORBIACEAE	*Poranthera microphylla*	Poranthera microphylla	small poranthera	11
EUPHORBIACEAE	*Ricinus communis*	Ricinus communis	castor oil plant	6
EUPHORBIACEAE	*Sauropus rigens*	Sauropus rigens	stiff spurge	279
EUPHORBIACEAE	*Sauropus trachyspermus*	Sauropus trachyspermus	rough-seed spurge	40
FRANKENIACEAE	*Frankenia crispa*	Frankenia crispa	hoary sea-heath	4

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
FRANKENIACEAE	*Frankenia cupularis*	Frankenia cupularis		4
FRANKENIACEAE	*Frankenia foliosa*	Frankenia foliosa	leafy sea-heath	38
FRANKENIACEAE	*Frankenia pauciflora* var.	Frankenia pauciflora var.	southern sea-heath	6
FRANKENIACEAE	*Frankenia pauciflora* var. *fruticulosa*	Frankenia pauciflora var.	southern sea-heath	4
FRANKENIACEAE	*Frankenia pauciflora* var. *gunnii*	Frankenia pauciflora var.	southern sea-heath	2
FRANKENIACEAE	*Frankenia plicata*	Frankenia plicata		38
FRANKENIACEAE	*Frankenia serpyllifolia*	Frankenia serpyllifolia	thyme sea-heath	114
FRANKENIACEAE	*Frankenia subteres*	Frankenia subteres		18
FUMARIACEAE	*Fumaria capreolata* ssp. *capreolata*	Fumaria capreolata ssp. capreolata	white-flower fumitory	13
FUMARIACEAE	*Fumaria densiflora*	Fumaria densiflora	dense fumitory	4
FUMARIACEAE	*Fumaria muralis* ssp.	Fumaria muralis ssp.	wall fumitory	2
GENTIANACEAE	*Centaurium erythraea*	Centaurium erythraea	common centaury	2
GENTIANACEAE	*Centaurium spicatum*	Centaurium spicatum	spike centaury	15
GENTIANACEAE	*Centaurium tenuiflorum*	Centaurium tenuiflorum	branched centaury	2
GENTIANACEAE	*Sebaea ovata*	Sebaea ovata	yellow sebaea	26
GERANIACEAE	*Erodium "Blesing"(J.R.Wheeler 461)*	Erodium "Blesing"(J.R.Wheeler 461)	Blesing heron's-bill	1
GERANIACEAE	*Erodium angustilobum*	Erodium angustilobum		1
GERANIACEAE	*Erodium aureum*	Erodium aureum		43
GERANIACEAE	*Erodium botrys*	Erodium botrys	long heron's-bill	82
GERANIACEAE	*Erodium brachycarpum*	Erodium brachycarpum	short-fruit heron's-bill	8
GERANIACEAE	*Erodium cicutarium*	Erodium cicutarium	cut-leaf heron's-bill	696
GERANIACEAE	*Erodium crinitum*	Erodium crinitum	blue heron's-bill	461
GERANIACEAE	*Erodium crinitum/cygnorum*	Erodium crinitum/cygnorum	blue heron's-bill	28
GERANIACEAE	*Erodium cygnorum* ssp.	Erodium cygnorum ssp.	blue heron's-bill	56
GERANIACEAE	*Erodium cygnorum* ssp. *cygnorum*	Erodium cygnorum ssp.	blue heron's-bill	16
GERANIACEAE	*Erodium cygnorum* ssp. *glandulosum*	Erodium cygnorum ssp.	blue heron's-bill	146
GERANIACEAE	*Erodium malacoides*	Erodium malacoides	oval heron's-bill	382
GERANIACEAE	*Erodium moschatum*	Erodium moschatum	musky herons-bill	2
GERANIACEAE	*Geranium dissectum*	Geranium dissectum	cut-leaf geranium	10
GERANIACEAE	*Geranium molle* var. *molle*	Geranium molle var. molle	soft geranium	6
GERANIACEAE	*Geranium potentilloides* var. *potentilloides*	Geranium potentilloides var. potentilloides	downy geranium	10
GERANIACEAE	*Geranium retrorsum*	Geranium retrorsum	grassland geranium	109
GERANIACEAE	*Geranium solanderi* var. *solanderi*	Geranium solanderi var. solanderi	austral geranium	54
GERANIACEAE	*Pelargonium australe*	Pelargonium australe	australian pelargonium	1
GERANIACEAE	*Pelargonium littorale*	Pelargonium littorale	native pelargonium	2
GOODENIACEAE	*Dampiera dysantha*	Dampiera dysantha	shrubby dampiera	28
GOODENIACEAE	*Dampiera lanceolata* var.	Dampiera lanceolata var.	grooved dampiera	5
GOODENIACEAE	*Dampiera lanceolata* var. *lanceolata*	Dampiera lanceolata var.	grooved dampiera	2
GOODENIACEAE	*Goodenia albiflora*	Goodenia albiflora	white goodenia	94
GOODENIACEAE	*Goodenia amplexans*	Goodenia amplexans	clasping goodenia	21
GOODENIACEAE	*Goodenia anfracta*	Goodenia anfracta		2
GOODENIACEAE	*Goodenia berardiana*	Goodenia berardiana	split-end goodenia	16
GOODENIACEAE	*Goodenia calcarata*	Goodenia calcarata	streaked goodenia	43
GOODENIACEAE	*Goodenia chambersii*	Goodenia chambersii		2
GOODENIACEAE	*Goodenia cycloptera*	Goodenia cycloptera	serrated goodenia	8
GOODENIACEAE	*Goodenia fascicularis*	Goodenia fascicularis	silky goodenia	536
GOODENIACEAE	*Goodenia geniculata*	Goodenia geniculata	bent goodenia	2
GOODENIACEAE	*Goodenia glauca*	Goodenia glauca	pale goodenia	4
GOODENIACEAE	*Goodenia havilandii*	Goodenia havilandii	hill goodenia	7
GOODENIACEAE	*Goodenia lobata*	Goodenia lobata		24
GOODENIACEAE	*Goodenia lunata*	Goodenia lunata	stiff goodenia	16
GOODENIACEAE	*Goodenia ovata*	Goodenia ovata	hop goodenia	19
GOODENIACEAE	*Goodenia pinnatifida*	Goodenia pinnatifida	cut-leaf goodenia	395
GOODENIACEAE	*Goodenia pusilliflora*	Goodenia pusilliflora	small-flower goodenia	286
GOODENIACEAE	*Goodenia robusta*	Goodenia robusta	woolly goodenia	105
GOODENIACEAE	*Goodenia saccata*	Goodenia saccata	Flinders Ranges goodenia	3
GOODENIACEAE	*Goodenia varia*	Goodenia varia	sticky goodenia	3
GOODENIACEAE	*Goodenia vernicosa*	Goodenia vernicosa	wavy goodenia	123
GOODENIACEAE	*Goodenia willisiana*	Goodenia willisiana	silver goodenia	2
GOODENIACEAE	*Scaevola albida*	Scaevola albida	pale fan-flower	14
GOODENIACEAE	*Scaevola albida* var. *albida*	Scaevola albida	pale fan-flower	4
GOODENIACEAE	*Scaevola albida* var.(NC)	Scaevola albida	pale fan-flower	10
GOODENIACEAE	*Scaevola collaris*	Scaevola collaris		2
GOODENIACEAE	*Scaevola collina*	Scaevola collina	hill fanflower	65
GOODENIACEAE	*Scaevola humilis*	Scaevola humilis	inland fanflower	96
GOODENIACEAE	*Scaevola parvibarbata*	Scaevola parvibarbata	small-beard fanflower	34
GOODENIACEAE	*Scaevola spinescens*	Scaevola spinescens	spiny fanflower	332
GOODENIACEAE	*Velleia arguta*	Velleia arguta	toothed velleia	35
GOODENIACEAE	*Velleia paradoxa*	Velleia paradoxa	spur velleia	8
GRAMINEAE	*Agrostis avenacea* var.	Agrostis avenacea var.	common blown-grass	8
GRAMINEAE	*Agrostis avenacea* var. *avenacea*	Agrostis avenacea var.	common blown-grass	6
GRAMINEAE	*Agrostis avenacea* var. *perennis*	Agrostis avenacea var.	common blown-grass	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
GRAMINEAE	*Aira caryophyllea*	Aira caryophyllea	silvery hair-grass	16
GRAMINEAE	*Aira cupaniana*	Aira cupaniana	small hair-grass	151
GRAMINEAE	*Aira elegantissima* ssp. *elegantissima*	Aira elegantissima ssp. elegantissima	delicate hair-grass	4
GRAMINEAE	*Amphipogon caricinus* var. *caricinus*	Amphipogon caricinus var. caricinus	long grey-beard grass	14
GRAMINEAE	*Amphipogon strictus* var. *setifer*	Amphipogon strictus var. setifer	spreading grey-beard grass	2
GRAMINEAE	*Aristida anthoxanthoides*	Aristida anthoxanthoides	yellow threeawn	12
GRAMINEAE	*Aristida arida*	Aristida arida		58
GRAMINEAE	*Aristida behriana*	Aristida behriana	brush wire-grass	116
GRAMINEAE	*Aristida capillifolia*	Aristida capillifolia	needle-leaf threeawn	21
GRAMINEAE	*Aristida contorta*	Aristida contorta	curly wire-grass	226
GRAMINEAE	*Aristida holathera* var. *holathera*	Aristida holathera var. holathera	tall kerosene grass	14
GRAMINEAE	*Aristida latifolia*	Aristida latifolia	feathertop wiregrass	4
GRAMINEAE	*Aristida nitidula*	Aristida nitidula	brush threeawn	927
GRAMINEAE	*Aristida personata*	Aristida personata	purple wire-grass	4
GRAMINEAE	*Arundo donax*	Arundo donax	giant reed	2
GRAMINEAE	*Astrebla lappacea*	Astrebla lappacea	curly Mitchell-grass	49
GRAMINEAE	*Astrebla pectinata*	Astrebla pectinata	barley Mitchell-grass	158
GRAMINEAE	*Avellinia michelii*	Avellinia michelii	avellinia	34
GRAMINEAE	*Avena barbata*	Avena barbata	bearded oat	535
GRAMINEAE	*Avena fatua*	Avena fatua	wild oat	88
GRAMINEAE	*Avena sativa*	Avena sativa	cultivated oat	2
GRAMINEAE	*Brachyachne ciliaris*	Brachyachne ciliaris	hairy native couch	13
GRAMINEAE	*Brachypodium distachyon*	Brachypodium distachyon	false brome	159
GRAMINEAE	*Briza maxima*	Briza maxima	large quaking-grass	55
GRAMINEAE	*Briza minor*	Briza minor	lesser quaking-grass	44
GRAMINEAE	*Bromus arenarius*	Bromus arenarius	sand brome	25
GRAMINEAE	*Bromus diandrus*	Bromus diandrus	great brome	209
GRAMINEAE	*Bromus hordeaceus* ssp. *hordeaceus*	Bromus hordeaceus ssp. hordeaceus	soft brome	24
GRAMINEAE	*Bromus madritensis*	Bromus madritensis	compact brome	128
GRAMINEAE	*Bromus rigidus*	Bromus rigidus	rigid brome	18
GRAMINEAE	*Bromus rubens*	Bromus rubens	red brome	964
GRAMINEAE	*Cenchrus ciliaris*	Cenchrus ciliaris	buffel grass	8
GRAMINEAE	*Cenchrus ciliaris*(NC)	Cenchrus ciliaris	buffel grass	16
GRAMINEAE	*Chloris pectinata*	Chloris pectinata	comb windmill grass	40
GRAMINEAE	*Chloris truncata*	Chloris truncata	windmill grass	14
GRAMINEAE	*Critesion hystrix*	Critesion hystrix	Mediterranean barley-grass	4
GRAMINEAE	*Critesion marinum*	Critesion marinum	sea barley-grass	4
GRAMINEAE	*Critesion murinum* ssp.	Critesion murinum ssp.	barley-grass	71
GRAMINEAE	*Critesion murinum* ssp. *glaucum*	Critesion murinum ssp.	barley-grass	374
GRAMINEAE	*Critesion murinum* ssp. *leporinum*	Critesion murinum ssp.	barley-grass	78
GRAMINEAE	*Cymbopogon ambiguus*	Cymbopogon ambiguus	lemon-grass	1184
GRAMINEAE	*Cymbopogon obtectus*	Cymbopogon obtectus	silky-head lemon-grass	15
GRAMINEAE	*Cynodon dactylon*	Cynodon dactylon	couch	13
GRAMINEAE	*Cynosurus echinatus*	Cynosurus echinatus	rough dog's-tail grass	6
GRAMINEAE	*Dactyloctenium radulans*	Dactyloctenium radulans	button-grass	104
GRAMINEAE	*Danthonia auriculata*	Danthonia auriculata	lobed wallaby-grass	58
GRAMINEAE	*Danthonia caespitosa*	Danthonia caespitosa	common wallaby-grass	1212
GRAMINEAE	*Danthonia carphoides* var.	Danthonia carphoides var.	short wallaby-grass	2
GRAMINEAE	*Danthonia duttoniana*	Danthonia duttoniana	brown-back wallaby-grass	2
GRAMINEAE	*Danthonia eriantha*	Danthonia eriantha	hill wallaby-grass	56
GRAMINEAE	*Danthonia geniculata*	Danthonia geniculata	kneed wallaby-grass	8
GRAMINEAE	*Danthonia laevis*	Danthonia laevis	smooth wallaby-grass	6
GRAMINEAE	*Danthonia linkii* var. *fulva*	Danthonia linkii var. fulva	leafy wallaby-grass	2
GRAMINEAE	*Danthonia pilosa* var.	Danthonia pilosa var.	velvet wallaby-grass	32
GRAMINEAE	*Danthonia pilosa* var. *paleacea*	Danthonia pilosa var.	velvet wallaby-grass	2
GRAMINEAE	*Danthonia pilosa* var. *pilosa*	Danthonia pilosa var.	velvet wallaby-grass	4
GRAMINEAE	*Danthonia racemosa* var. *racemosa*	Danthonia racemosa var. racemosa	slender wallaby-grass	30
GRAMINEAE	*Danthonia setacea* var. *setacea*	Danthonia setacea var. setacea	small-flower wallaby-grass	79
GRAMINEAE	*Danthonia setacea*(NC)	Danthonia setacea var. setacea	small-flower wallaby-grass	2
GRAMINEAE	*Danthonia tenuior*	Danthonia tenuior	short-awn wallaby-grass	7
GRAMINEAE	*Desmazeria rigida*	Desmazeria rigida	rigid fescue	153
GRAMINEAE	*Deyeuxia densa*	Deyeuxia densa	heath bent-grass	4
GRAMINEAE	*Dichanthium sericeum* ssp.	Dichanthium sericeum ssp.	silky blue-grass	38
GRAMINEAE	*Dichanthium sericeum* ssp. *humilius*	Dichanthium sericeum ssp.	silky blue-grass	8
GRAMINEAE	*Dichanthium sericeum* ssp. *sericeum*	Dichanthium sericeum ssp.	silky blue-grass	10
GRAMINEAE	*Dichelachne crinita*	Dichelachne crinita	long-hair plume-grass	39
GRAMINEAE	*Digitaria brownii*	Digitaria brownii	cotton panic-grass	445
GRAMINEAE	*Digitaria coenicola*	Digitaria coenicola	spider grass	35

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
GRAMINEAE	*Diplachne fusca*	Diplachne fusca	brown beetle-grass	4
GRAMINEAE	*Distichlis distichophylla*	Distichlis distichophylla	emu-grass	1
GRAMINEAE	*Echinopogon ovatus* var. *ovatus*	Echinopogon ovatus var. ovatus	rough-beard grass	3
GRAMINEAE	*Ehrharta calycina*	Ehrharta calycina	perennial veldt grass	1
GRAMINEAE	*Ehrharta longiflora*	Ehrharta longiflora	annual veldt grass	34
GRAMINEAE	*Elymus repens*	Elymus repens	twitch grass	2
GRAMINEAE	*Elymus scabrus* var. *scabrus*	Elymus scabrus var. scabrus	native wheat-grass	113
GRAMINEAE	*Enneapogon avenaceus*	Enneapogon avenaceus	common bottle-washers	1397
GRAMINEAE	*Enneapogon caerulescens* var. *caerulescens*	Enneapogon caerulescens var. caerulescens	blue bottle-washers	8
GRAMINEAE	*Enneapogon cylindricus*	Enneapogon cylindricus	jointed bottle-washers	890
GRAMINEAE	*Enneapogon intermedius*	Enneapogon intermedius	tall bottle-washers	2
GRAMINEAE	*Enneapogon nigricans*	Enneapogon nigricans	black-head grass	108
GRAMINEAE	*Enneapogon oblongus*	Enneapogon oblongus	purple-head nineawn	91
GRAMINEAE	*Enneapogon polyphyllus*	Enneapogon polyphyllus	leafy bottle-washers	411
GRAMINEAE	*Enteropogon acicularis*	Enteropogon acicularis	umbrella grass	70
GRAMINEAE	*Enteropogon acicularis*(NC)	Enteropogon acicularis	umbrella grass	42
GRAMINEAE	*Enteropogon ramosus*	Enteropogon ramosus	umbrella grass	16
GRAMINEAE	*Eragrostis australasica*	Eragrostis australasica	cane-grass	7
GRAMINEAE	*Eragrostis barrelieri*	Eragrostis barrelieri	pitted love-grass	28
GRAMINEAE	*Eragrostis benthamii*	Eragrostis benthamii	Bentham's love-grass	2
GRAMINEAE	*Eragrostis dielsii* var. *dielsii*	Eragrostis dielsii var. dielsii	mulka	108
GRAMINEAE	*Eragrostis eriopoda*	Eragrostis eriopoda	woollybutt	30
GRAMINEAE	*Eragrostis falcata*	Eragrostis falcata	sickle love-grass	8
GRAMINEAE	*Eragrostis lacunaria*	Eragrostis lacunaria	purple love-grass	4
GRAMINEAE	*Eragrostis laniflora*	Eragrostis laniflora	hairy-flower woollybutt	6
GRAMINEAE	*Eragrostis leptocarpa*	Eragrostis leptocarpa	drooping love-grass	2
GRAMINEAE	*Eragrostis minor*	Eragrostis minor	small stink-grass	1
GRAMINEAE	*Eragrostis setifolia*	Eragrostis setifolia	bristly love-grass	233
GRAMINEAE	*Eragrostis xerophila*	Eragrostis xerophila	knotty-butt neverfail	38
GRAMINEAE	*Eriachne mucronata*	Eriachne mucronata	mountain wanderrie	53
GRAMINEAE	*Eriochloa australiensis*	Eriochloa australiensis	Australian cupgrass	4
GRAMINEAE	*Eulalia aurea*	Eulalia aurea	silky browntop	1
GRAMINEAE	*Festuca benthamiana*	Festuca benthamiana	Bentham's fescue	2
GRAMINEAE	*Gastridium phleoides*	Gastridium phleoides	nit-grass	4
GRAMINEAE	*Hainardia cylindrica*	Hainardia cylindrica	common barb-grass	4
GRAMINEAE	*Holcus lanatus*	Holcus lanatus	Yorkshire fog	2
GRAMINEAE	*Homopholis proluta*	Homopholis proluta	rigid panic	8
GRAMINEAE	*Iseilema membranaceum*	Iseilema membranaceum	small Flinders-grass	6
GRAMINEAE	*Lamarckia aurea*	Lamarckia aurea	toothbrush grass	207
GRAMINEAE	*Lolium loliaceum*	Lolium loliaceum	stiff ryegrass	14
GRAMINEAE	*Lolium perenne*	Lolium perenne	perennial ryegrass	20
GRAMINEAE	*Lolium perenne x rigidum*	Lolium sp.	ryegrass	8
GRAMINEAE	*Lolium rigidum*	Lolium rigidum	Wimmera ryegrass	101
GRAMINEAE	*Microlaena stipoides* var. *stipoides*	Microlaena stipoides var. stipoides	weeping rice-grass	3
GRAMINEAE	*Neurachne alopecuroidea*	Neurachne alopecuroidea	fox-tail mulga-grass	24
GRAMINEAE	*Panicum decompositum* var. *decompositum*	Panicum decompositum var. decompositum	native millet	97
GRAMINEAE	*Panicum effusum* var. *effusum*	Panicum effusum var. effusum	hairy panic	32
GRAMINEAE	*Panicum schinzii*	Panicum schinzii	sweet panic	1
GRAMINEAE	*Paractaenum refractum*	Paractaenum refractum	bristle-brush grass	2
GRAMINEAE	*Parapholis incurva*	Parapholis incurva	curly ryegrass	25
GRAMINEAE	*Paspalidium basicladum*	Paspalidium basicladum		10
GRAMINEAE	*Paspalidium clementii*	Paspalidium clementii	Clement's paspalidium	4
GRAMINEAE	*Paspalidium constrictum*	Paspalidium constrictum	knotty-butt paspalidium	130
GRAMINEAE	*Paspalidium gracile*	Paspalidium gracile	slender panic	2
GRAMINEAE	*Pentaschistis airoides*	Pentaschistis airoides	false hair-grass	170
GRAMINEAE	*Pentaschistis pallida*	Pentaschistis pallida	pussy tail	2
GRAMINEAE	*Phalaris minor*	Phalaris minor	lesser canary-grass	10
GRAMINEAE	*Phragmites australis*	Phragmites australis	common reed	4
GRAMINEAE	*Piptatherum miliaceum*	Piptatherum miliaceum	rice millet	12
GRAMINEAE	*Poa annua*	Poa annua	winter grass	2
GRAMINEAE	*Poa bulbosa*	Poa bulbosa	bulbous meadow-grass	16
GRAMINEAE	*Poa clelandii*	Poa clelandii	matted tussock-grass	8
GRAMINEAE	*Poa crassicaudex*	Poa crassicaudex	thick-stem tussock-grass	116
GRAMINEAE	*Poa drummondiana*	Poa drummondiana	knotted poa	2
GRAMINEAE	*Poa fax*	Poa fax	scaly poa	2
GRAMINEAE	*Poa labillardieri* var. *labillardieri*	Poa labillardieri var. labillardieri	common tussock-grass	13
GRAMINEAE	*Polypogon monspeliensis*	Polypogon monspeliensis	annual beard-grass	7
GRAMINEAE	*Polypogon viridis*	Polypogon viridis	water bent	15
GRAMINEAE	*Puccinellia distans*	Puccinellia distans	reflexed poa	2
GRAMINEAE	*Puccinellia stricta* var. *stricta*	Puccinellia stricta var. stricta	Australian saltmarsh-grass	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
GRAMINEAE	*Rostraria cristata*	Rostraria cristata	annual cat's-tail	266
GRAMINEAE	*Rostraria pumila*	Rostraria pumila	tiny bristle-grass	349
GRAMINEAE	*Schismus barbatus*	Schismus barbatus	Arabian grass	910
GRAMINEAE	*Setaria dielsii*	Setaria dielsii	Diel's pigeon-grass	4
GRAMINEAE	*Setaria verticillata*	Setaria verticillata	whorled pigeon-grass	8
GRAMINEAE	*Sporobolus actinocladus*	Sporobolus actinocladus	ray grass	119
GRAMINEAE	*Sporobolus caroli*	Sporobolus caroli	yakka grass	8
GRAMINEAE	*Sporobolus virginicus*	Sporobolus virginicus	salt couch	4
GRAMINEAE	*Stipa acrociliata*	Stipa acrociliata	graceful spear-grass	53
GRAMINEAE	*Stipa blackii*	Stipa blackii	crested spear-grass	134
GRAMINEAE	*Stipa breviglumis*	Stipa breviglumis	cane spear-grass	27
GRAMINEAE	*Stipa curticoma*	Stipa curticoma	short-crest spear-grass	22
GRAMINEAE	*Stipa drummondii*	Stipa drummondii	cottony spear-grass	79
GRAMINEAE	*Stipa elegantissima*	Stipa elegantissima	feather spear-grass	374
GRAMINEAE	*Stipa eremophila*	Stipa eremophila	rusty spear-grass	129
GRAMINEAE	*Stipa flavescens*	Stipa flavescens	coast spear-grass	14
GRAMINEAE	*Stipa gibbosa*	Stipa gibbosa	swollen spear-grass	18
GRAMINEAE	*Stipa hemipogon*	Stipa hemipogon	half-beard spear-grass	3
GRAMINEAE	*Stipa mollis*	Stipa mollis	soft spear-grass	2
GRAMINEAE	*Stipa nitida*	Stipa nitida	Balcarra spear-grass	972
GRAMINEAE	*Stipa nodosa*	Stipa nodosa	tall spear-grass	387
GRAMINEAE	*Stipa petraea*	Stipa petraea	Flinders Range spear-grass	13
GRAMINEAE	*Stipa pilata*	Stipa pilata	prickly spear-grass	40
GRAMINEAE	*Stipa platychaeta*	Stipa platychaeta	flat-awn spear-grass	56
GRAMINEAE	*Stipa puberula*	Stipa puberula	fine-hairy spear-grass	14
GRAMINEAE	*Stipa scabra group*	Stipa scabra ssp.	rough spear-grass	93
GRAMINEAE	*Stipa scabra* ssp.	Stipa scabra ssp.	rough spear-grass	598
GRAMINEAE	*Stipa scabra* ssp. *falcata*	Stipa scabra ssp.	rough spear-grass	80
GRAMINEAE	*Stipa scabra* ssp. *scabra*	Stipa scabra ssp.	rough spear-grass	48
GRAMINEAE	*Stipa semibarbata*	Stipa semibarbata	fibrous spear-grass	12
GRAMINEAE	*Stipa setacea*	Stipa setacea	corkscrew spear-grass	37
GRAMINEAE	*Stipa tenuifolia*	Stipa tenuifolia		4
GRAMINEAE	*Stipa trichophylla*	Stipa trichophylla		219
GRAMINEAE	*Stipa tuckeri*	Stipa tuckeri	Tucker's spear-grass	2
GRAMINEAE	*Stipa variabilis*	Stipa variabilis	variable spear-grass	6
GRAMINEAE	*Themeda triandra*	Themeda triandra	kangaroo grass	239
GRAMINEAE	*Thyridolepis mitchelliana*	Thyridolepis mitchelliana	window mulga-grass	3
GRAMINEAE	*Tragus australianus*	Tragus australianus	small burr-grass	28
GRAMINEAE	*Triodia irritans*	Triodia irritans complex	spinifex	124
GRAMINEAE	*Triodia irritans complex*	Triodia irritans complex	spinifex	6
GRAMINEAE	*Triodia irritans* var.(NC)	Triodia irritans complex	spinifex	260
GRAMINEAE	*Triodia scariosa* ssp.	Triodia irritans complex	spinifex	35
GRAMINEAE	*Triodia scariosa* ssp. *bunicola*	Triodia irritans complex	spinifex	24
GRAMINEAE	*Triodia scariosa* ssp. *scariosa*	Triodia irritans complex	spinifex	6
GRAMINEAE	*Tripogon loliiformis*	Tripogon loliiformis	five-minute grass	116
GRAMINEAE	*Triraphis mollis*	Triraphis mollis	purple plume grass	78
GRAMINEAE	*Triticum aestivum*	Triticum aestivum	wheat	8
GRAMINEAE	*Urochloa praetervisa*	Urochloa praetervisa	large arm-grass	62
GRAMINEAE	*Vulpia bromoides*	Vulpia bromoides/myuros		26
GRAMINEAE	*Vulpia bromoides/myuros*	Vulpia bromoides/myuros		76
GRAMINEAE	*Vulpia muralis*	Vulpia muralis	wall fescue	158
GRAMINEAE	*Vulpia myuros forma*	Vulpia bromoides/myuros		98
GRAMINEAE	*Vulpia myuros forma megalura*	Vulpia bromoides/myuros		12
GRAMINEAE	*Vulpia myuros forma myuros*	Vulpia bromoides/myuros		226
GRAMINEAE	*Zygochloa paradoxa*	Zygochloa paradoxa	sandhill cane-grass	4
GUTTIFERAE	*Hypericum gramineum*	Hypericum gramineum	small St John's wort	3
GUTTIFERAE	*Hypericum perforatum*	Hypericum perforatum	St John's wort	4
GYROSTEMONACEAE	*Codonocarpus pyramidalis*	Codonocarpus pyramidalis	slender bell-fruit	32
GYROSTEMONACEAE	*Gyrostemon ramulosus*	Gyrostemon ramulosus	bushy wheel-fruit	1
HALORAGACEAE	*Gonocarpus elatus*	Gonocarpus elatus	hill raspwort	249
HALORAGACEAE	*Gonocarpus tetragynus*	Gonocarpus tetragynus	small-leaf raspwort	44
HALORAGACEAE	*Haloragis aspera*	Haloragis aspera	rough raspwort	76
HALORAGACEAE	*Haloragis heterophylla*	Haloragis heterophylla	variable raspwort	1
HYDROCHARITACEAE	*Hydrilla verticillata*	Hydrilla verticillata	waterthyme	1
HYPOXIDACEAE	*Hypoxis glabella* var. *glabella*	Hypoxis glabella var. glabella	tiny star	56
IRIDACEAE	*Gynandriris setifolia*	Gynandriris setifolia	thread iris	174
IRIDACEAE	*Homeria flaccida*	Homeria flaccida	one-leaf Cape tulip	6
IRIDACEAE	*Romulea minutiflora*	Romulea minutiflora	small-flower onion-grass	14
IRIDACEAE	*Romulea rosea* var. *australis*	Romulea rosea var. australis	common onion-grass	2
JUNCACEAE	*Juncus acutus*	Juncus acutus	sharp rush	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
JUNCACEAE	*Juncus aridicola*	Juncus aridicola	inland rush	9
JUNCACEAE	*Juncus articulatus*	Juncus articulatus	jointed rush	1
JUNCACEAE	*Juncus australis*	Juncus australis	austral rush	4
JUNCACEAE	*Juncus bufonius*	Juncus bufonius	toad rush	4
JUNCACEAE	*Juncus capitatus*	Juncus capitatus	dwarf rush	2
JUNCACEAE	*Juncus flavidus*	Juncus flavidus	yellow rush	7
JUNCACEAE	*Juncus homalocaulis*	Juncus homalocaulis	wiry rush	2
JUNCACEAE	*Juncus kraussii*	Juncus kraussii	sea rush	7
JUNCACEAE	*Juncus sarophorus*	Juncus sarophorus		2
JUNCACEAE	*Juncus subsecundus*	Juncus subsecundus	finger rush	36
JUNCACEAE	*Luzula meridionalis*	Luzula meridionalis	common wood-rush	34
JUNCAGINACEAE	*Triglochin minutissumum*	Triglochin minutissumum	tiny arrowgrass	2
JUNCAGINACEAE	*Triglochin striatum*	Triglochin striatum	streaked arrowgrass	2
LABIATAE	*Ajuga australis form*	Ajuga australis form	Australian bugle	24
LABIATAE	*Ajuga australis form A*	Ajuga australis form	Australian bugle	52
LABIATAE	*Lamium amplexicaule* var. *amplexicaule*	Lamium amplexicaule var. amplexicaule	deadnettle	4
LABIATAE	*Marrubium vulgare*	Marrubium vulgare	horehound	541
LABIATAE	*Plectranthus intraterraneus*	Plectranthus intraterraneus	inland spur-flower	20
LABIATAE	*Prostanthera behriana*	Prostanthera behriana	downy mintbush	7
LABIATAE	*Prostanthera spinosa*	Prostanthera spinosa	spiny mintbush	1
LABIATAE	*Prostanthera striatiflora*	Prostanthera striatiflora	striated mintbush	437
LABIATAE	*Salvia aethiopis*	Salvia aethiopis	woolly sage	2
LABIATAE	*Salvia verbenaca form*	Salvia verbenaca form	wild sage	113
LABIATAE	*Salvia verbenaca form A*	Salvia verbenaca form	wild sage	90
LABIATAE	*Salvia verbenaca form B*	Salvia verbenaca form	wild sage	8
LABIATAE	*Scutellaria humilis*	Scutellaria humilis	dwarf skullcap	3
LABIATAE	*Teucrium corymbosum*	Teucrium corymbosum	rock germander	11
LABIATAE	*Teucrium racemosum*	Teucrium racemosum	grey germander	72
LABIATAE	*Teucrium sessiliflorum*	Teucrium sessiliflorum	mallee germander	16
LABIATAE	*Westringia rigida*	Westringia rigida	stiff westringia	106
LAURACEAE	*Cassytha melantha*	Cassytha melantha	coarse dodder-laurel	24
LAURACEAE	*Cassytha peninsularis* var.	Cassytha peninsularis var.	peninsula dodder-laurel	23
LAURACEAE	*Cassytha peninsularis* var. *flindersii*	Cassytha peninsularis var.	peninsula dodder-laurel	37
LEGUMINOSAE	*Acacia acinacea*	Acacia acinacea	wreath wattle	1
LEGUMINOSAE	*Acacia aneura* var.	Acacia aneura var.	mulga	267
LEGUMINOSAE	*Acacia aneura* var. *aneura*	Acacia aneura var.	mulga	5
LEGUMINOSAE	*Acacia aneura*(NC)	Acacia aneura var.	mulga	376
LEGUMINOSAE	*Acacia araneosa*	Acacia araneosa	spidery wattle	8
LEGUMINOSAE	*Acacia argyrophylla*	Acacia argyrophylla	silver mulga-bush	6
LEGUMINOSAE	*Acacia ayersiana* var.	Acacia ayersiana var.	broad-leaf mulga	2
LEGUMINOSAE	*Acacia ayersiana* var. *latifolia*	Acacia ayersiana var.	broad-leaf mulga	4
LEGUMINOSAE	*Acacia beckleri*	Acacia beckleri	Beckler's rock wattle	21
LEGUMINOSAE	*Acacia burkittii*	Acacia burkittii	pin-bush wattle	38
LEGUMINOSAE	*Acacia calamifolia*	Acacia calamifolia	wallowa	203
LEGUMINOSAE	*Acacia cibaria*	Acacia cibaria	turpentine mulga	1
LEGUMINOSAE	*Acacia confluens*	Acacia confluens	Arkaroola wattle	35
LEGUMINOSAE	*Acacia continua*	Acacia continua	thorn wattle	222
LEGUMINOSAE	*Acacia coriacea*	Acacia coriacea	wirewood	4
LEGUMINOSAE	*Acacia cupularis*	Acacia cupularis	cup wattle	2
LEGUMINOSAE	*Acacia gracilifolia*	Acacia gracilifolia	graceful wattle	30
LEGUMINOSAE	*Acacia hakeoides*	Acacia hakeoides	hakea wattle	48
LEGUMINOSAE	*Acacia havilandii*	Acacia havilandii	needle wattle	52
LEGUMINOSAE	*Acacia iteaphylla*	Acacia iteaphylla	Flinders Ranges wattle	17
LEGUMINOSAE	*Acacia kempeana*	Acacia kempeana	witchetty bush	7
LEGUMINOSAE	*Acacia ligulata*	Acacia ligulata	umbrella bush	91
LEGUMINOSAE	*Acacia ligulata*(NC)	Acacia ligulata	umbrella bush	218
LEGUMINOSAE	*Acacia microcarpa x paradoxa*	Acacia microcarpa	manna wattle	2
LEGUMINOSAE	*Acacia montana*	Acacia montana	mallee wattle	6
LEGUMINOSAE	*Acacia notabilis*	Acacia notabilis	notable wattle	39
LEGUMINOSAE	*Acacia nyssophylla*	Acacia nyssophylla	spine bush	32
LEGUMINOSAE	*Acacia oswaldii*	Acacia oswaldii	umbrella wattle	314
LEGUMINOSAE	*Acacia papyrocarpa*	Acacia papyrocarpa	western myall	8
LEGUMINOSAE	*Acacia paradoxa*	Acacia paradoxa	kangaroo thorn	14
LEGUMINOSAE	*Acacia pravifolia*	Acacia pravifolia	coil-pod wattle	24
LEGUMINOSAE	*Acacia pycnantha*	Acacia pycnantha	golden wattle	208
LEGUMINOSAE	*Acacia quornensis*	Acacia quornensis	Quorn wattle	10
LEGUMINOSAE	*Acacia rigens*	Acacia rigens	nealie	18
LEGUMINOSAE	*Acacia rivalis*	Acacia rivalis	silver wattle	503
LEGUMINOSAE	*Acacia rupicola*	Acacia rupicola	rock wattle	20
LEGUMINOSAE	*Acacia salicina*	Acacia salicina	willow wattle	29
LEGUMINOSAE	*Acacia stowardii*	Acacia stowardii	bastard mulga	6
LEGUMINOSAE	*Acacia tetragonophylla*	Acacia tetragonophylla	dead finish	1447

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
LEGUMINOSAE	*Acacia victoriae* ssp.	Acacia victoriae ssp.	elegant wattle	227
LEGUMINOSAE	*Acacia victoriae* ssp. *victoriae*	Acacia victoriae ssp.	elegant wattle	2056
LEGUMINOSAE	*Acacia wattsiana*	Acacia wattsiana	dog wattle	20
LEGUMINOSAE	*Acacia wilhelmiana*	Acacia wilhelmiana	dwarf nealie	35
LEGUMINOSAE	*Bossiaea prostrata*	Bossiaea prostrata	creeping bossiaea	3
LEGUMINOSAE	*Crotalaria eremaea* ssp.	Crotalaria eremaea ssp.	loose-flowered rattlepod	2
LEGUMINOSAE	*Crotalaria eremaea* ssp. *eremaea*	Crotalaria eremaea ssp.	loose-flowered rattlepod	4
LEGUMINOSAE	*Crotalaria eremaea* ssp. *strehlowii*	Crotalaria eremaea ssp.	loose-flowered rattlepod	2
LEGUMINOSAE	*Cullen australasicum*	Cullen australasicum	tall scurf-pea	100
LEGUMINOSAE	*Cullen cinereum*	Cullen cinereum	annual scurf-pea	18
LEGUMINOSAE	*Cullen discolor*	Cullen discolor	prostrate scurf-pea	2
LEGUMINOSAE	*Cullen graveolens*	Cullen graveolens	native lucerne	3
LEGUMINOSAE	*Cullen pallidum*	Cullen pallidum	white scurf-pea	2
LEGUMINOSAE	*Cullen patens*	Cullen patens	spreading scurf-pea	4
LEGUMINOSAE	*Daviesia benthamii* ssp. *humilis*	Daviesia benthamii ssp. humilis	mallee bitter-pea	1
LEGUMINOSAE	*Daviesia genistifolia*	Daviesia genistifolia	broom bitter-pea	57
LEGUMINOSAE	*Daviesia leptophylla*	Daviesia leptophylla	narrow-leaf bitter-pea	20
LEGUMINOSAE	*Daviesia stricta*	Daviesia stricta	Flinders Ranges bitter-pea	9
LEGUMINOSAE	*Daviesia ulicifolia* ssp.	Daviesia ulicifolia ssp.		1
LEGUMINOSAE	*Daviesia ulicifolia*(NC)	Daviesia ulicifolia ssp.		10
LEGUMINOSAE	*Eutaxia diffusa*	Eutaxia diffusa	large-leaf eutaxia	10
LEGUMINOSAE	*Eutaxia microphylla* var. *microphylla*	Eutaxia microphylla var. microphylla	common eutaxia	122
LEGUMINOSAE	*Eutaxia microphylla* var. *microphylla (erect)*	Eutaxia microphylla var. microphylla	common eutaxia	8
LEGUMINOSAE	*Glycine canescens*	Glycine canescens	silky glycine	19
LEGUMINOSAE	*Glycine clandestina* var.	Glycine clandestina var.	twining glycine	116
LEGUMINOSAE	*Glycine clandestina* var. *clandestina*	Glycine clandestina var.	twining glycine	4
LEGUMINOSAE	*Glycine clandestina* var. *sericea*	Glycine clandestina var.	twining glycine	486
LEGUMINOSAE	*Glycyrrhiza glabra*	Glycyrrhiza glabra	liquorice	2
LEGUMINOSAE	*Goodia lotifolia* var. *lotifolia*(NC)	Goodia lotifolia		8
LEGUMINOSAE	*Goodia medicaginea*	Goodia lotifolia		1
LEGUMINOSAE	*Hardenbergia violacea*	Hardenbergia violacea	native lilac	7
LEGUMINOSAE	*Hovea purpurea*	Hovea purpurea	tall hovea	4
LEGUMINOSAE	*Indigofera australis* var. *australis*	Indigofera australis var. australis	austral indigo	53
LEGUMINOSAE	*Indigofera georgei*	Indigofera georgei	George's indigo	2
LEGUMINOSAE	*Indigofera helmsii*	Indigofera helmsii	Helm's indigo	9
LEGUMINOSAE	*Indigofera leucotricha*	Indigofera leucotricha	silver indigo	90
LEGUMINOSAE	*Indigofera longibractea*	Indigofera longibractea		10
LEGUMINOSAE	*Kennedia prostrata*	Kennedia prostrata	scarlet runner	42
LEGUMINOSAE	*Lotus australis*	Lotus australis	austral trefoil	14
LEGUMINOSAE	*Lotus cruentus*	Lotus cruentus	red-flower lotus	704
LEGUMINOSAE	*Medicago minima* var. *minima*	Medicago minima var. minima	little medic	759
LEGUMINOSAE	*Medicago polymorpha* var. *polymorpha*	Medicago polymorpha var. polymorpha	burr-medic	338
LEGUMINOSAE	*Medicago praecox*	Medicago praecox	small-leaf burr-medic	5
LEGUMINOSAE	*Medicago sativa* ssp.	Medicago sativa ssp.	lucerne	8
LEGUMINOSAE	*Medicago sativa* ssp. *sativa*	Medicago sativa ssp.	lucerne	2
LEGUMINOSAE	*Medicago truncatula*	Medicago truncatula	barrel medic	150
LEGUMINOSAE	*Melilotus indica*	Melilotus indica	King Island melilot	26
LEGUMINOSAE	*Petalostylis labicheoides*	Petalostylis labicheoides	butterfly bush	34
LEGUMINOSAE	*Psoralea patens*(NC)	Cullen patens	spreading scurf-pea	8
LEGUMINOSAE	*Pultenaea graveolens*	Pultenaea graveolens	scented bush-pea	10
LEGUMINOSAE	*Pultenaea kraehenbuehlii*	Pultenaea kraehenbuehlii	Tothill bush-pea	2
LEGUMINOSAE	*Pultenaea largiflorens*	Pultenaea largiflorens	twiggy bush-pea	116
LEGUMINOSAE	*Rhynchosia minima*	Rhynchosia minima	rhynchosia	6
LEGUMINOSAE	*Rhynchosia minima*(NC)	Rhynchosia minima	rhynchosia	24
LEGUMINOSAE	*Senna artemisioides* nothossp.	Senna artemisioides ssp.	desert senna	6
LEGUMINOSAE	*Senna artemisioides* nothossp. *artemisioides*	Senna artemisioides ssp.	desert senna	853
LEGUMINOSAE	*Senna artemisioides* nothossp. *coriacea*	Senna artemisioides ssp.	desert senna	872
LEGUMINOSAE	*Senna artemisioides* nothossp. *sturtii*	Senna artemisioides ssp.	desert senna	56
LEGUMINOSAE	*Senna artemisioides* ssp.	Senna artemisioides ssp.	desert senna	182
LEGUMINOSAE	*Senna artemisioides* ssp. *alicia*	Senna artemisioides ssp.	desert senna	2
LEGUMINOSAE	*Senna artemisioides* ssp. *alicia x notho*ssp. *coriacea*	Senna artemisioides ssp.	desert senna	2
LEGUMINOSAE	*Senna artemisioides* ssp. *filifolia*	Senna artemisioides ssp.	desert senna	140
LEGUMINOSAE	*Senna artemisioides* ssp. *filifolia x* ssp. *petiolaris*	Senna artemisioides ssp.	desert senna	6
LEGUMINOSAE	*Senna artemisioides* ssp. *helmsii*	Senna artemisioides ssp.	desert senna	97
LEGUMINOSAE	*Senna artemisioides* ssp. *oligophylla*	Senna artemisioides ssp.	desert senna	40
LEGUMINOSAE	*Senna artemisioides* ssp. *petiolaris*	Senna artemisioides ssp.	desert senna	281
LEGUMINOSAE	*Senna artemisioides* ssp. *petiolaris x notho*ssp. *sturtii*	Senna artemisioides ssp.	desert senna	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
LEGUMINOSAE	*Senna artemisioides* ssp. *quadrifolia*	Senna artemisioides ssp.	desert senna	56
LEGUMINOSAE	*Senna artemisioides* ssp. *zygophylla*	Senna artemisioides ssp.	desert senna	16
LEGUMINOSAE	*Senna cardiosperma* ssp. *gawlerensis*	Senna cardiosperma ssp. gawlerensis	Gawler Ranges senna	2
LEGUMINOSAE	*Swainsona adenophylla*	Swainsona adenophylla	violet swainson-pea	4
LEGUMINOSAE	*Swainsona burkittii*	Swainsona burkittii	woolly Darling pea	2
LEGUMINOSAE	*Swainsona canescens* var. *canescens*(NC)	Swainsona canescens var.		2
LEGUMINOSAE	*Swainsona fissimontana*	Swainsona fissimontana	Broken Hill pea	5
LEGUMINOSAE	*Swainsona flavicarinata*	Swainsona flavicarinata	yellow-keel swainson-pea	20
LEGUMINOSAE	*Swainsona formosa*	Swainsona formosa	Sturt pea	32
LEGUMINOSAE	*Swainsona fuscoviridis*	Swainsona fuscoviridis	dark green swainson-pea	2
LEGUMINOSAE	*Swainsona leeana*	Swainsona leeana	Lee's swainson-pea	2
LEGUMINOSAE	*Swainsona microcalyx*	Swainsona microcalyx	wild violet	2
LEGUMINOSAE	*Swainsona oligophylla*	Swainsona oligophylla		2
LEGUMINOSAE	*Swainsona oliveri*	Swainsona oliveri		6
LEGUMINOSAE	*Swainsona phacoides*	Swainsona phacoides	dwarf swainson-pea	26
LEGUMINOSAE	*Swainsona procumbens*	Swainsona procumbens	Broughton pea	2
LEGUMINOSAE	*Swainsona stipularis*	Swainsona stipularis	orange swainson-pea	18
LEGUMINOSAE	*Swainsona stipularis*(NC)	Swainsona stipularis	orange swainson-pea	18
LEGUMINOSAE	*Swainsona tephrotricha*	Swainsona tephrotricha	ashy-haired swainson-pea	67
LEGUMINOSAE	*Swainsona viridis*	Swainsona viridis	creeping Darling pea	6
LEGUMINOSAE	*Templetonia aculeata*	Templetonia aculeata	spiny mallee-pea	73
LEGUMINOSAE	*Templetonia egena*	Templetonia egena	broombush templetonia	48
LEGUMINOSAE	*Templetonia retusa*	Templetonia retusa	cockies tongue	26
LEGUMINOSAE	*Tephrosia sphaerospora*	Tephrosia sphaerospora	mulga trefoil	2
LEGUMINOSAE	*Trifolium angustifolium*	Trifolium angustifolium	narrow-leaf clover	169
LEGUMINOSAE	*Trifolium arvense* var. *arvense*	Trifolium arvense var. arvense	hare's-foot clover	280
LEGUMINOSAE	*Trifolium campestre*	Trifolium campestre	hop clover	196
LEGUMINOSAE	*Trifolium dubium*	Trifolium dubium	suckling clover	4
LEGUMINOSAE	*Trifolium glomeratum*	Trifolium glomeratum	cluster clover	78
LEGUMINOSAE	*Trifolium hirtum*	Trifolium hirtum	rose clover	6
LEGUMINOSAE	*Trifolium pilulare*	Trifolium pilulare	pill clover	4
LEGUMINOSAE	*Trifolium subterraneum*	Trifolium subterraneum	subterranean clover	20
LEGUMINOSAE	*Trifolium tomentosum*	Trifolium tomentosum	woolly clover	56
LEGUMINOSAE	*Vicia hirsuta*	Vicia hirsuta	hairy vetch	10
LEGUMINOSAE	*Vicia monantha*	Vicia monantha	spurred vetch	77
LEGUMINOSAE	*Vicia sativa* ssp.	Vicia sativa ssp.	common vetch	2
LILIACEAE	*Arthropodium fimbriatum*	Arthropodium fimbriatum	nodding vanilla-lily	22
LILIACEAE	*Arthropodium minus*	Arthropodium minus	small vanilla-lily	56
LILIACEAE	*Arthropodium strictum*	Arthropodium strictum	common vanilla-lily	550
LILIACEAE	*Asphodelus fistulosus*	Asphodelus fistulosus	onion weed	467
LILIACEAE	*Bulbine alata*	Bulbine alata	winged bulbine-lily	29
LILIACEAE	*Bulbine bulbosa*	Bulbine bulbosa	bulbine-lily	96
LILIACEAE	*Bulbine semibarbata*	Bulbine semibarbata	small leek-lily	132
LILIACEAE	*Caesia calliantha*	Caesia calliantha	blue grass-lily	34
LILIACEAE	*Dianella brevicaulis/revoluta* var.	Dianella revoluta var.		88
LILIACEAE	*Dianella longifolia* var. *grandis*	Dianella longifolia var. grandis	pale flax-lily	22
LILIACEAE	*Dianella revoluta* var.	Dianella revoluta var.		36
LILIACEAE	*Dianella revoluta* var. *divaricata*	Dianella revoluta var.		54
LILIACEAE	*Dianella revoluta* var. *revoluta*	Dianella revoluta var.		188
LILIACEAE	*Dianella revoluta*(NC)	Dianella revoluta var.		98
LILIACEAE	*Lomandra collina*	Lomandra collina	sand mat-rush	11
LILIACEAE	*Lomandra densiflora*	Lomandra densiflora	soft tussock mat-rush	197
LILIACEAE	*Lomandra effusa*	Lomandra effusa	scented mat-rush	126
LILIACEAE	*Lomandra micrantha* ssp.	Lomandra micrantha ssp.	small-flower mat-rush	2
LILIACEAE	*Lomandra multiflora* ssp.	Lomandra multiflora ssp. dura	hard mat-rush	3
LILIACEAE	*Lomandra multiflora* ssp. *dura*	Lomandra multiflora ssp. dura	hard mat-rush	622
LILIACEAE	*Lomandra multiflora* ssp. *multiflora*	Lomandra multiflora ssp. multiflora	many-flower mat-rush	2
LILIACEAE	*Myrsiphyllum asparagoides*	Myrsiphyllum asparagoides	bridal creeper	16
LILIACEAE	*Thysanotus baueri*	Thysanotus baueri	mallee fringe-lily	122
LILIACEAE	*Thysanotus patersonii*	Thysanotus patersonii	twining fringe-lily	118
LILIACEAE	*Thysanotus tenellus*	Thysanotus tenellus	grassy fringe-lily	34
LILIACEAE	*Tricoryne elatior*	Tricoryne elatior	yellow rush-lily	2
LILIACEAE	*Tricoryne elatior*(NC)	Tricoryne elatior	yellow rush-lily	2
LILIACEAE	*Wurmbea biglandulosa* ssp. *flindersica*	Wurmbea biglandulosa ssp. flindersica	Flinders Ranges star-lily	6
LILIACEAE	*Wurmbea centralis* ssp. *australis*	Wurmbea centralis ssp. australis	inland star-lily	11
LILIACEAE	*Wurmbea centralis*(NC)	Wurmbea centralis ssp. australis		42
LILIACEAE	*Wurmbea dioica* ssp. *dioica*(NC)	Wurmbea dioica ssp. dioica		190
LILIACEAE	*Wurmbea latifolia* ssp. *latifolia*	Wurmbea latifolia ssp. latifolia	broad-leaf star-lily	6
LILIACEAE	*Xanthorrhoea quadrangulata*	Xanthorrhoea quadrangulata	rock grass-tree	240
LIMONIACEAE	*Limonium lobatum*	Limonium lobatum	winged sea-lavender	208
LIMONIACEAE	*Limonium sinuatum*	Limonium sinuatum	notch-leaf sea-lavender	2
LINACEAE	*Linum marginale*	Linum marginale	native flax	61

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
LINACEAE	*Linum trigynum*	Linum trigynum	French flax	2
LOGANIACEAE	*Logania ovata*	Logania ovata	oval-leaf logania	2
LOGANIACEAE	*Logania saxatilis*	Logania saxatilis	rock logania	16
LOGANIACEAE	*Mitrasacme paradoxa*(NC)	Phyllangium divergens	wiry mitrewort	34
LOGANIACEAE	*Phyllangium divergens*	Phyllangium divergens	wiry mitrewort	2
LORANTHACEAE	*Amyema linophyllum* ssp. *orientale*	Amyema linophyllum ssp. orientale	casuarina mistletoe	38
LORANTHACEAE	*Amyema maidenii* ssp. *maidenii*	Amyema maidenii ssp. maidenii	pale-leaf mistletoe	428
LORANTHACEAE	*Amyema melaleucae*	Amyema melaleucae	tea-tree mistletoe	2
LORANTHACEAE	*Amyema miquelii*	Amyema miquelii	box mistletoe	289
LORANTHACEAE	*Amyema miraculosum* ssp. *boormanii*	Amyema miraculosum ssp. boormanii	fleshy mistletoe	160
LORANTHACEAE	*Amyema preissii*	Amyema preissii	wire-leaf mistletoe	227
LORANTHACEAE	*Amyema quandang* var. *quandang*	Amyema quandang var. quandang	grey mistletoe	2
LORANTHACEAE	*Lysiana exocarpi* ssp. *exocarpi*	Lysiana exocarpi ssp. exocarpi	harlequin mistletoe	879
LORANTHACEAE	*Lysiana subfalcata*	Lysiana subfalcata	northern mistletoe	3
LYTHRACEAE	*Lythrum hyssopifolia*	Lythrum hyssopifolia	lesser loosestrife	6
LYTHRACEAE	*Lythrum paradoxum*	Lythrum paradoxum		2
MALVACEAE	*Abutilon cryptopetalum*	Abutilon cryptopetalum	hill lantern-bush	64
MALVACEAE	*Abutilon fraseri* ssp.	Abutilon fraseri ssp.		108
MALVACEAE	*Abutilon fraseri* ssp. *diplotrichum*	Abutilon fraseri ssp.		12
MALVACEAE	*Abutilon fraseri*(NC)	Abutilon fraseri ssp.		258
MALVACEAE	*Abutilon halophilum*	Abutilon halophilum	plains lantern-bush	65
MALVACEAE	*Abutilon leucopetalum*	Abutilon leucopetalum	desert lantern-bush	579
MALVACEAE	*Abutilon macrum*	Abutilon macrum	slender lantern-bush	2
MALVACEAE	*Abutilon malvaefolium*	Abutilon malvaefolium	scrambling lantern-bush	20
MALVACEAE	*Abutilon otocarpum*	Abutilon otocarpum	desert lantern-bush	20
MALVACEAE	*Alyogyne hakeifolia*	Alyogyne hakeifolia	hakea-leaf hibiscus	1
MALVACEAE	*Alyogyne huegelii*	Alyogyne huegelii	native hibiscus	28
MALVACEAE	*Gossypium sturtianum* var. *sturtianum*	Gossypium sturtianum var. sturtianum	Sturt's desert rose	28
MALVACEAE	*Hibiscus brachysiphonius*	Hibiscus brachysiphonius	low hibiscus	21
MALVACEAE	*Hibiscus krichauffianus*	Hibiscus krichauffianus	velvet-leaf hibiscus	32
MALVACEAE	*Hibiscus sturtii* var.	Hibiscus sturtii var. grandiflorus	Sturt's hibiscus	8
MALVACEAE	*Hibiscus sturtii* var. *grandiflorus*	Hibiscus sturtii var. grandiflorus	Sturt's hibiscus	192
MALVACEAE	*Hibiscus trionum* var. *vesicarius*	Hibiscus trionum var. vesicarius	bladder ketmia	2
MALVACEAE	*Lavatera plebeia*	Lavatera plebeia	Australian hollyhock	30
MALVACEAE	*Lawrencia glomerata*	Lawrencia glomerata	clustered lawrencia	12
MALVACEAE	*Lawrencia squamata*	Lawrencia squamata	thorny lawrencia	32
MALVACEAE	*Malva parviflora*	Malva parviflora	small-flower marshmallow	126
MALVACEAE	*Malvastrum americanum*	Malvastrum americanum	malvastrum	611
MALVACEAE	*Sida ammophila*	Sida ammophila	sand sida	33
MALVACEAE	*Sida ammophila*(NC)	Sida ammophila	sand sida	26
MALVACEAE	*Sida calyxhymenia*	Sida calyxhymenia	tall sida	40
MALVACEAE	*Sida corrugata* var.	Sida corrugata var.	corrugated sida	839
MALVACEAE	*Sida corrugata* var. *A (N.N.Donner 7573)*	Sida corrugata var.		4
MALVACEAE	*Sida corrugata* var. *angustifolia*	Sida corrugata var.	corrugated sida	38
MALVACEAE	*Sida corrugata* var. *corrugata*	Sida corrugata var.	corrugated sida	118
MALVACEAE	*Sida cunninghamii*	Sida cunninghamii	ridge sida	86
MALVACEAE	*Sida fibulifera*	Sida fibulifera	pin sida	1042
MALVACEAE	*Sida filiformis*	Sida filiformis	fine sida	4
MALVACEAE	*Sida goniocarpa*	Sida goniocarpa	angled sida	2
MALVACEAE	*Sida intricata*	Sida intricata	twiggy sida	574
MALVACEAE	*Sida petrophila*	Sida petrophila	rock sida	1466
MALVACEAE	*Sida phaeotricha*	Sida phaeotricha	hill sida	4
MALVACEAE	*Sida sp. B (C.Dunlop 1739)*	Sida sp. B (C.Dunlop 1739)		3
MALVACEAE	*Sida sp. K*(NC)	Sida sp. K(NC)		2
MALVACEAE	*Sida spodochroma*	Sida spodochroma		4
MALVACEAE	*Sida trichopoda*	Sida trichopoda	high sida	160
MARSILEACEAE	*Marsilea costulifera*	Marsilea costulifera	narrow-leaf nardoo	1
MARSILEACEAE	*Marsilea drummondii*	Marsilea drummondii	common nardoo	2
MARSILEACEAE	*Marsilea hirsuta*	Marsilea hirsuta	short-fruit nardoo	3
MORACEAE	*Ficus carica*	Ficus carica	edible fig	2
MYOPORACEAE	*Eremophila alternifolia*	Eremophila alternifolia	narrow-leaf emubush	633
MYOPORACEAE	*Eremophila deserti*	Eremophila deserti	turkey-bush	41
MYOPORACEAE	*Eremophila duttonii*	Eremophila duttonii	harlequin emubush	367
MYOPORACEAE	*Eremophila fallax*	Eremophila santalina/fallax		2
MYOPORACEAE	*Eremophila freelingii*	Eremophila freelingii	rock emubush	965
MYOPORACEAE	*Eremophila glabra* ssp.	Eremophila glabra ssp.	tar bush	77
MYOPORACEAE	*Eremophila glabra* ssp. *glabra*	Eremophila glabra ssp.	tar bush	8
MYOPORACEAE	*Eremophila glabra*(NC)	Eremophila glabra ssp.	tar bush	90
MYOPORACEAE	*Eremophila latrobei* ssp.	Eremophila latrobei ssp.	crimson emubush	5
MYOPORACEAE	*Eremophila latrobei* ssp. *glabra*	Eremophila latrobei ssp.	crimson emubush	25
MYOPORACEAE	*Eremophila longifolia*	Eremophila longifolia	weeping emubush	313

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
MYOPORACEAE	*Eremophila maculata* var. *maculata*	Eremophila maculata var. maculata	spotted emubush	10
MYOPORACEAE	*Eremophila oppositifolia* var.	Eremophila oppositifolia var.	opposite-leaved emubush	27
MYOPORACEAE	*Eremophila oppositifolia* var. *oppositifolia*	Eremophila oppositifolia var.	opposite-leaved emubush	122
MYOPORACEAE	*Eremophila rotundifolia*	Eremophila rotundifolia	round-leaf emubush	2
MYOPORACEAE	*Eremophila santalina*	Eremophila santalina/fallax		46
MYOPORACEAE	*Eremophila scoparia*	Eremophila scoparia	broom emubush	170
MYOPORACEAE	*Eremophila serrulata*	Eremophila serrulata	green emubush	103
MYOPORACEAE	*Eremophila sturtii*	Eremophila sturtii	turpentine bush	119
MYOPORACEAE	*Eremophila subfloccosa* ssp.	Eremophila subfloccosa ssp.	woolly emubush	1
MYOPORACEAE	*Eremophila subfloccosa* ssp. *"glandulosa" ms*	Eremophila subfloccosa ssp.	woolly emubush	3
MYOPORACEAE	*Myoporum insulare*	Myoporum insulare	common boobialla	4
MYOPORACEAE	*Myoporum montanum*	Myoporum montanum	native myrtle	159
MYOPORACEAE	*Myoporum platycarpum* ssp.	Myoporum platycarpum ssp.	false sandalwood	176
MYOPORACEAE	*Myoporum platycarpum* ssp. *platycarpum*	Myoporum platycarpum ssp.	false sandalwood	28
MYOPORACEAE	*Myoporum platycarpum*(NC)	Myoporum platycarpum ssp.	false sandalwood	110
MYOPORACEAE	*Myoporum viscosum*	Myoporum viscosum	sticky boobialla	9
MYRTACEAE	*Baeckea crassifolia*	Baeckea crassifolia	desert baeckea	1
MYRTACEAE	*Callistemon macropunctatus*	Callistemon rugulosus var.	scarlet bottlebrush	1
MYRTACEAE	*Callistemon rugulosus* var.	Callistemon rugulosus var.	scarlet bottlebrush	2
MYRTACEAE	*Callistemon rugulosus*(NC)	Callistemon rugulosus var.	scarlet bottlebrush	2
MYRTACEAE	*Callistemon teretifolius*	Callistemon teretifolius	needle bottlebrush	66
MYRTACEAE	*Calytrix tetragona*	Calytrix tetragona	common fringe-myrtle	140
MYRTACEAE	*Eucalyptus aff. viridis*	Eucalyptus aff. viridis	green mallee	13
MYRTACEAE	*Eucalyptus albens*	Eucalyptus albens	white box	4
MYRTACEAE	*Eucalyptus brachycalyx*	Eucalyptus brachycalyx	gilja	2
MYRTACEAE	*Eucalyptus camaldulensis* var.	Eucalyptus camaldulensis var.	river red gum	139
MYRTACEAE	*Eucalyptus camaldulensis* var. *camaldulensis*	Eucalyptus camaldulensis var.	river red gum	8
MYRTACEAE	*Eucalyptus camaldulensis* var. *obtusa*	Eucalyptus camaldulensis var.	river red gum	11
MYRTACEAE	*Eucalyptus cladocalyx*	Eucalyptus cladocalyx	sugar gum	10
MYRTACEAE	*Eucalyptus coolabah* ssp. *arida*	Eucalyptus coolabah ssp.		2
MYRTACEAE	*Eucalyptus dumosa*	Eucalyptus dumosa	white mallee	60
MYRTACEAE	*Eucalyptus flindersii*	Eucalyptus flindersii	Flinders grey mallee	39
MYRTACEAE	*Eucalyptus gillii*	Eucalyptus gillii	curly mallee	105
MYRTACEAE	*Eucalyptus goniocalyx*	Eucalyptus goniocalyx	long-leaf box	4
MYRTACEAE	*Eucalyptus gracilis*	Eucalyptus gracilis	yorrell	32
MYRTACEAE	*Eucalyptus intertexta*	Eucalyptus intertexta	gum-barked coolibah	249
MYRTACEAE	*Eucalyptus leptophylla*	Eucalyptus leptophylla	narrow-leaf red mallee	7
MYRTACEAE	*Eucalyptus leucoxylon* ssp.	Eucalyptus leucoxylon ssp.	South Australian blue gum	6
MYRTACEAE	*Eucalyptus leucoxylon* ssp. *leucoxylon*	Eucalyptus leucoxylon ssp.	South Australian blue gum	1
MYRTACEAE	*Eucalyptus leucoxylon* ssp. *pruinosa*	Eucalyptus leucoxylon ssp.	South Australian blue gum	26
MYRTACEAE	*Eucalyptus leucoxylon*(NC)	Eucalyptus leucoxylon ssp.	South Australian blue gum	8
MYRTACEAE	*Eucalyptus microcarpa*	Eucalyptus microcarpa	grey box	16
MYRTACEAE	*Eucalyptus odorata*	Eucalyptus odorata	peppermint box	51
MYRTACEAE	*Eucalyptus oleosa*	Eucalyptus oleosa	red mallee	9
MYRTACEAE	*Eucalyptus percostata*	Eucalyptus percostata	ribbed white mallee	8
MYRTACEAE	*Eucalyptus porosa*	Eucalyptus porosa	mallee box	40
MYRTACEAE	*Eucalyptus socialis*	Eucalyptus socialis	beaked red mallee	262
MYRTACEAE	*Eucalyptus sp. Y*	Eucalyptus sp. Y	Flinders Ranges box	5
MYRTACEAE	*Melaleuca bracteata*	Melaleuca bracteata	river tea-tree	2
MYRTACEAE	*Melaleuca dissitiflora*	Melaleuca dissitiflora		39
MYRTACEAE	*Melaleuca glomerata*	Melaleuca glomerata	inland paper-bark	125
MYRTACEAE	*Melaleuca lanceolata* ssp. *lanceolata*	Melaleuca lanceolata ssp. lanceolata	dryland tea-tree	188
MYRTACEAE	*Melaleuca pauperiflora* ssp. *mutica*	Melaleuca pauperiflora ssp. mutica	boree	2
MYRTACEAE	*Melaleuca uncinata*	Melaleuca uncinata	broombush	33
NYCTAGINACEAE	*Boerhavia coccinea*	Boerhavia coccinea	tar-vine	2
NYCTAGINACEAE	*Boerhavia dominii*	Boerhavia dominii	tar-vine	493
NYCTAGINACEAE	*Boerhavia schomburgkiana*	Boerhavia schomburgkiana	Schomburgk's tar-vine	59
NYCTAGINACEAE	*Commicarpus australis*	Commicarpus australis	pink gum-fruit	31
OLEACEAE	*Fraxinus rotundifolia* ssp. *rotundifolia*	Fraxinus rotundifolia ssp. rotundifolia	desert ash	2
OLEACEAE	*Jasminum didymum* ssp. *lineare*	Jasminum didymum ssp. lineare	native jasmine	53
OLEACEAE	*Olea europaea* ssp.	Olea europaea ssp.	olive	6
OLEACEAE	*Olea europaea* ssp. *europaea*	Olea europaea ssp.	olive	6
ONAGRACEAE	*Epilobium billardierianum* ssp.	Epilobium billardierianum ssp.	robust willow-herb	2
ONAGRACEAE	*Epilobium billardierianum* ssp. *cinereum*	Epilobium billardierianum ssp.	robust willow-herb	2
ONAGRACEAE	*Epilobium billardierianum* ssp. *x intermedium*	Epilobium billardierianum ssp.	robust willow-herb	1

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
ONAGRACEAE	*Oenothera stricta* ssp. *stricta*	Oenothera stricta ssp. stricta	common evening primrose	2
OPHIOGLOSSACEAE	*Ophioglossum lusitanicum*	Ophioglossum lusitanicum	austral adder's-tongue	21
ORCHIDACEAE	*Acianthus pusillus*	Acianthus pusillus	mosquito orchid	19
ORCHIDACEAE	*Caladenia carnea complex*	Caladenia carnea complex	pink fingers caladenia	4
ORCHIDACEAE	*Caladenia carnea* var. *carnea*	Caladenia carnea var. carnea	pink fingers	8
ORCHIDACEAE	*Caladenia clavula*(NC)	Caladenia clavula		18
ORCHIDACEAE	*Caladenia dilatata complex*	Caladenia dilatata complex	green-comb spider-orchid	2
ORCHIDACEAE	*Caladenia patersonii complex*	Caladenia patersonii complex	white spider-orchid	4
ORCHIDACEAE	*Caladenia tensa*	Caladenia tensa	inland green-comb spider-orchid	6
ORCHIDACEAE	*Caladenia tentaculata*	Caladenia tentaculata	King spider-orchid	2
ORCHIDACEAE	*Cyanicula deformis*	Cyanicula deformis	bluebeard orchid	2
ORCHIDACEAE	*Cyrtostylis reniformis*	Cyrtostylis reniformis	small gnat-orchid	8
ORCHIDACEAE	*Diuris behrii*	Diuris behrii	Behr's cowslip orchid	2
ORCHIDACEAE	*Diuris palustris*	Diuris palustris	little donkey-orchid	2
ORCHIDACEAE	*Microtis arenaria*	Microtis arenaria	notched onion-orchid	9
ORCHIDACEAE	*Microtis frutetorum*	Microtis frutetorum		1
ORCHIDACEAE	*Microtis parviflora*	Microtis parviflora	slender onion-orchid	2
ORCHIDACEAE	*Microtis unifolia*	Microtis unifolia complex	onion-orchid	1
ORCHIDACEAE	*Microtis unifolia complex*	Microtis unifolia complex	onion-orchid	50
ORCHIDACEAE	*Prasophyllum fitzgeraldii*	Prasophyllum fitzgeraldii	Fitzgerald's leek-orchid	2
ORCHIDACEAE	*Prasophyllum occidentale*	Prasophyllum occidentale	plains leek-orchid	6
ORCHIDACEAE	*Prasophyllum odoratum*	Prasophyllum odoratum	scented leek-orchid	16
ORCHIDACEAE	*Prasophyllum pallidum*	Prasophyllum pallidum	pale leek-orchid	8
ORCHIDACEAE	*Prasophyllum patens*(NC)	Prasophyllum odoratum	scented leek-orchid	10
ORCHIDACEAE	*Pterostylis aff. excelsa*	Pterostylis aff. excelsa	dryland greenhood	2
ORCHIDACEAE	*Pterostylis biseta*	Pterostylis biseta	two-bristle greenhood	88
ORCHIDACEAE	*Pterostylis boormanii*	Pterostylis boormanii	Boorman's greenhood	3
ORCHIDACEAE	*Pterostylis cycnocephala*	Pterostylis cycnocephala	swan-head greenhood	4
ORCHIDACEAE	*Pterostylis excelsa*	Pterostylis excelsa	dryland greenhood	10
ORCHIDACEAE	*Pterostylis mutica*	Pterostylis mutica	midget greenhood	14
ORCHIDACEAE	*Pterostylis nana*	Pterostylis nana	dwarf greenhood	30
ORCHIDACEAE	*Pterostylis nutans*	Pterostylis nutans	nodding greenhood	2
ORCHIDACEAE	*Pterostylis pusilla*	Pterostylis pusilla	small rusty-hood	30
ORCHIDACEAE	*Pterostylis robusta*	Pterostylis robusta	large shell-orchid	16
ORCHIDACEAE	*Pterostylis sanguinea*	Pterostylis sanguinea	blood greenhood	4
ORCHIDACEAE	*Pterostylis xerophila*	Pterostylis xerophila	desert greenhood	2
ORCHIDACEAE	*Thelymitra grandiflora*	Thelymitra grandiflora	great sun-orchid	2
ORCHIDACEAE	*Thelymitra nuda*	Thelymitra nuda	scented sun-orchid	72
ORCHIDACEAE	*Thelymitra pauciflora*	Thelymitra pauciflora	slender sun-orchid	6
ORCHIDACEAE	*Thelymitra rubra*	Thelymitra rubra	salmon sun-orchid	2
OXALIDACEAE	*Oxalis perennans*	Oxalis perennans	native sorrel	1362
OXALIDACEAE	*Oxalis pes-caprae*	Oxalis pes-caprae	soursob	70
OXALIDACEAE	*Oxalis radicosa*	Oxalis radicosa	downy native sorrel	12
PAPAVERACEAE	*Argemone subfusiformis* ssp. *subfusiformis*	Argemone subfusiformis ssp. subfusiformis	Mexican poppy	5
PAPAVERACEAE	*Glaucium corniculatum* var. *corniculatum*	Glaucium corniculatum var. corniculatum	bristly horned-poppy	10
PAPAVERACEAE	*Papaver aculeatum*	Papaver aculeatum	bristle poppy	4
PAPAVERACEAE	*Papaver hybridum*	Papaver hybridum	rough poppy	44
PINACEAE	*Pinus halepensis*	Pinus halepensis	Aleppo pine	6
PINACEAE	*Pinus ponderosa*	Pinus ponderosa	ponderosa pine	2
PINACEAE	*Pinus radiata*	Pinus radiata	radiata pine	4
PITTOSPORACEAE	*Billardiera cymosa*	Billardiera cymosa	sweet apple-berry	2
PITTOSPORACEAE	*Billardiera sericophora*	Billardiera sericophora	silky apple-berry	2
PITTOSPORACEAE	*Billardiera versicolor*	Billardiera versicolor	yellow-flower apple-berry	47
PITTOSPORACEAE	*Bursaria spinosa*	Bursaria spinosa	sweet bursaria	349
PITTOSPORACEAE	*Cheiranthera alternifolia*	Cheiranthera alternifolia	hand-flower	12
PITTOSPORACEAE	*Pittosporum phylliraeoides* var. *microcarpa*	Pittosporum phylliraeoides var. microcarpa	native apricot	577
PLANTAGINACEAE	*Plantago aff. debilis*	Plantago aff. debilis	shade plantain	17
PLANTAGINACEAE	*Plantago bellardii*	Plantago bellardii	hairy plantain	4
PLANTAGINACEAE	*Plantago cunninghamii*	Plantago cunninghamii	clay plantain	2
PLANTAGINACEAE	*Plantago drummondii*	Plantago drummondii	dark plantain	307
PLANTAGINACEAE	*Plantago gaudichaudii*	Plantago gaudichaudii	narrow-leaf plantain	28
PLANTAGINACEAE	*Plantago hispida*	Plantago hispida	hairy plantain	44
PLANTAGINACEAE	*Plantago lanceolata* var. *lanceolata*	Plantago lanceolata var. lanceolata	ribwort	6
PLANTAGINACEAE	*Plantago sp. B*	Plantago sp. B	little plantain	9
PLANTAGINACEAE	*Plantago turrifera*	Plantago turrifera	crowned plantain	7
PLANTAGINACEAE	*Plantago varia*	Plantago varia	variable plantain	2
PLANTAGINACEAE	*Plantago varia*	Plantago varia complex	native plantain	18
PLANTAGINACEAE	*Plantago varia complex*	Plantago varia complex	native plantain	60

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
POLYGONACEAE	*Acetosa vesicaria*	Acetosa vesicaria	rosy dock	1492
POLYGONACEAE	*Acetosella vulgaris*	Acetosella vulgaris	sorrel	2
POLYGONACEAE	*Emex australis*	Emex australis	three-corner jack	32
POLYGONACEAE	*Muehlenbeckia florulenta*	Muehlenbeckia florulenta	lignum	7
POLYGONACEAE	*Persicaria prostrata*	Persicaria prostrata	creeping knotweed	2
POLYGONACEAE	*Polygonum aviculare*	Polygonum aviculare	wireweed	8
POLYGONACEAE	*Polygonum plebeium*	Polygonum plebeium	small knotweed	2
POLYGONACEAE	*Rumex brownii*	Rumex brownii	slender dock	6
POLYGONACEAE	*Rumex brownii*(NC)	Rumex brownii	slender dock	88
POLYGONACEAE	*Rumex conglomeratus*	Rumex conglomeratus	clustered dock	16
POLYGONACEAE	*Rumex crispus*	Rumex crispus	curled dock	14
POLYGONACEAE	*Rumex dumosus* var.	Rumex dumosus var.	wiry dock	20
POLYGONACEAE	*Rumex dumosus* var. *dumosus*	Rumex dumosus var.	wiry dock	4
POLYGONACEAE	*Rumex pulcher* ssp.	Rumex pulcher ssp.	fiddle dock	2
PORTULACACEAE	*Anacampseros australiana*	Anacampseros australiana	Australian anacampseros	17
PORTULACACEAE	*Calandrinia calyptrata*	Calandrinia calyptrata/eremaea	purslane	12
PORTULACACEAE	*Calandrinia calyptrata/eremaea*	Calandrinia calyptrata/eremaea	purslane	8
PORTULACACEAE	*Calandrinia eremaea*	Calandrinia calyptrata/eremaea	purslane	119
PORTULACACEAE	*Calandrinia granulifera*	Calandrinia granulifera	pigmy purslane	2
PORTULACACEAE	*Calandrinia polyandra* var. *polyandra*	Calandrinia polyandra var. polyandra	parakeelya	3
PORTULACACEAE	*Calandrinia ptychosperma*	Calandrinia ptychosperma	creeping parakeelya	32
PORTULACACEAE	*Calandrinia remota*	Calandrinia remota	round-leaf parakeelya	16
PORTULACACEAE	*Calandrinia volubilis*	Calandrinia volubilis	twining purslane	2
PORTULACACEAE	*Portulaca intraterranea*	Portulaca intraterranea	buttercup purslane	4
PORTULACACEAE	*Portulaca oleracea*	Portulaca oleracea	common purslane	151
POTAMOGETONACEAE	*Ruppia megacarpa*	Ruppia megacarpa	widgeon grass	2
PRIMULACEAE	*Anagallis arvensis*	Anagallis arvensis	pimpernel	437
PRIMULACEAE	*Anagallis minima*	Anagallis minima	chaffweed	2
PRIMULACEAE	*Asterolinon linum-stellatum*	Asterolinon linum-stellatum	asterolinon	2
PRIMULACEAE	*Samolus repens*	Samolus repens	creeping brookweed	5
PROTEACEAE	*Grevillea aspera*	Grevillea aspera	rough grevillea	43
PROTEACEAE	*Grevillea huegelii*	Grevillea huegelii	comb grevillea	12
PROTEACEAE	*Grevillea ilicifolia* var.	Grevillea ilicifolia var.	holly-leaf grevillea	2
PROTEACEAE	*Grevillea lavandulacea* var.	Grevillea lavandulacea var.	spider-flower	21
PROTEACEAE	*Grevillea lavandulacea* var. *lavandulacea*	Grevillea lavandulacea var.	spider-flower	2
PROTEACEAE	*Grevillea lavandulacea* var. *sericea*	Grevillea lavandulacea var.	spider-flower	15
PROTEACEAE	*Grevillea nematophylla*	Grevillea nematophylla	water bush	4
PROTEACEAE	*Hakea carinata*	Hakea carinata	erect hakea	3
PROTEACEAE	*Hakea ednieana*	Hakea ednieana	Flinders Ranges corkwood	399
PROTEACEAE	*Hakea eyreana*	Hakea eyreana	fork-leaf corkwood	2
PROTEACEAE	*Hakea leucoptera* ssp. *leucoptera*	Hakea leucoptera ssp. leucoptera	silver needlewood	94
PTERIDACEAE	*Pteris tremula*	Pteris tremula	tender brake	2
RANUNCULACEAE	*Adonis microcarpa*	Adonis microcarpa	pheasant's eye	2
RANUNCULACEAE	*Clematis microphylla*	Clematis microphylla	old man's beard	196
RANUNCULACEAE	*Ranunculus hamatosetosus*	Ranunculus hamatosetosus	hill buttercup	148
RANUNCULACEAE	*Ranunculus pachycarpus*	Ranunculus pachycarpus	thick-fruit buttercup	6
RANUNCULACEAE	*Ranunculus pumilio* var.	Ranunculus pumilio var.	ferny buttercup	2
RANUNCULACEAE	*Ranunculus sessiliflorus* var.	Ranunculus sessiliflorus var.	annual buttercup	2
RESEDACEAE	*Reseda lutea*	Reseda lutea	cut-leaf mignonette	2
RESEDACEAE	*Reseda luteola*	Reseda luteola	wild mignonette	8
RHAMNACEAE	*Cryptandra amara* var.	Cryptandra amara var.	cryptandra	8
RHAMNACEAE	*Cryptandra amara* var. *amara*	Cryptandra amara var.	cryptandra	8
RHAMNACEAE	*Cryptandra amara* var. *longiflora*	Cryptandra amara var.	cryptandra	12
RHAMNACEAE	*Cryptandra propinqua*	Cryptandra propinqua	silky cryptandra	2
RHAMNACEAE	*Pomaderris paniculosa* ssp.	Pomaderris paniculosa ssp.		14
RHAMNACEAE	*Pomaderris paniculosa* ssp. *paniculosa*	Pomaderris paniculosa ssp.		21
RHAMNACEAE	*Spyridium bifidum* var.	Spyridium bifidum var.		1
RHAMNACEAE	*Spyridium parvifolium*	Spyridium parvifolium	dusty miller	51
RHAMNACEAE	*Spyridium phlebophyllum*	Spyridium phlebophyllum	inland spyridium	77
RHAMNACEAE	*Trymalium wayae*	Trymalium wayae	grey trymalium	7
ROSACEAE	*Acaena echinata* var.	Acaena echinata var.	sheep's burr	58
ROSACEAE	*Acaena echinata* var. *retrorsumpilosa*	Acaena echinata var.	sheep's burr	14
ROSACEAE	*Aphanes australiana*	Aphanes australiana	Australian piert	4
ROSACEAE	*Malus sylvestris*	Malus sylvestris	apple	1
ROSACEAE	*Prunus domestica* ssp. *domestica*	Prunus domestica ssp. domestica	plum	2
ROSACEAE	*Rosa canina*	Rosa canina	dog rose	10
ROSACEAE	*Rosa rubiginosa*	Rosa rubiginosa	sweet briar	6
ROSACEAE	*Sanguisorba minor* ssp. *muricata*	Sanguisorba minor ssp. muricata	sheep's burnet	6
RUBIACEAE	*Asperula conferta*	Asperula conferta	common woodruff	137
RUBIACEAE	*Asperula syrticola*	Asperula syrticola	Southern Flinders woodruff	4

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
RUBIACEAE	*Galium binifolium*	Galium binifolium	reflexed bedstraw	7
RUBIACEAE	*Galium divaricatum*	Galium divaricatum	slender bedstraw	6
RUBIACEAE	*Galium gaudichaudii*	Galium gaudichaudii	rough bedstraw	110
RUBIACEAE	*Galium migrans*	Galium migrans	loose bedstraw	59
RUBIACEAE	*Galium murale*	Galium murale	small bedstraw	149
RUBIACEAE	*Galium spurium* ssp. *ibicinum*	Galium spurium ssp. ibicinum	bedstraw	38
RUBIACEAE	*Galium tricornutum*	Galium tricornutum	three-horned bedstraw	2
RUBIACEAE	*Opercularia turpis*	Opercularia turpis	twiggy stinkweed	25
RUBIACEAE	*Pomax umbellata*	Pomax umbellata	pomax	35
RUBIACEAE	*Sherardia arvensis*	Sherardia arvensis	field madder	6
RUTACEAE	*Correa glabra*	Correa glabra	rock correa	2
RUTACEAE	*Eriostemon angustifolius* ssp. *angustifolius*	Eriostemon angustifolius ssp. angustifolius	narrow-leaf wax-flower	15
RUTACEAE	*Eriostemon linearis*	Eriostemon linearis	narrow-leaf wax-flower	9
RUTACEAE	*Geijera linearifolia*	Geijera linearifolia	sheep bush	20
SANTALACEAE	*Choretrum glomeratum* var.	Choretrum glomeratum var.	sour-bush	6
SANTALACEAE	*Choretrum glomeratum* var. *chrysanthum*	Choretrum glomeratum var.	sour-bush	2
SANTALACEAE	*Choretrum glomeratum* var. *glomeratum*	Choretrum glomeratum var.	sour-bush	2
SANTALACEAE	*Exocarpos aphyllus*	Exocarpos aphyllus	leafless cherry	632
SANTALACEAE	*Exocarpos cupressiformis*	Exocarpos cupressiformis	native cherry	43
SANTALACEAE	*Exocarpos sparteus*	Exocarpos sparteus	slender cherry	26
SANTALACEAE	*Exocarpos syrticola*	Exocarpos syrticola	coast cherry	2
SANTALACEAE	*Santalum acuminatum*	Santalum acuminatum	quandong	209
SANTALACEAE	*Santalum lanceolatum*	Santalum lanceolatum	plumbush	302
SANTALACEAE	*Santalum murrayanum*	Santalum murrayanum	bitter quandong	2
SANTALACEAE	*Santalum spicatum*	Santalum spicatum	sandalwood	33
SAPINDACEAE	*Alectryon oleifolius* ssp. *canescens*	Alectryon oleifolius ssp. canescens	bullock bush	1195
SAPINDACEAE	*Dodonaea baueri*	Dodonaea baueri	crinkled hop-bush	118
SAPINDACEAE	*Dodonaea bursariifolia*	Dodonaea bursariifolia	small hop-bush	6
SAPINDACEAE	*Dodonaea lobulata*	Dodonaea lobulata	lobed-leaf hop-bush	732
SAPINDACEAE	*Dodonaea microzyga* var. *microzyga*	Dodonaea microzyga var. microzyga	brilliant hop-bush	392
SAPINDACEAE	*Dodonaea stenozyga*	Dodonaea stenozyga	desert hop-bush	6
SAPINDACEAE	*Dodonaea subglandulifera*	Dodonaea subglandulifera		3
SAPINDACEAE	*Dodonaea viscosa* ssp.	Dodonaea viscosa ssp.	sticky hop-bush	47
SAPINDACEAE	*Dodonaea viscosa* ssp. *angustissima*	Dodonaea viscosa ssp.	sticky hop-bush	447
SAPINDACEAE	*Dodonaea viscosa* ssp. *spatulata*	Dodonaea viscosa ssp.	sticky hop-bush	37
SCROPHULARIACEAE	*Derwentia decorosa*	Derwentia decorosa	showy speedwell	26
SCROPHULARIACEAE	*Kickxia elatine* ssp.	Kickxia elatine ssp.	sharp-leaf toadflax	1
SCROPHULARIACEAE	*Kickxia elatine* ssp. *crinita*	Kickxia elatine ssp.	sharp-leaf toadflax	2
SCROPHULARIACEAE	*Mimulus repens*	Mimulus repens	creeping monkey-flower	2
SCROPHULARIACEAE	*Misopates orontium*	Misopates orontium	lesser snapdragon	10
SCROPHULARIACEAE	*Parentucellia latifolia*	Parentucellia latifolia	red bartsia	12
SCROPHULARIACEAE	*Verbascum virgatum*	Verbascum virgatum	twiggy mullein	1
SCROPHULARIACEAE	*Veronica plebeia*	Veronica plebeia	trailing speedwell	32
SCROPHULARIACEAE	*Zaluzianskya divaricata*	Zaluzianskya divaricata	spreading night-phlox	2
SOLANACEAE	*Anthocercis angustifolia*	Anthocercis angustifolia	narrow-leaf ray-flower	2
SOLANACEAE	*Datura ferox*	Datura ferox	long-spine thorn-apple	4
SOLANACEAE	*Datura inoxia*	Datura inoxia	downy thorn-apple	20
SOLANACEAE	*Datura leichhardtii*	Datura leichhardtii	native thorn-apple	22
SOLANACEAE	*Lycium australe*	Lycium australe	Australian boxthorn	64
SOLANACEAE	*Lycium ferocissimum*	Lycium ferocissimum	African boxthorn	376
SOLANACEAE	*Nicotiana glauca*	Nicotiana glauca	tree tobacco	99
SOLANACEAE	*Nicotiana goodspeedii*	Nicotiana goodspeedii	small-flower tobacco	8
SOLANACEAE	*Nicotiana maritima*	Nicotiana maritima	coast tobacco	10
SOLANACEAE	*Nicotiana occidentalis* ssp. *obliqua*	Nicotiana occidentalis ssp. obliqua	western tobacco	16
SOLANACEAE	*Nicotiana simulans*	Nicotiana simulans	native tobacco	53
SOLANACEAE	*Nicotiana velutina*	Nicotiana velutina	velvet tobacco	257
SOLANACEAE	*Solanum aviculare*	Solanum aviculare	kangaroo apple	2
SOLANACEAE	*Solanum centrale*	Solanum centrale	desert raisin	2
SOLANACEAE	*Solanum chenopodinum*	Solanum chenopodinum	goosefoot potato-bush	14
SOLANACEAE	*Solanum cinereum*	Solanum cinereum	Narrawa burr	10
SOLANACEAE	*Solanum ellipticum*	Solanum ellipticum/quadriloculatum		314
SOLANACEAE	*Solanum ellipticum/quadriloculatum*	Solanum ellipticum/quadriloculatum		1942
SOLANACEAE	*Solanum esuriale*	Solanum esuriale	quena	120
SOLANACEAE	*Solanum nigrum*	Solanum nigrum	black nightshade	80
SOLANACEAE	*Solanum oligacanthum*	Solanum oligacanthum	desert nightshade	2
SOLANACEAE	*Solanum petrophilum*	Solanum petrophilum	rock nightshade	720
SOLANACEAE	*Solanum quadriloculatum*	Solanum ellipticum/quadriloculatum		30
SOLANACEAE	*Solanum simile*	Solanum simile	Kangaroo apple	9
SOLANACEAE	*Solanum sturtianum*	Solanum sturtianum	Sturt's nightshade	515
SOLANACEAE	*Solanum triflorum*	Solanum triflorum	three-flower nightshade	2
STACKHOUSIACEAE	*Stackhousia aspericocca* ssp.	Stackhousia aspericocca ssp.	bushy candles	6
STACKHOUSIACEAE	*Stackhousia aspericocca*(NC)	Stackhousia aspericocca ssp.	bushy candles	2

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
STACKHOUSIACEAE	*Stackhousia monogyna*	Stackhousia monogyna	creamy candles	207
STACKHOUSIACEAE	*Stackhousia muricata*(NC)	Stackhousia muricata(NC)		2
STERCULIACEAE	*Gilesia biniflora*	Gilesia biniflora	western tar-vine	2
STERCULIACEAE	*Lasiopetalum behrii*	Lasiopetalum behrii	pink velvet-bush	5
STERCULIACEAE	*Melhania oblongifolia*	Melhania oblongifolia	velvet hibiscus	23
STYLIDIACEAE	*Levenhookia dubia*	Levenhookia dubia	hairy stylewort	14
STYLIDIACEAE	*Stylidium calcaratum*	Stylidium calcaratum	spurred trigger-plant	2
THYMELAEACEAE	*Pimelea curviflora* var.	Pimelea curviflora var.	curved riceflower	8
THYMELAEACEAE	*Pimelea curviflora* var. *gracilis*	Pimelea curviflora var.	curved riceflower	10
THYMELAEACEAE	*Pimelea elongata*	Pimelea elongata		10
THYMELAEACEAE	*Pimelea glauca*	Pimelea glauca	smooth riceflower	10
THYMELAEACEAE	*Pimelea imbricata* var. *petraea*	Pimelea imbricata var. petraea	rock wooly riceflower	2
THYMELAEACEAE	*Pimelea linifolia* ssp. *linifolia*	Pimelea linifolia ssp. linifolia	slender riceflower	8
THYMELAEACEAE	*Pimelea micrantha*	Pimelea micrantha	silky riceflower	67
THYMELAEACEAE	*Pimelea microcephala* ssp.	Pimelea microcephala ssp.	shrubby riceflower	120
THYMELAEACEAE	*Pimelea microcephala* ssp. *microcephala*	Pimelea microcephala ssp.	shrubby riceflower	369
THYMELAEACEAE	*Pimelea octophylla*	Pimelea octophylla	woolly riceflower	6
THYMELAEACEAE	*Pimelea petrophila*	Pimelea petrophila	rock riceflower	36
THYMELAEACEAE	*Pimelea simplex* ssp.	Pimelea simplex ssp.	desert riceflower	254
THYMELAEACEAE	*Pimelea simplex* ssp. *continua*	Pimelea simplex ssp.	desert riceflower	4
THYMELAEACEAE	*Pimelea simplex* ssp. *simplex*	Pimelea simplex ssp.	desert riceflower	264
THYMELAEACEAE	*Pimelea stricta*	Pimelea stricta	erect riceflower	16
THYMELAEACEAE	*Pimelea trichostachya*	Pimelea trichostachya	spiked riceflower	6
TYPHACEAE	*Typha domingensis*	Typha domingensis	narrow-leaf bulrush	13
TYPHACEAE	*Typha orientalis*	Typha orientalis	broad-leaf bulrush	14
UMBELLIFERAE	*Bupleurum semicompositum*	Bupleurum semicompositum	hare's ear	14
UMBELLIFERAE	*Daucus glochidiatus*	Daucus glochidiatus	native carrot	994
UMBELLIFERAE	*Eryngium rostratum*	Eryngium rostratum	blue devil	2
UMBELLIFERAE	*Foeniculum vulgare*	Foeniculum vulgare	fennel	2
UMBELLIFERAE	*Hydrocotyle callicarpa*	Hydrocotyle callicarpa	tiny pennywort	10
UMBELLIFERAE	*Hydrocotyle foveolata*	Hydrocotyle foveolata	yellow pennywort	6
UMBELLIFERAE	*Hydrocotyle hirta*	Hydrocotyle hirta	hairy pennywort	2
UMBELLIFERAE	*Hydrocotyle laxiflora*	Hydrocotyle laxiflora	stinking pennywort	57
UMBELLIFERAE	*Hydrocotyle medicaginoides*	Hydrocotyle medicaginoides	medic pennywort	2
UMBELLIFERAE	*Hydrocotyle trachycarpa*	Hydrocotyle trachycarpa	wild parsley	4
UMBELLIFERAE	*Trachymene anisocarpa*	Trachymene anisocarpa	native parsnip	2
UMBELLIFERAE	*Trachymene cyanopetala*	Trachymene cyanopetala	purple trachymene	2
UMBELLIFERAE	*Trachymene glaucifolia*	Trachymene glaucifolia	blue parsnip	139
UMBELLIFERAE	*Trachymene ornata* var. *ornata*	Trachymene ornata var.	sponge-fruit trachymene	2
UMBELLIFERAE	*Trachymene pilosa*	Trachymene pilosa	dwarf trachymene	2
URTICACEAE	*Parietaria cardiostegia*	Parietaria cardiostegia/debilis	smooth-nettle	16
URTICACEAE	*Parietaria cardiostegia/debilis*	Parietaria cardiostegia/debilis	smooth-nettle	114
URTICACEAE	*Parietaria debilis*	Parietaria cardiostegia/debilis	smooth-nettle	48
URTICACEAE	*Parietaria debilis*	Parietaria debilis	smooth-nettle	1
URTICACEAE	*Urtica urens*	Urtica urens	small nettle	10
VERBENACEAE	*Verbena officinalis*	Verbena officinalis	common verbena	9
VIOLACEAE	*Hybanthus floribundus* ssp. *floribundus*	Hybanthus floribundus ssp. floribundus	shrub violet	16
VIOLACEAE	*Hybanthus monopetalus*	Hybanthus monopetalus	slender violet	34
VIOLACEAE	*Hymenanthera dentata*	Hymenanthera dentata	tree violet	6
VISCACEAE	*Korthalsella japonica forma japonica*	Korthalsella japonica forma japonica	jointed mistletoe	2
ZANNICHELLIACEAE	*Lepilaena australis*	Lepilaena australis	austral water-mat	2
ZYGOPHYLLACEAE	*Nitraria billardierei*	Nitraria billardierei	nitre-bush	154
ZYGOPHYLLACEAE	*Peganum harmala*	Peganum harmala	African rue	6
ZYGOPHYLLACEAE	*Tribulus eichlerianus*	Tribulus eichlerianus	Eichler's caltrop	41
ZYGOPHYLLACEAE	*Tribulus macrocarpus*	Tribulus macrocarpus		2
ZYGOPHYLLACEAE	*Tribulus terrestris*	Tribulus terrestris	caltrop	102
ZYGOPHYLLACEAE	*Zygophyllum "Terete leaves"(D.E.Symon 14690)*	Zygophyllum "Terete leaves"(D.E.Symon 14690)		6
ZYGOPHYLLACEAE	*Zygophyllum ammophilum*	Zygophyllum ammophilum	sand twinleaf	91
ZYGOPHYLLACEAE	*Zygophyllum ammophilum complex*	Zygophyllum ammophilum	sand twinleaf	6
ZYGOPHYLLACEAE	*Zygophyllum ammophilum*(NC)	Zygophyllum ammophilum	sand twinleaf	64
ZYGOPHYLLACEAE	*Zygophyllum angustifolium*	Zygophyllum angustifolium	scrambling twinleaf	10
ZYGOPHYLLACEAE	*Zygophyllum apiculatum*	Zygophyllum apiculatum	pointed twinleaf	179
ZYGOPHYLLACEAE	*Zygophyllum aurantiacum* ssp.	Zygophyllum aurantiacum ssp.		124
ZYGOPHYLLACEAE	*Zygophyllum aurantiacum* ssp. *verticillatum*	Zygophyllum aurantiacum ssp.		10
ZYGOPHYLLACEAE	*Zygophyllum aurantiacum*(NC)	Zygophyllum aurantiacum ssp.		266
ZYGOPHYLLACEAE	*Zygophyllum billardierei*	Zygophyllum billardierei(NC)		46
ZYGOPHYLLACEAE	*Zygophyllum compressum*	Zygophyllum compressum	rabbit-ears twinleaf	4
ZYGOPHYLLACEAE	*Zygophyllum confluens*	Zygophyllum confluens	forked twinleaf	60
ZYGOPHYLLACEAE	*Zygophyllum crenatum*	Zygophyllum crenatum	notched twinleaf	342
ZYGOPHYLLACEAE	*Zygophyllum eremaeum*	Zygophyllum eremaeum	pale-flower twin-leaf	18

Appendix 3. (continued)

FAMILY	Taxa names as recorded	Species names used for report	Common name	# sites
ZYGOPHYLLACEAE	*Zygophyllum glaucum*	Zygophyllum glaucum	pale twinleaf	26
ZYGOPHYLLACEAE	*Zygophyllum hybridum*	Zygophyllum hybridum		4
ZYGOPHYLLACEAE	*Zygophyllum iodocarpum*	Zygophyllum iodocarpum	violet twinleaf	152
ZYGOPHYLLACEAE	*Zygophyllum ovatum*	Zygophyllum ovatum	dwarf twinleaf	52
ZYGOPHYLLACEAE	*Zygophyllum prismatothecum*	Zygophyllum prismatothecum	square-fruit twinleaf	468
ZYGOPHYLLACEAE	*Zygophyllum simile*	Zygophyllum simile	white twinleaf	12

All plant taxa by all surveys within the study area. Survey numbers and locations of sites are detailed in the vegetation chapter

# of sites in the Flinders study area boundary	**1624**	**4**	**126**	**19**	**1**	**147**	**30**	**3**	**3**	**44**	**5**	**174**	**22**	**14**	**221**	**1**	**45**	**196**	**49**	**88**	**77**	**123**	**22**	**3016**
SPECIES	**6**	**19**	**24**	**31**	**46**	**49**	**51**	**54**	**58**	**62**	**63**	**66**	**67**	**69**	**74**	**82**	**83**	**86**	**87**	**89**	**98**	**104**	**# surveys**	**# sites**
Abutilon cryptopetalum	32																						**1**	**32**
Abutilon fraseri ssp.	103		9			1				1					14			11		2	1	28	**9**	**170**
Abutilon fraseri ssp. *diplotrichum*																					5		**1**	**5**
Abutilon halophilum	21	1											1		1		1	3			4	5	**8**	**37**
Abutilon leucopetalum	255	1											1		4					1	14	36	**7**	**312**
Abutilon macrum	1																						**1**	**1**
Abutilon malvaefolium	3		3										1							1		2	**5**	**10**
Abutilon otocarpum	4		4											1	16						1		**5**	**26**
Acacia aneura var.	442	2	1										4		4						13	15	**7**	**481**
Acacia aneura var. *aneura*	2														9			1		2		3	**5**	**17**
Acacia araneosa	4																					2	**2**	**6**
Acacia argyrophylla				1						1								3					**3**	**5**
Acacia ayersiana var.																						1	**1**	**1**
Acacia ayersiana var. *latifolia*															24								**1**	**24**
Acacia beckleri	8					1														1			**3**	**10**
Acacia brachybotrya							1																**1**	**1**
Acacia burkittii	15		1												10			1	3	4			**6**	**34**
Acacia calamifolia	69			2		10	1			6		24			3			31	4	8			**10**	**158**
Acacia cibaria																						1	**1**	**1**
Acacia confluens	19																					1	**2**	**20**
Acacia continua	30			3		40	2	1				38					5	5	2	1		3	**11**	**130**
Acacia coriacea														2									**1**	**2**
Acacia cupularis						1																	**1**	**1**
Acacia gracilifolia	4					8	1																**3**	**13**
Acacia hakeoides	1			2	1	5	3	1		3							3	8	1	1			**11**	**29**
Acacia havilandii	18																			2		4	**3**	**24**
Acacia iteaphylla	3					5												1					**3**	**9**
Acacia kempeana	1																					3	**2**	**4**
Acacia ligulata	123					17	1						1	2	23			3	7		5	19	**10**	**201**
Acacia microcarpa						1																	**1**	**1**
Acacia microcarpa x paradoxa						1																	**1**	**1**
Acacia montana	1			1		1																	**3**	**3**
Acacia notabilis	4		1			5	1	1										7	1				**7**	**20**
Acacia nyssophylla			6	1						3								7		2			**5**	**19**
Acacia oswaldii	107		8	3		6	2						3	1	13		2	8	2	1	2	11	**14**	**169**
Acacia papyrocarpa	1		1				2									1		1	1				**6**	**7**
Acacia paradoxa	3					3																	**2**	**6**
Acacia pravifolia						1						5					1	4	1			2	**6**	**14**
Acacia pycnantha	15			5		37	8	3		2		69					13	10	4	1			**11**	**167**
Acacia quornensis	1																		2	1			**3**	**4**
Acacia rivalis	230												4							1	1	31	**5**	**267**
Acacia rupicola				1		10						12											**3**	**23**
Acacia salicina	11					1					2				6						1	1	**6**	**22**
Acacia spinescens	1																						**1**	**1**
Acacia stowardii	3																						**1**	**3**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Acacia tetragonophylla	608	2											7	3	28			2		2	27	52	**9**	**731**
Acacia victoriae ssp.				8			18			3		9	15	2	61		3	1			38	69	**11**	**227**
Acacia victoriae ssp. *victoriae*	912	3	5		1	10	1	1							37		2	43	7	19			**12**	**1041**
Acacia wattsiana	1			4		13											4	3					**5**	**25**
Acacia wilhelmiana	14		1							2									2	1			**5**	**20**
Acaena echinata var.						6						24					8	2					**4**	**40**
Acaena echinata var. *retrorsumpilosa*	4					3																	**2**	**7**
Acarospora schleicheri	96																						**1**	**96**
Acetosa vesicaria	627	3											19		41			1		1		24	**7**	**716**
Acetosella vulgaris															1								**1**	**1**
Acianthus pusillus	4					5																	**2**	**9**
Acrotriche patula	1					4																	**2**	**5**
Actinobole uliginosum	65		8			10		1		3		4	4		15		7	6	2	11		1	**13**	**137**
Adiantum aethiopicum	1																						**1**	**1**
Adonis microcarpa						1																	**1**	**1**
Agrostis avenacea var.	1					1																2	**3**	**4**
Agrostis avenacea var. *avenacea*																	2	1					**2**	**3**
Agrostis avenacea var. *perennis*						1																	**1**	**1**
Aira caryophyllea	1					1		1															**3**	**3**
Aira cupaniana	3					41				1		18					14	6	2				**7**	**85**
Aira elegantissima ssp. *elegantissima*																	2						**1**	**2**
Ajuga australis form												9										9	**2**	**18**
Ajuga australis form A	18					5						4					2	1					**5**	**30**
Alectryon oleifolius ssp. *canescens*	502		33	7		21				4		4	4		34	1	2	29	8	10	26	54	**15**	**739**
Allocasuarina muelleriana ssp.	7					1						4											**3**	**12**
Allocasuarina verticillata	35		1	5		47		1		2		80					19	10	2			1	**11**	**203**
Alternanthera nodiflora	1																						**1**	**1**
Alyogyne huegelii	3					4						6						2					**4**	**15**
Alyssum linifolium	20		24			2				3			7		12		1	8	2	13		2	**11**	**94**
Alyxia buxifolia																		1					**1**	**1**
Amaranthus albus							2																**1**	**2**
Amphipogon caricinus var. *caricinus*	1					2											3					2	**4**	**8**
Amphipogon strictus var. *setifer*						1																	**1**	**1**
Amyema linophyllum ssp. *orientale*	13																	3				2	**3**	**18**
Amyema maidenii ssp. *maidenii*	180												1		6						2	8	**5**	**197**
Amyema melaleucae						1																	**1**	**1**
Amyema miquelii	59		2	1		23	1	2		1		15	3		1	1	9	9	1	4		20	**16**	**152**
Amyema miraculosum ssp. *boormanii*	54		1			1							1		24			3	2	2	6		**9**	**94**
Amyema preissii	84		2		1	1	1							1	4			7	3	2	6	6	**12**	**118**
Amyema quandang var. *quandang*	1																						**1**	**1**
Anacampseros australiana	2											4						4				1	**4**	**11**
Anagallis arvensis	74					77	2					63			1		8	7	9	1	2	21	**11**	**265**
Anagallis minima																						2	**1**	**2**
Anemocarpa podolepidium	8																				2	2	**3**	**12**
Angianthus glabratus																			1				**1**	**1**
Angianthus tomentosus						1													3			3	**3**	**7**
Anogramma leptophylla						2																	**1**	**2**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Anthocercis angustifolia	1																						**1**	**1**
Aphanes australiana						1						4											**2**	**5**
Aquatic grass	1																						**1**	**1**
Arabidella filifolia	7		1			1												2		1			**5**	**12**
Arabidella glaucescens			1																		1		**2**	**2**
Arabidella nasturtium	21														11			1					**3**	**33**
Arabidella trisecta	63		20				1			2			4		17		1	4		9		6	**10**	**127**
Arctotheca calendula	2					42	12		1			9					4	9	7				**8**	**86**
Argemone subfusiformis ssp. *subfusiformis*																				1	1	1	**3**	**3**
Aristida anthoxanthoides													1	1			1						**3**	**3**
Aristida arida	11												11										**2**	**22**
Aristida behriana	2						7	2	3	10		20					22	19				2	**9**	**87**
Aristida capillifolia																						21	**1**	**21**
Aristida contorta	57	2											3	4	18						2	8	**7**	**94**
Aristida holathera var. *holathera*	3													2							1		**3**	**6**
Aristida latifolia	2																						**1**	**2**
Aristida nitidula	370	1													12			3			9	14	**6**	**409**
Aristida personata															4								**1**	**4**
Artemisia arborescens								1															**1**	**1**
Arthropodium fimbriatum							3										6	2					**3**	**11**
Arthropodium minus						3						13			11			15	1				**5**	**43**
Arthropodium strictum	65					60	9	1				97					23	60	9	2		2	**10**	**328**
Arundo donax	1																						**1**	**1**
Asperula conferta	1		1		1	23	4	1	1	2		27					8	12		2		5	**13**	**88**
Asperula syrticola						2																	**1**	**2**
Asphodelus fistulosus	113		49		1	5	10			25					32		4	27	7	28		17	**12**	**318**
Asplenium flabellifolium	1																						**1**	**1**
Aster subulatus											1							3				1	**3**	**5**
Asterella drummondii	10																						**1**	**10**
Asteridea athrixioides forma																				1		1	**2**	**2**
Asteridea athrixioides forma athrixioides	6					1												8					**3**	**15**
Asterolinon linum-stellatum						1																	**1**	**1**
Astrebla lappacea	5												4									1	**3**	**10**
Astrebla pectinata	34													3	39						2		**4**	**78**
Astroloma conostephioides	10																						**1**	**10**
Astroloma humifusum	16			4		40		1				66					7	2	2			2	**9**	**140**
Atriplex acutibractea ssp.	37					2									2								**3**	**41**
Atriplex acutibractea ssp. *acutibractea*			15															1					**2**	**16**
Atriplex acutiloba	2																						**1**	**2**
Atriplex angulata	11	2	4			4	3							5	9			11	2	3	15	7	**12**	**76**
Atriplex eardleyae	8			2		2				2								15					**5**	**29**
Atriplex eichleri	12																	1		3			**3**	**16**
Atriplex fissivalvis	1																				2		**2**	**3**
Atriplex holocarpa	31					2	3						1	2	32			7	4	2			**9**	**84**
Atriplex leptocarpa																		2					**1**	**2**
Atriplex limbata	21												3		3						1	2	**5**	**30**
Atriplex lindleyi ssp.	20					2								3	4			2		1	12	2	**8**	**46**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Atriplex lindleyi ssp. *conduplicata*	2													1							1		**3**	**4**
Atriplex lindleyi ssp. *inflata*			6							2								6	4				**4**	**18**
Atriplex lindleyi ssp. *lindleyi*	1						1								1			4		2			**5**	**9**
Atriplex muelleri				2																			**1**	**2**
Atriplex nummularia ssp.														1	2							1	**3**	**4**
Atriplex paludosa ssp. *cordata*											1												**1**	**1**
Atriplex paludosa ssp. *paludosa*																			3				**1**	**3**
Atriplex prostrata						2												1					**2**	**3**
Atriplex pseudocampanulata															20								**1**	**20**
Atriplex pumilio	1																						**1**	**1**
Atriplex semibaccata	3			4		3	9	1	2						8		9	7				1	**10**	**47**
Atriplex spongiosa	19			3		1									4			6	3	1			**7**	**37**
Atriplex stipitata	85		34	4		2	9	1		8				2	19		2	33	1	11	1	11	**15**	**223**
Atriplex suberecta																		6					**1**	**6**
Atriplex velutinella	3	1												1	2						3	5	**6**	**15**
Atriplex vesicaria ssp.	188		67			7	4			6			1	8	50	1		21	11	18	48	2	**14**	**432**
Atriplex vesicaria ssp. *calcicola*			2																				**1**	**2**
Atriplex vesicaria ssp. *macrocystidia*			2								1												**2**	**3**
Avellinia michelii						10					1	1						2	3				**5**	**17**
Avena barbata	7				1	107	22	2	3	21		79					36	103	14	6			**12**	**401**
Avena fatua	31					3	15					8						4	2				**6**	**63**
Avena sativa							1																**1**	**1**
Avicennia marina var. *resinifera*						1					1												**2**	**2**
Barbula crinita	47																						**1**	**47**
Beyeria lechenaultii	14		1	1		11	1			3								8	2	3			**9**	**44**
Billardiera cymosa	1																						**1**	**1**
Billardiera sericophora				1																			**1**	**1**
Billardiera versicolor						15													1				**2**	**16**
Blennodia canescens	2																						**1**	**2**
Blennospora drummondii			1																				**1**	**1**
Boerhavia coccinea													1										**1**	**1**
Boerhavia dominii	179					2				4		13			4			22	2	3	2	18	**10**	**249**
Boerhavia schomburgkiana																					10	27	**2**	**37**
Bolboschoenus caldwellii																		2					**1**	**2**
Bossiaea prostrata						1																	**1**	**1**
Brachyachne ciliaris							1					9			8							1	**4**	**19**
Brachycome ciliaris var.	3		7			2											1			2		6	**6**	**21**
Brachycome ciliaris var. *brachyglossa*						4												5					**2**	**9**
Brachycome ciliaris var. *ciliaris*	72		6			4	1			2		6	4		17		1	6	5	8	2	8	**14**	**142**
Brachycome ciliaris var. *lanuginosa*	52	1				1	1			1		1	5		29		2	9		3	4	8	**13**	**117**
Brachycome ciliaris var. *lyrifolia*	69	1										1	4										**4**	**75**
Brachycome ciliaris var. *subintegrifolia*						2											4	6					**3**	**12**
Brachycome dentata	18												5		5							1	**4**	**29**
Brachycome dichromosomatica var. *dichromosomatica*							3											4	2	4			**4**	**13**
Brachycome exilis										1									1				**2**	**2**
Brachycome goniocarpa			2																				**1**	**2**
Brachycome leptocarpa	1				1	1												1	1				**5**	**5**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Brachycome lineariloba	79		24			10		1		4	1	5			28		13	62	7	25		5	**13**	**264**
Brachycome perpusilla												1											**1**	**1**
Brachycome trachycarpa						1																	**1**	**1**
Brachyloma ciliatum												1											**1**	**1**
Brachypodium distachyon						32	7	2				39					15	5	6				**7**	**106**
Bracteantha bracteata	12					1						8						2				2	**5**	**25**
Brassica juncea								1															**1**	**1**
Brassica tournefortii	34		1			7	2						6	2	42			4	8	4	3	1	**12**	**114**
Briza maxima	3					15	1										10						**4**	**29**
Briza minor						17											5						**2**	**22**
Bromus arenarius						1	1			1	1				8			1	3	2	2	1	**10**	**21**
Bromus diandrus	2					41	8	1		4							16	35	6	1			**9**	**114**
Bromus hordeaceus ssp. *hordeaceus*						2				1							7	3					**4**	**13**
Bromus madritensis	19					17		1				28					5	1	2			12	**8**	**85**
Bromus rigidus						1	7			1													**3**	**9**
Bromus rubens	204		11		1	45	18	1	3	17		26			28		18	163	29	44			**14**	**608**
Bryum billardieri	1																						**1**	**1**
Buglossoides arvensis	1					6	3			2		4						9		3			**7**	**28**
Bulbine alata	6												5									1	**3**	**12**
Bulbine bulbosa	1				1	15	4			5		9					6	12		1			**9**	**54**
Bulbine semibarbata	36					4							1		17		3	4	3	2		6	**9**	**76**
Bupleurum semicompositum						2												1	3				**3**	**6**
Bursaria spinosa	61		7	6		49	5	3		9		78					17	31	2	1		9	**13**	**278**
Caesia calliantha						8						24											**2**	**32**
Cakile maritima ssp. *maritima*																			1				**1**	**1**
Caladenia carnea complex						2																	**1**	**2**
Caladenia carnea var. *carnea*						4																	**1**	**4**
Caladenia clavula(NC)						9																	**1**	**9**
Caladenia dilatata complex	1																						**1**	**1**
Caladenia patersonii complex						2																	**1**	**2**
Caladenia tensa																		2	1				**2**	**3**
Caladenia tentaculata																			1				**1**	**1**
Calandrinia calyptrata						3												1	2				**3**	**6**
Calandrinia calyptrata/eremaea						4																	**1**	**4**
Calandrinia eremaea	15					5						11					1	27	7	2			**7**	**68**
Calandrinia granulifera						1																	**1**	**1**
Calandrinia polyandra var. *polyandra*								1														1	**2**	**2**
Calandrinia ptychosperma	16																						**1**	**16**
Calandrinia remota	8																						**1**	**8**
Calandrinia volubilis																		1					**1**	**1**
Calendula arvensis	3						2					2						17	4				**5**	**28**
Callistemon rugulosus				1																			**1**	**1**
Callistemon teretifolius	17			1		8		1												2		1	**6**	**30**
Callitris glaucophylla	406		1	11		25	2			2		41	4		8		2	36	3	13	2	46	**15**	**602**
Callitris preissii			2	3		4	4	1		2							8						**7**	**24**
Callitris verrucosa												1											**1**	**1**
Calocephalus citreus						1				3							15	6					**4**	**25**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Calocephalus platycephalus	4																						**1**	**4**
Caloplaca saxicola	67																						**1**	**67**
Calostemma purpureum						12	4					28					2	3					**5**	**49**
Calotis ancyrocarpa																					1		**1**	**1**
Calotis cymbacantha	2														5					1			**3**	**8**
Calotis erinacea															6					1			**2**	**7**
Calotis hispidula	171	1	1			6	3	1		10		17	11		116		9	42	6	25	1	21	**16**	**441**
Calotis lappulacea															16							1	**2**	**17**
Calotis latiuscula	17												1		1								**3**	**19**
Calotis plumulifera	4												3		18								**3**	**25**
Calotis scabiosifolia var. *scabiosifolia*																		2					**1**	**2**
Calytrix tetragona	29			2		24						35					1	1	1			2	**8**	**95**
Capparis mitchellii	40																					6	**2**	**46**
Capsella bursapastoris						3											1	2					**3**	**6**
Carduus tenuiflorus	5		1			18						4					2	7	4				**7**	**41**
Carex appressa						3	2																**2**	**5**
Carex breviculmis						4											6						**2**	**10**
Carex gaudichaudiana																	1						**1**	**1**
Carex inversa var.																						1	**1**	**1**
Carex inversa var. *inversa*																	1						**1**	**1**
Carex inversa var. *major*							1																**1**	**1**
Carex tereticaulis	5																	1					**2**	**6**
Carpobrotus aequilaterus							1																**1**	**1**
Carpobrotus rossii																			1				**1**	**1**
Carrichtera annua	516		62		1	36	17			12		1	7		63	1	11	133	35	57	13	34	**16**	**999**
Carthamus lanatus	136		9		1	28	7	2	3	12		15		1	6		23	59	4	9	5	14	**17**	**334**
Cassinia arcuata			5			2	1	1															**4**	**9**
Cassinia laevis	233		11	4		37				2		121	3		18		3	11	9	3		14	**13**	**469**
Cassinia uncata	13					21		1				22					5		1		1	17	**8**	**81**
Cassytha melantha	6					4					1										1		**4**	**12**
Cassytha peninsularis var.						10						1										1	**3**	**12**
Cassytha peninsularis var. *flindersii*	5																1			1		1	**4**	**8**
Casuarina pauper	284		26	2		6							1		16			15	3	6	20	19	**11**	**398**
Cenchrus ciliaris	8														2								**2**	**10**
Centaurea melitensis	494	1	2			12	3					23	10		34		5	28	6	13	7	45	**14**	**683**
Centaurea solstitialis							1																**1**	**1**
Centaurium erythraea						1																	**1**	**1**
Centaurium spicatum	1					3											2				1		**4**	**7**
Centaurium tenuiflorum	1																						**1**	**1**
Centipeda cunninghamii	1																						**1**	**1**
Centipeda thespidioides														1							1		**2**	**2**
Centrolepis aristata						2																	**1**	**2**
Centrolepis strigosa						2																	**1**	**2**
Cerastium glomeratum						14						5							2				**3**	**21**
Cheilanthes austrotenuifolia	18	1	1			42		1				91					2	12	4				**9**	**172**
Cheilanthes distans	4		1			7						14						6	3				**6**	**35**
Cheilanthes lasiophylla	303		18			2						24	3		13			11	1	3	10	34	**11**	**422**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Cheilanthes sieberi ssp.												5	1				5			2		5	**5**	**18**
Cheilanthes sieberi ssp. *sieberi*	144		3			5							1		9		2	12	1	1		16	**10**	**194**
Cheiranthera alternifolia						5																	**1**	**5**
Chenopodium auricomum															8								**1**	**8**
Chenopodium cristatum	12		1			1							1		4		1		1		1	2	**9**	**24**
Chenopodium curvispicatum	1		46			1				3					4	1	1	4			1		**9**	**62**
Chenopodium desertorum ssp.	2		1			4														2	2	1	**6**	**12**
Chenopodium desertorum ssp. *anidiophyllum*																1		7	3				**3**	**11**
Chenopodium desertorum ssp. *desertorum*			11			3		1		4			2		4		2	1	2				**9**	**30**
Chenopodium desertorum ssp. *microphyllum*			1		1	7				8							1	4			2	5	**8**	**29**
Chenopodium glaucum																		1					**1**	**1**
Chenopodium melanocarpum forma																						21	**1**	**21**
Chenopodium melanocarpum forma melanocarpum	10																						**1**	**10**
Chenopodium murale	15	1																1			2	5	**5**	**24**
Chenopodium nitrariaceum	2										1				3			4		1			**5**	**11**
Chenopodium pumilio	1																						**1**	**1**
Chenopodium truncatum			1																				**1**	**1**
Chloris pectinata	18																						**1**	**18**
Chloris truncata						1											1						**2**	**2**
Choretrum glomeratum var.								1									2						**2**	**3**
Choretrum glomeratum var. *chrysanthum*						2																	**1**	**2**
Choretrum glomeratum var. *glomeratum*				1																			**1**	**1**
Chrysanthemoides monilifera																	1						**1**	**1**
Chrysocephalum apiculatum	35					26	4	3		3		8					11	12	1	2		3	**11**	**108**
Chrysocephalum eremaeum																						5	**1**	**5**
Chrysocephalum pterochaetum	19												1							1		14	**4**	**35**
Chrysocephalum semicalvum ssp.													6								1	8	**3**	**15**
Chrysocephalum semicalvum ssp. *semicalvum*	362	2	2			1									9			5	2		1	13	**9**	**397**
Chrysocephalum semipapposum	66		10			4	2	2		12							7	14		4		8	**10**	**129**
Chthonocephalus pseudevax			5															1				1	**3**	**7**
Cirsium vulgare	5										1						3		1			3	**5**	**13**
Citrullus colocynthis	28												1						1		8	5	**5**	**43**
Citrullus lanatus	28																			1	7	7	**4**	**43**
Citrus limon	1																						**1**	**1**
Cladia aggregata	1																						**1**	**1**
Clematis microphylla	33			1		14		1		3		54					5	10	2	1		3	**11**	**127**
Cleome viscosa	6																						**1**	**6**
Codonocarpus pyramidalis	10														1							2	**3**	**13**
Commicarpus australis	13																			1		5	**3**	**19**
Convolvulus aff. erubescens "linear lobes"																		4	1				**2**	**5**
Convolvulus arvensis			1															1					**2**	**2**
Convolvulus erubescens	30		1	1	1	3	10		3	9		21	2		14		4	29		1			**14**	**129**
Convolvulus erubescens/remotus						34																	**1**	**34**
Convolvulus eyreanus	1							1					3										**3**	**5**
Convolvulus microsepalus			1										1					7					**3**	**9**
Convolvulus microsepalus/remotus			14																				**1**	**14**
Convolvulus remotus	374	1	1			11	15	1		18		40	18		34		16	38	11	13	10	45	**16**	**646**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Conyza bonariensis	1																						**1**	**1**
Cotula australis						3						4											**2**	**7**
Cotula coronopifolia	2																	3				2	**3**	**7**
Craspedia glauca	8					9				1		6					4	4	1				**7**	**33**
Crassula colorata var.						28			1			1			4		1	14	9	3			**8**	**61**
Crassula colorata var. *acuminata*	14		1				7			1					4		19	54	4	12		4	**10**	**120**
Crassula colorata var. *colorata*											1							1	4				**3**	**6**
Crassula colorata/sieberana			5																				**1**	**5**
Crassula decumbens var. *decumbens*						4	2																**2**	**6**
Crassula sieberiana ssp.							1					7						6		1			**4**	**15**
Crassula sieberiana ssp. *sieberiana*																		1		1			**2**	**2**
Crassula sieberiana ssp. *tetramera*	5		4			36	3	1					1		4			34	16	6			**10**	**110**
Cratystylis conocephala			1												1	1		1		1			**5**	**5**
Cressa cretica														1									**1**	**1**
Critesion hystrix	2																						**1**	**2**
Critesion marinum											1	1						2					**3**	**4**
Critesion murinum ssp.						36												20					**2**	**56**
Critesion murinum ssp. *glaucum*	11		14		1	5	18			10	1				18		3	119	32	44			**12**	**276**
Critesion murinum ssp. *leporinum*	46		1			1													1				**4**	**49**
Crossidium geheebii	2																						**1**	**2**
Crotalaria eremaea ssp.														1									**1**	**1**
Crotalaria eremaea ssp. *eremaea*	2																				2		**2**	**4**
Crotalaria eremaea ssp. *strehlowii*	1																						**1**	**1**
Crupina vulgaris																						1	**1**	**1**
Cryptandra amara var.																	3	2					**2**	**5**
Cryptandra amara var. *amara*										7													**1**	**7**
Cryptandra amara var. *longiflora*						2		1	1			4					4	5					**6**	**17**
Cryptandra propinqua	1																						**1**	**1**
Cullen australasicum	20											14	4		12							2	**5**	**52**
Cullen cinereum	2												1	1						1			**4**	**5**
Cullen discolor															4								**1**	**4**
Cullen graveolens																						2	**1**	**2**
Cullen pallidum																					1		**1**	**1**
Cullen patens	2												2		4								**3**	**8**
Cuscuta victoriana	2																						**1**	**2**
Cyanicula deformis												4											**1**	**4**
Cymbonotus preissianus	5					8						4											**3**	**17**
Cymbopogon ambiguus	461	1	1			4	5					6	4		23		1	8	1	3	26	61	**14**	**605**
Cymbopogon obtectus	6																	1				1	**3**	**8**
Cynanchum floribundum	6																					3	**2**	**9**
Cynara cardunculus	2					2	2					4						1					**5**	**11**
Cynodon dactylon							4							1								3	**3**	**8**
Cynoglossum australe	1												3									1	**3**	**5**
Cynoglossum suaveolens						2											2						**2**	**4**
Cynosurus echinatus																	3						**1**	**3**
Cyperus alterniflorus						3							1									5	**3**	**9**
Cyperus bifax	1																						**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Cyperus bulbosus	5																						**1**	**5**
Cyperus exaltatus						1																	**1**	**1**
Cyperus gunnii ssp. *gunnii*	1						2																**2**	**3**
Cyperus gymnocaulos	18	1		1							1							3			2	11	**7**	**37**
Cyperus iria	2																						**1**	**2**
Cyperus rotundus	1																						**1**	**1**
Cyperus vaginatus	26			1		1	1					6						1	1			6	**8**	**43**
Cyrtostylis reniformis						4																	**1**	**4**
Dactyloctenium radulans	36														2								**2**	**38**
Dampiera dysantha	2					12																	**2**	**14**
Dampiera lanceolata var. *lanceolata*	1																						**1**	**1**
Dampiera rosmarinifolia				1																			**1**	**1**
Danthonia auriculata						5						4					18	9					**4**	**36**
Danthonia caespitosa	166		3		1	58	22	3		24		54			26		23	107	18	52	5	18	**15**	**580**
Danthonia carphoides var.																	1						**1**	**1**
Danthonia duttoniana																		1					**1**	**1**
Danthonia eriantha								1	3	10							11	15					**5**	**40**
Danthonia geniculata	2		2									5											**3**	**9**
Danthonia laevis							3																**1**	**3**
Danthonia linkii var. *fulva*						1											1						**2**	**2**
Danthonia pilosa var.						14				1							1						**3**	**16**
Danthonia pilosa var. *paleacea*																	3						**1**	**3**
Danthonia pilosa var. *pilosa*						1											1						**2**	**2**
Danthonia racemosa var. *racemosa*	5					5				1		4					5						**5**	**20**
Danthonia setacea var. *setacea*	1					13	1	1		2		25					20	3	3				**9**	**69**
Danthonia tenuior							2	1															**2**	**3**
Datura ferox																					2		**1**	**2**
Datura inoxia	11																						**1**	**11**
Datura leichhardtii	5																				3	8	**3**	**16**
Daucus glochidiatus	203		21		1	80	3	1	1	5	1	101	10		49		17	62	15	11	1	4	**18**	**586**
Daviesia benthamii ssp. *humilis*																						1	**1**	**1**
Daviesia genistifolia	11			2		7	1	1									1	1	1				**8**	**25**
Daviesia leptophylla	3					5						5											**3**	**13**
Daviesia stricta	4																						**1**	**4**
Daviesia ulicifolia	3							1							4								**3**	**8**
Derwentia decorosa	3											18											**2**	**21**
Desmatodon convolutus	4																						**1**	**4**
Desmazeria rigida	11					9		1				9					3	3	2				**7**	**38**
Deyeuxia densa												5											**1**	**5**
Dianella brevicaulis/revoluta var.						13		2		1		1					16	6		5			**7**	**44**
Dianella longifolia var. *grandis*	10																1						**2**	**11**
Dianella revoluta var.	34			8			11															2	**4**	**55**
Dianella revoluta var. *divaricata*						28																	**1**	**28**
Dianella revoluta var. *revoluta*						22				6		110					3	17	4				**6**	**162**
Dichanthium sericeum ssp.														1	4								**2**	**5**
Dichanthium sericeum ssp. *humilius*													4										**1**	**4**
Dichanthium sericeum ssp. *sericeum*	7																						**1**	**7**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Dichelachne crinita	3					10						4					4						**4**	**21**
Dichondra repens	5					2		1				10					1					1	**6**	**20**
Dichromochlamys dentatifolius	7																						**1**	**7**
Didymodon torquatus	4																						**1**	**4**
Digitaria brownii	217												1					1			1	11	**5**	**231**
Digitaria coenicola	12												3									1	**3**	**16**
Diplachne fusca														2									**1**	**2**
Disphyma crassifolium ssp. *clavellatum*						3	3				2							3	5				**5**	**16**
Dissocarpus biflorus var.													1	1	4				3		2	1	**6**	**12**
Dissocarpus biflorus var. *biflorus*	7		6				1				1				18			5	1				**7**	**39**
Dissocarpus fontinalis														1									**1**	**1**
Dissocarpus paradoxus	277		15	3		3	2						12		53		1	11	3	2	14	20	**13**	**416**
Distichlis distichophylla																		2					**1**	**2**
Dittrichia graveolens	35					1	12				2	8			1						8	6	**8**	**73**
Diuris behrii						1																	**1**	**1**
Diuris palustris												4											**1**	**4**
Dodonaea baueri	26		8	1		5	1	1		2		4					1	7	2	2		7	**13**	**67**
Dodonaea bursariifolia						3																	**1**	**3**
Dodonaea lobulata	334		11	1		1				7			2		10			18	5	9	10	35	**12**	**443**
Dodonaea microzyga var. *microzyga*	152												3		20						10	14	**5**	**199**
Dodonaea stenozyga															1								**1**	**1**
Dodonaea subglandulifera	2																					1	**2**	**3**
Dodonaea viscosa ssp.				1								32									1	1	**4**	**35**
Dodonaea viscosa ssp. *angustissima*	158		10	3	1	16	2	1		8		14	1	1	8		2	34	4	11	2	19	**18**	**295**
Dodonaea viscosa ssp. *spatulata*	12					5	1			1			1				2					1	**7**	**23**
Doodia caudata	1																						**1**	**1**
Drosera auriculata						11																	**1**	**11**
Drosera glanduligera	1					1																	**2**	**2**
Drosera macrantha ssp. *planchonii*	1					4						16											**3**	**21**
Drosera peltata						5											4						**2**	**9**
Echinopogon ovatus var. *ovatus*												4											**1**	**4**
Echium plantagineum	229		10		1	92	26	1		14		56			41		18	80	7	21	3	15	**15**	**614**
Ehrharta longiflora						13	3										2		1				**4**	**19**
Einadia nutans ssp.	8		20			36	1	3		21		50	2	1	6		13	7		1	1	9	**15**	**179**
Einadia nutans ssp. *nutans*	48						2					4			19		1	37	3	6		6	**9**	**126**
Elachanthus pusillus					1	1	1								1		2	21	1	1			**8**	**29**
Eleocharis acuta						1					1												**2**	**2**
Eleocharis pallens						1								1									**2**	**2**
Elymus repens						1																	**1**	**1**
Elymus scabrus var. *scabrus*	2					9	3	1	1	1		21					21	6	1			1	**11**	**67**
Emex australis	4		2			2													5	3			**5**	**16**
Enchylaena tomentosa var.				10			18			28		9	11	4	52		10			33	46	49	**11**	**270**
Enchylaena tomentosa var. *tomentosa*	611		80			36		2			1	9			24	1	1	115	26			7	**12**	**913**
Enneapogon avenaceus	358												14	8	122					12	2	19	**7**	**535**
Enneapogon caerulescens var. *caerulescens*	3												1									2	**3**	**6**
Enneapogon cylindricus	399												12	3	51					2	2	4	**7**	**473**
Enneapogon intermedius	1																						**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Enneapogon nigricans	6					3	12			6		19			1		4	18	1	1			**10**	**71**
Enneapogon oblongus	43																					3	**2**	**46**
Enneapogon polyphyllus	108												3		5						28	39	**5**	**183**
Enteropogon acicularis	10					2	9						2	2	36		1	15	2				**9**	**79**
Enteropogon ramosus														2			3					4	**3**	**9**
Epilobium billardierianum ssp. *cinereum*	1																						**1**	**1**
Eragrostis australasica														1	2					1			**3**	**4**
Eragrostis barrelieri	14																						**1**	**14**
Eragrostis benthamii	1																						**1**	**1**
Eragrostis dielsii var. *dielsii*	36												1	4	1				1			1	**6**	**44**
Eragrostis eriopoda	9	1													40								**3**	**50**
Eragrostis falcata	3						1																**2**	**4**
Eragrostis laniflora															12								**1**	**12**
Eragrostis minor																						1	**1**	**1**
Eragrostis setifolia	47												3	6	4						2	1	**6**	**63**
Eragrostis xerophila	10												6		24								**3**	**40**
Eremophila alternifolia	256		5							3		3			3			13		2	18	14	**9**	**317**
Eremophila deserti	5		4			4						1					1		3			8	**7**	**26**
Eremophila duttonii	123												5		43						6	3	**5**	**180**
Eremophila freelingii	473	2											5		19						35	38	**6**	**572**
Eremophila glabra ssp.	30			1		15									7		2	13			2	7	**8**	**77**
Eremophila glabra ssp. *glabra*																			4				**1**	**4**
Eremophila latrobei ssp.																					2	2	**2**	**4**
Eremophila latrobei ssp. *glabra*	5												2									1	**3**	**8**
Eremophila longifolia	110		1	3		2	4	2		3			2		29		1	28		3		7	**13**	**195**
Eremophila maculata var. *maculata*	3																						**1**	**3**
Eremophila oppositifolia var.																	1				6	7	**3**	**14**
Eremophila oppositifolia var. *oppositifolia*	45		4			2												7					**4**	**58**
Eremophila santalina	13					4	1											4					**4**	**22**
Eremophila scoparia	46		7			1									12			3	2	3	6	8	**9**	**88**
Eremophila serrulata	42		8							1								2	1		1	5	**7**	**60**
Eremophila sturtii	31		3										3		35					3		1	**6**	**76**
Eremophila subfloccosa ssp. *"glandulosa" ms*	1																						**1**	**1**
Eriachne mucronata	22																					8	**2**	**30**
Eriochiton sclerolaenoides	90		25			1				4			2		51		3	27	1	21		4	**11**	**229**
Eriochlamys behrii																	3	7	1				**3**	**11**
Eriochloa australiensis	1																						**1**	**1**
Eriostemon angustifolius ssp. *angustifolius*	5																						**1**	**5**
Eriostemon linearis	3																			1			**2**	**4**
Erodiophyllum elderi			6												18					2			**3**	**26**
Erodium "Blesing"(J.R.Wheeler 461)																						1	**1**	**1**
Erodium angustilobum																						1	**1**	**1**
Erodium aureum	3		12										5		4							5	**5**	**29**
Erodium botrys	2					11	8		3	9		2					1	6	1				**9**	**43**
Erodium brachycarpum					1		3																**2**	**4**
Erodium cicutarium	219		20		1	14	6			1		16			21			47	7	14		5	**12**	**371**
Erodium crinitum	165					5	13					1			10		6	32	1	4			**9**	**237**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Erodium crinitum/cygnorum			22																				**1**	**22**
Erodium cygnorum ssp.															25			2		2			**3**	**29**
Erodium cygnorum ssp. *cygnorum*															5					3			**2**	**8**
Erodium cygnorum ssp. *glandulosum*	16												9		40			15		2		2	**6**	**84**
Erodium malacoides	162																						**1**	**162**
Erodium moschatum												4											**1**	**4**
Eryngium rostratum																	1						**1**	**1**
Eucalyptus aff. viridis	4											9											**2**	**13**
Eucalyptus albens							1										2						**2**	**3**
Eucalyptus australis																					1		**1**	**1**
Eucalyptus brachycalyx			1			1				6									1	1			**5**	**10**
Eucalyptus calycogona var. *calycogona*																		1					**1**	**1**
Eucalyptus camaldulensis var.	139			5		8	3					9	2		19						12	12	**9**	**209**
Eucalyptus camaldulensis var. *camaldulensis*	1	1									1	4					3	6	2				**7**	**18**
Eucalyptus camaldulensis var. *obtusa*	4																					10	**2**	**14**
Eucalyptus cladocalyx	7			4		16						4					2		2				**6**	**35**
Eucalyptus dumosa	50		3			1						1						3		2		8	**7**	**68**
Eucalyptus flindersii	31																					1	**2**	**32**
Eucalyptus gillii	85												3		3							9	**4**	**100**
Eucalyptus goniocalyx	6					11						25											**3**	**42**
Eucalyptus gracilis	6		21	2		6				12		8			2			8	3	15			**10**	**83**
Eucalyptus intertexta	171			1											8					1	1	25	**6**	**207**
Eucalyptus largiflorens															1			1					**2**	**2**
Eucalyptus leptophylla	2		1			1																	**3**	**4**
Eucalyptus leucoxylon hybrid						1																	**1**	**1**
Eucalyptus leucoxylon ssp.	7			4		17	1	1				8						1					**7**	**39**
Eucalyptus leucoxylon ssp. *leucoxylon*												1					1						**2**	**2**
Eucalyptus leucoxylon ssp. *pruinosa*			1			9											13	3	2				**5**	**28**
Eucalyptus microcarpa	8					5						69					9						**4**	**91**
Eucalyptus odorata	20			8		39	2	2				13					8	2		1			**9**	**95**
Eucalyptus oleosa	9		10			5				6								2	4	1			**7**	**37**
Eucalyptus percostata						2												1	1				**3**	**4**
Eucalyptus porosa	16		11	1		6	3	1		1								15	2	7			**10**	**63**
Eucalyptus socialis	189		26	4		18		1		8		7			20			23	5	16	7	16	**13**	**340**
Eucalyptus sp. Y																						1	**1**	**1**
Euchiton gymnocephalus						2											1						**2**	**3**
Euchiton involucratus	1																						**1**	**1**
Euchiton sphaericus	8					7							4					1	1			6	**6**	**27**
Eulalia aurea																						1	**1**	**1**
Euphorbia australis	175		1							1			5		8						1	28	**7**	**219**
Euphorbia drummondii	199	1	10		1	3	11		3	14		7	4		33		14	21		12	15	17	**16**	**365**
Euphorbia mitchelliana var. *mitchelliana*	1																						**1**	**1**
Euphorbia parvicaruncula	2												3										**2**	**5**
Euphorbia peplus	1																						**1**	**1**
Euphorbia stevenii	15												2		4						2		**4**	**23**
Euphorbia tannensis ssp. *eremophila*	49		7							1			1		11			1		2	2	15	**9**	**89**
Euphorbia terracina						1	1																**2**	**2**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Eutaxia diffusa						2	1	1									1						**4**	**5**
Eutaxia microphylla var. *microphylla*	15					25		1		1		1					5	3	1	1			**9**	**53**
Eutaxia microphylla var. *microphylla (erect)*																		4					**1**	**4**
Evolvulus alsinoides var. *decumbens*	8																					1	**2**	**9**
Evolvulus alsinoides var. *villosicalyx*	4																						**1**	**4**
Exocarpos aphyllus	189		34	6		19	2	1		5		2			8		3	27	4	8	12	29	**15**	**349**
Exocarpos cupressiformis	9			1		6						23					1						**5**	**40**
Exocarpos sparteus	3					9		1															**3**	**13**
Exocarpos syrticola																			1				**1**	**1**
Festuca benthamiana																	1						**1**	**1**
Ficus carica	1																						**1**	**1**
Fissidens taylorii	1																						**1**	**1**
Fissidens vittatus	3																						**1**	**3**
Flaveria australasica	10																						**1**	**10**
Foeniculum vulgare						1																	**1**	**1**
Frankenia crispa	2																						**1**	**2**
Frankenia cupularis														2							1		**2**	**3**
Frankenia foliosa	20																						**1**	**20**
Frankenia pauciflora var.						2																	**1**	**2**
Frankenia pauciflora var. *fruticulosa*											2												**1**	**2**
Frankenia pauciflora var. *gunnii*																			1				**1**	**1**
Frankenia plicata	2																						**1**	**2**
Frankenia serpyllifolia	17													2	5			1		1	14		**6**	**40**
Frankenia sessilis											1												**1**	**1**
Frankenia subteres	10																				1		**2**	**11**
Fraxinus rotundifolia ssp. *rotundifolia*																	1						**1**	**1**
Fulgensia subbracteatum	1																						**1**	**1**
Fumaria capreolata ssp. *capreolata*	1					3												1	1				**4**	**6**
Fumaria densiflora							1			1													**2**	**2**
Fumaria muralis ssp.						1																	**1**	**1**
Fungus	6																						**1**	**6**
Galenia pubescens var. *pubescens*	1					2	1												1				**4**	**5**
Galenia secunda						1																	**1**	**1**
Galium binifolium	1											1										1	**3**	**3**
Galium divaricatum						1											2						**2**	**3**
Galium gaudichaudii	25					19		1		1		10					1	2			1	1	**9**	**61**
Galium migrans			1			14		1				20	1					1	1			1	**8**	**40**
Galium murale	7					32				1		28						16	8				**6**	**92**
Galium spurium ssp. *ibicinum*	2					5						12						5	1			1	**6**	**26**
Galium tricornutum											1												**1**	**1**
Gastridium phleoides						1																	**1**	**1**
Geijera linearifolia						3										1		1	6				**4**	**11**
Geococcus pusillus	2		18												5			3		1			**5**	**29**
Geranium dissectum	6							1															**2**	**7**
Geranium molle var. *molle*	3																						**1**	**3**
Geranium potentilloides var. *potentilloides*												8											**1**	**8**
Geranium retrorsum						26	3					27					3	7	4	1		1	**8**	**72**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Geranium solanderi var. *solanderi*	16											5						7				2	**4**	**30**
Gilesia biniflora													1										**1**	**1**
Glaucium corniculatum var. *corniculatum*	1						1											1				4	**4**	**7**
Glinus lotoides	1																				1		**2**	**2**
Glossogyne tannensis	11												2									3	**3**	**16**
Glycine canescens	7		2																			1	**3**	**10**
Glycine clandestina var.							1			1		46			29					1	1	30	**7**	**109**
Glycine clandestina var. *clandestina*								1				4											**2**	**5**
Glycine clandestina var. *sericea*	151		2			30				8		26	1				7	29	6	2			**10**	**262**
Glycyrrhiza glabra						1																	**1**	**1**
Gnaphalium indutum						1																	**1**	**1**
Gnephosis arachnoidea	79	2											7	3	25					2	2	18	**8**	**138**
Gnephosis drummondii															1								**1**	**1**
Gnephosis eriocarpa	1														5						1		**3**	**7**
Gnephosis tenuissima	3																		1				**2**	**4**
Gonocarpus elatus	23			3		41	2	1		2		55					11	5	3	1			**11**	**147**
Gonocarpus tetragynus			2			12						13					2	1					**5**	**30**
Goodenia albiflora	14					13		1				29					1	6	1			1	**8**	**66**
Goodenia amplexans	2			1		5	1																**4**	**9**
Goodenia anfracta														1									**1**	**1**
Goodenia berardiana	7																			1			**2**	**8**
Goodenia calcarata	20																					3	**2**	**23**
Goodenia chambersii	1																						**1**	**1**
Goodenia cycloptera	3																		1				**2**	**4**
Goodenia fascicularis	119	2	11		1	12	4			4		6	15		14		1	40		3	2	16	**15**	**250**
Goodenia geniculata																		1					**1**	**1**
Goodenia glauca	2																						**1**	**2**
Goodenia havilandii	2																					3	**2**	**5**
Goodenia lobata	12																						**1**	**12**
Goodenia lunata	2				1										6								**3**	**9**
Goodenia ovata	8																						**1**	**8**
Goodenia pinnatifida	16		2		1	22	10	3	3	16		46			30		14	45	4	11			**14**	**223**
Goodenia pusilliflora	19		22		1	13	7	1	1	6	1	10			1		11	52	3	18			**15**	**166**
Goodenia robusta	6					28						30					3						**4**	**67**
Goodenia saccata	1																					1	**2**	**2**
Goodenia varia						1																	**1**	**1**
Goodenia vernicosa	57																			1	1	6	**4**	**65**
Goodenia willisiana	1																						**1**	**1**
Goodia medicagenia	4																						**1**	**4**
Gossypium sturtianum var. *sturtianum*	10												1									6	**3**	**17**
Green alga	3																						**1**	**3**
Grevillea aspera	19																					1	**2**	**20**
Grevillea huegelii	2		1	2		2												1					**5**	**8**
Grevillea ilicifolia var.																	1						**1**	**1**
Grevillea ilicifolia var. *ilicifolia*																		1					**1**	**1**
Grevillea lavandulacea var.	3					3						1											**3**	**7**
Grevillea lavandulacea var. *lavandulacea*						1																	**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Grevillea lavandulacea var. *sericea*						6						4											**2**	**10**
Grevillea nematophylla	1																	1					**2**	**2**
Grimmia laevigata	2																						**1**	**2**
Grimmia pulvinata	4																						**1**	**4**
Gunniopsis calva																			1				**1**	**1**
Gunniopsis quadrifida														2	3						2		**3**	**7**
Gunniopsis septifraga	1																						**1**	**1**
Gynandriris setifolia	1					15	19	2	3	6		7					12	21	1	4			**11**	**91**
Gypsophila tubulosa	2					1		1				1						7		1		6	**7**	**19**
Gyrostemon ramulosus																						1	**1**	**1**
Haeckeria cassiniaeformis	2																						**1**	**2**
Haeckeria punctulata	3			1														3				6	**4**	**13**
Hainardia cylindrica											1						1	1					**3**	**3**
Hakea carinata	1					1																	**2**	**2**
Hakea ednieana	217	1											3		4						4	22	**6**	**251**
Hakea eyreana	1																						**1**	**1**
Hakea leucoptera ssp. *leucoptera*	37		2	1		3	1						1		5			5		1	2	3	**11**	**61**
Halgania andromedifolia								1															**1**	**1**
Halgania cyanea	8					3											2	6		3		3	**6**	**25**
Haloragis aspera	16						1						1		8			4	1	5	1	4	**9**	**41**
Haloragis heterophylla																						1	**1**	**1**
Halosarcia halocnemoides ssp.						2								1					1		6		**4**	**10**
Halosarcia halocnemoides ssp. *halocnemoides*	2	1									2								1				**4**	**6**
Halosarcia indica ssp.	1													1	1								**3**	**3**
Halosarcia indica ssp. *bidens*																		2					**1**	**2**
Halosarcia indica ssp. *leiostachya*							1											1	2		1		**4**	**5**
Halosarcia pergranulata ssp. *divaricata*																		3					**1**	**3**
Halosarcia pergranulata ssp. *pergranulata*	5						1																**2**	**6**
Halosarcia pluriflora														2									**1**	**2**
Halosarcia pruinosa	1																						**1**	**1**
Halosarcia pterygosperma ssp. *pterygosperma*																		2					**1**	**2**
Hardenbergia violacea	2			1																			**2**	**3**
Harmsiodoxa blennodioides															9								**1**	**9**
Harmsiodoxa brevipes var.			1												2								**2**	**3**
Harmsiodoxa brevipes var. *brevipes*	2														1		1	1					**4**	**5**
Harmsiodoxa puberula	2																						**1**	**2**
Hedypnois rhagadioloides					1	36	2		1	1		29					16	27	12	1		1	**11**	**127**
Helichrysum leucopsideum			4			4	1			2								1					**5**	**12**
Heliotropium asperrimum	15	1				1	1			1			2					1				6	**8**	**28**
Heliotropium curassavicum	2																					3	**2**	**5**
Heliotropium europaeum	45						1						1				1				6	8	**6**	**62**
Helipterum sp.(NC)	1		4																				**2**	**5**
Herniaria cinerea	4					5				1					4		3	1	4	7		13	**9**	**42**
Heterodea muelleri	3																						**1**	**3**
Hibbertia exutiacies	11			4		26	1					44					6		1				**7**	**93**
Hibbertia riparia	11																						**1**	**11**
Hibbertia riparia (canescens)						8																	**1**	**8**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Hibbertia sericea var.	1					1																	**2**	**2**
Hibiscus brachysiphonius	4												1		8						1	5	**5**	**19**
Hibiscus krichauffianus	6																				3	2	**3**	**11**
Hibiscus sturtii var.													1									6	**2**	**7**
Hibiscus sturtii var. *grandiflorus*	90														2							8	**3**	**100**
Hibiscus trionum var. *vesicarius*	1																						**1**	**1**
Holcus lanatus																	1						**1**	**1**
Homeria flaccida						1											2						**2**	**3**
Homopholis proluta							2				1						2						**3**	**5**
Hordeum sp.(NC)						4																	**1**	**4**
Hovea purpurea	2																						**1**	**2**
Hyalosperma demissum						2						6					2	1					**4**	**11**
Hyalosperma glutinosum ssp. *glutinosum*	2					6						1					2	8	1	2			**7**	**22**
Hyalosperma glutinosum/semisterile																		1					**1**	**1**
Hyalosperma semisterile	18					12	2	1		5		4					7	24	1	10		2	**11**	**86**
Hybanthus floribundus ssp. *floribundus*	1					1						5						1					**4**	**8**
Hybanthus monopetalus	12					3												1				2	**4**	**18**
Hydrocotyle callicarpa						5																	**1**	**5**
Hydrocotyle foveolata						3																	**1**	**3**
Hydrocotyle hirta												4											**1**	**4**
Hydrocotyle laxiflora	1					12						16					5	1					**5**	**35**
Hydrocotyle medicaginoides											1												**1**	**1**
Hydrocotyle trachycarpa												4						1					**2**	**5**
Hymenanthera dentata						1						4					1						**3**	**6**
Hymenolobus procumbens	2										1							2	1				**4**	**6**
Hypericum gramineum																	1						**1**	**1**
Hypericum perforatum							1										1						**2**	**2**
Hypochaeris glabra	59		28		1	87	15		3	21		61	4		18		18	85	21	14		7	**15**	**442**
Hypochaeris radicata	3					17				4		9					21	5					**6**	**59**
Hypoxis glabella var. *glabella*	10		2			1	9					16											**5**	**38**
Indigofera australis var. *australis*	6					8		1				15						2				3	**6**	**35**
Indigofera georgei																						2	**1**	**2**
Indigofera helmsii	2																	1			1		**3**	**4**
Indigofera leucotricha	41											1										5	**3**	**47**
Indigofera longibractea	5																						**1**	**5**
Iseilema membranaceum	2																						**1**	**2**
Isoetopsis graminifolia	12		22		1	2	4			1		15			1		5	10		2		1	**12**	**76**
Isolepis marginata						4																	**1**	**4**
Isotoma petraea	11		6			1						5						1			1	3	**7**	**28**
Ixiochlamys cuneifolia	100												3		3					1	1	9	**6**	**117**
Ixiochlamys filicifolia	1																						**1**	**1**
Ixiochlamys nana	1																						**1**	**1**
Ixiolaena chloroleuca													1	1	7							1	**4**	**10**
Ixiolaena leptolepis	99		4		1		8						6	1	30			5		2	3	3	**11**	**162**
Ixiolaena leptolepis/tomentosa			14																				**1**	**14**
Ixiolaena tomentosa	19											5						7	1			4	**5**	**36**
Ixodia flindersica	8																						**1**	**8**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Jasminum didymum ssp. *lineare*	17			1											4						2	10	**5**	**34**
Juncus acutus												4											**1**	**4**
Juncus aridicola	1					1						4										2	**4**	**8**
Juncus australis	3																						**1**	**3**
Juncus bufonius						1												1					**2**	**2**
Juncus capitatus						1																	**1**	**1**
Juncus flavidus	2						2											1					**3**	**5**
Juncus homalocaulis						1																	**1**	**1**
Juncus kraussii																		4				4	**2**	**8**
Juncus sarophorus				1																			**1**	**1**
Juncus subsecundus	8					2	1					1					5					3	**6**	**20**
Kennedia prostrata	2					11	1										6						**4**	**20**
Kickxia elatine ssp. *crinita*											1												**1**	**1**
Korthalsella japonica forma japonica	1																						**1**	**1**
Lactuca serriola						8				1							3	2				1	**5**	**15**
Lagenifera huegelii						17		1				63					6						**4**	**87**
Lamarckia aurea	16					28		1				4					4	36	19	6			**8**	**114**
Lamium amplexicaule var. *amplexicaule*						2																	**1**	**2**
Lasiopetalum behrii	1					1																	**2**	**2**
Lavatera plebeia	10												1									5	**3**	**16**
Lawrencia glomerata	2														2						2		**3**	**6**
Lawrencia squamata	4		4									7		2				2					**5**	**19**
Lecanora sphaerospora	43																						**1**	**43**
Lecidea decipiens	1																						**1**	**1**
Lemooria burkittii															4					2			**2**	**6**
Leontodon taraxacoides ssp. *taraxacoides*								1															**1**	**1**
Lepidium africanum	2		1			7	3	1		6							8	4					**8**	**32**
Lepidium fasciculatum															8								**1**	**8**
Lepidium leptopetalum																			1				**1**	**1**
Lepidium muelleri-ferdinandi	1												1										**2**	**2**
Lepidium oxytrichum	115							1					3		18					8		1	**6**	**146**
Lepidium oxytrichum/papillosum			6																				**1**	**6**
Lepidium papillosum	5		1			2				5			1		9		1	19	2				**9**	**45**
Lepidium phlebopetalum	45	2				2							6		17		2		1	5			**8**	**80**
Lepidium pseudotasmanicum												4											**1**	**4**
Lepidosperma viscidum	16			1		23		1				38					1	3					**7**	**83**
Lepilaena australis																		1					**1**	**1**
Leptorhynchos scabrus							1																**1**	**1**
Leptorhynchos squamatus						13				3		29					4	2	1				**6**	**52**
Leptorhynchos tetrachaetus					1	6		1	2	1							3	8		1		2	**9**	**25**
Leptorhynchos waitzia						1												1					**2**	**2**
Levenhookia dubia						5						1					1						**3**	**7**
Limonium lobatum	20					8	6			1					9		4	48	9	21			**9**	**126**
Limonium sinuatum																		1					**1**	**1**
Linum marginale	3					10						9					5	7		1		4	**7**	**39**
Linum trigynum																		1					**1**	**1**
Lissanthe strigosa						1																	**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Liverwort	10																						**1**	**10**
Lobelia gibbosa						6											1						**2**	**7**
Logania saxatilis	4					3													1				**3**	**8**
Logfia gallica																	3						**1**	**3**
Lolium loliaceum						2											1	4					**3**	**7**
Lolium perenne						7	3			1													**3**	**11**
Lolium perenne x rigidum						2		2															**2**	**4**
Lolium rigidum	1					11	10			2	2	7					7	11	2				**9**	**53**
Lomandra collina						1						17											**2**	**18**
Lomandra densiflora	7			2		33	1	1		1		83					13	7	2	1			**11**	**151**
Lomandra effusa	3		1	2		8	7	2	2	10							12	25	1	1			**12**	**74**
Lomandra micrantha ssp.												4											**1**	**4**
Lomandra multiflora ssp. *dura*	96		5	8		52	6	3	2	17		94	1				26	38	5	4		23	**15**	**380**
Lomandra multiflora ssp. *multiflora*							1																**1**	**1**
Lotus australis	4					2	1																**3**	**7**
Lotus cruentus	218		2							1			11		51			2	1	5		24	**9**	**315**
Lunularia cruciata	6																						**1**	**6**
Luzula meridionalis						7						16					5						**3**	**28**
Lycium australe	4		6	1		3				2		5			4	1		7	9	1			**11**	**43**
Lycium ferocissimum	27		18	7		44	8			15	1	36					8	42	19	9			**12**	**234**
Lysiana exocarpi ssp. *exocarpi*	327	1	4	1		12	5			2		1	6	1	15		2	25	2	4	11	22	**17**	**441**
Lysiana subfalcata																						3	**1**	**3**
Lythrum hyssopifolia							2																**1**	**2**
Lythrum paradoxum						1																	**1**	**1**
Maireana aphylla	38		5	1	1	3	3			7			4	3	43		5	15		2	4	1	**15**	**135**
Maireana appressa	18		1							1				1	11			1	1			4	**8**	**38**
Maireana astrotricha	284		25										6	4	50	1		2		2	41	6	**10**	**421**
Maireana brevifolia	65	1	18	8	1	1	11	1		11		4			1		3	41	2	4	7	8	**17**	**187**
Maireana campanulata	8																				3	2	**3**	**13**
Maireana cannonii																			2				**1**	**2**
Maireana carnosa																					3		**1**	**3**
Maireana ciliata	1														2		2						**3**	**5**
Maireana coronata	3		1										2								7		**4**	**13**
Maireana enchylaenoides	9					23	10	2	3	9		78					21	49	5	4		8	**12**	**221**
Maireana eriantha	3														12						2		**3**	**17**
Maireana erioclada	3		5							3						1		3	6		10	6	**8**	**37**
Maireana excavata	3					3	3		3	2		1			25			12		2			**9**	**54**
Maireana georgei	23			7			2						1	2	33		2		1	1	8	3	**11**	**83**
Maireana georgei/turbinata			35																				**1**	**35**
Maireana integra	10		2																				**2**	**12**
Maireana lobiflora	4				1					1					3			13					**5**	**22**
Maireana melanocarpa	10																					1	**2**	**11**
Maireana microcarpa	2																						**1**	**2**
Maireana oppositifolia						1					1								1				**3**	**3**
Maireana ovata	12																				6		**2**	**18**
Maireana pentagona	1																						**1**	**1**
Maireana pentatropis	102		7												11							6	**4**	**126**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Maireana planifolia												5											**1**	**5**
Maireana pyramidata	320		87	1		5	3			6		9	4	7	95	1	1	31	16	26	38	10	**17**	**660**
Maireana radiata																		2	1	2	6		**4**	**11**
Maireana rohrlachii	1		1														1	5					**4**	**8**
Maireana sedifolia	97		80	1		6	2			5		1	1		35			23	6	8	12	4	**14**	**281**
Maireana spongiocarpa	7																				1	1	**3**	**9**
Maireana tomentosa ssp. *urceolata*	33												1		2								**3**	**36**
Maireana trichoptera	50		28							2							2	17			4		**6**	**103**
Maireana triptera	4																						**1**	**4**
Maireana turbinata	32					2	2			5			1		12		2	37	7	19			**10**	**119**
Maireana villosa	4																						**1**	**4**
Malacocera albolanata																						1	**1**	**1**
Malacocera biflora															2								**1**	**2**
Malacocera gracilis																			1				**1**	**1**
Malacocera tricornis	1		1												1			1	2				**5**	**6**
Malva parviflora	28		1		1	11	4			1					3		2	6	3	3		4	**12**	**67**
Malvastrum americanum	228												7	1	37						9	25	**6**	**307**
Marrubium vulgare	125		9	9		11	11	1		6		35			15		5	33	2	6	9	16	**15**	**293**
Marsdenia australis	178									1			2					1		2	10	44	**7**	**238**
Marsilea drummondii																		2					**1**	**2**
Marsilea hirsuta														1									**1**	**1**
Medicago minima var. *minima*	84		40		1	47	21	1		22		51			21		14	161	37	57	2		**14**	**559**
Medicago polymorpha var. *polymorpha*	64		5			24	20		1	11	2	6			32		2	25	10	14		3	**14**	**219**
Medicago praecox						1																	**1**	**1**
Medicago sativa ssp.							4																**1**	**4**
Medicago sativa ssp. *sativa*	1																						**1**	**1**
Medicago truncatula	3				1	21		1	1	8	1	14					2	38	4				**11**	**94**
Melaleuca bracteata	1																						**1**	**1**
Melaleuca dissitiflora	18												1									4	**3**	**23**
Melaleuca glomerata	93	1											2		9						9	16	**6**	**130**
Melaleuca lanceolata ssp. *lanceolata*	58			2		9	1			2		9	2					10	1	2	2	6	**12**	**104**
Melaleuca pauperiflora ssp. *mutica*																						2	**1**	**2**
Melaleuca uncinata	23					1																1	**3**	**25**
Melhania oblongifolia	12																					1	**2**	**13**
Melilotus indica	9						1				1							1				1	**5**	**13**
Mesembryanthemum aitonis																			1				**1**	**1**
Mesembryanthemum crystallinum	1						2												6				**3**	**9**
Mesembryanthemum nodiflorum						7	6			3							4	27	12	1			**7**	**60**
Microlaena stipoides var. *stipoides*																	1						**1**	**1**
Microseris lanceolata	21					29						45						12	4	1			**6**	**112**
Microtis arenaria																	2		2				**2**	**4**
Microtis parviflora																	1						**1**	**1**
Microtis unifolia complex						25																	**1**	**25**
Millotia greevesii ssp. *greevesii* var. *greevesii*	9																						**1**	**9**
Millotia greevesii ssp. *kempei* var. *helmsii*	1																						**1**	**1**
Millotia macrocarpa			5																				**1**	**5**
Millotia myosotidifolia						3												8	2	1			**4**	**14**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Millotia tenuifolia var.												4											**1**	**4**
Millotia tenuifolia var. *tenuifolia*	2					3													1				**3**	**6**
Mimulus repens																		1					**1**	**1**
Minuartia mediterranea																			1				**1**	**1**
Minuria annua	2											10											**2**	**12**
Minuria cunninghamii	55	1	11			1	1					6		1	15	1		9	6	4	10		**13**	**121**
Minuria denticulata	3														20								**2**	**23**
Minuria integerrima	4												1		10						2		**4**	**17**
Minuria leptophylla	2				1	2	9		2	10					7		9	25		2			**10**	**69**
Minuria rigida														1	4								**2**	**5**
Misopates orontium						4																	**1**	**4**
Mitrasacme paradoxa(NC)						13						10											**2**	**23**
Molineriella minuta						1																	**1**	**1**
Muehlenbeckia florulenta											2			1	9			2		1			**5**	**15**
Mukia maderaspatana	22													1	4						2	3	**5**	**32**
Myoporum insulare											1								2				**2**	**3**
Myoporum montanum	41	1		2		8	2			1							2	10	1		8	9	**11**	**85**
Myoporum platycarpum ssp.	71		28	3		11		1		3					28	1		4	4	9	7	7	**13**	**177**
Myoporum platycarpum ssp. *platycarpum*	1		6							3					1			8	2				**6**	**21**
Myoporum viscosum						2						1											**2**	**3**
Myrsiphyllum asparagoides	2					4												2					**3**	**8**
Neatostema apulum			2		1				2	5							1						**5**	**11**
Neobassia proceriflora	5												2										**2**	**7**
Nerium oleander																						2	**1**	**2**
Neurachne alopecuroidea	8					3				1													**3**	**12**
Nicotiana glauca	34																	1			6	5	**4**	**46**
Nicotiana goodspeedii			3												1								**2**	**4**
Nicotiana maritima						2						4							2				**3**	**8**
Nicotiana occidentalis ssp. *obliqua*	3																					10	**2**	**13**
Nicotiana simulans	19												3									3	**3**	**25**
Nicotiana velutina	94	2										4	2		6				3	2	6	25	**9**	**144**
Nitraria billardierei	30		5	1		7	4							2	34		1	13	6	4	3		**12**	**110**
Oenothera stricta ssp. *stricta*					1																		**1**	**1**
Olea europaea ssp.							2										1						**2**	**3**
Olea europaea ssp. *europaea*						3																	**1**	**3**
Olearia axillaris																			2				**1**	**2**
Olearia calcarea	1		2							3								1		1			**5**	**8**
Olearia decurrens	206		12	1		20				1		34	1				2	15	5	4	2	21	**13**	**324**
Olearia floribunda var. *floribunda*	1																						**1**	**1**
Olearia minor			1							1								4					**3**	**6**
Olearia muelleri	8		10							3								4	3	2		7	**7**	**37**
Olearia pannosa ssp.	3					1						3											**3**	**7**
Olearia pannosa ssp. *cardiophylla*						1																	**1**	**1**
Olearia pannosa ssp. *pannosa*								1										4					**2**	**5**
Olearia picridifolia						1																	**1**	**1**
Olearia pimeleoides ssp.				2						9		1					4			3		10	**6**	**29**
Olearia pimeleoides ssp. *pimeleoides*	42		5			8	2	1				2						13	7				**8**	**80**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Olearia ramulosa	6					8												3	1	2		3	**6**	**23**
Olearia tubuliflora												4											**1**	**4**
Omphalolappula concava	253		14			1	2			1		10	14		81		1	9	1	8		2	**13**	**397**
Onopordum acanthium ssp. *acanthium*	4			1																			**2**	**5**
Onopordum acaulon	8		1			2	6			2					16		1	5		2	1	1	**11**	**45**
Opercularia turpis						9						4											**2**	**13**
Ophioglossum lusitanicum	1					6						1						2					**4**	**10**
Opuntia cylindrica																			1				**1**	**1**
Opuntia microdasys						1																	**1**	**1**
Opuntia robusta										3													**1**	**3**
Opuntia stricta var. *stricta*	3																	1				4	**3**	**8**
Osteocarpum acropterum var.	68	1													1						16	3	**5**	**89**
Osteocarpum acropterum var. *acropterum*	1		1			1									3			7	3	1	1		**8**	**18**
Osteocarpum dipterocarpum	5													2					3				**3**	**10**
Osteocarpum salsuginosum							1																**1**	**1**
Osteospermum clandestinum	1					1				1									1				**4**	**4**
Othonna gregorii	1														4				2				**3**	**7**
Oxalis perennans	292		27		1	83	8	2	1	21	1	124	3		9		14	98	12	18	10	46	**18**	**770**
Oxalis pes-caprae	13					5	11					5						3	1				**6**	**38**
Oxalis radicosa						5						4											**2**	**9**
Ozothamnus retusus						6												2					**2**	**8**
Ozothamnus scaber						1											3			2			**3**	**6**
Panicum decompositum var. *decompositum*	18												3	1			1					3	**5**	**26**
Panicum effusum var. *effusum*	7						2				1						1						**4**	**11**
Panicum schinzii																						1	**1**	**1**
Papaver aculeatum										1			1										**2**	**2**
Papaver hybridum	1				1	1				1							3	12		3			**7**	**22**
Paraceterach reynoldsii	32																					2	**2**	**34**
Paractaenum refractum																					1		**1**	**1**
Parapholis incurva						4	1	2			1	4						3	1				**7**	**16**
Parentucellia latifolia						4											2						**2**	**6**
Parietaria cardiostegia																		5	3				**2**	**8**
Parietaria cardiostegia/debilis	55		2																				**2**	**57**
Parietaria debilis			3			12						19						1	1				**5**	**36**
Parmelia amphixantha	1																						**1**	**1**
Parmelia congesta	1																						**1**	**1**
Paspalidium basicladum	4																					2	**2**	**6**
Paspalidium clementii	2																						**1**	**2**
Paspalidium constrictum	32		4			4				1		12	1				2	7				23	**9**	**86**
Paspalidium gracile						1																	**1**	**1**
Peganum harmala															4					2			**2**	**6**
Pelargonium australe																						1	**1**	**1**
Pelargonium littorale																		1					**1**	**1**
Pentaschistis airoides						31		1		1							15	28	6	7			**7**	**89**
Pentaschistis pallida						1																	**1**	**1**
Pentzia incana	1																						**1**	**1**
Persicaria prostrata	1																						**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Petalostylis labicheoides	11																				3	4	**3**	**18**
Petrorhagia nanteuilii																	3						**1**	**3**
Petrorhagia velutina						17			2	2							7	2					**5**	**30**
Phalaris minor						3	1													1			**3**	**5**
Philonotis tenuis	1																						**1**	**1**
Phlegmatospermum cochlearinum	6														5								**2**	**11**
Phragmites australis	1																					1	**2**	**2**
Phyllanthus australis	11												2										**2**	**13**
Phyllanthus fuernrohrii	1													2					2				**3**	**5**
Phyllanthus lacunarius	38														6						2	8	**4**	**54**
Phyllanthus saxosus	11					6						4						3	1			5	**6**	**30**
Picnomon acarna												4											**1**	**4**
Picris squarrosa													1										**1**	**1**
Pimelea curviflora var.								1				10						1					**3**	**12**
Pimelea curviflora var. *gracilis*																	1	4		1			**3**	**6**
Pimelea elongata	1												2									4	**3**	**7**
Pimelea glauca	3					2						5											**3**	**10**
Pimelea imbricata var. *petraea*																				1			**1**	**1**
Pimelea linifolia ssp. *linifolia*	4																						**1**	**4**
Pimelea micrantha	2					8	10	1									1	9	1				**7**	**32**
Pimelea microcephala ssp.				1						3			3		6		1			2	14	33	**8**	**63**
Pimelea microcephala ssp. *microcephala*	123		12			21	4								19			22	18	1			**8**	**220**
Pimelea octophylla						1																1	**2**	**2**
Pimelea petrophila	6					6														1			**3**	**13**
Pimelea simplex ssp.	6	3												2	21							20	**5**	**52**
Pimelea simplex ssp. *continua*	1					1																	**2**	**2**
Pimelea simplex ssp. *simplex*	123									1			5		26				1	2			**6**	**158**
Pimelea stricta	4			1		4																	**3**	**9**
Pimelea trichostachya	1												2										**2**	**3**
Pinus halepensis							4																**1**	**4**
Pinus ponderosa							1																**1**	**1**
Pinus radiata	1			1																			**2**	**2**
Piptatherum miliaceum	2						4																**2**	**6**
Pittosporum phylliraeoides var. *microcarpa*	190	2	3			17	3	1		1		9	2	3	8		3	19	8	4	5	13	**17**	**291**
Plagiobothrys plurisepaleus	7																	3					**2**	**10**
Plagiochasma rupestre	6																						**1**	**6**
Plantago aff. debilis	1					1						5										2	**4**	**9**
Plantago bellardii								1							4								**2**	**5**
Plantago cunninghamii							1																**1**	**1**
Plantago drummondii	87		11			2							5		24		2	13	5	7		3	**10**	**159**
Plantago gaudichaudii						4											6	4					**3**	**14**
Plantago hispida	1					3				2							11	1	1			3	**7**	**22**
Plantago lanceolata var. *lanceolata*	2						2																**2**	**4**
Plantago sp. B						3					1						1						**3**	**5**
Plantago turrifera	3																1					1	**3**	**5**
Plantago varia	2					3			1	4													**4**	**10**
Plantago varia complex						13						41											**2**	**54**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Plectranthus intraterraneus	10																					1	**2**	**11**
Pleurosorus rutifolius	63		9			10						32			8			2	3		1	5	**9**	**133**
Pluchea dentex	13	1											1									8	**4**	**23**
Poa annua												4											**1**	**4**
Poa bulbosa						1		1	3								1	2					**5**	**8**
Poa clelandii																	4						**1**	**4**
Poa crassicaudex	7					29	2			1		14					6	6	3				**8**	**68**
Poa drummondiana																		1					**1**	**1**
Poa fax											1												**1**	**1**
Poa labillardieri var. *labillardieri*												5					3	2					**3**	**10**
Podolepis canescens	3																						**1**	**3**
Podolepis capillaris	69														15			2		3			**4**	**89**
Podolepis jaceoides	2																						**1**	**2**
Podolepis muelleri						1											1	7		1			**4**	**10**
Podolepis rugata var. *rugata*								1															**1**	**1**
Podotheca angustifolia																			1				**1**	**1**
Pogonolepis muelleriana						7	2		1		1						10	11	2	1			**8**	**35**
Polycalymma stuartii	1													3	1				1	1			**5**	**7**
Polycarpon tetraphyllum						7						5						1	2	1		6	**6**	**22**
Polygonum aviculare	2						1											1					**3**	**4**
Polygonum plebeium																					1		**1**	**1**
Polypogon monspeliensis																		2	1				**2**	**3**
Polypogon viridis	4					2																2	**3**	**8**
Pomaderris paniculosa ssp.						5	1										1						**3**	**7**
Pomaderris paniculosa ssp. *paniculosa*	3					2	1			2							1	3					**6**	**12**
Pomax umbellata	12			1								1						1				3	**5**	**18**
Poranthera microphylla						4																1	**2**	**5**
Portulaca intraterranea	2																						**1**	**2**
Portulaca oleracea	44												1		14					1	4	13	**6**	**77**
Prasophyllum fitzgeraldii						1																	**1**	**1**
Prasophyllum occidentale																	2	1					**2**	**3**
Prasophyllum odoratum						6												6		1			**3**	**13**
Prasophyllum pallidum						4																	**1**	**4**
Prostanthera behriana						3																	**1**	**3**
Prostanthera striatiflora	185		8			1				2		4	1		2			3			7	12	**10**	**225**
Prunus domestica ssp. *domestica*	1																						**1**	**1**
Pseudognaphalium luteoalbum	6					3						4											**3**	**13**
Psora decipiens	56																						**1**	**56**
Pteris tremula	1																						**1**	**1**
Pterocaulon sphacelatum	128	1											7	2	13						11	15	**7**	**177**
Pterostylis aff. excelsa												1											**1**	**1**
Pterostylis biseta						13		1				21					3	12	2				**6**	**52**
Pterostylis boormanii						1																	**1**	**1**
Pterostylis cycnocephala						2																	**1**	**2**
Pterostylis excelsa						3												2					**2**	**5**
Pterostylis mutica	2											5						2	1				**4**	**10**
Pterostylis nana	15																						**1**	**15**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Pterostylis nutans												4											**1**	**4**
Pterostylis pusilla						7						17											**2**	**24**
Pterostylis robusta	5											12											**2**	**17**
Pterostylis sanguinea						2																	**1**	**2**
Pterostylis xerophila																						2	**1**	**2**
Ptilotus decipiens	2												1									3	**3**	**6**
Ptilotus erubescens								1									1						**2**	**2**
Ptilotus exaltatus var.	107												2								5	31	**4**	**145**
Ptilotus exaltatus var. *exaltatus*	1																			1			**2**	**2**
Ptilotus macrocephalus	3																						**1**	**3**
Ptilotus nobilis var.	4											1					1	1					**4**	**7**
Ptilotus nobilis var. *angustifolius*																		2					**1**	**2**
Ptilotus nobilis var. *nobilis*	1												1		4			1					**4**	**7**
Ptilotus obovatus var.	711									4		5	12		14					22	47	71	**8**	**886**
Ptilotus obovatus var. *obovatus*	115	2	49			5				4					39			36	7			11	**9**	**268**
Ptilotus parvifolius var.														1								1	**2**	**2**
Ptilotus parvifolius var. *laetus*	5																						**1**	**5**
Ptilotus seminudus										1													**1**	**1**
Ptilotus sessilifolius var. *sessilifolius*	1																						**1**	**1**
Ptilotus spathulatus forma	1							1	2	16		36					9		3	16		2	**9**	**86**
Ptilotus spathulatus forma spathulatus	11		22			23		1	1			10					2	59	3				**9**	**132**
Puccinellia distans																		1					**1**	**1**
Puccinellia stricta var. *stricta*																		2					**1**	**2**
Pultenaea graveolens	2					5																	**2**	**7**
Pultenaea kraehenbuehlii																	1						**1**	**1**
Pultenaea largiflorens	14			1		30						22					4						**5**	**71**
Pycnosorus globosus																						1	**1**	**1**
Pycnosorus pleiocephalus	12		1			3	3			1					14		4	22	1	10			**10**	**71**
Ranunculus hamatosetosus	46					10						14						8	5				**5**	**83**
Ranunculus pachycarpus						2						4											**2**	**6**
Ranunculus pumilio var.			1																				**1**	**1**
Ranunculus sessiliflorus var.						1																	**1**	**1**
Raphanus raphanistrum						1																	**1**	**1**
Rapistrum rugosum ssp. *rugosum*	3					16	9				1						2	9					**6**	**40**
Reichardia tingitana						1	1																**2**	**2**
Reseda lutea																	1						**1**	**1**
Reseda luteola			1							1								2					**3**	**4**
Rhagodia crassifolia										1													**1**	**1**
Rhagodia parabolica	153		8	7	1	32	5	1		12	1	70			3	1	4	52	15	13		19	**17**	**397**
Rhagodia spinescens	385		30	3		9	5			8			9	4	113		1	31	19	27	44	18	**15**	**706**
Rhagodia ulicina	67		29							5								6	4	1	6	5	**8**	**123**
Rhodanthe corymbiflora	13					12	3	1				4					3	26	6	7		1	**10**	**76**
Rhodanthe floribunda	34	1	1										12		47		4	2		1		2	**9**	**104**
Rhodanthe laevis	7																	1					**2**	**8**
Rhodanthe microglossa	70	1											7		52			14	1				**6**	**145**
Rhodanthe moschata	68												13		27							1	**4**	**109**
Rhodanthe polygalifolia	13		1			2	1											2		3			**6**	**22**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Rhodanthe pygmaea	308		24		1	3	8		1	2		22	4		56		12	98	6	33			**14**	**578**
Rhodanthe stricta	31												3		26			4	1	1			**6**	**66**
Rhodanthe stuartiana						3													1				**2**	**4**
Rhodanthe troedelii	1																6	1		2			**4**	**10**
Rhodanthe uniflora		1													8								**2**	**9**
Rhyncharrhena linearis			3															5		1	2	1	**5**	**12**
Rhynchosia minima	12												2									2	**3**	**16**
Riccia lamellosa	5																						**1**	**5**
Riccia limbata	11																						**1**	**11**
Ricinus communis	2																					2	**2**	**4**
Romulea minutiflora	1						2										4						**3**	**7**
Romulea rosea var. *australis*																			1				**1**	**1**
Rorippa nasturtium-aquaticum	1																					2	**2**	**3**
Rosa canina	1					2											2						**3**	**5**
Rosa rubiginosa				2													1						**2**	**3**
Rostellularia adscendens ssp. *adscendens* var.	1												1		1							9	**4**	**12**
Rostellularia adscendens ssp. *adscendens* var. *pogonanthera*	20														4								**2**	**24**
Rostraria cristata					1	23	4	1		4	1						2	66	23	3			**10**	**128**
Rostraria pumila	72												6		21		11	2		6	1		**7**	**119**
Rumex brownii	11					8						41					5	3				6	**6**	**74**
Rumex conglomeratus						8																	**1**	**8**
Rumex crispus						1	5													1			**3**	**7**
Rumex dumosus var.	1					1				6								2					**4**	**10**
Rumex dumosus var. *dumosus*									1									1					**2**	**2**
Rumex pulcher ssp.																			1				**1**	**1**
Ruppia megacarpa																		1					**1**	**1**
Rutidosis helichrysoides	8																	1					**2**	**9**
Rutidosis multiflora																	1						**1**	**1**
Sagina apetala	1					2												2	3				**4**	**8**
Salsola kali	447		9	10		5	13	2		3		1	18	5	78	1	7	18	2	10	12	47	**18**	**688**
Salvia aethiopis	1																						**1**	**1**
Salvia verbenaca form	14		1			5	21			2		7			1			7				2	**9**	**60**
Salvia verbenaca form A					1	3		1		8					5		8	16		5			**8**	**47**
Salvia verbenaca form B			6																	2			**2**	**8**
Samolus repens	1																	1				1	**3**	**3**
Sanguisorba minor ssp. *muricata*							2										1						**2**	**3**
Santalum acuminatum	70		3	2		5	1	1		1			1		23		1	10	1	1	3	6	**15**	**129**
Santalum lanceolatum	144												4	1	34						10	14	**6**	**207**
Santalum murrayanum						1																	**1**	**1**
Santalum spicatum	10					1												2		1		1	**5**	**15**
Sarcocornia blackiana						2					1												**2**	**3**
Sarcocornia quinqueflora						2					1							2					**3**	**5**
Sarcostemma viminale ssp. *australe*	8	1														1							**3**	**10**
Sarcozona praecox	1									1									1				**3**	**3**
Sauropus rigens	117												3							1	11	11	**5**	**143**
Sauropus trachyspermus	15												1									6	**3**	**22**
Scabiosa atropurpurea							6										1						**2**	**7**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Scaevola albida							5	2									4	1					**4**	**12**
Scaevola albida var. *albida*	2																						**1**	**2**
Scaevola collaris	1																						**1**	**1**
Scaevola collina	32																						**1**	**32**
Scaevola humilis	7					13						5	4					12	1	3		9	**8**	**54**
Scaevola parvibarbata	10												2		17								**3**	**29**
Scaevola spinescens	126		4	2		5				3			1	1	3		1	8	7	4	3	8	**14**	**176**
Schinus areira	5					2	2											1	3		1	1	**7**	**15**
Schismus barbatus	285					8	2			5		1	9		75			42	18	36		22	**11**	**503**
Schoenoplectus litoralis	2																	1				2	**3**	**5**
Schoenus apogon						11											1						**2**	**12**
Scleranthus pungens	30		10							4		2					1	8	1	3		3	**9**	**62**
Scleroblitum atriplicinum																		1					**1**	**1**
Sclerolaena bicornis	2														18								**2**	**20**
Sclerolaena bicuspis	2																						**1**	**2**
Sclerolaena brachyptera	159	1	3	1		6	5						4	6	60		8	16	4	15	19	3	**15**	**310**
Sclerolaena constricta	10						1						3					1					**4**	**15**
Sclerolaena convexula	57		1										1									1	**4**	**60**
Sclerolaena cuneata	1		2				1						2	1							9	9	**7**	**25**
Sclerolaena decurrens	3													1	2						4		**4**	**10**
Sclerolaena deserticola																						2	**1**	**2**
Sclerolaena diacantha	149		40			14	5	2	1	18		5	1	1	32		10	30	7	19	11	19	**17**	**364**
Sclerolaena diacantha/uniflora	26																						**1**	**26**
Sclerolaena divaricata	235	1												4	55			3	3	8	14	4	**9**	**327**
Sclerolaena eriacantha	3																					1	**2**	**4**
Sclerolaena holtiana	5													2	9						1	1	**5**	**18**
Sclerolaena intricata	2					1							1		3						1		**5**	**8**
Sclerolaena lanicuspis	158						1						4		21			1		2	6		**7**	**193**
Sclerolaena limbata	178												6	1	59					1	12	4	**7**	**261**
Sclerolaena longicuspis	146	1											3		1					2	13	5	**7**	**171**
Sclerolaena muricata var. *villosa*						1																	**1**	**1**
Sclerolaena obliquicuspis	675		57			4	4			6			9		133	1	3	27	12	47	26	24	**14**	**1028**
Sclerolaena parallelicuspis	33							1						3							6	3	**5**	**46**
Sclerolaena patenticuspis	229		24	6		3	3						10	1	2		2	31	4	1	4	22	**14**	**342**
Sclerolaena tatei	1													2									**2**	**3**
Sclerolaena tricuspis	94																						**1**	**94**
Sclerolaena uniflora	1		3	1			1				1		5		3			1		1		5	**10**	**22**
Sclerolaena ventricosa	72						1						3	9	43			1	4	2	20	2	**10**	**157**
Sclerostegia arbuscula																			1				**1**	**1**
Sclerostegia disarticulata	4					2								1									**3**	**7**
Sclerostegia tenuis	2													1	1				5	2			**5**	**11**
Scorzonera laciniata								1															**1**	**1**
Scutellaria humilis																	1						**1**	**1**
Sebaea ovata						13																	**1**	**13**
Senecio anethifolius	4		5												2			1		1		1	**6**	**14**
Senecio cunninghamii var.															8		1				7		**3**	**16**
Senecio cunninghamii var. *cunninghamii*	3																						**1**	**3**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Senecio cunninghamii var. *serratus*	2												1		8								**3**	**11**
Senecio glossanthus	86		26			2	1			1	1	4	3	2	30		3	21	4	3		1	**15**	**188**
Senecio laceratus	1																						**1**	**1**
Senecio lautus	35		1			2							7		22			1	2	2		1	**9**	**73**
Senecio magnificus	357	1								1			4	2	23					2	12	30	**9**	**432**
Senecio odoratus var.												5											**1**	**5**
Senecio odoratus var. *odoratus*	2					2						4											**3**	**8**
Senecio quadridentatus	28		9	1		23				11		57					12	13	2	7		7	**11**	**170**
Senecio tenuiflorus						24						21					1	5	1				**5**	**52**
Senna "phyllodinea"																					1		**1**	**1**
Senna artemisioides nothossp.	2			1																			**2**	**3**
Senna artemisioides nothossp. artemisioides	348			1						3			3		9			14		1	16	46	**9**	**441**
Senna artemisioides nothossp. coriacea	366		4			10	11	2		8			5		23	1	8	32	5	6	17	25	**15**	**523**
Senna artemisioides nothossp. sturtii	17												2		1						3	8	**5**	**31**
Senna artemisioides ssp.	87			1						2		7						2					**5**	**99**
Senna artemisioides ssp. *alicia*															4								**1**	**4**
Senna artemisioides ssp. *alicia x nothossp. coriacea*	1																						**1**	**1**
Senna artemisioides ssp. *filifolia*	15		1			1				2			3	1	14			5		2	2	22	**11**	**68**
Senna artemisioides ssp. *filifolia x* ssp. *petiolaris*	3																						**1**	**3**
Senna artemisioides ssp. *helmsii*	46														1							5	**3**	**52**
Senna artemisioides ssp. *oligophylla*	17												1								1		**3**	**19**
Senna artemisioides ssp. *petiolaris*	95		2	4			4	1		9			3	1	34		3	11	1	6	4	5	**15**	**183**
Senna artemisioides ssp. *petiolaris x nothossp. sturtii*	1														4								**2**	**5**
Senna artemisioides ssp. *quadrifolia*	28												2		11								**3**	**41**
Senna artemisioides ssp. *zygophylla*				5																1		2	**3**	**8**
Senna cardiosperma ssp. *gawlerensis*																		1	1				**2**	**2**
Senna glutinosa ssp. *pruinosa*	1																						**1**	**1**
Setaria dielsii	2																						**1**	**2**
Setaria verticillata	5																						**1**	**5**
Sherardia arvensis	2					1																	**2**	**3**
Sida ammophila	14												3		3					1			**4**	**21**
Sida corrugata var.	193		13			15	10			3		10	1		22		14	16	1	20		1	**13**	**319**
Sida corrugata var. *A (N.N.Donner 7573)*													1		1								**2**	**2**
Sida corrugata var. *angustifolia*										9							3	6	1				**4**	**19**
Sida corrugata var. *corrugata*					1			2	3	8							1	43		2			**7**	**60**
Sida cunninghamii	37																						**1**	**37**
Sida fibulifera	390	2										1	15	1	35		4			2	11	68	**10**	**529**
Sida goniocarpa	1																						**1**	**1**
Sida intricata	111		8			1	3			1			4		40		4	11	1	7	10	20	**13**	**221**
Sida petrophila	581	1	28			3				3		27	3		23			19	6	8	36	53	**13**	**791**
Sida phaeotricha	2																						**1**	**2**
Sida sp. B (C.Dunlop 1739)																						3	**1**	**3**
Sida sp. K(NC)	1																						**1**	**1**
Sida spodochroma															2								**1**	**2**
Sida trichopoda	39												4	2	16		1	2		4	11	5	**9**	**84**
Sigesbeckia australiensis		1				1							3					1				23	**5**	**29**
Sigesbeckia orientalis ssp. *orientalis*	60																						**1**	**60**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Silene apetala			1														1			1			**3**	**3**
Silene gallica var.						10						6					3						**3**	**19**
Silene gallica var. *gallica*	1					2												1					**3**	**4**
Silene gallica var. *quinquevulnera*						1																	**1**	**1**
Silene nocturna	2					29		2		2		26					10	64	18	9		18	**10**	**180**
Silene tridentata										1								14	1	1			**4**	**17**
Silybum marianum	6					6						12						1					**4**	**25**
Sisymbrium erysimoides	379		48			34	5			3			14		57	1	5	98	25	34	5	20	**14**	**728**
Sisymbrium irio	3		1		1	3	5			8								10	1			20	**9**	**52**
Sisymbrium officinale						1																	**1**	**1**
Sisymbrium orientale	35				1	4	3			1							3	11	11				**8**	**69**
Solanum aviculare				1																			**1**	**1**
Solanum centrale	1																						**1**	**1**
Solanum chenopodinum	5														5								**2**	**10**
Solanum cinereum	4																1						**2**	**5**
Solanum ellipticum		2	17			7							8		37			16	3	12	40	79	**10**	**221**
Solanum ellipticum/quadriloculatum	824														9								**2**	**833**
Solanum esuriale	28					4	1						2				2	10		1		8	**8**	**56**
Solanum nigrum	25		2			4					1	4						3			1	5	**8**	**45**
Solanum oligacanthum													1										**1**	**1**
Solanum petrophilum	242		25			2				4		10	3		16			7	10	2	6	30	**12**	**357**
Solanum quadriloculatum													5								9	4	**3**	**18**
Solanum simile	1					3																1	**3**	**5**
Solanum sturtianum	200	1	1										1		8					1	18	23	**8**	**253**
Solanum triflorum																			1				**1**	**1**
Sonchus asper ssp.						11																	**1**	**11**
Sonchus asper ssp. *asper*	2																						**1**	**2**
Sonchus asper ssp. *glaucescens*	1									1													**2**	**2**
Sonchus oleraceus	190	1	56			93	20	2		10	3	33	8	1	35		18	103	34	18	4	15	**18**	**644**
Sonchus tenerrimus	1					10			1	1		25										10	**6**	**48**
Spergularia diandra	2				1	3	2			9					4		2	43	5	6		4	**11**	**81**
Spergularia marina																		3				2	**2**	**5**
Spergularia rubra						10											9	4					**3**	**23**
Sporobolus actinocladus	19												2	2							4	1	**5**	**28**
Sporobolus caroli	1												1									1	**3**	**3**
Sporobolus virginicus																	1		1				**2**	**2**
Spyridium parvifolium	10					12																	**2**	**22**
Spyridium phlebophyllum	19		5			1						23								2		1	**6**	**51**
Stackhousia aspericocca ssp.	1					3																	**2**	**4**
Stackhousia monogyna	5					26	2	2		3		80					4	14	4	2		2	**11**	**144**
Stackhousia muricata var.	1																						**1**	**1**
Stellaria media						5												8	2				**3**	**15**
Stellaria palustris var.												30											**1**	**30**
Stellaria palustris var. *palustris*												4											**1**	**4**
Stenopetalum anfractum	7																						**1**	**7**
Stenopetalum lineare	34		2			4				2			5		67		2	11	5	3		9	**11**	**144**
Stenopetalum sphaerocarpum						2																	**1**	**2**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Stipa acrociliata			3			9	1			4					25			4				2	**7**	**48**
Stipa blackii						16	1	2	2	8		5					32	33	2			5	**10**	**106**
Stipa breviglumis	9					3						11							2			1	**5**	**26**
Stipa curticoma						4											1	6	2				**4**	**13**
Stipa drummondii						5	7			5		16						23	4			5	**7**	**65**
Stipa elegantissima	4		7			28	5	3		17		33					16	73	13	10		10	**12**	**219**
Stipa eremophila	1				1	5	13	1		11		15			10		16	46	1	1			**12**	**121**
Stipa exilis																		1					**1**	**1**
Stipa flavescens						10									1		1						**3**	**12**
Stipa gibbosa						9																	**1**	**9**
Stipa hemipogon																						1	**1**	**1**
Stipa nitida	195		9		1	29	19	2		27			13		47		13	85	14	11	11	17	**15**	**493**
Stipa nodosa	62		1			21	2	1	1	7		33	1		10		10	62	5	15		13	**15**	**244**
Stipa petraea																		5					**1**	**5**
Stipa pilata																		9	2			20	**3**	**31**
Stipa platychaeta	1		1					1		2					2		2	14	5				**8**	**28**
Stipa puberula																		9	1				**2**	**10**
Stipa scabra group	9		13			1														34			**4**	**57**
Stipa scabra ssp.	285					14	1			1					13		3	2			2	1	**9**	**322**
Stipa scabra ssp. *falcata*	3					4			2	2							23	17	1			1	**8**	**53**
Stipa scabra ssp. *scabra*						16		1		1							2	3	2			2	**7**	**27**
Stipa semibarbata						7																	**1**	**7**
Stipa setacea	10						1	1		2							4	2	1			1	**8**	**22**
Stipa tenuifolia												8					1						**2**	**9**
Stipa trichophylla	97																					19	**2**	**116**
Stipa tuckeri																						2	**1**	**2**
Streptoglossa adscendens	9												3		5								**3**	**17**
Streptoglossa liatroides	17												3										**2**	**20**
Stuartina hamata													2		1								**2**	**3**
Stuartina muelleri	11					1						4					1		1				**5**	**18**
Stylidium calcaratum																			1				**1**	**1**
Suaeda australis						1	1												1				**3**	**3**
Swainsona adenophylla	1																						**1**	**1**
Swainsona canescens	1																						**1**	**1**
Swainsona fissimontana																		2				1	**2**	**3**
Swainsona flavicarinata	1												2										**2**	**3**
Swainsona formosa	13												1										**2**	**14**
Swainsona leeana	1																						**1**	**1**
Swainsona oligophylla	1																						**1**	**1**
Swainsona oliveri	2														1								**2**	**3**
Swainsona phacoides	8												1		12					1			**4**	**22**
Swainsona procumbens															4								**1**	**4**
Swainsona stipularis	8					1	2					4			1		1	3					**7**	**20**
Swainsona tephrotricha	27						1															3	**3**	**31**
Swainsona viridis	1														8								**2**	**9**
Synalissa symphorea	4																						**1**	**4**
Taraxacum officinale			1																				**1**	**1**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Targionia hypophylla	1																						**1**	**1**
Templetonia aculeata	13					5	3					20					3		1			3	**7**	**48**
Templetonia egena	10		1			2	1											14					**5**	**28**
Templetonia retusa	12																					1	**2**	**13**
Tephrosia sphaerospora	1																						**1**	**1**
Tetragonia eremaea	18	1	1			14				3			15		157		1	41	11	16	1	56	**13**	**335**
Tetragonia eremaea/tetragonoides			54																				**1**	**54**
Tetragonia implexicoma																			5				**1**	**5**
Tetragonia tetragonioides	286						4						1						1	7			**5**	**299**
Tetrapterum cylindricum	1																						**1**	**1**
Teucrium corymbosum	3					1						1											**3**	**5**
Teucrium racemosum	4				1	3	3			1		1	1		2		3	5	1	5	1		**13**	**31**
Teucrium sessiliflorum					1	1	1	1										3		1			**6**	**8**
Thelymitra grandiflora																	1						**1**	**1**
Thelymitra nuda	2					21						14					4	1	2				**6**	**44**
Thelymitra pauciflora						3																	**1**	**3**
Thelymitra rubra						1																	**1**	**1**
Themeda triandra	65		4			15	4	2				39	1				15	7	1			4	**11**	**157**
Threlkeldia diffusa						1					1								3				**3**	**5**
Thyridolepis mitchelliana	1																					1	**2**	**2**
Thysanotus baueri	2		2			5	5					2					7	18	6	2		9	**10**	**58**
Thysanotus patersonii						28						31					5	7	1				**5**	**72**
Thysanotus tenellus						4			1			12					3	5		1			**6**	**26**
Tortula pagorum	1																						**1**	**1**
Tortula papillosa	1																						**1**	**1**
Trachymene anisocarpa						1																	**1**	**1**
Trachymene cyanopetala	1																						**1**	**1**
Trachymene glaucifolia	65	1											1									5	**4**	**72**
Trachymene ornata var.																		1					**1**	**1**
Trachymene ornata var. *ornata*						1																	**1**	**1**
Trachymene pilosa						1																	**1**	**1**
Tragus australianus	9														1								**2**	**10**
Trianthema triquetra	15														8						1	3	**4**	**27**
Tribulus eichlerianus	19																			2		1	**3**	**22**
Tribulus macrocarpus															4								**1**	**4**
Tribulus terrestris	41					1							3								1		**4**	**46**
Trichanthodium skirrophorum														1	2								**2**	**3**
Trichodesma zeylanicum	79	2													4							14	**4**	**99**
Trichostomopsis australasiae	5																						**1**	**5**
Tricoryne elatior	1					1											1						**3**	**3**
Trifolium angustifolium	9					34	3		2	3		21					27	4					**8**	**103**
Trifolium arvense var. *arvense*	13					53	4	2	3	9		4					27	19	5	5		5	**12**	**149**
Trifolium campestre	7					44	1	1	2			24					22	9	6				**9**	**116**
Trifolium dubium						2																	**1**	**2**
Trifolium glomeratum						15		1	2			8					15	4	1				**7**	**46**
Trifolium hirtum						2												1					**2**	**3**
Trifolium pilulare						2																	**1**	**2**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Trifolium subterraneum						6	3										1						**3**	**10**
Trifolium tomentosum						17				1	1						3	4	2				**6**	**28**
Triglochin minutissumum											1												**1**	**1**
Triglochin striatum																		1					**1**	**1**
Triodia irritans	82											85					7				5	30	**5**	**209**
Triodia irritans complex	162		5	2			1										2						**5**	**172**
Triodia scariosa ssp.																	3	4		3		8	**4**	**18**
Triodia scariosa ssp. *bunicola*								1							4		2	26	7	9			**6**	**49**
Triodia scariosa ssp. *scariosa*								2					2		22								**3**	**26**
Tripogon loliiformis	35											1		1	8						1	4	**6**	**50**
Triptilodiscus pygmaeus	3				1	15		2	2	7		35					14	25	1	5		3	**12**	**113**
Triquetrella papillata	2																						**1**	**2**
Triraphis mollis	24												1	2	1					1			**5**	**29**
Triticum aestivum	2						1											2					**3**	**5**
Trymalium wayae	1					3																	**2**	**4**
Typha domingensis	3																	1			1	5	**4**	**10**
Typha orientalis	8																						**1**	**8**
'unverified species - nv`												5			6		1					1	**4**	**13**
Urochloa praetervisa	29																						**1**	**29**
Urospermum picroides	1					25				1		31						15	6	3		3	**8**	**85**
Urtica urens	3					3																	**2**	**6**
Usnea cf. angulosa	1																						**1**	**1**
Velleia arguta	6		1				2			1								3		2		3	**7**	**18**
Velleia paradoxa										2							2						**2**	**4**
Verbena officinalis	2																			2		1	**3**	**5**
Veronica plebeia	3					6						19											**3**	**28**
Vicia hirsuta						3	2																**2**	**5**
Vicia monantha	9					7	14	1				1						5	1			1	**8**	**39**
Vicia sativa ssp.																				1			**1**	**1**
Vittadinia arida	33											1								3		2	**4**	**39**
Vittadinia australasica var.																	2					6	**2**	**8**
Vittadinia australasica var. *australasica*								1															**1**	**1**
Vittadinia blackii	3					2	8	2		2		7					4	1		1		7	**10**	**37**
Vittadinia cervicularis var. *cervicularis*					1	13	5	1		1		9	4				7	1	6				**10**	**48**
Vittadinia condyloides									2			15					1						**3**	**18**
Vittadinia cuneata var.			5		1	20				20		43	1		3		11	3		2		2	**11**	**111**
Vittadinia cuneata var. *cuneata forma cuneata*	130		6				8		2	3							2	24	1			1	**9**	**177**
Vittadinia cuneata var. *morrisii*	6							1										11	2				**4**	**20**
Vittadinia eremaea	11												8		67					4		12	**5**	**102**
Vittadinia gracilis	27		1			8	11	2	2	14		31					18	49	4	16	4	17	**14**	**204**
Vittadinia megacephala						1																	**1**	**1**
Vittadinia pterochaeta	6												5		12		1	1		1			**6**	**26**
Vittadinia sulcata	98											5			9		1						**4**	**113**
Vulpia bromoides						9				2							1						**3**	**12**
Vulpia bromoides/myuros						41																	**1**	**41**
Vulpia muralis					1		2						2		10		5	71	8	5			**8**	**104**
Vulpia myuros forma	1								2	1							2	17		6		10	**7**	**39**

Appendix 4. (continued)

SPECIES	6	19	24	31	46	49	51	54	58	62	63	66	67	69	74	82	83	86	87	89	98	104	# surveys	# sites
Vulpia myuros forma megalura							1										1	3	2				**4**	**7**
Vulpia myuros forma myuros	15					15	15	3	1	5							17	63	10				**9**	**144**
Wahlenbergia aridicola																					2	5	**2**	**7**
Wahlenbergia communis	93					6				2					10			9		2		18	**7**	**140**
Wahlenbergia gracilenta	27	1				29	1		1			8	2				3	23	3	1		4	**12**	**103**
Wahlenbergia luteola	1				1	42	5	1	2	21		92			10		23	67	11	12		2	**14**	**290**
Wahlenbergia multicaulis	4																						**1**	**4**
Wahlenbergia queenslandica																						1	**1**	**1**
Wahlenbergia stricta ssp. *stricta*	1		1			36						42					6	5	1	2		7	**9**	**101**
Wahlenbergia tumidifructa	28														1							2	**3**	**31**
Waitzia acuminata var. *acuminata*	3																						**1**	**3**
Weissia controversa	1																						**1**	**1**
Westringia rigida	28		6	1		3	1			3					8			7	3	3	1	7	**12**	**71**
Wilsonia humilis var. *humilis*						2					1												**2**	**3**
Wilsonia rotundifolia																		1					**1**	**1**
Wurmbea biglandulosa ssp. *flindersica*																	1		2				**2**	**3**
Wurmbea centralis ssp. *australis*	9					7						11						5					**4**	**32**
Wurmbea dioica	25		5			12	2			4		23					6	30	3				**9**	**110**
Wurmbea latifolia ssp. *latifolia*																	1	2					**2**	**3**
Xanthium spinosum	2		1											1								1	**4**	**5**
Xanthorrhoea quadrangulata	91		1	2		37	1					62					2	3	4	1		7	**11**	**211**
Zaleya galericulata	5																						**1**	**5**
Zaluzianskya divaricata																		1					**1**	**1**
Zygochloa paradoxa	2														1				1				**3**	**4**
Zygophyllum "Terete leaves"(D.E.Symon 14690)	4																						**1**	**4**
Zygophyllum ammophilum	1		4							2			1		49			6	1	4		17	**9**	**85**
Zygophyllum ammophilum complex	37						1											2	1				**4**	**41**
Zygophyllum angustifolium			3															2	1				**3**	**6**
Zygophyllum apiculatum	59		6			3				4			2				1	2	4	3	2	13	**11**	**99**
Zygophyllum aurantiacum ssp.	159			3		2	3			1				1	21			10	2	3		14	**11**	**219**
Zygophyllum aurantiacum ssp. *verticillatum*																		1		1	1	6	**4**	**9**
Zygophyllum confluens/angustifolium	8		3			13		1															**4**	**25**
Zygophyllum compressum	2																						**1**	**2**
Zygophyllum confluens	2						1					25	2				2	13	10	1	2		**9**	**58**
Zygophyllum crenatum	86		9			4	4			2		2	1		17		6	35	5	3			**12**	**174**
Zygophyllum eremaeum	8														4				2				**3**	**14**
Zygophyllum glaucum	1			2		1	2											3				8	**6**	**17**
Zygophyllum hybridum																						4	**1**	**4**
Zygophyllum iodocarpum	24		4			6	2						6		24			9		1			**8**	**76**
Zygophyllum ovatum	7		7			3											1	1		2			**6**	**21**
Zygophyllum prismatothecum	128	1											3		49							12	**5**	**193**
Zygophyllum simile															4				4	1			**3**	**9**
# taxa in each survey	894	61	255	111	59	606	286	152	57	255	59	323	249	103	351	22	387	547	372	338	232	474	1497	83368

APPENDIX 5. Plant Families in decreasing order of number of species.

FAMILY	# species
COMPOSITAE	206
GRAMINEAE	174
CHENOPODIACEAE	129
LEGUMINOSAE	116
CRUCIFERAE	37
ORCHIDACEAE	36
MALVACEAE	33
MYRTACEAE	33
GOODENIACEAE	32
CYPERACEAE	29
LILIACEAE	26
SOLANACEAE	24
ZYGOPHYLLACEAE	21
AIZOACEAE	19
CARYOPHYLLACEAE	19
MYOPORACEAE	19
EUPHORBIACEAE	18
GERANIACEAE	18
CONVOLVULACEAE	15
UMBELLIFERAE	15
LABIATAE	14
AMARANTHACEAE	13
BORAGINACEAE	13
JUNCACEAE	12
POLYGONACEAE	12
RUBIACEAE	12
THYMELAEACEAE	12
PLANTAGINACEAE	11
CAMPANULACEAE	10
LORANTHACEAE	9
PORTULACACEAE	9
PROTEACEAE	9
SANTALACEAE	9
FRANKENIACEAE	8
SAPINDACEAE	8
SCROPHULARIACEAE	8
ADIANTACEAE	7
RHAMNACEAE	7
ROSACEAE	7
PITTOSPORACEAE	6
RANUNCULACEAE	6
CUCURBITACEAE	5
EPACRIDACEAE	5
RUTACEAE	5
ASCLEPIADACEAE	4
CACTACEAE	4
CRASSULACEAE	4
DROSERACEAE	4
GENTIANACEAE	4

FAMILY	# species
HALORAGACEAE	4
IRIDACEAE	4
NYCTAGINACEAE	4
PAPAVERACEAE	4
PRIMULACEAE	4
CASUARINACEAE	3
CUPRESSACEAE	3
DILLENIACEAE	3
FUMARIACEAE	3
LOGANIACEAE	3
MARSILEACEAE	3
OLEACEAE	3
OXALIDACEAE	3
PINACEAE	3
STACKHOUSIACEAE	3
STERCULIACEAE	3
URTICACEAE	3
VIOLACEAE	3
AMARYLLIDACEAE	2
APOCYNACEAE	2
ASPLENIACEAE	2
CAPPARACEAE	2
CENTROLEPIDACEAE	2
GUTTIFERAE	2
GYROSTEMONACEAE	2
JUNCAGINACEAE	2
LAURACEAE	2
LIMONIACEAE	2
LINACEAE	2
LYTHRACEAE	2
ONAGRACEAE	2
RESEDACEAE	2
STYLIDIACEAE	2
TYPHACEAE	2
ACANTHACEAE	1
ANACARDIACEAE	1
AVICENNIACEAE	1
BLECHNACEAE	1
DIPSACACEAE	1
HYDROCHARITACEAE	1
HYPOXIDACEAE	1
MORACEAE	1
OPHIOGLOSSACEAE	1
POTAMOGETONACEAE	1
PTERIDACEAE	1
VERBENACEAE	1
VISCACEAE	1
ZANNICHELLIACEAE	1
	1361

APPENDIX 6. Most commonly encountered plant species, present at >10% of 2648 sites.

Native perennial plants are indicated by a "P" in the last column and non-native introduced species are marked with an asterisk "*". All unmarked species are native annuals.

FAMILY	SPECIES	Common Name	# sites	% of total	Perennial (P) / Introduced (*)
LEGUMINOSAE	*Senna artemisioides* ssp.	desert senna	1115	42%	P
SOLANACEAE	*Solanum ellipticum/quadriloculatum*	Potato Bush	959	36%	P
AMARANTHACEAE	*Ptilotus obovatus* var.	silver mulla mulla	913	34%	P
CHENOPODIACEAE	*Enchylaena tomentosa* var.	ruby saltbush	810	31%	P
LEGUMINOSAE	*Acacia victoriae* ssp.	elegant wattle	728	27%	P
MALVACEAE	*Sida petrophila*	rock sida	650	25%	P
POLYGONACEAE	*Acetosa vesicaria*	rosy dock	618	23%	*
CHENOPODIACEAE	*Sclerolaena obliquicuspis*	oblique-spined bindyi	607	23%	P
COMPOSITAE	*Centaurea melitensis*	Malta thistle	592	22%	*
OXALIDACEAE	*Oxalis perennans*	native sorrel	587	22%	P
LEGUMINOSAE	*Acacia tetragonophylla*	dead finish	585	22%	P
CRUCIFERAE	*Sisymbrium erysimoides*	smooth mustard	533	20%	*
CONVOLVULACEAE	*Convolvulus remotus*	grassy bindweed	529	20%	P
GRAMINEAE	*Cymbopogon ambiguus*	lemon-grass	518	20%	P
CHENOPODIACEAE	*Salsola kali*	buckbush	491	19%	
MALVACEAE	*Sida fibulifera*	pin sida	476	18%	P
CHENOPODIACEAE	*Rhagodia spinescens*	spiny saltbush	465	18%	P
SAPINDACEAE	*Alectryon oleifolius* ssp. *canescens*	bullock bush	464	18%	P
CRUCIFERAE	*Carrichtera annua*	Ward's weed	452	17%	*
COMPOSITAE	*Sonchus oleraceus*	common sow-thistle	428	16%	*
COMPOSITAE	*Chrysocephalum semicalvum* ssp. *semicalvum*	scented button-bush	407	15%	P
UMBELLIFERAE	*Daucus glochidiatus*	native carrot	398	15%	
COMPOSITAE	*Senecio magnificus*	showy groundsel	395	15%	P
LORANTHACEAE	*Lysiana exocarpi* ssp. *exocarpi*	harlequin mistletoe	391	15%	P
ADIANTACEAE	*Cheilanthes lasiophylla*	woolly cloak-fern	388	15%	P
GRAMINEAE	*Danthonia caespitosa*	common wallaby-grass	381	14%	
MYOPORACEAE	*Eremophila freelingii*	rock emubush	372	14%	P
BORAGINACEAE	*Echium plantagineum*	Salvation Jane	369	14%	*
GRAMINEAE	*Aristida nitidula*	brush threeawn	365	14%	P
GRAMINEAE	*Schismus barbatus*	Arabian grass	359	14%	*
COMPOSITAE	*Rhodanthe pygmaea*	pigmy daisy	348	13%	
GRAMINEAE	*Stipa scabra* ssp.	rough spear-grass	339	13%	
GRAMINEAE	*Enneapogon avenaceus*	common bottle-washers	337	13%	
GRAMINEAE	*Enneapogon cylindricus*	jointed bottle-washers	328	12%	
SOLANACEAE	*Solanum petrophilum*	rock nightshade	325	12%	P
GRAMINEAE	*Bromus rubens*	red brome	324	12%	*
CUPRESSACEAE	*Callitris glaucophylla*	white cypress-pine	323	12%	P
COMPOSITAE	*Cassinia laevis*	curry bush	315	12%	P
SAPINDACEAE	*Dodonaea lobulata*	lobed-leaf hop-bush	312	12%	P
MALVACEAE	*Abutilon leucopetalum*	desert lantern-bush	298	11%	P
CHENOPODIACEAE	*Dissocarpus paradoxus*	ball bindyi	297	11%	P
GRAMINEAE	*Stipa nitida*	Balcarra spear-grass	293	11%	
LEGUMINOSAE	*Glycine clandestina* var.	twining glycine	292	11%	P
COMPOSITAE	*Calotis hispidula*	hairy burr-daisy	289	11%	
BORAGINACEAE	*Omphalolappula concava*	burr stickseed	289	11%	
COMPOSITAE	*Olearia decurrens*	winged daisy-bush	280	11%	P
MALVACEAE	*Sida corrugata* var.	corrugated sida	279	11%	P
SANTALACEAE	*Exocarpos aphyllus*	leafless cherry	277	10%	P
EUPHORBIACEAE	*Euphorbia drummondii*	caustic weed	273	10%	P
MYOPORACEAE	*Eremophila alternifolia*	narrow-leaf emubush	272	10%	P
CHENOPODIACEAE	*Maireana pyramidata*	black bluebush	271	10%	P
GERANIACEAE	*Erodium cicutarium*	cut-leaf heron's-bill	270	10%	*
CHENOPODIACEAE	*Rhagodia parabolica*	mealy saltbush	269	10%	P
AIZOACEAE	*Tetragonia tetragonioides*	New Zealand spinach	268	10%	
LILIACEAE	*Lomandra multiflora* ssp. *dura*	hard mat-rush	267	10%	P

APPENDIX 7. Plant species with Australian, South Australian or Flinders Ranges Herbarium Regional conservation ratings. Categories are explained at the end of the table.

Aus status	SA status	Regional status	Species	Common name	# sites
2V	V		*Acacia barrattensis*	Barratta Wattle	0
V	V	E	*Wurmbea latifolia ssp. latifolia*	broad-leaf star-lily	3
2VCi	V	V	*Codonocarpus pyramidalis*	slender bell-fruit	34
2VCa	V	V	*Acacia araneosa*	spidery wattle	5
2VC	V		*Caladenia woolcockiorum*		0
2VCa	U		*Calandrinia volubilis*	twining purslane	1
3V	V	R	*Maireana melanocarpa*	black-fruit bluebush	30
3VCa	V	V	*Olearia pannosa ssp. pannosa*	silver daisy-bush	5
3VCa	V	V	*Prasophyllum pallidum*	pale leek-orchid	4
2R	R	R	*Acacia confluens*	Arkaroola wattle	36
2RC-	R	R	*Eucalyptus percostata*	ribbed white mallee	7
2RCa	R	R	*Acacia quornensis*	Quorn wattle	8
3R	R	V	*Atriplex eichleri*	Eichler's saltbush	13
3R	R	K	*Zygophyllum hybridum*		4
3RC-	R	R	*Daviesia stricta*	Flinders Ranges bitter-pea	5
3RC-	R	R	*Derwentia decorosa*	showy speedwell	14
3RC-	R	R	*Maireana rohrlachii*	Rohrlach's bluebush	6
3RC-	R	R	*Olearia pannosa ssp. cardiophylla*	velvet daisy-bush	1
3RC-	R	R	*Stipa breviglumis*	cane spear-grass	14
3RCa	R	R	*Acacia gracilifolia*	graceful wattle	19
3RCa	R	R	*Acacia iteaphylla*	Flinders Ranges wattle	9
3RCa	R	R	*Anthocercis angustifolia*	narrow-leaf ray-flower	1
3RCa	R	R	*Festuca benthamiana*	Bentham's fescue	1
3RCa	R	R	*Swainsona tephrotricha*	ashy-haired swainson-pea	70
2K	K	K	*Frankenia subteres*		18
K	K	K	*Swainsona leeana*	Lee's swainson-pea	1
3K	K	K	*Atriplex morrisii*		1
3K	K	K	*Goodenia anfracta*		1
3K			*Sclerolaena bicuspis*	two-spine bindyii	2
3K	Q	Q	*Swainsona viridis*	creeping Darling pea	3
Q	R	R	*Gilesia biniflora*	western tar-vine	1
	E	E	*Doodia caudata*	small rasp-fern	1
	V	V	*Eryngium rostratum*	blue devil	1
	V	E	*Juncus homalocaulis*	wiry rush	1
	V	V	*Pycnosorus globosus*	drumsticks	1
	R	R	*Anogramma leptophylla*	annual fern	2
	R	R	*Aristida arida*		52
	R	K	*Carex inversa var. inversa*	knob sedge	1
	R	R	*Carex inversa var. major*	knob sedge	1
	R	R	*Choretrum glomeratum var. chrysanthum*	yellow-flower sour-bush	1
	R	R	*Cryptandra amara var. longiflora*	long-flower cryptandra	6
	R	K	*Danthonia duttoniana*	brown-back wallaby-grass	1
	R	R	*Danthonia linkii var. fulva*	leafy wallaby-grass	1
	R	R	*Diuris behrii*	Behr's cowslip orchid	1
	R	R	*Echinopogon ovatus var. ovatus*	rough-beard grass	2
	R	E	*Eleocharis sphacelata*	tall spike-rush	1
	R	R	*Eremophila subfloccosa ssp. "glandulosa" ms*	green-flower emubush	2
	R	R	*Eriostemon angustifolius ssp. angustifolius*	narrow-leaf wax-flower	10
	R	R	*Eucalyptus aff. viridis*	green mallee	9
	R	R	*Eucalyptus albens*	white box	2
	R	R	*Goodenia saccata*	Flinders Ranges goodenia	2
	R	R	*Haeckeria punctulata*	sticky haeckeria	16
	R	R	*Hovea purpurea*	tall hovea	2
	R	R	*Juncus flavidus*	yellow rush	4
	R	V	*Leptorhynchos scabrus*	annual buttons	1
	R	R	*Logania saxatilis*	rock logania	8
	R	V	*Olearia picridifolia*	rasp daisy-bush	1
	R	K	*Pimelea curviflora var.*	curved riceflower	4
	R	R	*Plantago aff. debilis*	shade plantain	24
	R	R	*Podolepis jaceoides*	showy copper-wire daisy	2
	R	V	*Pteris tremula*	tender brake	1
	R	K	*Scutellaria humilis*	dwarf skullcap	2
	R	K	*Stipa gibbosa*	swollen spear-grass	9
	R	R	*Stipa petraea*	Flinders Range spear-grass	8
	R	R	*Thysanotus tenellus*	grassy fringe-lily	17
	R	R	*Wahlenbergia aridicola*	dryland bluebell	9
	U	K	*Acacia argyrophylla*	silver mulga-bush	3
	U	U	*Acacia pravifolia*	coil-pod wattle	15
	U	U	*Alyogyne hakeifolia*	hakea-leaf hibiscus	1
	U	U	*Amyema linophyllum ssp. orientale*	casuarina mistletoe	42

Appendix 7. (continued)

	U		*Angianthus glabratus*	smooth angianthus	1
	U	V	*Baumea articulata*	jointed twig-rush	1
	U	U	*Billardiera versicolor*	yellow-flower apple-berry	31
	U	U	*Brachycome dentata*	lobe-seed daisy	64
	U	U	*Brachycome leptocarpa*	small hairy daisy	12
	U	U	*Calocephalus citreus*	lemon beauty-heads	19
	U	K	*Calotis scabiosifolia var. scabiosifolia*	rough burr-daisy	2
	U	V	*Carex gaudichaudiana*	fen sedge	3
	U		*Cassinia arcuata*	drooping cassinia	6
	U	R	*Correa glabra*	rock correa	2
	U	V	*Cymbonotus preissianus*	austral bear's-ear	14
	U	R	*Danthonia eriantha*	hill wallaby-grass	28
	U	U	*Daviesia genistifolia*	broom bitter-pea	32
	U	R	*Diuris palustris*	little donkey-orchid	1
	U	R	*Elachanthus pusillus*	elachanth	26
	U	U	*Enneapogon oblongus*	purple-head nineawn	94
	U	U	*Eremophila santalina*	sandalwood emubush	27
	U	U	*Eucalyptus sp. Y*	Flinders Ranges box	5
	U	R	*Eutaxia diffusa*	large-leaf eutaxia	5
	U	U	*Goodenia albiflora*	white goodenia	49
	U	R	*Goodenia amplexans*	clasping goodenia	12
	U	U	*Grevillea lavandulacea var. sericea*	spider-flower	8
	U	U	*Hymenanthera dentata*	tree violet	3
	U	U	*Leptorhynchos tetrachaetus*	little buttons	44
	U	R	*Microtis parviflora*	slender onion-orchid	1
	U	Q	*Myoporum viscosum*	sticky boobialla	6
	U	K	*Olearia calcarea*	crinkle-leaf daisy-bush	5
	U		*Olearia tubuliflora*	rayless daisy-bush	1
	U	R	*Persicaria prostrata*	creeping knotweed	1
	U	U	*Phyllanthus saxosus*	rock spurge	33
	U	U	*Prasophyllum fitzgeraldii*	Fitzgerald's leek-orchid	1
	U	R	*Prostanthera behriana*	downy mintbush	4
	U		*Pterostylis boormanii*	Boorman's greenhood	2
	U	U	*Pultenaea graveolens*	scented bush-pea	6
	U	U	*Ranunculus pachycarpus*	thick-fruit buttercup	3
	U	V	*Scleroblitum atriplicinum*	starry goosefoot	1
	U	R	*Stipa setacea*	corkscrew spear-grass	19
	U	U	*Templetonia aculeata*	spiny mallee-pea	40
	U	R	*Thelymitra grandiflora*	great sun-orchid	1
	U	U	*Veronica plebeia*	trailing speedwell	17
	U	U	*Wurmbea biglandulosa ssp. flindersica*	Flinders Ranges star-lily	3
	K	K	*Brachycome ciliaris var. subintegrifolia*		12
	K	R	*Calotis lappulacea*	yellow burr-daisy	5
	K	K	*Lepidium pseudotasmanicum*	shade peppercress	1
	K	K	*Maireana excavata*	bottle fissure-plant	36
	K	K	*Ozothamnus scaber*	rough bush-everlasting	10
	K	K	*Podolepis muelleri*	button podolepis	6
	K	V	*Rumex dumosus var.*	wiry dock	10
	K	V	*Santalum spicatum*	sandalwood	32
	K	K	*Stipa pilata*	prickly spear-grass	33
	K	K	*Swainsona procumbens*	Broughton pea	1
		R	*Cassytha melantha*	coarse dodder-laurel	12
	Q	R	*Cynoglossum suaveolens*	sweet hound's-tongue	4
	Q		*Cyperus bulbosus*	bulbous flat-sedge	5
	Q		*Danthonia pilosa var. pilosa*	velvet wallaby-grass	2
		R	*Digitaria coenicola*	spider grass	34
	Q		*Goodenia pinnatifida*	cut-leaf goodenia	400
		R	*Goodia medicaginea*	western golden-tip	1
		R	*Osteocarpum salsuginosum*	inland bonefruit	1
	Q		*Ozothamnus retusus*	notched bush-everlasting	10
		R	*Scaevola parvibarbata*	small-beard fanflower	34
	Q		*Sida corrugata var. angustifolia*	grassland sida	19
	Q		*Stipa curticoma*	short-crest spear-grass	11
	Q	Q	*Swainsona burkittii*	woolly Darling pea	1
	Q	Q	*Velleia paradoxa*	spur velleia	4
		U	*Anacampseros australiana*	Australian anacampseros	10
		U	*Atriplex lindleyi ssp. inflata*	corky saltbush	12
		K	*Halosarcia indica ssp. bidens*	brown-head samphire	1
		K	*Scaevola albida*	pale fan-flower	7
		K	*Sclerolaena tricuspis*	three-spine bindyi	226
		Q	*Templetonia retusa*	cockies tongue	14

Appendix 7. (continued)

Source:
'Plants of particular conservation significance in South Australia's agricultural regions: August 1996 update of unpublished database' Lang, P.J. & Kraehenbuehl, D.N., Heritage and Biodiversity Branch, Department for Environment, Heritage and Aboriginal Affairs (assisted by Murfet, D., Overton, B.M., & Taplin R.)

Note:
This is an interim list of conservation status assessments and is continually being revised. Please cite the date of issue (update) if referencing this work. Changes in these assessments may reflect improved knowledge rather than actual changes in conservation status.

KEY TO SOUTH AUSTRALIAN (SA) CONSERVATION STATUS CODES

X **Extinct/Presumed extinct**: not located despite thorough searching of all known and likely habitats; known to have been eliminated by the loss of localised population(s); or not recorded for more than 50 years from an area where substantial habitat modification has occurred.

E **Endangered**: rare and in danger of becoming extinct in the wild.

V **Vulnerable**: rare and at risk from potential threats or long term threats which could cause the species to become endangered in the future.

T **Threatened**: likely to be either Endangered or Vulnerable but insufficient data for a more precise assessment.

R **Rare**: has a low overall frequency of occurrence (may be locally common with a very restricted distribution or may be scattered sparsely over a wider area). Not currently exposed to significant threats, but warrants monitoring and protective measures to prevent reduction of population sizes.

K **Uncertain**: likely to be either Threatened or Rare but insufficient data for a more precise assessment.

Q Not yet assessed but flagged as being **of possible significance**.

KEY TO AUSTRALIAN (AUS) CONSERVATION STATUS CODES

Where the Australian status is indicated by a single letter code it is proposed by Lang and Kraehenbuehl (1996) and follows the definitions above.

Where the Australian status is indicated by a three or four letter code (eg 2RCi) it is derived from Briggs, J. (1996, in press) 'Rare or Threatened Australian Plants, 1995 Revised Edition.' These codes comprise the following elements.

Distribution categories:

1 species known from type collection only or from a single location only.

2 species with a very restricted distribution in Australia and with a maximum geographic range of less than 100 km.

3 species with a range of at least 100 km but occurring only in small populations (often restricted to highly specific and localised habitats).

Conservation categories:

X **Presumed extinct**: species that have either not been found in recent years despite thorough searching, or have not been collected for at least 50 years and were known only from now intensively settled areas.

E **Endangered**: in serious risk of disappearing from the wild state within one or two decades if present land use and other causal factors continue to operate.

Appendix 7. (continued)

V **Vulnerable**: not presently Endangered but at risk of disappearing from the wild over a longer period (20-50 years), or which largely occur on sites likely to experience changes in land use that would threaten the survival of the species in the wild.

R **Rare**: species which are rare in Australia but which overall are not considered Endangered or Vulnerable. Such species may be represented by a relatively large population in a very restricted area, or by smaller populations spread over a wider range or some intermediate combination of distribution pattern.

K **Poorly known**: species that are suspected, but not definitely known, to belong to any of the above categories.

Reservation categories:

C known to present within a national park or other conservation reserve.

a adequately reserved with a total of at least 1000 plants known to occur in reserves.

i inadequately reserved, with a total of less than 1000 plants in reserves.

t total known populations are in reserves.

APPENDIX 8. Plant taxa with specific bio-climatic distributions that are influenced by the Flinders Ranges. Species marked Endemic are endemic to the Mt Lofty, Olary and Flinders Ranges complex.

SPECIES	Bioregional affinity	Bulk of distribution
Acacia araneosa	Endemic	Endemic Flinders Ranges
Acacia confluens	Endemic	Endemic Flinders Ranges
Acacia gracilifolia	Endemic	Endemic Flinders Ranges
Acacia quornensis	Endemic	Endemic Flinders Ranges
Allocasuarina muelleriana ssp. *alticola*	Endemic	Endemic Flinders Ranges
Brachycome ciliaris var. *subintegrifolia*	Endemic	Endemic Flinders Ranges
Cassytha peninsularis var. *flindersii*	Endemic	Endemic Flinders Ranges
Codonocarpus pyramidalis	Endemic	Endemic Flinders Ranges
Daviesia stricta	Endemic	Endemic Flinders Ranges
Eremophila santalina	Endemic	Endemic Flinders Ranges
Eucalyptus flindersii	Endemic	Endemic Flinders Ranges
Eucalyptus gillii	Endemic	Endemic Flinders Ranges
Eucalyptus percostata	Endemic	Endemic Flinders Ranges
Eucalyptus sp. Y	Endemic	Endemic Flinders Ranges
Frankenia subteres	Endemic	Endemic Flinders Ranges
Ixodia flindersica	Endemic	Endemic Flinders Ranges
Maireana melanocarpa	Endemic	Endemic Flinders Ranges
Ozothamnus scaber	Endemic	Endemic Flinders Ranges
Spyridium phlebophyllum	Endemic	Endemic Flinders Ranges
Stipa petraea	Endemic	Endemic Flinders Ranges
Triodia scariosa ssp. *bunicola*	Endemic	Endemic Flinders Ranges
Wurmbea biglandulosa ssp. *flindersica*	Endemic	Endemic Flinders Ranges
Callistemon teretifolius	Endemic	Flinders and Mt Lofty Ranges
Eucalyptus albens	Endemic	Southern Flinders and Eastern Australia
Acacia wattsiana	Endemic	Southern Flinders and Northern Lofty Ranges
Caladenia tensa	Endemic	Southern Flinders and Northern Lofty Ranges
Dodonaea subglandulifera	Endemic	Northern Lofty Ranges
Stipa pilata	Endemic	South-eastern
Eremophila subfloccosa ssp. *"glandulosa" ms*	Endemic	Southern Flinders and Southern Lofty Ranges
Acacia havilandii	Eyrean	Arid ranges
Acacia rivalis	Eyrean	Arid ranges
Enneapogon oblongus	Eyrean	Arid ranges
Eriostemon linearis	Eyrean	Arid ranges
Eucalyptus intertexta	Eyrean	Arid ranges
Glossogyne tannensis	Eyrean	Arid ranges
Goodenia anfracta	Eyrean	Arid ranges
Goodenia calcarata	Eyrean	Arid ranges
Gossypium sturtianum var. *sturtianum*	Eyrean	Arid ranges
Hakea ednieana	Eyrean	Arid ranges
Melaleuca bracteata	Eyrean	Arid ranges
Melaleuca dissitiflora	Eyrean	Arid ranges
Melaleuca glomerata	Eyrean	Arid ranges
Commicarpus australis	Eyrean	Northern
Dichromochlamys dentatifolius	Eyrean	Northern
Dissocarpus fontinalis	Eyrean	Northern
Eucalyptus camaldulensis var. *camaldulensis*	Eyrean	Northern
Goodenia saccata	Eyrean	Northern
Harmsiodoxa puberula	Eyrean	Northern
Hibiscus brachysiphonius	Eyrean	Northern
Indigofera leucotricha	Eyrean	Northern
Lythrum paradoxum	Eyrean	Northern
Maireana planifolia	Eyrean	Northern
Maireana villosa	Eyrean	Northern
Melhania oblongifolia	Eyrean	Northern
Millotia greevesii ssp. *greevesii* var. *greevesii*	Eyrean	Northern
Millotia greevesii ssp. *kempei* var. *helmsii*	Eyrean	Northern
Minuria annua	Eyrean	Northern
Minuria denticulata	Eyrean	Northern
Minuria rigida	Eyrean	Northern
Mukia maderaspatana	Eyrean	Northern
Neobassia proceriflora	Eyrean	Northern
Nicotiana simulans	Eyrean	Northern
Paractaenum refractum	Eyrean	Northern
Swainsona flavicarinata	Eyrean	Northern
Zygophyllum hybridum	Eyrean	Northern
Pimelea elongata	Eyrean	North-eastern
Cheilanthes distans	Eyrean	Northern Ranges
Anacampseros australiana	Eyrean	North-western
Cleome viscosa	Eyrean	North-western
Acacia pravifolia	Bassian/Eyrean	Flinders and Olary Ranges and Eastern Australia
Acacia wilhelmiana	Bassian/Eyrean	Southern
Allocasuarina verticillata	Bassian/Eyrean	Southern
Alyxia buxifolia	Bassian/Eyrean	Southern

Appendix 8. (continued)

Angianthus tomentosus	Bassian/Eyrean	Southern
Argemone subfusiformis ssp. *subfusiformis*	Bassian/Eyrean	Southern
Arthropodium minus	Bassian/Eyrean	Southern
Arthropodium strictum	Bassian/Eyrean	Southern
Atriplex prostrata	Bassian/Eyrean	Southern
Atriplex semibaccata	Bassian/Eyrean	Southern
Avellinia michelii	Bassian/Eyrean	Southern
Baeckea crassifolia	Bassian/Eyrean	Southern
Beyeria lechenaultii	Bassian/Eyrean	Southern
Briza maxima	Bassian/Eyrean	Southern
Bromus madritensis	Bassian/Eyrean	Southern
Bromus rigidus	Bassian/Eyrean	Southern
Bromus rubens	Bassian/Eyrean	Southern
Bursaria spinosa	Bassian/Eyrean	Southern
Caladenia carnea complex	Bassian/Eyrean	Southern
Caladenia carnea var. *carnea*	Bassian/Eyrean	Southern
Caladenia dilatata complex	Bassian/Eyrean	Southern
Caladenia patersonii complex	Bassian/Eyrean	Southern
Callitris preissii	Bassian/Eyrean	Southern
Calocephalus citreus	Bassian/Eyrean	Southern
Calytrix tetragona	Bassian/Eyrean	Southern
Carduus tenuiflorus	Bassian/Eyrean	Southern
Carex inversa var. *major*	Bassian/Eyrean	Southern
Carex tereticaulis	Bassian/Eyrean	Southern
Carpobrotus rossii	Bassian/Eyrean	Southern
Centaurium erythraea	Bassian/Eyrean	Southern
Cheiranthera alternifolia	Bassian/Eyrean	Southern
Chenopodium desertorum ssp. *microphyllum*	Bassian/Eyrean	Southern
Choretrum glomeratum var.	Bassian/Eyrean	Southern
Choretrum glomeratum var. *chrysanthum*	Bassian/Eyrean	Southern
Choretrum glomeratum var. *glomeratum*	Bassian/Eyrean	Southern
Cirsium vulgare	Bassian/Eyrean	Southern
Clematis microphylla	Bassian/Eyrean	Southern
Convolvulus arvensis	Bassian/Eyrean	Southern
Cotula australis	Bassian/Eyrean	Southern
Dampiera dysantha	Bassian/Eyrean	Southern
Danthonia setacea var. *setacea*	Bassian/Eyrean	Southern
Daviesia genistifolia	Bassian/Eyrean	Southern
Daviesia leptophylla	Bassian/Eyrean	Southern
Desmazeria rigida	Bassian/Eyrean	Southern
Dianella revoluta var. *revoluta*	Bassian/Eyrean	Southern
Diuris behrii	Bassian/Eyrean	Southern
Diuris palustris	Bassian/Eyrean	Southern
Dodonaea baueri	Bassian/Eyrean	Southern
Eleocharis sphacelata	Bassian/Eyrean	Southern
Eucalyptus camaldulensis var. *obtusa*	Bassian/Eyrean	Southern
Eucalyptus dumosa	Bassian/Eyrean	Southern
Eucalyptus gracilis	Bassian/Eyrean	Southern
Eucalyptus leptophylla	Bassian/Eyrean	Southern
Eucalyptus odorata	Bassian/Eyrean	Southern
Eucalyptus porosa	Bassian/Eyrean	Southern
Euchiton gymnocephalus	Bassian/Eyrean	Southern
Euchiton involucratus	Bassian/Eyrean	Southern
Eutaxia microphylla var. *microphylla*	Bassian/Eyrean	Southern
Exocarpos cupressiformis	Bassian/Eyrean	Southern
Foeniculum vulgare	Bassian/Eyrean	Southern
Fraxinus rotundifolia ssp. *rotundifolia*	Bassian/Eyrean	Southern
Fumaria capreolata ssp. *capreolata*	Bassian/Eyrean	Southern
Fumaria densiflora	Bassian/Eyrean	Southern
Fumaria muralis ssp.	Bassian/Eyrean	Southern
Galium spurium ssp. *ibicinum*	Bassian/Eyrean	Southern
Geijera linearifolia	Bassian/Eyrean	Southern
Geococcus pusillus	Bassian/Eyrean	Southern
Geranium potentilloides var. *potentilloides*	Bassian/Eyrean	Southern
Gonocarpus elatus	Bassian/Eyrean	Southern
Goodenia ovata	Bassian/Eyrean	Southern
Goodenia robusta	Bassian/Eyrean	Southern
Goodenia vernicosa	Bassian/Eyrean	Southern
Goodia lotifolia var. *lotifolia(NC)*	Bassian/Eyrean	Southern
Goodia medicaginea	Bassian/Eyrean	Southern
Hovea purpurea	Bassian/Eyrean	Southern
Hyalosperma demissum	Bassian/Eyrean	Southern
Hyalosperma glutinosum ssp. *glutinosum*	Bassian/Eyrean	Southern
Hybanthus floribundus ssp. *floribundus*	Bassian/Eyrean	Southern
Hypericum gramineum	Bassian/Eyrean	Southern
Juncus acutus	Bassian/Eyrean	Southern

Appendix 8. (continued)

Juncus capitatus	Bassian/Eyrean	Southern
Juncus flavidus	Bassian/Eyrean	Southern
Kickxia elatine ssp. *crinita*	Bassian/Eyrean	Southern
Lagenifera huegelii	Bassian/Eyrean	Southern
Lasiopetalum behrii	Bassian/Eyrean	Southern
Lepidosperma laterale(NC)	Bassian/Eyrean	Southern
Lepidosperma viscidum	Bassian/Eyrean	Southern
Lepilaena australis	Bassian/Eyrean	Southern
Leptorhynchos waitzia	Bassian/Eyrean	Southern
Levenhookia dubia	Bassian/Eyrean	Southern
Limonium lobatum	Bassian/Eyrean	Southern
Limonium sinuatum	Bassian/Eyrean	Southern
Linum marginale	Bassian/Eyrean	Southern
Linum trigynum	Bassian/Eyrean	Southern
Lolium loliaceum	Bassian/Eyrean	Southern
Lolium perenne	Bassian/Eyrean	Southern
Lolium perenne x rigidum	Bassian/Eyrean	Southern
Lomandra collina	Bassian/Eyrean	Southern
Lomandra densiflora	Bassian/Eyrean	Southern
Lomandra effusa	Bassian/Eyrean	Southern
Lomandra multiflora ssp. *dura*	Bassian/Eyrean	Southern
Lotus australis	Bassian/Eyrean	Southern
Luzula meridionalis	Bassian/Eyrean	Southern
Maireana enchylaenoides	Bassian/Eyrean	Southern
Malus sylvestris	Bassian/Eyrean	Southern
Medicago minima var. *minima*	Bassian/Eyrean	Southern
Medicago praecox	Bassian/Eyrean	Southern
Medicago sativa ssp. *sativa*	Bassian/Eyrean	Southern
Melaleuca lanceolata ssp. *lanceolata*	Bassian/Eyrean	Southern
Melilotus indica	Bassian/Eyrean	Southern
Microlaena stipoides var. *stipoides*	Bassian/Eyrean	Southern
Microtis arenaria	Bassian/Eyrean	Southern
Microtis frutetorum	Bassian/Eyrean	Southern
Microtis parviflora	Bassian/Eyrean	Southern
Microtis unifolia complex	Bassian/Eyrean	Southern
Minuartia mediterranea	Bassian/Eyrean	Southern
Misopates orontium	Bassian/Eyrean	Southern
Mitrasacme paradoxa(NC)	Bassian/Eyrean	Southern
Molineriella minuta	Bassian/Eyrean	Southern
Myoporum viscosum	Bassian/Eyrean	Southern
Myrsiphyllum asparagoides	Bassian/Eyrean	Southern
Nerium oleander	Bassian/Eyrean	Southern
Neurachne alopecuroidea	Bassian/Eyrean	Southern
Nicotiana maritima	Bassian/Eyrean	Southern
Oenothera stricta ssp. *stricta*	Bassian/Eyrean	Southern
Olea europaea ssp. *europaea*	Bassian/Eyrean	Southern
Olearia pannosa ssp. *cardiophylla*	Bassian/Eyrean	Southern
Olearia pannosa ssp. *pannosa*	Bassian/Eyrean	Southern
Olearia picridifolia	Bassian/Eyrean	Southern
Olearia tubuliflora	Bassian/Eyrean	Southern
Onopordum acaulon	Bassian/Eyrean	Southern
Opercularia turpis	Bassian/Eyrean	Southern
Opuntia cylindrica	Bassian/Eyrean	Southern
Opuntia stricta var. *stricta*	Bassian/Eyrean	Southern
Oxalis pes-caprae	Bassian/Eyrean	Southern
Ozothamnus retusus	Bassian/Eyrean	Southern
Papaver aculeatum	Bassian/Eyrean	Southern
Parentucellia latifolia	Bassian/Eyrean	Southern
Peganum harmala	Bassian/Eyrean	Southern
Pelargonium littorale	Bassian/Eyrean	Southern
Pentaschistis airoides	Bassian/Eyrean	Southern
Persicaria prostrata	Bassian/Eyrean	Southern
Petrorhagia velutina	Bassian/Eyrean	Southern
Phragmites australis	Bassian/Eyrean	Southern
Phyllangium divergens	Bassian/Eyrean	Southern
Phyllanthus saxosus	Bassian/Eyrean	Southern
Pimelea curviflora var.	Bassian/Eyrean	Southern
Pimelea curviflora var. *gracilis*	Bassian/Eyrean	Southern
Pimelea glauca	Bassian/Eyrean	Southern
Pimelea imbricata var. *petraea*	Bassian/Eyrean	Southern
Pimelea linifolia ssp. *linifolia*	Bassian/Eyrean	Southern
Pimelea octophylla	Bassian/Eyrean	Southern
Pimelea petrophila	Bassian/Eyrean	Southern
Pimelea stricta	Bassian/Eyrean	Southern
Piptatherum miliaceum	Bassian/Eyrean	Southern
Plantago aff. debilis	Bassian/Eyrean	Southern

Appendix 8. (continued)

Plantago lanceolata var. *lanceolata*	Bassian/Eyrean	Southern
Poa annua	Bassian/Eyrean	Southern
Poa bulbosa	Bassian/Eyrean	Southern
Poa crassicaudex	Bassian/Eyrean	Southern
Poa labillardieri var. *labillardieri*	Bassian/Eyrean	Southern
Podolepis muelleri	Bassian/Eyrean	Southern
Pogonolepis muelleriana	Bassian/Eyrean	Southern
Polycarpon tetraphyllum	Bassian/Eyrean	Southern
Polypogon viridis	Bassian/Eyrean	Southern
Pomaderris paniculosa ssp. *paniculosa*	Bassian/Eyrean	Southern
Prasophyllum fitzgeraldii	Bassian/Eyrean	Southern
Prasophyllum occidentale	Bassian/Eyrean	Southern
Prasophyllum pallidum	Bassian/Eyrean	Southern
Prostanthera behriana	Bassian/Eyrean	Southern
Prostanthera spinosa	Bassian/Eyrean	Southern
Prunus domestica ssp. *domestica*	Bassian/Eyrean	Southern
Pteris tremula	Bassian/Eyrean	Southern
Pterostylis biseta	Bassian/Eyrean	Southern
Pterostylis boormanii	Bassian/Eyrean	Southern
Pterostylis cycnocephala	Bassian/Eyrean	Southern
Pterostylis excelsa	Bassian/Eyrean	Southern
Pterostylis pusilla	Bassian/Eyrean	Southern
Pterostylis robusta	Bassian/Eyrean	Southern
Pterostylis sanguinea	Bassian/Eyrean	Southern
Ptilotus spathulatus forma *spathulatus*	Bassian/Eyrean	Southern
Puccinellia distans	Bassian/Eyrean	Southern
Puccinellia stricta var. *stricta*	Bassian/Eyrean	Southern
Pultenaea graveolens	Bassian/Eyrean	Southern
Pultenaea largiflorens	Bassian/Eyrean	Southern
Ranunculus hamatosetosus	Bassian/Eyrean	Southern
Ranunculus pachycarpus	Bassian/Eyrean	Southern
Ranunculus sessiliflorus var.	Bassian/Eyrean	Southern
Rorippa nasturtium-aquaticum	Bassian/Eyrean	Southern
Rosa rubiginosa	Bassian/Eyrean	Southern
Rumex brownii	Bassian/Eyrean	Southern
Rumex dumosus var.	Bassian/Eyrean	Southern
Rumex dumosus var. *dumosus*	Bassian/Eyrean	Southern
Ruppia megacarpa	Bassian/Eyrean	Southern
Rutidosis multiflora	Bassian/Eyrean	Southern
Salvia verbenaca form	Bassian/Eyrean	Southern
Salvia verbenaca form A	Bassian/Eyrean	Southern
Sanguisorba minor ssp. *muricata*	Bassian/Eyrean	Southern
Sarcocornia quinqueflora	Bassian/Eyrean	Southern
Scabiosa atropurpurea	Bassian/Eyrean	Southern
Scaevola albida	Bassian/Eyrean	Southern
Schoenus apogon	Bassian/Eyrean	Southern
Scorzonera laciniata	Bassian/Eyrean	Southern
Scutellaria humilis	Bassian/Eyrean	Southern
Sebaea ovata	Bassian/Eyrean	Southern
Senecio anethifolius	Bassian/Eyrean	Southern
Senecio tenuiflorus	Bassian/Eyrean	Southern
Silene gallica var. *gallica*	Bassian/Eyrean	Southern
Silene gallica var. *gallica(NC)*	Bassian/Eyrean	Southern
Silene nocturna	Bassian/Eyrean	Southern
Silene sp.	Bassian/Eyrean	Southern
Silene tridentata	Bassian/Eyrean	Southern
Spyridium parvifolium	Bassian/Eyrean	Southern
Stackhousia monogyna	Bassian/Eyrean	Southern
Stellaria media	Bassian/Eyrean	Southern
Stipa blackii	Bassian/Eyrean	Southern
Stipa breviglumis	Bassian/Eyrean	Southern
Stipa curticoma	Bassian/Eyrean	Southern
Stipa gibbosa	Bassian/Eyrean	Southern
Stipa hemipogon	Bassian/Eyrean	Southern
Stipa mollis	Bassian/Eyrean	Southern
Stipa setacea	Bassian/Eyrean	Southern
Stuartina muelleri	Bassian/Eyrean	Southern
Swainsona procumbens	Bassian/Eyrean	Southern
Swainsona viridis	Bassian/Eyrean	Southern
Thelymitra grandiflora	Bassian/Eyrean	Southern
Thelymitra nuda	Bassian/Eyrean	Southern
Thelymitra pauciflora	Bassian/Eyrean	Southern
Thelymitra rubra	Bassian/Eyrean	Southern
Thelymitra sp.	Bassian/Eyrean	Southern
Thysanotus patersonii	Bassian/Eyrean	Southern
Thysanotus tenellus	Bassian/Eyrean	Southern

Appendix 8. (continued)

Tricoryne elatior	Bassian/Eyrean	Southern
Trifolium angustifolium	Bassian/Eyrean	Southern
Trifolium arvense var. *arvense*	Bassian/Eyrean	Southern
Trifolium campestre	Bassian/Eyrean	Southern
Trifolium glomeratum	Bassian/Eyrean	Southern
Trifolium hirtum	Bassian/Eyrean	Southern
Trifolium pilulare	Bassian/Eyrean	Southern
Triodia irritans	Bassian/Eyrean	Southern
Triodia irritans complex	Bassian/Eyrean	Southern
Triodia scariosa ssp.	Bassian/Eyrean	Southern
Triptilodiscus pygmaeus	Bassian/Eyrean	Southern
Velleia paradoxa	Bassian/Eyrean	Southern
Verbascum virgatum	Bassian/Eyrean	Southern
Veronica plebeia	Bassian/Eyrean	Southern
Vittadinia cuneata var.	Bassian/Eyrean	Southern
Vittadinia cuneata var. *cuneata* forma *cuneata*	Bassian/Eyrean	Southern
Vittadinia cuneata var. *morrisii*	Bassian/Eyrean	Southern
Vulpia muralis	Bassian/Eyrean	Southern
Vulpia myuros forma	Bassian/Eyrean	Southern
Vulpia myuros forma *megalura*	Bassian/Eyrean	Southern
Wahlenbergia luteola	Bassian/Eyrean	Southern
Wurmbea latifolia ssp. *latifolia*	Bassian/Eyrean	Southern
Eucalyptus largiflorens	Bassian/Eyrean	South-eastern
Acacia acinacea	Bassian	Southern temperate
Acacia paradoxa	Bassian	Southern temperate
Acacia pycnantha	Bassian	Southern temperate
Acacia rupicola	Bassian	Southern temperate
Acacia spinescens	Bassian	Southern temperate
Acaena echinata var.	Bassian	Southern temperate
Acianthus pusillus	Bassian	Southern temperate
Adiantum aethiopicum	Bassian	Southern temperate
Adonis microcarpa	Bassian	Southern temperate
Aira caryophyllea	Bassian	Southern temperate
Aira cupaniana	Bassian	Southern temperate
Amphipogon strictus var. *setifer*	Bassian	Southern temperate
Anogramma leptophylla	Bassian	Southern temperate
Anthocercis angustifolia	Bassian	Southern temperate
Asperula conferta	Bassian	Southern temperate
Asplenium flabellifolium	Bassian	Southern temperate
Astroloma humifusum	Bassian	Southern temperate
Baumea articulata	Bassian	Southern temperate
Billardiera versicolor	Bassian	Southern temperate
Bossiaea prostrata	Bassian	Southern temperate
Brachypodium distachyon	Bassian	Southern temperate
Briza minor	Bassian	Southern temperate
Bromus arenarius	Bassian	Southern temperate
Caesia calliantha	Bassian	Southern temperate
Caladenia tentaculata	Bassian	Southern temperate
Carex breviculmis	Bassian	Southern temperate
Carex gaudichaudiana	Bassian	Southern temperate
Carex inversa var. *inversa*	Bassian	Southern temperate
Cassinia uncata	Bassian	Southern temperate
Centrolepis aristata	Bassian	Southern temperate
Centrolepis strigosa	Bassian	Southern temperate
Cerastium glomeratum	Bassian	Southern temperate
Chrysanthemoides monilifera	Bassian	Southern temperate
Correa glabra	Bassian	Southern temperate
Cyanicula deformis	Bassian	Southern temperate
Cymbonotus preissianus	Bassian	Southern temperate
Cynoglossum suaveolens	Bassian	Southern temperate
Cynosurus echinatus	Bassian	Southern temperate
Danthonia auriculata	Bassian	Southern temperate
Danthonia duttoniana	Bassian	Southern temperate
Danthonia eriantha	Bassian	Southern temperate
Danthonia geniculata	Bassian	Southern temperate
Danthonia linkii var. *fulva*	Bassian	Southern temperate
Danthonia pilosa var. *pilosa*	Bassian	Southern temperate
Danthonia racemosa var. *racemosa*	Bassian	Southern temperate
Derwentia decorosa	Bassian	Southern temperate
Dichelachne crinita	Bassian	Southern temperate
Dichondra repens	Bassian	Southern temperate
Distichlis distichophylla	Bassian	Southern temperate
Doodia caudata	Bassian	Southern temperate
Drosera auriculata	Bassian	Southern temperate
Drosera glanduligera	Bassian	Southern temperate
Drosera macrantha ssp. *planchonii*	Bassian	Southern temperate

Appendix 8. (continued)

Drosera peltata	Bassian	Southern temperate
Echinopogon ovatus var. *ovatus*	Bassian	Southern temperate
Epilobium billardierianum ssp.	Bassian	Southern temperate
Epilobium billardierianum ssp. *cinereum*	Bassian	Southern temperate
Epilobium billardierianum ssp. *x intermedium*	Bassian	Southern temperate
Eryngium rostratum	Bassian	Southern temperate
Eucalyptus calycogona var. *calycogona*	Bassian	Southern temperate
Eucalyptus goniocalyx	Bassian	Southern temperate
Eucalyptus leucoxylon ssp. *leucoxylon*	Bassian	Southern temperate
Eucalyptus leucoxylon ssp. *pruinosa*	Bassian	Southern temperate
Eucalyptus microcarpa	Bassian	Southern temperate
Euphorbia peplus	Bassian	Southern temperate
Eutaxia diffusa	Bassian	Southern temperate
Festuca benthamiana	Bassian	Southern temperate
Galium divaricatum	Bassian	Southern temperate
Galium gaudichaudii	Bassian	Southern temperate
Galium murale	Bassian	Southern temperate
Gastridium phleoides	Bassian	Southern temperate
Geranium retrorsum	Bassian	Southern temperate
Geranium solanderi var. *solanderi*	Bassian	Southern temperate
Gonocarpus tetragynus	Bassian	Southern temperate
Goodenia albiflora	Bassian	Southern temperate
Goodenia amplexans	Bassian	Southern temperate
Grevillea ilicifolia var. *ilicifolia*	Bassian	Southern temperate
Grevillea lavandulacea var.	Bassian	Southern temperate
Grevillea lavandulacea var. *lavandulacea*	Bassian	Southern temperate
Grevillea lavandulacea var. *sericea*	Bassian	Southern temperate
Gynandriris setifolia	Bassian	Southern temperate
Hakea carinata	Bassian	Southern temperate
Hardenbergia violacea	Bassian	Southern temperate
Hibbertia exutiacies	Bassian	Southern temperate
Hibbertia incana	Bassian	Southern temperate
Hibbertia riparia	Bassian	Southern temperate
Homopholis proluta	Bassian	Southern temperate
Hydrocotyle callicarpa	Bassian	Southern temperate
Hydrocotyle laxiflora	Bassian	Southern temperate
Hymenanthera dentata	Bassian	Southern temperate
Isolepis inundata	Bassian	Southern temperate
Isolepis marginata	Bassian	Southern temperate
Juncus articulatus	Bassian	Southern temperate
Juncus homalocaulis	Bassian	Southern temperate
Juncus subsecundus	Bassian	Southern temperate
Kennedia prostrata	Bassian	Southern temperate
Lepidium pseudotasmanicum	Bassian	Southern temperate
Leptorhynchos scabrus	Bassian	Southern temperate
Leptorhynchos squamatus	Bassian	Southern temperate
Leptorhynchos tetrachaetus	Bassian	Southern temperate
Logania saxatilis	Bassian	Southern temperate
Cyrtostylis reniformis	Bassian	Southern temperate
Grevillea aspera	Bassian/Eyrean	South-western
Angianthus glabratus	Bassian/Eyrean	Western
Eucalyptus aff. viridis	Bassian/Eyrean	Western
Eucalyptus cladocalyx	Bassian/Eyrean	Western
Galium binifolium	Bassian/Eyrean	Western
Abutilon cryptopetalum	Eyrean	West-northern
Acacia cibaria	Eyrean	West-northern
Acacia kempeana	Eyrean	West-northern
Acacia papyrocarpa	Eyrean	West-northern
Acacia stowardii	Eyrean	West-northern
Calandrinia polyandra var. *polyandra*	Eyrean	West-northern
Calandrinia remota	Eyrean	West-northern
Korthalsella japonica forma *japonica*	Eyrean	West-northern
Alyogyne hakeifolia	Bassian/Eyrean	South-western
Alyogyne huegelii	Bassian/Eyrean	South-western

APPENDIX 9. Floristic group species tables and habitat statistics.

Flinders Ranges Floristic Groups species and physical characteristics tables.

PATN analysis 3079 sites from 23 separate survey efforts (including pastoral monitoring data) between the coordinates 29.8 to 33.3 degrees of latitude and 137.8 to139.8 degrees of longitude. For each group the title is followed by a table of species that were present at >40% of sites compising the group, a table of species that were present at <40% of sites and had a high value of significance to the group. Four tables detailing the physical parameters that characterise sites within the group. These are Landform, Land Unit, Surface Soil Texture and Vegetation Structure. Within each table the number of sites (frequency), the significance from random (Observed frequency – expected frequency / expected frequency), and the percentage of the total records for a specific parameter that are present in each group.

Group 1. *Acacia tetragonophylla* Dead Finish/*Acacia victoriae* Elegant Wattle very open tall shrubland +/- *Acacia aneura* Mulga very low open woodland over *Ptilotus obovatus* Silver Mulla Mulla/ *Solanum* spp. Potato Bush/*Sida petrophila* Rock Sida/*Senna artemisioides* Desert Senna/ *Dodonaea lobulata* Lobed-leaf Hop-bush/*Eremophila freelingii* Rock Emubush low open shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Acacia aneura var.	mulga	51	29.89	71	551	37	0.83
Tall shrub							
Acacia tetragonophylla	dead finish	71	37.67	98	811	37	0.60
Acacia victoriae ssp.	elegant wattle	57	5.78	79	1423	59	0.65
Shrub							
Senna artemisioides ssp.	desert senna	62	17.11	85	1043	53	0.60
Low shrub							
Ptilotus obovatus var.	silver mulla mulla	93	37.78	129	1263	51	0.80
Solanum ellipticum/quadriloculatum	potato bush	72	23.79	100	1121	50	0.57
Sida petrophila	rock sida	60	24.31	83	815	46	0.71
Dodonaea lobulata	lobed-leaf hop-bush	60	53.17	83	471	39	0.68
Eremophila freelingii	rock emubush	59	32.62	81	643	33	0.74
Enchylaena tomentosa var.	ruby saltbush	46	4.69	64	1189	59	0.39

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups
Shrub	*Eremophila alternifolia*	narrow-leaf emubush	37	26.14	51	341	34
Low shrub	*Solanum sturtianum*	Sturt's nightshade	24	12.68	33	273	28
Grass	*Neurachne alopecuroidea*	fox-tail mulga-grass	4	8.88	5	12	6
Fern	*Cheilanthes lasiophylla*	woolly cloak-fern	25	8.33	35	395	26
Grass	*Cymbopogon ambiguus*	lemon-grass	34	7.74	47	650	48
Low shrub	*Hakea ednieana*	Flinders Ranges corkwood	19	7.61	26	262	23
Low shrub	*Chrysocephalum semicalvum* ssp. *semicalvum*	scented button-bush	23	5.86	32	413	27
Low shrub	*Prostanthera striatiflora*	striated mintbush	15	5.38	21	225	24
tall shrub	*Exocarpos aphyllus*	leafless cherry	20	4.94	27	339	37
Tree	*Casuarina pauper*	black oak	22	4.94	30	405	41

LANDFORM	Frequency	(O-E)/E	%
Hills	77	1.58	12%
Low hills	33	0.18	5%
Rises	20	0.21	5%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	105	0.4771156	7%
hill crest	18	1.1014493	10%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	36	0.03	5%
loam/sand	33	-0.09	4%
skeletal	29	3.47	21%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	21	1.08	9%
Very open shrubland	18	3.45	20%
Very low open woodland	17	1.14	10%
Open shrubland	13	1.73	12%
Very open mallee	2	-0.42	3%

Group 2. *Acacia aneura* Mulga +/- *Alectryon oleifolius* Bullock Bush very low open woodland with *Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle tall shrubland over a *Senna artemisioides* Desert Senna/ *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Solanum* spp. Potato bush/ *Eremophila freelingii* Rock Emubush low open shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Acacia aneura var.	Mulga	82	67.25	167	551	37	0.78
Alectryon oleifolius ssp. *canescens*	Bullock bush	43	3.22	88	760	52	0.50

Appendix 9. (continued)

Tall shrub							
Acacia tetragonophylla	Dead finish	89	46.12	180	811	37	0.65
Acacia victoriae ssp.	Elegant wattle	76	5.64	154	1423	59	0.58
Shrub							
Senna artemisioides ssp.	Desert senna	73	13.64	149	1043	53	0.58
Low shrub							
Solanum ellipticum/quadriloculatum	potato bush	93	27.53	188	1121	50	0.56
Ptilotus obovatus var.	silver mulla mulla	88	16.38	179	1263	51	0.70
Eremophila freelingii	rock emubush	79	50.10	161	643	33	0.83
Sida petrophila	rock sida	71	23.72	144	815	46	0.54
Sida fibulifera	pin sida	65	36.24	132	557	38	0.56
Enchylaena tomentosa var.	ruby saltbush	60	2.23	122	1189	59	0.38
Sclerolaena obliquicuspis	oblique-spined bindyi	55	2.05	112	1083	55	0.70
Abutilon leucopetalum	desert lantern-bush	48	40.83	97	314	26	0.43
Scaevola spinescens	spiny fanflower	41	61.50	84	177	30	0.27
Mistletoe							
Amyema maidenii ssp. *maidenii*	pale-leaf mistletoe	48	69.96	98	212	19	0.35

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups
low shrub	*Hibiscus sturtii* var. *grandiflorus*	Sturt's hibiscus	25	35.69	50	108	11
low shrub	*Hakea ednieana*	Flinders Ranges corkwood	38	31.41	78	262	23
low shrub	*Dodonaea microzyga* var. *microzyga*	brilliant hop-bush	34	29.05	69	223	23
grass	*Digitaria brownii*	cotton panic-grass	31	21.91	63	233	16
vine	*Marsdenia australis*	native pear	30	17.86	61	251	25
low shrub	*Sauropus rigens*	stiff spurge	21	15.37	42	147	21
tall shrub	*Exocarpos aphyllus*	leafless cherry	34	15.16	69	339	37
tree	*Santalum lanceolatum*	plumbush	25	14.94	51	209	25
tree	*Capparis mitchellii*	native orange	10	14.61	21	47	9
mat plant	*Boerhavia dominii*	tar-vine	28	14.61	57	253	31
low shrub	*Chrysocephalum semicalvum* ssp. *semicalvum*	scented button-bush	38	14.28	78	413	27
mallee	*Eucalyptus gillii*	curly mallee	16	13.89	33	105	14
low shrub	*Trichodesma zeylanicum*	camel bush	15	13.62	31	98	13

LANDFORM	Frequency	(O-E)/E	%
Hills	72	0.64	11%
Low hills	41	0.00	7%
Rises	41	0.69	11%
Mountains	22	1.40	16%
Plain	21	-0.56	3%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	173	0.63	11%
hill crest	17	0.33	9%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	81	0.63	11%
loam/sand	59	0.14	7%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low open woodland	16	0.37	9%
Tall very open shrubland	12	-0.19	5%
low open woodland	8	0.12	7%

Group 3. *Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle very open tall shrubland over a *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Dodonaea lobulata* Lobed-leaf Hop-bush/ *Eremophila freelingii* Rock Emubush low open shrubland +/- emergent *Alectryon oleifolius* Bullock Bush/ *Acacia aneura* Mulga.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	Bullock bush	62	10.87	99	760	52	0.49
Acacia aneura var.	Mulga	60	19.13	95	551	37	0.64
Tall shrub							
Acacia tetragonophylla	Dead finish	82	21.58	131	811	37	0.54
Acacia victoriae ssp.	Elegant wattle	72	0.00	114	1423	59	0.55
Shrub							
Senna artemisioides ssp.	Desert senna	51	-1.48	81	1043	53	0.49
Eremophila alternifolia	Narrow-leaf emubush	42	15.70	66	341	34	0.47
Low shrub							

Appendix 9. (continued)

Solanum ellipticum/quadriloculatum	Potato bush	94	16.36	149	1121	50	0.59
Ptilotus obovatus var.	Silver mulla mulla	81	4.69	128	1263	51	0.56
Sida petrophila	Rock sida	76	17.72	121	815	46	0.50
Sclerolaena obliquicuspis	Oblique-spined bindyi	72	6.26	114	1083	55	0.68
Chrysocephalum semicalvum ssp. *semicalvum*	Scented button-bush	67	41.13	107	413	27	0.40
Enchylaena tomentosa var.	Ruby saltbush	64	0.00	102	1189	59	0.29
Dodonaea lobulata	lobed-leaf hop-bush	55	19.33	88	471	39	0.59
Sida fibulifera	pin sida	53	12.30	84	557	38	0.42
Eremophila freelingii	rock emubush	51	7.41	81	643	33	0.53
Senecio magnificus	showy groundsel	48	12.68	77	487	42	0.30
Solanum petrophilum	rock nightshade	45	18.19	71	359	47	0.35
Hummock grass							
Triodia irritans complex	spinifex	41	8.33	65	458	36	0.68
Grass							
Aristida nitidula	brush threeawn	59	24.09	94	474	39	0.42
Cymbopogon ambiguus	lemon-grass	45	3.95	72	650	48	0.48
Stipa nitida	Balcarra spear-grass	41	5.95	65	536	58	0.62
Vine							
Convolvulus remotus	grassy bindweed	62	14.50	99	656	57	0.21
Fern							
Cheilanthes lasiophylla	woolly cloak-fern	65	41.88	104	395	26	0.41
Herb							
Oxalis perennans	native sorrel	55	7.96	87	682	52	0.35

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Grass	*Stipa trichophylla*		25	22.70	40	117	19	0.50
Low shrub	*Sida cunninghamii*	ridge sida	14	22.31	23	44	13	0.32
Low shrub	*Abutilon fraseri* ssp.		32	20.54	51	191	32	0.32
Herb	*Pimelea simplex* ssp.	desert riceflower	39	20.43	62	270	33	0.61
Grass	*Digitaria brownii*	cotton panic-grass	35	18.12	55	233	16	0.38
Herb	*Ixiochlamys cuneifolia*	Silverton daisy	23	17.61	37	125	25	0.25
Low shrub	*Abutilon leucopetalum*	desert lantern-bush	39	15.89	62	314	26	0.35
Tree	*Eucalyptus intertexta*	gum-barked coolibah	31	15.25	49	214	24	0.49
Herb	*Bracteantha bracteata*	golden everlasting	8	14.50	12	19	8	0.37
Herb	*Ptilotus exaltatus* var.	pink mulla mulla	25	14.28	39	156	21	0.23
Low shrub	*Hakea ednieana*	Flinders Ranges corkwood	33	13.32	52	262	23	0.51
Mistletoe	*Amyema maidenii* ssp. *maidenii*	pale-leaf mistletoe	28	12.35	45	212	19	0.27
herb	*Swainsona tephrotricha R 3RCa*	ashy-haired swainson-pea	9	11.81	15	34	11	0.19

LANDFORM	Frequency	(O-E)/E	%
Hills	48	0.39	7%
Low hills	48	0.48	8%
Rises	45	1.35	12%
Plain	10	-0.74	1%
Mountains	5	-0.31	4%
Plateau	2	1.96	15%
Alluvial plain	2	-0.63	2%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	141	0.67	9%
hill crest	10	-0.01	5%
Plain (incl undulating plain)	4	-0.91	0%
Ridge	2	-0.28	4%
hill footslope	2	-0.81	1%
rock outcrop (on hill)	1	2.63	20%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	83	0.93	11%
loam/sand	29	-0.35	4%
clay	15	0.66	9%
clay/loam	14	-0.18	5%
clay/sand	11	0.27	7%
skeletal	3	-0.62	2%
loam	1	-0.92	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
not recorded	121	2.04	16%
Very low open woodland	12	0.30	7%
Low very open shrubland	4	-0.63	2%
Low open shrubland	3	-0.74	1%
low open woodland	3	-0.47	3%
Herbland	2	0.92	10%
Hummock grassland	2	1.56	13%
Open woodland	2	-0.64	2%
Tall shrubland	2	0.37	7%
Very open mallee	2	-0.50	3%

Appendix 9. (continued)

Group 4. *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush very low open woodland with *Acacia victoriae* Elegant Wattle over *Maireana pyramidata* Black Bluebush/ *Rhagodia spinescens* Spiny saltbush/ *Enchylaena tomentosa* ruby saltbush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	bullock bush	63	5.84	29	760	52	0.43
Casuarina pauper	black oak	59	13.34	27	405	41	0.70
Tall shrub							
Acacia victoriae ssp.	elegant wattle	85	3.57	39	1423	59	0.59
Shrub							
Senna artemisioides ssp.	desert senna	41	0.00	19	1043	53	0.54
Low shrub							
Maireana pyramidata	black bluebush	74	9.96	34	722	50	0.34
Rhagodia spinescens	spiny saltbush	67	6.81	31	786	53	0.45
Enchylaena tomentosa var.	ruby saltbush	63	1.59	29	1189	59	0.35
Sclerolaena obliquicuspis	oblique-spined bindyi	63	2.65	29	1083	55	0.62
Ptilotus obovatus var.	silver mulla mulla	59	0.99	27	1263	51	0.30
Dissocarpus paradoxus	ball bindyi	52	9.22	24	432	47	0.55
Solanum ellipticum/quadriloculatum		50	0.42	23	1121	50	0.38
Maireana astrotricha	low bluebush	46	3.84	21	570	31	0.96
Sclerolaena divaricata	tangled bindyi	43	5.86	20	421	32	0.49
Dodonaea microzyga var. *microzyga*	brilliant hop-bush	41	12.87	19	223	23	0.50
Mistletoe							
Lysiana exocarpi ssp. *exocarpi*	harlequin mistletoe	46	6.53	21	438	46	0.12

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree	*Acacia oswaldii*	umbrella wattle	35	12.30	16	171	38	0.45
Shrub	*Eremophila sturtii*	turpentine bush	17	6.74	8	79	17	0.45
Low shrub	*Nitraria billardierei*	nitre-bush	20	6.59	9	100	28	0.67
Low shrub	*Halosarcia pergranulata* ssp. *pergranulata*	black-seed samphire	4	6.37	2	6	4	1.05
mallee	*Eucalyptus gillii*	curly mallee	20	6.09	9	105	14	0.75
Low shrub	*Maireana pentatropis*	erect mallee bluebush	22	6.04	10	130	25	0.47
Tree	*Santalum spicatum K*	sandalwood	7	5.16	3	16	10	0.37
Low shrub	*Atriplex eichleri R 3R*	Eichler's saltbush	7	5.16	3	16	9	0.53
Tree	*Myoporum platycarpum* ssp.	false sandalwood	24	4.23	11	196	39	0.23
Tall shrub	*Eremophila scoparia*	broom emubush	15	4.23	7	89	23	0.41
Low shrub	*Sclerolaena parallelicuspis*	western bindyi	11	4.12	5	50	23	0.44

LANDFORM	Frequency	(O-E)/E	%
Plain	17	0.59	2%
Rises	13	1.41	4%
Low hills	7	-0.23	1%
Hills	4	-0.59	1%
Flood plain	2	1.36	3%
Dunefield	1	1.21	3%
Alluvial plain	1	-0.34	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	16	0.32	2%
loam/sand	16	0.27	2%
clay/sand	3	0.23	2%
clay	2	-0.22	1%
sand	2	1.28	4%
skeletal	1	-0.56	1%
clay/loam	1	-0.79	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	32	0.35	2%
plain (incl undulating plain)	8	-0.36	1%
hill footslope	2	-0.34	1%
stream channel	1	-0.05	1%
hill crest	1	-0.65	1%
stony plain	1	2.07	5%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	6	0.82	3%
Very low open woodland	5	0.93	3%
low open woodland	4	1.53	4%
Low open shrubland	2	-0.39	1%
Very open mallee	2	0.77	3%
Very open shrubland	2	0.52	2%

Appendix 9. (continued)

Group 5. *Eucalyptus gillii* Curly Mallee open mallee or *Acacia tetragonophylla* Dead Finish very open tall shrubland over *Ptilotus obovatus* Silver Mulla Mulla/ *Solanum* spp. Potato Bush low open shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mallee							
Eucalyptus gillii	curly mallee	44	35.82	19	105	14	1.13
Tall shrub							
Acacia tetragonophylla	dead finish	60	4.76	26	811	37	0.41
Acacia rivalis	silver wattle	47	11.71	20	295	26	0.53
Shrub							
Senna artemisioides ssp.	desert senna	53	1.68	23	1043	53	0.70
Low shrub							
Ptilotus obovatus var.	silver mulla mulla	84	5.27	36	1263	51	0.51
Solanum ellipticum/quadriloculatum	Potato bush	81	6.41	35	1121	50	0.41
Sclerolaena obliquicuspis	oblique-spined bindyi	53	1.26	23	1083	55	0.77
Enchylaena tomentosa var.	ruby saltbush	51	0.81	22	1189	59	0.66
Eremophila freelingii	rock emubush	44	3.13	19	643	33	0.48
Sida fibulifera	pin sida	44	3.83	19	557	38	0.42
Maireana pentatropis	erect mallee bluebush	42	25.37	18	130	25	0.64

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Anemocarpa podolepidium*	rock everlasting	12	21.14	5	13	7	0.30
Mistletoe	*Amyema miquelii*	box mistletoe	40	19.91	17	144	30	0.43
Low shrub	*Maireana melanocarpa V 3V*	black-fruit bluebush	12	18.21	5	15	6	0.54
Tall shrub	*Eremophila scoparia*	broom emubush	28	16.25	12	89	23	0.61
Herb	*Ptilotus exaltatus* var.	pink mulla mulla	33	11.79	14	156	21	0.31
Shrub	*Eremophila latrobei* ssp.	crimson emubush	9	10.03	4	17	9	0.30
Herb	*Cynoglossum australe*	Australian hound's-tongue	5	8.82	2	5	3	0.50
Low shrub	*Rhagodia ulicina*	intricate saltbush	23	7.50	10	122	25	0.41
Low shrub	*Maireana appressa*	pale-fruit bluebush	14	6.37	6	55	22	1.16
Herb	*Pimelea elongata*		5	6.19	2	7	4	0.50
Mallee	*Eucalyptus socialis*	beaked red mallee	35	5.22	15	329	39	1.37

LANDFORM	Frequency	(O-E)/E	%
Low hills	17	1.09	3%
Rises	9	0.88	2%
Hills	6	-0.31	1%
Drainage line	3	0.94	3%
Mountains	3	0.66	2%
Plain	2	-0.79	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	27	0.39	2%
plain (incl undulating plain)	4	-0.61	0%
hill crest	3	0.28	2%
depression	2	0.15	1%
stream channel	2	1.31	3%
cliff	1	18.59	25%
hill footslope	1	-0.60	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	12	0.32	2%
loam/sand	4	-0.58	1%
skeletal	4	1.37	3%
clay/sand	3	0.64	2%
clay/loam	2	-0.44	1%
sand	1	0.52	2%
loam	1	-0.64	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
not recorded	15	0.51	2%
Low open shrubland	3	0.04	1%
Very open mallee	3	1.99	4%
Open shrubland	3	1.17	3%
Tall very open shrubland	3	0.02	1%
open mallee	3	1.78	4%
Low very open shrubland	2	-0.27	1%
Low woodland	2	0.76	2%
Mallee	2	0.67	2%
low open woodland	1	-0.29	1%
Tall shrubland	1	1.74	4%
Open hummock grassland	1	24.59	33%
Very open low mallee	1	37.39	50%

Appendix 9. (continued)

Group 6. *Eremophila freelingii* Rock Emubush +/- *Senna artemisioides* Desert Senna open shrubland over *Maireana astrotricha* Low Bluebush/ *Ptilotus obovatus* Silver Mulla Mulla low/ *Maireana sedifolia* Pearl Bluebush shrubs +/- *Acacia aneura* Mulga/ *Acacia tetragonophylla* Dead finish very low open woodland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Acacia aneura var.	Mulga	46	14.31	46	551	37	0.52
Tall shrub							
Acacia tetragonophylla	Dead finish	59	15.37	60	811	37	0.48
Shrub							
Senna artemisioides ssp.	Desert senna	61	11.35	62	1043	53	0.53
Low shrub							
Eremophila freelingii	Rock emubush	90	59.96	91	643	33	0.61
Solanum ellipticum/quadriloculatum	Potato bush	74	16.47	75	1121	50	0.44
Ptilotus obovatus var.	Silver mulla mulla	71	11.86	72	1263	51	0.71
Maireana astrotricha	Low bluebush	71	40.85	72	570	31	0.98
Sclerolaena obliquicuspis	Oblique-spined bindyi	65	12.08	66	1083	55	0.59
Maireana sedifolia	Bluebush	48	41.29	48	278	31	0.79
Dodonaea microzyga var. *microzyga*	Brilliant hop-bush	46	48.83	46	223	23	0.57
Sida petrophila	Rock sida	43	5.51	43	815	46	0.57

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Rhagodia ulicina*	Intricate saltbush	21	18.07	21	122	25	0.59
Low shrub	*Maireana tomentosa* ssp. *urceolata*		11	17.72	11	37	15	0.52
Herb	*Tribulus eichlerianus*	Eichler's caltrop	7	12.17	7	22	6	0.50
Tall shrub	*Eremophila oppositifolia* var.	Opposite-leaved emubush	13	10.71	13	77	23	0.36
Low shrub	*Sclerolaena tricuspis*	Three-spine bindyi	17	10.58	17	126	24	0.49
Low shrub	*Sclerolaena lanicuspis*	Spinach bindyi	23	8.84	23	244	32	0.37
Tree	*Casuarina pauper*	Black oak	31	8.51	31	405	41	0.86
Tree	*Santalum lanceolatum*	Plumbush	20	7.69	20	209	25	0.44
Low shrub	*Sauropus rigens*	stiff spurge	16	7.61	16	147	21	0.34
Low shrub	*Ptilotus parvifolius* var.	Small-leaf mulla mulla	3	7.19	3	7	4	1.20
herb	*Calocephalus platycephalus*	Western beauty-heads	1	1.02	1	5	4	0.50
low shrub	*Sclerolaena eriacantha*	Silky bindyi	1	1.02	1	5	4	0.10

LANDFORM	Frequency	(O-E)/E	%
Low hills	41	1.02	7%
Hills	33	0.53	5%
Rises	14	0.17	4%
Plain	8	-0.66	1%
Badlands	1	29.80	100%
Plateau	1	1.37	8%
Drainage line	1	-0.74	1%
Mountains	1	-0.78	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	70	0.34	5%
hill crest	12	0.91	7%
plain (incl undulating plain)	7	-0.75	1%
hill footslope	7	0.06	4%
stony plain	2	1.79	10%
rock outcrop (on plain)	1	8.76	33%
depression	1	-0.78	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	33	0.41	4%
loam/sand	31	0.27	4%
loam	5	-0.31	2%
skeletal	4	-0.08	3%
clay/loam	4	-0.57	1%
clay	3	-0.39	2%
clay/sand	2	-0.58	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low open woodland	17	1.95	10%
Low open shrubland	16	1.21	7%
Very open shrubland	8	1.73	9%
Low very open shrubland	8	0.17	4%
Open shrubland	8	1.32	8%
Tall very open shrubland	6	-0.18	3%
Low shrubland	2	-0.33	2%
Shrubland	2	0.18	4%

Appendix 9. (continued)

Group 7. *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Atriplex vesicaria* Bladder Saltbush/ *Maireana astrotricha* Low Bluebush/ *Eremophila freelingii* Rock Emubush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Ptilotus obovatus var.	silver mulla mulla	94	14.94	34	1263	51	0.79
Sida petrophila	rock sida	89	22.84	32	815	46	0.76
Sclerolaena obliquicuspis	oblique-spined bindyi	72	9.52	26	1083	55	0.93
Solanum ellipticum/quadriloculatum		64	6.74	23	1121	50	0.52
Atriplex vesicaria ssp.	bladder saltbush	58	16.14	21	506	45	1.20
Enchylaena tomentosa var.	ruby saltbush	53	3.48	19	1189	59	0.56
Maireana astrotricha	low bluebush	50	9.88	18	570	31	1.44
Eremophila freelingii	rock emubush	50	8.24	18	643	33	0.83

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Senecio anethifolius*	feathery groundsel	8	18.23	3	11	7	0.37
Herb	*Isotoma petraea*	rock isotome	11	15.96	4	22	10	0.42
Low shrub	*Abutilon malvaefolium*	scrambling lantern-bush	6	7.98	2	11	6	0.50
Fern	*Cheilanthes lasiophylla*	woolly cloak-fern	33	6.15	12	395	26	0.51
Low shrub	*Prostanthera striatiflora*	striated mintbush	22	5.12	8	225	24	0.40
Grass	*Stipa petraea R*	Flinders Range spear-grass	3	4.41	1	5	5	0.50
Low shrub	*Cassinia arcuata U*	drooping cassinia	3	3.64	1	6	5	0.50
Herb	*Anacampseros australiana*	Australian anacampseros	3	2.69	1	8	7	0.50
Low shrub	*Maireana pyramidata*	black bluebush	33	2.42	12	722	50	0.68
Low shrub	*Zygophyllum aurantiacum* ssp.		17	2.31	6	245	46	0.96

LANDFORM	Frequency	(O-E)/E	%
Hills	22	1.83	3%
Low hills	10	0.37	2%
Rises	2	-0.54	1%
Plain	1	-0.88	0%
Mountains	1	-0.38	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	25	0.32	2%
ridge	4	5.44	8%
hill crest	4	0.75	2%
plain (incl undulating plain)	1	-0.90	0%
hill footslope	1	-0.58	1%
rock outcrop (on plain)	1	25.85	33%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	8	-0.06	1%
loam/sand	8	-0.10	1%
loam	6	1.27	3%
skeletal	2	0.26	1%
clay/sand	2	0.16	1%
clay/loam	1	-0.70	0%
clay	1	-0.44	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	8	2.25	4%
Low open shrubland	7	1.69	3%
Very open shrubland	6	4.69	7%
Open shrubland	3	1.41	3%
Low shrubland	2	0.85	2%
Very low open woodland	1	-0.52	1%
Shrubland	1	0.64	2%
very open grassland	1	1.75	3%
Tall shrubland	1	2.05	4%
(Tussock) grassland	1	1.13	3%
Closed herbland	1	9.66	13%

Group 8. *Maireana pyramidata* Black Bluebush/ *Maireana sedifolia* Pearl Bluebush/ *Ptilotus obovatus* Silver Mulla Mulla low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Maireana pyramidata	Black bluebush	89	26.36	32	722	50	0.81
Ptilotus obovatus var.	silver mulla mulla	78	8.71	28	1263	51	0.54
Maireana sedifolia	bluebush	69	46.22	25	278	31	0.88
Sclerolaena obliquicuspis	oblique-spined bindyi	61	6.04	22	1083	55	0.64
Sida petrophila	rock sida	47	4.98	17	815	46	0.49
Maireana astrotricha	low bluebush	44	7.32	16	570	31	1.27
Solanum ellipticum/quadriloculatum	Potato bush	42	1.65	15	1121	50	0.47

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Calotis erinacea*	tangled burr-daisy	8	28.39	3	7	5	0.5
Low shrub	*Eriochiton sclerolaenoides*	woolly-fruit bluebush	39	13.84	14	268	38	0.85
Low shrub	*Sclerolaena brachyptera*	short-wing bindyi	39	8.97	14	385	45	0.58
Herb	*Asphodelus fistulosus* *	onion weed	25	4.45	9	299	44	0.73
Low shrub	*Eremophila maculata* var. *maculata*	spotted emubush	3	4.32	1	5	4	0.5
Grass	*Stipa scabra* ssp.	rough spear-grass	31	3.83	11	459	55	0.57
Low shrub	*Sclerolaena patenticuspis*	spear-fruit bindyi	31	3.83	11	463	52	0.67
Low shrub	*Minuria cunninghamii*	bush minuria	14	2.75	5	155	38	0.44
Low shrub	*Zygophyllum eremaeum*	pale-flower twin-leaf	3	1.87	1	11	8	0.5
Low shrub	*Maireana spongiocarpa*	spongy-fruit bluebush	3	1.87	1	11	7	0.1

LANDFORM	Frequency	(O-E)/E	%
Low hills	13	0.78	2%
Plain	9	0.05	1%
Rises	6	0.39	2%
Hills	5	-0.36	1%
Flood plain	1	0.48	2%
Alluvial plain	1	-0.17	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	22	0.16	1%
plain (incl undulating plain)	8	-0.20	1%
hill footslope	4	0.66	2%
hill crest	2	-0.12	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	13	0.35	2%
loam/sand	12	0.20	2%
loam	4	0.34	2%
clay/loam	2	-0.48	1%
skeletal	1	-0.44	1%
clay/sand	1	-0.48	1%
clay	1	-0.51	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low open woodland	7	2.37	4%
Low open shrubland	6	1.31	3%
Low very open shrubland	4	0.62	2%
Low shrubland	4	2.71	4%
Very open shrubland	1	-0.05	1%
Closed herbland	1	9.66	13%
Tall very open shrubland	1	-0.62	0%

Group 9. *Callitris glaucophylla* White Cypress-pine +/- *Alectryon oleifolius* Bullock Bush open woodland with/or *Acacia victoriae* Elegant Wattle over *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	71	11.68	29	590	37	0.57
Alectryon oleifolius ssp. *canescens*	Bullock bush	66	6.42	27	760	52	0.44
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	88	4.61	36	1423	59	0.54
Acacia ligulata	Umbrella bush	44	15.81	18	202	41	0.62
Acacia calamifolia	wallowa	44	22.40	18	150	33	0.53
Shrub							
Senna artemisioides ssp.	desert senna	49	1.10	20	1043	53	0.47
Eremophila alternifolia	narrow-leaf emubush	44	7.91	18	341	34	0.46
Low shrub							
Ptilotus obovatus var.	silver mulla mulla	85	5.12	35	1263	51	0.42
Sida petrophila	rock sida	63	5.23	26	815	46	0.40
Solanum ellipticum/quadriloculatum	Potato bush	56	1.26	23	1121	50	0.56
Dodonaea lobulata	lobed-leaf hop-bush	56	9.26	23	471	39	0.37
Grass							
Cymbopogon ambiguus	lemon-grass	59	6.15	24	650	48	0.57
Herb							
Asphodelus fistulosus *	onion weed	66	24.22	27	299	44	0.55

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Low shrub	*Olearia pimeleoides* ssp.	pimelea daisy-bush	37	20.87	15	114	27	0.46
Low shrub	*Opuntia stricta* var. *stricta* *	erect prickly pear	7	12.90	3	8	6	0.67
Mat plant	*Commicarpus australis*	pink gum-fruit	10	9.30	4	19	8	0.30
Herb	*Marrubium vulgare* *	horehound	37	7.41	15	264	47	0.41
Low shrub	*Zygophyllum aurantiacum* ssp.		34	6.92	14	245	46	0.77
Tree	*Schinus areira* *	pepper-tree	7	6.64	3	15	8	0.50
Low shrub	*Solanum petrophilum*	rock nightshade	39	5.56	16	359	47	0.31
Tree	*Eucalyptus camaldulensis* var.	river red gum	29	5.49	12	221	32	0.96
Low shrub	*Olearia decurrens*	winged daisy-bush	34	5.12	14	304	32	0.45
Tall shrub	*Acacia rigens*	nealie	7	4.83	3	20	12	0.73

LANDFORM	Frequency	(O-E)/E	%
Hills	15	0.69	2%
Low hills	9	0.08	1%
Drainage line	7	3.42	6%
Rises	5	0.02	1%
Mountains	3	0.62	2%
Plain	2	-0.79	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	27	0.47	2%
depression	6	2.66	4%
hill crest	3	0.35	2%
plain (incl undulating plain)	2	-0.79	0%
rock outcrop (on hill)	1	15.57	20%
stream channel	1	0.22	1%
hill footslope	1	-0.57	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	15	0.28	2%
clay/loam/sand	13	0.15	2%
loam	4	0.15	2%
clay/sand	4	0.76	3%
clay/loam	3	-0.33	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	5	0.66	2%
low open woodland	5	2.47	5%
Open woodland	3	1.10	3%
Very low open woodland	1	-0.58	1%
Low very open shrubland	1	-0.64	0%
Low shrubland	1	-0.19	1%
Very open shrubland	1	-0.17	1%
Open shrubland	1	-0.29	1%
Very open mallee	1	-0.03	1%
Hummock grassland	1	3.99	7%
Low open forest	1	1.02	3%
Tall open shrubland	1	0.25	2%

Group 10. *Acacia victoriae* Elegant wattle open tall shrubland over *Asphodelus fistulosus* Onion Weed +/- *Zygophyllum aurantiacum* Shrubby Twin-leaf/ *Senecio magnificus* Showy Groundsel low shrubs.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	elegant wattle	94	8.71	17	1423	59	0.51
Shrub							
Senna artemisioides ssp.	desert senna	56	3.66	10	1043	53	0.48
Low shrub							
Zygophyllum aurantiacum ssp.	Shrubby Twin-leaf	56	21.78	10	245	46	0.74
Senecio magnificus	showy groundsel	56	10.07	10	487	42	0.35
Herb							
Asphodelus fistulosus *	onion weed	72	30.22	13	299	44	0.63

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub	*Acacia calamifolia*	wallowa	39	17.55	7	150	33	0.5
Herb	*Ixiolaena tomentosa*	woolly plover-daisy	17	12.79	3	39	21	0.1
Tall shrub	*Acacia rigens*	nealie	11	11.20	2	20	12	0.5
Herb	*Swainsona tephrotricha R 3RCa*	ashy-haired swainson-pea	11	6.44	2	34	11	0.1
Low shrub	*Pimelea stricta*	erect riceflower	6	6.24	1	9	5	0.1
Low shrub	*Solanum sturtianum*	Sturt's nightshade	28	4.39	5	273	28	0.52
Herb	*Vittadinia gracilis*	woolly New Holland daisy	17	2.20	3	191	38	0.4
Grass	*Cymbopogon ambiguus*	lemon-grass	33	2.09	6	650	48	0.93
Low shrub	*Atriplex angulata*	fan saltbush	11	1.76	2	109	27	0.55
Grass	*Stipa pilata K*	prickly spear-grass	6	1.74	1	30	18	0.5

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Low hills	5	0.37	1%
Rises	5	1.32	1%
Hills	2	-0.49	0%
Drainage line	2	1.88	2%
Mountains	2	1.46	1%
Flood plain	1	1.95	2%
Plain	1	-0.77	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	12	0.42	1%
plain (incl undulating plain)	4	-0.10	0%
depression	2	1.67	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	7	0.41	1%
loam/sand	2	-0.61	0%
clay/loam	2	0.02	1%
skeletal	2	1.17	1%
clay	2	0.92	1%
clay/sand	1	0.00	1%
sand	1	1.79	2%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	5	2.79	2%
Open woodland	2	2.19	2%
Very open (tussock) grassland	2	23.37	14%
low open woodland	1	0.58	1%
Very open shrubland	1	0.90	1%
Open shrubland	1	0.61	1%
Low open shrubland	1	-0.23	0%
(Tussock) grassland	1	3.27	3%
open herbland	1	8.48	6%

Group 11. *Acacia victoriae* Elegant Wattle open tall shrubland over *Cymbopogon ambiguus* lemon-grass/ *Ptilotus obovatus* Silver Mulla Mulla +/- *Callitris glaucophylla* White Cypress-pine/ *Acacia rivalis* Silver Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Callitris glaucophylla	white cypress-pine	65	48.83	58	590	37	0.93
Tall shrub							
Acacia victoriae ssp.	elegant wattle	90	32.21	80	1423	59	0.67
Acacia rivalis	silver wattle	56	78.70	50	295	26	0.68
Low shrub							
Ptilotus obovatus var.	silver mulla mulla	71	20.76	63	1263	51	0.54
Solanum ellipticum/quadriloculatum	Potaato bush	66	21.60	59	1121	50	0.64
Grass							
Cymbopogon ambiguus	lemon-grass	88	82.80	78	650	48	0.88

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Low shrub	*Dodonaea lobulata*	lobed-leaf hop-bush	39	20.50	35	471	39	0.64
Low shrub	*Senecio magnificus*	showy groundsel	37	16.91	33	487	42	0.46
Grass	*Aristida nitidula*	brush threeawn	29	9.99	26	474	39	0.68
Low shrub	*Solanum petrophilum*	rock nightshade	21	6.96	19	359	47	0.47
Shrub	*Cassinia laevis*	curry bush	20	5.27	18	392	35	0.46
Tall shrub	*Acacia tetragonophylla*	dead finish	31	5.12	28	811	37	0.44
Low shrub	*Hakea ednieana*	Flinders Ranges corkwood	15	4.28	13	262	23	0.46
Fern	*Cheilanthes lasiophylla*	woolly cloak-fern	17	3.29	15	395	26	0.47
Shrub	*Senna artemisioides* ssp.	desert senna	33	3.18	29	1043	53	0.59
Low shrub	*Chrysocephalum semicalvum* ssp. *semicalvum*	scented button-bush	17	3.02	15	413	27	0.47
Herb	*Swainsona phacoides*	dwarf swainson-pea	2	2.82	2	13	8	0.1

LANDFORM	Frequency	(O-E)/E	%
Hills	32	0.70	5%
Low hills	29	0.64	5%
Rises	16	0.54	4%
Plain	5	-0.76	1%
Drainage line	3	-0.11	3%
Mountains	2	-0.49	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	66	0.51	4%
hill footslope	8	0.44	4%
hill crest	4	-0.24	2%
depression	4	0.03	3%
plain (incl undulating plain)	3	-0.87	0%
stony plain	1	0.66	5%
ridge	1	-0.30	2%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	25	0.09	3%
clay/loam/sand	22	0.00	3%
skeletal	16	2.91	11%
clay/sand	5	0.13	3%
not recorded	5	0.05	3%
clay	4	-0.14	3%
clay/loam	2	-0.77	1%
loam	1	-0.85	0%

Appendix 9. (continued)

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	17	1.64	8%
Open (tussock) grassland	7	6.63	22%
Very open shrubland	6	1.33	7%
Low open shrubland	6	-0.06	3%
low open woodland	5	0.62	5%
Open shrubland	4	0.32	4%
Very low open woodland	4	-0.21	2%
Low very open shrubland	4	-0.34	2%
Very open (tussock) grassland	3	6.48	21%
Open woodland	2	-0.35	2%
Woodland	2	-0.03	3%
Very low woodland	2	0.25	4%
open herbland	1	0.94	6%
Low shrubland	1	-0.62	1%
Very open mallee	1	-0.55	1%
Hummock grassland	1	1.33	7%
Tall open shrubland	1	-0.42	2%
Shrubland	1	-0.33	2%
very open grassland	1	0.13	3%
Low woodland	1	-0.60	1%
Open hummock grassland	1	10.63	33%
Herbland	1	0.74	5%
Open forest	1	-0.06	3%

Group 12. *Callitris glaucophylla* White Cypress-pine +/- *Eucalyptus intertexta* Gum-barked Coolibah open woodland over *Stipa scabra* Rough Spear-grass/ *Cymbopogon ambiguus* Lemon-grass/ *Danthonia caespitosa* Common Wallaby-grass.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Callitris glaucophylla	white cypress-pine	100	70.67	39	590	37	0.72
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	100	24.98	39	1423	59	0.57
Low shrub							
Sclerolaena patenticuspis	spear-fruit bindyi	44	15.87	17	463	52	0.74
Grass							
Stipa scabra ssp.	rough spear-grass	67	39.97	26	459	55	0.57
Cymbopogon ambiguus	lemon-grass	51	15.01	20	650	48	0.9
Danthonia caespitosa	common wallaby-grass	49	14.26	19	616	57	0.68

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree	*Eucalyptus intertexta*	gum-barked coolibah	26	12.26	10	214	24	0.6769
Herb	*Asphodelus fistulosus* *	onion weed	26	8.24	10	299	44	0.9545
Tall shrub	*Nicotiana glauca* *	tree tobacco	8	5.00	3	49	20	0.5
Grass	*Aristida holathera* var. *holathera*	tall kerosene grass	3	4.15	1	7	6	1
Tall shrub	*Acacia calamifolia*	wallowa	13	4.12	5	150	33	0.3666
Hummock grass	*Triodia irritans complex*	spinifex	23	3.79	9	458	36	0.8666
Low shrub	*Dodonaea lobulata*	lobed-leaf hop-bush	23	3.62	9	471	39	0.5
Low shrub	*Ptilotus spathulatus forma*	pussy-tails	13	3.11	5	187	28	0.26
Herb	*Marrubium vulgare* *	horehound	15	3.07	6	264	47	0.4428
Tall shrub	*Acacia rivalis*	silver wattle	15	2.64	6	295	26	0.9333
Low shrub	*Ptilotus obovatus* var.	silver mulla mulla	31	1.32	12	1263	51	0.4214
Low shrub	*Solanum petrophilum*	rock nightshade	13	1.19	5	359	47	0.3666

LANDFORM	Frequency	(O-E)/E	%
Low hills	18	1.33	3%
Hills	5	-0.39	1%
Rises	5	0.10	1%
Plain	5	-0.44	1%
Alluvial plain	3	1.36	3%
Drainage line	2	0.36	2%

LAND UNIT	Frequency	(O-E)/E	%
Hill slope	24	0.34	2%
Hill crest	4	0.85	2%
Depression	4	1.51	3%
Plain (incl undulating plain)	4	-0.58	0%
Hill footslope	2	-0.12	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	9	0.12	1%
Clay/loam/sand	8	0.04	1%
Clay/loam	4	0.31	1%
loam	4	0.68	2%
skeletal	1	-0.30	1%
clay/sand	1	-0.36	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
low open woodland	11	7.23	10%
Tall very open shrubland	8	1.87	4%
Open woodland	3	1.27	3%
Open (tussock) grassland	1	1.53	3%
Very open shrubland	1	-0.10	1%
Very low open woodland	1	-0.54	1%
Woodland	1	0.12	1%
Very low woodland	1	0.44	2%
open herbland	1	3.49	6%
Very open mallee	1	0.05	1%
very open grassland	1	1.61	3%
Low woodland	1	-0.07	1%

Appendix 9. (continued)

Group13. *Cymbopogon ambiguus* Lemon-grass with *Senecio magnificus* Showy Groundsel +/- *Callitris glaucophylla* White Cypress-pine/ *Melaleuca lanceolata* Dryland Tea-tree/ Mallee spp. overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Callitris glaucophylla	white cypress-pine	67	5.42	4	590	37	1.25
Tall shrub							
Melaleuca lanceolata ssp. *lanceolata*	dryland tea-tree	50	18.56	3	107	34	0.4
Acacia calamifolia	wallowa	50	13.07	3	150	33	0.65
Low shrub							
Senecio magnificus	showy groundsel	100	15.70	6	487	42	0.7
Zygophyllum aurantiacum ssp.		50	7.80	3	245	46	1.33
Grass							
Cymbopogon ambiguus	lemon-grass	100	11.53	6	650	48	1.26
Herb							
Marrubium vulgare *	horehound	67	13.03	4	264	47	1.1

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mallee	*Eucalyptus dumosa*	white mallee	17	3.20	1	67	19	0.5
Mallee	*Eucalyptus socialis*	beaked red mallee	33	2.38	2	329	39	0.5
Shrub	*Eremophila alternifolia*	narrow-leaf emubush	33	2.31	2	341	34	0.5
low shrub	*Sauropus rigens*	stiff spurge	17	1.35	1	147	21	0.1

LANDFORM	Frequency	(O-E)/E	%
Rises	3	3.17	1%
Low hills	2	0.64	0%
Hills	1	-0.23	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	6	0.90	0%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	2	0.82	0%
clay/loam	1	1.29	0%
Skeletal	1	3.89	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open (tussock) grassland	1	14.99	3%
Very open shrubland	1	4.69	1%
Very low open woodland	1	1.89	1%
Very low woodland	1	8.14	2%
Low open shrubland	1	1.31	0%

Group 14. *Acacia victoriae* Elegant Wattle tall shrubs +/- *Eucalyptus camaldulensis* River Red Gum/ *Melaleuca glomwerata* Inland Paper-bark woodland over *Malvastrum americanum* Malvastrum/ *Ptilotus obovatus* Silver Mulla Mulla/ *Enchylaena tomentosa* Ruby Saltbush/ *Solanum* spp. Potato Bush/ *Pterocaulon sphacelatum* Apple-bush low shrubs and *Cymbopogon ammbiguus* Lemon-grass.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Eucalyptus camaldulensis var.	river red gum	60	40.93	52	221	32	1.29
Melaleuca glomerata	inland paper-bark	55	64.52	47	125	21	1.21
Tall shrub							
Acacia victoriae ssp.	elegant wattle	87	2.75	75	1423	59	0.59
Acacia tetragonophylla	dead finish	60	3.81	52	811	37	0.51
Shrub							
Senna artemisioides ssp.	desert senna	51	0.00	44	1043	53	0.48
Low shrub							
Malvastrum americanum	malvastrum	74	41.00	64	319	22	0.46
Ptilotus obovatus var.	silver mulla mulla	72	1.13	62	1263	51	0.42
Enchylaena tomentosa var.	ruby saltbush	71	2.23	61	1189	59	0.49
Solanum ellipticum/quadriloculatum		71	2.23	61	1121	50	0.38
Pterocaulon sphacelatum	apple-bush	70	74.68	60	173	22	0.40
Sida fibulifera	pin sida	64	12.08	55	557	38	0.41
Abutilon leucopetalum	desert lantern-bush	63	28.66	54	314	26	0.42
Sida petrophila	rock sida	58	3.66	50	815	46	0.61
Dissocarpus paradoxus	ball bindyi	51	10.47	44	432	47	0.45
Senecio magnificus	showy groundsel	48	6.75	41	487	42	0.35

Appendix 9. (continued)

Sclerolaena obliquicuspis	oblique-spined bindyi	47	-1.46	40	1083	55	0.56
Solanum sturtianum	Sturt's nightshade	44	14.61	38	273	28	0.39
Grass							
Cymbopogon ambiguus	lemon-grass	74	14.06	64	650	48	0.56
Aristida nitidula	brush threeawn	42	4.61	36	474	39	0.31
Vine							
Convolvulus remotus	grassy bindweed	47	2.93	40	656	57	0.28
Mistletoe							
Lysiana exocarpi ssp. *exocarpi*	harlequin mistletoe	49	9.22	42	438	46	0.28

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Pluchea dentex*	bowl daisy	20	48.85	17	23	5	0.48
Tall shrub	*Melaleuca dissitiflora*		15	26.65	13	24	7	0.77
Tall shrub	*Petalostylis labicheoides*	butterfly bush	13	25.77	11	18	8	0.17
Herb	*Wahlenbergia communis*	tufted bluebell	33	19.47	28	133	32	0.23
Low shrub	*Trichodesma zeylanicum*	camel bush	27	18.10	23	98	13	0.13
Herb	*Heliotropium asperrimum*	rough heliotrope	13	15.30	11	29	13	0.14
Low shrub	*Lavatera plebeia*	Australian hollyhock	9	14.06	8	17	9	0.34
Herb	*Glossogyne tannensis*	native cobbler's-pegs	9	14.06	8	17	8	0.27
Sedge	*Cyperus gymnocaulos*	spiny flat-sedge	14	13.84	12	37	11	0.62
Mat plant	*Boerhavia dominii*	tar-vine	40	12.45	34	253	31	0.40

LANDFORM	Frequency	(O-E)/E	%
Drainage line	29	7.94	24%
Low hills	12	-0.30	2%
Rises	10	-0.01	3%
Plain	9	-0.55	1%
Mountains	8	1.11	6%
Flood plain	7	3.43	12%
Hills	6	-0.67	1%
Alluvial plain	3	0.07	3%

LAND UNIT	Frequency	(O-E)/E	%
depression	28	10.27	21%
stream channel	20	15.09	29%
hill slope	19	-0.32	1%
plain (incl undulating plain)	9	-0.39	1%
gorge	2	53.72	100%
hill footslope	2	-0.44	1%
flood out	1	2.22	6%
swamp	1	26.36	50%
rock outcrop (on hill)	1	9.94	20%
hill crest	1	-0.70	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	32	0.38	4%
clay/loam/sand	18	-0.19	2%
clay/sand	10	1.23	7%
sand	8	3.95	15%
skeletal	5	0.21	4%
not recorded	4	-0.17	2%
clay/loam	3	-0.66	1%
clay	1	-0.79	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
not recorded	40	0.91	5%
Low woodland	9	2.78	10%
Tall very open shrubland	7	0.14	3%
Open woodland	7	1.39	7%
Tall open shrubland	7	3.27	12%
Woodland	5	1.54	7%
low open woodland	2	-0.32	2%
Very low open woodland	1	-0.79	1%
very open grassland	1	0.18	3%
Open shrubland	1	-0.66	1%
Low open forest	1	-0.01	3%
Tall shrubland	1	0.31	4%
very open woodland	1	8.14	25%
Closed shrubland	1	8.14	25%

Group 15. *Eucalyptus camaldulensis* River Redgum Woodland +/- *Melaleuca glomerata* Inland Paper-bark/ *Acacia victoriae* Elegant Wattle over *Cymbopogon ambiguus* Lemon-grass +/- shrubs, sedges and herbs.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Eucalyptus camaldulensis var.	river red gum	100	66.72	27	221	32	1.23
Melaleuca glomerata	inland paper-bark	67	53.04	18	125	21	1.29
Tall shrub							
Acacia victoriae ssp.	elegant wattle	70	2.09	19	1423	59	0.59
Low shrub							
Senecio magnificus	showy groundsel	56	7.41	15	487	42	0.37
Enchylaena tomentosa var.	ruby saltbush	48	0.71	13	1189	59	0.48

Appendix 9. (continued)

Solanum sturtianum	Sturt's nightshade	44	9.22	12	273	28	0.30
Sedge							
Cyperus gymnocaulos	spiny flat-sedge	48	96.84	13	37	11	0.52
Grass							
Cymbopogon ambiguus	lemon-grass	70	8.69	19	650	48	0.57
Herb							
Marrubium vulgare *	Horehound	48	11.42	13	264	47	0.35

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Grass	*Typha orientalis*	broad-leaf bulrush	30	172.49	8	8	1	0.76
Sedge	*Schoenoplectus litoralis*	shore club-rush	11	38.60	3	5	3	0.83
Herb	*Ajuga australis form*	Australian bugle	30	34.26	8	39	17	0.41
Sedge	*Cyperus vaginatus*	stiff flat-sedge	19	12.63	5	40	14	0.70
Herb	*Cotula coronopifolia* *	water buttons	7	12.04	2	7	5	0.30
Sedge	*Juncus kraussii*	sea rush	7	12.04	2	7	5	0.75
Low shrub	*Atriplex eichleri R 3R*	Eichler's saltbush	11	11.70	3	16	9	0.23
Grass	*Cynodon dactylon* *	couch	7	10.51	2	8	6	0.30
Grass	*Polypogon viridis* *	water bent	7	10.51	2	8	6	0.30
Tall shrub	*Nicotiana glauca* *	tree tobacco	19	10.16	5	49	20	0.70

LANDFORM	Frequency	(O-E)/E	%
Drainage line	20	18.17	17%
Mountains	2	0.64	1%
Hills	2	-0.66	0%
Low hills	1	-0.82	0%
Flood plain	1	0.97	2%
Alluvial plain	1	0.11	1%

LAND UNIT	Frequency	(O-E)/E	%
depression	17	35.25	13%
stream channel	6	24.59	9%
plain (incl undulating plain)	3	0.08	0%
hill slope	1	-0.81	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	12	0.55	2%
clay/sand	5	2.34	3%
clay/loam/sand	3	-0.60	0%
not recorded	3	0.86	2%
sand	2	2.72	4%
skeletal	1	-0.28	1%
clay/loam	1	-0.66	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
not recorded	13	0.94	2%
Open woodland	8	7.50	7%
Woodland	3	3.74	4%
Shrubland	1	1.19	2%
Open forest	1	2.07	3%
open mallee	1	0.37	1%

Group 16. *Alectryon oleifolius* Bullock Bush/ *Acacia victoriae* Elegant Wattle very low open woodland/tall shrubland over *Sclerolaena obliquicuspis* Oblique-spined Bindyi dwarf-shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	bullock bush	74	22.84	39	760	52	0.52
Tall shrub							
Acacia victoriae ssp.	elegant wattle	81	11.81	43	1423	59	0.5347
Low shrub							
Sclerolaena obliquicuspis	oblique-spined bindyi	66	10.25	35	1083	55	0.6263
Mistletoe							
Lysiana exocarpi ssp. *exocarpi*	harlequin mistletoe	66	35.23	35	438	46	0.2142

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Pimelea elongata*		6	18.72	3	7	4	0.8333
Low shrub	*Frankenia subteres K 2K*		6	10.71	3	12	6	0.5333
Low shrub	*Sida intricata*	twiggy sida	26	8.20	14	273	41	0.2470
Mallee	*Eucalyptus socialis*	beaked red mallee	28	7.41	15	329	39	0.6777
Herb	*Wahlenbergia tumidifructa*	swollen-fruit bluebell	8	7.03	4	31	12	0.2
Low shrub	*Dissocarpus paradoxus*	ball bindyi	32	6.85	17	432	47	0.45
Tall shrub	*Nicotiana glauca* *	tree tobacco	9	6.77	5	49	20	0.42
Mat plant	*Boerhavia dominii*	tar-vine	23	6.37	12	253	31	0.3666
Herb	*Swainsona tephrotricha R 3RCa*	ashy-haired swainson-pea	8	6.30	4	34	11	0.55

Appendix 9. (continued)

Low shrub	*Sclerolaena patenticuspis*	spear-fruit bindyi	32	6.22	17	463	52	0.705

LANDFORM	Frequency	(O-E)/E	%
Low hills	20	0.86	3%
Rises	11	0.73	3%
Plain	11	-0.12	2%
Drainage line	5	1.44	4%
not recorded	2	-0.42	1%
Flood plain	2	1.00	3%
Dunefield	1	0.87	3%
Alluvial plain	1	-0.44	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	27	0.11	2%
plain (incl undulating plain)	11	-0.14	1%
hill footslope	7	1.27	4%
depression	6	1.78	4%
dune	1	2.15	5%
Stony plain	1	2.00	5%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	18	0.31	2%
loam/sand	15	0.05	2%
clay/loam	6	0.10	2%
skeletal	3	0.17	2%
clay	3	0.03	2%
clay/sand	2	-0.28	1%
loam	2	-0.53	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low open woodland	12	2.93	7%
Tall very open shrubland	9	1.32	4%
Low open shrubland	4	0.04	2%
Very open mallee	3	1.26	4%
Open woodland	2	0.08	2%
Herbland	2	4.79	10%
very open herbland	2	3.64	8%
open mallee	1	-0.30	1%
low open woodland	1	-0.46	1%
very open grassland	1	0.87	3%
open herbland	1	2.22	6%
Low very open shrubland	1	-0.72	0%

Group 17. *Sida petrophila* Rock Sida and *Sclerolaena obliquicuspis* Oblique-spined Bindyi low shrubland with emergent *Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle tall shrubs.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia tetragonophylla	Dead finish	86	5.38	6	811	37	0.27
Acacia victoriae ssp.	Elegant wattle	71	1.65	5	1423	59	0.4
Shrub							
Eremophila alternifolia	narrow-leaf emubush	43	3.29	3	341	34	0.3
Low shrub							
Sida petrophila	rock sida	100	7.43	7	815	46	0.41
Sclerolaena obliquicuspis	oblique-spined bindyi	100	5.25	7	1083	55	0.75
Maireana astrotricha	low bluebush	43	1.76	3	570	31	1.75
Grass							
Stipa nitida	Balcarra spear-grass	43	1.87	3	536	58	1.025
Vine							
Convolvulus remotus	grassy bindweed	57	2.78	4	656	57	0.1
Herb							
Pimelea simplex ssp.	desert riceflower	57	7.83	4	270	33	0.775

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Maireana tomentosa* ssp. *urceolata*		29	15.30	2	37	15	0.75
Herb	*Senecio lautus*	variable groundsel	29	8.57	2	65	24	0.5
Low shrub	*Lavatera plebeia*	Australian hollyhock	14	8.35	1	17	9	0.1
Low shrub	*Sida cunninghamii*	ridge sida	14	3.11	1	44	13	0.1
Tall shrub	*Eremophila scoparia*	broom emubush	14	1.45	1	89	23	0.1
Low shrub	*Sclerolaena limbata*	pearl bindyi	29	1.39	2	330	29	0.1
Low shrub	*Sclerolaena divaricata*	tangled bindyi	29	1.02	2	421	32	0.1

LANDFORM	Frequency	(O-E)/E	%
Low hills	4	1.82	1%
Rises	2	1.38	1%
Plain	1	-0.40	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	4	0.09	0%
hill crest	2	3.50	1%
plain (incl undulating plain)	1	-0.49	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam	2	4.87	1%
clay/loam	1	1.29	0%
not recorded	1	3.18	1%

VEGETATION STRUCTURE Frequency (O-E)/E %

Appendix 9. (continued)

Low very open shrubland	2	3.18	1%	Low open shrubland	1	0.98	0%
Very open shrubland	2	8.75	2%	Low shrubland	1	3.77	1%
Not recorded	1	-0.43	0%				

Group 18. *Sclerolaena patenticuspis* Spear-fruit Bindyi/ *Solanum* spp. Potato Bush dwarf-shrubland +/- *Acacia victoriae* Elegant Wattle tall shrub overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	elegant wattle	72	7.85	33	1423	59	0.51
Low shrub							
Sclerolaena patenticuspis	spear-fruit bindyi	78	42.83	36	463	52	0.88
Solanum ellipticum/quadriloculatum		70	10.54	32	1121	50	0.61
Sclerolaena obliquicuspis	oblique-spined bindyi	61	7.69	28	1083	55	0.64
Ptilotus obovatus var.	silver mulla mulla	46	2.31	21	1263	51	0.51
Grass							
Cymbopogon ambiguus	lemon-grass	59	14.83	27	650	48	0.42

d	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Zygophyllum aurantiacum* ssp.		28	9.76	13	245	46	1.46
Mat plant	*Boerhavia dominii*	tar-vine	28	9.52	13	253	31	0.27
Grass	*Aristida nitidula*	brush threeawn	35	6.74	16	474	39	0.70
Grass	*Danthonia caespitosa*	common wallaby-grass	39	5.93	18	616	57	1.03
Low shrub	*Sida corrugata* var.	corrugated sida	30	4.87	14	469	50	0.78
Herb	*Pimelea simplex* ssp.	desert riceflower	22	4.76	10	270	33	1.06
Low shrub	*Sida intricata*	twiggy sida	22	4.76	10	273	41	0.36
Grass	*Stipa nitida*	Balcarra spear-grass	33	4.67	15	536	58	1.36
Herb	*Arabidella trisecta*	shrubby cress	13	4.17	6	122	31	0.6

LANDFORM	Frequency	(O-E)/E	%
Low hills	15	0.68	2%
Plain	13	0.25	2%
Rises	9	0.71	2%
Hills	4	-0.58	1%
Alluvial plain	3	1.04	3%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	23	0.02	2%
plain (incl undulating plain)	13	0.09	2%
hill crest	4	0.47	2%
hill footslope	3	0.04	2%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	7	0.27	1%
clay/loam	3	0.37	1%
loam/sand	3	-0.48	0%
loam	2	0.17	1%
clay	2	0.72	1%
skeletal	1	-0.02	1%
clay/sand	1	-0.10	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	6	0.86	3%
Low very open shrubland	4	0.33	2%
very open grassland	4	8.01	13%
Low shrubland	3	1.28	3%
Low open shrubland	2	-0.37	1%
Very low open woodland	2	-0.21	1%
Herbland	2	5.98	10%
Tall open shrubland	2	1.33	3%
open grassland	2	12.96	20%
Open woodland	1	-0.35	1%
very open herbland	1	1.79	4%
open herbland	1	2.88	6%
Open (tussock) grassland	1	1.18	3%

Group 19. *Acacia victoriae* Elegant Wattle/ *Acacia tetragonophylla* Dead Finish/ *Eremophila duttonii* Harlequin Emubush/ *Acacia ligulata* Umbrella Bush tall shrubland with *Senna artemisioides* Desert Senna over *Sida fibulifera* Pin Sida/ *Rhagodia spinescens* Spiny Saltbush/ *Eragrostis eriopoda* Woolybutt.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	50	0.00	7	1423	59	0.76
Acacia tetragonophylla	Dead finish	50	0.90	7	811	37	0.61
Acacia ligulata	Umbrella bush	43	5.38	6	202	41	0.32
Shrub							
Senna artemisioides ssp.	Desert senna	71	1.65	10	1043	53	0.80
Eremophila duttonii	Harlequin emubush	50	6.66	7	223	27	0.71

Appendix 9. (continued)

Low shrub							
Sida fibulifera	Pin sida	71	4.58	10	557	38	0.96
Rhagodia spinescens	Spiny saltbush	64	2.14	9	786	53	1.24
Solanum ellipticum/quadriloculatum	Potato bush	43	0.11	6	1121	50	0.52
Sclerolaena diacantha	grey bindyi	43	2.20	6	389	51	0.85
Ptilotus obovatus var.	silver mulla mulla	43	-0.11	6	1263	51	0.70
Maireana aphylla	cotton-bush	43	7.03	6	159	28	1.75
Enchylaena tomentosa var.	ruby saltbush	43	0.00	6	1189	59	0.60
Grass							
Eragrostis eriopoda	woollybutt	64	102.79	9	28	10	1.50
Vine							
Convolvulus remotus	grassy bindweed	43	0.88	6	656	57	0.32
Herb							
Pimelea simplex ssp.	desert riceflower	57	7.03	8	270	33	0.58

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Grass	*Cenchrus ciliaris* *	buffel grass	29	47.37	4	12	4	0.33
Herb	*Swainsona phacoides*	dwarf swainson-pea	29	43.71	4	13	8	0.63
Herb	*Minuria denticulata*	woolly minuria	14	23.68	2	6	4	1.03
Low shrub	*Hibiscus krichauffianus*	velvet-leaf hibiscus	21	18.56	3	17	11	1.33
Low shrub	*Scaevola parvibarbata*	small-beard fanflower	21	18.56	3	17	9	1.00
Low shrub	*Abutilon otocarpum*	desert lantern-bush	14	14.06	2	10	8	1.00
Low shrub	*Sclerolaena bicornis*	goathead bindyi	14	10.73	2	13	7	0.50
Low shrub	*Cullen australasicum*	tall scurf-pea	29	10.62	4	51	17	0.78
Shrub	*Eremophila sturtii*	turpentine bush	29	6.59	4	79	17	0.53
Low shrub	*Maireana lobiflora*	lobed bluebush	14	5.64	2	24	10	0.30

LANDFORM	Frequency	(O-E)/E	%
Plain	11	1.73	2%
Dunefield	2	10.69	6%
Sand plain	1	7.24	5%
Drainage line	1	0.52	1%
Flood plain	1	2.12	2%
Rises	1	-0.51	0%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	9	1.70	1%
dune	3	35.25	15%
hill crest	3	2.94	2%
depression	2	2.55	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	4	0.21	1%
loam/sand	2	-0.42	0%
clay	2	1.87	1%
sand	2	7.36	4%
skeletal	1	0.63	1%
clay/sand	1	0.50	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low open shrubland	2	0.63	1%
Very open shrubland	2	3.01	2%
Open shrubland	2	2.41	2%
Tall very open shrubland	1	-0.20	0%
Low very open shrubland	1	-0.14	0%
very open grassland	1	4.83	3%
Low shrubland	1	0.96	1%
Tall open shrubland	1	2.01	2%
Open woodland	1	0.69	1%

Group 20. *Acacia ligulata* Umbrella Bush tall shrubland +/- *Acacia tetragonophylla* Dead Finish over *Phyllanthus fuernrohrii* Sand Spurge/ *Atriplex stipitata* Bitter Saltbush/ *Aristida holathera* Kerosene Grass.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia ligulata	Umbrella bush	100	16.58	3	202	41	1.5
Acacia tetragonophylla	Dead finish	67	1.54	2	811	37	0.5
Low shrub							
Phyllanthus fuernrohrii	Sand spurge	67	256.03	2	6	4	1
Atriplex stipitata	Bitter saltbush	67	6.96	2	210	41	0.75
Grass							
Aristida holathera var. *holathera*	Tall kerosene grass	67	219.42	2	7	6	1.25

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Rosa canina* *	Dog rose	33	76.75	1	5	4	1
Low shrub	*Crotalaria eremaea* ssp.	Loose-flowered rattlepod	33	54.76	1	7	5	1
Low shrub	*Abutilon otocarpum*	desert lantern-bush	33	38.27	1	10	8	0.5
Grass	*Triraphis mollis*	purple plume grass	33	9.43	1	40	15	0.5
tree	*Acacia pycnantha*	golden wattle	33	2.82	1	128	17	1
tree	*Allocasuarina verticillata*	drooping sheoak	33	2.25	1	158	20	1
low shrub	*Pterocaulon sphacelatum*	apple-bush	33	2.03	1	173	22	0.5
low shrub	*Scaevola spinescens*	spiny fanflower	33	2.00	1	177	30	0.1
tall shrub	*Lycium ferocissimum* *	African boxthorn	33	1.72	1	202	30	1
shrub	*Dodonaea viscosa* ssp.	sticky hop-bush	33	1.01	1	322	42	2

LANDFORM	Frequency	(O-E)/E	%
Dunefield	2	65.24	6%
not recorded	1	4.16	1%

LAND UNIT	Frequency	(O-E)/E	%
swale	1	289.00	20%
hill footslope	1	6.47	1%
dune	1	71.50	5%

SURFACE SOIL	Frequency	(O-E)/E	%
sand	1	15.72	2%
loam	1	2.91	0%
not recorded	1	4.57	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very open shrubland	1	10.37	1%
Tall open shrubland	1	16.06	2%
Very low open woodland	1	4.78	1%

Group 21. *Acacia aneura* Mulga low woodland +/- *Acacia ligulata* Umbrella Bush over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Acacia aneura var.	mulga	88	17.68	14	551	37	0.5294
Tall shrub							
Acacia ligulata	umbrella bush	50	16.69	8	202	41	0.8125
Shrub							
Senna artemisioides ssp.	desert senna	44	1.41	7	1043	53	0.9
Low shrub							
Enchylaena tomentosa var.	ruby saltbush	69	3.83	11	1189	59	0.3545
Sclerolaena obliquicuspis	oblique-spined bindyi	50	1.90	8	1083	55	0.53
Sida fibulifera	pin sida	44	3.72	7	557	38	0.2222
Mistletoe							
Amyema maidenii ssp. *maidenii*	pale-leaf mistletoe	50	15.81	8	212	19	0.2

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Crotalaria eremaea* ssp.	loose-flowered rattlepod	19	72.92	3	7	5	0.3
Low shrub	*Sclerolaena decurrens*	green bindyi	13	14.86	2	15	9	0.3
Tree	*Santalum spicatum K*	Sandalwood	13	13.91	2	16	10	0.5
Mat plant	*Commicarpus australis*	pink gum-fruit	13	11.68	2	19	8	0.1
Tall shrub	*Acacia burkittii*	pin-bush wattle	13	8.09	2	27	13	0.5
Low shrub	*Abutilon otocarpum*	desert lantern-bush	6	5.53	1	10	8	0.1
Grass	*Triraphis mollis*	purple plume grass	13	5.34	2	40	15	0.05
Low shrub	*Melhania oblongifolia*	velvet hibiscus	6	4.21	1	13	8	1
Low shrub	*Sclerolaena limbata*	pearl bindyi	31	3.39	5	330	29	0.6
Low shrub	*Hakea leucoptera* ssp. *leucoptera*	silver needlewood	13	3.33	2	62	23	0.3

LANDFORM	Frequency	(O-E)/E	%
Dunefield	5	32.12	16%
Hills	4	0.23	1%
Plain	3	-0.16	0%
Alluvial plain	2	2.99	2%
Rises	1	-0.44	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	7	0.02	0%
plain (incl undulating plain)	5	0.39	1%
dune	2	21.31	10%
hill crest	1	0.21	1%

Appendix 9. (continued)

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	5	0.16	1%
sand	4	12.38	7%
clay/sand	3	2.61	2%
skeletal	2	1.61	1%
clay/loam/sand	1	-0.76	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low open woodland	4	3.63	2%
not recorded	3	-0.20	0%
Very open shrubland	2	3.55	2%
Low very open shrubland	2	0.95	1%
Tall open shrubland	1	2.41	2%
Tall very open shrubland	1	-0.09	0%
low open woodland	1	0.90	1%
Shrubland	1	2.94	2%

Group 22. *Rhagodia spinescens* Rhagodia Spinescens low shrubland over *Malvastrum americanum* Malvastrum +/- emergent *Acacia victoriae* Elegant Wattle/ *Acacia salicina* Willow Wattle/ *Eucalyptus camaldulensis* River Red Gum.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	elegant wattle	56	2.82	14	1423	59	0.75
Low shrub							
Rhagodia spinescens	spiny saltbush	80	16.47	20	786	53	0.49
Malvastrum americanum	malvastrum	68	32.67	17	319	22	0.55
Enchylaena tomentosa var.	ruby saltbush	44	2.01	11	1189	59	0.56

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree	*Acacia salicina*	willow wattle	32	113.48	8	22	9	0.57
Grass	*Enteropogon acicularis*	umbrella grass	36	49.91	9	62	21	0.66
Low shrub	*Maireana villosa*	silky bluebush	8	31.26	2	5	3	0.1
Low shrub	*Atriplex limbata*	spreading saltbush	16	15.89	4	38	16	0.2
Herb	*Tribulus eichlerianus*	Eichler's caltrop	12	15.59	3	22	6	0.5
Low shrub	*Maireana aphylla*	cotton-bush	32	14.50	8	159	28	0.99
Tree	*Eucalyptus camaldulensis* var.	river red gum	36	12.85	9	221	32	1.05
Low shrub	*Senecio cunninghamii* var.	shrubby groundsel	8	8.42	2	18	12	0.3
Low shrub	*Sclerolaena diacantha*	grey bindyi	40	8.42	10	389	51	0.61
Herb	*Cullen patens*	spreading scurf-pea	4	6.41	1	6	3	0.1

LANDFORM	Frequency	(O-E)/E	%
Plain	9	0.58	1%
Flood plain	6	12.28	10%
Drainage line	3	2.24	3%
Alluvial plain	2	1.49	2%
Rises	2	-0.30	1%
Low hills	1	-0.79	0%
not recorded	1	-0.36	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	13	1.75	2%
depression	4	4.02	3%
flood out	3	29.10	18%
stream channel	2	4.02	3%
hill slope	1	-0.89	0%
hill crest	1	-0.07	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	7	0.02	1%
clay/loam	7	1.57	2%
loam/sand	3	-0.58	0%
clay	3	1.07	2%
clay/sand	1	-0.28	1%
loam	1	-0.53	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	3	0.71	1%
Woodland	3	4.33	4%
Tall open shrubland	2	3.27	3%
Very low open woodland	1	-0.28	1%
Very open shrubland	1	0.42	1%
Low very open shrubland	1	-0.39	0%
low open woodland	1	0.18	1%
Low open shrubland	1	-0.42	0%
Open shrubland	1	0.21	1%
Low shrubland	1	0.39	1%
Open woodland	1	0.20	1%
Tall closed shrubland	1	62.98	50%

Appendix 9. (continued)

Group 23. *Acacia victoriae* Elegant Wattle open tall shrubland +/- *Senna artemisioides* Desert Senna/ *Eremophila duttonii* Harlequin Emubush over *Rhagodia spinescens* Spiny Saltbush/ *Sclerolaena limbata* Pearl Bindyi +/- *Maireana pyramidata* Black Bluebush/ *Maireana astrotricha* Low Bluebush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	79	18.78	114	1423	59	0.51
Shrub							
Senna artemisioides ssp.	Desert senna	59	15.56	85	1043	53	0.57
Eremophila duttonii	Harlequin emubush	46	73.69	66	223	27	0.61
Low shrub							
Rhagodia spinescens	Spiny saltbush	78	51.71	113	786	53	0.51
Sclerolaena limbata	Pearl bindyi	74	133.17	107	330	29	0.65
Maireana pyramidata	Black bluebush	62	32.95	90	722	50	0.71
Sclerolaena obliquicuspis	Oblique-spined bindyi	58	13.84	84	1083	55	0.73
Maireana astrotricha	Low bluebush	54	33.26	79	570	31	1.05
Sida intricata	Twiggy sida	41	47.22	60	273	41	0.53

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Shrub	*Eremophila sturtii*	Turpentine bush	21	47.66	31	79	17	0.50
Tree	*Santalum lanceolatum*	Plumbush	28	27.77	41	209	25	0.43
Low shrub	*Malvastrum americanum*	Malvastrum	36	27.60	52	319	22	0.42
Low shrub	*Sida ammophila*	Sand sida	9	23.32	13	29	13	0.32
Low shrub	*Maireana aphylla*	cotton-bush	20	18.05	29	159	28	0.64
Herb	*Tribulus eichlerianus*	Eichler's caltrop	6	14.50	9	22	6	0.47
Herb	*Erodiophyllum elderi*	Koonamore daisy	6	13.84	9	23	10	0.83
Vine	*Convolvulus eyreanus*	silver bindweed	3	10.98	4	6	3	0.40
Low shrub	*Sclerolaena diacantha*	grey bindyi	27	9.99	39	389	51	0.58
Low shrub	*Dissocarpus paradoxus*	ball bindyi	28	9.76	41	432	47	0.46

LANDFORM	Frequency	(O-E)/E	%
Plain	91	1.70	12%
Alluvial plain	16	2.37	16%
Flood plain	10	2.74	17%
Rises	7	-0.59	2%
Sand plain	6	4.92	27%
Drainage line	5	-0.09	4%
Low hills	4	-0.86	1%
Hills	2	-0.93	0%
Plateau	1	0.67	8%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	42	0.38	5%
clay/loam/sand	34	0.17	4%
clay	10	0.63	6%
clay/sand	7	0.19	5%
clay/loam	4	-0.65	1%
not recorded	4	-0.37	2%
loam	2	-0.78	1%
sand	2	-0.05	4%
skeletal	1	-0.82	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	112	2.06	14%
hill slope	12	-0.83	1%
hill footslope	6	-0.32	3%
depression	5	-0.19	4%
flood out	4	4.17	24%
stony plain	1	0.05	5%
dune	1	0.10	5%
hill crest	1	-0.88	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	21	1.02	9%
Low open shrubland	19	0.85	9%
Open shrubland	15	2.06	14%
Low very open shrubland	14	0.44	7%
Very open shrubland	9	1.16	10%
Very low open woodland	6	-0.27	3%
Tall open shrubland	5	0.80	8%
Low shrubland	3	-0.29	3%
Shrubland	3	0.25	6%
low open woodland	2	-0.60	2%
very open grassland	2	0.40	6%
very open herbland	2	0.73	8%
Very low woodland	2	-0.23	4%

Appendix 9. (continued)

Group 24. *Acacia victoriae* Elegant Wattle +/- *Acacia tetragonophylla* Dead Finish/ *Senna artemisioides* Desert Senna/ *Eremophila duttonii* Harlequin emubush open tall shrubland over *Malvastrum americanum* Malvastrum/ *Sida fibulifera* Pin Sida/ *Sclerolaena longicuspis* Long-spine Bindyi/ *Sclerolaena divaricata* Tangled Bindyi dwarf-shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	75	1.98	36	1423	59	0.42
Acacia tetragonophylla	Dead finish	44	1.15	21	811	37	0.46
Shrub							
Senna artemisioides ssp.	Desert senna	52	0.92	25	1043	53	0.47
Eremophila duttonii	Harlequin emubush	50	19.33	24	223	27	0.57
Low shrub							
Malvastrum americanum	Malvastrum	81	36.41	39	319	22	0.45
Sida fibulifera	pin sida	73	13.45	35	557	38	0.44
Sclerolaena longicuspis	long-spine bindyi	71	41.07	34	222	25	0.94
Sclerolaena divaricata	Tangled bindyi	69	17.52	33	421	32	0.94
Solanum ellipticum/quadriloculatum	Potato bush	58	1.02	28	1121	50	0.36
Solanum esuriale	Quena	46	66.04	22	63	23	0.67
Eremophila freelingii	Rock emubush	44	2.31	21	643	33	0.55
Ptilotus obovatus var.	Silver mulla mulla	42	-0.73	20	1263	51	0.34
Grass							
Eragrostis setifolia	Bristly love-grass	63	61.50	30	122	16	0.70
Vine							
Convolvulus remotus	Grassy bindweed	69	9.06	33	656	57	0.36
Herb							
Goodenia fascicularis	Silky goodenia	69	29.60	33	277	46	0.50
Ixiolaena leptolepis	Narrow plover-daisy	54	32.36	26	165	30	0.33

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Rhynchosia minima*	Rhynchosia	21	55.09	10	16	4	0.52
Herb	*Brachycome dentata U*	Lobe-seed daisy	29	51.51	14	33	9	0.87
Low shrub	*Abutilon halophilum*	Plains lantern-bush	29	45.61	14	37	17	0.42
Low shrub	*Sida trichopoda*	High sida	38	33.28	18	81	19	0.46
Low shrub	*Hibiscus brachysiphonius*	Low hibiscus	15	33.06	7	13	7	0.21
Herb	*Ptilotus nobilis* var.	Yellow-tails	17	32.80	8	17	8	0.80
Grass	*Astrebla lappacea*	Curly Mitchell-grass	19	31.96	9	22	7	1.15
Low shrub	*Neobassia proceriflora*	Desert glasswort	13	31.74	6	10	4	0.74
Herb	*Euphorbia tannensis* ssp. *eremophila*	Desert spurge	40	29.91	19	99	27	0.46
Grass	*Astrebla pectinata*	Barley Mitchell-grass	38	28.33	18	93	7	0.89
Grass	*Dichanthium sericeum* ssp.	Silky blue-grass	19	24.71	9	28	7	0.75
Low shrub	*Abutilon malvaefolium*	Scrambling lantern-bush	10	19.77	5	11	6	0.26

LANDFORM	Frequency	(O-E)/E	%
Plain	33	2.09	5%
Alluvial plain	4	1.66	4%
Rises	4	-0.26	1%
Low hills	2	-0.78	0%
Escarpment	1	16.11	25%
Plateau	1	4.26	8%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	33	1.70	4%
hill slope	7	-0.70	0%
stony plain	2	5.28	10%
ridge	1	0.32	2%
depression	1	-0.52	1%
hill crest	1	-0.64	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam/sand	18	0.72	2%
loam/sand	6	-0.45	1%
clay	6	1.72	4%
clay/loam	5	0.21	2%
clay/sand	2	-0.05	1%
skeletal	1	-0.49	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	4	0.21	2%
Low very open shrubland	4	0.30	2%
Low open shrubland	2	-0.39	1%
Very low open woodland	2	-0.23	1%
Very open (tussock) grassland	2	8.75	14%
grassland	2	33.12	50%
very open grassland	1	1.20	3%
very open herbland	1	1.73	4%
open herbland	1	2.79	6%
(Tussock) grassland	1	0.71	3%

Appendix 9. (continued)

Group 25. *Maireana astrotricha* Low Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland with emergent *Acacia victoriae* Elegant Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	79	14.33	87	1423	59	0.46
Low shrub							
Maireana astrotricha	Low bluebush	88	74.57	97	570	31	1.35
Atriplex vesicaria ssp.	Bladder saltbush	73	57.11	80	506	45	1.60
Maireana pyramidata	Black bluebush	65	27.67	72	722	50	0.69
Rhagodia spinescens	Spiny saltbush	61	19.62	67	786	53	0.44
Sclerolaena obliquicuspis	Oblique-spined bindyi	47	4.76	52	1083	55	0.78
Sclerolaena patenticuspis	Spear-fruit bindyi	45	21.05	50	463	52	0.80
Senecio magnificus	Showy groundsel	43	17.21	47	487	42	0.46
Solanum ellipticum/quadriloculatum		42	2.53	46	1121	50	0.54
Ptilotus obovatus var.	Silver mulla mulla	42	0.84	46	1263	51	0.83

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Sclerolaena ventricosa*	Salt bindyi	31	21.16	34	237	30	0.70
Low shrub	*Maireana georgei*	Satiny bluebush	18	17.21	20	108	29	0.44
Low shrub	*Sclerolaena longicuspis*	Long-spine bindyi	25	14.86	28	222	25	0.53
Low shrub	*Sclerolaena lanicuspis*	Spinach bindyi	26	14.33	29	244	32	0.42
Low shrub	*Sclerolaena brachyptera*	Short-wing bindyi	34	13.54	37	385	45	0.64
Low shrub	*Eriochiton sclerolaenoides*	Woolly-fruit bluebush	25	10.38	27	268	38	0.91
Low shrub	*Osteocarpum acropterum* var.	Bonefruit	17	10.09	19	149	30	0.57
Low shrub	*Maireana sedifolia*	Bluebush	24	9.04	26	278	31	0.57
Low shrub	*Atriplex angulata*	fan saltbush	14	8.79	15	109	27	1.15
Low shrub	*Sclerolaena divaricata*	Tangled bindyi	30	8.46	33	421	32	0.65

LANDFORM	Frequency	(O-E)/E	%
Plain	43	0.65	6%
Rises	22	0.67	6%
Low hills	21	-0.06	3%
Alluvial plain	9	1.45	9%
Hills	8	-0.66	1%
Flood plain	3	0.45	5%
Sand plain	2	1.55	9%
not recorded	1	-0.86	1%
Drainage line	1	-0.76	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	53	-0.02	3%
plain (incl undulating plain)	34	0.19	4%
hill footslope	5	-0.27	3%
stony plain	4	4.36	19%
depression	4	-0.17	3%
hill crest	4	-0.39	2%
stream channel	3	0.24	4%
flood out	3	3.97	18%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	22	0.33	3%
loam/sand	17	-0.01	2%
clay/loam	6	-0.08	2%
clay	5	0.44	3%
clay/sand	5	0.50	3%
loam	2	-0.61	1%
skeletal	1	-0.67	1%
not recorded	1	-0.72	1%
sand	1	-0.16	2%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	30	2.99	14%
not recorded	23	-0.16	3%
Low open shrubland	18	1.26	8%
Tall very open shrubland	11	0.36	5%
Very low open woodland	4	-0.37	2%
very open herbland	3	2.35	12%
Low shrubland	3	-0.09	3%
low open woodland	3	-0.22	3%
Very open mallee	3	0.09	4%
very open grassland	2	0.80	6%
Tall open shrubland	2	-0.07	3%

Group 26. *Maireana astrotricha* Low Bluebush/ *Sclerolaena limbata* Pearl Bindyi/ *Sclerolaena divaricata* Tangled Bindyi +/- emergent *Acacia victoriae* Elegant Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	49	0.99	27	1423	59	0.58
Low shrub							
Sclerolaena limbata	Pearl bindyi	84	68.20	46	330	29	0.77

Appendix 9. (continued)

Maireana astrotricha	Low bluebush	78	30.69	43	570	31	0.84
Sclerolaena divaricata	Tangled bindyi	75	40.52	41	421	32	0.65
Maireana pyramidata	Black bluebush	62	13.07	34	722	50	0.93
Rhagodia spinescens	Spiny saltbush	56	9.08	31	786	53	0.59
Sclerolaena lanicuspis	Spinach bindyi	53	36.09	29	244	32	0.63
Ptilotus obovatus var.	Silver mulla mulla	53	2.65	29	1263	51	0.41
Sclerolaena obliquicuspis	Oblique-spined bindyi	44	2.20	24	1083	55	0.86
Sclerolaena brachyptera	short-wing bindyi	42	12.21	23	385	45	0.82

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Brachycome ciliaris* var. *lanuginosa*	Woolly variable daisy	33	34.26	18	104	31	0.41
Grass	*Eragrostis xerophila*	Knotty-butt neverfail	16	31.96	9	29	10	0.57
Herb	*Ixiolaena leptolepis*	Narrow plover-daisy	38	28.06	21	165	30	0.43
Grass	*Astrebla pectinata*	Barley Mitchell-grass	25	22.81	14	93	7	0.57
Low shrub	*Sclerolaena longicuspis*	long-spine bindyi	33	14.17	18	222	25	0.61
Low shrub	*Sclerolaena ventricosa*	salt bindyi	33	13.18	18	237	30	0.68
Grass	*Eragrostis eriopoda*	Woollybutt	9	9.79	5	28	10	0.52
Low shrub	*Halosarcia pergranulata* ssp. *pergranulata*	Black-seed samphire	4	7.65	2	6	4	0.5
Low shrub	*Maireana lobiflora*	Lobed bluebush	7	7.25	4	24	10	0.2
Low shrub	*Maireana aphylla*	Cotton-bush	18	5.67	10	159	28	0.66

LANDFORM	Frequency	(O-E)/E	%
Plain	32	1.45	4%
Rises	5	-0.24	1%
Low hills	5	-0.55	1%
Alluvial plain	5	1.72	5%
Flood plain	3	1.90	5%
Sand plain	2	4.09	9%
Dunefield	1	0.81	3%
Hills	1	-0.92	0%
Drainage line	1	-0.53	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	37	1.51	5%
hill slope	8	-0.71	1%
hill footslope	4	0.13	2%
depression	2	-0.20	1%
sandy plain	1	12.68	25%
swale	1	9.94	20%
stony plain	1	1.61	5%
stream channel	1	-0.20	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	21	0.67	3%
clay/loam/sand	12	-0.01	2%
clay/loam	5	0.04	2%
clay	4	0.57	3%
loam	2	-0.47	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low open shrubland	12	2.02	5%
Low very open shrubland	8	1.13	4%
Open (tussock) grassland	6	9.47	19%
Tall very open shrubland	5	0.24	2%
Open shrubland	4	1.11	4%
Very open (tussock) grassland	2	6.98	14%
Very open shrubland	2	0.24	2%

Group 27. *Maireana astrotricha* Low Bluebush/ *Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Sclerolaena obliquicuspis	Oblique-spined bindyi	95	54.20	63	1083	55	0.81
Maireana astrotricha	low bluebush	88	94.48	58	570	31	1.28
Maireana pyramidata	Black bluebush	76	52.16	50	722	50	0.80
Atriplex vesicaria ssp.	Bladder saltbush	73	72.04	48	506	45	1.41
Sclerolaena brachyptera	short-wing bindyi	42	31.26	28	385	45	0.77

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Sclerolaena limbata*	pearl bindyi	39	31.88	26	330	29	0.64
Low shrub	*Minuria cunninghamii*	bush minuria	26	30.18	17	155	38	0.38
Low shrub	*Sclerolaena ventricosa*	salt bindyi	32	29.21	21	237	30	0.83
Low shrub	*Minuria integerrima*	Smooth minuria	8	25.26	5	17	8	0.26
Low shrub	*Sclerolaena divaricata*	Tangled bindyi	29	11.82	19	421	32	0.91
Low shrub	*Sclerolaena lanicuspis*	Spinach bindyi	15	5.49	10	244	32	0.9
Low shrub	*Halosarcia halocnemoides* ssp.	grey samphire	3	4.39	2	15	8	2.6
Low shrub	*Dissocarpus biflorus* var.	two-horn saltbush	6	4.10	4	59	14	0.5

Appendix 9. (continued)

Herb	*Senecio lautus*	Variable groundsel	6	3.66	4	65	24	0.75

LANDFORM	Frequency	(O-E)/E	%
Plain	31	0.98	4%
Rises	10	0.26	3%
Low hills	8	-0.40	1%
Hills	7	-0.51	1%
Alluvial plain	5	1.27	5%
Flood plain	4	2.22	7%
Dunefield	1	0.51	3%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	37	1.08	5%
hill slope	17	-0.50	1%
hill footslope	8	0.87	4%
hill crest	1	-0.75	1%
flood out	1	1.67	6%
depression	1	-0.67	1%
stream channel	1	-0.33	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	26	0.71	3%
clay/loam/sand	13	-0.11	2%
clay	4	0.30	3%
clay/loam	3	-0.48	1%
skeletal	3	0.11	2%
loam	2	-0.56	1%
clay/sand	1	-0.66	1%
not recorded	1	-0.68	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low open shrubland	23	3.82	10%
Low very open shrubland	20	3.43	10%
Low shrubland	10	4.06	11%
Tall very open shrubland	4	-0.17	2%
Open shrubland	1	-0.56	1%
Very low open shrubland	1	8.31	20%

Group 28. *Maireana pyramidata* Black Bluebush +/- *Sclerolaena ventricosa* Salt Bindyi/ *Maireana astrotricha* Low Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	63	6.04	22	1423	59	0.42
Low shrub							
Maireana pyramidata	Black bluebush	94	38.05	33	722	50	0.88
Sclerolaena ventricosa	Salt bindyi	66	61.04	23	237	30	0.86
Maireana astrotricha	Low bluebush	66	23.15	23	570	31	1.12
Atriplex vesicaria ssp.	Bladder saltbush	60	21.52	21	506	45	1.79
Sclerolaena brachyptera	Short-wing bindyi	57	26.72	20	385	45	0.83

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Gunniopsis quadrifida*	Sturt's pigface	23	123.73	8	15	7	0.6
Low shrub	*Sclerostegia tenuis*	Slender samphire	20	78.54	7	18	7	0.87
Low shrub	*Frankenia serpyllifolia*	Thyme sea-heath	20	25.88	7	53	17	0.88
Low shrub	*Osteocarpum acropterum* var.	Bonefruit	31	21.74	11	149	30	0.71
Low shrub	*Sclerolaena constricta*		11	18.82	4	24	12	0.26
Low shrub	*Sclerolaena decurrens*	Green bindyi	9	17.02	3	15	9	0.36
Low shrub	*Minuria cunninghamii*	Bush minuria	20	7.94	7	155	38	0.8
Low shrub	*Sclerolaena tricuspis*	Three-spine bindyi	17	7.25	6	126	24	0.36
Grass	*Triraphis mollis*	Purple plume grass	9	6.04	3	40	15	1
Low shrub	*Atriplex angulata*	fan saltbush	14	5.77	5	109	27	1.02

LANDFORM	Frequency	(O-E)/E	%
Plain	18	1.17	2%
Rises	4	-0.05	1%
Low hills	4	-0.44	1%
Alluvial plain	4	2.42	4%
Sand plain	3	11.00	14%
Flood plain	2	2.03	3%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	19	1.01	2%
hill slope	9	-0.50	1%
hill footslope	3	0.32	2%
sandy plain	1	20.32	25%
stony plain	1	3.06	5%
hill crest	1	-0.54	1%
depression	1	-0.37	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	6	0.16	1%
clay/loam/sand	4	-0.19	1%
clay/sand	3	2.01	2%
skeletal	2	1.17	1%
clay	1	-0.04	1%
clay/loam	1	-0.49	0%
sand	1	1.79	2%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	11	3.60	5%
Low open shrubland	7	1.77	3%
Tall very open shrubland	7	1.73	3%
Low shrubland	2	0.91	2%

Appendix 9. (continued)

open herbland	1	3.87	6%	Very low woodland	1	0.57	2%
very open grassland	1	1.83	3%	Herbland	1	3.39	5%

Group 29. *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena divaricata* Tangled Bindyi/ *Sclerolaena brachyptera* Short-wing Bindyi low open shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Sclerolaena divaricata	Tangled bindyi	91	73.03	42	421	32	1.06
Atriplex vesicaria ssp.	Bladder saltbush	89	56.28	41	506	45	1.46
Sclerolaena brachyptera	Short-wing bindyi	72	48.32	33	385	45	0.72
Sclerolaena longicuspis	Long-spine bindyi	67	77.17	31	222	25	0.84
Maireana pyramidata	Black bluebush	67	19.86	31	722	50	0.48
Maireana astrotricha	Low bluebush	61	21.52	28	570	31	1.12
Rhagodia spinescens	Spiny saltbush	50	8.84	23	786	53	0.64
Sclerolaena ventricosa	Salt bindyi	46	31.90	21	237	30	0.85

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Frankenia serpyllifolia*	Thyme sea-heath	17	21.67	8	53	17	1.06
Herb	*Euphorbia stevenii*	Bottletree spurge	15	21.14	7	42	14	0.83
Low shrub	*Maireana georgei*	Satiny bluebush	22	15.92	10	108	29	0.62
Low shrub	*Maireana spongiocarpa*	Spongy-fruit bluebush	7	15.16	3	11	7	0.10
Low shrub	*Maireana eriantha*	Woolly bluebush	7	13.84	3	12	6	0.40
Tree	*Casuarina pauper*	Black oak	35	9.08	16	405	41	0.94
Low shrub	*Osteocarpum acropterum* var.	Bonefruit	20	8.73	9	149	30	0.61
Low shrub	*Frankenia plicata K 3E*		4	6.04	2	12	6	1.37
Low shrub	*Sclerolaena intricata*	Tangled bindyi	4	6.04	2	12	9	0.70
Low shrub	*Atriplex angulata*	fan saltbush	13	5.27	6	109	27	1.10

LANDFORM	Frequency	(O-E)/E	%
Plain	19	0.74	3%
Hills	8	-0.20	1%
Rises	8	0.45	2%
Low hills	8	-0.14	1%
Alluvial plain	2	0.30	2%
Plateau	1	4.15	8%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	23	-0.05	2%
plain (incl undulating plain)	14	0.10	2%
hill footslope	4	0.30	2%
stony plain	3	8.01	14%
hill crest	2	-0.31	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay	9	5.21	6%
clay/loam/sand	7	0.02	1%
clay/loam	4	0.47	1%
loam/sand	2	-0.72	0%
not recorded	2	0.34	1%
loam	1	-0.53	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	18	4.72	9%
Low open shrubland	11	2.31	5%
Very low open woodland	6	1.26	3%
low open woodland	2	0.24	2%
Tall very open shrubland	1	-0.70	0%
Low shrubland	1	-0.27	1%
Very low woodland	1	0.19	2%
Very low open shrubland	1	12.35	20%
very open herbland	1	1.67	4%

Group 30. *Enchylaena tomentosa* Ruby Saltbush low open shrubland +/- *Rhagodia spinescens* Spiny Saltbush and/or emergent *Acacia victoriae* Elegant Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	67	5.00	39	1423	59	0.65
Low shrub							
Enchylaena tomentosa var.	Ruby saltbush	91	17.46	53	1189	59	0.48
Rhagodia spinescens	Spiny saltbush	52	7.69	30	786	53	0.54

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Vine	*Convolvulus microsepalus*	Small-flower bindweed	10	44.26	6	9	4	0.16
Low shrub	*Atriplex stipitata*	Bitter saltbush	40	24.42	23	210	41	0.42
Low shrub	*Frankenia plicata K 3E*		7	14.42	4	12	6	0.3
Herb	*Goodenia pusilliflora*	Small-flower goodenia	26	14.28	15	150	29	0.66
Herb	*Goodenia fascicularis*	Silky goodenia	36	14.22	21	277	46	0.55
Low shrub	*Maireana turbinata*	top-fruit bluebush	22	13.32	13	122	33	0.63
Tall shrub	*Lycium ferocissimum* *	African boxthorn	26	9.88	15	202	30	0.36
Low shrub	*Chenopodium nitrariaceum*	nitre goosefoot	5	9.66	3	10	7	1
Herb	*Swainsona stipularis*	Orange swainson-pea	7	7.91	4	21	12	0.87
Herb	*Asphodelus fistulosus* *	Onion weed	29	7.78	17	299	44	0.70

LANDFORM	Frequency	(O-E)/E	%
Plain	30	1.15	4%
Alluvial plain	6	2.04	6%
Low hills	5	-0.58	1%
Rises	3	-0.58	1%
Hills	2	-0.84	0%
Drainage line	1	-0.56	1%
Sand plain	1	1.37	5%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	39	1.46	5%
hill slope	8	-0.73	1%
hill footslope	4	0.05	2%
ridge	2	1.04	4%
depression	2	-0.25	1%
Not recorded	1	1.31	4%
stream channel	1	-0.25	1%
sandy plain	1	11.72	25%
hill crest	1	-0.72	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	13	1.09	4%
loam/sand	12	-0.26	2%
clay	9	1.72	6%
clay/loam/sand	7	-0.55	1%
loam	7	0.44	3%
clay/sand	2	-0.37	1%
sand	2	0.76	4%
skeletal	1	-0.66	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	8	0.98	4%
Low open shrubland	6	0.41	3%
Open shrubland	6	1.95	6%
Tall very open shrubland	5	0.16	2%
Tall open shrubland	5	3.34	8%
Shrubland	5	4.00	10%
Low shrubland	4	1.26	4%
Very low open woodland	3	-0.12	2%
Very low woodland	2	0.86	4%
Open woodland	2	-0.03	2%
open grassland	2	9.41	20%
(Tussock) grassland	2	1.60	5%
Tall shrubland	2	2.72	7%

Group 31. *Enchylaena tomentosa* Ruby Saltbush/ *Maireana pyramidata* Black Bluebush/ *Maireana sedifolia* Pearl Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Obliqu-spined bindyi low shrubland +/- emergent *Myoporum platycarpum* False Sandlewood/ *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Enchylaena tomentosa var.	ruby saltbush	89	17.57	40	1189	59	0.56
Sclerolaena obliquicuspis	Oblique-spined bindyi	87	19.27	39	1083	55	0.70
Maireana pyramidata	Black bluebush	73	21.74	33	722	50	0.94
Maireana sedifolia	Bluebush	71	62.67	32	278	31	1.42
Atriplex vesicaria ssp.	Bladder saltbush	62	23.57	28	506	45	1.39
Rhagodia spinescens	Spiny saltbush	56	10.07	25	786	53	0.40

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Chenopodium curvispicatum*	Cottony goosefoot	27	63.04	12	41	13	0.62
Low shrub	*Lycium australe*	Australian boxthorn	18	28.99	8	39	18	0.53
Tree	*Myoporum platycarpum* ssp.	false sandalwood	40	27.35	18	196	39	0.38
Low shrub	*Maireana trichoptera*	hairy-fruit bluebush	18	10.10	8	103	27	0.68
Mallee	*Eucalyptus oleosa*	red mallee	9	7.98	4	34	10	1.75
Low shrub	*Eriochiton sclerolaenoides*	Woolly-fruit bluebush	27	7.69	12	268	38	0.6
Tree	*Casuarina pauper*	Black oak	33	7.69	15	405	41	1.63
Low shrub	*Sclerolaena diacantha*	grey bindyi	31	6.66	14	389	51	0.64
Low shrub	*Zygophyllum eremaeum*	pale-flower twin-leaf	4	6.37	2	11	8	0.1
Low shrub	*Atriplex acutibractea* ssp.	Pointed saltbush	11	6.22	5	65	23	0.42

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Plain	27	1.42	4%
Low hills	6	-0.37	1%
Dunefield	3	5.34	10%
Flood plain	3	2.39	5%
Rises	3	-0.47	1%
Hills	3	-0.70	0%
Mountains	1	-0.53	1%
Alluvial plain	1	-0.36	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	27	1.21	3%
hill slope	9	-0.61	1%
hill crest	4	0.43	2%
dune	2	5.59	10%
playa/pan	1	31.95	50%
swale	1	12.18	20%
hill footslope	1	-0.66	1%
depression	1	-0.52	1%
stream channel	1	-0.03	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	16	0.07	2%
clay/loam/sand	14	-0.02	2%
clay/loam	8	0.41	3%
loam	5	0.13	2%
not recorded	3	-0.04	2%
clay/sand	3	0.04	2%
sand	3	1.89	5%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low shrubland	9	5.53	10%
Low very open shrubland	5	0.59	2%
Low open shrubland	4	0.20	2%
Very low open woodland	4	0.51	2%
Very low woodland	3	2.58	5%
Low woodland	3	1.30	3%
open mallee	3	1.41	4%
Mallee	3	1.18	3%
Tall open shrubland	2	1.23	3%
not recorded	2	-0.83	0%
Low open forest	2	2.61	5%
low open woodland	2	0.24	2%

Group 32. *Rhagodia spinescens* Spiny Saltbush/ *Maireana pyramidata* Black Bluebush low shrubland +/- emergent *Acacia victoriae* Elegant Wattle/ *Acacia burkittii* Pin-bush Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	42	0.37	5	1423	59	0.57
Acacia burkittii	Pin-bush wattle	42	67.63	5	27	13	0.82
Low shrub							
Rhagodia spinescens	Spiny saltbush	92	9.46	11	786	53	0.32
Maireana pyramidata	Black bluebush	83	8.42	10	722	50	1.34
Enchylaena tomentosa var.	Ruby saltbush	42	0.64	5	1189	59	0.7

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Phyllanthus fuernrohrii*	Sand spurge	17	49.02	2	6	4	0.5
Shrub	*Eremophila sturtii*	Turpentine bush	33	14.28	4	79	17	1.25
Herb	*Erodiophyllum elderi*	Koonamore daisy	17	12.52	2	23	10	0.5
Low shrub	*Phyllanthus lacunarius*	Lagoon spurge	25	11.81	3	54	12	0.53
Shrub	*Atriplex nummularia* ssp.	old-man saltbush	8	10.40	1	7	7	0.1
Grass	*Eragrostis eriopoda*	Woollybutt	17	10.21	2	28	10	1.5
Low shrub	*Atriplex eardleyae*	Eardley's saltbush	17	9.85	2	29	15	0.5
Low shrub	*Sida ammophila*	sand sida	17	9.85	2	29	13	0.5
Low shrub	*Sclerostegia disarticulata*		8	9.08	1	8	6	1
Herb	*Goodenia lunata*	stiff goodenia	8	9.08	1	8	8	0.1

LANDFORM	Frequency	(O-E)/E	%
Plain	5	0.76	1%
Sand plain	2	22.33	9%
Dunefield	2	15.56	6%
Low hills	1	-0.59	0%
Flood plain	1	3.43	2%
Alluvial plain	1	1.49	1%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	6	1.40	1%
Dune	3	47.33	15%
Hill footslope	2	2.32	1%
Hill slope	1	-0.79	0%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	3	0.16	0%
Sand	3	15.72	5%
Clay	2	2.83	1%
Clay/loam	1	0.02	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall open shrubland	2	7.53	3%
Tall very open shrubland	2	1.27	1%
Low very open shrubland	1	0.22	0%
Low open shrubland	1	0.15	0%
Open shrubland	1	1.41	1%
very open herbland	1	9.24	4%
Very open mallee	1	2.32	1%

Appendix 9. (continued)

open herbland	1	13.22	6%	Woodland	1	2.55	1%
Very open shrubland	1	1.84	1%				

Group 33. *Maireana pyramidata* Black Bluebush/ *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia spinescens* Spiny Saltbush low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	63	10.98	40	1423	59	0.64
Low shrub							
Maireana pyramidata	Black bluebush	89	60.47	56	722	50	0.92
Enchylaena tomentosa var.	Ruby saltbush	71	19.77	45	1189	59	0.38
Sclerolaena obliquicuspis	Oblique-spined bindyi	70	20.94	44	1083	55	0.74
Rhagodia spinescens	Spiny saltbush	60	22.95	38	786	53	0.6
Sclerolaena limbata	Pearl bindyi	51	45.10	32	330	29	0.62

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub	*Acacia ligulata*	Umbrella bush	24	15.65	15	202	41	0.60
Low shrub	*Osteocarpum acropterum* var.	Bonefruit	17	11.27	11	149	30	0.35
Low shrub	*Dissocarpus paradoxus*	Ball bindyi	30	10.09	19	432	47	0.61
Low shrub	*Nitraria billardierei*	Nitre-bush	13	9.08	8	100	28	0.8
Mistletoe	*Lysiana exocarpi* ssp. *exocarpi*	Harlequin mistletoe	27	7.78	17	438	46	0.38
Tree	*Acacia oswaldii*	Umbrella wattle	16	7.69	10	171	38	0.38
Low shrub	*Atriplex vesicaria* ssp.	Bladder saltbush	27	6.22	17	506	45	0.92
Low shrub	*Atriplex limbata*	Spreading saltbush	6	6.15	4	38	16	0.3
Low shrub	*Sclerolaena constricta*		5	5.60	3	24	12	0.5
Tree	*Santalum lanceolatum*	Plumbush	14	4.78	9	209	25	0.41

LANDFORM	Frequency	(O-E)/E	%
Plain	26	0.69	4%
Alluvial plain	12	4.52	12%
Drainage line	6	1.39	5%
Sand plain	5	9.77	23%
Dunefield	5	6.64	16%
Low hills	5	-0.62	1%
Rises	2	-0.74	1%
Hills	2	-0.86	0%
Flood plain	2	0.63	3%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	37	1.56	5%
hill slope	10	-0.63	1%
depression	8	2.28	6%
flood out	3	8.84	18%
hill footslope	3	-0.14	2%
Dune	2	4.58	10%
Hill crest	1	-0.70	1%
Swale	1	10.15	20%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	27	0.45	3%
Clay/loam/sand	12	-0.33	2%
Loam	7	0.26	3%
Sand	6	3.63	11%
Clay	6	0.59	4%
Clay/loam	2	-0.72	1%
Clay/sand	2	-0.45	1%
Skeletal	1	-0.70	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	24	4.04	11%
Low open shrubland	8	0.70	4%
Very open shrubland	5	1.62	6%
Low very open shrubland	4	-0.10	2%
Low shrubland	2	0.03	2%
Very low open woodland	2	-0.47	1%
Shrubland	2	0.82	4%
Open shrubland	1	-0.55	1%
Very low woodland	1	-0.16	2%
(Tussock) grassland	1	0.18	3%
Tall shrubland	1	0.69	4%
Open (tussock) grassland	1	0.48	3%
Closed shrubland	1	10.81	25%

Appendix 9. (continued)

Group 34. *Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Maireana pyramidata	Black bluebush	86	21.41	18	722	50	1.15
Sclerolaena obliquicuspis	Oblique-spined bindyi	67	7.43	14	1083	55	0.94
Atriplex vesicaria ssp.	Bladder saltbush	62	15.94	13	506	45	1.42
Herb							
Asphodelus fistulosus *	Onion weed	57	24.16	12	299	44	1.29

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Nitraria billardierei*	Nitre-bush	38	33.68	8	100	28	0.55
Low shrub	*Maireana georgei*	Satiny bluebush	38	31.04	8	108	29	0.14
Low shrub	*Atriplex stipitata*	Bitter saltbush	33	11.53	7	210	41	0.87
Low shrub	*Eriochiton sclerolaenoides*	Woolly-fruit bluebush	29	6.26	6	268	38	1.33
Herb	*Goodenia fascicularis*	Silky goodenia	29	6.04	6	277	46	0.58
Low shrub	*Maireana sedifolia*	Bluebush	29	6.04	6	278	31	1.05
Herb	*Goodenia pusilliflora*	small-flower goodenia	19	5.12	4	150	29	0.75
Low shrub	*Minuria cunninghamii*	bush minuria	19	4.91	4	155	38	0.5
Low shrub	*Sclerolaena intricata*	Tangled bindyi	5	4.39	1	12	9	0.5
Herb	*Goodenia pinnatifida Q*	cut-leaf goodenia	19	3.66	4	200	35	0.2

LANDFORM	Frequency	(O-E)/E	%
Plain	11	1.11	2%
Low hills	3	-0.33	0%
Alluvial plain	2	1.72	2%
Rises	2	-0.24	1%
Hills	2	-0.58	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	9	0.43	1%
clay/loam/sand	7	0.16	1%
loam	2	0.07	1%
sand	2	3.56	4%
clay	2	0.57	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	11	0.80	1%
hill slope	5	-0.57	0%
hill footslope	5	2.40	3%
ridge	1	1.64	2%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low shrubland	9	12.66	10%
Low open shrubland	5	2.14	2%
Low very open shrubland	2	0.33	1%
Open shrubland	1	0.32	1%
low open woodland	1	0.29	1%
Closed herbland	1	16.45	13%

Group 35. *Nitraria billardierei* Nitre-bush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Nitraria billardierei	Nitre-bush	63	41.4	5	100	28	0.36
Herb							
Asphodelus fistulosus *	Onion weed	75	19.3	6	299	44	1.25
Arabidella trisecta	Shrubby cress	63	33.8	5	122	31	0.6

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Shrub	*Acacia nyssophylla*	Spine bush	25	35.33	2	19	8	0.5
Shrub	*Eremophila sturtii*	Turpentine bush	38	18.78	3	79	17	0.1
Herb	*Erodiophyllum elderi*	Koonamore daisy	13	7.19	1	23	10	0.5
Herb	*Salvia verbenaca form* *	Wild sage	25	5.89	2	108	25	1.5
Low shrub	*Ptilotus spathulatus forma*	Pussy-tails	25	3.26	2	187	28	0.5
Low shrub	*Dissocarpus biflorus* var.	Two-horn saltbush	13	2.69	1	59	14	0.5
Low shrub	*Atriplex acutibractea* ssp.	Pointed saltbush	13	2.42	1	65	23	0.5
Herb	*Goodenia fascicularis*	Silky goodenia	25	2.09	2	277	46	0.75
Low shrub	*Maireana pyramidata*	Black bluebush	38	1.54	3	722	50	0.86
Low shrub	*Sclerolaena diacantha*	grey bindyi	25	1.39	2	389	51	1.25

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Plain	4	1.11	1%
Alluvial plain	3	10.21	3%
Flood plain	1	5.64	2%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	6	1.70	1%
hill footslope	2	2.74	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay	3	6.39	2%
loam	2	2.35	1%
clay/loam/sand	1	-0.48	0%
clay/loam	1	0.31	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low shrubland	1	3.17	1%
Low very open shrubland	1	0.83	0%
Very open shrubland	1	3.27	1%
(Tussock) grassland	1	8.60	3%
Tall open shrubland	1	5.40	2%
very open herbland	1	14.36	4%
Very open (tussock) grassland	1	26.42	7%
Herbland	1	18.19	5%

Group 36. *Dissocarpus paradoxus* Ball Bindyi and *Sida intricata* Twiggy Sida/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi dwarf-shrubland +/- *Atriplex vesicaria* Bladder Saltbush.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Dissocarpus paradoxus	ball bindyi	100	20.06	8	432	47	0.54
Sida intricata	Twiggy sida	88	24.73	7	273	41	0.3
Sclerolaena obliquicuspis	Oblique-spined bindyi	88	5.25	7	1083	55	0.86
Atriplex vesicaria ssp.	Bladder saltbush	63	6.22	5	506	45	1.22
Sclerolaena limbata	pearl bindyi	50	6.30	4	330	29	0.34

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Vine	*Convolvulus microsepalus*	Small-flower bindweed	13	15.92	1	9	4	0.5
Low shrub	*Sclerolaena bicornis*	Goathead bindyi	13	10.96	1	13	7	0.1
Herb	*Senecio lautus*	Variable groundsel	25	8.57	2	65	24	0.3
Low shrub	*Sida ammophila*	sand sida	13	4.81	1	29	13	0.1
Low shrub	*Solanum petrophilum*	rock nightshade	38	3.07	3	359	47	0.1
Low shrub	*Frankenia serpyllifolia*	Thyme sea-heath	13	2.54	1	53	17	0.1
Shrub	*Eremophila sturtii*	Turpentine bush	13	1.65	1	79	17	0.5
Tall shrub	*Eremophila scoparia*	Broom emubush	13	1.45	1	89	23	0.1
Low shrub	*Nitraria billardierei*	nitre-bush	13	1.26	1	100	28	0.1
Herb	*Salvia verbenaca form **	wild sage	13	1.15	1	108	25	1
Low shrub	*Maireana georgei*	Satiny bluebush	13	1.15	1	108	29	0.1

LANDFORM	Frequency	(O-E)/E	%
Low hills	2	0.41	0%
Plain	2	0.21	0%
Rises	1	0.19	0%
Hills	1	-0.34	0%
Alluvial plain	1	3.27	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	3	0.54	0%
hill footslope	3	5.41	2%
hill slope	1	-0.73	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam	3	4.03	1%
clay	1	1.46	1%
clay/loam/sand	1	-0.48	0%
loam/sand	1	-0.50	0%
clay/sand	1	1.58	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low open shrubland	3	4.93	1%
Very open shrubland	1	3.87	1%
Herbland	1	20.94	5%
not recorded	1	-0.43	0%
Open (tussock) grassland	1	12.71	3%

Group 37. *Boerhavia dominii* Tar-vine/ *Danthonia caespitosa* Common Wallaby-grass herbland/grassland +/- a *Muehlenbeckia florulenta* Lignum and/or *Eragrostis australasica* Cane-grass overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Grass							
Danthonia caespitosa	Common wallaby-grass	60	3.51	3	616	57	0.83
Low shrub							
Boerhavia dominii	Tar-vine	80	16.84	4	253	31	0.3

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Shrub	*Muehlenbeckia florulenta*	Lignum	20	55.37	1	5	4	2
Grass	*Eragrostis australasica*	Cane-grass	20	55.37	1	5	5	2
Herb	*Stellaria palustris* var.	Swamp starwort	20	27.60	1	10	4	0.1
Low shrub	*Cullen australasicum*	Tall scurf-pea	40	21.41	2	51	17	0.3
Herb	*Teucrium racemosum*	Grey germander	20	8.24	1	33	19	0.1
Tall shrub	*Nicotiana glauca* *	tree tobacco	20	5.49	1	49	20	0.3
Grass	*Stipa nodosa*	tall spear-grass	40	4.72	2	219	48	1.25
Herb	*Wahlenbergia luteola*	Yellow-wash bluebell	40	4.54	2	227	23	0.3
Low shrub	*Sida intricata*	Twiggy sida	40	3.70	2	273	41	0.3
Grass	*Aristida behriana*	Brush wire-grass	20	3.51	1	75	11	2

LANDFORM	Frequency	(O-E)/E	%
Plain	2	0.69	0%
Rises	2	2.34	1%
Low hills	1	-0.01	0%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	2	0.80	0%
depression	1	4.33	1%
hill crest	1	2.94	1%
hill slope	1	-0.53	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	2	0.75	0%
clay/loam	2	3.58	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Herbland	1	29.71	5%
Low shrubland	1	5.68	1%
(Tussock) grassland	1	14.36	3%
Open shrubland	1	4.79	1%
very open grassland	1	18.81	3%

Group 38. *Nitraria billardierei* Nitre-bush +/- *Atriplex vesicaria* Bladder Saltbush/ *Rhagodia spinescens* Spiny Saltbush low shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Nitraria billardierei	Nitre-bush	82	136.32	14	100	28	1.43
Atriplex vesicaria ssp.	Bladder saltbush	65	14.90	11	506	45	1.43
Rhagodia spinescens	Spiny saltbush	41	3.20	7	786	53	0.4
Osteocarpum acropterum var.	Bonefruit	41	22.04	7	149	30	0.83
Mat plant							
Disphyma crassifolium ssp. *clavellatum*	Round-leaf pigface	41	203.20	7	17	9	1.01

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Halosarcia indica* ssp.	Brown-head samphire	24	141.08	4	8	4	1.5
Low shrub	*Halosarcia halocnemoides* ssp.	Grey samphire	24	74.90	4	15	8	0.875
Low shrub	*Osteocarpum dipterocarpum*	Two-wing bonefruit	18	63.26	3	10	7	0.5
Low shrub	*Sclerostegia tenuis*	Slender samphire	18	34.92	3	18	7	1
Low shrub	*Maireana appressa*	Pale-fruit bluebush	29	31.30	5	55	22	0.74
Low shrub	*Dissocarpus biflorus* var.	Two-horn saltbush	29	29.10	5	59	14	0.34
Low shrub	*Frankenia pauciflora* var.	Southern sea-heath	6	17.55	1	4	4	0.5
Low shrub	*Atriplex eichleri R 3R*	Eichler's saltbush	12	17.35	2	16	9	0.75
Low shrub	*Lawrencia squamata*	Thorny lawrencia	12	14.57	2	19	13	0.75

LANDFORM	Frequency	(O-E)/E	%
Plain	6	0.49	1%
Drainage line	2	2.04	2%
Dunefield	2	10.69	6%
Tidal flat	1	180.18	100%
Alluvial plain	1	0.76	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	11	2.05	1%
depression	3	3.92	2%
playa/pan	1	110.54	50%
stream channel	1	2.28	1%
dune	1	10.15	5%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	4	1.29	1%
clay	4	3.31	3%
loam/sand	1	-0.78	0%
loam	1	-0.27	0%
clay/loam/sand	1	-0.77	0%
clay/sand	1	0.13	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low shrubland	5	8.82	5%
Low open shrubland	2	0.63	1%
Very open shrubland	2	3.01	2%
Low very open shrubland	2	0.72	1%
Open shrubland	1	0.70	1%

Appendix 9. (continued)

Shrubland	1	2.47	2%	Very low open shrubland	1	35.13	20%
Low woodland	1	1.08	1%	low closed shrubland	1	44.16	25%

Group 39. *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus dumosa* White Mallee over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	Bullock bush	45	2.86	13	760	52	0.37
Acacia oswaldii	Umbrella wattle	45	20.46	13	171	38	0.37
Mallee							
Eucalyptus socialis	Beaked red mallee	90	42.83	26	329	39	1.57
Eucalyptus dumosa	White mallee	52	75.23	15	67	19	1.4
Tall shrub							
Exocarpos aphyllus	Leafless cherry	55	14.64	16	339	37	0.45
Shrub							
Senna artemisioides ssp.	Desert senna	59	3.42	17	1043	53	0.56
Low shrub							
Enchylaena tomentosa var.	Ruby saltbush	72	4.61	21	1189	59	0.37
Mistletoe							
Amyema miquelii	Box mistletoe	76	74.09	22	144	30	0.58

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Olearia muelleri*	Mueller's daisy-bush	38	78.12	11	35	9	0.83
Low shrub	*Frankenia subteres K 2K*		10	16.86	3	12	6	1.33
Low shrub	*Westringia rigida*	stiff westringia	24	15.89	7	66	19	0.47
Grass	*Stipa pilata K*	Prickly spear-grass	14	11.64	4	30	18	0.62
Low shrub	*Sclerostegia disarticulata*		7	11.24	2	8	6	0.75
Low shrub	*Zygophyllum apiculatum*	Pointed twinleaf	21	7.25	6	100	31	0.46
Low shrub	*Rhagodia parabolica*	Mealy saltbush	38	5.64	11	370	43	0.56
Low shrub	*Maireana erioclada*	rosy bluebush	10	5.11	3	37	13	1.16
Low shrub	*Goodenia vernicosa*	Wavy goodenia	14	4.98	4	65	10	0.55

LANDFORM	Frequency	(O-E)/E	%
Hills	9	0.44	1%
Low hills	7	0.19	1%
Mountains	5	2.82	4%
Rises	4	0.15	1%
Plain	4	-0.42	1%

LAND UNIT	Frequency	(O-E)/E	%
Hill slope	17	0.11	1%
Hill footslope	9	3.64	5%
Plain (incl undulating plain)	3	-0.63	0%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam	6	0.96	2%
Skeletal	6	3.19	4%
Clay/loam/sand	5	-0.35	1%
Loam/sand	4	-0.50	1%
Clay	2	0.23	1%
loam	2	-0.16	1%
clay/sand	2	0.29	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very open mallee	9	11.38	12%
Mallee	7	7.06	8%
open mallee	5	5.38	6%
Very low woodland	2	2.78	4%
Low woodland	1	0.22	1%
Open woodland	1	-0.01	1%
Very open hummock grassland	1	104.90	100%

Group 40. *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush low woodland over *Exocarpos aphyllus* Leafless Cherry/ *Senna artemisioides* Desert Senna/ *Enchylaena tomentosa* Rubby Saltbush.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	Bullock bush	97	34.08	38	760	52	0.44
Casuarina pauper	Black oak	74	39.81	29	405	41	1.53
Tall shrub							
Exocarpos aphyllus	Leafless cherry	54	24.22	21	339	37	0.55
Shrub							
Senna artemisioides ssp.	Desert senna	51	4.76	20	1043	53	0.55

Appendix 9. (continued)

Low shrub							
Enchylaena tomentosa var.	ruby saltbush	49	3.13	19	1189	59	0.43

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mistletoe	*Amyema linophyllum* ssp. *orientale U*	Casuarina mistletoe	10	17.50	4	19	13	0.2
Low shrub	*Zygophyllum billardierei(NC)*	Coast twinleaf	10	12.59	4	26	17	0.77
Low shrub	*Ptilotus parvifolius* var.	small-leaf mulla mulla	5	12.01	2	7	4	0.75
Tree	*Myoporum platycarpum* ssp.	false sandalwood	28	11.27	11	196	39	0.31
Low shrub	*Westringia rigida*	stiff westringia	15	10.76	6	66	19	0.38
Mallee	*Eucalyptus socialis*	Beaked red mallee	33	8.80	13	329	39	0.76
Tall shrub	*Eremophila oppositifolia* var.	Opposite-leaved emubush	13	6.13	5	77	23	0.42
Tree	*Acacia oswaldii*	Umbrella wattle	18	4.87	7	171	38	0.32
Low shrub	*Lycium australe*	Australian boxthorn	8	4.45	3	39	18	0.36
Low shrub	*Dissocarpus paradoxus*	ball bindyi	28	4.03	11	432	47	0.47

LANDFORM	Frequency	(O-E)/E	%
Low hills	14	0.77	2%
Plain	10	0.08	1%
Hills	9	0.07	1%
Rises	3	-0.36	1%
not recorded	2	-0.21	1%
Mountains	1	-0.43	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	22	0.07	1%
plain (incl undulating plain)	12	0.11	1%
hill footslope	3	0.15	2%
hill crest	2	-0.19	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	14	0.32	2%
Clay/loam/sand	12	0.18	2%
Clay/loam	4	-0.01	1%
Loam	2	-0.37	1%
Skeletal	1	-0.47	1%
Clay	1	-0.53	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very low woodland	5	6.03	9%
Low woodland	5	3.53	6%
Low open woodland	5	2.65	5%
Very low open woodland	5	1.22	3%
Very open mallee	4	3.09	5%
Open woodland	2	0.47	2%
Mallee	1	-0.14	1%
open mallee	1	-0.05	1%
Tall open shrubland	1	0.31	2%
Tall very open shrubland	1	-0.65	0%
Low open forest	1	1.13	3%
Very low open forest	1	3.14	5%

Group 41. *Eucalyptus socialis* Beaked Red Mallee and/or *Alectryon oleifolius* Bullock Bush over *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Eremophila scoparia* Broom Emubush/ *Maireana pentatropis* Erect Mallee Bluebush.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	Bullock bush	47	6.26	18	760	52	0.51
Mallee							
Eucalyptus socialis	Beaked red mallee	68	41.40	26	329	39	1.48
Tall shrub							
Eremophila scoparia	Broom emubush	45	70.32	17	89	23	0.43
Low shrub							
Sclerolaena obliquicuspis	Oblique-spined bindyi	76	12.21	29	1083	55	0.81
Enchylaena tomentosa var.	ruby saltbush	58	5.23	22	1189	59	0.45
Maireana pentatropis	Erect mallee bluebush	53	65.89	20	130	25	0.52

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Maireana ovata*		21	64.13	8	22	9	0.57
Tree	*Myoporum platycarpum* ssp.	False sandalwood	37	19.99	14	196	39	0.32
Low shrub	*Frankenia foliosa*	Leafy sea-heath	11	15.67	4	22	12	0.5
Herb	*Anemocarpa podolepidium*	rock everlasting	8	15.10	3	13	7	0.53
Low shrub	*Lawrencia glomerata*	Clustered lawrencia	5	14.68	2	6	5	0.55
Low shrub	*Maireana erioclada*	rosy bluebush	13	14.37	5	37	13	0.44
Low shrub	*Atriplex acutibractea* ssp.	Pointed saltbush	16	11.42	6	65	23	0.53
Mistletoe	*Amyema miraculosum* ssp. *boormanii*	Fleshy mistletoe	16	9.22	6	79	24	0.23
Tall shrub	*Melaleuca lanceolata* ssp. *lanceolata*	Dryland tea-tree	18	9.10	7	107	34	0.51
Low shrub	*Atriplex vesicaria* ssp.	Bladder saltbush	39	7.41	15	506	45	0.94

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Low hills	20	1.59	3%
Plain	7	-0.22	1%
Hills	6	-0.27	1%
Rises	4	-0.12	1%
not recorded	1	-0.59	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	24	0.27	2%
plain (incl undulating plain)	5	-0.50	1%
hill footslope	2	-0.17	1%
Hill crest	2	-0.12	1%
Gully	1	9.07	13%
Flood out	1	3.74	6%
Ridge	1	0.61	2%
Depression	1	-0.41	1%
Stream channel	1	0.18	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam/sand	12	0.25	2%
Loam/sand	10	0.00	1%
clay/loam	3	-0.21	1%
loam	3	0.01	1%
clay	3	0.48	2%
skeletal	2	0.12	1%
clay/sand	2	0.03	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very open mallee	11	10.55	14%
open mallee	7	5.82	8%
low open woodland	3	1.24	3%
Very low open woodland	3	0.37	2%
Mallee	3	1.64	3%
Low shrubland	2	0.76	2%
Low very open shrubland	2	-0.23	1%
Very open shrubland	1	-0.10	1%
Open shrubland	1	-0.24	1%

Group 42. *Eucalyptus gracilis* Yorrell/ *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus oleosa* Red Mallee over *Enchylaena tomentosa* Ruby Saltbush.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mallee							
Eucalyptus gracilis	Yorrell	78	271.47	36	73	11	1.65
Eucalyptus socialis	Beaked red mallee	63	34.50	29	329	39	1.51
Tall shrub							
Lycium ferocissimum *	African boxthorn	41	24.34	19	202	30	0.37
Low shrub							
Enchylaena tomentosa var.	Ruby saltbush	93	16.53	43	1189	59	0.74
Sclerolaena diacantha	Grey bindyi	48	15.30	22	389	51	0.65

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mallee	*Eucalyptus oleosa*	Red mallee	37	130.06	17	34	10	1.89
Mallee	*Eucalyptus brachycalyx*	Gilja	17	98.69	8	10	3	1.68
Low shrub	*Cratystylis conocephala*	Bluebush daisy	9	49.35	4	5	2	0.57
Low shrub	*Chenopodium curvispicatum*	Cottony goosefoot	24	44.09	11	41	13	0.50
Low shrub	*Olearia muelleri*	Mueller's daisy-bush	20	34.59	9	35	9	0.58
Low shrub	*Maireana erioclada*	rosy bluebush	17	25.62	8	37	13	0.4
Tree	*Myoporum platycarpum* ssp.	false sandalwood	39	22.73	18	196	39	0.48
Low shrub	*Maireana brevifolia*	short-leaf bluebush	37	22.40	17	178	35	0.79
Grass	*Stipa acrociliata*	Graceful spear-grass	13	19.77	6	27	15	0.36
Tree	*Acacia papyrocarpa*	Western myall	7	19.55	3	7	4	0.73

LANDFORM	Frequency	(O-E)/E	%
Plain	17	0.53	2%
Low hills	8	-0.16	1%
Rises	8	0.42	2%
Hills	6	-0.41	1%
not recorded	5	0.65	3%
Flood plain	1	0.13	2%
Dunefield	1	1.11	3%
Mountains	1	-0.53	1%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	24	0.84	3%
Hill slope	11	-0.56	1%
Hill footslope	6	0.91	3%
Not recorded	2	4.61	9%
Sandy plain	1	14.43	25%
Swale	1	11.34	20%
Hill crest	1	-0.66	1%
Ridge	1	0.23	2%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	13	-0.03	2%
clay/loam	11	1.15	4%
loam	10	1.50	4%
clay/loam/sand	7	-0.46	1%
not recorded	4	0.42	2%
clay/sand	2	-0.23	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Mallee	23	15.69	25%
open mallee	15	11.07	18%

Appendix 9. (continued)

Very open mallee	3	1.60	4%	Open shrubland	1	-0.37	1%
low open woodland	1	-0.38	1%	Low woodland	1	-0.23	1%
Low very open shrubland	1	-0.68	0%	Open woodland	1	-0.38	1%

Group 43. *Alectryon oleifolius* Bullock Bush open low woodland over *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia parabolica* Mealy Saltbush +/- an overstorey of *Eucalyptus* spp. Mallee or *Casuarina pauper* Black Oak Woodland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Alectryon oleifolius ssp. *canescens*	Bullock bush	78	8.20	28	760	52	0.42
Tall shrub							
Exocarpos aphyllus	Leafless cherry	67	18.01	24	339	37	0.42
Lycium ferocissimum *	African boxthorn	47	15.56	17	202	30	0.46
Shrub							
Senna artemisioides ssp.	Desert senna	56	1.46	20	1043	53	0.83
Low shrub							
Enchylaena tomentosa var.	Ruby saltbush	89	5.27	32	1189	59	0.80
Rhagodia parabolica	Mealy saltbush	67	15.81	24	370	43	0.73
Maireana brevifolia	Short-leaf bluebush	58	28.44	21	178	35	0.56
Sclerolaena diacantha	Grey bindyi	50	7.58	18	389	51	0.67
Olearia pimeleoides ssp.	Pimelea daisy-bush	44	26.36	16	114	27	0.64

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Grevillea huegelii*	Comb grevillea	11	25.48	4	8	5	0.1
Low shrub	*Eremophila glabra* ssp.	Tar bush	36	23.32	13	86	30	0.34
Shrub	*Eremophila deserti*	Turkey-bush	17	19.44	6	23	12	0.3
Low shrub	*Atriplex eardleyae*	Eardley's saltbush	17	15.16	6	29	15	0.32
Shrub	*Templetonia egena*	Broombush templetonia	17	14.17	6	31	13	0.4
Tree	*Acacia oswaldii*	Umbrella wattle	39	12.56	14	171	38	0.28
Low shrub	*Olearia muelleri*	Mueller's daisy-bush	17	12.41	6	35	9	1.5
Low shrub	*Westringia rigida*	Stiff westringia	22	11.27	8	66	19	0.44
Tree	*Santalum acuminatum*	Quandong	31	11.27	11	119	38	0.41
Low shrub	*Rhagodia ulicina*	Intricate saltbush	31	11.07	11	122	25	1.27

LANDFORM	Frequency	(O-E)/E	%
Plain	10	0.14	1%
Hills	10	0.25	2%
Low hills	6	-0.20	1%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	10	0.00	1%
Hill slope	9	-0.53	1%
Ridge	4	5.44	8%
Hill footslope	3	0.25	2%
Hill crest	2	-0.12	1%
Depression	1	-0.41	1%
Stream channel	1	0.18	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	8	-0.26	1%
Clay/loam	5	0.21	2%
Clay/loam/sand	5	-0.52	1%
Loam	4	0.24	2%
Clay/sand	2	-0.05	1%
skeletal	2	0.03	1%
clay	1	-0.55	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
open mallee	5	4.00	6%
Tall very open shrubland	5	0.84	2%
Mallee	4	2.61	4%
Low woodland	3	1.86	3%
Very open mallee	2	1.16	3%
Open shrubland	2	0.57	2%
Low open forest	2	3.49	5%
Very low open forest	2	7.74	11%
Shrubland	2	2.19	4%

Appendix 9. (continued)

Group 44. *Pittosporum phylliraeoides* Native Apricot/ *Lycium ferocissimum* African Boxthorn sparse tall shrubland over *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia parabolica* Mealy Saltbush and *Stipa nitida* Balcarra Spear-grass/ *Danthonia caespitosa* Common Wallaby-grass.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Pittosporum phylliraeoides var. *microcarpa*	Native apricot	70	23.14	16	299	45	0.36
Tall shrub							
Lycium ferocissimum *	African boxthorn	74	40.45	17	202	30	0.5
Low shrub							
Enchylaena tomentosa var.	ruby saltbush	78	4.94	18	1189	59	0.62
Pimelea microcephala ssp.	Shrubby riceflower	70	26.06	16	269	44	0.68
Rhagodia parabolica	Mealy saltbush	57	11.42	13	370	43	0.52
Grass							
Stipa nitida	Balcarra spear-grass	52	5.93	12	536	58	0.87
Danthonia caespitosa	Common wallaby-grass	43	3.11	10	616	57	0.65

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mat plant	*Tetragonia implexicoma*	Bower spinach	17	96.57	4	5	2	0.5
Low shrub	*Threlkeldia diffusa*	Coast bonefruit	13	67.81	3	4	2	0.36
Shrub	*Geijera linearifolia*	Sheep bush	17	43.49	4	11	5	1.12
Shrub	*Muehlenbeckia florulenta*	Lignum	9	23.94	2	5	4	2.25
Mallee	*Eucalyptus porosa*	Mallee box	26	17.46	6	59	19	1.6
Low shrub	*Chenopodium nitrariaceum*	nitre goosefoot	9	11.79	2	10	7	0.5
Low shrub	*Solanum nigrum* *	Black nightshade	17	10.84	4	42	20	0.3
Low shrub	*Zygophyllum eremaeum*	pale-flower twin-leaf	9	10.69	2	11	8	0.75
Tall shrub	*Acacia ligulata*	Umbrella bush	39	10.54	9	202	41	1.67
Low shrub	*Zygophyllum billardierei(NC)*	Coast twinleaf	13	9.99	3	26	17	0.66

LANDFORM	Frequency	(O-E)/E	%
Dunefield	5	17.40	16%
Low hills	5	-0.09	1%
Mountains	3	1.46	2%
Alluvial plain	2	1.22	2%
Flood plain	2	2.93	3%
Drainage line	1	-0.04	1%
Plain	1	-0.84	0%
Hills	1	-0.83	0%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	7	0.15	1%
Hill slope	6	-0.48	0%
Dune	4	25.36	20%
Hill footslope	3	1.04	2%
Stream channel	3	4.82	4%
Hill crest	2	0.43	1%
Depression	1	-0.03	1%

SURFACE SOIL	Frequency	(O-E)/E	%
sand	6	12.09	11%
clay/loam	5	0.99	2%
loam/sand	4	-0.39	1%
loam	4	1.04	2%
clay/loam/sand	1	-0.84	0%
clay/sand	1	-0.22	1%
clay	1	-0.25	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
open mallee	4	5.43	5%
Tall shrubland	4	18.07	14%
Tall open shrubland	3	5.68	5%
Low woodland	2	2.07	2%
Very open mallee	2	2.47	3%
Low open forest	2	6.22	5%
Open forest	2	6.22	5%
Mallee	1	0.45	1%
low open woodland	1	0.24	1%

Group 45. *Danthonia caespitosa* Common Wallaby-grass/ *Eriochiton sclerolaenoides* Woolly-fruit Bluebush tussock grassland/low shrubland +/- *Maireana sedifolia* Pearl Bluebush low shrub overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Eriochiton sclerolaenoides	Woolly-fruit bluebush	73	59.45	29	268	38	0.85
Sclerolaena obliquicuspis	Oblique-spined bindyi	53	4.61	21	1083	55	0.71
Maireana turbinata	Top-fruit bluebush	50	64.06	20	122	33	0.5
Maireana sedifolia	Bluebush	50	25.99	20	278	31	1.45
Grass							
Danthonia caespitosa	Common wallaby-grass	88	34.59	35	616	57	0.83
Stipa eremophila	Rusty spear-grass	53	83.02	21	105	20	1.02

Appendix 9. (continued)

Stipa nitida	Balcarra spear-grass	48	10.43	19	536	58	0.68

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Maireana excavata K*	Bottle fissure-plant	13	11.99	5	40	18	0.43
Grass	*Stipa drummondii*	Cottony spear-grass	15	11.75	6	58	16	0.68
Herb	*Goodenia fascicularis*	silky goodenia	33	10.23	13	277	46	0.46
Shrub	*Templetonia egena*	Broombush templetonia	10	9.96	4	31	13	1.15
Herb	*Vittadinia gracilis*	Woolly New Holland daisy	25	8.97	10	191	38	0.71
Herb	*Plantago hispida*	hairy plantain	8	7.91	3	22	9	0.53
Low shrub	*Maireana radiata*	Radiate bluebush	5	7.17	2	11	7	0.5
Herb	*Minuria leptophylla*	Minnie daisy	13	6.96	5	66	13	0.7
Tree	*Myoporum platycarpum* ssp.	false sandalwood	23	6.92	9	196	39	0.27

LANDFORM	Frequency	(O-E)/E	%
Plain	21	1.16	3%
Low hills	10	0.20	2%
Hills	4	-0.55	1%
Rises	2	-0.59	1%
not recorded	2	-0.25	1%
Mountains	1	-0.46	1%
Alluvial plain	1	-0.27	1%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	26	1.28	3%
Hill slope	7	-0.68	0%
Hill footslope	4	0.46	2%
Hill crest	3	0.15	2%
Ridge	1	0.41	2%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam/sand	12	0.06	2%
loam/sand	11	-0.06	1%
loam	7	1.00	3%
clay	6	1.52	4%
clay/loam	4	-0.11	1%
clay/sand	1	-0.56	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low shrubland	9	6.33	10%
Low very open shrubland	6	1.14	3%
Low open shrubland	6	1.02	3%
(Tussock) grassland	4	6.49	10%
Open shrubland	2	0.41	2%
Shrubland	2	1.88	4%
Herbland	2	6.49	10%
Open (tussock) grassland	2	3.68	6%
Closed herbland	2	17.73	25%

Group 46. *Stipa nitida* Balcarra Spear-grass tussock grassland +/- *Myoporum platycarpum* False Sandlewood/ *Eucalyptus socialis* Beaked Red Mallee.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Sclerolaena obliquicuspis	Oblique-spined bindyi	44	1.32	8	1083	55	0.7
Enchylaena tomentosa var.	Ruby saltbush	44	1.02	8	1189	59	0.83
Grass							
Stipa nitida	Balcarra spear-grass	100	25.37	18	536	58	0.71
Stipa drummondii	Cottony spear-grass	44	50.52	8	58	16	0.68

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Shrub	*Templetonia egena*	Broombush templetonia	22	23.65	4	31	13	0.42
Grass	*Stipa platychaeta*	Flat-awn spear-grass	17	14.61	3	28	13	0.5
Tree	*Myoporum platycarpum* ssp.	False sandalwood	39	10.51	7	196	39	0.2
Shrub	*Acacia nyssophylla*	Spine bush	11	9.55	2	19	8	1.05
Tall shrub	*Acacia argyrophylla U*	Silver mulga-bush	6	9.24	1	5	4	3
Low shrub	*Maireana lobiflora*	Lobed bluebush	11	7.50	2	24	10	0.5
Low shrub	*Eriochiton sclerolaenoides*	Woolly-fruit bluebush	39	7.30	7	268	38	0.45
Herb	*Goodenia pusilliflora*	small-flower goodenia	28	6.96	5	150	29	0.52
Low shrub	*Atriplex eardleyae*	Eardley's saltbush	11	6.15	2	29	15	0.3
Low shrub	*Grevillea huegelii*	Comb grevillea	6	5.71	1	8	5	0.1

LANDFORM	Frequency	(O-E)/E	%
Plain	7	0.64	1%
Low hills	6	0.64	1%
Hills	1	-0.74	0%
Rises	1	-0.54	0%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	12	1.40	1%
Hill slope	6	-0.37	0%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam	5	1.70	2%

Appendix 9. (continued)

Clay/loam/sand	4	-0.14	1%
Loam/sand	4	-0.18	1%
Loam	1	-0.31	0%
Clay	1	0.01	1%
sand	1	1.95	2%
not recorded	1	-0.02	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Mallee	5	8.27	5%
Low open shrubland	3	1.31	1%
Open shrubland	2	2.22	2%
Low woodland	2	2.92	2%
Shrubland	1	2.28	2%
not recorded	1	-0.78	0%
Very open shrubland	1	0.90	1%
Very open (tussock) grassland	1	11.19	7%
Tall shrubland	1	5.09	4%
Closed (tussock) grassland	1	20.33	13%

Group 47. *Danthonia caespitosa* Common Wallaby-grass tussock grassland +/- emergent *Acacia victoriae* Elegant Wattle tall shrubs.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	71	9.88	20	1423	59	0.62
Low shrub							
Sclerolaena patenticuspis	Spear-fruit bindyi	75	41.51	21	463	52	0.92
Sida corrugata var.	Corrugated sida	54	20.04	15	469	50	0.58
Grass							
Danthonia caespitosa	Common wallaby-grass	100	55.35	28	616	57	1.18

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Atriplex eardleyae*	Eardley's saltbush	18	40.18	5	29	15	0.8
Herb	*Asphodelus fistulosus* *	Onion weed	36	14.09	10	299	44	1.5
Low shrub	*Lawrencia squamata*	Thorny lawrencia	7	9.66	2	19	13	0.5
Low shrub	*Maireana ciliata*	Hairy fissure-plant	4	7.76	1	6	4	0.1
Grass	*Stipa nitida*	Balcarra spear-grass	36	7.14	10	536	58	0.82
Grass	*Stipa nodosa*	Tall spear-grass	21	6.70	6	219	48	1
Grass	*Aristida holathera* var. *holathera*	Tall kerosene grass	4	6.63	1	7	6	0
Shrub	*Templetonia egena*	Broombush templetonia	7	5.78	2	31	13	1
Tree	*Alectryon oleifolius* ssp. *canescens*	Bullock bush	29	2.49	8	760	52	0.6
Low shrub	*Sclerolaena constricta*		4	1.79	1	24	12	1

LANDFORM	Frequency	(O-E)/E	%
Plain	14	1.11	2%
Rises	6	0.79	2%
Low hills	5	-0.12	1%
Alluvial plain	1	0.07	1%
not recorded	1	-0.45	1%
Hills	1	-0.83	0%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	13	0.67	2%
Hill slope	10	-0.32	1%
Stream channel	3	3.57	4%
Hill footslope	1	-0.47	1%
Hill crest	1	-0.44	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	7	3.01	2%
loam/sand	4	-0.13	1%
clay/loam/sand	3	-0.32	0%
loam	2	0.47	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
very open herbland	4	16.55	16%
not recorded	3	-0.57	0%
Tall very open shrubland	3	0.46	1%
Low woodland	2	1.52	2%
Closed herbland	2	26.42	25%
low open woodland	2	1.03	2%
very open grassland	2	6.08	6%
open herbland	2	11.19	11%

Group 48. *Sida corrugata* Corrugated Sida dwarf-shrubland +/- *Danthonia caespitosa* Common Wallaby-grass/ *Aristida behriana* Brush Wire-grass/ *Oxalis perennans* Native Sorrel +/- *Acacia victoriae* Elegant Wattle or *Callitris glaucophylla* White Cypress-pine or *Eucalyptus* spp. Shrub to woodland overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	73	1.90	8	1423	59	1.57
Low shrub							
Sida corrugata var.	Corrugated sida	91	14.09	10	469	50	0.56

Appendix 9. (continued)

Grass							
Danthonia caespitosa	Common wallaby-grass	45	2.10	5	616	57	1
Aristida behriana	Brush wire-grass	45	23.98	5	75	11	1.2
Herb							
Oxalis perennans	Native sorrel	45	1.83	5	682	52	0.5

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Grass	*Homopholis proluta*	Rigid panic	18	59.34	2	5	4	0.5
Herb	*Medicago sativa* ssp. *	Lucerne	18	59.34	2	5	3	2
Grass	*Cynodon dactylon* *	Couch	18	36.94	2	8	6	0.75
Herb	*Teucrium racemosum*	Grey germander	27	19.82	3	33	19	0.66
Grass	*Enneapogon nigricans*	Black-head grass	36	19.47	4	59	17	0.87
Grass	*Enteropogon acicularis*	Umbrella grass	36	18.52	4	62	21	1.25
Grass	*Danthonia racemosa* var. *racemosa*	Slender wallaby-grass	18	18.30	2	16	8	0.5
Low shrub	*Solanum esuriale*	Quena	36	18.23	4	63	23	0.4
Sedge	*Juncus flavidus R*	Yellow rush	9	14.73	1	5	4	1
Grass	*Piptatherum miliaceum* *	rice millet	9	12.26	1	6	5	0.5

LANDFORM	Frequency	(O-E)/E	%
Plain	2	-0.23	0%
Low hills	2	-0.10	0%
Flood plain	1	3.83	2%
Rises	1	-0.24	0%

LAND UNIT	Frequency	(O-E)/E	%
Plain (incl undulating plain)	8	1.62	1%
Hill slope	2	-0.65	0%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam	4	2.33	1%
Loam/sand	2	-0.37	0%
Clay	2	2.14	1%
clay/loam/sand	1	-0.67	0%
clay/sand	1	0.64	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall shrubland	2	18.94	7%
Tall very open shrubland	1	0.24	0%
low open woodland	1	1.59	1%
Open shrubland	1	1.63	1%
Shrubland	1	4.37	2%
Open (tussock) grassland	1	7.72	3%
Tall open shrubland	1	3.65	2%
Open forest	1	6.55	3%

Group 49. *Acacia victoriae* Elegant Wattle/ *Lycium ferocissimum* African Boxthorn. tall shrubland +/- *Eucalyptus camaldulensis* River Red Gum/*E. microcarpa* Grey Box woodland over degraded herbland/grassland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tall shrub							
Acacia victoriae ssp.	Elegant wattle	68	3.66	25	1423	59	0.72
Lycium ferocissimum *	African boxthorn	54	32.58	20	202	30	0.51
Low shrub							
Enchylaena tomentosa var.	Ruby saltbush	46	1.24	17	1189	59	0.46
Grass							
Stipa scabra ssp.	Rough spear-grass	41	6.31	15	459	55	0.98
Herb							
Marrubium vulgare *	Horehound	78	53.08	29	264	47	0.42
Asphodelus fistulosus *	Onion weed	59	25.77	22	299	44	0.80
Salvia verbenaca form *	Wild sage	57	71.11	21	108	25	0.61

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Vine	*Convolvulus erubescens*	Australian bindweed	30	17.92	11	112	26	0.36
Vine	*Convolvulus aff. erubescens "linear lobes" U*	Grassland bindweed	5	14.35	2	5	3	0.5
Low shrub	*Solanum cinereum* *	Narrawa burr	5	14.35	2	5	4	0.1
Herb	*Cullen patens*	Spreading scurf-pea	5	11.90	2	6	3	0.3
Herb	*Vittadinia gracilis*	Woolly New Holland daisy	32	11.64	12	191	38	0.59
Tree	*Eucalyptus camaldulensis* var.	river red gum	30	8.05	11	221	32	1.66
Low shrub	*Maireana brevifolia*	short-leaf bluebush	24	6.75	9	178	35	0.46
Low shrub	*Zygophyllum eremaeum*	pale-flower twin-leaf	5	6.33	2	11	8	1.05
Low shrub	*Solanum nigrum* *	Black nightshade	11	6.30	4	42	20	0.1
Mat plant	*Boerhavia dominii*	tar-vine	27	5.49	10	253	31	0.26

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Plain	9	0.03	1%
Low hills	9	0.20	1%
Alluvial plain	4	2.23	4%
Hills	4	-0.50	1%
Drainage line	3	1.10	3%
Rises	3	-0.32	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	13	0.38	2%
hill slope	12	-0.33	1%
depression	3	0.88	2%
stream channel	3	2.76	4%
hill footslope	2	-0.12	1%
hill crest	2	-0.07	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	8	0.93	3%
loam/sand	5	-0.54	1%
loam	4	0.24	2%
clay/loam/sand	3	-0.71	0%
clay/sand	3	0.42	2%
clay	1	-0.55	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Tall very open shrubland	9	2.32	4%
Open woodland	5	2.88	5%
low open woodland	3	1.31	3%
Low open shrubland	3	0.12	1%
Open forest	2	3.49	5%
(Tussock) grassland	2	3.15	5%
Woodland	2	1.31	3%
Very low open shrubland	2	32.20	40%

Group 50. *Eucalyptus camaldulensis* River Red Gum +/- *Callitris glaucophylla* White Cypress-pine woodland over a degraded understorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Tree							
Eucalyptus camaldulensis var.	River red gum	80	64.13	16	221	32	1.56
Callitris glaucophylla	White cypress-pine	55	9.87	11	590	37	1.05
Herb							
Marrubium vulgare *	Horehound	50	20.13	10	264	47	0.37

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Sedge	*Carex tereticaulis*	Rush sedge	10	38.18	2	6	5	0.5
Sedge	*Juncus kraussii*	Sea rush	10	32.65	2	7	5	2
Herb	*Cotula coronopifolia* *	Water buttons	10	32.65	2	7	5	0.75
Herb	*Cynara cardunculus* *	Artichoke thistle	10	28.55	2	8	6	0.75
Shrub	*Myoporum montanum*	Native myrtle	30	23.06	6	86	30	0.5
Grass	*Typha domingensis*	Narrow-leaf bulrush	10	22.77	2	10	5	3
Sedge	*Cyperus vaginatus*	Stiff flat-sedge	20	22.40	4	40	14	1.15
Herb	*Rumex dumosus* var. *K*	Wiry dock	10	18.89	2	12	5	0.5
Tree	*Schinus areira* *	Pepper-tree	10	15.05	2	15	8	0.5
Herb	*Aster subulatus* *	Aster-weed	5	14.28	1	4	4	0.5

LANDFORM	Frequency	(O-E)/E	%
Drainage line	8	9.35	7%
Plain	2	-0.58	0%
Low hills	2	-0.51	0%
Rises	2	-0.17	1%
Flood plain	1	1.66	2%
Hills	1	-0.77	0%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	5	0.20	1%
depression	5	6.11	4%
hill slope	4	-0.49	0%
stream channel	4	10.37	6%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	7	0.22	1%
clay/loam/sand	2	-0.64	0%
clay/sand	2	0.80	1%
clay/loam	1	-0.54	0%
loam	1	-0.41	0%
skeletal	1	-0.02	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Woodland	5	9.66	7%
Open woodland	4	4.74	4%
Open forest	2	7.30	5%
Open mallee	1	0.85	1%
Low open forest	1	3.15	3%
Very low woodland	1	1.74	2%
Closed sedgeland	1	152.55	100%

Appendix 9. (continued)

Group 53. *Sclerolaena brachyptera* Short-wing Bindyi/ *Sclerolaena divaricata* Tangled Bindyi dwarf-shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Sclerolaena brachyptera	Short-wing bindyi	89	59.94	25	385	45	0.716
Sclerolaena divaricata	Tangled bindyi	82	45.47	23	421	32	0.97
Sclerolaena ventricosa	Salt bindyi	43	21.96	12	237	30	0.9

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub	*Sclerostegia tenuis*	Slender samphire	14	34.56	4	18	7	0.55
Low shrub	*Minuria cunninghamii*	Bush minuria	39	28.99	11	155	38	0.43
Low shrub	*Atriplex angulata*	Fan saltbush	32	27.84	9	109	27	1.07
Grass	*Astrebla lappacea*	Curly Mitchell-grass	11	15.70	3	22	7	0.55
Low shrub	*Osteocarpum dipterocarpum*	Two-wing bonefruit	7	15.52	2	10	7	0.3
Low shrub	*Maireana turbinata*	Top-fruit bluebush	25	14.61	7	122	33	0.8
Low shrub	*Osteocarpum acropterum* var.	Bonefruit	25	11.79	7	149	30	0.52
Low shrub	*Halosarcia halocnemoides* ssp.	Grey samphire	7	10.21	2	15	8	1.05
Low shrub	*Dissocarpus biflorus* var.	Two-horn saltbush	14	10.03	4	59	14	0.77
Grass	*Astrebla pectinata*	Barley Mitchell-grass	18	9.79	5	93	7	1.7

LANDFORM	Frequency	(O-E)/E	%
Plain	18	1.71	2%
Rises	6	0.79	2%
Hills	3	-0.50	0%
Low hills	1	-0.82	0%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	19	1.44	2%
hill footslope	4	1.14	2%
hill slope	4	-0.73	0%
swamp	1	50.79	50%

SURFACE SOIL	Frequency	(O-E)/E	%
clay	8	4.52	5%
clay/loam	5	0.83	2%
clay/loam/sand	4	-0.42	1%
loam/sand	3	-0.58	0%
loam	1	-0.53	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low open shrubland	7	2.46	3%
Low very open shrubland	5	1.61	2%
Low shrubland	4	3.77	4%
Low closed shrubland	2	53.84	50%
(Tussock) grassland	1	1.74	3%
Very open shrubland	1	0.22	1%
Closed herbland	1	12.71	13%
very open grassland	1	2.54	3%
open grassland	1	9.97	10%
grassland	1	26.42	25%
Herbland	1	4.48	5%

Group 54. *Astrebla pectinata* Barley Mitchell-grass/ *Eragrostis setifolia* Bristly Love-grass tussock grassland with bindyi dwarf-shrubs +/- *Maireana aphylla* Cotton-bush low shrub overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Low shrub							
Sclerolaena brachyptera	Short-wing bindyi	93	84.20	50	385	45	1.08
Sclerolaena ventricosa	Salt bindyi	74	89.32	40	237	30	1.44
Sclerolaena divaricata	Tangled bindyi	61	31.41	33	421	32	1.09
Maireana aphylla	Cotton-bush	48	56.15	26	159	28	1.31
Atriplex angulata	Fan saltbush	43	65.67	23	109	27	1.12
Grass							
Astrebla pectinata	Barley Mitchell-grass	89	347.03	48	93	7	1.20
Eragrostis setifolia	Bristly love-grass	83	230.62	45	122	16	0.97
Herb							
Pimelea simplex ssp.	Desert riceflower	46	28.83	25	270	33	0.69

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Herb	*Ixiolaena brevicompta*	Plains plover-daisy	15	113.48	8	8	1	0.41
Grass	*Dichanthium sericeum* ssp.	Silky blue-grass	26	97.89	14	28	7	0.73
Low shrub	*Malacocera tricornis*	Goat-head soft-horns	19	69.92	10	20	8	1.12
Low shrub	*Dissocarpus biflorus* var.	Two-horn saltbush	30	59.45	16	59	14	0.94
Low shrub	*Sida trichopoda*	High sida	33	54.03	18	81	19	0.44
Herb	*Euphorbia stevenii*	Bottletree spurge	22	47.00	12	42	14	1.04
Herb	*Ixiolaena leptolepis*	Narrow plover-daisy	39	34.59	21	165	30	0.66

Appendix 9. (continued)

Low shrub	*Sclerolaena bicornis*	Goathead bindyi	9	26.72	5	13	7	1.3
Low shrub	*Minuria cunninghamii*	bush minuria	33	26.69	18	155	38	0.51
Herb	*Euphorbia tannensis* ssp. *eremophila*	Desert spurge	24	22.13	13	99	27	0.55

LANDFORM	Frequency	(O-E)/E	%
Plain	50	2.84	7%
Flood plain	2	0.93	3%
Rises	2	-0.70	1%
Drainage line	1	-0.53	1%

LAND UNIT	Frequency	(O-E)/E	%
plain (incl undulating plain)	48	2.20	6%
hill slope	3	-0.89	0%
stony plain	2	4.11	10%
flood out	1	2.16	6%
hill footslope	1	-0.72	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam	5	1.70	2%
Clay/loam/sand	5	0.07	1%
clay	4	3.06	3%
loam/sand	2	-0.59	0%
clay/sand	1	0.06	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Low very open shrubland	8	1.17	4%
very open grassland	8	13.68	26%
Open (tussock) grassland	5	7.89	16%
very open herbland	5	10.37	20%
Low shrubland	3	0.85	3%
open herbland	3	8.48	17%
Low open shrubland	2	-0.49	1%
open grassland	2	10.37	20%
Open shrubland	1	-0.46	1%

Group 55. *Cassinia laevis* Curry Bush/ *Dodonaea* spp. Hop-bush open shrubland over *Triodia* spp. Spinifex hummock-grass +/- *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus porosa* Mallee Box / *Callitris glaucophylla* White Cypress-pine overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	42	0.82	15	590	37	0.86
Mallee							
Eucalyptus socialis	Beaked red mallee	47	4.98	17	329	39	1.68
Shrub							
Cassinia laevis	Curry bush	61	7.65	22	392	35	1.04
Senna artemisioides ssp.	Desert senna	47	-0.62	17	1043	53	0.46
Dodonaea viscosa ssp.	Sticky hop-bush	47	5.29	17	322	42	0.84
Low shrub							
Olearia decurrens	Winged daisy-bush	75	17.30	27	304	32	0.64
Solanum ellipticum/quadriloculatum		61	0.00	22	1121	50	0.47
Rhagodia parabolica	Mealy saltbush	58	7.30	21	370	43	0.52
Ptilotus obovatus var.	Silver mulla mulla	56	-0.73	20	1263	51	0.47
Solanum petrophilum	rock nightshade	44	3.81	16	359	47	0.46
Enchylaena tomentosa var.	ruby saltbush	42	-1.10	15	1189	59	0.47
Hummock grass							
Triodia irritans complex	Spinifex	72	9.04	26	458	36	1.36
Grass							
Stipa scabra ssp.	Rough spear-grass	42	1.92	15	459	55	0.58
Vine							
Glycine clandestina var.	Twining glycine	44	4.69	16	309	33	0.31
Herb							
Oxalis perennans	Native sorrel	61	2.42	22	682	52	0.43

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. in groups	Average cover
Mallee	*Eucalyptus porosa*	Mallee box	28	13.91	10	59	19	1.15
Herb	*Vittadinia blackii*	Narrow-leaf New Holland daisy	19	12.17	7	34	10	0.57
Low shrub	*Haeckeria punctulata R*	Sticky haeckeria	11	10.76	4	13	8	0.80
Low shrub	*Maireana campanulata*	bell-fruit bluebush	11	10.76	4	13	9	0.40
Low shrub	*Dodonaea baueri*	Crinkled hop-bush	25	10.05	9	65	21	0.42
Low shrub	*Chrysocephalum semipapposum*	Clustered everlasting	33	8.35	12	127	18	0.62
Tall shrub	*Eremophila oppositifolia* var.	Opposite-leaved emubush	25	8.24	9	77	23	0.41
Herb	*Haloragis aspera*	Rough raspwort	17	8.24	6	36	14	0.37
Low shrub	*Scaevola humilis*	Inland fanflower	19	7.17	7	54	20	0.59
Herb	*Verbena officinalis* *	Common verbena	6	7.10	2	5	3	0.75

Appendix 9. (continued)

LANDFORM	Frequency	(O-E)/E	%
Hills	14	0.80	2%
Low hills	5	-0.32	1%
Mountains	4	1.46	3%
Plain	4	-0.53	1%
Rises	3	-0.30	1%
Escarpment	1	20.39	25%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	20	0.06	1%
hill crest	6	1.63	3%
hill footslope	4	0.66	2%
ridge	3	3.83	6%
plain (incl undulating plain)	2	-0.80	0%
stream channel	1	0.18	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	12	0.13	2%
clay/loam	8	0.98	3%
clay/loam/sand	7	-0.31	1%
loam	6	0.90	3%
clay	1	-0.53	1%
clay/sand	1	-0.51	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Mallee	8	6.42	9%
open mallee	4	3.11	5%
Very open mallee	3	2.32	4%
Woodland	2	1.37	3%
Shrubland	2	2.28	4%
Very low open woodland	2	-0.04	1%
Low shrubland	1	-0.07	1%
Low open forest	1	1.31	3%
Low woodland	1	-0.02	1%
Hummock grassland	1	4.69	7%
Open low mallee	1	27.44	33%

Group 56. *Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Chrysocephalum semicalvum* Scented Button-bush and *Cheilanthes lasiophylla* Woolly Cloak-fern.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	82	13.32	56	590	37	0.74
Eucalyptus intertexta	gum-barked coolibah	60	27.77	41	214	24	0.69
Alectryon oleifolius ssp. *canescens*	Bullock bush	57	2.14	39	760	52	0.51
Tall shrub							
Acacia tetragonophylla	dead finish	51	0.64	35	811	37	0.49
Shrub							
Cassinia laevis	Curry bush	68	16.00	46	392	35	0.63
Senna artemisioides ssp.	Desert senna	66	0.82	45	1043	53	0.50
Dodonaea viscosa ssp.	Sticky hop-bush	65	18.52	44	322	42	0.54
Low shrub							
Ptilotus obovatus var.	Silver mulla mulla	91	2.27	62	1263	51	0.68
Sida petrophila	rock sida	88	8.79	60	815	46	0.58
Solanum ellipticum/quadriloculatum		82	2.05	56	1121	50	0.51
Chrysocephalum semicalvum ssp. *semicalvum*	Scented button-bush	82	23.57	56	413	27	0.51
Olearia decurrens	Winged daisy-bush	76	30.46	52	304	32	0.42
Solanum petrophilum	rock nightshade	69	18.93	47	359	47	0.37
Hakea ednieana	Flinders Ranges corkwood	66	26.36	45	262	23	0.54
Eremophila freelingii	rock emubush	57	3.57	39	643	33	0.57
Prostanthera striatiflora	Striated mintbush	44	12.63	30	225	24	0.36
Hummock grass							
Triodia irritans complex	Spinifex	71	14.06	48	458	36	1.20
Grass							
Digitaria brownii	Cotton panic-grass	62	26.14	42	233	16	0.49
Aristida nitidula	Brush threeawn	60	8.25	41	474	39	0.56
Cymbopogon ambiguus	Lemon-grass	51	1.92	35	650	48	0.43
Vine							
Glycine clandestina var.	Twining glycine	69	23.23	47	309	33	0.33
Marsdenia australis	Native pear	46	11.35	31	251	25	0.24
Fern							
Cheilanthes lasiophylla	Woolly cloak-fern	71	17.57	48	395	26	0.49
Cheilanthes sieberi ssp. *sieberi*	Narrow rock-fern	41	12.30	28	202	23	0.48
Herb							
Oxalis perennans	Native sorrel	69	6.02	47	682	52	0.44

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Fern	*Paraceterach reynoldsii*	Scaly rock-fern	26	39.21	18	34	5	0.48
Low shrub	*Indigofera leucotricha*	Silver indigo	28	30.95	19	47	9	0.32
Fern	*Pleurosorus rutifolius*	Blanket fern	35	20.21	24	105	19	0.47
Low shrub	*Sclerolaena convexula*	tall bindyi	26	19.77	18	63	13	0.44
Low shrub	*Eremophila serrulata*	Green emubush	22	14.28	15	59	17	0.37
Sedge	*Xanthorrhoea quadrangulata*	rock grass-tree	40	13.84	27	175	17	0.52
Grass	*Stipa trichophylla*		31	13.07	21	117	19	0.47
Low shrub	*Goodenia vernicosa*	Wavy goodenia	22	12.63	15	65	10	0.47
Low shrub	*Acacia confluens R 2R*	Arkaroola wattle	12	12.15	8	21	7	0.63
Low shrub	*Eremophila santalina U*	Sandalwood emubush	12	11.57	8	22	10	0.40

LANDFORM	Frequency	(O-E)/E	%
Hills	39	1.65	6%
Mountains	17	4.54	12%
Rises	6	-0.26	2%
Low hills	4	-0.71	1%
Drainage line	2	-0.24	2%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	54	0.60	4%
hill crest	9	1.22	5%
depression	4	0.33	3%
stream channel	1	-0.33	1%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	45	1.41	6%
loam/sand	10	-0.49	1%
clay/loam	5	-0.33	2%
clay	3	-0.24	2%
clay/sand	3	-0.20	2%
skeletal	1	-0.71	1%
sand	1	-0.26	2%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open woodland	7	1.95	7%
low open woodland	3	0.25	3%
Woodland	2	0.25	3%
Very low open woodland	2	-0.49	1%
Mallee	1	-0.51	1%
Very open mallee	1	-0.41	1%
Low open forest	1	0.22	3%
Hummock grassland	1	2.01	7%
Open shrubland	1	-0.57	1%
Tall very open shrubland	1	-0.80	0%
Very low open forest	1	1.38	5%

Group 57. *Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah +/- *Eucalyptus flindersii* Flinders Grey Mallee open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Lomandra multiflora* Hard Mat-rush/ *Xanthorrhoea quadrangulata* Rock Grass-tree/ *Cheilanthes sieberi* Narrow Rock-fern.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	84	24.42	58	590	37	0.75
Eucalyptus intertexta	gum-barked coolibah	52	30.31	36	214	24	0.65
Mallee							
Eucalyptus flindersii	Flinders grey mallee	46	188.60	32	32	1	0.78
Shrub							
Cassinia laevis	Curry bush	77	33.95	53	392	35	0.81
Dodonaea viscosa ssp.	Sticky hop-bush	77	43.65	53	322	42	0.80
Senna artemisioides ssp.	Desert senna	49	0.62	34	1043	53	0.61
Low shrub							
Chrysocephalum semipapposum	Clustered everlasting	54	58.92	37	127	18	0.61
Prostanthera striatiflora	Striated mintbush	52	28.33	36	225	24	0.43
Olearia decurrens	Winged daisy-bush	46	14.64	32	304	32	0.47
Goodenia vernicosa	Wavy goodenia	42	73.25	29	65	10	0.56
Chrysocephalum semicalvum ssp. *semicalvum*	Scented button-bush	42	6.90	29	413	27	0.36
Hummock grass							
Triodia irritans complex	Spinifex	75	26.65	52	458	36	1.24
Sedge							
Lomandra multiflora ssp. *dura*	hard mat-rush	58	21.96	40	328	26	0.33
Xanthorrhoea quadrangulata	rock grass-tree	57	45.69	39	175	17	0.68
Fern							
Cheilanthes sieberi ssp. *sieberi*	Narrow rock-fern	58	41.00	40	202	23	0.46
Cheilanthes lasiophylla	Woolly cloak-fern	43	8.24	30	395	26	0.48

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Low shrub	*Grevillea aspera*	Rough grevillea	29	117.87	20	20	1	0.57
Shrub	*Melaleuca uncinata*	Broombush	30	103.40	21	25	3	0.95
Shrub	*Acacia havilandii*	Needle wattle	29	97.74	20	24	3	0.65
Low shrub	*Callistemon teretifolius*	Needle bottlebrush	26	64.57	18	29	4	0.50
Sedge	*Dianella longifolia* var. *grandis R*	pale flax-lily	14	53.45	10	11	2	0.18
Low shrub	*Spyridium phlebophyllum*	Inland spyridium	25	45.74	17	36	5	0.36
Low shrub	*Calytrix tetragona*	Common fringe-myrtle	33	39.99	23	73	8	0.70
Low shrub	*Acacia beckleri*	Beckler's rock wattle	12	37.49	8	10	3	0.56
Herb	*Hybanthus monopetalus*	Slender violet	14	31.85	10	18	6	0.39
Low shrub	*Templetonia aculeata U*	Spiny mallee-pea	20	30.49	14	36	8	0.12

LANDFORM	Frequency	(O-E)/E	%
Hills	35	1.35	5%
Mountains	19	5.10	14%
Plateau	6	19.60	46%
Drainage line	5	0.88	4%
Escarpment	2	21.32	50%
Rises	2	-0.76	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	48	0.42	3%
hill crest	14	2.45	8%
depression	5	0.67	4%
hill footslope	1	-0.77	1%
ridge	1	-0.09	2%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam/sand	27	0.42	4%
loam/sand	22	0.11	3%
clay/sand	10	1.61	7%
skeletal	5	0.42	4%
not recorded	2	-0.52	1%
clay/loam	1	-0.87	0%
clay	1	-0.75	1%
loam	1	-0.83	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open woodland	9	2.74	8%
Very low open woodland	8	1.01	5%
Very open mallee	5	1.89	6%
Low open woodland	4	0.65	4%
open mallee	4	1.14	5%
Mallee	2	-0.03	2%
Woodland	1	-0.38	1%
Very low open forest	1	1.34	5%
Open low mallee	1	13.84	33%
Very open shrubland	1	-0.51	1%
very open woodland	1	10.13	25%
Very low woodland	1	-0.21	2%
Tall open shrubland	1	-0.26	2%

Group 58. *Eucalyptus intertexta* Gum-barked Coolibah / *Callitris glaucophylla* White Cypress-pine open woodland over *Acacia rivalis* Silver Wattle/ *Senna artemisioides* Desert Senna with *Dodonaea lobulata* Lobed-leaf Hop-bush and *Sclerolaena patenticuspis* Spear-fruit Bindyi/ *Danthonia caespitosa* Common Wallaby-grass in the understorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	84	9.66	16	590	37	0.90
Eucalyptus intertexta	gum-barked coolibah	79	27.73	15	214	24	1.20
Tall shrub							
Acacia rivalis	Silver wattle	89	25.20	17	295	26	1.33
Shrub							
Senna artemisioides ssp.	Desert senna	89	4.98	17	1043	53	0.60
Low shrub							
Dodonaea lobulata	Lobed-leaf hop-bush	95	16.47	18	471	39	1.03
Sclerolaena patenticuspis	Spear-fruit bindyi	74	9.74	14	463	52	0.60
Ptilotus obovatus var.	Silver mulla mulla	47	0.16	9	1263	51	0.27
Grass							
Danthonia caespitosa	Common wallaby-grass	89	10.58	17	616	57	0.98
Stipa nodosa	tall spear-grass	47	9.06	9	219	48	0.63
Herb							
Oxalis perennans	Native sorrel	42	1.32	8	682	52	0.4

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Mat plant	*Boerhavia schomburgkiana*	Schomburgk's tar-vine	37	37.03	7	37	11	0.57
Herb	*Rumex brownii*	Slender dock	26	13.54	5	50	18	0.26
Sedge	*Juncus subsecundus*	Finger rush	16	12.46	3	20	11	1
Herb	*Wahlenbergia stricta* ssp. *stricta*	tall bluebell	32	12.41	6	77	14	0.75

Appendix 9. (continued)

Low shrub	*Ptilotus spathulatus forma*	Pussy-tails	37	6.28	7	187	28	0.38
Herb	*Asperula conferta*	Common woodruff	21	5.78	4	71	15	0.75
Herb	*Chrysocephalum eremaeum*	sand button-bush	5	5.60	1	5	5	0.1
Sedge	*Juncus aridicola*	Inland rush	5	5.60	1	5	5	0.5
Sedge	*Schoenoplectus litoralis*	Shore club-rush	5	5.60	1	5	3	1
Herb	*Ptilotus exaltatus* var.	pink mulla mulla	32	5.60	6	156	21	0.25

LANDFORM	Frequency	(O-E)/E	%
Low hills	10	1.59	2%
Hills	4	-0.03	1%
Plain	3	-0.33	0%
Rises	2	-0.12	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	9	0.01	1%
hill crest	3	1.78	2%
plain (incl undulating plain)	2	-0.58	0%
stream channel	2	4.02	3%
Depression	2	1.51	1%
Stony plain	1	7.12	5%

SURFACE SOIL	Frequency	(O-E)/E	%
Clay/loam/sand	7	0.96	1%
Loam/sand	1	-0.73	0%
clay/sand	1	0.39	1%
skeletal	1	0.51	1%
loam	1	-0.10	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open woodland	4	5.04	4%
Very open mallee	2	3.20	3%
low open woodland	2	1.99	2%
Tall open shrubland	2	4.39	3%
Tall very open shrubland	2	0.44	1%
Open forest	2	7.74	5%
Very low open woodland	1	-0.09	1%
Woodland	1	1.24	1%
Very open shrubland	1	0.80	1%
Shrubland	1	2.11	2%
Low open shrubland	1	-0.27	0%

Group 59. *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus dumosa* White Mallee/ *Callitris glaucophylla* White Cypress-pine over *Senna artemisioides* Desert Senna/ *Cassinia laevis* Curry Bush/ *Dodonaea lobulata* Lobe-leaf Hop-bush +/- *Triodia* spp. Spinifex.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	52	13.27	25	590	37	0.90
Mallee							
Eucalyptus socialis	Beaked red mallee	42	16.84	20	329	39	1.36
Shrub							
Senna artemisioides ssp.	Desert senna	85	19.51	41	1043	53	0.69
Cassinia laevis	Curry bush	65	35.18	31	392	35	0.78
Low shrub							
Dodonaea lobulata	Lobed-leaf hop-bush	56	21.25	27	471	39	0.74
Ptilotus obovatus var.	Silver mulla mulla	44	1.92	21	1263	51	0.48
Hummock grass							
Triodia irritans complex	Spinifex	44	12.30	21	458	36	1.20

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Mallee	*Eucalyptus dumosa*	White mallee	29	46.64	14	67	19	0.93
Low shrub	*Westringia rigida*	Stiff westringia	27	40.69	13	66	19	0.68
Low shrub	*Chrysocephalum semipapposum*	Clustered everlasting	31	26.91	15	127	18	0.64
Low shrub	*Goodenia vernicosa*	Wavy goodenia	15	11.40	7	65	10	0.92
Tall shrub	*Melaleuca lanceolata* ssp. *lanceolata*	Dryland tea-tree	17	8.64	8	107	34	0.53
Low shrub	*Dodonaea baueri*	Crinkled hop-bush	13	8.24	6	65	21	0.28
Low shrub	*Chrysocephalum semicalvum* ssp. *semicalvum*	Scented button-bush	33	7.61	16	413	27	0.64
Low shrub	*Olearia decurrens*	Winged daisy-bush	27	6.90	13	304	32	0.78
Shrub	*Dodonaea viscosa* ssp.	Sticky hop-bush	27	6.42	13	322	42	0.61
Tall shrub	*Acacia rivalis*	Silver wattle	25	5.93	12	295	26	0.70

LANDFORM	Frequency	(O-E)/E	%
Hills	27	1.55	4%
Low hills	12	0.21	2%
Mountains	5	1.26	4%
Plain	3	-0.74	0%
Rises	2	-0.66	1%

LAND UNIT	Frequency	(O-E)/E	%
Hill slope	31	0.20	2%
Hill footslope	7	1.14	4%
Hill crest	6	0.93	3%
Plain (incl undulating plain)	4	-0.71	0%
Ridge	1	0.18	2%

Appendix 9. (continued)

SURFACE SOIL	Frequency	(O-E)/E	%
Skeletal	19	6.91	13%
Loam/sand	12	-0.11	2%
Clay/loam/sand	8	-0.38	1%
Clay/sand	2	-0.23	1%
clay/loam	2	-0.61	1%
loam	1	-0.75	0%
clay	1	-0.63	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Very open mallee	14	10.40	18%
Low open shrubland	6	0.69	3%
Very low open woodland	5	0.77	3%
open mallee	4	2.02	5%
Open woodland	3	0.76	3%
Mallee	3	1.04	3%
low open woodland	2	0.16	2%
Very low woodland	2	1.24	4%
Open shrubland	2	0.18	2%
Low very open shrubland	2	-0.40	1%
Tall very open shrubland	1	-0.72	0%
Open hummock grassland	1	19.89	33%

Group 60. *Danthonia caespitosa* Common Wallaby-grass tussock grassland with *Oxalis perennans* Native Sorrel/ *Ptilotus spathulatus* Pussy-tails with a shrub or woodland overstorey of *Callitris glaucophylla* White Cypress-pine/ *Eucalyptus* spp./ *Acacia* spp./ *Dodonaea* spp.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Callitris glaucophylla	White cypress-pine	41	6.24	31	590	37	1.8
Low shrub							
Ptilotus spathulatus forma	Pussy-tails	75	109.67	56	187	28	0.44
Enchylaena tomentosa var.	Ruby saltbush	55	3.00	41	1189	59	0.58
Sida corrugata var.	Corrugated sida	52	16.42	39	469	50	0.50
Grass							
Danthonia caespitosa	Common wallaby-grass	79	30.24	59	616	57	0.62
Herb							
Oxalis perennans	Native sorrel	79	25.92	59	682	52	0.50
Wahlenbergia luteola	Yellow-wash bluebell	60	56.01	45	227	23	0.47

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Grass	*Stipa elegantissima*	Feather spear-grass	40	26.36	30	201	30	0.32
Herb	*Goodenia pusilliflora*	Small-flower goodenia	32	23.28	24	150	29	0.65
Tall shrub	*Acacia calamifolia*	Wallowa	31	21.05	23	150	33	1.06
Herb	*Einadia nutans* ssp.	Climbing saltbush	40	19.77	30	256	39	0.48
Low shrub	*Maireana enchylaenoides*	Wingless fissure-plant	31	17.26	23	178	20	0.48
Grass	*Stipa nodosa*	Tall spear-grass	35	17.13	26	219	48	0.7
Herb	*Vittadinia gracilis*	Woolly New Holland daisy	31	15.58	23	191	38	0.51
Herb	*Asphodelus fistulosus* *	Onion weed	39	14.86	29	299	44	0.86
Tall shrub	*Lycium ferocissimum* *	African boxthorn	31	14.73	23	202	30	0.25
Herb	*Goodenia pinnatifida Q*	Cut-leaf goodenia	29	13.29	22	200	35	0.52

LANDFORM	Frequency	(O-E)/E	%
Low hills	24	0.56	4%
Hills	22	0.34	3%
Plain	10	-0.44	1%
Rises	10	0.10	3%
Mountains	4	0.17	3%
Alluvial plain	1	-0.61	1%
Flood plain	1	-0.30	2%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	45	0.14	3%
plain (incl undulating plain)	16	-0.23	2%
hill footslope	6	0.20	3%
hill crest	4	-0.16	2%
stream channel	2	0.14	3%
ridge	2	0.55	4%
depression	1	-0.72	1%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	19	-0.12	2%
clay/loam/sand	18	-0.13	2%
clay/loam	14	0.71	5%
loam	10	0.57	4%
clay/sand	5	0.20	3%
not recorded	4	-0.11	2%
Clay	4	-0.08	3%
Skeletal	1	-0.74	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Shrubland	17	12.39	33%
Very low woodland	7	4.12	13%
Low open forest	7	6.75	19%
Mallee	6	1.67	7%
Low open shrubland	5	-0.08	2%
open mallee	4	0.97	5%
Open shrubland	4	0.55	4%
Low woodland	4	0.88	5%
Tall open shrubland	3	1.05	5%

Appendix 9. (continued)

Tall shrubland	3	3.39	11%
Very low open woodland	2	-0.54	1%
low open woodland	2	-0.24	2%
Very low open forest	2	3.31	11%
(Tussock) grassland	2	1.05	5%

Group 61. *Danthonia caespitosa* Common Wallaby-grass/ *Stipa* spp. Spear-grass tussock grassland with an overstorey of *Eucalyptus socialis* Beaked red Mallee/ *Eucalyptus gracilis* Yorrell/ *Acacia calamifolia* Wallowa/ *Melaleuca lanceolata* Dryland Tea-tree.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Mallee							
Eucalyptus socialis	Beaked red mallee	52	11.53	15	329	39	2.36
Eucalyptus gracilis	Yorrell	48	53.81	14	73	11	1.86
Tall shrub							
Acacia calamifolia	Wallowa	48	24.86	14	150	33	1.72
Melaleuca lanceolata ssp. *lanceolata*	Dryland tea-tree	41	26.14	12	107	34	0.97
Low shrub							
Rhagodia parabolica	Mealy saltbush	59	13.38	17	370	43	0.35
Sedge							
Dianella revoluta var.		45	13.32	13	226	20	0.34
Grass							
Danthonia caespitosa	Common wallaby-grass	83	15.37	24	616	57	0.63
Stipa elegantissima	Feather spear-grass	59	27.07	17	201	30	0.35
Stipa drummondii	Cottony spear-grass	45	58.77	13	58	16	0.7
Stipa nodosa	Tall spear-grass	41	11.64	12	219	48	1
Herb							
Goodenia pinnatifida Q	Cut-leaf goodenia	55	24.01	16	200	35	0.6

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Low shrub	*Olearia minor*	Heath daisy-bush	14	66.48	4	5	2	1.02
Low shrub	*Dodonaea baueri*	Crinkled hop-bush	34	30.57	10	65	21	0.39
Grass	*Stipa acrociliata*	Graceful spear-grass	17	18.58	5	27	15	0.34
Herb	*Senecio quadridentatus*	Cotton groundsel	38	16.91	11	134	30	0.39
Grass	*Stipa flavescens*	Coast spear-grass	10	15.21	3	12	8	1.66
Low shrub	*Westringia rigida*	stiff westringia	21	10.32	6	66	19	0.63
Low shrub	*Lawrencia squamata*	thorny lawrencia	10	9.39	3	19	13	1.2
Herb	*Vittadinia condyloides*	club-hair New Holland daisy	7	8.97	2	9	5	0.5
Grass	*Danthonia setacea* var. *setacea*	small-flower wallaby-grass	17	8.79	5	54	13	0.8
Grass	*Stipa eremophila*	rusty spear-grass	24	8.58	7	105	20	1.5

LANDFORM	Frequency	(O-E)/E	%
Hills	15	1.39	2%
Low hills	7	0.19	1%
Plain	1	-0.85	0%
Mountains	1	-0.24	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	22	0.44	1%
plain (incl undulating plain)	2	-0.75	0%
hill footslope	2	0.03	1%
gully	1	11.50	13%
hill crest	1	-0.46	1%
ridge	1	1.00	2%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	10	0.13	1%
Clay/loam	9	1.66	3%
loam	9	2.41	4%
clay/loam/sand	2	-0.77	0%
not recorded	1	-0.46	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Mallee	13	13.96	14%
open mallee	5	5.38	6%
Tall open shrubland	3	4.29	5%
Open shrubland	2	1.00	2%
Shrubland	1	1.04	2%
Low open shrubland	1	-0.52	0%
Very low open forest	1	4.57	5%
Very open shrubland	1	0.18	1%
Open (tussock) grassland	1	2.31	3%
Tall closed shrubland	1	51.95	50%

Appendix 9. (continued)

Group 62. *Lomandra* spp. Mat-rush/ *Danthonia caespitosa* Common Wallaby-grass/*Stipa* spp. Spear-grass/ *Aristida behriana* Brush Wire-grass tussock grassland +/- a woodland overstorey of *Acacia pycnantha* Golden Wattle/ *Callitris* spp. Native Pine/ *Eucalyptus porosa* Mallee Box.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Shrub							
Senna artemisioides ssp.	Desert senna	42	-0.40	22	1043	53	0.95
Low shrub							
Sida corrugata var.	Corrugated sida	72	16.00	38	469	50	0.59
Ptilotus spathulatus forma	Pussy-tails	47	20.59	25	187	28	0.42
Maireana enchylaenoides	Wingless fissure-plant	45	19.77	24	178	20	0.42
Sedge							
Lomandra effusa	Scented mat-rush	58	93.05	31	73	10	1.08
Lomandra multiflora ssp. *dura*	Hard mat-rush	53	12.81	28	328	26	1.25
Dianella revoluta var.		42	12.08	22	226	20	0.61
Grass							
Danthonia caespitosa	Common wallaby-grass	62	7.25	33	616	57	1.30
Stipa eremophila	Rusty spear-grass	58	62.98	31	105	20	1.58
Stipa nitida	Balcarra spear-grass	57	7.14	30	536	58	1.23
Aristida behriana	Brush wire-grass	55	79.09	29	75	11	0.98
Stipa blackii	Crested spear-grass	45	37.78	24	103	16	1.50
Vine							
Convolvulus erubescens	Australian bindweed	62	67.04	33	112	26	0.55
Herb							
Goodenia pinnatifida Q	Cut-leaf goodenia	81	61.39	43	200	35	0.77
Wahlenbergia luteola	Yellow-wash bluebell	70	38.60	37	227	23	0.64
Vittadinia gracilis	Woolly New Holland daisy	58	32.34	31	191	38	0.72
Minuria leptophylla	Minnie daisy	55	90.24	29	66	13	0.61
Goodenia pusilliflora	Small-flower goodenia	53	34.34	28	150	29	0.91
Salvia verbenaca form *	Wild sage	51	45.96	27	108	25	0.98
Oxalis perennans	Native sorrel	51	2.97	27	682	52	0.52

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Grass	*Danthonia eriantha U*	hill wallaby-grass	34	57.66	18	40	7	1.17
Low shrub	*Atriplex semibaccata*	berry saltbush	34	57.66	18	40	12	0.53
Low shrub	*Pimelea micrantha*	silky riceflower	26	43.31	14	32	10	0.82
Grass	*Enneapogon nigricans*	black-head grass	32	33.60	17	59	17	0.83
Low shrub	*Cryptandra amara* var.	cryptandra	21	33.02	11	26	6	1.14
Herb	*Teucrium sessiliflorum*	mallee germander	11	32.73	6	8	3	1
Grass	*Poa bulbosa* *	bulbous meadow-grass	11	32.73	6	8	3	0.53
Herb	*Rumex dumosus* var. *K*	wiry dock	13	29.34	7	12	5	0.38
Herb	*Scaevola albida*	pale fan-flower	13	24.98	7	14	5	1.35
Herb	*Asperula conferta*	common woodruff	28	21.14	15	71	15	0.54

LANDFORM	Frequency	(O-E)/E	%
Low hills	15	0.42	2%
Hills	11	-0.02	2%
Plain	9	-0.27	1%
Rises	2	-0.68	1%

clay/loam/sand	5	-0.66	1%
clay	5	0.63	3%
loam	2	-0.56	1%
not recorded	1	-0.68	1%
skeletal	1	-0.63	1%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	20	-0.27	1%
plain (incl undulating plain)	15	0.04	2%
hill footslope	12	2.45	6%
hill crest	3	-0.09	2%
stream channel	1	-0.18	1%
ridge	1	0.12	2%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	22	2.80	7%
loam/sand	10	-0.34	1%
clay/sand	7	1.38	5%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
(Tussock) grassland	16	22.62	40%
Open shrubland	5	1.79	5%
Low woodland	4	1.72	5%
Low shrubland	4	1.57	4%
Closed (tussock) grassland	3	21.15	38%
Open (tussock) grassland	2	2.69	6%
Very low woodland	2	1.11	4%
Low open forest	2	2.19	5%
Tall shrubland	2	3.22	7%
Sedgeland	2	28.53	50%

Appendix 9. (continued)

Open sedgeland	2	58.06	100%

Group 63. Variable Woodland of *Eucalyptus odorata* Peppermint Box/ *E. microcarpa* Grey Box/ *Allocasuarina verticillata* Droopinf Sheoak/ *E. leucoxylon* South Australian Bluegum/ *Callitris glaucophylla* White Cypress-pine/ *Acacia pycnantha* Golden Wattle over a sparse *Bursaria spinosa* Sweet Bursaria shrub layer, low shrubs, *Lomandra multiflora* Hard Mat-rush/ *Stipa* spp. Spear-grass tussock grassland +/- *Tiodia* spp. Spinifex hummock grassland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Acacia pycnantha	Golden wattle	43	26.65	26	128	17	0.72
Shrub							
Bursaria spinosa	Sweet bursaria	58	25.62	35	227	25	0.75
Low shrub							
Maireana enchylaenoides	Wingless fissure-plant	73	56.37	44	178	20	0.46
Ptilotus spathulatus forma	Pussy-tails	53	26.36	32	187	28	0.39
Enchylaena tomentosa var.	Ruby saltbush	48	-1.06	29	1189	59	0.48
Hummock grass							
Triodia irritans complex	Spinifex	55	7.85	33	458	36	1.34
Sedge							
Lomandra multiflora ssp. *dura*	Hard mat-rush	73	26.58	44	328	26	0.61
Dianella revoluta var.		53	21.09	32	226	20	0.57
Grass							
Stipa blackii	Crested spear-grass	72	98.38	43	103	16	1.29
Stipa elegantissima	Feather spear-grass	65	37.83	39	201	30	0.48
Stipa scabra ssp.	Rough spear-grass	53	7.61	32	459	55	0.94
Danthonia caespitosa	Common wallaby-grass	42	1.37	25	616	57	0.78
Herb							
Wahlenbergia luteola	Yellow-wash bluebell	65	32.12	39	227	23	0.57
Oxalis perennans	Native sorrel	62	5.42	37	682	52	0.48
Goodenia pinnatifida Q	Cut-leaf goodenia	58	30.11	35	200	35	0.56
Einadia nutans ssp.	Climbing saltbush	53	17.57	32	256	39	0.45

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Herb	*Calocephalus citreus U*	Lemon beauty-heads	22	37.59	13	25	4	0.76
Grass	*Danthonia setacea* var. *setacea*	Small-flower wallaby-grass	30	32.29	18	54	13	1.36
Mallee	*Eucalyptus odorata*	Peppermint box	38	31.99	23	86	22	1.98
Grass	*Elymus scabrus* var. *scabrus*	Native wheat-grass	30	31.63	18	55	13	0.5
Herb	*Brachycome ciliaris* var. *subintegrifolia K*		13	30.02	8	12	5	0.46
Sedge	*Lomandra effusa*	Scented mat-rush	33	28.55	20	73	10	0.53
Grass	*Danthonia auriculata*	Lobed wallaby-grass	22	27.84	13	33	8	1
Shrub	*Ozothamnus retusus Q*	Notched bush-everlasting	10	25.48	6	8	3	0.78
Low shrub	*Eutaxia microphylla* var. *microphylla*	Common eutaxia	25	20.87	15	56	11	0.4
Low shrub	*Cryptandra amara* var.	Cryptandra	17	20.87	10	26	6	1.45

LANDFORM	Frequency	(O-E)/E	%
Low hills	17	0.40	3%
Hills	12	-0.08	2%
Rises	7	-0.03	2%
Plain	5	-0.65	1%
Mountains	4	0.48	3%
Alluvial plain	1	-0.50	1%

LAND UNIT	Frequency	(O-E)/E	%
Hill slope	37	0.17	2%
Hill footslope	10	1.49	5%
Plain (incl undulating plain)	5	-0.70	1%
Hill crest	4	0.05	2%
Ridge	2	0.93	4%
Rock outcrop (on hill)	1	8.67	20%
Gully	1	5.04	13%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	24	0.37	3%
Loam	15	1.89	6%
Clay/loam/sand	11	-0.34	1%
clay/loam	5	-0.25	2%
clay/sand	4	0.18	3%
not recorded	1	-0.73	1%
skeletal	1	-0.68	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Woodland	11	6.82	15%
Low woodland	10	4.88	11%
(Tussock) grassland	6	6.68	15%
Open shrubland	4	0.93	4%
open mallee	4	1.47	5%
Mallee	4	1.23	4%
Open woodland	3	0.44	3%

Appendix 9. (continued)

Open forest	3	3.15	8%	Low open forest	2	1.77	5%
Open (tussock) grassland	2	2.20	6%	Very low open forest	2	4.39	11%
Very low woodland	2	0.83	4%				

Group 64. *Allocasuarina verticillata* Drooping Sheoak/ *Eucalyptus leucoxylon* South Australian Blue Gum/ *Eucalyptus goniocalyx* Long-leaf Box/ *Eucalyptus cladocalyx* Sugar Gum +/- *Acacia pycnantha* Golden Wattle woodland over *Bursaria spinosa* Sweet Bursaria/ *Hibbertia exutiacies* Prickly Guinea-flower/ *Astroloma humifusum* Cranberry Heath heathy-shrubland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Allocasuarina verticillata	Drooping sheoak	63	50.11	37	158	20	1.54
Acacia pycnantha	Golden wattle	46	32.62	27	128	17	0.69
Eucalyptus leucoxylon ssp.	South Australian blue gum	41	58.86	24	60	8	1.27
Shrub							
Bursaria spinosa	Sweet bursaria	81	57.98	48	227	25	0.89
Cassinia laevis	Curry bush	49	9.02	29	392	35	0.85
Acacia continua	Thorn wattle	49	45.12	29	110	16	0.88
Low shrub							
Hibbertia exutiacies	Prickly guinea-flower	75	194.09	44	63	6	0.76
Astroloma humifusum	Cranberry heath	73	113.33	43	100	7	0.54
Pultenaea largiflorens	Twiggy bush-pea	66	174.89	39	55	7	0.51
Calytrix tetragona	Common fringe-myrtle	42	51.71	25	73	8	0.72
Hummock grass							
Triodia irritans complex	Spinifex	44	4.76	26	458	36	1.4
Sedge							
Dianella revoluta var.		85	63.15	50	226	20	0.58
Lomandra multiflora ssp. *dura*	Hard mat-rush	63	20.32	37	328	26	0.53
Xanthorrhoea quadrangulata	Rock grass-tree	61	42.17	36	175	17	1.18
Lomandra densiflora	Soft tussock mat-rush	51	52.71	30	102	7	0.69
Fern							
Cheilanthes austrotenuifolia	Annual rock-fern	41	27.24	24	120	15	0.65
Herb							
Gonocarpus elatus	Hill raspwort	51	45.58	30	116	12	0.95
Goodenia robusta	Woolly goodenia	49	109.87	29	48	6	0.67
Wahlenbergia stricta ssp. *stricta*	Tall bluebell	46	57.33	27	77	14	0.58
Oxalis perennans	Native sorrel	44	1.90	26	682	52	0.75

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree	*Eucalyptus goniocalyx*	Long-leaf box	36	116.85	21	24	3	1.78
Tree	*Eucalyptus cladocalyx*	Sugar gum	37	98.65	22	31	5	1.5
Tree	*Exocarpos cupressiformis*	Native cherry	32	91.46	19	25	5	0.67
Tall shrub	*Acacia wattsiana*	Dog wattle	31	81.71	18	25	4	1.54
Low shrub	*Spyridium parvifolium*	Dusty miller	27	77.02	16	21	3	0.50
Sedge	*Schoenus apogon*	Common bog-rush	17	52.90	10	12	2	0.5
Low shrub	*Daviesia leptophylla*	Narrow-leaf bitter-pea	15	51.56	9	10	2	0.67
Low shrub	*Dampiera dysantha*	Shrubby dampiera	17	48.69	10	13	4	0.61
Tree	*Exocarpos sparteus*	slender cherry	15	42.66	9	12	4	0.55
Low shrub	*Astroloma conostephioides*	flame heath	14	40.56	8	10	2	0.7
Shrub	*Acacia gracilifolia R 3RCa*	graceful wattle	15	39.37	9	13	3	0.61
Low shrub	*Pultenaea graveolens U*	scented bush-pea	10	38.33	6	6	1	1.35

LANDFORM	Frequency	(O-E)/E	%				
Mountains	12	3.51	9%	hill crest	5	0.36	3%
Hills	9	-0.29	1%	Not recorded	4	8.09	17%
Low hills	3	-0.75	0%	hill footslope	2	-0.48	1%
Drainage line	1	-0.56	1%	cliff	1	11.50	25%
				Plain (incl undulating plain)	1	-0.94	0%

LAND UNIT	Frequency	(O-E)/E	%	SURFACE SOIL	Frequency	(O-E)/E	%
hill slope	38	0.24	2%	Loam/sand	28	0.50	4%
ridge	8	7.00	16%	loam	9	0.63	4%

Appendix 9. (continued)

clay/loam/sand	5	-0.72	1%
clay/loam	3	-0.58	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Woodland	13	8.40	18%
Low woodland	10	4.98	11%
Open woodland	8	2.89	7%
Open forest	7	8.85	19%
Very low open woodland	6	0.76	3%
Low open forest	5	6.03	14%
low open woodland	5	1.41	5%
Very low woodland	2	0.86	4%
open mallee	1	-0.37	1%
Very low open forest	1	1.74	5%

Group 65. *Allocasuarina verticillata* / *Eucalyptus microcarpa* Grey Box/ *Callitris glaucophylla* White Cypress-pine woodland over *Cassinia laevis* Curry Bush and *Lomandra* spp. and *Dianella* spp. Mat-rush +/- *Triodia* spp. hummock-grass.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Allocasuarina verticillata	Drooping sheoak	75	86.94	50	158	20	1.33
Acacia pycnantha	Golden wattle	55	58.24	37	128	17	0.81
Eucalyptus microcarpa	Grey box	46	101.00	31	55	8	1.30
Callitris glaucophylla	White cypress-pine	43	3.18	29	590	37	1.06
Shrub							
Cassinia laevis	Curry bush	84	38.95	56	392	35	1.14
Bursaria spinosa	Sweet bursaria	49	22.95	33	227	25	0.85
Dodonaea viscosa ssp.	Sticky hop-bush	48	13.47	32	322	42	0.68
Low shrub							
Astroloma humifusum	Cranberry heath	51	64.10	34	100	7	0.47
Maireana enchylaenoides	Wingless fissure-plant	42	21.52	28	178	20	0.43
Hummock grass							
Triodia irritans complex	Spinifex	66	17.72	44	458	36	1.57
Sedge							
Lomandra multiflora ssp. *dura*	Hard mat-rush	81	44.48	54	328	26	0.64
Dianella revoluta var.		81	69.19	54	226	20	0.57
Lomandra densiflora	Soft tussock mat-rush	67	112.84	45	102	7	0.65
Xanthorrhoea quadrangulata	Rock grass-tree	55	40.63	37	175	17	1.38
Vine							
Glycine clandestina var.	Twining glycine	60	24.16	40	309	33	0.48
Fern							
Cheilanthes austrotenuifolia	Annual rock-fern	72	108.06	48	120	15	0.78
Herb							
Oxalis perennans	Native sorrel	79	15.52	53	682	52	0.59
Stackhousia monogyna	Creamy candles	55	77.88	37	99	14	0.45
Wahlenbergia luteola	Yellow-wash bluebell	49	22.95	33	227	23	0.54
Gonocarpus elatus	Hill raspwort	43	38.75	29	116	12	0.74

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Sedge	*Lepidosperma viscidum*	Sticky sword-sedge	33	63.22	22	44	6	0.91
Vine	*Clematis microphylla*	Old man's beard	39	37.59	26	97	24	0.42
Herb	*Lagenifera huegelii*	Coarse bottle-daisy	25	36.09	17	45	5	0.51
Herb	*Plantago varia complex*	native plantain	22	32.40	15	39	11	0.39
Low shrub	*Derwentia decorosa R 3RC-*	showy speedwell	10	23.57	7	12	3	0.51
Grass	*Poa crassicaudex*	thick-stem tussock-grass	24	23.43	16	59	11	0.46
Shrub	*Acacia continua*	thorn wattle	33	22.95	22	110	16	0.52
Herb	*Wahlenbergia stricta* ssp. *stricta*	tall bluebell	27	22.40	18	77	14	0.43
Low shrub	*Spyridium phlebophyllum*	inland spyridium	18	22.18	12	36	5	0.59
Low shrub	*Calytrix tetragona*	common fringe-myrtle	24	18.45	16	73	8	0.5

LANDFORM	Frequency	(O-E)/E	%
Hills	40	1.76	6%
Low hills	7	-0.49	1%
Mountains	5	0.65	4%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	43	0.30	3%
ridge	12	10.05	24%
hill crest	4	0.00	2%
depression	2	-0.32	1%
gully	2	10.51	25%
hill footslope	2	-0.53	1%

Appendix 9. (continued)

cliff	2	22.02	50%

SURFACE SOIL	Frequency	(O-E)/E	%
loam	41	4.73	17%
loam/sand	27	0.12	3%
clay/loam	11	0.20	4%
not recorded	3	-0.40	2%
sand	2	0.19	4%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Woodland	9	4.73	13%
Low woodland	9	3.74	10%
Very low open woodland	9	1.33	5%
low open woodland	8	2.40	7%
Open forest	7	7.67	19%
Very low woodland	7	4.73	13%
Open woodland	6	1.57	6%
Low open forest	3	2.72	8%
open mallee	2	0.10	2%
Shrubland	2	0.76	4%

Group 66. *Eucalyptus camaldulensis* River Red Gum/ *Callitris glaucophylla* White Cypress-pine woodland over *Dodonaea viscosa* Sticky Hop-bush/ *Acacia continua* Thorn Wattle/ *Acacia pycnantha* Golden Wattle and *Lomandra multiflora* Hard Mat-rush/ *Danthonia caespitosa* Common Wallaby-grass ground layer.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Eucalyptus camaldulensis var.	river red gum	82	13.67	9	221	32	1.81
Callitris glaucophylla	white cypress-pine	82	4.12	9	590	37	1.13
Acacia pycnantha	golden wattle	55	10.65	6	128	17	0.62
Shrub							
Dodonaea viscosa ssp.	sticky hop-bush	73	6.88	8	322	42	0.64
Acacia continua	thorn wattle	64	17.30	7	110	16	0.36
Cassinia laevis	curry bush	55	2.75	6	392	35	0.42
Bursaria spinosa	sweet bursaria	55	5.49	6	227	25	0.52
Sedge							
Lomandra multiflora ssp. *dura*	hard mat-rush	55	3.51	6	328	26	0.7
Grass							
Danthonia caespitosa	common wallaby-grass	64	2.05	7	616	57	0.57
Herb							
Gonocarpus elatus	hill raspwort	55	11.86	6	116	12	0.8

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Sedge	*Carex appressa*	Tall sedge	36	133.17	4	5	2	0.75
Low shrub	*Goodenia amplexans U*	Clasping goodenia	27	41.29	3	9	4	0.5
Herb	*Rumex crispus* *	Curled dock	18	23.54	2	7	5	0.5
Sedge	*Juncus subsecundus*	Finger rush	27	18.28	3	20	11	0.66
Tall shrub	*Acacia iteaphylla R 3RCa*	Flinders Ranges wattle	18	18.23	2	9	7	0.75
Low shrub	*Phyllanthus saxosus U*	Rock spurge	27	13.40	3	27	11	0.53
Shrub	*Acacia gracilifolia R 3RCa*	Graceful wattle	18	12.52	2	13	3	0.5
Low shrub	*Teucrium corymbosum*	Rock germander	9	8.18	1	5	5	0.1
Sedge	*Juncus flavidus R*	Yellow rush	9	8.18	1	5	4	1
Herb	*Poranthera microphylla*	Small poranthera	9	8.18	1	5	3	0.5

LANDFORM	Frequency	(O-E)/E	%
Mountains	2	2.69	1%
Drainage line	1	1.16	1%
Low hills	1	-0.59	0%

LAND UNIT	Frequency	(O-E)/E	%
Hill footslope	5	5.79	3%
Hill slope	3	-0.48	0%
Stream channel	1	2.88	1%
Plain (incl undulating plain)	1	-0.67	0%
Depression	1	0.94	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	3	-0.05	0%
Loam	2	1.13	1%
clay/loam	1	-0.17	0%
clay/loam/sand	1	-0.67	0%
clay/sand	1	0.64	1%
clay	1	0.57	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open forest	4	29.18	11%
Open woodland	2	4.22	2%
Woodland	1	2.88	1%
Low woodland	1	2.21	1%
low open woodland	1	1.59	1%
Shrubland	1	4.37	2%
not recorded	1	-0.63	0%

Appendix 9. (continued)

Group 67. *Eucalyptus leucoxylon* South Australian Blue Gum/ *Allocasuarina verticillata* Drooping Sheoak woodland over Sedge/Tusssock grassland.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Eucalyptus leucoxylon ssp.	South Australian blue gum	62	29.87	8	60	8	2.27
Allocasuarina verticillata	Drooping sheoak	46	5.60	6	158	20	0.16
Sedge							
Luzula meridionalis	Common wood-rush	46	64.90	6	16	3	0.36
Carex breviculmis	Short-stem sedge	46	104.44	6	10	3	0.75
Dianella revoluta var.		46	3.62	6	226	20	0.3
Lomandra densiflora	Soft tussock mat-rush	46	9.22	6	102	7	0.58
Grass							
Stipa scabra ssp.	Rough spear-grass	62	2.64	8	459	55	0.66
Danthonia caespitosa	Common wallaby-grass	54	1.02	7	616	57	0.92
Elymus scabrus var. *scabrus*	Native wheat-grass	54	24.86	7	55	13	0.65
Aristida behriana	Brush wire-grass	54	17.94	7	75	11	0.71
Stipa blackii	Crested spear-grass	46	9.12	6	103	16	0.83
Mat plant							
Kennedia prostrata	Scarlet runner	46	51.73	6	20	5	0.31
Herb							
Acaena echinata var.	Sheep's burr	100	131.58	13	37	6	0.73
Senecio quadridentatus	Cotton groundsel	77	20.13	10	134	30	0.52
Oxalis perennans	Native sorrel	69	1.81	9	682	52	1.05
Wahlenbergia luteola	Yellow-wash bluebell	69	8.90	9	227	23	0.51
Hydrocotyle laxiflora	Stinking pennywort	62	70.72	8	26	6	0.7
Lagenifera huegelii	Coarse bottle-daisy	62	40.27	8	45	5	0.56
Plantago gaudichaudii	Narrow-leaf plantain	62	132.66	8	14	3	0.68
Hypochaeris radicata *	Rough cat's ear	54	26.39	7	52	13	0.87
Wahlenbergia stricta ssp. *stricta*	Tall bluebell	46	12.63	6	77	14	0.45

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Grass	*Poa labillardieri* var. *labillardieri*	Common tussock-grass	31	66.33	4	7	3	1.37
Grass	*Danthonia racemosa* var. *racemosa*	Slender wallaby-grass	38	44.93	5	16	8	1.1
Grass	*Dichelachne crinita*	Long-hair plume-grass	38	39.81	5	18	4	0.8
Herb	*Calocephalus citreus U*	Lemon beauty-heads	38	28.37	5	25	4	0.42
Low shrub	*Rosa canina* *	Dog rose	15	23.10	2	5	4	0.1
Sedge	*Juncus subsecundus*	Finger rush	31	22.70	4	20	11	1.25
Grass	*Danthonia auriculata*	lobed wallaby-grass	38	21.32	5	33	8	1.1
Shrub	*Choretrum glomeratum* var.	sour-bush	15	19.18	2	6	5	0.3
Herb	*Cymbonotus preissianus U*	austral bear's-ear	23	18.28	3	14	7	0.5
Herb	*Rumex brownii*	slender dock	38	13.73	5	50	18	0.42

LANDFORM	Frequency	(O-E)/E	%
Low hills	8	2.03	1%
Hills	1	-0.64	0%

LAND UNIT	Frequency	(O-E)/E	%
Hill slope	9	0.31	1%
Plain (incl undulating plain)	2	-0.45	0%
Hill footslope	1	0.15	1%
Stream channel	1	2.28	1%

SURFACE SOIL	Frequency	(O-E)/E	%
Loam/sand	6	0.61	1%
loam	3	1.71	1%
clay/loam	3	1.12	1%
clay/loam/sand	1	-0.72	0%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open woodland	4	7.83	4%
Woodland	4	12.12	6%
Open forest	2	11.77	5%
Low woodland	1	1.72	1%
low open woodland	1	1.19	1%
Low open forest	1	5.38	3%

Appendix 9. (continued)

Group 68. *Eucalyptus odorata* Peppermint Box +/- *Eucalyptus leucoxylon* South Australian Blue Gum woodland or mallee.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Mallee							
Eucalyptus odorata	Peppermint box	87	80.42	13	86	22	1.93
Grass							
Stipa scabra ssp.	Rough spear-grass	60	5.77	9	459	55	0.66
Herb							
Einadia nutans ssp.	Climbing saltbush	47	6.79	7	256	39	0.58

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Herb	*Rumex conglomeratus* *	Clustered dock	20	46.89	3	8	6	0.5
Vine	*Billardiera versicolor U*	Yellow-flower apple-berry	20	23.17	3	16	6	0.5
Shrub	*Acacia notabilis*	Notable wattle	20	18.45	3	20	10	0.83
Herb	*Helichrysum leucopsideum*	Satin everlasting	13	18.38	2	9	7	1
Low shrub	*Goodenia amplexans U*	Clasping goodenia	13	18.38	2	9	4	1
Tree	*Eucalyptus leucoxylon* ssp.	South Australian blue gum	33	16.66	5	60	8	1.44
Sedge	*Lepidosperma viscidum*	Sticky sword-sedge	27	14.64	4	44	6	1.75
Shrub	*Alyogyne huegelii*	Native hibiscus	13	13.69	2	12	6	0.5
Grass	*Stipa acrociliata*	graceful spear-grass	20	13.51	3	27	15	0.83
Shrub	*Acacia gracilifolia R 3RCa*	graceful wattle	13	12.63	2	13	3	2

LANDFORM	Frequency	(O-E)/E	%
Low hills	3	-0.01	0%
not recorded	2	1.23	1%
sand	1	2.34	2%

LAND UNIT	Frequency	(O-E)/E	%
hill footslope	8	6.97	4%
hill slope	5	-0.37	0%
hill crest	1	0.05	1%
plain (incl undulating plain)	1	-0.76	0%

SURFACE SOIL	Frequency	(O-E)/E	%
loam/sand	4	-0.07	1%
loam	4	2.13	2%
clay/loam	4	1.44	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Open woodland	3	4.74	3%
open mallee	3	6.40	4%
Mallee	3	5.68	3%
Woodland	2	4.69	3%
Low open forest	2	10.07	5%
Open forest	1	4.53	3%
Very open low mallee	1	101.37	50%

Group 69. *Triodia* spp. Spinifex hummock grassland +/- *Allocasuarina verticillata* Drooping Sheoak mixed woodland or shrubland overstorey.

Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Tree							
Allocasuarina verticillata	Drooping sheoak	41	17.85	13	158	20	1.04
Shrub							
Acacia continua	Thorn wattle	41	26.89	13	110	16	0.34
Low shrub							
Ptilotus spathulatus forma	Pussy-tails	44	17.42	14	187	28	0.54
Hummock grass							
Triodia irritans complex	Spinifex	91	29.72	29	458	36	2.29
Sedge							
Lomandra multiflora ssp. *dura*	Hard mat-rush	47	10.43	15	328	26	0.45
Grass							
Themeda triandra	Kangaroo grass	41	21.65	13	134	19	0.96
Vine							
Glycine clandestina var.	Twining glycine	56	16.80	18	309	33	0.40
Herb							
Oxalis perennans	Native sorrel	69	9.66	22	682	52	0.8
Wahlenbergia luteola	Yellow-wash bluebell	50	18.45	16	227	23	0.56

Appendix 9. (continued)

Life form	Plant Species	Common Name	% Freq	Signif. to group	Freq	Freq all groups	Occur. In groups	Average cover
Fern	*Cheilanthes distans*	bristly cloak-fern	22	34.59	7	26	10	0.44
Low shrub	*Pimelea curviflora* var. *R*	curved riceflower	13	24.60	4	12	5	0.4
Herb	*Stackhousia monogyna*	creamy candles	31	17.39	10	99	14	0.38
Low shrub	*Scaevola humilis*	inland fanflower	22	16.02	7	54	20	0.51
Herb	*Geranium potentilloides* var. *potentilloides*	downy geranium	6	14.83	2	5	2	0.75
Herb	*Linum marginale*	native flax	16	13.45	5	33	14	0.5
Grass	*Enneapogon nigricans*	black-head grass	19	10.54	6	59	17	0.83
Herb	*Senecio quadridentatus*	cotton groundsel	28	9.88	9	134	30	0.51
Herb	*Gonocarpus elatus*	hill raspwort	25	9.08	8	116	12	0.82
Sedge	*Xanthorrhoea quadrangulata*	rock grass-tree	31	8.97	10	175	17	1.4

LANDFORM	Frequency	(O-E)/E	%
Low hills	12	0.74	2%
Hills	8	0.09	1%
Mountains	3	0.96	2%
Plain	1	-0.88	0%

LAND UNIT	Frequency	(O-E)/E	%
hill slope	28	0.56	2%
stream channel	2	1.51	3%
hill crest	2	-0.07	1%
Ridge	1	0.71	2%
plain (incl undulating plain)	1	-0.89	0%

SURFACE SOIL	Frequency	(O-E)/E	%
clay/loam	13	2.22	4%
Loam	11	2.49	5%
loam/sand	4	-0.62	1%
sand	2	1.71	4%
clay/loam/sand	1	-0.90	0%
clay/sand	1	-0.51	1%

VEGETATION STRUCTURE	Frequency	(O-E)/E	%
Hummock grassland	7	42.43	47%
Low woodland	3	2.21	3%
low open woodland	3	1.59	3%
Closed Hummock grassland	3	68.80	75%
Open woodland	2	0.74	2%
Shrubland	2	2.58	4%
Very low open woodland	2	0.05	1%
Tall very open shrubland	2	-0.17	1%
Open shrubland	2	0.76	2%

Plant species used for the floristic analyses and their site frequency within each floristic group.

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Abutilon cryptopetalum	2	9	4	1		3			3					2	2								1	1	1																			
Abutilon fraseri ssp.	7	31	51	7	1	6	2	2	1		1			11	1				1				7	3	5	1			3	2	1	2	1						3				1	
Abutilon halophilum		2	1			1	1		1					2					1				2	14		1			3															
Abutilon leucopetalum	12	97	62	7	5	7	2	3	8		1			54	8	2			1		1	2	3	7	2	3			1											1	1			
Abutilon malvaefolium			1				2																	5																				
Abutilon otocarpum	1	1				2													2	1	1																							
Acacia aneura var.	71	167	95	16	3	46	1	4	1		9			15	1	9	1	5	1		14	2	17	10	5		3	1	1		1	1	2			2			2	3	1			
Acacia araneosa V 2VCa		3	2		1																																							
Acacia argyrophylla U																																											1	
Acacia ayersiana var. *latifolia*	1					2													1				3			2					1		1											
Acacia beckleri																																												
Acacia burkittii	3	5	1			1	1	1								1					2										3	5	1						1					
Acacia calamifolia	2	4	6		2		2		18	7	5	5	3	1	1			1					1							1										4		1	1	
Acacia confluens R 2R	1	2	6		1									2																														
Acacia continua	1		1								1	1																																
Acacia gracilifolia R 3RCa																																												
Acacia hakeoides																																											3	
Acacia havilandii																																												
Acacia iteaphylla R 3RCa				1																																								
Acacia kempeana		1			1									1														1																
Acacia ligulata	5	17	16	5	1	5		1	18		4	1		13	10			2	6	3	8	1	15	2	1				2	1			15						1	3				9
Acacia notabilis	1																																										3	
Acacia nyssophylla																														2	1				2							3	3	
Acacia oswaldii	2	15	9	16	8	4			2		1			7	1	4		1	1			1	11	1	3	2	1		1	3	1	1	10						13	7	5	4	14	3
Acacia papyrocarpa																									1					2												3		
Acacia paradoxa																																												
Acacia pravifolia U																																												
Acacia pycnantha																				1																							2	
Acacia rigens		1	1						3	2					2											1				1									1					
Acacia rivalis	18	31	44	4	20	3		1	7	2	50	6		33	4	4		3												1									2	2	5			
Acacia rupicola																																												
Acacia salicina	1													5	3	1						8					1						1											1
Acacia tetragonophylla	98	180	131	18	26	60		3	8	4	28	4		52	3	15	6	13	7	2	1		26	21	18	6	6	2	1		1		7						1	7	4			
Acacia victoriae ssp.	79	154	114	39	16	25	5	13	36	17	80	39		75	19	43	5	33	7		3	14	114	36	87	27	20	22	7	39	1	5	40	3	3	1		1		15	3	3	9	1
Acacia wattsiana																																												
Acacia wilhelmiana		1	8																											1													2	
Acaena echinata var.																																												
Acrotriche patula																																												
Ajuga australis form		1							3					7	8								1							1														
Alectryon oleifolius ssp. *canescens*	38	88	99	29	15	27	3	11	27	2	14	4		33		39	1	10	1		3	2	13	6	20	3	3	2	14	10	14		5	2		1			13	38	18	4	28	8
Allocasuarina muelleriana ssp.																																												
Allocasuarina verticillata		1	1		1			2				1				2				1																					1			
Alyogyne huegelii																																												
Amphipogon caricinus var. *caricinus*						1																																						
Amyema linophyllum ssp. *orientale U*			1		1	2		1			1																		1	1			1							4	2		1	
Amyema maidenii ssp. *maidenii*	12	98	45	6	2	12	1				3			2		2			1		8	1	6	6	1	1							1											
Amyema miquelii	3	4	6		17									1		1						1	2			1				2	2								22		5	3	3	3
Amyema miraculosum ssp. *boormanii*		4	16	3		2								3		1		2	1			1	8	2	2				1		2		4						2	3	6	3		1
Amyema preissii	3	30	17		4	1					2			13	1	3		1	1		1		4	3	1	2		1		2	1	3	1										1	
Anacampseros australiana		1					1																																					
Anemocarpa podolepidium	1		1		5	1																																	1		3			
Arabidella trisecta	6	6	21	1	2	5			1		3					2		6	1				3	9	3	2	1			7	1		1		5	1				1		2	2	
Aristida arida R		1		1	3	2								4					1		1	1	8	2																				
Aristida behriana																														3							1							
Aristida capillifolia		1	3						1					6	1	1								1	1																			

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Aristida holathera var. *holathera*												1		1		1				2			1																					
Aristida nitidula	15	71	94	7	3	13	1	1	14		26	5	1	36	4	17	1	16	1		3	1	33	11	17	5	2	3	3	1											2		1	
Asperula conferta																																2										1	1	
Asphodelus fistulosus *	6	5	2	2			3	9	27	13	7	10		4	8	3		5			3		4	1	3	2	4	1		17	3	2	2	12	6				1	2		18	6	7
Aster subulatus *															1																													
Astrebla lappacea																			1			1		9	1	2																		
Astrebla pectinata														1					4				3	18		14																		
Astroloma conostephioides																																												
Astroloma humifusum																																												
Atriplex acutibractea ssp.	1	8	9	1	5	1					1			3	2	1							7			1	1			2	5			2	1					3	6			
Atriplex angulata		3		2		2				2				6	2				1			1	7		15	1	2	5	6	6	2		2	1	1			2				1	1	
Atriplex eardleyae							1																					1		3	1	2	1							1		1	6	
Atriplex eichleri R 3R				3										1	3			1												3								2	1				1	
Atriplex limbata		1		3	1	1								3	1				1			4	10	2	1	3		1		1			4							1				
Atriplex nummularia ssp.																		1				1	1						1	1		1												
Atriplex semibaccata																																		1								2	2	
Atriplex stipitata	4	5	13	11	3	1	1	1	2	1	1			3		4		4		2			16	1	3	7	2	1	1	23	9	2	5	7					7	5	4	17	14	
Atriplex vesicaria ssp.	13	4	6	7	11	28	21	5			2	1		2		5	1	1		1	1		15		80	9	48	21	41	21	28		17	13	1	5	1	11	4	2	15	18	11	3
Beyeria lechenaultii		1																																						1			6	
Billardiera versicolor U																																												
Boerhavia dominii	3	57	44	2		3	1		1	2			1	34	3	12		13					4	13	3	1				1							4		1				1	
Boerhavia schomburgkiana		3	1	3					4	1				10										1	5	1																		
Brachycome ciliaris var. *lanuginosa*	1	2	5	4		2		1		1		1		7		2			2			1	12	5	3	18	2	4		5	1		1	1										
Brachycome ciliaris var. *subintegrifolia K*																																											1	
Brachycome dentata U	1	1														1							5	14	1	2																		
Bracteantha bracteata	1		12																																									
Bursaria spinosa	2	1				1	1		2		1			4																												1		
Callistemon teretifolius																																												
Callitris glaucophylla	31	32	40		5			1	29	4	58	39	4	20	7			9														1							3	8		1	9	1
Callitris preissii							1																																					1
Calocephalus citreus U																																												
Calocephalus platycephalus						1												1						1	2																			
Calotis erinacea								3															1			1		1																
Calotis latiuscula		4	4			1								4					1				3	2		1																		
Calytrix tetragona																																												
Capparis mitchellii	3	21	6	1								1		5									1																	1				
Carex appressa																																												
Carex breviculmis																																												
Carex tereticaulis														1																														
Cassinia arcuata U							1																																			1		
Cassinia laevis	10	14	12	4	1		3		10		18	2	1	10	2			2																					3	1	1	1	1	1
Cassinia uncata		6												5																														
Cassytha melantha														3	1																											1		
Cassytha peninsularis var.														2																												1	1	
Casuarina pauper	30	70	24	27	17	31	2	6	6		2		1	8		14	1					1	9	1	17		1	1	16	8	15		1		1				8	29	4		10	2
Cenchrus ciliaris *														3					4			1		4																				
Cheilanthes austrotenuifolia		5	2	2							1																																	
Cheilanthes distans	1																																								1			
Cheilanthes lasiophylla	35	53	104	3	12	6	12		7		15			6	1	4									3						1								1				3	
Cheilanthes sieberi ssp. *sieberi*	5	21	37				3		1		4			4		1					2									1											2			
Cheiranthera alternifolia																																												
Chenopodium curvispicatum	1						2	1																						2	12										1	11	4	
Chenopodium desertorum ssp.			1		2		3							5		1		1	1						1	1	1			3	3			2									9	3	3
Chenopodium nitrariaceum						1																1								3	1													1	2
Choretrum glomeratum var.																																												

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Chrysocephalum apiculatum		1	9			2								1		2								1	2						1								1					
Chrysocephalum eremaeum											1					1																												
Chrysocephalum pterochaetum	1	4	1	2	1				4		1			1				1						3																				
Chrysocephalum semicalvum ssp. *semicalvum*	32	78	107	6	8	4		1	4		15	2		21	2	1		6	1				1	1					1										1		2			
Chrysocephalum semipapposum	2		1											1		1		1																						1			3	
Clematis microphylla	1	1							1	1				7	2															1												1	2	1
Codonocarpus pyramidalis V 2VCi	3	1	7						2					2																														
Commicarpus australis		3				1		1	4					5	2						2					1																		
Convolvulus aff. erubescens "linear lobes" U																																												
Convolvulus erubescens	3		1	1		1			1			1									1	3	12			1	1			3		1	3											
Convolvulus eyreanus																							4																					
Convolvulus microsepalus																						1								6						1								
Convolvulus remotus	19	76	99	4	7	14	3	1	5	3	12	1		40	3	12	4	3	6		5	3	53	33	28	11	4		2	10	5	1	1	1		1		1		1			1	2
Cotula coronopifolia *									1						2																													
Cratystylis conocephala																																									1	4		
Crotalaria eremaea ssp.				1															1	1	3		1																					
Cryptandra amara var.																																												
Cullen australasicum	1	5	7								1			4					4			1	6	7	2			2									2							
Cullen patens																						1	3																					
Cymbonotus preissianus U			2																																									
Cymbopogon ambiguus	47	70	72	6	7	8	5	3	24	6	78	20	6	64	19	18	1	27					7	3	29	2	1	4	2	2			1	1					1	2	1			1
Cymbopogon obtectus		1	3																																									
Cynanchum floribundum		1	1						1					4	1																													
Cynara cardunculus *																														1								1						
Cynodon dactylon *														1	2																													
Cynoglossum australe			2		2									1																														
Cyperus alterniflorus														5																														
Cyperus bulbosus Q									1					3																														
Cyperus gymnocaulos									1	1	1			12	13										1																			1
Cyperus vaginatus		1							3			1		8	5				1																									
Dampiera dysantha																																												
Danthonia auriculata																														1														
Danthonia caespitosa	5	14	55	3	4	4	3	3	2	1	3	19		3		5		18	1				2	4	20	1	2	1	1	19	7	3		3			3	2	3	9	1	6	11	10
Danthonia eriantha U																														1													2	
Danthonia geniculata																																											1	
Danthonia pilosa var.																																												
Danthonia racemosa var. *racemosa*		2																																										
Danthonia setacea var. *setacea*										1																					2													1
Daviesia genistifolia U			1																																									
Daviesia leptophylla																																												
Daviesia ulicifolia ssp.																1																												
Derwentia decorosa R 3RC-																																												
Dianella longifolia var. *grandis R*																																												
Dianella revoluta var.									1																																		3	
Dichanthium sericeum ssp.		1																	1			1		9		1																		
Dichelachne crinita																																												
Dichondra repens														1																														
Digitaria brownii	3	63	55	7	6	4	1		2		2			25	3			1						4	2																			
Digitaria coenicola		1	2	1		2	1							3				1	1				1	4																				
Disphyma crassifolium ssp. *clavellatum*																			1			1					1											7				3	1	
Dissocarpus biflorus var.		1																				2	5		5	5	4		4	2	3				1			5					2	
Dissocarpus paradoxus	15	60	28	24	12	10	2	3	2	1	2			44	4	17		3	3		4	1	41	13	10	14	6	1	6	10	8	2	19			8			10	11	3	6	4	1
Dodonaea baueri	1	2	2		1				1		1																												2	1		1	7	1

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Dodonaea lobulata	83	34	88	4	2	6	5	4	23	2	35	9		14		1		6			2		1	1	3					5			1						3	3	2		10	1
Dodonaea microzyga var. *microzyga*	5	69	8	19	10	46	1	1			1			8		2		1	1		2	1	21	5	11	3			2											4				
Dodonaea viscosa ssp.	8	9	5			1	1	1	4	1	4			12	5			1	3	1	4		6		1			2		1	1		4						1	1		2	4	1
Einadia nutans ssp.	1	3	5	1			4		1		1			5					2			5	9	1		3				2			2	1	1			3				10	7	6
Elymus scabrus var. *scabrus*	2																																											
Enchylaena tomentosa var.	64	122	102	29	22	31	19	9	16		5		1	61	13	14	2	6	6	1	11	11	49	10	35	11	8	4	12	53	40	5	45		1			5	21	19	22	43	32	18
Enneapogon nigricans		2	2				2			1		1																		1														
Enteropogon acicularis	2													3		1						9	10	1	1	1			1	6	1		1					1					1	
Enteropogon ramosus	1													1					1				1		1				1															
Eragrostis australasica																									1			1					1				1							
Eragrostis eriopoda														1					9			1	5	1		5	1					2												
Eragrostis setifolia		4			1			1						4					3			1	17	30	1	4		2					1					5					1	
Eragrostis xerophila														1					1			2	8	3		9		1			1													
Eremophila alternifolia	51	54	66	6	10	21	2	3	18		9	2	2	3		4	3	3			1		3		9	2	3			2										1	5		3	
Eremophila deserti			2		1									2																1													6	1
Eremophila duttonii	4	15	1	5	5	18	5	5						3				1	7		1	1	66	24	21	11	5	1	5			1	7								1		
Eremophila freelingii	81	161	81	13	19	91	18	3	5	1	4			22		1		2	1		4	5	18	21	19	2	5	2	11				1						1	2	3			
Eremophila glabra ssp.	2	5	1	2		3		1						4							1		7		1	1	1	1					1						3	2	3	1	13	3
Eremophila latrobei ssp.	1	4	1		4	2								1									1	1	2																			
Eremophila longifolia	12	24	20	4		1			9		4	1		11	1			2				2	10	4	4	2		1	1	7			2					1	2				2	1
Eremophila maculata var. *maculata*	1							1															2																					
Eremophila oppositifolia var.	4	7	3	3	2	13			1					1										1	2		1		1	1									3	5	1		5	
Eremophila santalina U			2						1																					1														
Eremophila scoparia	4	5	3	7	12	3		2						1			1						2		6	1						1				1		1	3	2	17	11	2	1
Eremophila serrulata	7	5	1			4	1							4	1										1														1			1	
Eremophila sturtii	1	7		8		2										2			4			1	31			3				2	3	4	4		3	1					2			
Eriachne mucronata		11	5											3																														
Eriochiton sclerolaenoides	3	17	6	2	7	19	5	14		2				5		2		8				2	30	4	27	9	6		2	3	12	1		6		1				2	9	6	2	
Eriostemon angustifolius ssp. *angustifolius R*																																												
Erodiophyllum elderi																						1	9			2		1		3	2	2		1	1									
Eucalyptus aff. viridis R																																												
Eucalyptus brachycalyx																																										8		
Eucalyptus camaldulensis var.	2	13	3	2	1			1	12	2	5	2		52	27	6			2			9	5		3					3														3
Eucalyptus cladocalyx																																												
Eucalyptus dumosa			1	1					4		1	1	1																										15	2	4	1		1
Eucalyptus flindersii																																												
Eucalyptus gillii	2	33	18	9	19	4								2				4																						2	5			
Eucalyptus goniocalyx																																												
Eucalyptus gracilis																										1					2									1	2	36	8	
Eucalyptus intertexta	6	13	49	3		1			3		1	10		2		2		4																					1	5	1			
Eucalyptus leucoxylon ssp.																																												
Eucalyptus microcarpa																																												
Eucalyptus odorata									1																															1		3	3	1
Eucalyptus oleosa				2																											4											17	4	1
Eucalyptus porosa		1								1								1																						2		2	4	6
Eucalyptus socialis	10	8	32	6	15	1			4		2	3	2	2		15		2			1		1		7	4				1	3	1							26	13	26	29	14	2
Euphorbia stevenii		1	7		1	1					1			1				1	1					2	4	2			7															
Euphorbia tannensis ssp. *eremophila*	4	3	12	2	2	1	2	1	7		2	1		7					2				3	19	2	1	2			1	3													
Eutaxia diffusa U																																											1	
Eutaxia microphylla var. *microphylla*	1										1																																	
Evolvulus alsinoides var. *decumbens*		5												1																														
Exocarpos aphyllus	27	69	8	12	3	17		1	4	1	3			7	1							1	1	1	3				1	5	8								16	21	2	15	24	
Exocarpos cupressiformis									1																																			
Exocarpos sparteus																																												

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Frankenia foliosa		1	1	2	2	2										2							2		3								1							1	4			
Frankenia pauciflora var.					1																																	1				1		1
Frankenia plicata K 3E					1																				3				2	4								1			1			
Frankenia serpyllifolia	2	1	1	1		3													1				1		6	4	2	7	8							1			2				1	
Frankenia subteres K 2K			2											1		3									2			1											3					
Galenia pubescens var. *pubescens* *																																						1				2		1
Galium gaudichaudii		1	2								1														2																			
Galium migrans					1									1																	1													
Geijera linearifolia																															1											3	2	4
Geranium potentilloides var. *potentilloides*																																												
Glossogyne tannensis	1	3			1									8	1										1																			
Glycine canescens		2												2					1							1																1		
Glycine clandestina var.	3	22	36		4		2	1	2	1	8			14	1	1		1	3					1																			1	
Gonocarpus elatus			1																1																									
Gonocarpus tetragynus																																												
Goodenia albiflora U			12																																									
Goodenia amplexans U																																												
Goodenia fascicularis	1	22	23	3	3	2		4	1		1	1		9	1	7		1				3	13	33	6	5	2		1	21	3	1	3	6	2				1				2	
Goodenia lobata K 3K		2	1			2												1				1		1																				
Goodenia lunata			1													1						1	1	1								1												
Goodenia ovata		1																																										
Goodenia pinnatifida Q	1	2	3		1						1	1				2			3			1	6	1	1					1		2	1	4								2		1
Goodenia pusilliflora	4		1						1	2		1				2														15	4		1	4				1		3	1		2	2
Goodenia robusta									1																																			
Goodenia vernicosa	2	4	1								1																												4					
Gossypium sturtianum var. *sturtianum*		2	3						2		1			6																														
Grevillea aspera																																												
Grevillea huegelii																																									1		4	1
Grevillea lavandulacea var.																																												
Gunniopsis quadrifida																							1			1	1	8				1	1											
Haeckeria punctulata R		1							1																																			
Hakea ednieana	26	78	52	2	4				8		13	2	1	14	1	1							1		1				1	1									1		1			
Hakea leucoptera ssp. *leucoptera*	1	5	6											1				2	2		2			8	1					1		1	2						1		1		6	
Halgania cyanea																																												
Haloragis aspera										1				4	1								2		1																			
Halosarcia halocnemoides ssp.						1								1											2		2	1	2									4						
Halosarcia indica ssp.																									2													4					1	
Halosarcia pergranulata ssp. *pergranulata*				2																					1	2												1						
Helichrysum leucopsideum																																												
Heliotropium asperrimum		1	3						1		1			11												1																		
Hibbertia exutiacies																																												
Hibbertia riparia																																												
Hibiscus brachysiphonius			1			1													1					7	1	1																		
Hibiscus krichauffianus		3	1		1	2								2					3		1		1	1	1	1																		
Hibiscus sturtii var. *grandiflorus*	5	50	22	2	5	8			1					2		1									1																			
Homopholis proluta																																												1
Hybanthus floribundus ssp. *floribundus*																																												
Hybanthus monopetalus																																												
Hydrocotyle callicarpa																																												
Hydrocotyle laxiflora																																												
Hypochaeris radicata *																																						1						
Indigofera australis var. *australis*														1	1																										1			
Indigofera leucotricha	7	5	4											1																														
Indigofera longibractea		2																																										
Isotoma petraea			4	3		1	4									2															1													

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Ixiochlamys cuneifolia	5	18	37	2	5	5		2	3	1	4	1		9		1	1	4	1				3	5	2	2																		
Ixiolaena brevicompta																																												
Ixiolaena chloroleuca		1																					2	2																				
Ixiolaena leptolepis		18	3			4			1	1	2			5	2				3			2	16	26	6	21		4		5	1	2	1			1				2			
Ixiolaena tomentosa	3	2	2		1	1		1	3	3	1	1		1										2		1				4													1	1
Ixodia flindersica			1																																									
Jasminum didymum ssp. *lineare*		7	2						1					10		2								4															1				1	
Juncus aridicola														1																														
Juncus flavidus R																																												
Juncus kraussii														1	2																													
Juncus subsecundus															1								1																					
Kennedia prostrata																																												
Lagenifera huegelii																																												
Lavatera plebeia			1						1		1			8	1	2	1						1																					
Lawrencia glomerata																1												1										1			2			
Lawrencia squamata	1	1			3	1		1										1									1			1								2						
Lepidosperma laterale U																																												
Lepidosperma viscidum																																												
Leptorhynchos squamatus																																												
Linum marginale	1		2																					2																				
Logania saxatilis R																																												
Lomandra collina																																												
Lomandra densiflora																																												
Lomandra effusa																																											6	
Lomandra multiflora ssp. *dura*	1	5	6				1					1		11	3																						1		1				2	
Luzula meridionalis																																												
Lycium australe						1										1									2					3	8	2						2		3		4	2	3
Lycium ferocissimum *			1	1			1	1	1							1				1										15	3		1	1				5				19	17	17
Lysiana exocarpi ssp. *exocarpi*	8	70	55	21	10	9		7	6	2	1			42	6	35		3	1	1	3	2	22	13	8	7				11	2		17	1					3	3	2		12	2
Maireana aphylla	1					1	2	1						2					6			8	29	16	4	10	4	5	3	6			4									1	4	1
Maireana appressa	2			1	6	5	2							1	1			1					2		8		1	3	4		1		1	1					5	3		4	1		1
Maireana astrotricha	9	21	15	21	8	72	18	16	1					3	2	1	3	3			4	6	79	12	97	43	58	23	28	2	9	1	8							1		2		
Maireana brevifolia	1	5	2	6		1		2	4					8	8	1						2	8		10	2	2			11	3		8		1			1	2		2	17	21	3
Maireana campanulata	2		1			1																			1	1			1										1					
Maireana ciliata									1														3																					
Maireana coronata		2		1		1																	1	1		2															2			
Maireana enchylaenoides																																					1		1	2			3	5
Maireana eriantha			1			2													1				4					1	3															
Maireana erioclada		1			2	3																			1	3				2	1								3		5	8	3	3
Maireana excavata K	1	1				2		1															1							1	2			1						1	2	1		
Maireana georgei	1	12			2	5	1	3						1				2				2	3	1	20	7	4	2	10	5	4		1	8		1			1		1	1	4	
Maireana integra	4		3	1																			7			1	1				2													
Maireana lobiflora									1										2							4				1										1			1	
Maireana melanocarpa V 3V			3		5	1													1						4														1					
Maireana ovata			4	1	1	1												1					1		4														1		8			
Maireana pentatropis	6	6	30	10	18	6		2	2					4	1	4		1					1		5	1		1	1	1	1		2						3		20	1	2	
Maireana pyramidata	22	11	7	34	3	30	12	32	7	1	3			8	6	2		3	2	1	5	5	90	2	72	34	50	33	31	16	33	10	56	18	3	2	1	1	3	3	7	17	6	5
Maireana radiata		2				2																			2																	1		1
Maireana rohrlachii R 3RC-				1																										1													1	
Maireana sedifolia	7	20		8	6	48	5	25	1					3							1		15	1	26	2	3			13	32		1	6						1	7	8	6	2
Maireana spongiocarpa						3		1																	1	1	1		3																
Maireana tomentosa ssp. *urceolata*		1	7			11	1	1	1								2	1					3		1	1															1		2	
Maireana trichoptera		13	3	6	4	11	2	3		1				1				2			1		3	1	5		4			5	8								1		5	5	2	
Maireana turbinata	2	6	6	5	3	2				1									2				6	1	5	2	2	1	2	13	4	3	3					1	1	2	1	8	2	1
Maireana villosa						1																2			2																			

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Malacocera tricornis								1															3		1		2			1														
Malvastrum americanum	2	64	15	8	3	7			1					64	6	1		1	4			17	52	39	12	9	2		1				1											
Marrubium vulgare *	2	7	13	1			1		15	1	10	6	4	18	13	8		7				2	1		8	1	1		1	11	5		2		1				1	2	1	2	12	2
Marsdenia australis	18	61	34	6	10	8			3		1		1	23									6	5	6					1			1						5	2				
Medicago sativa ssp. *																																												
Melaleuca dissitiflora		2												13	1	1																												
Melaleuca glomerata	2	9	7	3	3	1			5					47	18	5			1			4	3		1	1							2					1		1				
Melaleuca lanceolata ssp. *lanceolata*	1	2	9	5	6				4		2		3	2	1	2		2							1														5	2	7	4	1	1
Melaleuca uncinata																																												
Melhania oblongifolia		5			1	1								2		1					1			1																				
Minuria cunninghamii	1	5	4	1	1	3	2	5	1							2			3		1		5	3	15	9	17	7	7	10	3	1		4		1		1				1	1	1
Minuria denticulata																			2					1						1														
Minuria integerrima						1																1	3	2	2	1	5																	
Minuria leptophylla																							2							5										1			1	
Muehlenbeckia florulenta																							1										1				1							2
Myoporum montanum	2	1	2	2	1				6					8	5	2							3		1		1	1		1													1	
Myoporum platycarpum ssp.	2	5	9	11	5	5	1	2	1		1			3		6							8		14	1		1	1	1	18	1		2				1	7	11	14	18	6	3
Neobassia proceriflora		1												1										6																				
Neurachne alopecuroidea	5	1						1																																				
Nicotiana glauca *	1	2	4	3					3			3		8	5	5		1					2		2	1							1	1			1							
Nitraria billardierei		2		9										3	1						2		4		5	4	3	2		5	4	2	8	8	5	1		14		1	1	5	2	1
Olea europaea ssp. *																																												
Olearia calcarea U				1																																						3	2	
Olearia decurrens	10	34	17	2	1	7	1	1	14		11	1		3	1			1			2									1									6	2		8	
Olearia minor																																											1	
Olearia muelleri											1																												11			9	6	
Olearia pannosa ssp.																																												
Olearia pimeleoides ssp.	3		8	1					15		1				3	1		1							1					2					1					4		3	16	3
Olearia ramulosa																																												
Opercularia turpis																																												
Opuntia stricta var. *stricta* *									3		1				1																									1				
Osteocarpum acropterum var.	1		3	8	1	11		2						8	3			2	1		1		4		19	9	4	11	9	8	3	2	11		1			7	3		1	3		
Osteocarpum dipterocarpum				1														1	1												1		1					3						
Oxalis perennans	36	20	87	1	6	3	8	1	13	1	20		1	27	7	6		1					2		10	3	1			12	7		1	2	1			4	2	3		1	14	8
Ozothamnus retusus Q																																												
Ozothamnus scaber K																																												
Paraceterach reynoldsii		5	5								1																																	
Paspalidium constrictum	1	6	9		2	1	1		1					10	1								1	2						1														
Petalostylis labicheoides		1	1						1					11	1																													
Phyllanthus australis		1	6		1									2										1																				
Phyllanthus fuernrohrii																				2								1				2												1
Phyllanthus lacunarius		17	14		1									8				1			1		2	1								3												
Phyllanthus saxosus U			1											1																														
Pimelea curviflora var. *R*																																												
Pimelea elongata					2	1					1					3																												
Pimelea glauca	2								1																																			
Pimelea micrantha	1		1																											1														
Pimelea microcephala ssp.	15	48	15	4	3	4	3	1	11	1	4			20	6	1			2		1		11	5	7	3			2	8	3		1						3	2		1	8	16
Pimelea petrophila																																												
Pimelea simplex ssp.		44	62	3	4	10	5	6	1	1	2			3		5	4	10	8				10	13	9	2		7	5	6		3		3					1					
Pimelea stricta										1																																		
Piptatherum miliaceum *																																						1						
Pittosporum phylliraeoides var. *microcarpa*	22	26	41	9	6	11	1	2	11			3		17	3	5		3	1			2	13	3	13		1	2	1	2	1		5						3	2	6	1	5	16
Plantago gaudichaudii																																												

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Plantago hispida														2	1																													
Plantago varia complex																														1														
Plectranthus intraterraneus		4												2	1																													
Pleurosorus rutifolius	5	1	4	1	1		2		1		2					1																										1		
Pluchea dentex														17	1									1																				
Poa bulbosa *																																												
Poa crassicaudex																																												
Poa labillardieri var. *labillardieri*																																												
Polypogon viridis *														2	2																													
Pomaderris paniculosa ssp.																																												
Pomax umbellata		1	3																																									
Poranthera microphylla																																												
Prostanthera striatiflora	21	36	40	3	3	10	8	2	3		2			4		2									3																1	1		
Pterocaulon sphacelatum	2	30	18	7	2	3			2		1			60	6		1		1	1		5	15	3	7								4								1			
Ptilotus exaltatus var.	7	25	39	6	14	4	1		5		2			4							1		1	9	3														4		2			
Ptilotus nobilis var.									1										1					8		1																		
Ptilotus obovatus var.	129	179	128	27	36	72	34	28	35	3	63	12		62	8	7		21	6		4	2	51	20	46	29	2	1	12	2	9	2	6			1			5	14	11	6	9	2
Ptilotus parvifolius var.						3																																1		2				
Ptilotus spathulatus forma	2							1				5						1						1						4	2			2	2		1					2	2	1
Pultenaea graveolens U																																												
Pultenaea largiflorens																																												
Rhagodia parabolica	11	10	21	13	2	1	2	1	5		5	2		21	5				1				2	14	4	4	1	5		5									11	3	3	18	24	13
Rhagodia spinescens	41	38	43	31	8	28	3	8	6		7	2		29	2	12		6	9		2	20	113	8	67	31	5	8	23	30	25	11	38	5				7	4	9	4	10	10	6
Rhagodia ulicina	8	14	9	4	10	21	1	1	1														1		6				3	4	5				1	1			2		3	5	11	2
Rhyncharrhena linearis					1	2																									1												1	
Rhynchosia minima														4										10																				
Rosa canina *																				1																								
Rostellularia adscendens ssp. *adscendens*	2	1	9		3									5					1																									
Rumex brownii			1						1		1			3									1							1														
Rumex conglomeratus *																																												
Rumex crispus *																																												
Rumex dumosus var. *K*																																												
Rutidosis helichrysoides	3					1					1																																	
Salvia verbenaca form *							1	1	1						1								1			1				4	3	1			2	1							2	
Santalum acuminatum	3	16	10	3	6	1	2	2						2		1		1	2			1	6	2	4	2					1		3			1			2	4	2	1	11	1
Santalum lanceolatum	3	51	1	6	5	20	1	1			2			21	1	2			3		3	3	41	18	10	3	1						9								1			
Santalum spicatum K		1		3														1			2																						2	1
Sarcocornia quinqueflora																																												
Sarcostemma viminale ssp. *australe*		4																						1																		1		
Sauropus rigens	8	42	18	4	2	16	2		1		2		1	1				1																					1	1	1			
Sauropus trachyspermus		2	6		3									6				1	1				2	2																				
Scabiosa atropurpurea *																																												
Scaevola albida																1																												
Scaevola collina		4	13		1									1																														
Scaevola humilis	1		1		3				2		1			4				1				1	2																					
Scaevola parvibarbata		3			1									2		1			3				4									1												
Scaevola spinescens	8	84	11	2	4	8	1	1			1			5	1			1		1			6	2	3					2	4									1		2	5	8
Schinus areira *									3					1	2																												1	2
Schoenoplectus litoralis															3																													
Schoenus apogon																																												
Scleranthus pungens	4		2		1		2		1		2			1				1																								1		
Sclerolaena bicornis																1			2			1	2									1					1							
Sclerolaena brachyptera	3	12	3	2	1	11	1	14			1			2	1	11			4				10	11	37	23	28	20	33	19	3	4	7	2	1	1			3	8	3	1	2	
Sclerolaena constricta						1												1					5	2	1			4		2			3					1			1			
Sclerolaena convexula	4	18	9			1	1		1		2			4											1					2														

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Sclerolaena cuneata	3	4			1	1								2							1		4	3	2	1	1		1	1								1				1	
Sclerolaena decurrens																					2		3	1		1		3					1											1
Sclerolaena diacantha	9	17	20	6	7	25	5	2	2		1			7	1	2		2	6			10	39	6	12	6	8	3	2	11	14	2	2		2	1	1	2	8	4	13	22	18	1
Sclerolaena divaricata	8	45	6	20	4	17	3	2			1			22	1	10	2	3	3			1	18	33	33	41	19	7	42	6			7			2				4	2			
Sclerolaena eriacantha	1					1																		2		1																		
Sclerolaena holtiana K 3K						1								1					1			1	4		1	1		1	1				1					1						
Sclerolaena intricata	1						1																		1			1	2					1				1						
Sclerolaena lanicuspis	9	28	17	12	1	23	1	2			3			10	1	5		4	2			2	8	19	29	29	10	1	5	3	1								2	2				
Sclerolaena limbata	1	10		5	1	13	6	1	1		1			7		3	2	1	3		5	3	107	10	21	46	26	3	3	6			32			4			1		2			
Sclerolaena longicuspis	18	18	8	3		19	3	3	1					3	2	2							5	34	28	18	4		31	4			2			1				1				
Sclerolaena obliquicuspis	24	112	114	29	23	66	26	22	10	5	11	1	1	40	6	35	7	28	5		8	1	84	11	52	24	63	1	8	17	39	2	44	14	1	7	1		9	13	29	16	1	1
Sclerolaena parallelicuspis		1		5	3	4		1						1		1							2	7	7	1	1					1	2							1	1			1
Sclerolaena patenticuspis	25	33	12	14	11	10	3	11	6	2	3	17		15	3	17	1	36				2	21	7	50	8	5	7	8	12	4		4	2	2	2	1	1	8	10	1	6	12	3
Sclerolaena tricuspis	3	7	17	7	1	17			1		1			3		1						1	18	4	8	2	5	6	3	3			5						1					
Sclerolaena ventricosa	1	7		1		6	1	2	1					1	2	3		1	2				15	5	34	18	21	23	21	2	2	2	7			1	1	3	1	1				
Sclerostegia disarticulata																									2	1						1	1					1	2					
Sclerostegia tenuis																									1		1	7	1									3						
Senecio anethifolius			1				3							1									1																					
Senecio cunninghamii var.														3								2	2	2	1		1			2														
Senecio lautus	1		15			1										1	2	1					8	2		2	4	1		1	1		2			2						1		3
Senecio magnificus	15	57	77	13	7	7	1	5	16	10	33	3	6	41	15	17	2	12	2			5	24	8	47	4	6	6	2		2		8	2					1		3			1
Senecio odoratus var.																																												
Senecio quadridentatus			1			1		1	2	2	2	1		1	1	1														1				1								3	5	
Senna artemisioides ssp.	85	149	81	19	23	62	1	3	20	10	29	1		44	1	1	1	6	10	1	7	2	85	25	14	7		1	1	19	2		11						17	20	12	5	20	4
Sida ammophila	3			1		2					1					1			1			1	13		1	1						2	1			1								
Sida calyxhymenia	3	1	2	1							1							1							3					1														
Sida corrugata var.	14	68	38	5	5	5		8	1	3	3	4		10	1	4		14	1				7	12	17	6	3	3	2	13	3	2	4	3	2		1			8	4	1		
Sida cunninghamii		6	23			1								1		2	1	1							1	1						1												
Sida fibulifera	18	132	84	14	19	24	2	1	6	2	5	1		55	1	8		2	10		7	4	44	35	19	13	1	2	2					1					3	2				
Sida intricata	2	16	20	4	3	4		1		3	7	2		14		14		10	1			3	60	11	23	10		3	5	15	1	1	5	4	1	7	2		1		1		1	
Sida petrophila	83	144	121	11	13	43	32	17	26	3	18	1		50	5	8	7	13	3		2		9	7	27	8	2		1	6	2		7	1					1		4	1	4	1
Sida trichopoda		7	5	1	1	3								2					3					18	5	6			1	3														
Solanum chenopodinum	1	1												2					1				1	1																				
Solanum cinereum *																																												
Solanum ellipticum/quadriloculatum	100	188	149	23	35	75	23	15	23	1	59	9		61	8	11	1	32	6		4	1	50	28	46	12	5	1	7	8	1		4	1		1			3	5	1		1	2
Solanum esuriale	1	3	1	3				1						3	1								2	22		1				3				1				1	1					
Solanum nigrum *	2	1	1	1					2		1			10	2										1	1																1	1	4
Solanum petrophilum	21	11	71	1	4		4	3	16		19	5		30	2	8		4			2	1	1	1	9	2			2	1	1	2			1	3	2		2		3	2	1	2
Solanum simile														1																														
Solanum sturtianum	33	43	34	7	9	8	6	2	8	5	4			38	12	9		8					12	8	4					3		1								2	2			
Spyridium parvifolium																																												
Spyridium phlebophyllum																																												
Stackhousia monogyna											1																																	
Stellaria palustris var.																																					1							
Stipa acrociliata			1				1																							1									2			6	1	
Stipa blackii																																											1	
Stipa breviglumis R 3RC-		2							2					1												1																1		1
Stipa curticoma Q	1																																									1		
Stipa drummondii									1	1																				2									3			4		2
Stipa elegantissima	1								1			1			1															11	2			1				3	5	1		11	11	7
Stipa eremophila		1				2	1																							9				1								2	3	1
Stipa flavescens						1																																				1		1
Stipa gibbosa R																																												
Stipa nitida	5	45	65		15	11	4	3	1	1		3		13	2	6	3	15	1			2	26	2	30	5	2	3	3	19	8	2	5	6		1		1	2	5	5	14	7	12
Stipa nodosa	1	10	11	1		1		2	2		2			3		2	1	4				1	6	1	2	2				7		1	2	3			2		2	2		2	7	1

Appendix 10. (continued)

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Stipa petraea R							1																																					
Stipa pilata K		2	2	1	1				1	1	1			1																1									4			1		
Stipa platychaeta																							1							2	1											1	4	3
Stipa puberula R							1																							2	1							1						
Stipa scabra ssp.	8	35	29	9	3	10	3	11	11	2	11	26		8	2	2		6			1		4	2	14	9	3		1	4	3	1	11	2	1		2		2	6	1	4	9	
Stipa semibarbata																																												
Stipa setacea U																		1																										
Stipa trichophylla	1	13	40		3	1		1	2		1			5										2	1					2									1	1				
Swainsona formosa	1	3	1	1										2				1					2	2		1							1											
Swainsona phacoides			2		1						2								4				1			1																		
Swainsona stipularis		1						1										1					3		1	1				4			1					1						
Swainsona tephrotricha R 3RCa			15	1						2	1			1		4		2																										
Templetonia aculeata U																																												
Templetonia egena		3		3		1																	1							2		1											6	
Templetonia retusa	1		1											2																														
Tetragonia implexicoma																																										1		4
Teucrium corymbosum			1																																									
Teucrium racemosum				1										3	1				1				1		1					3			1				1							
Teucrium sessiliflorum																																												
Themeda triandra	3	18	12									1		5		1								1																				
Threlkeldia diffusa																																										1		3
Tribulus eichlerianus	1	1				7																3	9																					
Trichodesma zeylanicum	1	31	25		2	1						1		23	2			1	1			1		4																				
Triodia irritans complex	13	9	65	1	12	5		1	4		5	9		7	1	1		6			1																		5		4	1	1	
Triraphis mollis		6	4	1	1		1							4		1			2	1	2		8			1		3				1												
Typha domingensis														4	2				1																									
Typha orientalis															8																													
Velleia arguta	1	1	1		2	2	1				2			1																														
Verbena officinalis *														2	1																													
Veronica plebeia U																																												
Vittadinia blackii			1											1																														
Vittadinia condyloides																																												
Vittadinia gracilis	3	7	2	1					3	3	2	1		1	1			3					1		5					9	1				1				1				4	1
Wahlenbergia aridicola R														4											1					1														
Wahlenbergia communis	3	8	16	3				1	2	1	1			28	8	7			2				5	1	1	4						1		1						1				
Wahlenbergia luteola	1						3					1		1				1												2							2							2	
Wahlenbergia stricta ssp. *stricta*											1								1																								1		
Wahlenbergia tumidifructa			6		2	1								4	1	4														1														
Westringia rigida			1		3	1																																	7	6	1	5	8	1
Xanthorrhoea quadrangulata		5	6						1			1																		1														
Zygophyllum apiculatum	2	7	8	2	6	1			3	1		1		13	6	3		2						1					1	1	3								6	1		3	6	6
Zygophyllum aurantiacum ssp.	16	9	27	1	6	4	6	3	14	10	4	3	3	3	2	2		13			1		3		8	3	8	2	4	7	6	2	4	1			1		8	7	9	1	5	1
Zygophyllum billardierei(NC)								1	1						1										1					1								1		4			2	3
Zygophyllum eremaeum								1																	1		1			1	2												1		2

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Abutilon cryptopetalum												3														32	12
Abutilon fraseri ssp.	1									8	4	17	3		1	5									1	191	32
Abutilon halophilum	1	1							2	1				1		2										37	17
Abutilon leucopetalum						1						22	1													314	26
Abutilon malvaefolium									1		1				1											11	6
Abutilon otocarpum										1	1															10	8
Acacia aneura var.									1		1	16	3	7	13											551	37
Acacia araneosa V 2VCa																										6	3
Acacia argyrophylla U		1														2	1									5	4
Acacia ayersiana var. latifolia																										11	7
Acacia beckleri											1		8		1											10	3
Acacia burkittii													2													27	13
Acacia calamifolia	2		2		7			1			4	2	3		1	23	14	9	7		2			2	6	150	33
Acacia confluens R 2R												8	1													21	7
Acacia continua											5	4	13	1	1				7	29	22	7	1	3	13	110	16
Acacia gracilifolia R 3RCa																				9		2		2		13	3
Acacia hakeoides		1									2					5	2	7	7	1	1					29	9
Acacia havilandii												3	20		1											24	3
Acacia iteaphylla R 3RCa					1	1					1							1		2		2				9	7
Acacia kempeana															1											5	5
Acacia ligulata					3	1				1	7	3	1		3	2		1	2	3	5	1		2	2	202	41
Acacia notabilis											2	1	1			1	1	2	5					3		20	10
Acacia nyssophylla		2														5		1								19	8
Acacia oswaldii		1					2				5		1		5	2		1	2							171	38
Acacia papyrocarpa																			1							7	4
Acacia paradoxa																				5						5	1
Acacia pravifolia U											1			1			1		6		1			1		11	6
Acacia pycnantha				2	3	1					2		1			1	1	11	26	27	37	6	3	1	3	128	17
Acacia rigens											2		3		1	2										20	12
Acacia rivalis											3	12	9	17	12	1						1				295	26
Acacia rupicola											1								2	6	4	1				14	5
Acacia salicina						1																				22	9
Acacia tetragonophylla										1	5	35	4	2	5											811	37
Acacia victoriae ssp.	5	1	20	8	25	4			3	14	5	20		7	10	15	1	15	6		1	2			8	1423	59
Acacia wattsiana																			3	18	2		2			25	4
Acacia wilhelmiana												1	3			3				1						20	8
Acaena echinata var.																				11	8	1	13	1	3	37	6
Acrotriche patula							1												1	1	1		1			5	5
Ajuga australis form					1	1		1			1	1	1				1	1		3	4		3			39	17
Alectryon oleifolius ssp. canescens	4	4	8	1	3	1					11	39	2	2	9	16			9		2				1	760	52
Allocasuarina muelleriana ssp.													6							1	1	1				9	4
Allocasuarina verticillata					3						3	1	10				2	2	20	37	50	1	6		13	158	20
Alyogyne huegelii							1				2		1							2	4			2		12	6
Amphipogon caricinus var. caricinus												2							1	2	1		1			8	6
Amyema linophyllum ssp. orientale U							1					2														19	13
Amyema maidenii ssp. maidenii												4														212	19
Amyema miquelii					2	2					7		4		5	2	1	1	18	8	9	2	1	6		144	30
Amyema miraculosum ssp. boormanii											3	3			3			3								79	24
Amyema preissii	1	1			1						1	8				3		2	1		1				1	116	32
Anacampseros australiana											1		2	1					1		1					8	7
Anemocarpa podolepidium										1																13	7
Arabidella trisecta	4								3	7	7	4		1		4										122	31
Aristida arida R															3											27	11

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Aristida behriana				5										2		4		29	17			1	7	1	5	75	11
Aristida capillifolia												5		1												21	10
Aristida holathera var. holathera			1																							7	6
Aristida nitidula					2	1					4	41	13	1			1				2				1	474	39
Asperula conferta				1		1					5			4		4		15	17	6	7		1	3	3	71	15
Asphodelus fistulosus *	8		10		22	1			2	2	6	1				29	1	17		2						299	44
Aster subulatus *					1	1		1																		4	4
Astrebla lappacea									3	5																22	7
Astrebla pectinata									5	48																93	7
Astroloma conostephioides													2							8						10	2
Astroloma humifusum													10						5	43	34	2	5	1		100	7
Atriplex acutibractea ssp.	1	2	1								1															65	23
Atriplex angulata	4	1			1				9	23																109	27
Atriplex eardleyae	1	2	5	1											1	2										29	15
Atriplex eichleri R 3R																	1									16	9
Atriplex limbata																										38	16
Atriplex nummularia ssp.										1																7	7
Atriplex semibaccata		1		1	2						2	1				1		18	8					1		40	12
Atriplex stipitata	5	2			2						2				1	4	2	8	4							210	41
Atriplex vesicaria ssp.	10				2				11	3	1				1		1	2	2							506	45
Beyeria lechenaultii					1						3		12		2	2	1	1	10			3		1		44	13
Billardiera versicolor U											1						1		1	9	1			3		16	6
Boerhavia dominii	1		2		10						3	12	1			7	1	7							5	253	31
Boerhavia schomburgkiana												1		7												37	11
Brachycome ciliaris var. lanuginosa	2								2	9	1	1				3	1	3	1							104	31
Brachycome ciliaris var. subintegrifolia K																1		1	8	1						12	5
Brachycome dentata U										7			1													33	9
Bracteantha bracteata											1	1	1			1				1	1					19	8
Bursaria spinosa				1	4	5					4	14	16	2	4	4		19	35	48	33	6	5	6	8	227	25
Callistemon teretifolius													18						1	7				3		29	4
Callitris glaucophylla		1	3	2	4	11					15	56	58	16	25	31		5	12	7	29	9		2	2	590	37
Callitris preissii		1		1							1					1		3	6	5	1	1	2			24	12
Calocephalus citreus U																		6	13	1			5			25	4
Calocephalus platycephalus																										5	4
Calotis erinacea											1															7	5
Calotis latiuscula																										20	8
Calytrix tetragona												2	23			1			1	25	16	3		2		73	8
Capparis mitchellii												8														47	9
Carex appressa																				1		4				5	2
Carex breviculmis																				3		1	6			10	3
Carex tereticaulis						2							1							1		1				6	5
Cassinia arcuata U																		1	2					1		6	5
Cassinia laevis	1				6		1				22	46	53	3	31	8	8		15	29	56	6	1		9	392	35
Cassinia uncata											3	8	4	5		1	1	1	2	15	9		2	3		65	14
Cassytha melantha																				5		1				11	5
Cassytha peninsularis var.												1	4				1		1	5	2			2		20	10
Casuarina pauper	2	1	3			1					4	17	7		4	1	1					1				405	41
Cenchrus ciliaris *																										12	4
Cheilanthes austrotenuifolia											4	2	2			3			14	24	48	1	1	3	8	120	15
Cheilanthes distans					1						4	1	2			2			1		6				7	26	10
Cheilanthes lasiophylla											13	48	30	2	14	2			3	1	13				3	395	26
Cheilanthes sieberi ssp. sieberi					1						10	28	40	1	9				8	9	6	2	2		5	202	23
Cheiranthera alternifolia																				3				1		4	2
Chenopodium curvispicatum	2	1							1		2					1										41	13
Chenopodium desertorum ssp.	3	1	1								1	1			1	7		7	9	1				4		76	27

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Chenopodium nitrariaceum					1																					10	7
Choretrum glomeratum var.																		1	1	1			2	1		6	5
Chrysocephalum apiculatum					3	1					3	5	7		1	1		10	20	16	10	2	4		1	104	23
Chrysocephalum eremaeum											1	1		1												5	5
Chrysocephalum pterochaetum											5	3	7	1	1											36	15
Chrysocephalum semicalvum ssp. semicalvum						2					10	56	29		16				1		5					413	27
Chrysocephalum semipapposum											12	9	37	2	15	5	1	13	19	3	1					127	18
Clematis microphylla					1	3	1				3	6	2			4	5	1	9	14	26	2	2			97	24
Codonocarpus pyramidalis V 2VCi																										15	5
Commicarpus australis																										19	8
Convolvulus aff. erubescens "linear lobes" U					2													2	1							5	3
Convolvulus erubescens	2			1	11					1	1					5	6	33	9	2	3				5	112	26
Convolvulus eyreanus													1					1								6	3
Convolvulus microsepalus	1																									9	4
Convolvulus remotus	9		2	3	13				4	8	6	27	3	6	6	28	5	17	21	1	6	2	3	1	10	656	57
Cotula coronopifolia *						2		1						1												7	5
Cratystylis conocephala																										5	2
Crotalaria eremaea ssp.																										7	5
Cryptandra amara var.													1					11	10	1	1				2	26	6
Cullen australasicum					2					3	1										2				1	51	17
Cullen patens					2																					6	3
Cymbonotus preissianus U												1				1			3	3	1		3			14	7
Cymbopogon ambiguus			4	1	10	1					13	35	13	7	7	5		4	1	2	3	2			4	650	48
Cymbopogon obtectus													3								1					8	4
Cynanchum floribundum																										8	5
Cynara cardunculus *						2												2		1	1					8	6
Cynodon dactylon *				2	1					1												1				8	6
Cynoglossum australe																										5	3
Cyperus alterniflorus						1						1								1		1				9	5
Cyperus bulbosus Q													1													5	3
Cyperus gymnocaulos						3		2						1								1				37	11
Cyperus vaginatus					1	4					2	2	5							2	3	2				40	14
Dampiera dysantha																			1	10	1			1		13	4
Danthonia auriculata																1		7	13	2	2		5		2	33	8
Danthonia caespitosa	35	7	28	5	10	1			6		12	22	18	17	2	59	24	33	25	20	15	7	7	3	9	616	57
Danthonia eriantha U	1															4		18	12				2			40	7
Danthonia geniculata					1											1	1			1	1					6	6
Danthonia pilosa var.																			5	9	4		1		1	20	5
Danthonia racemosa var. racemosa				2	2							1								2	1	1	5			16	8
Danthonia setacea var. setacea											2					4	5	2	18	3	5		5	4	2	54	13
Daviesia genistifolia U											2		6				1	1	3	6		2		1	2	25	10
Daviesia leptophylla																				9		1				10	2
Daviesia ulicifolia ssp.												1							1	1		1				5	5
Derwentia decorosa R 3RC-													1							4	7					12	3
Dianella longifolia var. grandis R													10										1			11	2
Dianella revoluta var.		1			3	1					3	2	15	1	1	4	13	22	32	50	54	4	6	6	4	226	20
Dichanthium sericeum ssp.										14			1													28	7
Dichelachne crinita																				9	3		5		1	18	4
Dichondra repens					1							1	1						1	6	1		2			14	8
Digitaria brownii												42	13													233	16
Digitaria coenicola																										17	10
Disphyma crassifolium ssp. clavellatum					1				1	1																17	9
Dissocarpus biflorus var.									4	16																59	14
Dissocarpus paradoxus	1	2			1	2	1		3	8	3	1			1	1										432	47
Dodonaea baueri					1						9	1	9		6	3	10	2	3					1		65	21

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Dodonaea lobulata	2		1	1	4						9	26	9	18	27	23		1		1		1				471	39
Dodonaea microzyga var. microzyga												1	1													223	23
Dodonaea viscosa ssp.	1				8	3		1			17	44	53		13	23		9	15	9	32	8	1		1	322	42
Einadia nutans ssp.		2		4	5				2		9	25	13	2	1	30	6	11	32	3	26	1		7	4	256	39
Elymus scabrus var. scabrus				2							1		1			2		6	18	4	9	1	7	1	1	55	13
Enchylaena tomentosa var.	14	8	4	3	17	8			3	1	15	23	4		4	41	9	21	29		3	1		2	1	1189	59
Enneapogon nigricans				4	4							1				9	1	17	3		2	2	1		6	59	17
Enteropogon acicularis				4						2		1				2		7	4			3				62	21
Enteropogon ramosus														1		1		2								10	9
Eragrostis australasica									1																	5	5
Eragrostis eriopoda									1	2																28	10
Eragrostis setifolia									2	45																122	16
Eragrostis xerophila									1	2																29	10
Eremophila alternifolia			1		2						11	15	6		2	12	3	3								341	34
Eremophila deserti	1				1						4	1	1						2							23	12
Eremophila duttonii	1					1				7			1													223	27
Eremophila freelingii										1	2	39	3		1											643	33
Eremophila glabra ssp.											8		3	3	2	1	1	1	8		2	1				86	30
Eremophila latrobei ssp.																										17	9
Eremophila longifolia	2				7					1	5	6	4		4	8	1	9	6						4	185	36
Eremophila maculata var. maculata								1																		5	4
Eremophila oppositifolia var.											9	3	4		2	3			2							77	23
Eremophila santalina U											2	8	1			1	1		4					1		22	10
Eremophila scoparia															2		1									89	23
Eremophila serrulata											3	15	7		3	3			1	1						59	17
Eremophila sturtii										1																79	17
Eriachne mucronata												8	3													30	5
Eriochiton sclerolaenoides	29	7	3						2	4	1					6	1	2	1							268	38
Eriostemon angustifolius ssp. angustifolius R													5													5	1
Erodiophyllum elderi	1																									23	10
Eucalyptus aff. viridis R													3							1	3					7	3
Eucalyptus brachycalyx							1										1									10	3
Eucalyptus camaldulensis var.				1	11	16		1			3	9	5	1						4	3	9	3		2	221	32
Eucalyptus cladocalyx		1																		22	3	2	3			31	5
Eucalyptus dumosa		1									6		10		14	1	1		1		1					67	19
Eucalyptus flindersii													32													32	1
Eucalyptus gillii	1											4	1			1										105	14
Eucalyptus goniocalyx																				21	1		2			24	3
Eucalyptus gracilis		1									1		2			5	14									73	11
Eucalyptus intertexta			2	1							8	41	36	15	7					1		1			1	214	24
Eucalyptus leucoxylon ssp.				1							1								11	24	6		8	5	4	60	8
Eucalyptus microcarpa		1			3											2			7	6	31		3	2		55	8
Eucalyptus odorata		1		1	1	1					2	1	11		1	3		1	23	7	4	4	1	13	2	86	22
Eucalyptus oleosa							2					1	1				1			1						34	10
Eucalyptus porosa		1			1	1					10		2			8	3	5	6	2	2				1	59	19
Eucalyptus socialis		6	2				1				17	9	11		20	8	15		4	2	1			3		329	39
Euphorbia stevenii										12	1															42	14
Euphorbia tannensis ssp. eremophila	1								2	13	1	3	1			1										99	27
Eutaxia diffusa U																		1	3							5	3
Eutaxia microphylla var. microphylla											2		10				1		15	15	4		3	3	1	56	11
Evolvulus alsinoides var. decumbens												2	1													9	4
Exocarpos aphyllus		4	1			1					13	14	7	2	9	6	2	5	18		6					339	37
Exocarpos cupressiformis																				19	3	1	1			25	5
Exocarpos sparteus																			1	9	1			1		12	4
Frankenia foliosa																									1	22	12

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Frankenia pauciflora var.																										4	4
Frankenia plicata K 3E																										12	6
Frankenia serpyllifolia									3	9																53	17
Frankenia subteres K 2K																										12	6
Galenia pubescens var. pubescens *						1																				5	4
Galium gaudichaudii											3	8	8						3	15	6	1	1	2	2	55	14
Galium migrans																1	3		5	6	6			2	2	28	10
Geijera linearifolia		1																								11	5
Geranium potentilloides var. potentilloides																					3				2	5	2
Glossogyne tannensis												1		1												17	8
Glycine canescens											1	2														10	7
Glycine clandestina var.	1				1						16	47	15	6	6	11	1	10	17	12	40	1	3	3	18	309	33
Gonocarpus elatus				1							1		20						13	30	29	6	5	1	8	116	12
Gonocarpus tetragynus											3						1			10	4		2		1	21	6
Goodenia albiflora U					2						4					4	4	1	7		10				4	48	9
Goodenia amplexans U																	1			3		3		2		9	4
Goodenia fascicularis	13	2	1	3	3				2	11	11	13	7	6		13		2	4		2			1	2	277	46
Goodenia lobata K 3K				1								2	1													12	9
Goodenia lunata									1									1								8	8
Goodenia ovata													5							2						8	3
Goodenia pinnatifida Q	3	1			1				2	9	3			1		22	16	43	35	3	14	2	5	1	5	200	35
Goodenia pusilliflora	6	5	2	1	4	1			5		1					24	1	28	20		3				5	150	29
Goodenia robusta																				29	12	1	2	3		48	6
Goodenia vernicosa						1					1	15	29		7											65	10
Gossypium sturtianum var. sturtianum								1			1				1											17	8
Grevillea aspera													20													20	1
Grevillea huegelii		1													1											8	5
Grevillea lavandulacea var.																				9	3			2		14	3
Gunniopsis quadrifida										2																15	7
Haeckeria punctulata R											4	2	2			1			1			1				13	8
Hakea ednieana								1			3	45	4		1											262	23
Hakea leucoptera ssp. leucoptera										1	5	5	3		2	2		2	2							62	23
Halgania cyanea											3		11			1	2	1	7							25	6
Haloragis aspera					1						6	1	8	1				1	3	5					1	36	14
Halosarcia halocnemoides ssp.									2																	15	8
Halosarcia indica ssp.									1																	8	4
Halosarcia pergranulata ssp. pergranulata																										6	4
Helichrysum leucopsideum		1									1					2		1	1	1				2		9	7
Heliotropium asperrimum				1							2	4	1	1		1									1	29	13
Hibbertia exutiacies		1																	1	44	11	2	4			63	6
Hibbertia riparia													6							10	1			1		18	4
Hibiscus brachysiphonius										1																13	7
Hibiscus krichauffianus																										17	11
Hibiscus sturtii var. grandiflorus												11														108	11
Homopholis proluta				2														1	1							5	4
Hybanthus floribundus ssp. floribundus																			1	1	3					5	3
Hybanthus monopetalus											1	4	10						1		1				1	18	6
Hydrocotyle callicarpa																				4						4	1
Hydrocotyle laxiflora																				9	4	2	8	1	2	26	6
Hypochaeris radicata *					1						1					3	1	10	11	7	1	3	7	4	2	52	13
Indigofera australis var. australis											2	1	3			1			2	4	9	1				26	11
Indigofera leucotricha											1	19	5		4						1					47	9
Indigofera longibractea												1								2						5	3
Isotoma petraea											1	2									3				1	22	10
Ixiochlamys cuneifolia										1	3	7	2		1											125	25

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Ixiolaena brevicompta										8																8	1
Ixiolaena chloroleuca										3																8	4
Ixiolaena leptolepis				1	2					21	2		3			2		6		1	1					165	30
Ixiolaena tomentosa					1					5		2	1				2									39	21
Ixodia flindersica												1	6													8	3
Jasminum didymum ssp. lineare										1	1	1														31	11
Juncus aridicola														1						1	1	1				5	5
Juncus flavidus R				1									2									1	1			5	4
Juncus kraussii						2		1						1												7	5
Juncus subsecundus													2	3	1				1	1	2	3	4	1		20	11
Kennedia prostrata																		1	1	11		1	6			20	5
Lagenifera huegelii																			4	14	17		8	2		45	5
Lavatera plebeia												1														17	9
Lawrencia glomerata									1																	6	5
Lawrencia squamata	1		2		1												3									19	13
Lepidosperma laterale U								1				2	8		1					5		1				18	6
Lepidosperma viscidum											1								6	9	22			4	2	44	6
Leptorhynchos squamatus																		3	2	13	10		3	1	1	33	7
Linum marginale											3		1	1	1	2		1	7	3	3			1	5	33	14
Logania saxatilis R																			1	4	2				1	8	4
Lomandra collina																				4	2					6	2
Lomandra densiflora																1		1	15	30	45		6		4	102	7
Lomandra effusa					5						1					5		31	20	1	1	1		2		73	10
Lomandra multiflora ssp. dura					7	1					14	24	40	6	5	9		28	44	37	54	6	5	1	15	328	26
Luzula meridionalis																				9	1		6			16	3
Lycium australe	1	1			1	1					2					1			1							39	18
Lycium ferocissimum *		5	2	2	20	7	1				3					23	5	14	17	2	10			4	2	202	30
Lysiana exocarpi ssp. exocarpi		4	4			2				1	4	11	1		1	6	1	1	8	1	4				4	438	46
Maireana aphylla	7	1		1	5					26		1				2		7	1							159	28
Maireana appressa															1											55	22
Maireana astrotricha		1								3																570	31
Maireana brevifolia		3	1	1	9	1	1					1				7		15	8							178	35
Maireana campanulata											4		1													13	9
Maireana ciliata			1															1								6	4
Maireana coronata	1									3																14	9
Maireana enchylaenoides				4		1					11	3		4	1	23	7	24	44	1	28	2		6	7	178	20
Maireana eriantha																										12	6
Maireana erioclada																2										37	13
Maireana excavata K	5	1			2											5		9	3						1	40	18
Maireana georgei	3		1		1														1							108	29
Maireana integra												1														20	8
Maireana lobiflora		2								1						5		6								24	10
Maireana melanocarpa V 3V																										15	6
Maireana ovata																										22	9
Maireana pentatropis											1															130	25
Maireana pyramidata	16			1	3				5	2	1					4	2		1							722	50
Maireana radiata	2	1																								11	7
Maireana rohrlachii R 3RC-											1					1		2	1							8	7
Maireana sedifolia	20				1				3		2	1				3	1									278	31
Maireana spongiocarpa												1														11	7
Maireana tomentosa ssp. urceolata					3						1															37	15
Maireana trichoptera	1					1					4	1						8	2							103	27
Maireana turbinata	20				1				7	2						5		1	1							122	33
Maireana villosa																										5	3
Malacocera tricornis					1				1	10																20	8

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Malvastrum americanum										7		3														319	22
Marrubium vulgare *	1	4			29	10	1				1	3	1	1		18	3	12	7		3	1		1	9	264	47
Marsdenia australis	1							1			7	31	15	2	2	1										251	25
Medicago sativa ssp. *				2		1												2								5	3
Melaleuca dissitiflora												1	5	1												24	7
Melaleuca glomerata						2						6	3													125	21
Melaleuca lanceolata ssp. lanceolata		2	1			2					2	6	2		8	3	12	2	1	1	2			2	1	107	34
Melaleuca uncinata												3	21											1		25	3
Melhania oblongifolia												1														13	8
Minuria cunninghamii	4				1	1		1	11	18	1					1	1		1							155	38
Minuria denticulata										2																6	4
Minuria integerrima									2																	17	8
Minuria leptophylla	5	1			2				1		2		1			6		29	10							66	13
Muehlenbeckia florulenta																										5	4
Myoporum montanum				1	5	6					7	3	6		4	2	3		5	1	2	1	1		2	86	30
Myoporum platycarpum ssp.	9	7			2		1				5	3			2	4	2		2					1		196	39
Neobassia proceriflora										2																10	4
Neurachne alopecuroidea															1				1	3						12	6
Nicotiana glauca *		2	1			2							1													49	20
Nitraria billardierei	1	2				2	1		2																	100	28
Olea europaea ssp. *																		2	1		1	1	1			6	5
Olearia calcarea U															1		1									8	5
Olearia decurrens					2						27	52	32		13	5	8		15	4	19	2		1	1	304	32
Olearia minor																	4									5	2
Olearia muelleri		1									1	2	2				2									35	9
Olearia pannosa ssp.																	2	1		4	4			1	1	13	6
Olearia pimeleoides ssp.					1	1	1				8	4	3		4	10	4	6	7		2					114	27
Olearia ramulosa		1									1	1	7						4	7	2					23	7
Opercularia turpis																				4	4			1		9	3
Opuntia stricta var. stricta *												1							1							8	6
Osteocarpum acropterum var.	1		1						7	4																149	30
Osteocarpum dipterocarpum									2																	10	7
Oxalis perennans	3	1	3	5	9	1					22	47	18	8	5	59	11	27	37	26	53	2	9	5	22	682	52
Ozothamnus retusus Q																			6	1				1		8	3
Ozothamnus scaber K													2						3	1						6	3
Paraceterach reynoldsii												18	5													34	5
Paspalidium constrictum					1						7	15	5			5		1	1		2	1			3	77	22
Petalostylis labicheoides								1				1										1				18	8
Phyllanthus australis													1		1											13	7
Phyllanthus fuernrohrii																										6	4
Phyllanthus lacunarius										1		4	1													54	12
Phyllanthus saxosus U					2		1				2		6				2		3	3	3	3				27	11
Pimelea curviflora var. R																1		3	2		2				4	12	5
Pimelea elongata																										7	4
Pimelea glauca																				1	3					7	4
Pimelea micrantha											1					2		14	7	1		1			3	32	10
Pimelea microcephala ssp.		2		1	5	1	1				7	5	5			14	5	2	6		1	4			1	269	44
Pimelea petrophila													5							6				2		13	3
Pimelea simplex ssp.	1		2						4	25	3	6	1			1										270	33
Pimelea stricta											1		1						1	5						9	5
Piptatherum miliaceum *				1	1													2		1						6	5
Pittosporum phylliraeoides var. microcarpa			1		3					1	9	7	2		2	8	8	9	5		3	1		3		299	45
Plantago gaudichaudii																		1	5				8			14	3
Plantago hispida	3												1			1		1	9				2		2	22	9
Plantago varia complex													2			2	2	4	2	7	15		1	2	1	39	11

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Plectranthus intraterraneus												2	2													11	5
Pleurosorus rutifolius					2						4	24	18			2			1	13	19				3	105	19
Pluchea dentex												3	1													23	5
Poa bulbosa *																		6		1			1			8	3
Poa crassicaudex						1						1	3				1	3	7	19	16	1	4		3	59	11
Poa labillardieri var. labillardieri						1															2		4			7	3
Polypogon viridis *					1									1								1		1		8	6
Pomaderris paniculosa ssp.							1										1	4	8	3	4			1		22	7
Pomax umbellata											1	2	9								1	1				18	7
Poranthera microphylla												1								3		1				5	3
Prostanthera striatiflora						1					5	30	36		8	3			1		1				1	225	24
Pterocaulon sphacelatum											1	2													1	173	22
Ptilotus exaltatus var.										1	7	12	3	6												156	21
Ptilotus nobilis var.											2					1		2	1							17	8
Ptilotus obovatus var.	11				1				1		20	62	15	9	21	20	1	1	6		5				6	1263	51
Ptilotus parvifolius var.												1														7	4
Ptilotus spathulatus forma		1	1		2						4		2	7	1	56	3	25	32		11	1		1	14	187	28
Pultenaea graveolens U																				6						6	1
Pultenaea largiflorens													2						2	39	6	2	3	1		55	7
Rhagodia parabolica		3	2		9	3					21	11	6		6	28	17	9	16	1	26			2	3	370	43
Rhagodia spinescens	7	2	1		6				2	10	6	8	5	6	7	11		1	3			1			1	786	53
Rhagodia ulicina	1										2	4				2										122	25
Rhyncharrhena linearis											1		1		1	2		2								12	9
Rhynchosia minima										1			1													16	4
Rosa canina *																				1			2		1	5	4
Rostellularia adscendens ssp. adscendens var.											4	7		2												34	9
Rumex brownii				1	1							1		5		1			2	5	13	2	5	1	5	50	18
Rumex conglomeratus *					1															1	1	1		3	1	8	6
Rumex crispus *				1		1										1		2				2				7	5
Rumex dumosus var. K						2											1	7	1						1	12	5
Rutidosis helichrysoides													2			1		1								9	6
Salvia verbenaca form *	1			4	21	2										12		27	9	1	3	1	2	1	5	108	25
Santalum acuminatum		2	1								3	6	5		1	1		2	5		1	1		1		119	38
Santalum lanceolatum						1				1			1													209	25
Santalum spicatum K											2	1			2				1							16	10
Sarcocornia quinqueflora								1																		1	1
Sarcostemma viminale ssp. australe												4														10	4
Sauropus rigens											6	21	9		8		1				1					147	21
Sauropus trachyspermus																										23	8
Scabiosa atropurpurea *				1	1													4					1			7	4
Scaevola albida											1							7	4				1			14	5
Scaevola collina											2	8	3													32	7
Scaevola humilis											7	4	2		1	1	4	1	4		6		1		7	54	20
Scaevola parvibarbata													1		1											17	9
Scaevola spinescens	2	3									2	4			1	1		1	2							177	30
Schinus areira *					2	2												2								15	8
Schoenoplectus litoralis								1						1												5	3
Schoenus apogon																				10			2			12	2
Scleranthus pungens					1						5	10	8			3		7	4		3					56	17
Sclerolaena bicornis										5																13	7
Sclerolaena brachyptera	12	1	2	2	1				25	50				1	1	1	1	3	3							385	45
Sclerolaena constricta			1							2																24	12
Sclerolaena convexula												18	1		1											63	13
Sclerolaena cuneata																										27	15
Sclerolaena decurrens		1								2																15	9

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Sclerolaena diacantha	8	4	1		3				4	7	14	7	2		2	8	5	12	13							389	51
Sclerolaena divaricata						1			23	33		2														421	32
Sclerolaena eriacantha																										5	4
Sclerolaena holtiana K 3K																										14	11
Sclerolaena intricata									1	3																12	9
Sclerolaena lanicuspis	1								2	3	3	5				1										244	32
Sclerolaena limbata										6																330	29
Sclerolaena longicuspis					1				2	10	1															222	25
Sclerolaena obliquicuspis	21	8	2		6	1			9		3	6	1		3	8	3								1	1083	55
Sclerolaena parallelicuspis								1	1	3		1			3			1								50	23
Sclerolaena patenticuspis	4	4	21	1	4				6	1	2	3		14	3	3		2								463	52
Sclerolaena tricuspis							1		2	9																126	24
Sclerolaena ventricosa									12	40																237	30
Sclerostegia disarticulata																										8	6
Sclerostegia tenuis									4	1																18	7
Senecio anethifolius												2	1			2										11	7
Senecio cunninghamii var.						1				1												1	1		1	18	12
Senecio lautus									1	1	3	7	2			2		1								65	24
Senecio magnificus			2		4					2	4	8	1	1	4	3										487	42
Senecio odoratus var.					1															6						7	2
Senecio quadridentatus		1			6						5	4	2	1		17	11	3	10	15	14	2	10	1	9	134	30
Senna artemisioides ssp.	3	4	1		3	1				2	17	45	34	17	41	26	6	22	20			1	1			1043	53
Sida ammophila																										29	13
Sida calyxhymenia																										13	8
Sida corrugata var.	11	2	15	10	6	2				5	12	16	1	7	2	39		38	23		1				4	469	50
Sida cunninghamii										3	1	2														44	13
Sida fibulifera	3								1	5	4	18		6				1	1		1					557	38
Sida intricata	8	1	1		1	1				3	1	1				1										273	41
Sida petrophila	5				7				2	1	14	60	9	1	3	18	6				8					815	46
Sida trichopoda					1				2	18	2			1		1		1								81	19
Solanum chenopodinum																										7	6
Solanum cinereum *					2	1													1						1	5	4
Solanum ellipticum/quadriloculatum	2		2							4	22	56	10	1	3	10	3	1	3						4	1121	50
Solanum esuriale	2	2		4							2	1	1	3		3			1							63	23
Solanum nigrum *					4	2					3	1				2						1			1	42	20
Solanum petrophilum	1	2			2	2				1	16	47	18	2	10	9	2		2		2				6	359	47
Solanum simile																	1			1	2					5	4
Solanum sturtianum	1									1	2	7		1	3											273	28
Spyridium parvifolium								1					4							16						21	3
Spyridium phlebophyllum											3	2	17		2						12					36	5
Stackhousia monogyna						1					2	1		2			2	8	14	15	37	1	2	3	10	99	14
Stellaria palustris var.																	2			2	5					10	4
Stipa acrociliata											1				1	1	5	1	1			1		3	1	27	15
Stipa blackii					2	1					2		2	4		5	1	24	43	4	3	1	6	2	2	103	16
Stipa breviglumis R 3RC-				1							1	2					1		1	2	4					20	13
Stipa curticoma Q		1														2	2		1	4			1			13	8
Stipa drummondii	6	8	1		1											3	13	8	1		1				3	58	16
Stipa elegantissima	6	1		1	1						4	1	4	2	1	30	17	15	39	1	17	3			2	201	30
Stipa eremophila	21	3	1	1							1					11	7	31	6		1	1			1	105	20
Stipa flavescens																1	3		2	2				1		12	8
Stipa gibbosa R																				4	4					8	2
Stipa nitida	19	18	10	4	7	1			5		10	9	10	7		20	5	30	11	5	3	4	1	3	1	536	58
Stipa nodosa	6	1	6	2	6	1			3		2	5	6	9		26	12	14	15	4	7	3	1	1	8	219	48
Stipa petraea R																		1	1		1				1	5	5
Stipa pilata K											3		1		1	3	2	3							1	30	18

Appendix 10. (continued)

Species	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	total freq	# groups
Stipa platychaeta		3			1						1					4	1	4	2							28	13
Stipa puberula R																1		4								10	6
Stipa scabra ssp.	8		3	1	15	1			5		15	17	24	6	1	15	3	10	32	21	5		8	9	4	459	55
Stipa semibarbata																				6				1		7	2
Stipa setacea U												6	4					1	6		1	1	2			22	8
Stipa trichophylla											7	21	12	2						1						117	19
Swainsona formosa												1														16	11
Swainsona phacoides									1			1														13	8
Swainsona stipularis					1					2								4								21	12
Swainsona tephrotricha R 3RCa			1								1	5						1								34	11
Templetonia aculeata U											1	1	14					4		2	9		1		4	36	8
Templetonia egena	4	4	2									1				2		1								31	13
Templetonia retusa												6	2							1						13	6
Tetragonia implexicoma																										5	2
Teucrium corymbosum													1				1				1	1				5	5
Teucrium racemosum	1	2		3	1						1					3		4	3	1				1		33	19
Teucrium sessiliflorum																1		6						1		8	3
Themeda triandra						1					4	10	8	2				5	16	8	18	4	4		13	134	19
Threlkeldia diffusa																										4	2
Tribulus eichlerianus	1																									22	6
Trichodesma zeylanicum												5														98	13
Triodia irritans complex	1		1		5						26	48	52		21	7	2	6	33	26	44	1	1	4	29	458	36
Triraphis mollis										4																40	15
Typha domingensis						2								1												10	5
Typha orientalis																										8	1
Velleia arguta											1				1	1		4	1							19	13
Verbena officinalis *											2															5	3
Veronica plebeia U																1				6	5		2	1	1	16	6
Vittadinia blackii				1							7	2				4		10	2		4		2			34	10
Vittadinia condyloides																	2	2	1		3				1	9	5
Vittadinia gracilis	10	1	1	4	12				1		9	4			1	23	8	31	17	1	6	1	5	1	5	191	38
Wahlenbergia aridicola R												1														7	4
Wahlenbergia communis		1			4						4	7	5	2		3	2		2	2	3			1	3	133	32
Wahlenbergia luteola	1		1	3	2						5					45	6	37	39	12	33	2	9	3	16	227	23
Wahlenbergia stricta ssp. stricta											3			6		2	1		1	27	18	4	6	4	2	77	14
Wahlenbergia tumidifructa					1						1	5	4	1												31	12
Westringia rigida		1									2	3	1		13	2	6	1	2	2						66	19
Xanthorrhoea quadrangulata					1						5	27	39		1			2	1	36	37	1		1	10	175	17
Zygophyllum apiculatum		1						1			1	6	2	1	1	3			1							100	31
Zygophyllum aurantiacum ssp.	5	4	3		4						7	9	1	1			3	1								245	46
Zygophyllum billardierei(NC)	1					1					2				1	1	2	1	2							26	17
Zygophyllum eremaeum					2																					11	8

APPENDIX 11. Trap effort for vertebrate survey sampling sites.

Survey number	SITE	LATITUDE	LONGITUDE	Elliott traps A	Elliott traps B	Pit traps A	Pit traps B	Cage traps A	Cage traps B	# nights trapped	Elliott trap nights	Pit trap nights	Cage trap nights	Harp trap	Mist net
24	BR00102	-33.0774	139.559	15	15	3	3	2	0	4	120	24	16		
24	BR00204	-33.1037	139.6116	15	15	6	6	2	0	4	105	42	14		
24	BR00401	-33.1989	139.6192	15	15	6	6	2	0	4	120	48	16		
24	BR00602	-33.2914	139.5599	15	15	6	6	2	0	4	120	48	16		
24	CL00302	-33.2975	139.3503	15	15	6	6	2	0	4	120	48	16		
24	FH00101	-33.1132	139.7878	15	15	6	6	2	0	4	120	48	16		
24	GR00202	-32.8579	139.5359	15	15	6	6	2	0	6	180	72	24		
24	MN00101	-32.8071	139.7567	15	15	6	6	2	0	4	120	48	16		
24	PP00102	-33.1718	139.1301	15	15	6	6	2	0	4	135	54	18		
24	SD00302	-32.9226	139.6738	15	0	6	0	0	0	4	60	24	8		
24	SE00102	-33.1291	139.2966	15	14	6	6	3	0	4	116	48	20		
24	SE00103	-33.119	139.2877	15	15	6	6	2	0	4	120	48	16		
24	TL00102	-33.0569	139.2916	15	15	6	6	2	0	4	120	48	16		
24	TL00203	-33.0859	139.2728	15	14	6	6	2	0	4	116	48	16		
69	LH00101	-30.2691	138.3909	15	15	6	6	2	2	4	120	48	16		
69	LH00201	-30.2569	138.3683	15	15	6	6	2	2	4	120	48	16		
69	LH00301	-30.1375	138.3167	15	15	6	6	2	2	4	120	48	16		
69	LH00401	-30.1028	138.2339	15	15	6	6	2	2	4	120	48	16	Y	
69	LH00501	-29.9842	138.2308	15	15	6	6	2	2	4	120	48	16		
69	LH00601	-29.9353	138.2769	15	15	6	6	2	2	4	120	48	16		
69	LH00701	-29.94	138.2625	15	15	6	6	2	2	4	120	48	16		
69	LH00801	-30.0075	138.2803	15	15	6	6	2	2	4	120	48	16		
69	YH00101	-29.8006	139.6297	15	15	6	6	2	2	4	120	48	16		
69	YH00201	-29.8006	139.6481	15	15	6	6	2	2	4	120	48	16		
98	ARO00101	-30.5196	138.3182	15	15	6	6	2	2	4	120	48	16		
98	ARO00201	-30.5115	138.3212	15	15	6	6	2	2	4	120	48	16		
98	ARO00301	-30.5175	138.3256	15	15	6	6	2	2	4	120	48	16		
98	ARO00401	-30.5844	138.369	15	30	6	0	2	4	4	180	24	24		
98	ARO00501	-30.5068	138.369	15	15	6	6	2	2	3	90	36	12		
98	ARO00601	-30.5745	138.4182	15	15	6	6	2	2	4	120	48	16		
98	ARO00701	-30.618	138.3848	15	15	6	6	2	2	4	120	48	16		
98	ARO00801	-30.5962	138.3469	15	15	6	6	2	2	4	120	48	16	Y	Y
98	COF00101	-30.5487	138.4814	15	15	6	6	2	2	4	120	48	16		
98	COF00201	-30.5176	138.5217	15	15	6	0	2	2	4	120	24	16		
98	COF00301	-30.5194	138.5316	15	15	6	6	2	2	4	120	48	16	Y	
98	COF00401	-30.5321	138.5591	15	15	6	6	2	2	4	120	48	16		
98	COF00501	-30.5525	138.5856	15	15	6	6	2	2	4	120	48	16		
98	COF00601	-30.5563	138.6222	15	15	6	0	2	2	4	120	24	16		
98	COF00701	-30.5764	138.6522	15	15	6	6	2	2	4	120	48	16		
98	COF00801	-30.5869	138.6614	15	15	6	6	2	2	4	120	48	16		
98	DEC00101	-30.7489	138.1306	35	15	0	0	0	0	4	200	0	0		
98	DEC00201	-30.7657	138.1186	15	15	6	6	2	2	4	105	42	14		
98	DEC00301	-30.7846	138.1546	15	15	6	6	2	2	4	120	48	16		
98	DEC00401	-30.7686	138.2094	15	15	6	6	2	2	4	120	48	16		
98	DEC00501	-30.7929	138.2077	15	15	6	6	2	2	4	120	48	16		
98	DEC00601	-30.7782	138.2802	15	15	6	6	2	2	4	120	48	16		
98	DEC00701	-30.7603	138.2869	15	15	6	6	2	2	4	120	48	16		
98	DEC00801	-30.7378	138.2855	15	15	6	6	2	2	4	120	48	16		
98	PUT00101	-30.6597	138.5339	15	15	6	6	2	2	4	120	48	16		
98	PUT00201	-30.6842	138.5385	15	15	6	6	2	2	4	120	48	16		
98	PUT00301	-30.6506	138.435	15	35	0	6	2	2	4	200	24	16		

Appendix 11. (continued)

Survey number	SITE	LATITUDE	LONGITUDE	Elliott traps A	Elliott traps B	Pit traps A	Pit traps B	Cage traps A	Cage traps B	# nights trapped	Elliott trap nights	Pit trap nights	Cage trap nights	Harp trap	Mist net
98	PUT00401	-30.7255	138.4382	15	15	6	6	2	2	4	120	48	16		
98	PUT00501	-30.7734	138.485	15	15	6	6	2	2	4	120	48	16		
98	PUT00601	-30.7719	138.5039	15	15	6	6	2	2	4	120	48	16		
98	PUT00701	-30.7132	138.4062	15	20	6	0	2	0	4	140	24	8		
98	PUT00801	-30.713	138.3968	15	15	6	6	2	2	4	120	48	16		
104	BLA00101	-31.773	138.8046	15	15	6	6	2	2	4	120	48	16		
104	BLA00301	-31.8037	138.7568	15	15	6	6	2	2	4	120	48	16		
104	BLA00401	-31.8006	138.7838	15	15	6	6	2	2	4	120	48	16		
104	BLA00501	-31.8033	138.788	15	15	6	6	2	2	4	120	48	16		
104	BLA00601	-31.8109	138.8082	15	15	6	6	2	2	4	120	48	16		
104	DUT00101	-32.3256	137.985	15	15	6	6	2	2	4	120	48	16		
104	DUT00201	-32.3112	137.9836	15	15	6	6	2	2	4	120	48	16		
104	DUT00301	-32.3037	137.9636	15	15	6	6	2	2	4	120	48	16		
104	DUT00401	-32.3004	137.9566	15	15	6	6	2	2	4	120	48	16		
104	DUT00501	-32.3133	137.9606	15	15	6	6	2	2	4	120	48	16		
104	DUT00601	-32.3437	137.9423	15	15	6	6	2	2	4	120	48	16		
104	ERE00101	-31.0935	138.8076	15	15	6	6	2	2	4	120	48	16		
104	ERE00201	-31.089	138.8281	15	15	6	6	2	2	4	140	48	16		
104	ERE00301	-31.0867	138.8376	15	15	6	6	2	2	4	120	48	16		
104	ERE00401	-31.0972	138.8837	15	15	6	6	2	2	4	120	48	16		
104	ERE00501	-31.105	138.9035	15	15	6	6	2	2	4	120	48	16		
104	ERE00601	-31.1174	138.9385	15	15	6	6	2	2	4	120	48	16		
104	FIT00101	-29.9097	139.4588	15	15	6	6	2	2	4	120	48	16		
104	FIT00201	-29.9259	139.4924	15	15	6	6	2	2	4	120	48	16		
104	FIT00301	-29.9719	139.5414	15	15	6	6	2	2	4	120	48	16		
104	FIT00401	-29.9771	139.566	15	15	6	6	2	2	4	120	48	16		
104	FIT00501	-30.0126	139.514	15	15	6	6	2	3	4	120	48	16		
104	FIT00601	-30.0281	139.5107	15	15	0	0	2	2	4	120	0	16		
104	FIT00701	-29.9074	139.451	15	15	6	6	2	2	4	120	48	16		
104	FLI00101	-31.4279	138.6671	15	15	6	6	2	2	4	120	48	16		
104	FLI00201	-31.5432	138.5906	15	15	6	6	2	2	4	120	48	16		
104	FLI00301	-31.5397	138.591	15	15	6	6	2	2	4	120	48	16	Y	
104	FLI00401	-31.566	138.5877	15	15	6	6	2	2	4	120	48	16		
104	FLI00501	-31.5418	138.5583	15	15	6	6	2	2	4	120	48	16		
104	FLI00601	-31.5329	138.548	15	15	6	6	2	2	4	120	48	16		
104	GAP00201	-30.4094	139.1017	15	15	6	6	2	2	4	120	48	16		
104	GAP00301	-30.4157	139.1683	15	15	6	6	2	2	4	120	48	16		
104	GAP00401	-30.428	139.1452	15	15	6	6	2	2	4	120	48	16		
104	GAP00501	-30.4686	139.0359	15	15	6	6	2	2	4	120	48	16		
104	GAP00601	-30.5201	138.974	15	15	6	6	2	2	4	120	48	16		
104	LOV00101	-31.4402	138.8034	15	15	6	6	2	2	4	120	48	16	Y	
104	LOV00201	-31.416	138.815	15	15	6	6	2	2	4	120	48	16		
104	LOV00301	-31.3949	138.8108	15	15	6	6	2	2	4	120	48	16		
104	LOV00401	-31.3818	138.8276	15	15	6	6	2	2	4	120	48	16		
104	LOV00501	-31.3714	138.8334	15	15	6	6	2	2	4	120	48	16		
104	LOV00601	-31.3586	138.838	15	15	6	6	2	2	4	120	48	16		
104	MAM00101	-32.7902	138.0679	15	15	6	6	2	2	4	120	48	16		
104	MAM00201	-32.781	138.0604	15	15	6	6	2	2	4	120	48	16		
104	MAM00301	-32.7574	138.0727	15	15	6	6	2	2	4	120	48	16		
104	MAM00401	-32.7498	138.0756	15	15	6	6	2	2	4	120	48	16		
104	MAM00501	-32.7265	138.0519	15	15	6	6	2	2	4	120	48	16		

Appendix 11. (continued)

Survey number	SITE	LATITUDE	LONGITUDE	Elliott traps A	Elliott traps B	Pit traps A	Pit traps B	Cage traps A	Cage traps B	# nights trapped	Elliott trap nights	Pit trap nights	Cage trap nights	Harp trap	Mist net
104	MAM00601	-32.7204	138.0489	15	15	6	6	2	2	4	120	48	16		
104	MAW00101	-30.1109	139.4161	15	15	6	6	2	2	4	120	48	16	Y	Y
104	MAW00201	-30.105	139.4212	15	15	6	6	2	2	4	120	48	16		
104	MAW00301	-30.1187	139.4486	15	15	6	6	2	2	4	120	48	16		
104	MAW00601	-30.1208	139.3988	15	15	6	6	2	2	4	120	48	16		
104	MUD00101	-30.6101	138.8054	15	15	6	0	2	2	4	120	24	16		
104	MUD00201	-30.6109	138.8143	15	15	6	6	2	2	4	120	48	16	Y	
104	MUD00202	-30.6105	138.8118	15	15	6	6	2	2	4	120	48	16	Y	
104	MUD00301	-30.6234	138.83	15	15	6	6	2	2	4	120	48	16		
104	MUD00401	-30.6445	138.8466	15	15	6	6	2	2	4	120	48	16		
104	MUD00501	-30.6771	138.8157	15	15	6	6	2	2	4	120	48	16		
104	MUD00601	-30.6898	138.8159	15	15	6	6	2	2	4	120	48	16		
104	MUL00101	-30.8407	139.1299	15	15	6	6	2	2	4	120	48	16	Y	
104	MUL00201	-30.847	139.1283	15	15	6	6	2	2	4	120	48	16		
104	MUL00301	-30.9162	139.1625	15	15	6	6	2	2	4	120	48	16		
104	MUL00401	-30.9265	139.1596	15	15	6	6	2	2	4	120	48	16		
104	MUL00501	-30.952	139.2241	15	15	6	6	2	2	4	120	48	16		
104	MUL00601	-30.9483	139.2062	15	15	6	6	2	2	4	120	48	16		Y
104	NAN00101	-30.6147	139.0835	15	15	6	6	2	2	4	120	48	16		
104	NAN00201	-30.6603	139.091	15	15	6	6	2	2	4	120	48	16		
104	NAN00301	-30.6813	139.0835	15	15	6	6	2	2	4	120	48	16		
104	NAN00401	-30.6913	139.0862	15	15	6	6	2	2	4	120	48	16		
104	NAN00501	-30.7054	139.0884	15	15	6	6	2	2	4	120	48	16		
104	NAN00601	-30.7348	139.0761	15	15	6	6	2	2	4	120	48	16		
104	NUD00101	-30.3624	139.3463	15	15	6	6	2	2	4	120	48	16		
104	NUD00201	-30.3741	139.3505	15	15	6	6	2	2	4	120	48	16		
104	NUD00203	-30.3739	139.3553	0	0	0	0	0	0	0	0	0	0	Y	
104	NUD00301	-30.3659	139.3637	15	15	6	6	2	2	4	120	48	16		
104	NUD00401	-30.327	139.3781	15	15	6	6	2	2	4	120	48	16		
104	NUD00501	-30.3013	139.3964	15	15	6	6	2	2	4	120	48	16	Y	
104	NUD00601	-30.3013	139.4021	15	15	6	0	2	2	4	120	24	16		
104	PAR00101	-31.0986	138.5294	15	15	6	6	2	2	4	120	48	16		
104	PAR00201	-31.1391	138.5306	15	15	6	6	2	2	4	120	48	16		
104	PAR00202	-31.1409	138.5302	15	15	6	6	2	2	4	120	48	16		
104	PAR00301	-31.1293	138.5624	15	15	6	6	2	2	4	120	48	16		Y
104	PAR00401	-31.1159	138.5968	15	15	6	6	2	2	4	120	48	16		
104	PAR00501	-31.1122	138.6154	15	15	6	6	2	2	4	120	48	16		
104	PAR00601	-31.1158	138.6441	15	15	6	6	2	2	4	120	48	16		
104	PAT00101	-30.9167	138.7251	15	15	6	6	2	2	4	120	48	16		
104	PAT00201	-30.9364	138.727	15	15	6	6	2	2	4	120	48	16		
104	PAT00301	-30.9585	138.7246	15	15	6	6	2	2	4	120	48	16		
104	PAT00401	-30.9557	138.7539	15	15	6	6	2	2	4	120	48	16	Y	
104	PAT00501	-30.9588	138.7649	15	15	6	6	2	2	4	120	48	16		
104	PAT00601	-30.9568	138.7729	15	15	6	6	2	2	4	120	48	16		
104	REH00101	-30.2572	138.8268	15	15	6	6	2	2	4	120	48	16		
104	REH00201	-30.2776	138.8064	15	15	6	6	2	2	4	120	48	16		
104	REH00301	-30.2887	138.8018	15	15	6	6	2	2	4	120	48	16		
104	REH00401	-30.3207	138.7868	15	15	6	6	2	2	4	120	48	16		
104	REH00501	-30.3403	138.8238	15	15	6	6	2	2	4	120	48	16		
104	REH00601	-30.3483	138.778	15	15	6	6	2	2	4	120	48	16		
104	TEL00101	-33.0263	138.1026	15	15	6	6	2	2	4	120	48	16		

Appendix 11. (continued)

Survey number	SITE	LATITUDE	LONGITUDE	Elliott traps A	Elliott traps B	Pit traps A	Pit traps B	Cage traps A	Cage traps B	# nights trapped	Elliott trap nights	Pit trap nights	Cage trap nights	Harp trap	Mist net
104	TEL00201	-33.0401	138.1058	15	15	6	6	2	2	4	120	48	16		
104	TEL00301	-33.0452	138.1186	15	15	6	6	2	2	4	120	48	16		
104	TEL00401	-33.0421	138.1237	15	15	6	6	2	2	4	120	48	16		
104	TEL00501	-33.0534	138.1443	15	15	6	6	2	2	4	120	48	16		
104	TEL00601	-33.0471	138.1608	15	15	6	6	2	2	4	120	48	16		
104	WET00101	-30.4064	139.2247	15	15	6	6	2	2	4	120	48	16		
104	WET00201	-30.4038	139.2353	15	15	6	6	2	2	4	120	48	16		
104	WET00301	-30.4189	139.2274	15	15	6	6	2	2	4	120	48	16		
104	WET00401	-30.4588	139.1799	15	15	6	6	2	2	4	120	48	16		
104	WET00601	-30.4765	139.2165	15	15	6	6	2	2	4	120	48	16		
104	WET00701	-30.4818	139.2414	0	0	0	0	8	0	4	0	0	32		
104	YOU00101	-31.9109	138.2918	15	15	6	6	2	2	4	120	48	16		
104	YOU00201	-31.9283	138.3046	15	15	6	6	2	2	4	120	48	16		
104	YOU00301	-31.9075	138.3286	15	15	6	6	2	2	4	120	48	16		
104	YOU00401	-31.8908	138.3393	15	15	6	6	2	2	4	120	48	16		
104	YOU00501	-31.9041	138.3517	15	15	6	6	2	2	4	120	48	16		
104	YOU00601	-31.9069	138.3599	15	15	6	6	2	2	4	120	48	16		
104	YUH00101	-30.1832	139.2778	15	15	6	6	2	2	4	120	48	16		
104	YUH00102	-30.1842	139.2764							2					Y
104	YUH00201	-30.1689	139.2587	15	15	6	6	2	2	4	120	48	16		
104	YUH00401	-30.1858	139.2426	15	15	6	6	2	2	4	120	48	16	Y	
104	YUH00501	-30.1981	139.2331	15	15	6	6	2	2	4	120	48	16		
104	YUH00601	-30.2092	139.2364	15	15	6	6	2	2	4	120	48	16		
104	YUH00701	-30.2251	139.192	15	15	6	6	2	2	4	120	48	16		
111	WAR00101	-30.7993	138.6059	15	15	6	6	2	2	4	60	24	8		
111	WAR00201	-30.7883	138.626	15	15	6	6	2	2	4	60	24	8		
111	WAR00301	-30.7856	138.6348	15	15	6	6	2	2	4	60	24	8		
111	WAR00401	-30.78	138.6474	15	15	6	6	2	2	4	60	24	8		
111	WAR00501	-30.7875	138.6639	15	15	6	6	2	2	4	60	24	8		
111	WAR00601	-30.7861	138.6777	15	15	6	6	2	2	4	60	24	8		
111	WAR00701	-30.7804	138.7172	15	15	6	6	2	2	4	60	24	8		
111	WAR00801	-30.7705	138.7329	15	15	6	6	2	2	4	60	24	8		
114	N8TRA01	-32.8149	138.0628	40	0	0	0	0	0	7	280	0	0		
114	N8TRA02	-32.8061	138.0738	40	0	0	0	0	0	11	440	0	0		
114	N8TRA03	-32.8367	138.0312	40	0	0	0	0		5	0	0			
114	N8TRA04	-32.8106	138.0715	0	0	10	0	0	0	36	0	360	0		
114	N8TRA05	-32.8106	138.0705	0	0	24	0	0	0	24	0	144	0		
114	N8TRA06	-32.8612	138.0367	0	0	6	0	0	0	33	0	198	0		
114	N8TRA07	-32.8593	138.0347	0	0	6	0	0	0	40	0	240	0		
114	N8TRA08	-32.8336	138.0537	20	0	0	0	0	0	16	320	0	0		
114	N8TRA09	-32.8247	138.0572	20	0	0	0	0	0	16	320	0	0		
114	N8TRA10	-32.8256	138.0593	10	0	0	0	0	0	7	70	0	0		
114	N8TRA11	-32.7222	138.0691	0	0	5	0	0	0	32	0	160	0		
114	N8TRA12	-32.7299	138.0518	0	0	5	0	0	0	42	0	210	0		
114	N8TRA15	-32.8378	138.0386	0	0	6	0	0	0	48	0	288	0		
114	N8TRA15	-32.8378	138.0386	0	0	6	0	0	0	34	0	204	0		
114	N8TRA16	-32.8369	138.0397	12	0	6	0	0	0	7	84	42	0		
114	N8TRA16	-32.8369	138.0397	12	0	6	0	0	0	7	48	42	0		

APPENDIX 12. **Total mammal species list for the study area including recently extinct species from Tunbridge (1991), Medlin (1993), Smith (1996) and South Australian Museum data.**

The numbers of each species and the number of survey sites at which they were recorded are included along with the number of records on the Opportune Database. EX= extinct, EN and E= endangered, VU and V= vulnerable, CD= conservation dependent (ie reintroductions), R= rare, U= uncommon, C= common and O=occasional visitor or vagrant.

FAMILY Subfamily	Species	Common Name	Aus status	SA Status	FR status	SAM	Aboriginal record	Medlin 1993 sub fossil	Survey # sites	Survey # animals	Opportune
BOVIDAE	*Bos taurus*	Cattle			I	1	x		16	18	2
BOVIDAE	*Capra hircus*	Goat			I	3	x		82	163	28
BOVIDAE	*Ovis aries*	Sheep			I		x		37	44	11
CANIDAE	*Canis lupus dingo*	Dingo			R	2					1
CANIDAE	*Vulpes vulpes*	Fox			I	3	x		49	54	18
DASYURIDAE Dasyurinae	*Dasycercus byrnei*	Kowari	EN	V	EX			<0.1%			
DASYURIDAE Dasyurinae	*Dasycercus cristicauda*	Mulgara	VU	E	EX			<1%			
DASYURIDAE Dasyurinae	*Dasyurus geoffroii*	Western Quoll	EN	EX	EX		x	<0.1%			
DASYURIDAE Dasyurinae	*Dasyurus viverrinus*	Eastern Quoll	EN	EX	EX	1					
DASYURIDAE Phascogalinae	*Phascogale calura*	Red-tailed Phascogale	EN	EX	EX			<0.1%			
DASYURIDAE Planigalinae	*Planigale gilesi*	Giles' Planigale			R	1					
DASYURIDAE Planigalinae	*Planigale tenuirostris*	Narrow-nosed Planigale			U	27		<0.1%	14	21	
DASYURIDAE Sminthopsinae	*Antechinomys laniger*	Kultarr			R		x	<1%			
DASYURIDAE Sminthopsinae	*Sminthopsis crassicaudata*	Fat-tailed Dunnart			C	70	x	<1%	43	134	1
DASYURIDAE Sminthopsinae	*Sminthopsis dolichura*	Little Long-tailed Dunnart *			R	1			1	1	
DASYURIDAE Sminthopsinae	*Sminthopsis macroura*	Stripe-faced Dunnart			C	63		1%	64	176	
DASYURIDAE Sminthopsinae	*Sminthopsis murina*	Common Dunnart *			R	5		?	4	5	
EQUIDAE	*Equus asinus*	Donkey			I		x		9	10	4
EQUIDAE	*Equus caballus*	Horse			I		x		8	9	6
FELIDAE	*Felis catus*	Cat			I	12	x		9	12	4
LEPORIDAE	*Oryctolagus cuniculus*	Rabbit			I	1	x		88	101	65
MACROPODIDAE	*Lagorchestes leporides*	Eastern Hare-wallaby	EX	EX	EX		x				
MACROPODIDAE	*Onychogalea lunata*	Crescent Nailtail Wallaby	EX	EX	EX			Moro			
MACROPODIDAE Macropodinae	*Macropus fuliginosus*	Western Grey Kangaroo			C		x		19	30	23
MACROPODIDAE Macropodinae	*Macropus robustus*	Euro			C	43	x		118	269	162
MACROPODIDAE Macropodinae	*Macropus rufus*	Red Kangaroo			C	16	x		31	57	57
MACROPODIDAE Macropodinae	*Petrogale xanthopus*	Yellow-footed Rock-wallaby		V	V	50	x		7	14	6
MEGADERMATIDAE	*Macroderma gigas*	Ghost Bat	VU	EX	EX	9	x				
MOLOSSIDAE	*Mormopterus planiceps*	Little Mastiff-bat "big penis"			C	64			6?	41?	63?
MOLOSSIDAE	*Mormopterus planiceps*	Little Mastiff-bat "little penis"			C				6?	41?	63?
MOLOSSIDAE	*Nyctinomus australis*	White-striped Freetail Bat			C	10			4	8	7
MURIDAE Hydromyinae	*Hydromys chrysogaster*	Water-rat			R	1					
MURIDAE Hydromyinae	*Leggadina forresti*	Forrest's Mouse			U	15		1%	8	14	1
MURIDAE Hydromyinae	*Leporillus apicalis*	Lesser Stick-nest Rat	EX	EX	EX			<1%			
MURIDAE Hydromyinae	*Leporillus conditor*	Greater Stick-nest Rat	EN	V	EX			<1%			2?
MURIDAE Hydromyinae	*Notomys amplus*	Short-tailed Hopping-mouse	EX	EX	EX			<1%			
MURIDAE Hydromyinae	*Notomys fuscus*	Dusky Hopping-mouse	EN	V	O	1		20%			

Appendix 12. (continued)

FAMILY Subfamily	Species	Common Name	Aus status	SA Status	FR status	SAM	Aboriginal record	Medlin 1993 sub fossil	Survey # sites	Survey # animals	Opportune
MURIDAE Hydromyinae	*Notomys longicaudatus*	Long-tailed Hopping-mouse	EX	EX	EX			5%			
MURIDAE Hydromyinae	*Pseudomys australis*	Plains Mouse	VU	V	O	1		7%			
MURIDAE Hydromyinae	*Pseudomys bolami*	Bolam's Mouse			U	20			12	27	1
MURIDAE Hydromyinae	*Pseudomys desertor*	Desert Mouse *			R	6		2%	3	7	
MURIDAE Hydromyinae	*Pseudomys gouldii*	Gould's Mouse	EX	EX	EX	1		17%			
MURIDAE Hydromyinae	*Pseudomys hermannsburgensis*	Sandy Inland Mouse			U	4		11%	4	4	
MURIDAE Murinae	*Mus domesticus*	House Mouse			I	78	x	4%	78	338	1
MURIDAE Murinae	*Rattus rattus*	Black Rat			I	4			3	3	1
MURIDAE Murinae	*Rattus villosissimus*	Long-haired Rat			O	1	x	23%			
PERAMELIDAE Peramelinae	*Chaeropus ecaudatus*	Pig-footed Bandicoot	EX	EX	EX			<1%			
PERAMELIDAE Peramelinae	*Isoodon auratus*	Golden Bandicoot	EN	EX	EX			<1%			
PERAMELIDAE Peramelinae	*Perameles bougainville*	Western Barred Bandicoot	EN	EX	EX			<1%			
PERAMELIDAE Thylacomyinae	*Macrotis lagotis*	Bilby	VU	E	EX		x	<1%			
PHALANGERIDAE	*Trichosurus vulpecula*	Common Brushtail Possum			V	3	x	<0.1%			
POTORIDAE	*Bettongia lesueur*	Burrowing Bettong	EN	E	EX	2	x	<0.1%			
POTORIDAE	*Bettongia penicillata*	Brush-tailed Bettong	CD	CD	CD**		x				
POTORIDAE	*Caloprymnus campestris*	Desert Rat-kangaroo	EX	EX	EX			<0.1%			
PSEUDOCHEIRIDAE	*Pseudocheirus peregrinus*	Common Ringtail Possum			EX	1					
TACHYGLOSSIDAE	*Tachyglossus aculeatus*	Short-beaked Echidna			C	2	x		51	63	5
VESPERTILIONIDAE Nyctophilinae	*Nyctophilus geoffroyi*	Lesser Long-eared Bat			C	42			12	51	41
VESPERTILIONIDAE Vespertilioninae	*Chalinolobus gouldii*	Gould's Wattled Bat			C	86			10	49	194
VESPERTILIONIDAE Vespertilioninae	*Chalinolobus morio*	Chocolate Wattled Bat			C	24			5	22	44
VESPERTILIONIDAE Vespertilioninae	*Scotorepens balstoni*	Inland Broad-nosed Bat			U	6			1	2	3
VESPERTILIONIDAE Vespertilioninae	*Scotorepens greyii*	Little Broad-nosed Bat			O	6					
VESPERTILIONIDAE Vespertilioninae	*Vespadelus baverstocki*	Inland Forest Bat			C	27			6	12	27
VESPERTILIONIDAE Vespertilioninae	*Vespadelus finlaysoni*	Finlayson's Cave Bat			C	34			5	8	7
VESPERTILIONIDAE Vespertilioninae	*Vespadelus regulus*	Southern Forest Bat *			R	2			1	1	1
64	Grand Total					42	24	28	32	32	27

* new species records for the study area.
** The Brush-tailed Bettong is a recently re-introduced population that cannot yet be considered established, and is likely to remain dependent on active conservation management for its continued survival into the foreseeable future.

APPENDIX 13. Fossorial small mammal species by sites in order of mammal assemblage number and PATN analysis groups.

Sites	Mammal Assemblage #	Group # from PATN	*Planigale gilesi*	*Planigale tenuirostris*	*Sminthopsis crassicaudata*	*Sminthopsis dolichura*	*Sminthopsis macroura*	*Sminthopsis murina*	*Pseudomys bolami*	*Pseudomys desertor*	*Pseudomys hermannsburgensis*	*Leggadina forresti*	*Mus musculus*	*Rattus rattus*
BR00204	1	1			*									
FH00101	1	1			*									
LH00801	1	1			*									
YH00101	1	1			*									
COF00601	1	1			*									
FIT00201	1	1			*									
LOV00501	1	1			*									
MUD00501	1	1			*									
NAN00101	1	1			*									
YOU00101	1	1			*									
YUH00201	1	1			*									
WAR01001	1	1			*									
WAR01401	1	1			*									
N3/27	1	2			*								*	
N3/31	1	2			*								*	
LH00301	1	2			*								*	
LH00501	1	2			*								*	
LH00701	1	2			*								*	
PAR03201	1	2			*								*	
DEC00301	1	2			*								*	
BLA00101	1	2			*								*	
LOV00201	1	2			*								*	
PAT00201	1	2			*								*	
YOU00401	1	2			*								*	
YUH00701	1	2			*								*	
BR00401	2	3							*					
BR00602	2	3							*					
N3/33	2	3							*					
NAN00301	2	3							*					
PAT00601	2	3							*					
WET00401	2	3							*					
SD00302	2	4							*				*	
PAT00501	2	4							*				*	
PUT00501	2	4					*		*				*	
ERE00301	2	4					*		*				*	
PAT00401	2	4					*		*				*	
DEC00401	2	4			*				*				*	
ERE00501	2	4			*		*		*				*	
ERE00601	2	4			*		*		*				*	
NAN00501	2	4			*		*		*					
MN00101	3	5						*						
FLI00401	3	5						*					*	
GAP00401	3	5						*					*	
FLI00201	3	5					*	*						
GAP00501	3	5					*	*			*			
REH00201	3	6									*			
DUT00601	4	7				*							*	
TEL00301	4	7								*			*	
TEL00401	4	7								*			*	
TEL00601	4	7								*				
DUT00201	5	8												*
MAM00601	5	8												*
N8TRA02	5	8											*	*
DUT00401	6	9		*									*	
N8TRA15	6	9		*									*	
GAP00301	6	9		*			*						*	
WAR00601	6	9		*			*							
GAP00201	6	9		*										
MUD00101	6	9		*										
WAR00401	6	9		*										
N8TRA04	6	9		*										
N8TRA11	6	9		*										
N8TRA13	6	9		*										

Appendix 13. (continued)

Sites	Mammal Assemblage #	Group # from PATN	*Planigale gilesi*	*Planigale tenuirostris*	*Sminthopsis crassicaudata*	*Sminthopsis dolichura*	*Sminthopsis macroura*	*Sminthopsis murina*	*Pseudomys bolami*	*Pseudomys desertor*	*Pseudomys hermannsburgensis*	*Leggadina forresti*	*Mus musculus*	*Rattus rattus*
N3/34	7	10		*	*		*					*		
N3/39	7	10		*	*		*					*		
BU014000	7	10		*	*		*					*		
WET00501	7	10		*	*		*					*		
BU015000	7	10			*		*					*		
DEC00501	7	10			*		*					*		
FIT00401	7	10			*		*					*	*	
MUL00301	7	10			*		*					*	*	
PAR05101	7	10	*				*					*		
N3/40	8	11			*		*						*	
BU016000	8	11			*		*						*	
COF00501	8	11			*		*						*	
PUT00101	8	11			*		*						*	
PUT00601	8	11			*		*						*	
LOV00401	8	11			*		*						*	
LOV00601	8	11			*		*						*	
MUL00401	8	11			*		*						*	
MUL00601	8	11			*		*						*	
PAT00301	8	11			*		*						*	
COF00401	8	11			*		*							
COF00701	8	11			*		*							
DEC00601	8	11			*		*							
NAN00601	8	11			*		*							
WAR00101	8	11			*		*							
WAR00201	8	11			*		*							
N3/35	9	12					*						*	
BU011000	9	12					*						*	
ARO00601	9	12					*						*	
ARO00701	9	12					*						*	
PUT00301	9	12					*						*	
PUT00701	9	12					*						*	
PUT00801	9	12					*						*	
BLA00201	9	12					*						*	
LOV00301	9	12					*						*	
NUD00301	9	12					*						*	
PAR00101	9	12					*						*	
PAR00201	9	12					*						*	
ERE00101	9	12					*				*		*	
MAW00201	9	12					*				*		*	
LH00101	9	13					*							
KOO15101	9	13					*							
WIL09301	9	13					*							
ARO00201	9	13					*							
COF00201	9	13					*							
COF00801	9	13					*							
BLA00401	9	13					*							
ERE00201	9	13					*							
ERE00401	9	13					*							
FIT00301	9	13					*							
GAP00601	9	13					*							
MUL00101	9	13					*							
MUL00201	9	13					*							
MUL00501	9	13					*							
PAR00501	9	13					*							
REH00301	9	13					*							
WET00101	9	13					*							
YOU00501	9	13					*							
WAR00701	9	13					*							
TL00203	10	14											*	
MBS0122	10	14											*	
MBS0123	10	14											*	
N3/37	10	14											*	
LH00201	10	14											*	

Appendix 13. (continued)

Sites	Mammal Assemblage #	Group # from PATN	*Planigale gilesi*	*Planigale tenuirostris*	*Sminthopsis crassicaudata*	*Sminthopsis dolichura*	*Sminthopsis macroura*	*Sminthopsis murina*	*Pseudomys bolami*	*Pseudomys desertor*	*Pseudomys hermannsburgensis*	*Leggadina forresti*	*Mus musculus*	*Rattus rattus*
LH00601	10	14											*	
BU012000	10	14											*	
BU013000	10	14											*	
PAR07201	10	14											*	
PAR07301	10	14											*	
PAR07401	10	14											*	
WIL09201	10	14											*	
ARO00301	10	14											*	
ARO00501	10	14											*	
ARO00801	10	14											*	
COF00101	10	14											*	
DEC00201	10	14											*	
DEC00701	10	14											*	
PUT00201	10	14											*	
FLI00101	10	14											*	
FLI00301	10	14											*	
LOV00101	10	14											*	
MAM00101	10	14											*	
MAM00201	10	14											*	
PAR00301	10	14											*	
PAR00401	10	14											*	
PAT00101	10	14											*	
REH00501	10	14											*	
TEL00101	10	14											*	
TEL00201	10	14											*	
YOU00601	10	14											*	
YUH00401	10	14											*	
WAR00801	10	14											*	
WAR01301	10	14											*	
N8TRA01	10	14											*	
N8TRA03	10	14											*	
N8TRA08	10	14											*	
N8TRA09	10	14											*	
N8TRA16	10	14											*	

APPENDIX 14. Mammal species sites frequency in each vegetation structure category and latitude categories.

	number of sites sampled	21	6	1	10	45	33	21	7	27	52	42	17	65	39	134	10
		Vegetation Structure											Latitude				
SPECIES	**Common name**	**Not recorded**	**Grassland**	**Herbland**	**Hummock grassland**	**Low shrubland**	**Shrubland**	**Tall shrubland**	**Low mallee**	**Mallee**	**Low woodland**	**Woodland**	**>33 deg southern**	**32-33 deg southern**	**31-32 deg central**	**30-31 deg northern**	**<29 deg northern**
Bos taurus	Cattle (European Cattle)	5	1			1	5	2	1	1	1	3			2	16	2
Canis lupus	Wolf (Dog, Dingo)					1	3									3	1
Capra hircus	Goat (Feral Goat)	6	1	1	6	15	12	9	4	16	12	8	6	7	20	52	5
Chalinolobus gouldii	Gould's Wattled Bat						1				3	6	1		1	8	
Chalinolobus morio	Chocolate Wattled Bat						1				1	3	1		1	3	
Equus asinus	Donkey (Feral Donkey)			1		1		1		2	2	2			1	8	
Equus caballus	Horse (Brumby)	2	1			3	2					3				10	1
Felis catus	Cat (Feral Cat)					1	1		1	5		3	2	2	2	5	
Leggadina forresti	Forrest's Mouse	2	2			5										8	1
Macropus fuliginosus	Western Grey Kangaroo		3			12	12		6	9	18	24	24	33	12	15	
Macropus robustus	Euro	26	2	2	14	26	30	14	12	34	48	44	16	54	58	120	4
Macropus rufus	Red Kangaroo	14		2	2	28	12	4		10	6	8	6	4	8	66	2
Mormopterus spp. (3 species complex)	Southern Freetail-bats						1				2	3			2	4	
Mus musculus	House Mouse	9	3	1	5	20	10	16	2	4	8	16	5	14	21	50	4
Nyctophilus geoffroyi	Lesser Long-eared Bat	3					3			3	6	24	6		3	30	
Oryctolagus cuniculus	Rabbit (European Rabbit)	12	1	1	4	22	15	11	2	17	20	8	11	21	21	54	6
Ovis aries	Sheep (Feral Sheep)	3	1	1	1	9	7	4	1	3	12	7	5	19	9	14	2
Petrogale xanthopus	Yellow-footed Rock-wallaby				2		2					10	2	2	2	8	
Planigale gilesi	Giles' Planigale (Paucident Planigale)					1										1	
Planigale tenuirostris	Narrow-nosed Planigale	3	2		2	2		1		2	1	1		5		9	
Pseudomys bolami	Bolam's Mouse					2	2	3		1	6	1	2	1	3	9	
Pseudomys desertor	Desert Mouse (Brown Desert Mouse)							2				1	3				
Pseudomys hermannsburgensis	Sandy Inland Mouse					1			1	1	1				1	3	
Rattus rattus	Black Rat (Ship Rat, Roof Rat)										2	1		3			
Scotorepens balstoni	Inland Broad-nosed Bat	2														2	
Sminthopsis crassicaudata	Fat-tailed Dunnart	14	4	2		46	18	10			4	8	4		18	74	10
Sminthopsis dolichura	Little Long-tailed Dunnart										1			1			
Sminthopsis macroura	Stripe-faced Dunnart	18	4		4	38	10	22	6	4	18	12		2	34	96	4
Sminthopsis murina	Common Dunnart							1	1	2	1			1	2	2	
Tachyglossus aculeatus	Short-beaked Echidna	3			6	6	21	18	9	27	48	24	27	39	24	66	6
Tadarida australis	White-striped Freetail Bat											8			2	6	
Vespadelus baverstocki	Inland Forest Bat						1				1	4			2	4	
Vespadelus finlaysoni	Finlayson's Cave Bat						1					4	1			4	
Vespadelus regulus	Southern Forest Bat											1	1				
Vulpes vulpes	Fox (Red Fox)	5	1			13	12	5		4	9	14	3	17	8	31	4

APPENDIX 15. The number of sites at which each mammal species was recorded for each landform category.

	number of sites sampled	1	70	3	72	48	15	3	39	1	7	1	2	1	1	3
		Landform Category														
SPECIES	**Common name**	**not recorded**	**Mountains**	**Plateau**	**Hills**	**Low hills**	**Rises**	**Pediment**	**Plain**	**Peneplain**	**Flood plain**	**Playa plain**	**Drainage line**	**Sand plain**	**Consolidated dunefield**	**Dunefield**
Bos taurus	Cattle (European Cattle)		6		1	1	4		4		2		1		1	
Canis lupus	Wolf (Dog, Dingo)								2		1		1			
Capra hircus	Goat (Feral Goat)		28	1	27	23	3	1	6		1					
Chalinolobus gouldii	Gould's Wattled Bat		6		4											
Chalinolobus morio	Chocolate Wattled Bat		3		2											
Equus asinus	Donkey (Feral Donkey)		4			4		1								
Equus caballus	Horse (Brumby)		2		1	4			3				1			
Felis catus	Cat (Feral Cat)	1	2		5	2	1									
Leggadina forresti	Forrest's Mouse						2		6		1					
Macropus fuliginosus	Western Grey Kangaroo		15	3	30	15	6		9		6					
Macropus robustus	Euro	2	76		90	54	10	2	14		2				2	
Macropus rufus	Red Kangaroo		6		6	22	16	2	24	2	4	2		2		
Mormopterus spp. (3 species complex)	Southern Freetail-bats		2		3	1										
Mus musculus	House Mouse		29		18	11	7	1	18	1	6		1	1		1
Nyctophilus geoffroyi	Lesser Long-eared Bat		21		12		6									
Oryctolagus cuniculus	Rabbit (European Rabbit)		18	1	33	28	7	2	16		2	1	2	1		2
Ovis aries	Sheep (Feral Sheep)		5		13	15	1	1	9		2	1	1		1	
Petrogale xanthopus	Yellow-footed Rock-wallaby		12		2											
Planigale gilesi	Giles' Planigale (Paucident Planigale)								1							
Planigale tenuirostris	Narrow-nosed Planigale		6		4		1		3							
Pseudomys bolami	Bolam's Mouse		3		3	1	1		5	1	1					
Pseudomys desertor	Desert Mouse (Brown Desert Mouse)		3													
Pseudomys hermannsburgensis	Sandy Inland Mouse		1	1		2										
Rattus rattus	Black Rat (Ship Rat, Roof Rat)		3													
Scotorepens balstoni	Inland Broad-nosed Bat						2									
Sminthopsis crassicaudata	Fat-tailed Dunnart		8		8	30	14	2	34		4	2	2	2		
Sminthopsis dolichura	Little Long-tailed Dunnart		1													
Sminthopsis macroura	Stripe-faced Dunnart		24	2	32	28	14	4	26		6					
Sminthopsis murina	Common Dunnart		2	1	1				1							
Tachyglossus aculeatus	Short-beaked Echidna		78	3	51	9	6	3	6		3					3
Tadarida australis	White-striped Freetail Bat		4		4											
Vespadelus baverstocki	Inland Forest Bat		3		3											
Vespadelus finlaysoni	Finlayson's Cave Bat		4		1											
Vespadelus regulus	Southern Forest Bat		1													
Vulpes vulpes	Fox (Red Fox)	1	15		16	14	1		12		2	1				1

APPENDIX 16. Species occurrence at sites in the various survey efforts. Refer to mammal chapter for survey names.

	number of sites sampled	14	33	9	10	22	33	121	13	10
		Survey Number								
SPECIES	**Common name**	**24**	**66**	**67**	**69**	**74**	**98**	**104**	**111**	**114**
Bos taurus	Cattle (European Cattle)				1	7	1	10	1	
Canis lupus	Wolf (Dog, Dingo)				1	3				
Capra hircus	Goat (Feral Goat)	4			2	2	5	65	12	
Chalinolobus gouldii	Gould's Wattled Bat							9	1	
Chalinolobus morio	Chocolate Wattled Bat							5		
Equus asinus	Donkey (Feral Donkey)							9		
Equus caballus	Horse (Brumby)				3		2	5	1	
Felis catus	Cat (Feral Cat)	1	1			1	1	7		
Leggadina forresti	Forrest's Mouse			2		3	1	3		
Macropus fuliginosus	Western Grey Kangaroo	27	18	3				36		
Macropus robustus	Euro	12	30	2		14	20	148	26	
Macropus rufus	Red Kangaroo	10		2	6	20	6	38	4	
Mormopterus spp. (3 species complex)	Southern Freetail-bats							5	1	
Mus musculus	House Mouse	2	2	5	5	9	18	44	2	7
Nyctophilus geoffroyi	Lesser Long-eared Bat	3				3		30	3	
Oryctolagus cuniculus	Rabbit (European Rabbit)	11	12		6	8	14	54	8	
Ovis aries	Sheep (Feral Sheep)	5	15		3	4	1	21		
Petrogale xanthopus	Yellow-footed Rock-wallaby							12		2
Planigale gilesi	Giles' Planigale (Paucident Planigale)					1				
Planigale tenuirostris	Narrow-nosed Planigale			2		1		5	2	4
Pseudomys bolami	Bolam's Mouse	3		1			2	9		
Pseudomys desertor	Desert Mouse (Brown Desert Mouse)							3		
Pseudomys hermannsburgensis	Sandy Inland Mouse							4		
Rattus rattus	Black Rat (Ship Rat, Roof Rat)							2		1
Scotorepens balstoni	Inland Broad-nosed Bat					2				
Sminthopsis crassicaudata	Fat-tailed Dunnart	4		10	10	8	20	46	8	
Sminthopsis dolichura	Little Long-tailed Dunnart							1		
Sminthopsis macroura	Stripe-faced Dunnart			8	2	14	32	72	8	
Sminthopsis murina	Common Dunnart	1						4		
Tachyglossus aculeatus	Short-beaked Echidna	9	36			6	3	102	6	
Tadarida australis	White-striped Freetail Bat							6	2	
Vespadelus baverstocki	Inland Forest Bat							6		
Vespadelus finlaysoni	Finlayson's Cave Bat							5		
Vespadelus regulus	Southern Forest Bat							1		
Vulpes vulpes	Fox (Red Fox)	3	10	1	2	9	4	31	3	

APPENDIX 17. Bird species were recorded within the study area by specimens in the South Australian Museum, at Survey Sites, in the Opportune Database, and for the 'Atlas of Australian Birds' (Blakers *et al.* 1984).

Numbers in the table indicate the number of records within the various databases (the numbers in Survey relate to the number of sites at which the species was recorded).

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza apicalis*	Inland Thornbill	C	14	126	40	340	520
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill	C	9	47	21	379	456
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza iredalei*	Slender-billed Thornbill (Samphire Thornbill	V				9	9
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza lineata*	Striated Thornbill	C		1		4	5
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza nana*	Yellow Thornbill	U	4	12	2	60	78
ACANTHIZIDAE ACANTHIZINAE	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	C	7	59	7	159	232
ACANTHIZIDAE ACANTHIZINAE	*Aphelocephala leucopsis*	Southern Whiteface	C	11	66	22	250	349
ACANTHIZIDAE ACANTHIZINAE	*Aphelocephala nigricincta*	Banded Whiteface		4		1	3	8
ACANTHIZIDAE ACANTHIZINAE	*Aphelocephala pectoralis*	Chestnut-breasted Whiteface	R	2			9	11
ACANTHIZIDAE ACANTHIZINAE	*Calamanthus campestris*	Western Fieldwren (Rufous Fieldwren, Calamanthus)	U	18	12			30
ACANTHIZIDAE ACANTHIZINAE	*Calamanthus cautus*	Shy Heathwren (Shy Hylacola)	U	2	3	1	5	11
ACANTHIZIDAE ACANTHIZINAE	*Calamanthus pyrrhopygius*	Chestnut-rumped Heathwren	V	5	6	1	6	18
ACANTHIZIDAE ACANTHIZINAE	*Gerygone olivacea*	White-throated Gerygone (White-throated Warbler)	R		1			1
ACANTHIZIDAE ACANTHIZINAE	*Pyrrholaemus brunneus*	Redthroat	R	3	42	4	60	109
ACANTHIZIDAE ACANTHIZINAE	*Smicrornis brevirostris*	Weebill	C	39	101	57	1104	1301
ACCIPITRIDAE Accipitrinae	*Accipiter cirrhocephalus*	Collared Sparrowhawk	C		10	4	66	80
ACCIPITRIDAE Accipitrinae	*Accipiter fasciatus*	Brown Goshawk	C	8	10	6	78	102
ACCIPITRIDAE Accipitrinae	*Accipiter novaehollandiae*	Grey Goshawk, (White Goshawk)	R		2			2
ACCIPITRIDAE Accipitrinae	*Aquila audax*	Wedge-tailed Eagle	C	38	85	40	503	666
ACCIPITRIDAE Accipitrinae	*Circus approximans*	Swamp Harrier	C				4	4
ACCIPITRIDAE Accipitrinae	*Circus assimilis*	Spotted Harrier	C	7	1		97	105
ACCIPITRIDAE Accipitrinae	*Elanus axillaris*	Black-shouldered Kite	C	2	1	1	90	94
ACCIPITRIDAE Accipitrinae	*Elanus scriptus*	Letter-winged Kite	U	1			5	6
ACCIPITRIDAE Accipitrinae	*Haliastur sphenurus*	Whistling Kite	C	7		1	105	113
ACCIPITRIDAE Accipitrinae	*Hamirostra melanosternon*	Black-breasted Buzzard	R		1		9	10
ACCIPITRIDAE Accipitrinae	*Hieraaetus morphnoides*	Little Eagle	C	14	9	2	79	104
ACCIPITRIDAE Accipitrinae	*Lophoictinia isura*	Square-tailed Kite	V				2	2
ACCIPITRIDAE Accipitrinae	*Milvus migrans*	Black Kite	C	12	14	18	498	542
AEGOTHELIDAE	*Aegotheles cristatus*	Australian Owlet-nightjar	C	4	16	6	80	106
ALAUDIDAE	*Alauda arvensis*	Eurasian Skylark	I				5	5
ALAUDIDAE	*Mirafra javanica*	Horsfield's Bushlark, (Singing Bushlark)	C	5		5	110	120
ALCEDINIDAE HALCYONINAE	*Dacelo novaeguineae*	Laughing Kookaburra	C	4	20	14	184	222

Appendix 17. (continued)

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
ALCEDINIDAE HALCYONINAE	*Todiramphus pyrrhopygia*	Red-backed Kingfisher	C	13	24	12	104	153
ALCEDINIDAE HALCYONINAE	*Todiramphus sancta*	Sacred Kingfisher	C		18	7	84	109
ANATIDAE ANATINAE	*Anas castanea*	Chestnut Teal	U				6	6
ANATIDAE ANATINAE	*Anas gracilis*	Grey Teal, (Australasian Teal)	C		2	14	126	142
ANATIDAE ANATINAE	*Anas platyrhynchos*	Mallard	I				1	1
ANATIDAE ANATINAE	*Anas rhynchotis*	Blue-winged (Australasian) Shoveler	R				6	6
ANATIDAE ANATINAE	*Anas superciliosa*	Pacific Black Duck	C	2	3	12	118	135
ANATIDAE ANATINAE	*Aythya australis*	Hardhead (White-eyed Duck)	U				26	26
ANATIDAE ANATINAE	*Chenonetta jubata*	Australian Wood Duck, (Maned Duck)	C		3	6	123	132
ANATIDAE ANATINAE	*Malacorhynchus membranaceus*	Pink-eared Duck	C	3			27	30
ANATIDAE ANSERINAE	*Cereopsis novaehollandiae*	Cape Barren Goose	R				2	2
ANATIDAE ANSERINAE	*Cygnus atratus*	Black Swan	C	2			34	36
ANATIDAE OXYURINAE	*Biziura lobata*	Musk Duck	U	1			19	20
ANATIDAE OXYURINAE	*Oxyura australis*	Blue-billed Duck	R				2	2
ANATIDAE TADORNINAE	*Tadorna tadornoides*	Australian Shelduck	C				2	2
ANHINGIDAE	*Anhinga melanogaster*	Darter	R				10	10
APODIDAE	*Apus pacificus*	Fork-tailed Swift	C		2		1	3
ARDEIDAE	*Ardea alba*	Great Egret, (White Egret)	C		1		24	25
ARDEIDAE	*Ardea ibis*	Cattle Egret	U				1	1
ARDEIDAE	*Ardea pacifica*	White-necked Heron	U			1	79	80
ARDEIDAE	*Ardea picata*	Pied Heron					1	1
ARDEIDAE	*Egretta garzetta*	Little Egret	U				1	1
ARDEIDAE	*Egretta novaehollandiae*	White-faced Heron	C	4	5	10	268	287
ARDEIDAE	*Ixobrychus minutus*	Little Bittern	V				2	2
ARDEIDAE	*Nycticorax caledonicus*	Nankeen Night Heron	U		2	2	12	16
ARTAMIDAE	*Artamus cinereus*	Black-faced Woodswallow	C	20	38	20	204	282
ARTAMIDAE	*Artamus cyanopterus*	Dusky Woodswallow	C	3	15	3	120	141
ARTAMIDAE	*Artamus leucorhynchus*	White-breasted Woodswallow	C				12	12
ARTAMIDAE	*Artamus minor*	Little Woodswallow	U	2	8	5	9	24
ARTAMIDAE	*Artamus personatus*	Masked Woodswallow	C	17	12	5	39	73
ARTAMIDAE	*Artamus superciliosus*	White-browed Woodswallow	C	14	9	1	37	61
ARTAMIDAE	*Cracticus nigrogularis*	Pied Butcherbird	U		4		3	7
ARTAMIDAE	*Cracticus torquatus*	Grey Butcherbird	C	12	83	44	249	388
ARTAMIDAE	*Gymnorhina tibicen*	Black-backed Magpie	C	6	111	99	2262	2478
ARTAMIDAE	*Strepera versicolor*	Grey Currawong	U	5	19	5	240	269
BURHINIDAE	*Burhinus grallarius*	Bush Stone-curlew	E	2			5	7
CACATUIDAE	*Cacatua galerita*	Sulphur-crested Cockatoo	C		1	2	49	52
CACATUIDAE	*Cacatua leadbeateri*	Major Mitchell's Cockatoo,	V				7	7
CACATUIDAE	*Cacatua roseicapilla*	Galah	C	12	124	35	856	1027
CACATUIDAE	*Cacatua sanguinea*	Little Corella	C	80	43	50	1200	1373
CACATUIDAE	*Nymphicus hollandicus*	Cockatiel	C	4	6		73	83
CAMPEPHAGIDAE	*Coracina maxima*	Ground Cuckoo-shrike	U		2		35	37
CAMPEPHAGIDAE	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike	C	16	61	42	397	516
CAMPEPHAGIDAE	*Lalage tricolor*	White-winged Triller	C	14		1	91	106
CAPRIMULGIDAE	*Eurostopodus argus*	Spotted Nightjar	C		2		30	32
CASUARIIDAE	*Dromaius novaehollandiae*	Emu	C	3	72	38	327	440
CHARADRIIDAE	*Charadrius australis*	Inland Dotterel	C	16		1	46	63
CHARADRIIDAE	*Charadrius ruficapillus*	Red-capped Plover	C	4			10	14
CHARADRIIDAE	*Elseyornis melanops*	Black-fronted Dotterel	C	12	3	6	147	168

Appendix 17. (continued)

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
CHARADRIIDAE	*Erythogonys cinctus*	Red-kneed Dotterel	C			1	11	12
CHARADRIIDAE	*Vanellus miles*	Masked Lapwing	C	1		3	150	154
CHARADRIIDAE	*Vanellus tricolor*	Banded Lapwing	C	2	1	3	79	85
CLIMACTERIDAE	*Climacteris affinis*	White-browed Treecreeper	R	6	5	6	45	62
CLIMACTERIDAE	*Climacteris picumnus*	Brown Treecreeper	C	12	16	10	114	152
COLUMBIDAE	*Columba livia*	Rock Dove	I				71	71
COLUMBIDAE	*Geopelia cuneata*	Diamond Dove	C	8	7		37	52
COLUMBIDAE	*Geopelia placida*	Peaceful Dove	C	6	27	24	291	348
COLUMBIDAE	*Ocyphaps lophotes*	Crested Pigeon	C	15	50	27	512	604
COLUMBIDAE	*Phaps chalcoptera*	Common Bronzewing	C	5	42	13	183	243
COLUMBIDAE	*Phaps elegans*	Brush Bronzewing	U		10	4	5	19
COLUMBIDAE	*Phaps histrionica*	Flock Bronzewing	V				1	1
COLUMBIDAE	*Streptopelia chinensis*	Spotted Turtle-dove	I				2	2
CORACIIDAE	*Eurystomus orientalis*	Dollarbird	O				6	6
CORCORACIDAE	*Corcorax melanorhamphos*	White-winged Chough	V	2	1	1	28	32
CORVIDAE	*Corvus bennetti*	Little Crow	C	6	43	8	87	144
CORVIDAE	*Corvus coronoides*	Australian Raven	C	10	132	32	421	595
CORVIDAE	*Corvus mellori*	Little Raven	C	7	12	4	93	116
CUCULIDAE	*Cacomantis flabelliformis*	Fan-tailed Cuckoo	C	2	3		24	29
CUCULIDAE	*Chrysococcyx basalis*	Horsfield's Bronze-cuckoo	C	11	27	5	95	138
CUCULIDAE	*Chrysococcyx lucidus*	Shining Bronze-Cuckoo	R			2	4	6
CUCULIDAE	*Chrysococcyx osculans*	Black-eared Cuckoo	U		11	5	36	52
CUCULIDAE	*Cuculus pallidus*	Pallid Cuckoo	C	4	5	3	81	93
DICAEIDAE	*Dicaeum hirundinaceum*	Mistletoebird	C	6	52	18	210	286
DICRURIDAE	*Grallina cyanoleuca*	Magpie-lark	C	4	5	4	345	358
DICRURIDAE	*Myiagra inquieta*	Restless Flycatcher	U		4		17	21
DICRURIDAE	*Rhipidura albiscapa*	Grey Fantail	C	1	18	3	169	191
DICRURIDAE	*Rhipidura leucophrys*	Willie Wagtail	C	10	56	58	602	726
ESTRILDIDAE	*Emblema pictum*	Painted Finch	R	2			4	6
ESTRILDIDAE	*Stagonopleura guttata*	Diamond Firetail	V	1	3	1	50	55
ESTRILDIDAE	*Taeniopygia guttata*	Zebra Finch	C	20	52	28	696	796
EUPETIDAE	*Cinclosoma castanotus*	Chestnut Quail-thrush	V	1	3	1	9	14
EUPETIDAE	*Cinclosoma cinnamomeum*	Nullarbor Quail-thrush	C	18	14	8	174	214
EUPETIDAE	*Psophodes cristatus*	Chirruping Wedgebill	C	10	41	5	165	221
FALCONIDAE	*Falco berigora*	Brown Hawk (Brown Falcon)	C	48	20	39	621	728
FALCONIDAE	*Falco cenchroides*	Nankeen Kestrel	C	34	77	48	643	802
FALCONIDAE	*Falco hypoleucos*	Grey Falcon	R	1			19	20
FALCONIDAE	*Falco longipennis*	Australian Hobby	U	6	4		40	50
FALCONIDAE	*Falco peregrinus*	Peregrine Falcon	R	4	4	6	90	104
FALCONIDAE	*Falco subniger*	Black Falcon	C	2		1	32	35
FRINGILLIDAE	*Carduelis carduelis*	European Goldfinch	I				50	50
GLAREOLIDAE	*Stiltia isabella*	Australian Pratincole	C	5		2	54	61
GRUIDAE	*Grus rubicunda*	Brolga	V				4	4
HIRUNDINIDAE	*Cheramoeca leucosternus*	White-backed Swallow	C	2	2		89	93
HIRUNDINIDAE	*Hirundo neoxena*	Welcome Swallow	C	2	13	4	329	348
HIRUNDINIDAE	*Petrochelidon ariel*	Fairy Martin	C	3	6	2	116	127
HIRUNDINIDAE	*Petrochelidon nigricans*	Tree Martin	C	8	71	44	325	448
LARIDAE LARINAE	*Larus novaehollandiae*	Silver Gull	C	2			34	36
LARIDAE LARINAE	*Larus pacificus*	Pacific Gull	U				6	6
LARIDAE STERNINAE	*Chlidonias hybridus*	Whiskered (Marsh) Tern	C	14			14	28
LARIDAE STERNINAE	*Sterna bergii*	Crested Tern	C				1	1
LARIDAE STERNINAE	*Sterna caspia*	Caspian Tern	C				3	3
LARIDAE STERNINAE	*Sterna nilotica*	Gull-billed Tern	C	7			12	19
MALURIDAE Amytornithinae	*Amytornis striatus*	Striated Grasswren	V	4	3	4	12	23
MALURIDAE Amytornithinae	*Amytornis textilis*	Thick-billed Grasswren	V	2	2		50	54
MALURIDAE Malurinae	*Malurus cyaneus*	Superb Blue Wren	C				2	2

Appendix 17. (continued)

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
MALURIDAE Malurinae	*Malurus lamberti*	Purple-backed Wren	C	18	91	44	724	877
MALURIDAE Malurinae	*Malurus leucopterus*	White-winged Fairy-wren	C	21	61	6	550	638
MALURIDAE Malurinae	*Malurus splendens*	Turquoise Wren	C	4	2		54	60
MELIPHAGIDAE	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater	C	44	123	64	421	652
MELIPHAGIDAE	*Acanthorhynchus tenuirostris*	Eastern Spinebill	C		5	4	32	41
MELIPHAGIDAE	*Anthochaera carunculata*	Red Wattlebird	C	4	22	8	187	221
MELIPHAGIDAE	*Certhionyx niger*	Black Honeyeater	U	1	1		6	8
MELIPHAGIDAE	*Certhionyx variegatus*	Pied Honeyeater	U	13			17	30
MELIPHAGIDAE	*Gliciphila melanops*	Tawny-crowned Honeyeater	U		8		32	40
MELIPHAGIDAE	*Lichenostomus chrysops*	Yellow-faced Honeyeater	C	2	26	8	49	85
MELIPHAGIDAE	*Lichenostomus fuscus*	Fuscous Honeyeater	R				3	3
MELIPHAGIDAE	*Lichenostomus leucotis*	White-eared Honeyeater	C	1	5		19	25
MELIPHAGIDAE	*Lichenostomus ornatus*	Yellow-plumed Honeyeater	C	2	18	5	30	55
MELIPHAGIDAE	*Lichenostomus penicillatus*	White-plumed Honeyeater	C	14	21	11	395	441
MELIPHAGIDAE	*Lichenostomus plumulus*	Grey-fronted Honeyeater)	U	9	39	13	105	166
MELIPHAGIDAE	*Lichenostomus virescens*	Singing Honeyeater	C	17	89	16	389	511
MELIPHAGIDAE	*Manorina flavigula*	Yellow-throated Miner	C	33	65	63	440	601
MELIPHAGIDAE	*Manorina melanocephala*	Noisy Miner	C				15	15
MELIPHAGIDAE	*Melithreptus brevirostris*	Brown-headed Honeyeater	C	4	36	18	190	248
MELIPHAGIDAE	*Melithreptus gularis*	Black-chinned Honeyeater	R				2	2
MELIPHAGIDAE	*Melithreptus lunatus*	White-naped Honeyeater	C		2		2	4
MELIPHAGIDAE	*Phylidonyris albifrons*	White-fronted Honeyeater	C	5	16	1	55	77
MELIPHAGIDAE	*Phylidonyris novaehollandiae*	New Holland Honeyeater	C	2	1	2	16	21
MELIPHAGIDAE EPTHIANURINAE	*Ashbyia lovensis*	Gibberbird	C	15	1	1	19	36
MELIPHAGIDAE EPTHIANURINAE	*Epthianura albifrons*	White-fronted Chat	C	2	4		74	80
MELIPHAGIDAE EPTHIANURINAE	*Epthianura aurifrons*	Orange Chat	C	13	5		98	116
MELIPHAGIDAE EPTHIANURINAE	*Epthianura tricolor*	Crimson Chat	C	29	7	1	57	94
MEROPIDAE	*Merops ornatus*	Rainbow Bee-eater	C	4	27	10	87	128
MOTACILLIDAE	*Anthus novaeseelandiae*	Richard's Pipit	C	2	47	24	948	1021
MUSCICAPIDAE	*Turdus merula*	Eurasian Blackbird	I		7	4	11	22
MUSCICAPIDAE	*Zoothera lunulata*	Bassian Thrush	R	2	1		1	4
NEOSITTIDAE	*Daphoenositta chrysoptera*	Black-capped Sittella	C		11	6	78	95
OTIDIDAE	*Ardeotis australis*	Australian Bustard	V	2			13	15
PACHYCEPHALIDAE	*Colluricincla harmonica*	Grey Shrike-thrush	C	22	85	52	652	811
PACHYCEPHALIDAE	*Falcunculus frontatus*	Crested Shrike-tit	V		1		9	10
PACHYCEPHALIDAE	*Oreoica gutturalis*	Crested Bellbird	C	4	28	6	81	119
PACHYCEPHALIDAE	*Pachycephala inornata*	Gilbert's Whistler	R	21	5	6	45	77
PACHYCEPHALIDAE	*Pachycephala pectoralis*	Golden Whistler	C	12	7	3	33	55
PACHYCEPHALIDAE	*Pachycephala rufiventris*	Rufous Whistler	C	26	99	40	343	508
PARDALOTIDAE	*Pardalotus punctatus*	Spotted Pardalote	U	2	2		18	22
PARDALOTIDAE	*Pardalotus rubricatus*	Red-browed Pardalote	C	1	1		11	13
PARDALOTIDAE	*Pardalotus striatus*	Striated Pardalote	C	19	104	52	862	1037
PASSERIDAE	*Passer domesticus*	House Sparrow	I	4	1	10	316	331
PEDIONOMIDAE	*Pedionomus torquatus*	Plains-wanderer	V	1			4	5
PELECANIDAE	*Pelecanus conspicillatus*	Australian Pelican	C				13	13
PETROICIDAE	*Drymodes brunneopygia*	Southern Scrub-robin	U	4	10	3	23	40
PETROICIDAE	*Melanodryas cucullata*	Hooded Robin	C	4	18	2	77	101
PETROICIDAE	*Microeca fascinans*	Jacky Winter	C		8		89	97
PETROICIDAE	*Petroica goodenovii*	Red-capped Robin	C	27	100	15	347	489
PETROICIDAE	*Petroica multicolor*	Scarlet Robin	U	6	10	4	108	128
PETROICIDAE	*Petroica rosea*	Rose Robin	R				1	1
PHALACROCORACIDAE	*Phalacrocorax carbo*	Great Cormorant	C				64	64
PHALACROCORACIDAE	*Phalacrocorax melanoleucos*	Little Pied Cormorant	C	2	1	2	56	61
PHALACROCORACIDAE	*Phalacrocorax sulcirostris*	Little Black Cormorant	C				40	40
PHALACROCORACIDAE	*Phalacrocorax varius*	Pied Cormorant	C				38	38
PHASIANIDAE	*Coturnix pectoralis*	Stubble Quail	C	1			52	53
PODARGIDAE	*Podargus strigoides*	Tawny Frogmouth	C	4	8	16	112	140
PODICIPEDIDAE	*Podiceps cristatus*	Great Crested Grebe	R	2			4	6
PODICIPEDIDAE	*Poliocephalus poliocephalus*	Hoary-headed Grebe	C	5		1	30	36

Appendix 17. (continued)

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
PODICIPEDIDAE	*Tachybaptus novaehollandiae*	Australasian Grebe, (Little Grebe)	C			1	76	77
POMATOSTOMIDAE	*Pomatostomus ruficeps*	Chestnut-crowned Babbler	U	5	7	5	55	72
POMATOSTOMIDAE	*Pomatostomus superciliosus*	White-browed Babbler	C	14	75	25	312	426
PROCELLARIIDAE	*Daption capense*	Cape Petrel		1				1
PSITTACIDAE	*Aprosmictus erythropterus*	Red-winged Parrot	R				3	3
PSITTACIDAE	*Barnardius zonarius*	Port Lincoln Parrot	C	6	74	126	411	617
PSITTACIDAE	*Glossopsitta concinna*	Musk Lorikeet	C				1	1
PSITTACIDAE	*Glossopsitta porphyrocephala*	Purple-crowned Lorikeet	C	1	3	1	32	37
PSITTACIDAE	*Glossopsitta pusilla*	Little Lorikeet	V	2			2	4
PSITTACIDAE	*Melopsittacus undulatus*	Budgerigar	C	4	29	1	73	107
PSITTACIDAE	*Neophema chrysostoma*	Blue-winged Parrot	V	1	3	1	8	13
PSITTACIDAE	*Neophema elegans*	Elegant Parrot	K	19	10	3	79	111
PSITTACIDAE	*Neophema splendida*	Scarlet-chested Parrot	R	2			2	4
PSITTACIDAE	*Neopsephotus bourkii*	Bourke's Parrot	C	1			1	2
PSITTACIDAE	*Northiella haematogaster*	Red-vented Blue Bonnet	C	8	6		84	98
PSITTACIDAE	*Platycercus elegans*	Crimson Rosella	C	66	31	28	190	315
PSITTACIDAE	*Psephotus haematonotus*	Red-rumped Parrot	C	12	5	16	600	633
PSITTACIDAE	*Psephotus varius*	Mulga Parrot	C	10	44	17	176	247
PSITTACIDAE	*Trichoglossus haematodus*	Rainbow Lorikeet	C				6	6
RALLIDAE	*Fulica atra*	Eurasian Coot	C			2	90	92
RALLIDAE	*Gallinula tenebrosa*	Dusky Moorhen	C				34	34
RALLIDAE	*Gallinula ventralis*	Black-tailed Native-hen	C	5			40	45
RALLIDAE	*Gallirallus philippensis*	Buff-banded Rail	U	3			18	21
RALLIDAE	*Porphyrio porphyrio*	Purple Swamphen	C				16	16
RALLIDAE	*Porzana fluminea*	Australian Spotted Crake	C	2			15	17
RALLIDAE	*Porzana tabuensis*	Spotless Crake	U				3	3
RECURVIROSTRIDAE	*Cladorhynchus leucocephalus*	Banded Stilt	C	1			7	8
RECURVIROSTRIDAE	*Himantopus himantopus*	Black-winged Stilt	C				22	22
RECURVIROSTRIDAE	*Recurvirostra novaehollandiae*	Red-necked Avocet	C	5			16	21
ROSTRATULIDAE	*Rostratula benghalensis*	Painted Snipe	V				4	4
SCOLOPACIDAE CALIDRINAE	*Calidris acuminata*	Sharp-tailed Sandpiper	C				3	3
SCOLOPACIDAE CALIDRINAE	*Calidris ferruginea*	Curlew Sandpiper	C				1	1
SCOLOPACIDAE CALIDRINAE	*Calidris ruficollis*	Red-necked Stint	C				1	1
SCOLOPACIDAE GALLINAGONINAE	*Gallinago hardwickii*	Latham's Snipe	V				3	3
SCOLOPACIDAE TRINGINAE	*Actitis hypoleucos*	Common Sandpiper	O				2	2
SCOLOPACIDAE TRINGINAE	*Tringa glareola*	Wood Sandpiper	O	1			7	8
SCOLOPACIDAE TRINGINAE	*Tringa nebularia*	Common Greenshank	C				7	7
STRIGIDAE	*Ninox connivens*	Barking Owl	V	2			5	7
STRIGIDAE	*Ninox novaeseelandiae*	Southern Boobook	C	15	3	65	645	728
STRUTHIONIDAE	*Struthio camelus*	Ostrich	I				1	1
STURNIDAE	*Sturnus vulgaris*	Common Starling	I		1		253	254
SULIDAE	*Morus serrator*	Australasian Gannet		1				1
SYLVIIDAE ACROCEPHALINAE	*Acrocephalus stentoreus*	Clamorous Reedwarbler	C	2	1		116	119
SYLVIIDAE MEGALURINAE	*Cincloramphus cruralis*	Brown Songlark	C	8	9		164	181
SYLVIIDAE MEGALURINAE	*Cincloramphus mathewsi*	Rufous Songlark	C	10	4		95	109
SYLVIIDAE MEGALURINAE	*Megalurus gramineus*	Little Grassbird	C	4	1		50	55
THRESKIORNITHIDAE	*Platalea flavipes*	Yellow-billed Spoonbill	C			1	26	27
THRESKIORNITHIDAE	*Platalea regia*	Royal Spoonbill	U				1	1
THRESKIORNITHIDAE	*Plegadis falcinellus*	Glossy Ibis	R	1			3	4
THRESKIORNITHIDAE	*Threskiornis molucca*	Australian White Ibis	C				4	4
THRESKIORNITHIDAE	*Threskiornis spinicollis*	Straw-necked Ibis	C				21	21
TURNICIDAE	*Turnix pyrrhothorax*	Red-chested Button-quail	R				1	1

Appendix 17. (continued)

Family	Species	Common Name	SA Status	SA Museum	Surveys Data	Opportune	Bird Atlas	Total number of records
TURNICIDAE	*Turnix varia*	Painted Button-quail	V	2	3	4	4	13
TURNICIDAE	*Turnix velox*	Little Button-quail	C	5	4		20	29
TYTONIDAE	*Tyto alba*	Barn Owl	C	5		4	102	111
ZOSTEROPIDAE	*Zosterops lateralis*	Silvereye	C	6	40	18	645	709

APPENDIX 18. Order, Family and the number of species recorded within each Sub-family in the Study Area and the four databases searched.

ORDER	FAMILY	SUB-FAMILY	# species	# in SA Museum	# in Surveys	# in Opportune	# in Bird Atlas
ANSERIFORMES	ANATIDAE	Anatinae (Ducks)	8	2	3	3	8
		Anserinae (Swans)	1	1	0	0	1
		Oxyurinae (Stiff-tailed Ducks)	2	1	0	0	2
		Tadorninae (Shelducks)	1	0	0	0	1
APODIFORMES	APODIDAE	(Swifts)	1	0	1	0	1
CAPRIMULGIFORMES	AEGOTHELIDAE	(Owlet-nightjars)	1	1	1	1	1
	CAPRIMULGIDAE	(Nightjars)	1	0	1	0	1
	PODARGIDAE	(Frogmouths)	1	1	1	1	1
CHARADRIIFORMES	BURHINIDAE	(Stone-curlews)	1	1	0	0	1
	CHARADRIIDAE	(Plovers & dotterels)	6	5	2	5	6
	GLAREOLIDAE	(Pratincoles & coursers)	1	1	0	1	1
	LARIDAE	Larinae (Gulls)	2	1	0	0	2
		Sterninae (Terns)	4	2	0	0	4
	PEDIONOMIDAE	(Plains-wanderer)	1	1	0	0	1
	RECURVIROSTRIDAE	(Avocets & stilts)	3	2	0	0	3
	ROSTRATULIDAE	(Painted Snipe)	1	0	0	0	1
	SCOLOPACIDAE	Calidrinae (Arctic sandpipers & allies)	3	0	0	0	3
		Gallinagoninae (Snipe)	1	0	0	0	1
		Tringinae (Godwits, curlews & allies)	3	1	0	0	3
CICONIIFORMES	ARDEIDAE	(Herons and Bitterns)	8	1	3	3	8
	THRESKIORNITHIDAE	(Ibises & spoonbills)	5	1	0	1	5
COLUMBIFORMES	COLUMBIDAE	(Pigeons & doves)	8	4	5	4	8
CORACIIFORMES	ALCEDINIDAE	Halcyoninae (Wood kingfishers)	3	2	3	3	3
	CORACIIDAE	(Rollers)	1	0	0	0	1
	MEROPIDAE	(Bee-eaters)	1	1	1	1	1
CUCULIFORMES	CUCULIDAE	(Cuckoos)	5	3	4	4	5
FALCONIFORMES	ACCIPITRIDAE	Accipitrinae (Hawkes, eagles & allies)	12	8	8	7	12
	FALCONIDAE	(Falcons)	6	6	4	4	6
GALLIFORMES	PHASIANIDAE	(Quails)	1	1	0	0	1
GRUIFORMES	GRUIDAE	(Cranes)	1	0	0	0	1
	OTIDIDAE	(Bustards)	1	1	0	0	1
	RALLIDAE	(Rails, Crakes and allies)	7	3	0	1	7
PASSERIFORMES	ACANTHIZIDAE	Acanthizinae (Thornbills, scrubwrens &	14	12	11	10	13
	ALAUDIDAE	(Larks)	2	1	0	1	2
	ARTAMIDAE	(Woodswallows, butcherbirds & allies)	10	8	9	8	10
	CAMPEPHAGIDAE	(Cuckoo-shrikes & allies)	3	2	2	2	3
	CLIMACTERIDAE	(Treecreepers)	2	2	2	2	2
	CORCORACIDAE	(Chough and Apostlebird)	1	1	1	1	1
	CORVIDAE	(Crows)	3	3	3	3	3
	DICAEIDAE	(Flowerpeckers)	1	1	1	1	1
	DICRURIDAE	(Magpie-larks, flycatchers & allies)	4	3	4	3	4
	ESTRILDIDAE	(Grass-finches)	3	3	2	2	3
	EUPETIDAE	(Quail-thrushes & allies)	3	3	3	3	3
	FRINGILLIDAE	(Finches)	1	0	0	0	1
	HIRUNDINIDAE	(Swallows & martins)	4	4	4	3	4
	MALURIDAE	Amytornithinae (Grasswrens)	2	2	2	1	2
		Malurinae (Fairy-wrens)	3	3	3	2	3
	MELIPHAGIDAE	(Honeyeaters)	16	14	16	12	16
		Epthianurinae (Chats)	4	4	4	2	4
	MOTACILLIDAE	(Pippit)	1	1	1	1	1
	MUSCICAPIDAE	(Thrushes)	2	1	2	1	2
	NEOSITTIDAE	(Sittellas)	1	0	1	1	1
	PACHYCEPHALIDAE	(Whistlers, shriketits & allies)	6	5	6	5	6
	PARDALOTIDAE	(Pardalotes)	3	3	3	1	3
	PASSERIDAE	(Sparrow)	1	1	1	1	1
	PETROICIDAE	(Robins & allies)	5	4	5	4	5
	POMATOSTOMIDAE	(Babblers)	2	2	2	2	2
	STURNIDAE	(Starlings)	1	0	1	0	1
	SYLVIIDAE	Acrocephalinae (Reed-warblers)	1	1	1	0	1
		Megalurinae (Grassbirds & allies)	3	3	3	0	3

Appendix 18. (continued)

ORDER	FAMILY	SUB-FAMILY	# species	# in SA Museum	# in Surveys	# in Opportune	# in Bird Atlas
	ZOSTEROPIDAE	(White-eyes)	1	1	1	1	1
PELECANIFORMES	PELECANIDAE	(Pelicans)	1	0	0	0	1
	PHALACROCORACIDAE	(Cormorants)	4	1	1	1	4
	SULIDAE	(Gannets)	1	1	0	0	0
	ANHINGIDAE	(Darters)	1	0	0	0	1
PODICIPEDIFORMES	PODICIPEDIDAE	(Grebes)	3	2	0	2	3
PROCELLARIIFORMES	PROCELLARIIDAE	(Shearwaters & petrels)	1	1	0	0	0
PSITTACIFORMES	CACATUIDAE	(Cockatoos & Cockatiel)	5	3	4	3	5
	PSITTACIDAE	(Parrots)	14	12	9	8	14
STRIGIFORMES	STRIGIDAE	(Typical owls)	2	2	1	1	2
	TYTONIDAE	(Barn Owls)	1	1	0	1	1
STRUTHIONIFORMES	CASUARIIDAE	(Emus)	1	1	1	1	1
	STRUTHIONIDAE	(Ostrich)	1	0	0	0	1
TURNICIFORMES	TURNICIDAE	(Button-quails)	2	2	2	1	2

APPENDIX 19. Bird species site frequency within the study area for each survey and latitude region.

	# sites sampled	37	13	44	137	14	4	249	6	56	41	136	10
		Survey number							**Latitude (degrees: south to north)**				
SPECIES	**Common name**	**66**	**74**	**98**	**104**	**111**	**114**	**# sites**	**>33**	**32-33**	**31-32**	**30-31**	**<30**
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	2	10	8	80	8		108	3	8	19	71	7
Acanthiza apicalis	Inland Brown Thornbill	24	1	2	83	13	2	125	6	39	26	53	1
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	1	1	4	26	9	2	43	1	8	7	26	1
Acanthiza lineata	Striated Thornbill				1			1		1			
Acanthiza nana	Yellow Thornbill	9			3			12	2	10			
Acanthiza uropygialis	Chestnut-rumped Thornbill		3	11	29	9		52	1	2	7	38	4
Acanthorhynchus tenuirostris	Eastern Spinebill	1			3		1	5	1	4			
Accipiter cirrhocephalus	Collared Sparrowhawk				6			6	1	3		2	
Accipiter fasciatus	Brown Goshawk				8	2		10	3	1	1	5	
Acrocephalus stentoreus	Clamorous Reedwarbler				1			1				1	
Aegotheles cristatus	Australian Owlet-nightjar		1		13			14	1		4	8	1
Amytornis striatus	Striated Grasswren				3			3				3	
Amytornis textilis	Thick-billed Grasswren			1	1			2			1	1	
Anas gracilis	Grey Teal,			1	1			2				2	
Anas superciliosa	Pacific Black Duck				3			3	1			2	
Anthochaera carunculata	Red Wattlebird	9			12		1	22	2	17	3		
Anthus novaeseelandiae	Richard's Pipit	1	7	2	21	3	2	36		6	8	19	3
Aphelocephala leucopsis	Southern Whiteface		4	5	37	8	1	55		6	11	32	6
Apus pacificus	Fork-tailed Swift			1	1			2		1		1	
Aquila audax	Wedge-tailed Eagle	14	7	5	44	5		75	3	17	22	33	
Ardea alba	Great Egret,			1				1				1	
Artamus cinereus	Black-faced Woodswallow		7	6	6	2		21			2	18	1
Artamus cyanopterus	Dusky Woodswallow	1			13			14	2	3	4	5	
Artamus minor	Little Woodswallow			1	5	2		8				8	
Artamus personatus	Masked Woodswallow		1		6			7	2			3	2
Artamus superciliosus	White-browed Woodswallow				4			4	2		1	1	
Ashbyia lovensis	Gibberbird		1					1				1	
Barnardius zonarius	Port Lincoln Parrot	1	5	9	49	7		71	1	6	20	41	3
Cacatua galerita	Sulphur-crested Cockatoo				1			1	1				
Cacatua roseicapilla	Galah	8	12	18	63	1		102	4	19	28	46	5
Cacatua sanguinea	Little Corella	1	5	10	22	2		40		1	9	25	5
Cacomantis flabelliformis	Fan-tailed Cuckoo	1			2			3	1	1	1		
Calamanthus campestris	Rufous Fieldwren		1	2				3				3	
Calamanthus cautus	Shy Heathwren	1			2			3		1	1	1	
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren	1			5			6	4	2			
Certhionyx niger	Black Honeyeater		1					1			1		
Chenonetta jubata	Australian Wood Duck,	2			1			3		2		1	
Cheramoeca leucosternus	White-backed Swallow				2			2				2	
Chrysococcyx basalis	Horsfield's Bronze-cuckoo		4	1	18			23	2	5	6	8	2
Chrysococcyx osculans	Black-eared Cuckoo				8	3		11			1	10	
Cincloramphus cruralis	Brown Songlark		1		2	1		4				3	1
Cincloramphus mathewsi	Rufous Songlark	1			1			2		1	1		
Cinclosoma castanotus	Chestnut Quail-thrush				1			1				1	
Cinclosoma cinnamomeum	Cinnamon Quail-thrush		2	5	4			11			1	9	1
Climacteris affinis	White-browed Treecreeper				4			4			2	2	
Climacteris picumnus	Brown Treecreeper	4	1		8			13	1	5	3	4	
Colluricincla harmonica	Grey Shrike-thrush	9	4		64	4	1	82	6	21	15	38	2
Coracina novaehollandiae	Black-faced Cuckoo-shrike	6	1	6	39	1	2	55		14	13	21	7
Corvus bennetti	Little Crow	1	3	1	31			36		3	11	16	6
Corvus coronoides	Australian Raven	5	8	16	67	12	2	110	1	12	29	65	3
Corvus mellori	Little Raven	4			3			7	2	4	1		
Cracticus nigrogularis	Pied Butcherbird	4						4		4			
Cracticus torquatus	Grey Butcherbird	4	2	8	51	8		73	3	13	15	42	
Cuculus pallidus	Pallid Cuckoo				4			4				2	2
Dacelo novaeguineae	Laughing Kookaburra	9			10		1	20	2	17	1		
Daphoenositta chrysoptera	Varied Sittella				9			9	2	3	1	3	
Dicaeum hirundinaceum	Mistletoebird	1	4		39	4		48	3	8	8	26	3
Dromaius novaehollandiae	Emu		2	9	41			52		4	12	34	2
Drymodes brunneopygia	Southern Scrub-robin				10			10	4	1	1	4	
Egretta novaehollandiae	White-faced Heron			1	4			5				5	
Elanus axillaris	Black-shouldered Kite			1				1				1	
Elseyornis melanops	Black-fronted Dotterel				3			3				3	
Epthianura aurifrons	Orange Chat		4		1			5		2		3	
Epthianura tricolor	Crimson Chat		2		5			7				6	1
Eurostopodus argus	Spotted Nightjar				1			1				1	
Falco berigora	Brown Falcon		1	2	12	1		16			5	10	1
Falco cenchroides	Nankeen Kestrel	2	7	8	41	5		63		6	15	39	3

Appendix 19. (continued)

SPECIES	Common name	66	74	98	104	111	114	# sites	>33	32-33	31-32	30-31	<30
Falco longipennis	Australian Hobby		1	2	1			4				4	
Falco peregrinus	Peregrine Falcon				4			4	1	1	2		
Falcunculus frontatus	Crested Shrike-tit	1						1		1			
Geopelia cuneata	Diamond Dove				7			7			1	4	2
Geopelia placida	Peaceful Dove	1	4	1	18		2	26	2	10	6	8	
Gerygone olivacea	White-throated Gerygone	1						1		1			
Gliciphila melanops	Tawny-crowned Honeyeater				8			8		6		2	
Glossopsitta porphyrocephala	Purple-crowned Lorikeet				1			1	1				
Grallina cyanoleuca	Magpie-lark		2		3			5				5	
Gymnorhina tibicen	White-backed Magpie	11	7	13	58	8	2	99		21	27	46	5
Hamirostra melanosternon	Black-breasted Buzzard				1			1					1
Hieraaetus morphnoides	Little Eagle	2		1	3	2		8		4		4	
Hirundo neoxena	Welcome Swallow	2	1		8			11	1	3	5	1	1
Lichenostomus chrysops	Yellow-faced Honeyeater	11			15			26	3	23			
Lichenostomus leucotis	White-eared Honeyeater				4			4			3	1	
Lichenostomus ornatus	Yellow-plumed Honeyeater	3			13			16		4	6	4	2
Lichenostomus penicillatus	White-plumed Honeyeater	4	5		11			20		6	3	9	2
Lichenostomus plumulus	Grey-fronted Honeyeater	2			30	7		39	4	2	6	26	1
Lichenostomus virescens	Singing Honeyeater	7	10	12	39	5		73	2	13	10	43	5
Malurus lamberti	Purple-backed Wren	10	5	10	53	1	2	81	6	25	13	33	4
Malurus leucopterus	White-winged Fairy-wren		8	15	13	3		39		2	4	30	3
Malurus splendens	Black-backed Wren				2			2				2	
Manorina flavigula	Black-eared Miner	2	6	12	34	5	1	60		5	15	35	5
Megalurus gramineus	Little Grassbird		1					1			1		
Melanodryas cucullata	Hooded Robin			5	7	2		14	1		2	10	1
Melithreptus brevirostris	Brown-headed Honeyeater	7	1		26	1		35	2	15	5	13	
Melithreptus lunatus	White-naped Honeyeater	2						2		2			
Melopsittacus undulatus	Budgerigar	2	4	1	6			13	2	3	2	6	
Merops ornatus	Rainbow Bee-eater	4	3	1	14			22		4	4	10	4
Microeca fascinans	Jacky Winter	3			2	1		6		4		2	
Milvus migrans	Black Kite		3	1	2			6		2	1	2	1
Myiagra inquieta	Restless Flycatcher				3			3				2	1
Neophema chrysostoma	Blue-winged Parrot				1			1				1	
Neophema elegans	Elegant Parrot				10			10	3	2	1	4	
Ninox novaeseelandiae	Boobook Owl			1	2			3		1		2	
Northiella haematogaster	Bluebonnet		2					2		2			
Nycticorax caledonicus	Nankeen Night Heron,			2				2				2	
Ocyphaps lophotes	Crested Pigeon	1	9	7	18	3		38		3	7	25	3
Oreoica gutturalis	Crested Bellbird			4	18			22			4	15	3
Pachycephala inornata	Gilbert's Whistler				4	1		5	2	1	1	1	
Pachycephala pectoralis	Golden Whistler	2			5			7	2	4	1		
Pachycephala rufiventris	Rufous Whistler	6	3	1	74	9	1	94	5	16	17	53	3
Pardalotus punctatus		1						1		1			
Pardalotus striatus	Striated Pardalote	19	3	4	68	5		99	4	30	17	43	5
Passer domesticus	House Sparrow		1					1				1	
Petrochelidon ariel	Fairy Martin			1	3			4			1	3	
Petrochelidon nigricans	Tree Martin	3	4	3	42	11		63	5	10	11	34	3
Petroica goodenovii	Red-capped Robin	4	4	7	70	10		95	3	14	24	52	2
Petroica multicolor	Scarlet Robin	4			6			10	3	7			
Phalacrocorax melanoleucos	Little Pied Cormorant				1			1			1		
Phaps chalcoptera	Common Bronzewing	4	2	3	31			40	3	11	4	22	
Phaps elegans	Brush Bronzewing				10			10	4			3	3
Phylidonyris albifrons	White-fronted Honeyeater	1		1	12	2		16		2	1	13	
Phylidonyris novaehollandiae	New Holland Honeyeater				1			1	1				
Platycercus elegans	Yellow Rosella	18			12		1	31	3	28			
Podargus strigoides	Tawny Frogmouth	1		1	6			8	1	2		5	
Pomatostomus ruficeps	Chestnut-crowned Babbler			3		2		5				5	
Pomatostomus superciliosus	White-browed Babbler	4	4	4	49	9		70	2	11	14	40	3
Psephotus haematonotus	Red-rumped Parrot	3		1	1			5	1	3		1	
Psephotus varius	Mulga Parrot		4	4	25	4		37		2	7	27	1
Psophodes cristatus	Chirruping Wedgebill		8	12	9	3		32		2	3	26	1
Pyrrholaemus brunneus	Redthroat	3	2	3	29	2		39	1	10	10	18	
Rhipidura albiscapa	Grey Fantail	6			11		1	18	3	14	1		
Rhipidura leucophrys	Willie Wagtail	4	5	5	29	7	2	52	2	6	7	34	3
Smicrornis brevirostris	Weebill	11	5	9	64	6	1	96	6	25	19	44	2
Stagonopleura guttata	Diamond Firetail	1			2			3	2	1			
Strepera versicolor	Grey Currawong	10			7		1	18	3	14	1		
Taeniopygia guttata	Zebra Finch		7	7	26	2		42		1	11	29	1
Todiramphus pyrrhopygia	Red-backed Kingfisher			5	13	3		21			2	15	4

Appendix 19. (continued)

SPECIES	Common name	66	74	98	104	111	114	# sites	>33	32-33	31-32	30-31	<30
Todiramphus sancta	Sacred Kingfisher			1	17			18	2	8	2	5	1
Turdus merula	Eurasian Blackbird				7			7	3	4			
Turnix varia	Painted Button-quail				3			3	2	1			
Turnix velox	Little Button-quail	1	1					2		1		1	
Vanellus tricolor	Banded Lapwing				1			1				1	
Zoothera lunulata	Bassian Thrush,				1			1	1				
Zosterops lateralis	Silvereye	4	1		32		3	40	6	18	10	6	
	# species per survey	68	63	63	127	48	21	143	67	93	83	110	55

APPENDIX 20. Bird species site frequency for each landform pattern category surveyed.

	# sites sampled	1	1	4	78	55	71	3	19	1	16	249
		Landform pattern										
SPECIES	**Common name**	**Consolidated dunefield**	**Dunefield**	**Flood plain**	**Hills**	**Low hills**	**Mountains**	**Pediment**	**Plain**	**Plateau**	**Rises**	**# sites**
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	1		3	32	25	31	1	7		8	108
Acanthiza apicalis	Inland Brown Thornbill	1			46	20	51		5	1	1	125
Acanthiza chrysorrhoa	Yellow-rumped Thornbill			1	17	12	12				1	43
Acanthiza lineata	Striated Thornbill						1					1
Acanthiza nana	Yellow Thornbill				6	2	4					12
Acanthiza uropygialis	Chestnut-rumped Thornbill	1			21	13	10	1	3		3	52
Acanthorhynchus tenuirostris	Eastern Spinebill				1	1	3					5
Accipiter cirrhocephalus	Collared Sparrowhawk				1		5					6
Accipiter fasciatus	Brown Goshawk				1		8		1			10
Acrocephalus stentoreus	Clamorous Reedwarbler				1							1
Aegotheles cristatus	Australian Owlet-nightjar				1	5	6		2			14
Amytornis striatus	Striated Grasswren				1		2					3
Amytornis textilis	Thick-billed Grasswren					1			1			2
Anas gracilis	Grey Teal,				1		1					2
Anas superciliosa	Pacific Black Duck					1	2					3
Anthochaera carunculata	Red Wattlebird	1			5	4	12					22
Anthus novaeseelandiae	Richard's Pipit			1	5	12	3		9		6	36
Aphelocephala leucopsis	Southern Whiteface			3	17	21	7		5		2	55
Apus pacificus	Fork-tailed Swift			1	1							2
Aquila audax	Wedge-tailed Eagle	1			23	19	26		5	1		75
Ardea alba	Great Egret,				1							1
Artamus cinereus	Black-faced Woodswallow		1		4	4	1		5		6	21
Artamus cyanopterus	Dusky Woodswallow				3	3	7	1				14
Artamus minor	Little Woodswallow				1		6	1				8
Artamus personatus	Masked Woodswallow				1	3	2		1			7
Artamus superciliosus	White-browed Woodswallow	1				1	2					4
Ashbyia lovensis	Gibberbird								1			1
Barnardius zonarius	Port Lincoln Parrot	1		4	21	14	23		6		2	71
Cacatua galerita	Sulphur-crested Cockatoo						1					1
Cacatua roseicapilla	Galah	1	1	4	26	28	23	1	13		5	102
Cacatua sanguinea	Little Corella			3	11	13	7		2		4	40
Cacomantis flabelliformis	Fan-tailed Cuckoo					1	2					3
Calamanthus campestris	Rufous Fieldwren					1			2			3
Calamanthus cautus	Shy Heathwren				1		2					3
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren				1	1	4					6
Certhionyx niger	Black Honeyeater						1					1
Chenonetta jubata	Australian Wood Duck,				1	1	1					3
Cheramoeca leucosternus	White-backed Swallow					1		1				2
Chrysococcyx basalis	Horsfield's Bronze-cuckoo				8	3	8	1	2		1	23
Chrysococcyx osculans	Black-eared Cuckoo				3	2	4		2			11
Cincloramphus cruralis	Brown Songlark					1			3			4
Cincloramphus mathewsi	Rufous Songlark					1			1			2
Cinclosoma castanotus	Chestnut Quail-thrush				1							1
Cinclosoma cinnamomeum	Cinnamon Quail-thrush		1			2	1	1	4		2	11
Climacteris affinis	White-browed Treecreeper				1	1	2					4
Climacteris picumnus	Brown Treecreeper				5	4	4					13
Colluricincla harmonica	Grey Shrike-thrush			1	27	12	38	1	1	1	1	82
Coracina novaehollandiae	Black-faced Cuckoo-shrike	1		3	20	13	11	1	3		3	55
Corvus bennetti	Little Crow	1		2	8	13	7		4		1	36
Corvus coronoides	Australian Raven			1	35	26	31	1	11		5	110
Corvus mellori	Little Raven				3	2	2					7
Cracticus nigrogularis	Pied Butcherbird				4							4

Appendix 20. (continued)

SPECIES	Common name	Consolidated dunefield	Dunefield	Flood plain	Hills	Low hills	Mountains	Pediment	Plain	Plateau	Rises	# sites
Cracticus torquatus	Grey Butcherbird			1	25	14	29	1	3			73
Cuculus pallidus	Pallid Cuckoo			1		2	1					4
Dacelo novaeguineae	Laughing Kookaburra				5	5	10					20
Daphoenositta chrysoptera	Varied Sittella				2	2	5					9
Dicaeum hirundinaceum	Mistletoebird				8	14	21	1	4			48
Dromaius novaehollandiae	Emu	1	1	2	10	16	9	2	9	1	1	52
Drymodes brunneopygia	Southern Scrub-robin					2	7			1		10
Egretta novaehollandiae	White-faced Heron				1		4					5
Elanus axillaris	Black-shouldered Kite					1						1
Elseyornis melanops	Black-fronted Dotterel					1	2					3
Epthianura aurifrons	Orange Chat								4		1	5
Epthianura tricolor	Crimson Chat					3			2		2	7
Eurostopodus argus	Spotted Nightjar					1						1
Falco berigora	Brown Falcon				3	5	2	1	2		3	16
Falco cenchroides	Nankeen Kestrel			2	11	18	20	2	6		4	63
Falco longipennis	Australian Hobby				2	1					1	4
Falco peregrinus	Peregrine Falcon				1	1	2					4
Falcunculus frontatus	Crested Shrike-tit				1							1
Geopelia cuneata	Diamond Dove				1	2	3				1	7
Geopelia placida	Peaceful Dove				6	2	16		2			26
Gerygone olivacea	White-throated Gerygone				1							1
Gliciphila melanops	Tawny-crowned Honeyeater				2		5			1		8
Glossopsitta porphyrocephala	Purple-crowned Lorikeet						1					1
Grallina cyanoleuca	Magpie-lark				1	1	1				2	5
Gymnorhina tibicen	White-backed Magpie	1		2	28	29	23		13		3	99
Hamirostra melanosternon	Black-breasted Buzzard			1								1
Hieraaetus morphnoides	Little Eagle				3	2	2		1			8
Hirundo neoxena	Welcome Swallow			2	2	2	5					11
Lichenostomus chrysops	Yellow-faced Honeyeater				9	2	15					26
Lichenostomus leucotis	White-eared Honeyeater						2		1	1		4
Lichenostomus ornatus	Yellow-plumed Honeyeater				3	7	5		1			16
Lichenostomus penicillatus	White-plumed Honeyeater			1	3	4	8		1		3	20
Lichenostomus plumulus	Grey-fronted Honeyeater)				11	6	21	1				39
Lichenostomus virescens	Singing Honeyeater	1	1		22	17	15	1	10		6	73
Malurus lamberti	Purple-backed Wren	1	1	3	18	17	32	1	5		3	81
Malurus leucopterus	White-winged Fairy-wren			2	5	9		1	12		10	39
Malurus splendens	Black-backed Wren				1	1						2
Manorina flavigula	Black-eared Miner	1	1	2	18	14	17	2	3		2	60
Megalurus gramineus	Little Grassbird						1					1
Melanodryas cucullata	Hooded Robin				6	3	3				2	14
Melithreptus brevirostris	Brown-headed Honeyeater				9	3	23					35
Melithreptus lunatus	White-naped Honeyeater					2						2
Melopsittacus undulatus	Budgerigar		1		1	5	2		3		1	13
Merops ornatus	Rainbow Bee-eater	1		1	6	6	4		2		2	22
Microeca fascinans	Jacky Winter				3	2	1					6
Milvus migrans	Black Kite					2			4			6
Myiagra inquieta	Restless Flycatcher			1		1	1					3
Neophema chrysostoma	Blue-winged Parrot						1					1
Neophema elegans	Elegant Parrot				2	2	5		1			10
Ninox novaeseelandiae	Boobook Owl					2	1					3
Northiella haematogaster	Bluebonnet								2			2
Nycticorax caledonicus	Nankeen Night Heron,				2							2
Ocyphaps lophotes	Crested Pigeon		1	2	5	10	7		7		6	38
Oreoica gutturalis	Crested Bellbird		1	1	3	7	7		2		1	22

Appendix 20. (continued)

SPECIES	Common name	Consolidated dunefield	Dunefield	Flood plain	Hills	Low hills	Mountains	Pediment	Plain	Plateau	Rises	# sites
Pachycephala inornata	Gilbert's Whistler				1	1	3					5
Pachycephala pectoralis	Golden Whistler				2	1	4					7
Pachycephala rufiventris	Rufous Whistler			1	30	16	40		3	1	3	94
Pardalotus punctatus					1							1
Pardalotus striatus	Striated Pardalote	1		1	30	19	43	1	2	1	1	99
Passer domesticus	House Sparrow								1			1
Petrochelidon ariel	Fairy Martin				2	1	1					4
Petrochelidon nigricans	Tree Martin			3	11	15	27	1	3	1	2	63
Petroica goodenovii	Red-capped Robin	1		1	33	22	31		5		2	95
Petroica multicolor	Scarlet Robin				2	1	7					10
Phalacrocorax melanoleucos	Little Pied Cormorant				1							1
Phaps chalcoptera	Common Bronzewing				12	6	18		3		1	40
Phaps elegans	Brush Bronzewing			1		4	5					10
Phylidonyris albifrons	White-fronted Honeyeater				5	1	9		1			16
Phylidonyris novaehollandiae	New Holland Honeyeater						1					1
Platycercus elegans	Yellow Rosella				11	5	15					31
Podargus strigoides	Tawny Frogmouth				3	2	3					8
Pomatostomus ruficeps	Chestnut-crowned Babbler		1		2			1			1	5
Pomatostomus superciliosus	White-browed Babbler	1		2	24	16	23	1	1		2	70
Psephotus haematonotus	Red-rumped Parrot				1	3	1					5
Psephotus varius	Mulga Parrot	1			14	9	5	2	3		3	37
Psophodes cristatus	Chirruping Wedgebill		1	2	4	6	1		13		5	32
Pyrrholaemus brunneus	Redthroat			1	15	5	12		5	1		39
Rhipidura albiscapa	Grey Fantail				5	1	12					18
Rhipidura leucophrys	Willie Wagtail			2	18	12	13	1	2		4	52
Smicrornis brevirostris	Weebill	1		2	28	16	40	1	6	1	1	96
Stagonopleura guttata	Diamond Firetail					1	2					3
Strepera versicolor	Grey Currawong				10	1	7					18
Taeniopygia guttata	Zebra Finch		1	1	4	11	10		7		8	42
Todiramphus pyrrhopygia	Red-backed Kingfisher	1	1	1	5	9		1	1		2	21
Todiramphus sancta	Sacred Kingfisher			1	1	3	12		1			18
Turdus merula	Eurasian Blackbird					1	6					7
Turnix varia	Painted Button-quail						3					3
Turnix velox	Little Button-quail					1			1			2
Vanellus tricolor	Banded Lapwing						1					1
Zoothera lunulata	Bassian Thrush,						1					1
Zosterops lateralis	Silvereye				11	3	24		1	1		40
	# species per survey	22	14	40	104	108	112	29	67	13	48	143

APPENDIX 21. Bird species site frequency for structural vegetation categories.

	# sites sampled	19	4	1	11	33	26	23	6	27	56	43	249
		Structural vegetation Categories											
SPECIES	**Common name**	**not recorded**	**Grassland**	**Herbland**	**Hummock grassland**	**Low shrubland**	**Shrubland**	**Tall shrubland**	**Low mallee**	**Mallee**	**Low woodland**	**Woodland**	**# sites**
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	12		1	4	15	14	7	2	12	21	20	108
Acanthiza apicalis	Inland Brown Thornbill	10	1		3	5	13	11	6	15	32	29	125
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	7			3	3	3	5		6	11	5	43
Acanthiza lineata	Striated Thornbill											1	1
Acanthiza nana	Yellow Thornbill						1			1	6	4	12
Acanthiza uropygialis	Chestnut-rumped Thornbill	10			2	8	7	3	2	6	8	6	52
Acanthorhynchus tenuirostris	Eastern Spinebill										1	4	5
Accipiter cirrhocephalus	Collared Sparrowhawk				1						2	3	6
Accipiter fasciatus	Brown Goshawk	1					2	3		1	3		10
Acrocephalus stentoreus	Clamorous Reedwarbler											1	1
Aegotheles cristatus	Australian Owlet-nightjar	1				1		1		5	3	3	14
Amytornis striatus	Striated Grasswren						1			1		1	3
Amytornis textilis	Thick-billed Grasswren	1				1							2
Anas gracilis	Grey Teal,											2	2
Anas superciliosa	Pacific Black Duck										2	1	3
Anthochaera carunculata	Red Wattlebird	1	1					2	1	2	6	9	22
Anthus novaeseelandiae	Richard's Pipit	6	1	1	4	14	5	2		1	2		36
Aphelocephala leucopsis	Southern Whiteface	9		1	2	14	8	5		2	11	3	55
Apus pacificus	Fork-tailed Swift				1			1					2
Aquila audax	Wedge-tailed Eagle	6	1	1	5	8	8	6	3	13	8	16	75
Ardea alba	Great Egret,											1	1
Artamus cinereus	Black-faced Woodswallow	7			1	5	2	1		3	2		21
Artamus cyanopterus	Dusky Woodswallow	1					1	1	1	5	2	3	14
Artamus minor	Little Woodswallow					1	2			1	2	2	8
Artamus personatus	Masked Woodswallow				1	2	1	1		1		1	7
Artamus superciliosus	White-browed Woodswallow						1		1	1		1	4
Ashbyia lovensis	Gibberbird					1							1
Barnardius zonarius	Port Lincoln Parrot	7		1	1	7	2	8	3	9	15	18	71
Cacatua galerita	Sulphur-crested Cockatoo											1	1
Cacatua roseicapilla	Galah	10	3		5	14	11	11	2	10	16	20	102
Cacatua sanguinea	Little Corella	4		1	2	8	2	5	1	2	8	7	40
Cacomantis flabelliformis	Fan-tailed Cuckoo							1				2	3
Calamanthus campestris	Rufous Fieldwren	1				2							3
Calamanthus cautus	Shy Heathwren								1			2	3
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren							1			3	2	6
Certhionyx niger	Black Honeyeater							1					1
Chenonetta jubata	Australian Wood Duck,	1						1			1		3
Cheramoeca leucosternus	White-backed Swallow									1	1		2
Chrysococcyx basalis	Horsfield's Bronze-cuckoo	1				2	3	4		2	7	4	23
Chrysococcyx osculans	Black-eared Cuckoo	2		1		2	1			1	2	2	11
Cincloramphus cruralis	Brown Songlark	1	1			2							4
Cincloramphus mathewsi	Rufous Songlark					1						1	2
Cinclosoma castanotus	Chestnut Quail-thrush									1			1
Cinclosoma cinnamomeum	Cinnamon Quail-thrush	2				4	3	1			1		11
Climacteris affinis	White-browed Treecreeper							1		1	2		4
Climacteris picumnus	Brown Treecreeper									4	4	5	13
Colluricincla harmonica	Grey Shrike-thrush	3			1	3	7	7	4	15	21	21	82
Coracina novaehollandiae	Black-faced Cuckoo-shrike	1			2	3	5	5	1	9	14	15	55
Corvus bennetti	Little Crow	1			1	5	4	4	1	5	5	10	36
Corvus coronoides	Australian Raven	13	2		4	12	8	11	4	15	20	21	110
Corvus mellori	Little Raven		1				3			1	1	1	7
Cracticus nigrogularis	Pied Butcherbird	1					1				1	1	4
Cracticus torquatus	Grey Butcherbird	7	1		1	3	6	5	2	10	16	22	73

Appendix 21. (continued)

SPECIES	Common name	not recorded	Grassland	Herbland	Hummock grassland	Low shrubland	Shrubland	Tall shrubland	Low mallee	Mallee	Low woodland	Woodland	# sites
Cuculus pallidus	Pallid Cuckoo				1					1	1	1	4
Dacelo novaeguineae	Laughing Kookaburra	1	1		2					2	7	7	20
Daphoenositta chrysoptera	Varied Sittella									2	3	4	9
Dicaeum hirundinaceum	Mistletoebird	4			1	6	5	3	1	10	11	7	48
Dromaius novaehollandiae	Emu	1	1	1		11	3	6	3	7	11	8	52
Drymodes brunneopygia	Southern Scrub-robin						2	3		3		2	10
Egretta novaehollandiae	White-faced Heron										3	2	5
Elanus axillaris	Black-shouldered Kite										1		1
Elseyornis melanops	Black-fronted Dotterel										2	1	3
Epthianura aurifrons	Orange Chat	2				1	1	1					5
Epthianura tricolor	Crimson Chat	2				3				1	1		7
Eurostopodus argus	Spotted Nightjar					1							1
Falco berigora	Brown Falcon	3			1	3	2	1		2	1	3	16
Falco cenchroides	Nankeen Kestrel	5	2	1	6	10	5	5	2	8	10	9	63
Falco longipennis	Australian Hobby	1				1	1					1	4
Falco peregrinus	Peregrine Falcon						2			1	1		4
Falcunculus frontatus	Crested Shrike-tit											1	1
Geopelia cuneata	Diamond Dove							1		1	4	1	7
Geopelia placida	Peaceful Dove	1			1		1	1	1	3	6	12	26
Gerygone olivacea	White-throated Gerygone										1		1
Gliciphila melanops	Tawny-crowned Honeyeater				1				2	1	3	1	8
Glossopsitta porphyrocephala	Purple-crowned Lorikeet											1	1
Grallina cyanoleuca	Magpie-lark	2									2	1	5
Gymnorhina tibicen	White-backed Magpie	8	3	1	3	15	14	8	2	9	16	20	99
Hamirostra melanosternon	Black-breasted Buzzard											1	1
Hieraaetus morphnoides	Little Eagle	1				1	1			2	2	1	8
Hirundo neoxena	Welcome Swallow		1		1	1		2	1	2	1	2	11
Lichenostomus chrysops	Yellow-faced Honeyeater	2	1				1	1	1	1	12	7	26
Lichenostomus leucotis	White-eared Honeyeater								2	2			4
Lichenostomus ornatus	Yellow-plumed Honeyeater						2	2		6	3	3	16
Lichenostomus penicillatus	White-plumed Honeyeater	3					1	2			6	8	20
Lichenostomus plumulus	Grey-fronted Honeyeater)	3			1	2	5	4	2	9	5	8	39
Lichenostomus virescens	Singing Honeyeater	12		1	5	11	10	7	1	4	15	7	73
Malurus lamberti	Purple-backed Wren	4			3	12	8	11	3	5	20	15	81
Malurus leucopterus	White-winged Fairy-wren	10	1		1	16	3	2		1	4	1	39
Malurus splendens	Black-backed Wren					1					1		2
Manorina flavigula	Black-eared Miner	8	1		4	3	3	5	1	8	12	15	60
Megalurus gramineus	Little Grassbird											1	1
Melanodryas cucullata	Hooded Robin	1				1	3	1		2	5	1	14
Melithreptus brevirostris	Brown-headed Honeyeater	1	1				2	2	1	7	11	10	35
Melithreptus lunatus	White-naped Honeyeater							1				1	2
Melopsittacus undulatus	Budgerigar	2			2	2	1	2		1	1	2	13
Merops ornatus	Rainbow Bee-eater	2			2	2	1	3	2	5	3	2	22
Microeca fascinans	Jacky Winter							1		1	2	2	6
Milvus migrans	Black Kite	1				2	2			1			6
Myiagra inquieta	Restless Flycatcher										2	1	3
Neophema chrysostoma	Blue-winged Parrot											1	1
Neophema elegans	Elegant Parrot		1			1	1	1	1		2	3	10
Ninox novaeseelandiae	Boobook Owl									1	2		3
Northiella haematogaster	Bluebonnet	1					1						2
Nycticorax caledonicus	Nankeen Night Heron,										2		2
Ocyphaps lophotes	Crested Pigeon	7			1	7	8	6			4	5	38
Oreoica gutturalis	Crested Bellbird				1	2	1	1	2	6	6	3	22
Pachycephala inornata	Gilbert's Whistler	1					2				1	1	5
Pachycephala pectoralis	Golden Whistler	1			1			1			1	3	7

Appendix 21. (continued)

SPECIES	Common name	not recorded	Grassland	Herbland	Hummock grassland	Low shrubland	Shrubland	Tall shrubland	Low mallee	Mallee	Low woodland	Woodland	# sites
Pachycephala rufiventris	Rufous Whistler	10			2	2	6	8	3	12	23	28	94
Pardalotus punctatus												1	1
Pardalotus striatus	Striated Pardalote	5	1		3	1	6	7	4	17	27	28	99
Passer domesticus	House Sparrow	1											1
Petrochelidon ariel	Fairy Martin						1			1		2	4
Petrochelidon nigricans	Tree Martin	8			2	3	5	6	3	13	9	14	63
Petroica goodenovii	Red-capped Robin	10			2	8	4	10	4	13	26	18	95
Petroica multicolor	Scarlet Robin							1			4	5	10
Phalacrocorax melanoleucos	Little Pied Cormorant											1	1
Phaps chalcoptera	Common Bronzewing	1			1	2	3	3	3	4	12	11	40
Phaps elegans	Brush Bronzewing				1			2			2	5	10
Phylidonyris albifrons	White-fronted Honeyeater	1				2	2	2	1	3	2	3	16
Phylidonyris novaehollandiae	New Holland Honeyeater											1	1
Platycercus elegans	Yellow Rosella	1	1		1		2	1		2	11	12	31
Podargus strigoides	Tawny Frogmouth					1				1	3	3	8
Pomatostomus ruficeps	Chestnut-crowned Babbler	2				1		1			1		5
Pomatostomus superciliosus	White-browed Babbler	7				5	6	7	1	10	15	19	70
Psephotus haematonotus	Red-rumped Parrot		1					1		1		2	5
Psephotus varius	Mulga Parrot	7				3	2	1	2	5	9	8	37
Psophodes cristatus	Chirruping Wedgebill	6	1			9	7	6		1	2		32
Pyrrholaemus brunneus	Redthroat	1			2	5	8	5	2	7	6	3	39
Rhipidura albiscapa	Grey Fantail	1							1		5	11	18
Rhipidura leucophrys	Willie Wagtail	7				8	7	6	1	5	8	10	52
Smicrornis brevirostris	Weebill	7	1			1	7	7	4	19	26	24	96
Stagonopleura guttata	Diamond Firetail											3	3
Strepera versicolor	Grey Currawong	1			2			1		3	6	5	18
Taeniopygia guttata	Zebra Finch	8	2	1	1	10		5	1	3	9	2	42
Todiramphus pyrrhopygia	Red-backed Kingfisher	3				3	1	1	1	6	4	2	21
Todiramphus sancta	Sacred Kingfisher	1								1	6	10	18
Turdus merula	Eurasian Blackbird	1									2	4	7
Turnix varia	Painted Button-quail										1	2	3
Turnix velox	Little Button-quail				1	1							2
Vanellus tricolor	Banded Lapwing		1										1
Zoothera lunulata	Bassian Thrush,											1	1
Zosterops lateralis	Silvereye	1				1	2	4	2	6	10	14	40
	# species per survey	78	26	12	49	69	73	78	48	85	102	112	143

Bird species site frequency for vegetation mapping groups. Refer to Appendix 23 for map group number definitions.

	# sites sampled	3	2	13	14	16	16	3	7	2	3	1	3	14	10	8	30	4	2	1	20	11	3	6	8	2	2	3	2	3	3	1	5	1	1	1	3	4	231
		Vegetation map groups																																					
SPECIES	**Common name**	10	11	12	13	14	15	16	17	18	19	2	20	21	22	23	3	4	5	7	8	9	s11	s15	s16	s17	s18	s21	s24	s25	s3	s32	s4	s43	s49	s6	s7	s9	**# sites**
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	2	1	8	8	6	6	3	3		1	1	3	9	5	3	21	1	2		10	5	2					1	1		1			1			2	1	107
Acanthiza apicalis	Inland Brown Thornbill	1	1	4	6	12	8	1	7	2	3		3	7	9	2	10		1		3	2	3	5	7	2	2	3	1	1	3		3	1	1		2	4	120
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	1	1	4	1	3	2	1	1	1	1		1	4	2	1	8				3	1	1		2	1	1									1		1	43
Acanthiza lineata	Striated Thornbill																											1											1
Acanthiza nana	Yellow Thornbill																							2	3		1		1	1			1				1	2	12
Acanthiza uropygialis	Chestnut-rumped Thornbill	1	1	3	6	4	5		2				1	8	2		6		1		7	1	1	1	1				1										52
Acanthorhynchus tenuirostris	Eastern Spinebill																1							1		1							1					1	5
Accipiter cirrhocephalus	Collared Sparrowhawk													1	1	1								1	1													1	6
Accipiter fasciatus	Brown Goshawk					2	2								1		1						2		1									1					10
Acrocephalus stentoreus	Clamorous Reedwarbler																1																						1
Aegotheles cristatus	Australian Owlet-nightjar					2	3	1		1				2	1		2				1																	1	14
Amytornis striatus	Striated Grasswren					2	1																																3
Amytornis textilis	Thick-billed Grasswren																				2																		2
Anas gracilis	Grey Teal,																2																						2
Anas superciliosa	Pacific Black Duck																2																					1	3
Anthochaera carunculata	Red Wattlebird					1			1	1							1						1	1	4	1	1	2	1			1	2		1			3	22
Anthus novaeseelandiae	Richard's Pipit	2	1	3	2		1									4	1	1	1		10	7														1			34
Aphelocephala leucopsis	Southern Whiteface	1	1	5	7	1	2			1	1	1	2	4	3	1	4	1	2		11	3									1							1	53
Apus pacificus	Fork-tailed Swift			1												1																							2
Aquila audax	Wedge-tailed Eagle	1	1	2	4	8	9	1	3		1			3	3	5	7				7	2	1	1	2	1	1	1	1	2		1	1		1		1	2	73
Ardea alba	Great Egret,																1																						1
Artamus cinereus	Black-faced Woodswallow	1		2	1	1	1	1						1			1	1		1	4	3							1										19
Artamus cyanopterus	Dusky Woodswallow			1			5									1	1								1			1	1		1							1	13
Artamus minor	Little Woodswallow				1	4					1						1				1																		8
Artamus personatus	Masked Woodswallow			1	1	1	1															1	1															1	7
Artamus superciliosus	White-browed Woodswallow					1	1																1															1	4
Ashbyia lovensis	Gibberbird																					1																	1
Barnardius zonarius	Port Lincoln Parrot	1	1	6	2	2	7	1	2	1	1	1	3	8	3	1	17	2	1		2	3						1			3						1	1	71
Cacatua galerita	Sulphur-crested Cockatoo																																					1	1
Cacatua roseicapilla	Galah	2	1	7	3	3	4	1	2	1	2	1	2	7	4	4	18	2	2	1	10	5	3	2		1	1	2	1	2	1	1			1		1	2	100
Cacatua sanguinea	Little Corella		1	4	3	1	1		2		1			2		1	15	1	1		4	2																	39
Cacomantis flabelliformis	Fan-tailed Cuckoo																1						1						1										3
Calamanthus campestris	Rufous Fieldwren																				2	1																	3
Calamanthus cautus	Shy Heathwren								1						1													1											3
Calamanthus pyrrhopygius	Chestnut-rumped Heathwren																						1	1	1	1		1										1	6
Certhionyx niger	Black Honeyeater										1																												1
Chenonetta jubata	Australian Wood Duck,																1															1							2
Cheramoeca leucosternus	White-backed Swallow						1							1																									2
Chrysococcyx basalis	Horsfield's Bronze-cuckoo			2	3		1		1		1		1	1	2		3				3		1		2	1					1								23
Chrysococcyx osculans	Black-eared Cuckoo				1	1	1						1	2			2				1	2																	11
Cincloramphus cruralis	Brown Songlark																	1			1	2																	4

Appendix 22. (continued)

SPECIES	Common name	10	11	12	13	14	15	16	17	18	19	2	20	21	22	23	3	4	5	7	8	9	s11	s15	s16	s17	s18	s21	s24	s25	s3	s32	s4	s43	s49	s6	s7	s9	# sites
Cincloramphus mathewsi	Rufous Songlark																				1								1										2
Cinclosoma castanotus	Chestnut Quail-thrush						1																																1
Cinclosoma cinnamomeum	Cinnamon Quail-thrush	2		1													1	1		1	2	2																	10
Climacteris affinis	White-browed Treecreeper				1		1							2																									4
Climacteris picumnus	Brown Treecreeper						3	1						1	1		1								1			1	1				1					1	12
Colluricincla harmonica	Grey Shrike-thrush			1		8	9	2	5	1	2		3	2	2	1	17				2		3	4	3	1	1	2	1		3		2	1		1		4	81
Coracina novaehollandiae	Black-faced Cuckoo-shrike			3	4	2	5	1	1	1				1	3	2	17		1		1		1	1				1	1		2	2				1	1	2	54
Corvus bennetti	Little Crow			3	4	2	1	2	1				2	3	2	1	6	2	1		3	1							2										36
Corvus coronoides	Australian Raven	2	2	5	7	8	11	1	6	1	2		2	7	4	4	21	2			11	4			2				1	1			1	1		1	1	1	109
Corvus mellori	Little Raven													1									1					1		1					1		2		7
Cracticus nigrogularis	Pied Butcherbird																											1									1	1	3
Cracticus torquatus	Grey Butcherbird	1	1	3	4	4	8		2	1			3	8	5		15		1		1		3	1		1		2	1		2		3		1			2	73
Cuculus pallidus	Pallid Cuckoo					1		1									2																						4
Dacelo novaeguineae	Laughing Kookaburra									1						2	2							2	1	1		1	1	1	1		3		1			3	20
Daphoenositta chrysoptera	Varied Sittella						1			1				2			1							1	2												1	9
Dicaeum hirundinaceum	Mistletoebird	2		3	3	3	7	3		1	1			5	1		5				3	1	1	1							3		1	1				3	48
Dromaius novaehollandiae	Emu	1		4	3	1	5		3	1		1	2	1	3		10			1	5	6		1		1					1						1	51
Drymodes brunneopygia	Southern Scrub-robin					1	2		2	1													2					1										1	10
Egretta novaehollandiae	White-faced Heron										1						4																						5
Elanus axillaris	Black-shouldered Kite																1																						1
Elseyornis melanops	Black-fronted Dotterel																3																						3
Epthianura aurifrons	Orange Chat																	1			2	2																	5
Epthianura tricolor	Crimson Chat						1							1				1			1	1																	5
Eurostopodus argus	Spotted Nightjar				1																																		1
Falco berigora	Brown Falcon			1	2	1	1	1							1	1	1	1			3	3																	16
Falco cenchroides	Nankeen Kestrel	1	1	2	4	4	5		2		2	1		4	1	5	11		1		7	6							1		3	1					1		63
Falco longipennis	Australian Hobby																3				1																		4
Falco peregrinus	Peregrine Falcon					1	1																1		1														4
Falcunculus frontatus	Crested Shrike-tit																											1											1
Geopelia cuneata	Diamond Dove				1				1						1		4																						7
Geopelia placida	Peaceful Dove						1		1	1	1			1	1	1	10						1	2				2			2					1		1	26
Gerygone olivacea	White-throated Gerygone																							1															1
Gliciphila melanops	Tawny-crowned Honeyeater					1	1									1								1	1						3								8
Glossopsitta porphyrocephala	Purple-crowned Lorikeet																											1											1
Grallina cyanoleuca	Magpie-lark																4	1																					5
Gymnorhina tibicen	White-backed Magpie		1	5	5	6	6		2	2	1	1	2	9	5	3	15	1	2		10	7	1	2			1	1	1	1	1	1	1		1	1	2	1	98
Hamirostra melanosternon	Black-breasted Buzzard																1																						1
Hieraaetus morphnoides	Little Eagle									1					1		2				1									1	1						1		8
Hirundo neoxena	Welcome Swallow								2		1	1				1	2											1	1			1							10
Lichenostomus chrysops	Yellow-faced Honeyeater									1					1								2	3	4	1	1	3			3		2		1			3	25
Lichenostomus leucotis	White-eared Honeyeater						1		2	1																													4
Lichenostomus ornatus	Yellow-plumed Honeyeater				1	2	3	1		1				1	2									1					2		1	1							16

Appendix 22. (continued)

SPECIES	Common name	10	11	12	13	14	15	16	17	18	19	2	20	21	22	23	3	4	5	7	8	9	s11	s15	s16	s17	s18	s21	s24	s25	s3	s32	s4	s43	s49	s6	s7	s9	# sites
Lichenostomus penicillatus	White-plumed Honeyeater										1						12											1	1			1	1				1	1	19
Lichenostomus plumulus	Grey-fronted Honeyeater)			1	1	10	5	3	1		2		1	1	2	1	3				1		2					2	1				1	1					39
Lichenostomus virescens	Singing Honeyeater	3		6	6	3	2		1		1			5	3	3	10	1		1	9	6	2	1			1	2	1		2	1					1		71
Malurus lamberti	Purple-backed Wren			7	4	3	3		1	1	2			2	1	3	14	1	2	1	5	3	3	4	3	2		3	1		3		2	1		1	2	3	81
Malurus leucopterus	White-winged Fairy-wren			2	3	1	1					1		1			2	4	1		11	9																	36
Malurus splendens	Black-backed Wren			1	1																																		2
Manorina flavigula	Black-eared Miner	1	1	3	3	5	7	1	1		1		1	5	2	2	20			1	4														1	1			60
Megalurus gramineus	Little Grassbird																1																						1
Melanodryas cucullata	Hooded Robin			3	2	1		1	1					3							1																	1	13
Melithreptus brevirostris	Brown-headed Honeyeater					3	5		3	1			1		2		4							2	3	1	1	2	1		1		1		1		1	2	35
Melithreptus lunatus	White-naped Honeyeater																												1			1							2
Melopsittacus undulatus	Budgerigar	1					1									2	2			1	1	1	1					1	1		1								13
Merops ornatus	Rainbow Bee-eater			2	1	2	1	1	2							1	7					2		1						2									22
Microeca fascinans	Jacky Winter				1	1																					1		1		1	1							6
Milvus migrans	Black Kite						1											1			2	2																	6
Myiagra inquieta	Restless Flycatcher																3																						3
Neophema chrysostoma	Blue-winged Parrot														1																								1
Neophema elegans	Elegant Parrot			1										1	1		1					1	2		1						1							1	10
Ninox novaeseelandiae	Boobook Owl									1							2																						3
Northiella haematogaster	Bluebonnet																				2																		2
Nycticorax caledonicus	Nankeen Night Heron,				1									1																									2
Ocyphaps lophotes	Crested Pigeon	1		2	7	1					1	1			1		9	1	1	1	7	3							1										37
Oreoica gutturalis	Crested Bellbird			1		3	5	1	1					6	2				1	1	1																		22
Pachycephala inornata	Gilbert's Whistler				1										1								2					1											5
Pachycephala pectoralis	Golden Whistler			1												1								1	1								1					2	7
Pachycephala rufiventris	Rufous Whistler	1	1	3	3	8	7	2	4	1	2		3	7	8		21	1			1		2	3	4	1	1	3	2		2							3	94
Pardalotus punctatus																												1											1
Pardalotus striatus	Striated Pardalote	1			3	9	11	2	2	2	3		3	3	4	1	20				1		1	2	7	1	1	3	2	2	3		3		1		2	4	97
Passer domesticus	House Sparrow																1																						1
Petrochelidon ariel	Fairy Martin				1			1									2																						4
Petrochelidon nigricans	Tree Martin	1	1	2	4	1	11		2	1	2		2		2	2	12		2		1	2	2	2	2	2		1	2		1	1						2	63
Petroica goodenovii	Red-capped Robin	1	1	5	5	3	8	1	3	2	3		2	11	8	1	15				6	2	2	3	2		1		1	1	3	1						3	94
Petroica multicolor	Scarlet Robin																						1	1	4	2							1					1	10
Phalacrocorax melanoleucos	Little Pied Cormorant																1																						1
Phaps chalcoptera	Common Bronzewing	1		3	1	1	3		2		1		1	3	4	1	5					1	3	3	1			1	1		3							1	40
Phaps elegans	Brush Bronzewing				1	1							2				2						1		1			1										1	10
Phylidonyris albifrons	White-fronted Honeyeater			1	1	2	2	1	1					2	1		1				2		1														1		16
Phylidonyris novaehollandiae	New Holland Honeyeater																																					1	1
Platycercus elegans	Yellow Rosella									1						1	1						1	1	5	1	1	3	1	1	2	1	4		1		1	4	30
Podargus strigoides	Tawny Frogmouth									1				2	1		1				1			1														1	8
Pomatostomus ruficeps	Chestnut-crowned Babbler	1												1						1	1	1																	5
Pomatostomus superciliosus	White-browed Babbler		1	1	9	3	6	2	1	1	1		1	9	1		15		2		3	1	1	1			1	2		1	2		2					2	69
Psephotus haematonotus	Red-rumped Parrot						1																						1			1						1	4
Psephotus varius	Mulga Parrot		1	1	1	1	4	1	2		1		3	5	3		7	1			3	2																	36

Appendix 22. (continued)

SPECIES	Common name	10	11	12	13	14	15	16	17	18	19	2	20	21	22	23	3	4	5	7	8	9	s11	s15	s16	s17	s18	s21	s24	s25	s3	s32	s4	s43	s49	s6	s7	s9	# sites
Psophodes cristatus	Chirruping Wedgebill	2		5	3		1				1			1			1	3	2	1	7	3																	30
Pyrrholaemus brunneus	Redthroat			3	3	4	4		4	1			1	2	1	2	1		1		4	1	2		1	1				1	2								39
Rhipidura albiscapa	Grey Fantail																2							3	4	1	1	2			1		2					2	18
Rhipidura leucophrys	Willie Wagtail	1	1		5	2	2		2		1	1		1			18		1		5	2	1					1	1	2		1				1			49
Smicrornis brevirostris	Weebill	1		1	2	7	14	1	2	2	3		2	7	4		17				3	1	3	3	2	1	1	2	2	1	3		3	1	1			4	94
Stagonopleura guttata	Diamond Firetail																											1	1									1	3
Strepera versicolor	Grey Currawong								1							2							1	1	4		1	1		2			1					3	17
Taeniopygia guttata	Zebra Finch		1	5			2		1		1			1	2	1	7	3	1	1	7	4							1		1							39
Todiramphus pyrrhopygia	Red-backed Kingfisher		1	1	2	1	4	1	1					2			4			1	2																		20
Todiramphus sancta	Sacred Kingfisher									1							8							2	2	1		1										3	18
Turdus merula	Eurasian Blackbird																							2	1	1		1										2	7
Turnix varia	Painted Button-quail																							1	1													1	3
Turnix velox	Little Button-quail															1						1																	2
Vanellus tricolor	Banded Lapwing		1																																				1
Zoothera lunulata	Bassian Thrush,																																					1	1
Zosterops lateralis	Silvereye						2		3	1	1			2	1		6				1		3	2	3	1		3	1	1	2		1	1		1		3	39
	# species per survey	29	24	50	55	57	67	31	47	36	37	11	28	56	52	39	87	25	23	14	61	46	44	43	39	26	20	47	43	19	38	18	26	10	14	11	20	59	143

Bird PATN group site frequency within the Floristic groups from PATN. Values shown are the number of sites, the chi-sqared value for each cell in the matrix and the significance indicator values (positive values indicate observed is greater than random and negative the inverse).

		Observed Frequencies / Chisq value / index of significance												
Group	**Floristic Descriptions from PATN**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Totals**
1	*Acacia tetragonophylla* Dead Finish/*Acacia victoriae* Elegant Wattle very open tall shrubland +/- *Acacia aneura* Mulga very low open woodland over *Ptilotus obovatus* Silver Mulla Mulla/ *Solanum* spp. Potato Bush/*Sida petrophila* Rock Sida/*Senna artemisioides* Desert Senna/ *Dodonaea lobulata* Lobed-leaf Hop-bush/*Eremophila freelingii* Rock Emubush low open shrubland.	0 0.12 -0.3	1 1.06 1.08	3 0.26 0.62	0 1.36 -1.3	0 0.16 -0.4	0 0.37 -0.6	0 0.12 -0.3	1 22.2 4.83	0 0.45 -0.7	0 0.16 -0.4	2 0.01 0.12	1 0.08 0.32	8
2	*Acacia aneura* Mulga +/- *Alectryon oleifolius* Bullock Bush very low open woodland with *Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle tall shrubland over a *Senna artemisioides* Desert Senna/ *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Solanum* spp. Potato bush/ *Eremophila freelingii* Rock Emubush low open shrubland.	0 0.12 -0.3	0 0.37 -0.6	5 3.45 2.23	1 0.09 -0.3	0 0.16 -0.4	0 0.37 -0.6	0 0.12 -0.3	0 0.04 -0.2	0 0.45 -0.7	0 0.16 -0.4	1 0.39 -0.7	1 0.08 0.32	8
3	*Acacia tetragonophylla* Dead Finish/ *Acacia victoriae* Elegant Wattle very open tall shrubland over a *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Dodonaea lobulata* Lobed-leaf Hop-bush/ *Eremophila freelingii* Rock Emubush low open shrubland +/- emergent *Alectryon oleifolius* Bullock Bush/ *Acacia aneura* Mulga.	0 0.09 -0.3	0 0.27 -0.5	4 3.25 2.15	1 0.00 -0.0	0 0.12 -0.3	1 1.87 1.42	0 0.09 -0.3	0 0.03 -0.1	0 0.34 -0.6	0 0.12 -0.3	0 1.39 -1.3	0 0.55 -0.7	6
4	*Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush very low open woodland with *Acacia victoriae* Elegant Wattle over *Maireana pyramidata* Black Bluebush/ *Rhagodia spinescens* Spiny saltbush/ *Enchylaena tomentosa* ruby saltbush low shrubland.	0 0.06 -0.2	0 0.18 -0.4	2 0.70 0.99	1 0.15 0.43	0 0.08 -0.2	0 0.18 -0.4	0 0.06 -0.2	0 0.02 -0.1	0 0.22 -0.4	0 0.08 -0.2	1 0.00 0.08	0 0.37 -0.6	4
5	*Eucalyptus gillii* Curly Mallee open mallee or *Acacia tetragonophylla* Dead Finish very open tall shrubland over *Ptilotus obovatus* Silver Mulla Mulla/ *Solanum* spp. Potato Bush low open shrubland.	0 0.10 -0.3	1 1.40 1.23	3 0.56 0.90	3 2.74 1.85	0 0.14 -0.3	0 0.32 -0.5	0 0.10 -0.3	0 0.03 -0.1	0 0.39 -0.6	0 0.14 -0.3	0 1.62 -1.4	0 0.64 -0.8	7
6	*Eremophila freelingii* Rock Emubush +/- *Senna artemisioides* Desert Senna open shrubland over *Maireana astrotricha* Low Bluebush/ *Ptilotus obovatus* Silver Mulla Mulla low/ *Maireana sedifolia* Pearl Bluebush shrubs +/- *Acacia aneura* Mulga/ *Acacia tetragonophylla* Dead finish very low open woodland.	1 5.32 2.38	0 0.41 -0.6	3 0.09 0.37	0 1.53 -1.3	0 0.18 -0.4	1 0.81 0.94	1 5.32 2.38	0 0.04 -0.2	0 0.51 -0.7	0 0.18 -0.4	3 0.39 0.73	0 0.83 -0.9	9
7	*Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Atriplex vesicaria* Bladder Saltbush/ *Maireana astrotricha* Low Bluebush/ *Eremophila freelingii* Rock Emubush low shrubland.	0 0.03 -0.1	0 0.09 -0.3	0 0.55 -0.8	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	1 0.61 0.90	1 3.57 1.99	2
9	*Callitris glaucophylla* White Cypress-pine +/- *Alectryon oleifolius* Bullock Bush open woodland with/or *Acacia victoriae* Elegant Wattle over *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida low shrubland.	0 0.03 -0.1	0 0.09 -0.3	1 0.35 0.70	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	0 0.46 -0.7	1 3.57 1.99	2
10	*Acacia victoriae* Elegant wattle open tall shrubland over *Asphodelus fistulosus* Onion Weed +/- *Zygophyllum aurantiacum* Shrubby Twin-leaf/ *Senecio magnificus* Showy Groundsel low shrubs.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	1 8.87 3.13	1
14	*Acacia victoriae* Elegant Wattle tall shrubs +/- *Eucalyptus camaldulensis* River Red Gum/ *Melaleuca glomerata* Inland Paper-bark woodland over *Malvastrum americanum* Malvastrum/ *Ptilotus obovatus* Silver Mulla Mulla/ *Enchylaena tomentosa* Ruby Saltbush/ *Solanum* spp. Potato Bush/ *Pterocaulon sphacelatum* Apple-bush low shrubs and *Cymbopogon ambiguus* Lemon-grass.	0 0.29 -0.5	2 1.41 1.28	5 0.01 -0.1	10 14.1 4.35	1 0.94 1.03	0 0.88 -1.0	0 0.29 -0.5	0 0.09 -0.3	0 1.07 -1.1	0 0.39 -0.6	1 2.63 -1.9	0 1.76 -1.4	19
15	*Eucalyptus camaldulensis* River Redgum Woodland +/- *Melaleuca glomerata* Inland Paper-bark/ *Acacia victoriae* Elegant Wattle over *Cymbopogon ambiguus* Lemon-grass +/- shrubs, sedges and herbs.	0 0.03 -0.1	0 0.09 -0.3	1 0.35 0.70	1 1.28 1.24	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	0 0.46 -0.7	0 0.18 -0.4	2
16	*Alectryon oleifolius* Bullock Bush/ *Acacia victoriae* Elegant Wattle very low open woodland/tall shrubland over *Sclerolaena obliquicuspis* Oblique-spined Bindyi dwarf-shrubland.	0 0.06 -0.2	0 0.18 -0.4	0 1.11 -1.2	2 2.55 1.77	0 0.08 -0.2	0 0.18 -0.4	0 0.06 -0.2	0 0.02 -0.1	0 0.22 -0.4	0 0.08 -0.2	0 0.92 -1.1	2 7.14 2.83	4
19	*Acacia victoriae* Elegant Wattle/ *Acacia tetragonophylla* Dead Finish/ *Eremophila duttonii* Harlequin Emubush/ *Acacia ligulata Umbrella Bush* tall shrubland with *Senna artemisioides* Desert Senna over *Sida fibulifera* Pin Sida/ *Rhagodia spinescens* Spiny Saltbush/ *Eragrostis eriopoda* Woolybutt.	0 0.09 -0.3	0 0.27 -0.5	0 1.67 -1.5	0 1.02 -1.1	0 0.12 -0.3	0 0.27 -0.5	0 0.09 -0.3	0 0.03 -0.1	0 0.34 -0.6	0 0.12 -0.3	6 15.2 4.52	0 0.55 -0.7	6
20	*Acacia ligulata* Umbrella Bush tall shrubland +/- *Acacia tetragonophylla* Dead Finish over *Phyllanthus fuernrohrii* Sand Spurge/ *Atriplex stipitata* Bitter Saltbush/ *Aristida holathera* Kerosene Grass.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	1 2.54 1.82	0 0.09 -0.3	1
21	*Acacia aneura* Mulga low woodland +/- *Acacia ligulata* Umbrella Bush over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	1 2.54 1.82	0 0.09 -0.3	1

Appendix 23, (continued).

Group	Floristic Descriptions from PATN	1	2	3	4	5	6	7	8	9	10	11	12	Totals
22	*Rhagodia spinescens* low shrubland over *Malvastrum americanum* Malvastrum +/- emergent *Acacia victoriae* Elegant Wattle/ *Acacia salicina* Willow Wattle/ *Eucalyptus camaldulensis* River Red Gum.	0 0.03 -0.1	0 0.09 -0.3	0 0.55 -0.8	2 8.09 3.14	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	0 0.46 -0.7	0 0.18 -0.4	2
23	*Acacia victoriae* Elegant Wattle open tall shrubland +/- *Senna artemisioides* Desert Senna/ *Eremophila duttonii* Harlequin Emubush over *Rhagodia spinescens* Spiny Saltbush/ *Sclerolaena limbata* Pearl Bindyi +/- *Maireana pyramidata* Black Bluebush/ *Maireana astrotricha* Low Bluebush low shrubland.	0 0.13 -0.3	0 0.41 -0.6	0 2.50 -1.9	4 3.98 2.24	0 0.18 -0.4	0 0.41 -0.6	0 0.13 -0.3	0 0.04 -0.2	0 0.51 -0.7	0 0.18 -0.4	4 1.75 1.54	1 0.03 0.19	9
24	*Acacia victoriae* Elegant Wattle +/- *Acacia tetragonophylla* Dead Finish/ *Senna artemisioides* Desert Senna/ *Eremophila duttonii* Harlequin emubush open tall shrubland over *Malvastrum americanum* Malvastrum/ *Sida fibulifera* Pin Sida/ *Sclerolaena longicuspis* Long-spine Bindyi/ *Sclerolaena divaricata* Tangled Bindyi dwarf-shrubland.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	2 4.34 2.30	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	0 0.06 -0.2	0 0.69 -0.9	1 1.87 1.44	3
25	*Maireana astrotricha* Low Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland with emergent *Acacia victoriae* Elegant Wattle.	0 0.09 -0.3	1 1.87 1.42	2 0.06 0.30	1 0.00 -0.0	0 0.12 -0.3	0 0.27 -0.5	0 0.09 -0.3	0 0.03 -0.1	0 0.34 -0.6	0 0.12 -0.3	0 1.39 -1.3	2 3.74 2.06	6
26	*Maireana astrotricha* Low Bluebush/ *Sclerolaena limbata* Pearl Bindyi/ *Sclerolaena divaricata* Tangled Bindyi +/- emergent *Acacia victoriae* Elegant Wattle.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	1 2.54 1.82	0 0.09 -0.3	1
27	*Maireana astrotricha* Low Bluebush/ *Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Oblique-spined Bindyi low shrubland.	0 0.03 -0.1	0 0.09 -0.3	0 0.55 -0.8	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	2 5.08 2.58	0 0.18 -0.4	2
28	*Maireana pyramidata* Black Bluebush +/- *Sclerolaena ventricosa* Salt Bindyi/ *Maireana astrotricha* Low Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	0 0.51 -0.7	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	0 0.06 -0.2	3 7.62 3.17	0 0.27 -0.5	3
29	*Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena divaricata* Tangled Bindyi/ *Sclerolaena brachyptera* Short-wing Bindyi low open shrubland.	0 0.06 -0.2	1 3.57 1.95	0 1.11 -1.2	0 0.68 -0.9	0 0.08 -0.2	1 3.57 1.95	0 0.06 -0.2	0 0.02 -0.1	0 0.22 -0.4	0 0.08 -0.2	1 0.00 0.08	1 1.06 1.09	4
30	*Enchylaena tomentosa* Ruby Saltbush low open shrubland +/- *Rhagodia spinescens* Spiny Saltbush and/or emergent *Acacia victoriae* Elegant Wattle.	0 0.03 -0.1	0 0.09 -0.3	1 0.35 0.70	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	1 0.61 0.90	0 0.18 -0.4	2
31	Enchylaena tomentosa Ruby Saltbush/ *Maireana pyramidata* Black Bluebush/ *Maireana sedifolia* Pearl Bluebush/ *Atriplex vesicaria* Bladder Saltbush/ *Sclerolaena obliquicuspis* Obliqu-spined bindyi low shrubland +/- emergent *Myoporum platycarpum* False Sandlewood/ *Casuarina pauper* Black Oak/ *Alectryon oleifolius* Bullock Bush.	0 0.12 -0.3	0 0.37 -0.6	4 1.41 1.42	0 1.36 -1.3	0 0.16 -0.4	0 0.37 -0.6	0 0.12 -0.3	0 0.04 -0.2	0 0.45 -0.7	0 0.16 -0.4	2 0.01 0.12	2 2.13 1.56	8
33	*Maireana pyramidata* Black Bluebush/ *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia spinescens* Spiny Saltbush low shrubland +/- emergent *Acacia victoriae* Elegant Wattle.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	0 0.51 -0.7	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	0 0.06 -0.2	2 2.44 1.79	1 1.87 1.44	3
34	*Maireana pyramidata* Black Bluebush/ *Atriplex vesicaria* Bladder Saltbush low shrubland.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	0 0.51 -0.7	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	0 0.06 -0.2	2 2.44 1.79	1 1.87 1.44	3
38	*Nitraria billardierei* Nitre-bush +/- *Atriplex vesicaria* Bladder Saltbush/ *Rhagodia spinescens* Spiny Saltbush low shrubland.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	1 2.54 1.82	0 0.09 -0.3	1
39	*Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus dumosa* White Mallee over *Enchylaena tomentosa* Ruby Saltbush/ *Senna artemisioides* Desert Senna.	0 0.09 -0.3	0 0.27 -0.5	4 3.25 2.15	2 0.94 1.08	0 0.12 -0.3	0 0.27 -0.5	0 0.09 -0.3	0 0.03 -0.1	0 0.34 -0.6	0 0.12 -0.3	0 1.39 -1.3	0 0.55 -0.7	6
41	*Eucalyptus socialis* Beaked Red Mallee and/or *Alectryon oleifolius* Bullock Bush over *Sclerolaena obliquicuspis* Oblique-spined Bindyi +/- *Eremophila scoparia* Broom Emubush/ *Maireana pentatropis* Erect Mallee Bluebush.	2 60.7 7.93	1 3.57 1.95	0 1.11 -1.2	0 0.68 -0.9	1 10.2 3.26	0 0.18 -0.4	0 0.06 -0.2	0 0.02 -0.1	0 0.22 -0.4	0 0.08 -0.2	0 0.92 -1.1	0 0.37 -0.6	4
42	*Eucalyptus gracilis* Yorrell/ *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus oleosa* Red Mallee over *Enchylaena tomentosa* Ruby Saltbush.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	1 4.04 2.21	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	0 0.09 -0.3	1

Appendix 23, (continued).

Group	Floristic Descriptions from PATN	1	2	3	4	5	6	7	8	9	10	11	12	Totals
43	*Alectryon oleifolius* Bullock Bush open low woodland over *Enchylaena tomentosa* Ruby Saltbush/ *Rhagodia parabolica* Mealy Saltbush +/- an overstorey of *Eucalyptus* spp. Mallee or *Casuarina pauper* Black Oak Woodland.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	1 4.04 2.21	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	0 0.09 -0.3	1
45	*Danthonia caespitosa* Common Wallaby-grass/ *Eriochiton sclerolaenoides* Woolly-fruit Bluebush tussock grassland/low shrubland +/- *Maireana sedifolia* Pearl Bluebush low shrub overstorey.	0 0.03 -0.1	0 0.09 -0.3	0 0.55 -0.8	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	2 5.08 2.58	0 0.18 -0.4	2
53	*Sclerolaena brachyptera* Short-wing Bindyi/ *Sclerolaena divaricata* Tangled Bindyi dwarf-shrubland.	0 0.03 -0.1	0 0.09 -0.3	0 0.55 -0.8	0 0.34 -0.6	0 0.04 -0.2	0 0.09 -0.3	0 0.03 -0.1	0 0.01 -0.1	0 0.11 -0.3	0 0.04 -0.2	1 0.61 0.90	1 3.57 1.99	2
54	*Astrebla pectinata* Barley Mitchell-grass/ *Eragrostis setifolia* Bristly Love-grass tussock grassland with bindyi dwarf-shrubs +/- *Maireana aphylla* Cotton-bush low shrub overstorey.	0 0.07 -0.2	0 0.23 -0.5	0 1.39 -1.4	0 0.85 -1.0	0 0.10 -0.3	0 0.23 -0.5	0 0.07 -0.2	0 0.02 -0.1	0 0.28 -0.5	0 0.10 -0.3	5 12.7 4.12	0 0.46 -0.7	5
55	*Cassinia laevis* Curry Bush/ *Dodonaea* spp. Hop-bush open shrubland over *Triodia* spp. Spinifex hummock-grass +/- *Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus porosa* Mallee Box / *Callitris glaucophylla* White Cypress-pine overstorey.	0 0.10 -0.3	1 1.40 1.23	3 0.56 0.90	1 0.03 -0.1	0 0.14 -0.3	1 1.40 1.23	0 0.10 -0.3	0 0.03 -0.1	0 0.39 -0.6	0 0.14 -0.3	1 0.24 -0.5	0 0.64 -0.8	7
56	*Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Ptilotus obovatus* Silver Mulla Mulla/ *Sida petrophila* Rock Sida/ *Chrysocephalum semicalvum* Scented Button-bush and *Cheilanthes lasiophylla* Woolly Cloak-fern.	0 0.07 -0.2	0 0.23 -0.5	3 1.85 1.62	0 0.85 -1.0	1 7.80 2.86	0 0.23 -0.5	0 0.07 -0.2	0 0.02 -0.1	0 0.28 -0.5	1 7.80 2.86	0 1.16 -1.2	0 0.46 -0.7	5
57	*Callitris glaucophylla* White Cypress-pine/ *Eucalyptus intertexta* Gum-barked Coolibah +/- *Eucalyptus flindersii* Flinders Grey Mallee open woodland over *Cassinia laevis* Curry Bush/ *Dodonaea viscosa* Sticky Hop-bush with *Triodia* spp. Spinifex/ *Lomandra multiflora* Hard Mat-rush/ *Xanthorrhoea quadrangulata* Rock Grass-tree/ *Cheilanthes sieberi* Narrow Rock-fern.	0 0.01 -0.1	0 0.04 -0.2	1 1.87 1.61	0 0.17 -0.4	0 0.02 -0.1	0 0.04 -0.2	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	0 0.09 -0.3	1
58	*Eucalyptus intertexta* Gum-barked Coolibah / *Callitris glaucophylla* White Cypress-pine open woodland over *Acacia rivalis* Silver Wattle/ *Senna artemisioides* Desert Senna with *Dodonaea lobulata* Lobed-leaf Hop-bush and *Sclerolaena patenticuspis* Spear-fruit Bindyi/ *Danthonia caespitosa* Common Wallaby-grass in the understorey.	0 0.07 -0.2	1 2.54 1.65	4 4.88 2.63	0 0.85 -1.0	0 0.10 -0.3	0 0.23 -0.5	0 0.07 -0.2	0 0.02 -0.1	0 0.28 -0.5	0 0.10 -0.3	0 1.16 -1.2	0 0.46 -0.7	5
59	*Eucalyptus socialis* Beaked Red Mallee/ *Eucalyptus dumosa* White Mallee/ *Callitris glaucophylla* White Cypress-pine over *Senna artemisioides* Desert Senna/ Cassinia laevis Curry Bush/ *Dodonaea lobulata* Lobe-leaf Hop-bush +/- *Triodia* spp. Spinifex.	0 0.04 -0.2	0 0.13 -0.3	3 5.61 2.81	0 0.51 -0.7	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	0 0.06 -0.2	0 0.69 -0.9	0 0.27 -0.5	3
61	*Danthonia caespitosa* Common Wallaby-grass/ *Stipa* spp. Spear-grass tussock grassland with an overstorey of *Eucalyptus socialis* Beaked red Mallee/ *Eucalyptus gracilis* Yorrell/ *Acacia calamifolia* Wallowa/ *Melaleuca lanceolata* Dryland Tea-tree.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	0 0.51 -0.7	0 0.06 -0.2	2 24.8 5.14	0 0.04 -0.2	0 0.01 -0.1	0 0.17 -0.4	1 14.2 3.84	0 0.69 -0.9	0 0.27 -0.5	3
62	*Lomandra* spp. Mat-rush/ *Danthonia caespitosa* Common Wallaby-grass/*Stipa* spp. Spear-grass/ *Aristida behriana* Brush Wire-grass tussock grassland +/- a woodland overstorey of *Acacia pycnantha* Golden Wattle/ *Callitris* spp. Native Pine/ *Eucalyptus porosa* Mallee Box.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	1 19.6 4.54	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	0 0.09 -0.3	1
63	Variable Woodland of *Eucalyptus odorata* Peppermint Box/ *E. microcarpa* Grey Box/ *Allocasuarina verticillata* Droopinf Sheoak/ *E. leucoxylon* South Australian Bluegum/ *Callitris glaucophylla* White Cypress-pine/ *Acacia pycnantha* Golden Wattle over a sparse *Bursaria spinosa* Sweet Bursaria shrub layer, low shrubs, *Lomandra multiflora* Hard Mat-rush/ *Stipa* spp. Spear-grass tussock grassland +/- *Tiodia* spp. Spinifex hummock grassland.	0 0.01 -0.1	0 0.04 -0.2	0 0.27 -0.6	0 0.17 -0.4	0 0.02 -0.1	1 19.6 4.54	0 0.01 -0.1	0 0.00 -0.0	0 0.05 -0.2	0 0.02 -0.1	0 0.23 -0.5	0 0.09 -0.3	1
64	*Allocasuarina verticillata* Drooping Sheoak/ *Eucalyptus leucoxylon* South Australian Blue Gum/ *Eucalyptus goniocalyx* Long-leaf Box/ *Eucalyptus cladocalyx* Sugar Gum +/- *Acacia pycnantha* Golden Wattle woodland over *Bursaria spinosa* Sweet Bursaria/ *Hibbertia exutiacies* Prickly Guinea-flower/ *Astroloma humifusum* Cranberry Heath heathy-shrubland.	0 0.04 -0.2	0 0.13 -0.3	0 0.83 -1.0	0 0.51 -0.7	0 0.06 -0.2	0 0.13 -0.3	0 0.04 -0.2	0 0.01 -0.1	3 47.0 7.12	0 0.06 -0.2	0 0.69 -0.9	0 0.27 -0.5	3
65	*Allocasuarina verticillata* / *Eucalyptus microcarpa* Grey Box/ *Callitris glaucophylla* White Cypress-pine woodland over *Cassinia laevis* Curry Bush and *Lomandra* spp. and *Dianella* spp. Mat-rush +/- *Triodia* spp. hummock-grass.	0 0.17 -0.4	0 0.51 -0.7	0 3.06 -2.1	0 1.87 -1.5	1 2.63 1.68	0 0.51 -0.7	2 19.6 4.60	0 0.05 -0.2	7 65.1 8.55	1 2.63 1.68	0 2.55 -1.8	0 1.02 -1.0	11
69	*Triodia* spp. Spinifex hummock grassland +/- *Allocasuarina verticillata* Drooping Sheoak mixed woodland or shrubland overstorey.	0 0.09 -0.3	0 0.27 -0.5	2 0.06 0.30	0 1.02 -1.1	0 0.12 -0.3	1 1.87 1.42	0 0.09 -0.3	0 0.03 -0.1	1 1.28 1.18	1 6.20 2.55	0 1.39 -1.3	1 0.35 0.63	6
Totals		3	9	54	33	4	9	3	1	11	4	45	18	194

APPENDIX 24. Bird species site frequencies for the bird assemblage groups defined using PATN analysis program.

FAMILY	SPECIES	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	# sites
ACANTHIZIDAE	*Acanthiza apicalis*	Inland Thornbill		2	73	7	10	2	3		32		3		132
ACANTHIZIDAE	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill		6	32	8	2	1			8			3	60
ACANTHIZIDAE	*Acanthiza nana*	Yellow Thornbill						3	1		7				11
ACANTHIZIDAE	*Acanthiza uropygialis*	Chestnut-rumped Thornbill	2	3	43	16					3		13		80
ACANTHIZIDAE	*Aphelocephala leucopsis*	Southern Whiteface		2	34	14					3		10	13	76
ACANTHIZIDAE	*Calamanthus campestris*	Western Calamanthus											6	7	13
ACANTHIZIDAE	*Calamanthus cautus*	Shy Heathwren					1				1	1			3
ACANTHIZIDAE	*Calamanthus pyrrhopygius*	Chestnut-rumped Heathwren									6				6
ACANTHIZIDAE	*Pyrrholaemus brunneus*	Redthroat			25	2	4	1			6		7	2	47
ACANTHIZIDAE	*Smicrornis brevirostris*	Weebill	6	4	56	15	3	1			24		3		112
ACCIPITRIDAE	*Accipiter cirrhocephalus*	Collared Sparrowhawk			2	3	1				3		1		10
ACCIPITRIDAE	*Accipiter fasciatus*	Brown Goshawk			9						3				12
ACCIPITRIDAE	*Aquila audax*	Wedge-tailed Eagle			38	9	2	4			9	3	19	7	91
ACCIPITRIDAE	*Hieraaetus morphnoides*	Little Eagle			5	1		2			2			2	12
ACCIPITRIDAE	*Milvus migrans*	Black Kite	2		2	2							7	2	15
AEGOTHELIDAE	*Aegotheles cristatus*	Australian Owlet-nightjar			9	6					1				16
ANATIDAE	*Anas gracilis*	Grey Teal			3										3
ANATIDAE	*Anas superciliosa*	Pacific Black Duck				2					1				3
ANATIDAE	*Chenonetta jubata*	Australian Wood Duck			1			1	1						3
APODIDAE	*Apus pacificus*	Fork-tailed Swift			2		1								3
ARDEIDAE	*Egretta novaehollandiae*	White-faced Heron			2	3	1								6
ARDEIDAE	*Nycticorax caledonicus*	Nankeen Night Heron			4										4
CASUARIIDAE	*Dromaius novaehollandiae*	Emu		2	31	13	1				4		18	13	82
CHARADRIIDAE	*Elseyornis melanops*	Black-fronted Dotterel			1	2									3
CINCLOSOMATIDAE	*Cinclosoma castanotus*	Chestnut Quail-thrush			1	2									3
CINCLOSOMATIDAE	*Cinclosoma cinnamomeum*	Cinnamon Quail-thrush		1		2			2				10	3	18
CINCLOSOMATIDAE	*Psophodes cristatus*	Chirruping Wedgebill			5	10							36	3	54
CLIMACTERIDAE	*Climacteris affinis*	White-browed Treecreeper			5										5
CLIMACTERIDAE	*Climacteris picumnus*	Brown Treecreeper			4	6		1			4				15
COLUMBIDAE	*Geopelia cuneata*	Diamond Dove			2	4						1			7
COLUMBIDAE	*Geopelia placida*	Peaceful Dove			9	7		1			10	2			29
COLUMBIDAE	*Ocyphaps lophotes*	Crested Pigeon		2	12	11		1					22	12	60
COLUMBIDAE	*Phaps chalcoptera*	Common Bronzewing			15	8	3	1			11	2	3		43
COLUMBIDAE	*Phaps elegans*	Brush Bronzewing		1	2	3					4				10
CORVIDAE	*Artamus cinereus*	Black-faced Woodswallow	2		4	11							24	4	45
CORVIDAE	*Artamus cyanopterus*	Dusky Woodswallow			2	6		1			4		1		14
CORVIDAE	*Artamus minor*	Little Woodswallow			4	1	3							3	11
CORVIDAE	*Artamus personatus*	Masked Woodswallow		1		4					2		1	4	12
CORVIDAE	*Artamus superciliosus*	White-browed Woodswallow			1	3					2		1	2	9
CORVIDAE	*Coracina novaehollandiae*	Black-faced Cuckoo-shrike		5	21	23	1	7			10		1		68
CORVIDAE	*Corvus bennetti*	Little Crow		2	18	11		2					10	1	44
CORVIDAE	*Corvus coronoides*	Australian Raven	6		69	26	6	6			5		32	6	156
CORVIDAE	*Corvus mellori*	Little Raven			1	2		3			3			3	12
CORVIDAE	*Cracticus nigrogularis*	Pied Butcherbird						1	1		2				4
CORVIDAE	*Cracticus torquatus*	Grey Butcherbird	4	4	63	6					16	1	2	2	98
CORVIDAE	*Gymnorhina tibicen*	Australian Magpie	4	13	47	20	2	7			12	1	8	15	129
CORVIDAE	*Strepera versicolor*	Grey Currawong			1	1	1		1		12	2			18
CUCULIDAE	*Cacomantis flabelliformis*	Fan-tailed Cuckoo						1			2				3
CUCULIDAE	*Chrysococcyx basalis*	Horsfield's Bronze-cuckoo			8	7					5	1	4	3	28
CUCULIDAE	*Chrysococcyx osculans*	Black-eared Cuckoo			11	2								1	14
CUCULIDAE	*Cuculus pallidus*	Pallid Cuckoo		1	1	3									5
DACELONIDAE	*Dacelo novaeguineae*	Laughing Kookaburra						1			14	3		1	19
DACELONIDAE	*Todiramphus pyrrhopygia*	Red-backed Kingfisher	4		8	15							2	1	30
DACELONIDAE	*Todiramphus sancta*	Sacred Kingfisher		2	3	3					11				19
DICRURIDAE	*Grallina cyanoleuca*	Magpie-lark				4							1		5
DICRURIDAE	*Myiagra inquieta*	Restless Flycatcher				5									5
DICRURIDAE	*Rhipidura albiscapa*	Grey Fantail									17	1			18
DICRURIDAE	*Rhipidura leucophrys*	Willie Wagtail			29	21		4			2	1	2	7	66
EOPSALTRIIDAE	*Daphoenositta chrysoptera*	Varied Sittella			3	3					5				11
EOPSALTRIIDAE	*Drymodes brunneopygia*	Southern Scrub-robin			3	1	1				5				10
EOPSALTRIIDAE	*Melanodryas cucullata*	Hooded Robin			8	6		2		2	1		5		24
EOPSALTRIIDAE	*Microeca fascinans*	Jacky Winter			1	2	2	2	1		1				9
EOPSALTRIIDAE	*Petroica goodenovii*	Red-capped Robin	2	4	74	13	1				14	2	3	1	114
EOPSALTRIIDAE	*Petroica multicolor*	Scarlet Robin					1				8				9
FALCONIDAE	*Falco berigora*	Brown Falcon			6	7							5	5	23
FALCONIDAE	*Falco cenchroides*	Nankeen Kestrel			25	17	5	8			3		12	19	89

Appendix 24. (continued)

FAMILY	SPECIES	COMMON NAME	1	2	3	4	5	6	7	8	9	10	11	12	# sites
FALCONIDAE	*Falco longipennis*	Australian Hobby		2	1	1		2							6
FALCONIDAE	*Falco peregrinus*	Peregrine Falcon			2						2				4
HIRUNDINIDAE	*Hirundo neoxena*	Welcome Swallow			3	2	2	1			1		1	2	12
HIRUNDINIDAE	*Petrochelidon ariel*	Fairy Martin		2	2	1							2		7
HIRUNDINIDAE	*Petrochelidon nigricans*	Tree Martin			37	21	6	2		2	12		4	2	86
MALURIDAE	*Amytornis striatus*	Striated Grasswren			2	1									3
MALURIDAE	*Amytornis textilis*	Thick-billed Grasswren				1								2	3
MALURIDAE	*Malurus lamberti*	Variegated Fairy-wren			23	17	6	6	3		23	1	20	2	101
MALURIDAE	*Malurus leucopterus*	White-winged Fairy-wren	2		2	15							37	18	74
MELIPHAGIDAE	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater		1	68	34	1	2			5		19	6	136
MELIPHAGIDAE	*Acanthorhynchus tenuirostris*	Eastern Spinebill									5				5
MELIPHAGIDAE	*Anthochaera carunculata*	Red Wattlebird			2	1		2			17				22
MELIPHAGIDAE	*Epthianura albifrons*	White-fronted Chat											1	3	4
MELIPHAGIDAE	*Epthianura aurifrons*	Orange Chat											3	2	5
MELIPHAGIDAE	*Epthianura tricolor*	Crimson Chat				4							1	2	7
MELIPHAGIDAE	*Gliciphila melanops*	Tawny-crowned Honeyeater			2		1				5				8
MELIPHAGIDAE	*Lichenostomus chrysops*	Yellow-faced Honeyeater							3		22				25
MELIPHAGIDAE	*Lichenostomus leucotis*	White-eared Honeyeater			3	1	1								5
MELIPHAGIDAE	*Lichenostomus ornatus*	Yellow-plumed Honeyeater			9	5		2			2				18
MELIPHAGIDAE	*Lichenostomus penicillatus*	White-plumed Honeyeater			3	11		3			3		1		21
MELIPHAGIDAE	*Lichenostomus plumulus*	Grey-fronted Honeyeater			29	7	4				5	1			46
MELIPHAGIDAE	*Lichenostomus virescens*	Singing Honeyeater		1	24	22	1	3	5		7		36	9	108
MELIPHAGIDAE	*Manorina flavigula*	Yellow-throated Miner		12	39	16		4			1	1	6	2	81
MELIPHAGIDAE	*Melithreptus brevirostris*	Brown-headed Honeyeater			15	3		1	2		15	1			37
MELIPHAGIDAE	*Phylidonyris albifrons*	White-fronted Honeyeater			15	1	1	1			1				19
MEROPIDAE	*Merops ornatus*	Rainbow Bee-eater		1	8	12		1			1	2	2	2	29
MUSCICAPIDAE	*Turdus merula*	Common Blackbird									7				7
NECTARINIIDAE	*Dicaeum hirundinaceum*	Mistletoebird		1	30	12					11		2		56
PACHYCEPHALIDAE	*Colluricincla harmonica*	Grey Shrike-thrush			45	14		1	1		22	2		1	86
PACHYCEPHALIDAE	*Oreoica gutturalis*	Crested Bellbird	4	1	14	6							7		32
PACHYCEPHALIDAE	*Pachycephala inornata*	Gilbert's Whistler		1	2						3				6
PACHYCEPHALIDAE	*Pachycephala pectoralis*	Golden Whistler			1						5	1			7
PACHYCEPHALIDAE	*Pachycephala rufiventris*	Rufous Whistler		3	65	12	3	1			21	1	1	1	108
PARDALOTIDAE	*Pardalotus striatus*	Striated Pardalote	2	3	52	15	1	6			24			2	105
PASSERIDAE	*Anthus novaeseelandiae*	Richard's Pipit			1	13	1	2					15	17	49
PASSERIDAE	*Stagonopleura guttata*	Diamond Firetail						1			2				3
PASSERIDAE	*Taeniopygia guttata*	Zebra Finch		1	8	20					1		21	7	58
PODARGIDAE	*Podargus strigoides*	Tawny Frogmouth			2	1					3	1	2		9
POMATOSTOMIDAE	*Pomatostomus ruficeps*	Chestnut-crowned Babbler			5	2							3	2	12
POMATOSTOMIDAE	*Pomatostomus superciliosus*	White-browed Babbler			49	20		1			12	1	5		88
PSITTACIDAE	*Barnardius zonarius*	Ring-necked Parrot	2	4	50	19		1		2	6		2	4	90
PSITTACIDAE	*Cacatua roseicapilla*	Galah		10	39	25	1	3	3		15	1	29	18	144
PSITTACIDAE	*Cacatua sanguinea*	Little Corella		7	22	16			1		1		4	3	54
PSITTACIDAE	*Glossopsitta porphyrocephala*	Purple-crowned Lorikeet				2					1				3
PSITTACIDAE	*Melopsittacus undulatus*	Budgerigar			4	6		1			3		9	7	30
PSITTACIDAE	*Neophema chrysostoma*	Blue-winged Parrot			1	1								1	3
PSITTACIDAE	*Neophema elegans*	Elegant Parrot			1	3					5			1	10
PSITTACIDAE	*Northiella haematogaster*	Blue Bonnet			2								4		6
PSITTACIDAE	*Nymphicus hollandicus*	Cockatiel				2							1	3	6
PSITTACIDAE	*Platycercus elegans*	Crimson Rosella						4			23	1			28
PSITTACIDAE	*Psephotus haematonotus*	Red-rumped Parrot		2				2			1				5
PSITTACIDAE	*Psephotus varius*	Mulga Parrot	2		28	13	1		2				3	1	50
STRIGIDAE	*Ninox novaeseelandiae*	Southern Boobook			1	2					1				4
SYLVIIDAE	*Cincloramphus cruralis*	Brown Songlark				2							1	7	10
SYLVIIDAE	*Cincloramphus mathewsi*	Rufous Songlark				2		1						1	4
TURNICIDAE	*Turnix varia*	Painted Button-quail									3				3
TURNICIDAE	*Turnix velox*	Little Button-quail											2	1	3
ZOSTEROPIDAE	*Zosterops lateralis*	Silvereye			15			1			21	1		1	39

Species list for all reptile species known to occur in the study area. Number of records located in the SA Museum include specimens collected during the surveys. Numbers associated with survey species records indicate the number of sites at which a species was recorded. Totals from surveys column indicates the number of sites a species was recorded in as used in the PATN analysis.

\FAMILY	Species	Common Name	SA Museum	24 South Olary	66 Mt Brown	67 Gammon Ranges	69 Stony Desert	74 North Olary	98 North West Flinders	104 Flinders Ranges	111 Warraweena	114 Mt Remarkable	records in study area	Opportune database	Total from Surveys
AGAMIDAE	*Amphibolurus nobbi*	Nobbi Dragon	24							19	3		22	2	22
AGAMIDAE	*Ctenophorus decresii*	Tawy Dragon	144	7	25					130	4		159	8	166
AGAMIDAE	*Ctenophorus fordi*	Mallee Dragon	12			14	1	12	14				14		41
AGAMIDAE	*Ctenophorus gibba*	Gibber Dragon	1												0
AGAMIDAE	*Ctenophorus nuchalis*	Central Netted Dragon	10			1			3				3	4	4
AGAMIDAE	*Ctenophorus pictus*	Painted Dragon	17			3	2	10	7				7	2	22
AGAMIDAE	*Ctenophorus vadnappa*	Red-barred Dragon	126						4	55	6		65	17	65
AGAMIDAE	*Diporiphora winneckei*	Canegrass Dragon	4												0
AGAMIDAE	*Pogona vitticeps*	Central Bearded Dragon	23	3	1	1	1	6	6	18	1		29	17	37
AGAMIDAE	*Tympanocryptis intima*	Smooth-snouted Earless Dragon	11					5	2				7		7
AGAMIDAE	*Tympanocryptis tetraporophora*	Eyrean Earless Dragon	101	3		7	3	12	19	41	16		90	1	101
BOIDAE	*Antaresia stimsoni*	Stimson's Python	2												0
BOIDAE	*Morelia spilota*	Carpet Python	12											1	0
ELAPIDAE	*Demansia psammophis*	Yellow-faced Whipsnake	17			1			1	2	4	1	9	1	9
ELAPIDAE	*Demansia reticulata*	Desert Whipsnake	6							1			1		1
ELAPIDAE	*Furina diadema*	Red-naped Snake	17		1					2		1	4	1	4
ELAPIDAE	*Notechis ater*	Black Tiger Snake	12												0
ELAPIDAE	*Pseudechis australis*	Mulga Snake	13	1						2			2	5	3
ELAPIDAE	*Pseudonaja modesta*	Five-ringed Snake	5					1							1
ELAPIDAE	*Pseudonaja nuchalis*	Western Brown Snake	31	1				2					1	3	3
ELAPIDAE	*Pseudonaja textilis*	Eastern Brown Snake	7	2	2					4		2	8	2	10
ELAPIDAE	*Simoselaps australis*	Coral Snake	5									1	1	1	1
ELAPIDAE	*Simoselaps fasciolatus*	Narrow-banded Snake	1					1							1
ELAPIDAE	*Suta nigriceps*	Mitchell's Short-tailed Snake	11											2	0
ELAPIDAE	*Suta spectabilis*	Mallee Black-headed Snake	7	1								1	1		2
ELAPIDAE	*Suta suta*	Curl Snake	31						2	1		1	4	2	4
ELAPIDAE	*Vermicella annulata*	Common Bandy-Bandy	2												0
GEKKONIDAE Diplodactylinae	*Diplodactylus byrnei*	Pink-blotched Gecko	34	3		13	1	3	76	24			87	1	120
GEKKONIDAE Diplodactylinae	*Diplodactylus damaeus*	Beaded Gecko	7			3	3		14				14		20
GEKKONIDAE Diplodactylinae	*Diplodactylus stenodactylus*	Sandplain Gecko	7						8		1		9	1	9

Appendix 25. (continued)

FAMILY	Species	Common Name	SA Museum	24 South Olary	66 Mt Brown	67 Gammon Ranges	69 Stony Desert	74 North Olary	98 North West Flinders	104 Flinders Ranges	111 Warraweena	114 Mt Remarkable	records in study area	Opportune database	Total from Surveys
GEKKONIDAE Diplodactylinae	*Diplodactylus tessellatus*	Tessellated Gecko	30				1	7	4	7	19		35	2	38
GEKKONIDAE Diplodactylinae	*Diplodactylus vittatus*	Eastern Stone Gecko	86	8	2			1		107	9	4	123	7	131
GEKKONIDAE Diplodactylinae	*Nephrurus levis*	Smooth Knob-tailed Gecko	8						6				6		6
GEKKONIDAE Diplodactylinae	*Nephrurus milii*	Barking Gecko	56	1	1	1	3		6	23	4		34	8	39
GEKKONIDAE Diplodactylinae	*Oedura marmorata*	Marbled Velvet Gecko	13							13			13	1	13
GEKKONIDAE Diplodactylinae	*Rhynchoedura ornata*	Beaked Gecko	24	1			1	2	29	10	6		46	1	49
GEKKONIDAE Diplodactylinae	*Strophurus ciliaris*	Northern Spiny-tailed Gecko	1			2		3					2		5
GEKKONIDAE Diplodactylinae	*Strophurus elderi*	Jewelled Gecko	18							15			15		15
GEKKONIDAE Diplodactylinae	*Strophurus intermedius*	Southern Spiny-tailed Gecko	32						4	18	2	7	31	1	31
GEKKONIDAE Gekkoninae	*Christinus marmoratus*	Marbled Gecko	21		12					18			30	1	30
GEKKONIDAE Gekkoninae	*Gehyra 2n=44*	Southern Rock Dtella	103	2						104	11		115	10	117
GEKKONIDAE Gekkoninae	*Gehyra purpurascens*	Purple Dtella	11*						26				26	2	26
GEKKONIDAE Gekkoninae	*Gehyra variegata*	Tree Dtella	216	3	30	2		28	28	210	17		308	45	318
GEKKONIDAE Gekkoninae	*Heteronotia binoei*	Bynoe's Gecko	167	9	10		2	5	14	178	27		232	23	245
GEKKONIDAE Pygopodinae	*Aprasia pseudopulchella*	Flinders Worm Lizard	14		1					2		1	4		4
GEKKONIDAE Pygopodinae	*Delma australis*	Barred Snake-lizard	27			1	1			8	1	14	24	1	25
GEKKONIDAE Pygopodinae	*Delma butleri*	Spinifex Snake-lizard	26			1		1	1	23			25		26
GEKKONIDAE Pygopodinae	*Delma molleri*	Adelaide Snake-lizard	26		10					19		19	48		48
GEKKONIDAE Pygopodinae	*Delma tincta*	Black-necked Snake-lizard	1												0
GEKKONIDAE Pygopodinae	*Lialis burtonis*	Burton's Legless Lizard	17		1	3				10			13	4	14
GEKKONIDAE Pygopodinae	*Pygopus "schraderi"*	Hooded Scaly-foot	4							1			1		1
GEKKONIDAE Pygopodinae	*Pygopus lepidopodus*	Common Scaly-foot	5							1		8	9		9
GEKKONIDAE Pygopodinae	*Pygopus nigriceps*	Black-headed Scaly-foot	1						1				1		1
SCINCIDAE	*Cryptoblepharus plagiocephalus*	Desert Wall Skink	120	6	5	1		6	9	122	7	2	158	19	158
SCINCIDAE	*Ctenotus leonhardii*	Common Desert Ctenotus	11		1	3		7					8		11
SCINCIDAE	*Ctenotus olympicus*	Saltbush Ctenotus	52				1	8	20	37	8		74	1	74
SCINCIDAE	*Ctenotus orientalis*	Spotted Ctenotus	32							33			33	1	33
SCINCIDAE	*Ctenotus pantherinus*	Leopard Skink	3					1		4			5		5
SCINCIDAE	*Ctenotus regius*	Eastern Desert Ctenotus	55			7	6	16	18	13		1	46		61
SCINCIDAE	*Ctenotus saxatilis*	Centralian Striped Skink	4*						1	9			10		10

Appendix 25. (continued)

FAMILY	Species	Common Name	SA Museum	24 South Olary	66 Mt Brown	67 Gammon Ranges	69 Stony Desert	74 North Olary	98 North West Flinders	104 Flinders Ranges	111 Warraweena	114 Mt Remarkable	records in study area	Opportune database	Total from Surveys
SCINCIDAE	*Ctenotus schomburgkii*	Sandplain Ctenotus	7	1		8	3	18		5			6		35
SCINCIDAE	*Ctenotus strauchii*	Short-legged Ctenotus	39			6	1	10	11	4			27		32
SCINCIDAE	*Ctenotus taeniatus*	Sandhill Ctenotus	24			2		3	14				14		19
SCINCIDAE	*Cyclodomorphus melanops*	Spinifex Slender Bluetongue	24			2				10	1		13		13
SCINCIDAE	*Cyclodomorphus venustus*	Saltbush Slender Bluetongue	3							1			1		1
SCINCIDAE	*Egernia inornata*	Desert Skink	1*								1		1		1
SCINCIDAE	*Egernia margaretae*	Masked Rock Skink	59							105	5	6	116	12	116
SCINCIDAE	*Egernia multiscutata*	Bull Skink	2												0
SCINCIDAE	*Egernia stokesii*	Gidgee Skink	23	1	1				5	11			17	4	18
SCINCIDAE	*Egernia striolata*	Eastern Tree Skink	38	2	9					64	6	7	86	4	88
SCINCIDAE	*Egernia whitii*	White's Skink	1									1	1		1
SCINCIDAE	*Eremiascincus fasciolatus*	Narrow-banded Sandswimmer	1												0
SCINCIDAE	*Eremiascincus richardsonii*	Broad-banded Sandswimmer	32				1		10	11	1	3	24	3	26
SCINCIDAE	*Hemiergis decresiensis*	Three-toed Earless Skink	29		23					112		11	146		146
SCINCIDAE	*Hemiergis millewae*	Rusty Earless Skink	3	2						1			1	1	3
SCINCIDAE	*Lampropholis guichenoti*	Garden Skink	13							33		43	76	1	76
SCINCIDAE	*Lerista bougainvillii*	Bougainville's Skink	30		1					44		12	57	2	57
SCINCIDAE	*Lerista desertorum*	Great Desert Slider	2*						3				3		3
SCINCIDAE	*Lerista dorsalis*	Southern Four-toed Slider	2	1						2			2		3
SCINCIDAE	*Lerista edwardsae*	Myall Slider	2							1		3	4		4
SCINCIDAE	*Lerista labialis*	Eastern Two-toed Slider	18			1		11	9				20		21
SCINCIDAE	*Lerista muelleri*	Dwarf Three-toed Slider	73	3		2			4	43	16		63	4	68
SCINCIDAE	*Lerista punctatovittata*	Spotted Slider	31	3		1		1	4	25	1		29	4	35
SCINCIDAE	*Lerista xanthura*	Yellow-tailed Slider	5					1							1
SCINCIDAE	*Menetia greyii*	Dwarf Skink	94	7	28	11	3	16		66			117	2	131
SCINCIDAE	*Morethia adelaidensis*	Adelaide Snake-eye	11	12		6		4							22
SCINCIDAE	*Morethia boulengeri*	Common Snake-eye	147	3	42	3	2	19	16	233	31	18	353	26	367
SCINCIDAE	*Morethia obscura*	Mallee Snake-eye	1*	4						1			1		5
SCINCIDAE	*Tiliqua rugosa*	Sleepy Lizard	13	15	17	5	1	19	22	61	12	1	120	33	153
SCINCIDAE	*Tiliqua scincoides*	Eastern Bluetongue	8	1										2	1
TYPHLOPIDAE	*Ramphotyphlops australis*	Southern Blind Snake	8	1						1		1	2		3

Appendix 25. (continued)

FAMILY	Species	Common Name	SA Museum	24 South Olary	66 Mt Brown	67 Gammon Ranges	69 Stony Desert	74 North Olary	98 North West Flinders	104 Flinders Ranges	111 Warraweena	114 Mt Remarkable	records in study area	Opportune database	Total from Surveys
TYPHLOPIDAE	*Ramphotyphlops bituberculatus*	Rough-nosed Blind Snake	12			1				3	1		4		5
VARANIDAE	*Varanus giganteus*	Perentie	1											1	0
VARANIDAE	*Varanus gouldii*	Sand Goanna	12					3	6	7	1		14	9	17
VARANIDAE	*Varanus varius*	Lace Goanna	5											4	0
		Number of species	90	29	21	29	19	32	37	59	29	25	78	50	85
		Number of records	2639	107	223	112	37	242	427	2128	222	169	3330	310	4023

APPENDIX 26. The biogeographic distributions of reptile species in South Australia known to occur in the study area.

Bio-climatic Region	Family	Species	# survey sites	Northern Limit Flinders Region
Bassian	ELAPIDAE	*Notechis ater*	0	Southern
Bassian	SCINCIDAE	*Egernia whitii*	1	Southern
Bassian	SCINCIDAE	*Hemiergis decresiensis*	20	Central
Bassian	SCINCIDAE	*Lampropholis guichenoti*	6	Southern
Bassian	SCINCIDAE	*Lerista bougainvillii*	18	Northern
Bassian/Eyrean	AGAMIDAE	*Amphibolurus nobbi*	13	Northern
Bassian/Eyrean	ELAPIDAE	*Demansia psammophis*	9	Northern
Bassian/Eyrean	ELAPIDAE	*Pseudonaja textilis*	7	
Bassian/Eyrean	ELAPIDAE	*Simoselaps australis*	1	
Bassian/Eyrean	ELAPIDAE	*Suta nigriceps*	0	Northern
Bassian/Eyrean	ELAPIDAE	*Suta spectabilis*	1	Northern
Bassian/Eyrean	ELAPIDAE	*Vermicella annulata*	0	Central
Bassian/Eyrean	GEKKONIDAE Diplodactylinae	*Diplodactylus vittatus*	50	Northern
Bassian/Eyrean	GEKKONIDAE Gekkoninae	*Christinus marmoratus*	15	Northern
Bassian/Eyrean	GEKKONIDAE Gekkoninae	*Gehyra 2n=44*	42	Northern
Bassian/Eyrean	GEKKONIDAE Pygopodinae	*Aprasia pseudopulchella*	4	Northern
Bassian/Eyrean	GEKKONIDAE Pygopodinae	*Delma molleri*	18	Central
Bassian/Eyrean	GEKKONIDAE Pygopodinae	*Pygopus lepidopodus*	4	Northern
Bassian/Eyrean	SCINCIDAE	*Cryptoblepharus plagiocephalus*	75	
Bassian/Eyrean	SCINCIDAE	*Ctenotus orientalis*	15	
Bassian/Eyrean	SCINCIDAE	*Egernia multiscutata*	0	Central
Bassian/Eyrean	SCINCIDAE	*Hemiergis millewae*	1	Northern
Bassian/Eyrean	SCINCIDAE	*Lerista dorsalis*	2	
Bassian/Eyrean	SCINCIDAE	*Lerista edwardsae*	3	
Bassian/Eyrean	SCINCIDAE	*Lerista punctatovittata*	17	Northern
Bassian/Eyrean	SCINCIDAE	*Morethia obscura*	1	
Bassian/Eyrean	SCINCIDAE	*Tiliqua scincoides*	0	
Bassian/Eyrean	TYPHLOPIDAE	*Ramphotyphlops australis*	2	
Bassian/Eyrean	VARANIDAE	*Varanus varius*	0	Southern
Endemic to the ranges	AGAMIDAE	*Ctenophorus vadnappa*	39	
Endemic to the ranges	GEKKONIDAE Gekkoninae	*Gehyra ?ornata*	0	
Eyrean	AGAMIDAE	*Ctenophorus nuchalis*	2	
Eyrean	AGAMIDAE	*Ctenophorus pictus*	4	
Eyrean	AGAMIDAE	*Diporiphora winneckei*	0	
Eyrean	AGAMIDAE	*Tympanocryptis intima*	4	
Eyrean	AGAMIDAE	*Tympanocryptis tetraporophora*	34	
Eyrean	BOIDAE	*Antaresia stimsoni*	0	
Eyrean	ELAPIDAE	*Demansia reticulata*	1	
Eyrean	ELAPIDAE	*Furina diadema*	4	
Eyrean	ELAPIDAE	*Pseudonaja modesta*	0	
Eyrean	ELAPIDAE	*Pseudonaja nuchalis*	1	
Eyrean	ELAPIDAE	*Suta suta*	4	
Eyrean	GEKKONIDAE Diplodactylinae	*Diplodactylus byrnei*	20	
Eyrean	GEKKONIDAE Diplodactylinae	*Diplodactylus stenodactylus*	4	
Eyrean	GEKKONIDAE Diplodactylinae	*Diplodactylus tessellatus*	12	
Eyrean	GEKKONIDAE Diplodactylinae	*Nephrurus levis*	1	
Eyrean	GEKKONIDAE Diplodactylinae	*Rhynchoedura ornata*	16	
Eyrean	GEKKONIDAE Diplodactylinae	*Strophurus ciliaris*	1	
Eyrean	GEKKONIDAE Gekkoninae	*Gehyra purpurascens*	8	
Eyrean	GEKKONIDAE Pygopodinae	*Delma tincta*	0	
Eyrean	GEKKONIDAE Pygopodinae	*Pygopus "schraderi"*	1	
Eyrean	GEKKONIDAE Pygopodinae	*Pygopus nigriceps*	1	
Eyrean	SCINCIDAE	*Ctenotus leonhardii*	3	
Eyrean	SCINCIDAE	*Ctenotus olympicus*	26	
Eyrean	SCINCIDAE	*Ctenotus pantherinus*	4	
Eyrean	SCINCIDAE	*Ctenotus regius*	15	
Eyrean	SCINCIDAE	*Ctenotus saxatilis*	6	
Eyrean	SCINCIDAE	*Ctenotus strauchii*	13	
Eyrean	SCINCIDAE	*Cyclodomorphus venustus*	1	
Eyrean	SCINCIDAE	*Egernia inornata*	1	
Eyrean	SCINCIDAE	*Egernia margaretae*	27	

Appendix 26. (continued)

Bio-climatic Region	Family	Species	# survey sites	Northern Limit Flinders Region
Eyrean	SCINCIDAE	*Egernia stokesii*	14	
Eyrean	SCINCIDAE	*Eremiascincus fasciolatus*	0	
Eyrean	SCINCIDAE	*Lerista desertorum*	2	
Eyrean	SCINCIDAE	*Lerista labialis*	5	
Eyrean	SCINCIDAE	*Lerista muelleri*	35	
Eyrean	SCINCIDAE	*Lerista xanthura*	0	
Eyrean	VARANIDAE	*Varanus giganteus*	0	
General	AGAMIDAE	*Ctenophorus decresii*	47	Northern
General	AGAMIDAE	*Ctenophorus fordi*	1	
General	AGAMIDAE	*Pogona vitticeps*	27	
General	BOIDAE	*Morelia spilota*	0	
General	ELAPIDAE	*Pseudechis australis*	2	
General	ELAPIDAE	*Simoselaps fasciolatus*	0	
General	GEKKONIDAE Diplodactylinae	*Diplodactylus damaeus*	1	
General	GEKKONIDAE Diplodactylinae	*Nephrurus milii*	24	
General	GEKKONIDAE Diplodactylinae	*Oedura marmorata*	4	Northern
General	GEKKONIDAE Diplodactylinae	*Strophurus elderi*	6	
General	GEKKONIDAE Diplodactylinae	*Strophurus intermedius*	17	
General	GEKKONIDAE Gekkoninae	*Gehyra variegata*	96	
General	GEKKONIDAE Gekkoninae	*Heteronotia binoei*	87	
General	GEKKONIDAE Pygopodinae	*Delma australis*	12	
General	GEKKONIDAE Pygopodinae	*Delma butleri*	12	
General	GEKKONIDAE Pygopodinae	*Lialis burtonis*	10	
General	SCINCIDAE	*Ctenotus robustus*	80	
General	SCINCIDAE	*Ctenotus schomburgkii*	3	
General	SCINCIDAE	*Ctenotus taeniatus*	3	
General	SCINCIDAE	*Cyclodomorphus melanops*	9	
General	SCINCIDAE	*Egernia striolata*	33	Northern
General	SCINCIDAE	*Eremiascincus richardsonii*	17	
General	SCINCIDAE	*Menetia greyii*	38	
General	SCINCIDAE	*Morethia adelaidensis*	0	
General	SCINCIDAE	*Morethia boulengeri*	123	
General	SCINCIDAE	*Tiliqua rugosa*	71	
General	TYPHLOPIDAE	*Ramphotyphlops bituberculatus*	4	
General	VARANIDAE	*Varanus gouldii*	13	

See Vegetation Chapter page 62 for explanation of bio-climatic regions.

Flinders regions are geographical based on latitude. South of 32° S is considered the Southern Flinders (South of Hawker), between 32° S to 31° S is considered the Central Flinders (Hawker to Blinman), and north of 32° S is considered the Northern Flinders (North of Blinman).

APPENDIX 27. Sites frequencies for reptile species in each assemblages determined using PATN.

		Reptile Assemblages from PATN											
SPECIES	**Common name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Amphibolurus nobbi	Nobbi Dragon	6	1	6									
Aprasia pseudopulchella	Flinders Worm Lizard	3				1							
Cryptoblepharus plagiocephalus	Desert Wall Skink	22	8	34		3		1	1		5		1
Ctenophorus decresii	Tawny Dragon	37	7	4		2						1	
Ctenophorus fordi	Mallee Dragon							5	1				
Ctenophorus nuchalis	Central Netted Dragon						2	1					
Ctenophorus pictus	Painted Dragon			1			1	5					
Ctenophorus vadnappa	Red-barred Dragon	6		24							7	1	
Ctenotus brooksi	Sandhill Ctenotus						2	3					
Ctenotus leonhardii	Common Desert Ctenotus	1		2				1	1				1
Ctenotus orientalis	Spotted Ctenotus	8	3	1		2					1		
Ctenotus pantherinus	Leopard Skink	1		3									
Ctenotus regius	Eastern Desert Ctenotus	2	1	7			2	7	2				
Ctenotus robustus	Eastern Striped Skink	43	2	20		3	1		7	1		3	
Ctenotus saxatilis	Centralian Striped Skink	2		3								1	
Ctenotus schomburgkii	Sandplain Ctenotus	1		3				8					1
Ctenotus sp.'saltbush'	Saltbush Ctenotus	4		9					6		2		5
Ctenotus strauchii	Short-legged Ctenotus						1	2	1				13
Cyclodomorphus melanops	Spinifex Slender Bluetongue	5		3						1			
Cyclodomorphus venustus	Saltbush Slender Bluetongue		1										
Delma australis	Barred Snake-lizard	11	1		1								
Delma butleri	Spinifex Snake-lizard	8		3					2				
Delma molleri	Adelaide Snake-lizard	9	1		2	6							
Demansia psammophis	Yellow-faced Whipsnake	3		1		2					1		1
Demansia reticulata	Desert Whipsnake	1											
Diplodactylus byrnei	Pink-blotched Gecko		1	2			3	1	9				13
Diplodactylus damaeus	Beaded Gecko							4					
Diplodactylus stenodactylus	Sandplain Gecko						3				1		
Diplodactylus tessellatus	Tessellated Gecko	3	1	2					1				7
Diplodactylus vittatus	Eastern Stone Gecko	18	8	25		2			1				
Egernia inornata	Desert Skink										1		
Egernia margaretae	Masked Rock Skink	18	1	6									
Egernia stokesii	Gidgee Skink	4	1	3							2	4	
Egernia striolata	Eastern Tree Skink	18	2	6		5	1				1		
Egernia whitii	White's Skink				1								
Eremiascincus richardsonii	Broad-banded Sandswimmer	1		10		1	2		1		2		1
Furina diadema	Red-naped Snake	1		1	1	1							
Gehyra purpurascens	Purple Dtella			2			2					2	
Gehyra sp.'2n=44'	Southern Rock Dtella	21	9	6		4					3		
Gehyra variegata	Tree Dtella	19		60		1	1	2	9	1	4		4
Hemiergis decresiensis	Three-toed Earless Skink	4		3		11							
Hemiergis millewae	Rusty Earless Skink	2											
Heteronotia binoei	Bynoe's Gecko	26	6	58		1	1	1	2				2
Lampropholis guichenoti	Garden Skink					6							
Lerista bougainvillii	Bougainville's Skink	5				12							
Lerista desertorum	Great Desert Slider			2									
Lerista dorsalis	Southern Four-toed Slider		1	2									
Lerista edwardsae	Myall Slider	1				2							
Lerista labialis	Eastern Two-toed Slider			2			2	1					1
Lerista muelleri	Dwarf Three-toed Slider	7		25						2	2		2
Lerista punctatovittata	Spotted Slider	3	2	13						2	1		
Lialis burtonis	Burton's Legless Lizard	8	1					1	1				
Menetia greyii	Dwarf Skink	10	16	8	1	4		3			2		6
Morethia boulengeri	Common Snake-eye	51	6	57		9		1	2		1		
Morethia obscura	Mallee Snake-eye		1			1							
Nephrurus levis	Smooth Knob-tailed Gecko							1					
Nephrurus milii	Barking Gecko	13	1	10					1				2
Oedura marmorata	Marbled Velvet Gecko			4									
Phyllodactylus marmoratus	Marbled Gecko	1		6		7							
Pogona vitticeps	Central Bearded Dragon	3	2	11		1		1	10		2		1
Pseudechis australis	Mulga Snake	1		2									
Pseudonaja nuchalis	Western Brown Snake			1					1	1			
Pseudonaja textilis	Eastern Brown Snake	1	3		2	3							
Pygopus lepidopodus	Common Scaly-foot	2				2							
Pygopus nigriceps	Black-headed Scaly-foot								1				
Ramphotyphlops australis	Southern Blind Snake	2				1							
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake	2	1					1			1		
Rhynchoedura ornata	Beaked Gecko			7			5				4		3
Simoselaps australis	Coral Snake	1											
Strophurus ciliaris	Northern Spiny-tailed Gecko			1				2					
Strophurus elderi	Jewelled Gecko	3		2						1			
Strophurus intermedius	Southern Spiny-tailed Gecko	12	1	1		2			1				

Appendix 27. (continued)

		Reptile Assemblages from PATN											
SPECIES	**Common name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Suta spectabilis	Mallee Black-headed Snake			1		1							
Suta suta	Curl Snake			1		1	1		1				
Tiliqua rugosa	Sleepy Lizard	21	13	24		1		6	16		3	1	3
Tympanocryptis intima	Smooth-snouted Earless Dragon			1			2						1
Tympanocryptis tetraporophora	Eyrean Earless Dragon	2		9			1		5		4		16
Varanus gouldii	Sand Goanna	3	1	3			1	4	1		1	1	1

APPENDIX 28. Sites frequencies for reptile species in each vegetation structural groups.

	# sites	3	1	10	42	28	19	7	30	48	38
SPECIES	**Common name**	**Grassland**	**Herbland**	**Hummock grassland**	**Low shrubland**	**Shrubland**	**Tall shrubland**	**Low mallee**	**Mallee**	**Low woodland**	**Woodland**
Amphibolurus nobbi	Nobbi Dragon								8	2	1
Aprasia pseudopulchella	Flinders Worm Lizard			1						1	1
Cryptoblepharus plagiocephalus	Desert Wall Skink	1			6	4	4	1	11	19	23
Ctenophorus decresii	Tawny Dragon			3	4	6	5	4	12	9	8
Ctenophorus fordi	Mallee Dragon					2	2		1		
Ctenophorus nuchalis	Central Netted Dragon				1	1					
Ctenophorus pictus	Painted Dragon				2	4	1		1		
Ctenophorus vadnappa	Red-barred Dragon		1	2	6	5	2	1	5	7	7
Ctenotus brooksi	Sandhill Ctenotus				3	1	1				
Ctenotus leonhardii	Common Desert Ctenotus				1	3				1	
Ctenotus orientalis	Spotted Ctenotus			1	2	2	2	2	3	2	1
Ctenotus pantherinus	Leopard Skink			1				1			1
Ctenotus regius	Eastern Desert Ctenotus			1	4	2	3	1	1	3	2
Ctenotus robustus	Eastern Striped Skink			9	6	11	9	4	12	17	11
Ctenotus saxatilis	Centralian Striped Skink			2				1		1	2
Ctenotus schomburgkii	Sandplain Ctenotus				2	5	1		1	2	1
Ctenotus sp.'saltbush'	Saltbush Ctenotus				15	4	1		2		1
Ctenotus strauchii	Short-legged Ctenotus				10	3				1	
Cyclodomorphus melanops	Spinifex Slender Bluetongue			1		2		1	3	1	1
Cyclodomorphus venustus	Saltbush Slender Bluetongue						1				
Delma australis	Barred Snake-lizard					4		3	1	3	1
Delma butleri	Spinifex Snake-lizard			3		3	1	2	2	1	1
Delma molleri	Adelaide Snake-lizard			2		1	3	2	1	4	4
Demansia psammophis	Yellow-faced Whipsnake	1			2	2					3
Demansia reticulata	Desert Whipsnake								1		
Diplodactylus byrnei	Pink-blotched Gecko				21	3	1			3	
Diplodactylus damaeus	Beaded Gecko					1	2				
Diplodactylus stenodactylus	Sandplain Gecko				1	2	1				
Diplodactylus tessellatus	Tessellated Gecko	1			7				1		1
Diplodactylus vittatus	Eastern Stone Gecko	1	1	2	7	3	7	3	10	12	5
Egernia inornata	Desert Skink					1					
Egernia margaretae	Masked Rock Skink			3		2	1	3	4	3	11
Egernia stokesii	Gidgee Skink			2	4	4	1		2	1	1
Egernia striolata	Eastern Tree Skink					3	2	2	3	9	13
Egernia whitii	White's Skink										
Eremiascincus richardsonii	Broad-banded Sandswimmer	1		1	5	1	2		1	5	3
Furina diadema	Red-naped Snake					1	1		1	1	
Gehyra purpurascens	Purple Dtella				1	2	1			2	1
Gehyra sp.'2n=44'	Southern Rock Dtella				4	5	5	4	8	6	9
Gehyra variegata	Tree Dtella	1	1	4	17	7	12	1	13	23	12
Hemiergis decresiensis	Three-toed Earless Skink				1		2	2		7	7
Hemiergis millewae	Rusty Earless Skink					1			1		
Heteronotia binoei	Bynoe's Gecko		1	3	11	9	9	3	10	21	21
Lampropholis guichenoti	Garden Skink									3	3
Lerista bougainvillii	Bougainville's Skink					1	1	1	1	6	7
Lerista desertorum	Great Desert Slider								1		1
Lerista dorsalis	Southern Four-toed Slider								2	1	
Lerista edwardsae	Myall Slider				1	1				1	
Lerista labialis	Eastern Two-toed Slider				1	3				1	
Lerista muelleri	Dwarf Three-toed Slider		1		3	3	6	3	6	7	5
Lerista punctatovittata	Spotted Slider				2		1	2	3	9	2
Lialis burtonis	Burton's Legless Lizard			1		1	1	2	3	1	1
Menetia greyii	Dwarf Skink			3	4	8	5	1	7	10	5
Morethia boulengeri	Common Snake-eye	1		5	4	12	10	5	23	29	30
Morethia obscura	Mallee Snake-eye								1	1	
Nephrurus levis	Smooth Knob-tailed Gecko						1				
Nephrurus milii	Barking Gecko			1	8	2	2	2	5	1	4
Oedura marmorata	Marbled Velvet Gecko									4	
Phyllodactylus marmoratus	Marbled Gecko	1							1	7	5
Pogona vitticeps	Central Bearded Dragon	1	1	1	8	5	1		3	9	3
Pseudechis australis	Mulga Snake								1		2
Pseudonaja nuchalis	Western Brown Snake					1				1	
Pseudonaja textilis	Eastern Brown Snake				1		1			4	2
Pygopus cf schraderi	Hooded Scaly-foot					1					
Pygopus lepidopodus	Common Scaly-foot				1					2	1

Appendix 28. (continued)

SPECIES	Common name	Grassland	Herbland	Hummock grassland	Low shrubland	Shrubland	Tall shrubland	Low mallee	Mallee	Low woodland	Woodland
Pygopus nigriceps	Black-headed Scaly-foot				1						
Ramphotyphlops australis	Southern Blind Snake									2	1
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake			1		1				1	
Rhynchoedura ornata	Beaked Gecko				8	3	3				2
Simoselaps australis	Coral Snake									1	
Strophurus ciliaris	Northern Spiny-tailed Gecko					1					
Strophurus elderi	Jewelled Gecko			2				1	2		1
Strophurus intermedius	Southern Spiny-tailed Gecko			1	3	3	4	3	1	1	1
Suta spectabilis	Mallee Black-headed Snake				1						1
Suta suta	Curl Snake				1		1			2	
Tiliqua rugosa	Sleepy Lizard	1	1	4	17	18	6	2	9	12	12
Tympanocryptis intima	Smooth-snouted Earless Dragon				1	1					
Tympanocryptis tetraporophora	Eyrean Earless Dragon	3	1		22	2	3			2	1
Varanus gouldii	Sand Goanna				5	3	1	2	3	1	
	Species per group	11	8	26	44	53	44	30	44	54	49

APPENDIX 29. Sites frequencies for reptile species in each land unit category.

	# sites	12	12	4	10	107	5	6	19	8	1	7	1	10	22	1	16	2	1	1	4
SPECIES	**Common name**	**hill crest**	**ridge**	**rock outcrop (on hill)**	**hill footslope**	**hill slope**	**gorge**	**gully**	**stream channel**	**drainage depression**	**swamp**	**flood out**	**open depression**	**flat**	**plain (incl undulating plain)**	**rock outcrop (on plain)**	**stony plain**	**clay plain**	**sandy plain**	**dune slope**	**dune/consolidated dune**
Amphibolurus nobbi	Nobbi Dragon				2	6	1	2					1				1				
Aprasia pseudopulchella	Flinders Worm Lizard					4															
Cryptoblepharus plagiocephalus	Desert Wall Skink	2	1		3	31	3	4	17	4					3	1	4			1	1
Ctenophorus decresii	Tawny Dragon	3	8		1	32	1	2	2				1				1				
Ctenophorus fordi	Mallee Dragon													2	1					1	4
Ctenophorus nuchalis	Central Netted Dragon														1		2				
Ctenophorus pictus	Painted Dragon					1		1				1		2	1				1		4
Ctenophorus vadnappa	Red-barred Dragon	2		2	2	22	2		5						1	1	1	1			
Ctenotus brooksi	Sandhill Ctenotus					1								2	1		1				1
Ctenotus leonhardii	Common Desert Ctenotus					1				1		2		2	2						
Ctenotus orientalis	Spotted Ctenotus		2			12											1				
Ctenotus pantherinus	Leopard Skink	1		1						1											1
Ctenotus regius	Eastern Desert Ctenotus			1		5			3	2		2		6	3					1	4
Ctenotus robustus	Eastern Striped Skink	6	6		5	44	4	2	8	1	1	2		2			1				1
Ctenotus saxatilis	Centralian Striped Skink	1	1	1		1	1		1												
Ctenotus schomburgkii	Sandplain Ctenotus					2						2		8	4					1	2
Ctenotus sp.'saltbush'	Saltbush Ctenotus	3				9			1	2		1			5		3	2			
Ctenotus strauchii	Short-legged Ctenotus	1				1				2				4	8		4			1	
Cyclodomorphus melanops	Spinifex Slender Bluetongue	1			1	7															
Cyclodomorphus venustus	Saltbush Slender Bluetongue		1																		
Delma australis	Barred Snake-lizard		1		2	7			1			1									1
Delma butleri	Spinifex Snake-lizard	2			1	8								2							1
Delma molleri	Adelaide Snake-lizard	1	3		3	11															
Demansia psammophis	Yellow-faced Whipsnake					4		2	1						1		1				
Demansia reticulata	Desert Whipsnake					1															
Diplodactylus byrnei	Pink-blotched Gecko	1				9				1		2		6	7		7				
Diplodactylus damaeus	Beaded Gecko											1								1	2
Diplodactylus stenodactylus	Sandplain Gecko					1						1					2				
Diplodactylus tessellatus	Tessellated Gecko								1	1			1	4	3		5	1			
Diplodactylus vittatus	Eastern Stone Gecko	4	3		5	34		1	1						6		1				
Egernia inornata	Desert Skink																1				
Egernia margaretae	Masked Rock Skink	1	3	2		12	3	1	4												
Egernia stokesii	Gidgee Skink	1		1	2	6	2		2							1					
Egernia striolata	Eastern Tree Skink		6		1	17	3	3	2						2						
Egernia whitii	White's Skink				1																
Eremiascincus richardsonii	Broad-banded Sandswimmer			1		8	1		2	1		1			1		3				
Furina diadema	Red-naped Snake					3															
Gehyra purpurascens	Purple Dtella					5			1			1					1				
Gehyra sp.'2n=44'	Southern Rock Dtella	2	6		2	24	2	2	1						2		3				
Gehyra variegata	Tree Dtella	6	7	3	5	47	1	4	11	5		2		4	6		4	1		1	2
Hemiergis decresiensis	Three-toed Earless Skink	1	4			12			1						1						
Hemiergis millewae	Rusty Earless Skink					2															
Heteronotia binoei	Bynoe's Gecko	5	6	3	5	44	4	1	16	5	1	3			4		2				
Lampropholis guichenoti	Garden Skink		2			3		1													
Lerista bougainvillii	Bougainville's Skink	1	3		1	7	2	1	1										1		
Lerista desertorum	Great Desert Slider							1	1												
Lerista dorsalis	Southern Four-toed Slider					3															
Lerista edwardsae	Myall Slider				1										1						
Lerista labialis	Eastern Two-toed Slider									3					1		2				2
Lerista muelleri	Dwarf Three-toed Slider	1		1	3	22	1		4						2		3				1

Appendix 29. (continued)

SPECIES	Common name	hill crest	ridge	rock outcrop (on hill)	hill footslope	hill slope	gorge	gully	stream channel	drainage depression	swamp	flood out	open depression	flat	plain (incl undulating plain)	rock outcrop (on plain)	stony plain	clay plain	sandy plain	dune slope	dune/consolidated dune
Lerista punctatovittata	Spotted Slider				4	7	1		4	1					2			1			1
Lialis burtonis	Burton's Legless Lizard		2		1	5	1								1		1				
Menetia greyii	Dwarf Skink	1	6		3	18	1	1	3	3		2		2	9		2			1	
Morethia boulengeri	Common Snake-eye	6	8	2	7	66	3	6	15	3	1	2	1	4	5		3				1
Morethia obscura	Mallee Snake-eye					2															
Nephrurus levis	Smooth Knob-tailed Gecko																				1
Nephrurus milii	Barking Gecko	3	1		1	13		2	3						2		3				
Oedura marmorata	Marbled Velvet Gecko					4															
Phyllodactylus marmoratus	Marbled Gecko		2			11	1		1												
Pogona vitticeps	Central Bearded Dragon	3	1		1	10	1		4	3		3		2	1		3	2			3
Pseudechis australis	Mulga Snake					1	1		1												
Pseudonaja nuchalis	Western Brown Snake									1		2			1						
Pseudonaja textilis	Eastern Brown Snake		1		3	4									1						
Pygopus cf schraderi	Hooded Scaly-foot																1				
Pygopus lepidopodus	Common Scaly-foot					1	1								1						
Pygopus nigriceps	Black-headed Scaly-foot														1						
Ramphotyphlops australis	Southern Blind Snake					1									1						
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake				1	1									2		1				
Rhynchoedura ornata	Beaked Gecko	1		1	1	2			2	1		2			2		5	2			
Simoselaps australis	Coral Snake					1															
Strophurus ciliaris	Northern Spiny-tailed Gecko									1										1	2
Strophurus elderi	Jewelled Gecko	1	1	1		2															1
Strophurus intermedius	Southern Spiny-tailed Gecko	1	1			10	1			1					1						1
Suta spectabilis	Mallee Black-headed Snake		1												1						
Suta suta	Curl Snake								1	1		1									
Tiliqua rugosa	Sleepy Lizard	4	4		7	34	1	2	4	6	1	4		8	10		6				5
Tympanocryptis intima	Smooth-snouted Earless Dragon					1				1					1		1				
Tympanocryptis tetraporophora	Eyrean Earless Dragon	1				12				2		3		4	9		11	2			
Varanus gouldii	Sand Goanna					9								4	2		1				3
	Species per group	30	28	13	29	61	25	19	33	25	4	22	4	18	43	3	35	8	2	9	23

Reptile species site frequency by vegetation mapping groups. For map group descriptions refer to Table in reptile chapter.

	# sites	2	23	7	5	4	29	11	6	2	10	14	14	15	4	7	2	1	3	16	10	8	4	3	2	2	4	3	6	7	3	2	3	2	4	2	1	1	1	1
		Vegetation Mapping Group																																						
SPECIES	**Common name**	**2**	**3**	**4**	**5**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**s3**	**s4**	**s6**	**s7**	**s9**	**s11**	**s15**	**s16**	**s17**	**s18**	**s21**	**s24**	**s25**	**s32**	**s37**	**s43**	**s49**	**s53**
Tiliqua rugosa	Sleepy Lizard	2	5	1	3	5	15	3	6	1	2	4	8	6		2	1	1		5	6	2	2				1	2	2	1			2	2	1		1		1	1
Diplodactylus byrnei	Pink-blotched Gecko	1		2	2		14	6	2			3								1																				1
Tympanocryptis tetraporophora	Eyrean Earless Dragon	1		4	2		12	11		1	2	2								1	1																			
Gehyra variegata	Tree Dtella		13	3	1		11	6	2		8	7	2	11	2			1	3	9	5	3	1	2		1	2	1	4	1		1	1	1	1				1	
Ctenotus sp.'saltbush'	Saltbush Ctenotus	1	1		2		11	3			2	2	1	2																										
Heteronotia binoei	Bynoe's Gecko		20	2	1		8	3	1	2	6	5	8	6		3			2	7	6	3	2	2			1	2	1				1	1			1	1		
Pogona vitticeps	Central Bearded Dragon		4	1	1		8	2	2		1	1		2					2	2		2	1				1			1			1		1		1			
Nephrurus milii	Barking Gecko		4				8	1		1		1	2	1	2	2					2	1													1			1		
Ctenotus strauchii	Short-legged Ctenotus			2			8	5	3			1																												
Diplodactylus vittatus	Eastern Stone Gecko		1				6	1	1	2	2	3	1	6	1	5	1	1	2	7	4	3	1		2			1		1					1			1		1
Rhynchoedura ornata	Beaked Gecko		1	2	2		5	1	2		2	3																												
Ctenotus robustus	Eastern Striped Skink		11	1			4	1		1	4	4	10	6	3	3		1		1	2	7	3		2	2	1	3	3	3		1	2	1	1			1		
Cryptoblepharus plagiocephalus	Desert Wall Skink		19				4	1			3	5	2	7			2	1	3	10	5		1		1			1	1	2			3	1	1		1		1	
Ctenophorus vadnappa	Red-barred Dragon		6		1		4	1	1		2	5	1	3	2	1				5	4	2																		
Diplodactylus tessellatus	Tessellated Gecko	1	1	2			4	7						1																										
Morethia boulengeri	Common Snake-eye		19	2			3	2	1	1	4	6	7	15	3	4	2	1	3	10	4	5	2	2	2	2	4	3	4	6	3	1	2	2	2		1	1	1	
Egernia stokesii	Gidgee Skink		2				3				1	2	1			1						1				1		1					1							
Lerista muelleri	Dwarf Three-toed Slider		3				3	2		1	5	4	1	4	3	1			1	6	2							1					1							
Eremiascincus richardsonii	Broad-banded Sandswimmer		3				3	1			3			1					1	3	1	1			1															
Ctenotus regius	Eastern Desert Ctenotus		4	3		1	3		3		2	2	1	2						2		1								1										
Ctenotus schomburgkii	Sandplain Ctenotus			3		3	3		2		1	3								2			1																	
Strophurus intermedius	Southern Spiny-tailed Gecko		1				3					1	4			3		1				1			2													1		
Varanus gouldii	Sand Goanna			2		3	3	1	2			2		2		2	1			1																				
Ctenophorus decresii	Tawny Dragon		3				2			1		1	8	4		6		1			1	3	3	2		2		1	1	3	2		2	1	2		1	1		
Ctenotus leonhardii	Common Desert Ctenotus			5			2																			1														
Menetia greyii	Dwarf Skink	1	3	4	1	1	2	1	2		2	1	5	2		2	2	1		1	1	2	1				2	1	3	2		1		1	1	1	1			1
Gehyra sp.'2n=44'	Southern Rock Dtella		2		1		2			1		2	2	6	1	5	1	1		2	6		2					3	1	1			2					1		1
Pseudonaja nuchalis	Western Brown Snake		1				2													1																				
Ctenophorus pictus	Painted Dragon					3	1		2		1	1		1																										
Ctenotus orientalis	Spotted Ctenotus						1				1		1	3		3						1	3				1	1												
Diplodactylus stenodactylus	Sandplain Gecko				1		1		1		1																													
Gehyra purpurascens	Purple Dtella		1				1		1		1	1								1																				
Lerista punctatovittata	Spotted Slider		6		1		1		1		1		1	2	2				2	3																				1

Appendix 30. (continued)

SPECIES	Common name	2	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	s3	s4	s6	s7	s9	s11	s15	s16	s17	s18	s21	s24	s25	s32	s37	s43	s49	s53
Suta suta	Curl Snake		1				1				1														1															
Ctenotus brooksi	Sandhill Ctenotus			3		2	1																																	
Demansia psammophis	Yellow-faced Whipsnake		2		1		1	1					1														1				1									
Hemiergis decresiensis	Three-toed Earless Skink						1									1							1	1	1		2	1	2	5	1		1					1		
Lerista edwardsae	Myall Slider						1																		1			1												
Pseudonaja textilis	Eastern Brown Snake						1																				1			3				1		2				1
Pygopus lepidopodus	Common Scaly-foot						1																		1					1			1							
Pygopus nigriceps	Black-headed Scaly-foot						1																																	
Suta spectabilis	Mallee Black-headed Snake						1																							1										
Tympanocryptis intima	Smooth-snouted Earless Dragon						1		1																															
Egernia striolata	Eastern Tree Skink		4										4			1			1	4	2			1	1	1	1	1		3	2	2	2		1					
Diplodactylus damaeus	Beaded Gecko					2					1	1																												
Amphibolurus nobbi	Nobbi Dragon		2											8	1					1	1																			
Aprasia pseudopulchella	Flinders Worm Lizard																					1					1		1	1										
Ctenophorus fordi	Mallee Dragon					3			2			1		2																										
Ctenophorus nuchalis	Central Netted Dragon			1					1			1																												
Ctenotus pantherinus	Leopard Skink			1									2									1																		
Ctenotus saxatilis	Centralian Striped Skink		2										3									1																		
Cyclodomorphus melanops	Spinifex Slender Bluetongue												6		3																									
Cyclodomorphus venustus	Saltbush Slender Bluetongue															1																								
Delma australis	Barred Snake-lizard		1		1								5		1								2					1		1						1				
Delma butleri	Spinifex Snake-lizard												6	2	2				1			1						1										1		
Delma molleri	Adelaide Snake-lizard															1						2	1		1		1	2	2	4				1		2		1		
Demansia reticulata	Desert Whipsnake													1																										
Egernia inornata	Desert Skink				1																																			
Egernia margaretae	Masked Rock Skink		7										8			3					1	2	1									1	1	1						
Egernia whitii	White's Skink																																			1				
Furina diadema	Red-naped Snake													1											1			1								1				
Hemiergis millewae	Rusty Earless Skink												1										1																	
Lampropholis guichenoti	Garden Skink																										1			3	2									
Lerista bougainvillii	Bougainville's Skink		1													1							1	1	1		2	1	1	3	2		2					1		
Lerista desertorum	Great Desert Slider		1											1																										
Lerista dorsalis	Southern Four-toed Slider													1						1																	1			
Lerista labialis	Eastern Two-toed Slider		1	2					5																															

Appendix 30. (continued)

SPECIES	Common name	2	3	4	5	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	s3	s4	s6	s7	s9	s11	s15	s16	s17	s18	s21	s24	s25	s32	s37	s43	s49	s53
Lialis burtonis	Burton's Legless Lizard		1									1	2	2	1							1							1					1				1		
Morethia obscura	Mallee Snake-eye																													1							1			
Nephrurus levis	Smooth Knob-tailed Gecko					1																																		
Oedura marmorata	Marbled Velvet Gecko																			4																				
Phyllodactylus marmoratus	Marbled Gecko																				1			3			2			3	1		2		1				1	
Pseudechis australis	Mulga Snake		2																				1																	
Pygopus cf schraderi	Hooded Scaly-foot																																							
Ramphotyphlops australis	Southern Blind Snake																			1					1				1											
Ramphotyphlops bituberculatus	Rough-nosed Blind Snake											2									1	1						1												
Simoselaps australis	Coral Snake																													1										
Strophurus ciliaris	Northern Spiny-tailed Gecko			1					2			1																												
Strophurus elderi	Jewelled Gecko												2		1							2												1						

APPENDIX 31. Fishes of the upper Broughton River (Hutt and Rocky Rivers inclusive).

NATIVE INLAND FISH OF THE UPPER BROUGHTON RIVER

Congolli	*Pseudaphritis urvilli****	BOVICHTHYIDAE
Western Carp Gudgeon	*Hypseleotris klunzingeri****	ELEOTRIDAE
Flathead Gudgeon	*Philypnodon grandiceps****	ELEOTRIDAE
Blue-spot Goby	*Pseudogobius olorum****	GOBIIDAE
Common Galaxias	*Galaxias maculatus****	GALAXIDAE

INTRODUCED FISH SPECIES FOUND IN THE UPPER BROUGHTON RIVER

Introduced Australian Fishes

Murray Cod	*Maccullochella peeli*	PERCICHTHYIDAE
Callop	*Macquaria ambigua*	PERCICHTHYIDAE
Silver Perch	*Bidyanus bidyanus*	TERAPONTIDAE

Introduced Exotic Fishes

Brown Trout	*Salmo trutta*	SALMONIDAE
Rainbow Trout	*Oncorhynchus mykiss*	SALMONIDAE
Redfin Perch	*Perca fluviatilis****	PERCIDAE
Goldfish	*Carassius auratus****	CYPRINIDAE
Mosquitofish	*Gambusia holbrooki****	POECILIIDAE

***** Indicates self-sustaining populations

APPENDIX 32. Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Latitude Zone.

Selected invertebrates species by Order and family and the Latitude zones in which they were recorded. -29^0 represents the most northerly sites and -33^0 the most southerly.

		# sites	**6**	**16**	**26**	**53**	**5**
			Latitude zone				
Order	**Family**	**Genus species**	**-33**	**-32**	**-31**	**-30**	**-29**
BLATTODEA	Blaberidae	*Calolampra aspera*	1				
BLATTODEA	Blaberidae	*Calolampra sp.*	2	16	2	9	
BLATTODEA	Blaberidae	*Calolampra sp.B*		4			
BLATTODEA	Blaberidae	*Gn sp.*		2			
BLATTODEA	Blaberidae	*Laxta sp.*	1				
BLATTODEA	Blattellidae	*Blatella sp1*			1		
BLATTODEA	Blattellidae	*Gn sp.*				1	
BLATTODEA	Blattidae	*Desmozosteria sp.*		2	4	12	
BLATTODEA	Blattidae	*Eppertia sp.*			1	2	
BLATTODEA	Blattidae	*Euzosteria sp.*	4	2		3	
BLATTODEA	Blattidae	*Gn sp.*				3	
BLATTODEA	Blattidae	*Megazosteria sp.*		2		1	
BLATTODEA	Blattidae	*Platyzosteria baltea*			1	3	
BLATTODEA	Blattidae	*Platyzosteria melana*			3		
BLATTODEA	Blattidae	*Platyzosteria sp.*		9	3	17	1
BLATTODEA	Blattidae	*Polyzosteria sp.*				2	
BLATTODEA	Blattidae	*Robshelfordia sp.*			1	1	
BLATTODEA	Blattidae	*Zonioploca sp.*		8	1	1	
COLEOPTERA	Bostrychidae	*Bostrychopsis jesuita*			1	1	
COLEOPTERA	Burprestidae	*Castiarina crenata*			1		
COLEOPTERA	Carabidae	*Anthropterus sp.*			1		
COLEOPTERA	Carabidae	*Carenum sp black*			1	2	
COLEOPTERA	Carabidae	*Carenum sp thin black*			1	1	
COLEOPTERA	Carabidae	*Conopterum sp.*				1	
COLEOPTERA	Carabidae	*Conopterum sp. green*			2		
COLEOPTERA	Carabidae	*Craspedophorus sp.*				26	
COLEOPTERA	Carabidae	*Euryscaphus sp.*				1	
COLEOPTERA	Carabidae	*Gigadema small*			3		
COLEOPTERA	Carabidae	*Gigadema sp.*				2	
COLEOPTERA	Carabidae	*Gnathaphanus pulcher*			6	7	
COLEOPTERA	Carabidae	*Gnathaphanus sp.*				2	
COLEOPTERA	Carabidae	*Megacephala cylindricus*				10	
COLEOPTERA	Carabidae	*Neocarenum sp.*				1	
COLEOPTERA	Carabidae	*Parroa sp.*			2		
COLEOPTERA	Carabidae	*Phorticosomus sp.*	1				
COLEOPTERA	Carabidae	*Pseudoceneus sp.*		1			
COLEOPTERA	Carabidae	*Rhytisternus sp.*				1	
COLEOPTERA	Carabidae	*Teropha sp.*		3		1	
COLEOPTERA	Chrysomelidae	*Aulacophora sp.*				2	
COLEOPTERA	Chrysomelidae	*Gn sp.*				1	
COLEOPTERA	COCCINELLIDAE	*Coccinella rapanda*				1	
COLEOPTERA	CURCULIONIDAE	*Acantholopus sp.*		6			
COLEOPTERA	CURCULIONIDAE	*Amycterinae nr P. calciformis*		8			
COLEOPTERA	CURCULIONIDAE	*Dialeptopus sp.*		2			
COLEOPTERA	CURCULIONIDAE	*Gn sp.*				1	
COLEOPTERA	CURCULIONIDAE	*Leptopinae gn sp.*		2			
COLEOPTERA	DYTISCIDAE	*Antiporus gilberti*				1	
COLEOPTERA	DYTISCIDAE	*Eretes australis*				2	
COLEOPTERA	DYTISCIDAE	*Nectenosoma dispar*				4	
COLEOPTERA	ELATERIDAE	*Gn sp.*			1		
COLEOPTERA	ELATERIDAE	*Paracalais suboculatus*				1	
COLEOPTERA	GARINIDAE	*Macrogyrus australis*				1	
COLEOPTERA	LYCIIDAE	*Metriorrhynchus sp.*				1	
COLEOPTERA	SCARABIDAE	*Blackburnium sp.*				1	
COLEOPTERA	SCARABIDAE	*Colpochila sp*				1	
COLEOPTERA	SCARABIDAE	*Heteronyx sp. near*	1	4		10	
COLEOPTERA	TENEBRIONIDAE	*Agasthenes sp.*		1			
COLEOPTERA	TENEBRIONIDAE	*Brises sp.*				1	
COLEOPTERA	TENEBRIONIDAE	*Chalcopteroides purpureus*			1		
COLEOPTERA	TENEBRIONIDAE	*Gn* sp.		4			
COLEOPTERA	TENEBRIONIDAE	*Helea castor*			3		
COLEOPTERA	TENEBRIONIDAE	*Hybrenia* sp.		11			

Appendix 32. (continued)

Order	Family	Genus species	-33	-32	-31	-30	-29
COLEOPTERA	TENEBRIONIDAE	*Saragus latus*		2			
DIPTERA	ASILIDAE	*Gn sp.*				1	
DIPTERA	CALLIPHORIDAE	*Calliphora dubia*	6	2	5	3	
DIPTERA	CULICIDAE	*Aedes alternans*				1	
DIPTERA	MUSCIDAE	*Gn sp.*			1		
DIPTERA	PYRGOTIDAE	*Gn sp.*				3	
DIPTERA	SYRPHIDAE	*Eristalis punctulatus*				1	
DIPTERA	THEREVIDAE	*Ananbarhynchus sp.*				2	
DIPTERA	THEREVIDAE	*Gn sp.*		2			
HEMIPTERA	Cicadidae	*Gn sp.*				1	
HEMIPTERA	Cicadidae	*Melampsalta sp.*				6	
HEMIPTERA	Fulgoridae	*Eurystheus sp.*				4	
HEMIPTERA	Lygaeidae	*Dieuches scutellatus*				1	
HEMIPTERA	Lygaeidae	*Dieuches sp.*		2			
HEMIPTERA	Lygaeidae	*Leptocoris sp.*				1	
HEMIPTERA	Lygaeidae	*Udeocoris sp.*				1	
HEMIPTERA	NEPIDAE	*Laccotrephes tristis*				1	
HEMIPTERA	Notonectidae	*Anisops sp.*				13	
HEMIPTERA	PENTATOMIDAE	*Boocoris rufiformis*					2
HEMIPTERA	PENTATOMIDAE	*Choerocoris paganus*				1	1
HEMIPTERA	PENTATOMIDAE	*Choerocoris variegatus*				1	
HEMIPTERA	PENTATOMIDAE	*Kapunda troughtoni*				3	1
HEMIPTERA	PENTATOMIDAE	*Oechalia schellenbergi*				1	
HEMIPTERA	PENTATOMIDAE	*Poecilometis borealis*				2	
HEMIPTERA	PENTATOMIDAE	*Poecilometis patruelis*				1	
HEMIPTERA	Reduvidae	*Agylla nigrecans*		2		1	
HEMIPTERA	Reduvidae	*Coranus sp.*				1	
HEMIPTERA	Reduvidae	*Coranus sp. Near*				4	
HEMIPTERA	Reduvidae	*Ectomocoris truculens*				1	
HEMIPTERA	Reduvidae	*Horcinia spA*				2	
HEMIPTERA	Reduvidae	*Oncocephalus sp.*				2	
HYMENOPTERA	APIDAE	*Apis mellifera*				1	
HYMENOPTERA	BRACONIDAE	*Gn sp.*				1	
HYMENOPTERA	FORMICIDAE	*Camponotus consibrinus*				1	
HYMENOPTERA	Ichneumonidae	*Netelia sp.*				5	
HYMENOPTERA	POMPILIDAE	*Gn sp.*				1	
HYMENOPTERA	SCOLIIDAE	*Scolia soror*			1		
LEPIDOPTERA	NYMPHALIDAE	*Danaus chrysippus*				1	
MANTODEA	Amorphoscellida	*Cliomantis dispar*					1
MANTODEA	Amorphoscellida	*Paraoxypilinae Gn sp*				1	
MANTODEA	Mantidae	*Archimantis sp.*					1
MANTODEA	Mantidae	*Coenomantis sp.*				1	
MANTODEA	Mantidae	*Sphodropoda sp.*			1		
NEUROPTERA	Chrysopidae	*Chrysopa sp.*				5	
NEUROPTERA	ITHONIDAE	*Ithone sp.*			7		
NEUROPTERA	Myrmeleontidae	*Glenoleon roseipennis*				1	
ODONATA	LESTIDAE	*Austrolestes cingula*				1	
ORTHOPTERA	ACRIDIDAE	*Acridinae Gn sp.*			3	6	1
ORTHOPTERA	ACRIDIDAE	*Apotropis sp.*				1	
ORTHOPTERA	ACRIDIDAE	*Austacris sp.*					1
ORTHOPTERA	ACRIDIDAE	*Beplessia sp.*					2
ORTHOPTERA	ACRIDIDAE	*Buforania sp.*			3	2	2
ORTHOPTERA	ACRIDIDAE	*Catantopinae Gn sp.*			2	1	1
ORTHOPTERA	ACRIDIDAE	*Chortoicetes sp.*				4	
ORTHOPTERA	ACRIDIDAE	*Coryphistes sp.*	1	2		5	2
ORTHOPTERA	ACRIDIDAE	*Ecphantus quadrilobus*				3	1
ORTHOPTERA	ACRIDIDAE	*Genus novum 6*			1		1
ORTHOPTERA	ACRIDIDAE	*Gn sp.*				3	2
ORTHOPTERA	ACRIDIDAE	*Goniaea australasiae*				1	
ORTHOPTERA	ACRIDIDAE	*Goniaea sp.*		5	4	23	
ORTHOPTERA	ACRIDIDAE	*Phaulacridium sp Near*				1	
ORTHOPTERA	ACRIDIDAE	*Rusurplia tristis*				1	
ORTHOPTERA	ACRIDIDAE	*Sjoestedtacris sp.*			1		
ORTHOPTERA	ACRIDIDAE	*Sphingonotus sp.*				3	
ORTHOPTERA	ACRIDIDAE	*Stropis sp.*				1	1

Appendix 32. (continued)

Order	Family	Genus species	-33	-32	-31	-30	-29
ORTHOPTERA	ACRIDIDAE	*Urnisa sp.*			1	9	1
ORTHOPTERA	EUMASTACIDAE	*Morabinae Gn sp.*				3	
ORTHOPTERA	Gryllacrididae	*Gn sp.*			4	14	
ORTHOPTERA	Gryllacrididae	*Paragryllacris sp.*		2			
ORTHOPTERA	Gryllacrididae	*Pareremus sp.1*			1		1
ORTHOPTERA	Gryllidae	*Endacusta sp.*			14	6	
ORTHOPTERA	Gryllidae	*Eneopterinae gn sp.*				5	
ORTHOPTERA	Gryllidae	*Eurepa marginipennis*		2			
ORTHOPTERA	Gryllidae	*Lepidogryllus sp.*			5	11	
ORTHOPTERA	Gryllidae	*Teleogryllus commodus*				2	
ORTHOPTERA	Gryllidae	*Yarrita sp1*	2				
ORTHOPTERA	GRYLLOTALPIDAE	*Gryllotalpa sp.*			1	1	
ORTHOPTERA	PYRGOMORPHIDAE	*Monistria sp.*				4	
ORTHOPTERA	Tettigoniidae	*Anisoptera sp.*			1		
ORTHOPTERA	Tettigoniidae	*Chlororbalius sp.*					1
ORTHOPTERA	Tettigoniidae	*Elephantodeta sp.*					1
		# species	9	27	39	99	20

APPENDIX 33. Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Landform pattern at sites.

Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Landform patterns category.

		# sites	2	3	23	28	35	11	1	3
Order	**Family**	**Genus species**	**Dunefield**	**Flood plain**	**Hills**	**Low hills**	**Mountains**	**Plain**	**Plateau**	**Rises**
BLATTODEA	Blaberidae	*Calolampra aspera*					1			
BLATTODEA	Blaberidae	*Calolampra sp.*			2	10	17			
BLATTODEA	Blaberidae	*Calolampra sp.B*	1				2	1		
BLATTODEA	Blaberidae	*Gn sp.*				1	1			
BLATTODEA	Blaberidae	*Laxta sp.*					1			
BLATTODEA	Blattellidae	*Blatella sp1*					1			
BLATTODEA	Blattellidae	*Gn sp.*				1				
BLATTODEA	Blattidae	*Desmozosteria sp.*				7	11			
BLATTODEA	Blattidae	*Eppertia sp.*			1		2			
BLATTODEA	Blattidae	*Euzosteria sp.*				1	8			
BLATTODEA	Blattidae	*Gn sp.*				2	1			
BLATTODEA	Blattidae	*Megazosteria sp.*			1	1	1			
BLATTODEA	Blattidae	*Platyzosteria baltea*			1		3			
BLATTODEA	Blattidae	*Platyzosteria melana*			1	1		1		
BLATTODEA	Blattidae	*Platyzosteria sp.*	1		5	6	18			
BLATTODEA	Blattidae	*Polyzosteria sp.*			1	1				
BLATTODEA	Blattidae	*Robshelfordia sp.*			1		1			
BLATTODEA	Blattidae	*Zonioploca sp.*				3	6	1		
COLEOPTERA	Bostrychidae	*Bostrychopsis jesuita*	1				1			
COLEOPTERA	Burprestidae	*Castiarina crenata*			1					
COLEOPTERA	Carabidae	*Anthropterus sp.*						1		
COLEOPTERA	Carabidae	*Carenum sp black*				1		1		1
COLEOPTERA	Carabidae	*Carenum sp thin black*				1		1		
COLEOPTERA	Carabidae	*Conopterum sp.*						1		
COLEOPTERA	Carabidae	*Conopterum sp. green*				1	1			
COLEOPTERA	Carabidae	*Craspedophorus sp.*			26					
COLEOPTERA	Carabidae	*Euryscaphus sp.*					1			
COLEOPTERA	Carabidae	*Gigadema small*	3							
COLEOPTERA	Carabidae	*Gigadema sp.*				1		1		
COLEOPTERA	Carabidae	*Gnathaphanus pulcher*			13					
COLEOPTERA	Carabidae	*Gnathaphanus sp.*					2			
COLEOPTERA	Carabidae	*Megacephala cylindricus*						10		
COLEOPTERA	Carabidae	*Neocarenum sp.*						1		
COLEOPTERA	Carabidae	*Parroa sp.*	2							
COLEOPTERA	Carabidae	*Phorticosomus sp.*					1			
COLEOPTERA	Carabidae	*Pseudoceneus sp.*			1					
COLEOPTERA	Carabidae	*Rhytisternus sp.*			1					
COLEOPTERA	Carabidae	*Teropha sp.*			2	1	1			
COLEOPTERA	Chrysomelidae	*Aulacophora sp.*					2			
COLEOPTERA	Chrysomelidae	*Gn sp.*					1			
COLEOPTERA	COCCINELLIDAE	*Coccinella rapanda*				1				
COLEOPTERA	CURCULIONIDAE	*Acantholopus sp.*	1			1	3	1		
COLEOPTERA	CURCULIONIDAE	*Amycterinae nr P. calciformis*	4				4			
COLEOPTERA	CURCULIONIDAE	*Dialeptopus sp.*				2				
COLEOPTERA	CURCULIONIDAE	*Gn sp.*			1					
COLEOPTERA	CURCULIONIDAE	*Leptopinae gn sp.*				1	1			
COLEOPTERA	DYTISCIDAE	*Antiporus gilberti*					1			
COLEOPTERA	DYTISCIDAE	*Eretes australis*					2			
COLEOPTERA	DYTISCIDAE	*Nectenosoma dispar*					4			
COLEOPTERA	ELATERIDAE	*Gn sp.*					1			
COLEOPTERA	ELATERIDAE	*Paracalais suboculatus*				1				
COLEOPTERA	GARINIDAE	*Macrogyrus australis*					1			
COLEOPTERA	LYCIIDAE	*Metriorrhynchus sp.*					1			
COLEOPTERA	SCARABIDAE	*Blackburnium sp.*				1				
COLEOPTERA	SCARABIDAE	*Colpochila sp*					1			
COLEOPTERA	SCARABIDAE	*Heteronyx sp. near*				2	13			
COLEOPTERA	TENEBRIONIDAE	*Agasthenes sp.*					1			
COLEOPTERA	TENEBRIONIDAE	*Brises sp.*					1			
COLEOPTERA	TENEBRIONIDAE	*Chalcopteroides purpureus*						1		

Appendix 33. (continued)

Order	Family	Genus species	Dunefield	Flood plain	Hills	Low hills	Mountains	Plain	Plateau	Rises
COLEOPTERA	TENEBRIONIDAE	*Gn sp.*				2	2			
COLEOPTERA	TENEBRIONIDAE	*Helea castor*						3		
COLEOPTERA	TENEBRIONIDAE	*Hybrenia sp.*				5	6			
COLEOPTERA	TENEBRIONIDAE	*Saragus latus*	1				1			
DIPTERA	ASILIDAE	*Gn sp.*					1			
DIPTERA	CALLIPHORIDAE	*Calliphora dubia*			3	2	11			
DIPTERA	CULICIDAE	*Aedes alternans*					1			
DIPTERA	MUSCIDAE	*Gn sp.*					1			
DIPTERA	PYRGOTIDAE	*Gn sp.*					3			
DIPTERA	SYRPHIDAE	*Eristalis punctulatus*					1			
DIPTERA	THEREVIDAE	*Ananbarhynchus sp.*					2			
DIPTERA	THEREVIDAE	*Gn sp.*				1	1			
HEMIPTERA	Cicadidae	*Gn sp.*		1						
HEMIPTERA	Cicadidae	*Melampsalta sp.*				5	1			
HEMIPTERA	Fulgoridae	*Eurystheus sp.*					4			
HEMIPTERA	Lygaeidae	*Dieuches scutellatus*			1					
HEMIPTERA	Lygaeidae	*Dieuches sp.*				1	1			
HEMIPTERA	Lygaeidae	*Leptocoris sp.*			1					
HEMIPTERA	Lygaeidae	*Udeocoris sp.*			1					
HEMIPTERA	NEPIDAE	*Laccotrephes tristis*					1			
HEMIPTERA	Notonectidae	*Anisops sp.*					13			
HEMIPTERA	PENTATOMIDAE	*Boocoris rufiformis*				1				1
HEMIPTERA	PENTATOMIDAE	*Choerocoris paganus*				1	1			
HEMIPTERA	PENTATOMIDAE	*Choerocoris variegatus*							1	
HEMIPTERA	PENTATOMIDAE	*Kapunda troughtoni*			1	2				1
HEMIPTERA	PENTATOMIDAE	*Oechalia schellenbergi*				1				
HEMIPTERA	PENTATOMIDAE	*Poecilometis borealis*			1		1			
HEMIPTERA	PENTATOMIDAE	*Poecilometis patruelis*					1			
HEMIPTERA	Reduvidae	*Agylla nigrecans*					2	1		
HEMIPTERA	Reduvidae	*Coranus sp.*				1				
HEMIPTERA	Reduvidae	*Coranus sp. Near*					4			
HEMIPTERA	Reduvidae	*Ectomocoris truculens*			1					
HEMIPTERA	Reduvidae	*Horcinia spA*			2					
HEMIPTERA	Reduvidae	*Oncocephalus sp.*		1		1				
HYMENOPTERA	APIDAE	*Apis mellifera*					1			
HYMENOPTERA	BRACONIDAE	*Gn sp.*					1			
HYMENOPTERA	FORMICIDAE	*Camponotus consibrinus*							1	
HYMENOPTERA	Ichneumonidae	*Netelia sp.*					5			
HYMENOPTERA	POMPILIDAE	*Gn sp.*					1			
HYMENOPTERA	SCOLIIDAE	*Scolia soror*				1				
LEPIDOPTERA	NYMPHALIDAE	*Danaus chrysippus*					1			
MANTODEA	Amorphoscellida	*Cliomantis dispar*				1				
MANTODEA	Amorphoscellida	*Paraoxypilinae Gn sp*					1			
MANTODEA	Mantidae	*Archimantis sp.*				1				
MANTODEA	Mantidae	*Coenomantis sp.*				1				
MANTODEA	Mantidae	*Sphodropoda sp.*						1		
NEUROPTERA	Chrysopidae	*Chrysopa sp.*					5			
NEUROPTERA	ITHONIDAE	*Ithone sp.*						7		
NEUROPTERA	Myrmeleontidae	*Glenoleon roseipennis*					1			
ODONATA	LESTIDAE	*Austrolestes cingula*					1			
ORTHOPTERA	ACRIDIDAE	*Acridinae Gn sp.*		1	1	3	1	3		1
ORTHOPTERA	ACRIDIDAE	*Apotropis sp.*				1				
ORTHOPTERA	ACRIDIDAE	*Austacris sp.*		1						
ORTHOPTERA	ACRIDIDAE	*Beplessia sp.*		1		1				
ORTHOPTERA	ACRIDIDAE	*Buforania sp.*			2	5				
ORTHOPTERA	ACRIDIDAE	*Catantopinae Gn sp.*			1	2	1			
ORTHOPTERA	ACRIDIDAE	*Chortoicetes sp.*				2	1	1		
ORTHOPTERA	ACRIDIDAE	*Coryphistes sp.*		2		4	3	1		
ORTHOPTERA	ACRIDIDAE	*Ecphantus quadrilobus*				3	1			
ORTHOPTERA	ACRIDIDAE	*Genus novum 6*						1		1
ORTHOPTERA	ACRIDIDAE	*Gn sp.*				3	2			
ORTHOPTERA	ACRIDIDAE	*Goniaea australasiae*					1			

Appendix 33. (continued)

Order	Family	Genus species	Dunefield	Flood plain	Hills	Low hills	Mountains	Plain	Plateau	Rises
ORTHOPTERA	ACRIDIDAE	*Goniaea sp.*		1	4	7	19	1		
ORTHOPTERA	ACRIDIDAE	*Phaulacridium sp Near*			1					
ORTHOPTERA	ACRIDIDAE	*Rusurplia tristis*					1			
ORTHOPTERA	ACRIDIDAE	*Sjoestedtacris sp.*			1					
ORTHOPTERA	ACRIDIDAE	*Sphingonotus sp.*			2	1				
ORTHOPTERA	ACRIDIDAE	*Stropis sp.*				2				
ORTHOPTERA	ACRIDIDAE	*Urnisa sp.*			1	6	2	2		
ORTHOPTERA	EUMASTACIDAE	*Morabinae Gn sp.*					2		1	
ORTHOPTERA	Gryllacrididae	*Gn sp.*			3	3	9	2		1
ORTHOPTERA	Gryllacrididae	*Paragryllacris sp.*				1	1			
ORTHOPTERA	Gryllacrididae	*Pareremus sp.1*		1		1				
ORTHOPTERA	Gryllidae	*Endacusta sp.*			11	4	5			
ORTHOPTERA	Gryllidae	*Eneopterinae gn sp.*					4	1		
ORTHOPTERA	Gryllidae	*Eurepa marginipennis*				2				
ORTHOPTERA	Gryllidae	*Lepidogryllus sp.*			9		4	3		
ORTHOPTERA	Gryllidae	*Teleogryllus commodus*			2					
ORTHOPTERA	Gryllidae	*Yarrita sp1*					2			
ORTHOPTERA	GRYLLOTALPIDAE	*Gryllotalpa sp.*			2					
ORTHOPTERA	PYRGOMORPHIDAE	*Monistria sp.*			1		3			
ORTHOPTERA	Tettigoniidae	*Anisoptera sp.*			1					
ORTHOPTERA	Tettigoniidae	*Chlororbalius sp.*				1				
ORTHOPTERA	Tettigoniidae	*Elephantodeta sp.*				1				
		# species	8	8	38	59	84	25	3	6

Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each Land unit category.

		# sites	1	1	2	1	3	2	2	7	1	54	1	6	4	3	7	10	1
Order	**Family**	**Genus species**	**clay plain**	**drainage depression**	**dune/consolidated dune**	**flat**	**flood out**	**gorge**	**gully**	**hill crest**	**hill footslope**	**hill slope**	**open depression**	**plain (incl undulating plain)**	**ridge**	**rock outcrop (on hill)**	**stony plain**	**stream channel**	**swamp**
BLATTODEA	Blaberidae	*Calolampra aspera*													1				
BLATTODEA	Blaberidae	*Calolampra sp.*				2		1	1			18			1			6	
BLATTODEA	Blaberidae	*Calolampra sp.B*			1					1		1		1					
BLATTODEA	Blaberidae	*Gn sp.*										2							
BLATTODEA	Blaberidae	*Laxta sp.*										1							
BLATTODEA	Blattellidae	*Blatella sp1*										1							
BLATTODEA	Blattellidae	*Gn sp.*																1	
BLATTODEA	Blattidae	*Desmozosteria sp.*						1	1			12			4				
BLATTODEA	Blattidae	*Eppertia sp.*							1			2							
BLATTODEA	Blattidae	*Euzosteria sp.*				1						6			2				
BLATTODEA	Blattidae	*Gn sp.*										1						2	
BLATTODEA	Blattidae	*Megazosteria sp.*				1						2							
BLATTODEA	Blattidae	*Platyzosteria baltea*										2			2				
BLATTODEA	Blattidae	*Platyzosteria melana*										2		1					
BLATTODEA	Blattidae	*Platyzosteria sp.*			1	1			1	1		18			6			2	
BLATTODEA	Blattidae	*Polyzosteria sp.*										2							
BLATTODEA	Blattidae	*Robshelfordia sp.*										2							
BLATTODEA	Blattidae	*Zonioploca sp.*				3				1		4		1		1			
COLEOPTERA	Bostrychidae	*Bostrychopsis jesuita*			1							1							
COLEOPTERA	Burprestidae	*Castiarina crenata*										1							
COLEOPTERA	Carabidae	*Anthropterus sp.*												1					
COLEOPTERA	Carabidae	*Carenum sp black*										2		1					
COLEOPTERA	Carabidae	*Carenum sp thin black*												2					
COLEOPTERA	Carabidae	*Conopterum sp.*					1												
COLEOPTERA	Carabidae	*Conopterum sp. green*										2							
COLEOPTERA	Carabidae	*Craspedophorus sp.*																	26
COLEOPTERA	Carabidae	*Euryscaphus sp.*										1							
COLEOPTERA	Carabidae	*Gigadema small*			3														
COLEOPTERA	Carabidae	*Gigadema sp.*												1			1		
COLEOPTERA	Carabidae	*Gnathaphanus pulcher*																6	7
COLEOPTERA	Carabidae	*Gnathaphanus sp.*										1			1				
COLEOPTERA	Carabidae	*Megacephala cylindricus*					5										5		
COLEOPTERA	Carabidae	*Neocarenum sp.*					1												
COLEOPTERA	Carabidae	*Parroa sp.*			2														
COLEOPTERA	Carabidae	*Phorticosomus sp.*													1				

Appendix 34. (continued)

Order	Family	Genus species	clay plain	drainage depression	dune/consolidated dune	flat	flood out	gorge	gully	hill crest	hill footslope	hill slope	open depression	plain (incl undulating plain)	ridge	rock outcrop (on hill)	stony plain	stream channel	swamp
COLEOPTERA	Carabidae	*Pseudoceneus sp.*										1							
COLEOPTERA	Carabidae	*Rhytisternus sp.*																	1
COLEOPTERA	Carabidae	*Teropha sp.*				1						2							1
COLEOPTERA	Chrysomelidae	*Aulacophora sp.*							1			1							
COLEOPTERA	Chrysomelidae	*Gn sp.*							1										
COLEOPTERA	COCCINELLIDAE	*Coccinella rapanda*															1		
COLEOPTERA	CURCULIONIDAE	*Acantholopus sp.*			1					1		3		1					
COLEOPTERA	CURCULIONIDAE	*Amycterinae nr P. calciformis*			4							4							
COLEOPTERA	CURCULIONIDAE	*Dialeptopus sp.*										2							
COLEOPTERA	CURCULIONIDAE	*Gn sp.*																1	
COLEOPTERA	CURCULIONIDAE	*Leptopinae gn sp.*										2							
COLEOPTERA	DYTISCIDAE	*Antiporus gilberti*							1										
COLEOPTERA	DYTISCIDAE	*Eretes australis*							2										
COLEOPTERA	DYTISCIDAE	*Nectenosoma dispar*							4										
COLEOPTERA	ELATERIDAE	*Gn sp.*										1							
COLEOPTERA	ELATERIDAE	*Paracalais suboculatus*										1							
COLEOPTERA	GARINIDAE	*Macrogyrus australis*							1										
COLEOPTERA	LYCIIDAE	*Metriorrhynchus sp.*							1										
COLEOPTERA	SCARABIDAE	*Blackburnium sp.*																1	
COLEOPTERA	SCARABIDAE	*Colpochila sp*										1							
COLEOPTERA	SCARABIDAE	*Heteronyx sp. near*							10			4			1				
COLEOPTERA	TENEBRIONIDAE	*Agasthenes sp.*										1							
COLEOPTERA	TENEBRIONIDAE	*Brises sp.*													1				
COLEOPTERA	TENEBRIONIDAE	*Chalcopteroides purpureaus*												1					
COLEOPTERA	TENEBRIONIDAE	*Gn sp.*										4							
COLEOPTERA	TENEBRIONIDAE	*Helea castor*												3					
COLEOPTERA	TENEBRIONIDAE	*Hybrenia sp.*										11							
COLEOPTERA	TENEBRIONIDAE	*Saragus latus*			1							1							
DIPTERA	ASILIDAE	*Gn sp.*							1										
DIPTERA	CALLIPHORIDAE	*Calliphora dubia*							1		2	11			2				
DIPTERA	CULICIDAE	*Aedes alternans*							1										
DIPTERA	MUSCIDAE	*Gn sp.*										1							
DIPTERA	PYRGOTIDAE	*Gn sp.*							3										
DIPTERA	SYRPHIDAE	*Eristalis punctulatus*										1							
DIPTERA	THEREVIDAE	*Ananbarhynchus sp.*							2										
DIPTERA	THEREVIDAE	*Gn sp.*				1						1							
HEMIPTERA	Cicadidae	*Gn sp.*					1												

Appendix 34. (continued)

Order	Family	Genus species	clay plain	drainage depression	dune/consolidated dune	flat	flood out	gorge	gully	hill crest	hill footslope	hill slope	open depression	plain (incl undulating plain)	ridge	rock outcrop (on hill)	stony plain	stream channel	swamp
HEMIPTERA	Cicadidae	*Melampsalta sp.*						1										5	
HEMIPTERA	Fulgoridae	*Eurystheus sp.*							4										
HEMIPTERA	Lygaeidae	*Dieuches scutellatus*								1									
HEMIPTERA	Lygaeidae	*Dieuches sp.*										2							
HEMIPTERA	Lygaeidae	*Leptocoris sp.*																1	
HEMIPTERA	Lygaeidae	*Udeocoris sp.*										1							
HEMIPTERA	NEPIDAE	*Laccotrephes tristis*							1										
HEMIPTERA	Notonectidae	*Anisops sp.*							13										
HEMIPTERA	PENTATOMIDAE	*Boocoris rufiformis*								1		1							
HEMIPTERA	PENTATOMIDAE	*Choerocoris paganus*															1	1	
HEMIPTERA	PENTATOMIDAE	*Choerocoris variegatus*											1						
HEMIPTERA	PENTATOMIDAE	*Kapunda troughtoni*								1		3							
HEMIPTERA	PENTATOMIDAE	*Oechalia schellenbergi*																1	
HEMIPTERA	PENTATOMIDAE	*Poecilometis borealis*										1						1	
HEMIPTERA	PENTATOMIDAE	*Poecilometis patruelis*										1							
HEMIPTERA	Reduvidae	*Agylla nigrecans*							1	1				1					
HEMIPTERA	Reduvidae	*Coranus sp.*										1							
HEMIPTERA	Reduvidae	*Coranus sp. Near*							4										
HEMIPTERA	Reduvidae	*Ectomocoris truculens*																	1
HEMIPTERA	Reduvidae	*Horcinia spA*								1		1							
HEMIPTERA	Reduvidae	*Oncocephalus sp.*					1					1							
HYMENOPTERA	APIDAE	*Apis mellifera*										1							
HYMENOPTERA	BRACONIDAE	*Gn sp.*										1							
HYMENOPTERA	FORMICIDAE	*Camponotus consibrinus*											1						
HYMENOPTERA	Ichneumonidae	*Netelia sp.*							4			1							
HYMENOPTERA	POMPILIDAE	*Gn sp.*										1							
HYMENOPTERA	SCOLIIDAE	*Scolia soror*										1							
LEPIDOPTERA	NYMPHALIDAE	*Danaus chrysippus*										1							
MANTODEA	Amorphoscellida	*Cliomantis dispar*																1	
MANTODEA	Amorphoscellida	*Paraoxypilinae Gn sp*							1										
MANTODEA	Mantidae	*Archimantis sp.*										1							
MANTODEA	Mantidae	*Coenomantis sp.*										1							
MANTODEA	Mantidae	*Sphodropoda sp.*												1					
NEUROPTERA	Chrysopidae	*Chrysopa sp.*							5										
NEUROPTERA	ITHONIDAE	*Ithone sp.*												7					
NEUROPTERA	Myrmeleontidae	*Glenoleon roseipennis*							1										
ODONATA	LESTIDAE	*Austrolestes cingula*							1										

Appendix 34. (continued)

Order	Family	Genus species	clay plain	drainage depression	dune/consolidated dune	flat	flood out	gorge	gully	hill crest	hill footslope	hill slope	open depression	plain (incl undulating plain)	ridge	rock outcrop (on hill)	stony plain	stream channel	swamp
ORTHOPTERA	ACRIDIDAE	*Acridinae Gn sp.*					2			2		2		2				2	
ORTHOPTERA	ACRIDIDAE	*Apotropis sp.*														1			
ORTHOPTERA	ACRIDIDAE	*Austacris sp.*	1																
ORTHOPTERA	ACRIDIDAE	*Beplessia sp.*	1									1							
ORTHOPTERA	ACRIDIDAE	*Buforania sp.*								1		6							
ORTHOPTERA	ACRIDIDAE	*Catantopinae Gn sp.*								1		1						2	
ORTHOPTERA	ACRIDIDAE	*Chortoicetes sp.*							1					2			1		
ORTHOPTERA	ACRIDIDAE	*Coryphistes sp.*	2				1					5					1	1	
ORTHOPTERA	ACRIDIDAE	*Ecphantus quadrilobus*										1						3	
ORTHOPTERA	ACRIDIDAE	*Genus novum 6*								1							1		
ORTHOPTERA	ACRIDIDAE	*Gn sp.*										1				1	2	1	
ORTHOPTERA	ACRIDIDAE	*Goniaea australasiae*							1										
ORTHOPTERA	ACRIDIDAE	*Goniaea sp.*					1		2			13			1	3	6	6	
ORTHOPTERA	ACRIDIDAE	*Phaulacridium sp Near*										1							
ORTHOPTERA	ACRIDIDAE	*Rusurplia tristis*													1				
ORTHOPTERA	ACRIDIDAE	*Sjoestedtacris sp.*										1							
ORTHOPTERA	ACRIDIDAE	*Sphingonotus sp.*										2		1					
ORTHOPTERA	ACRIDIDAE	*Stropis sp.*										1						1	
ORTHOPTERA	ACRIDIDAE	*Urnisa sp.*		1								3		1		2	1	3	
ORTHOPTERA	EUMASTACIDAE	*Morabinae Gn sp.*							1				1		1				
ORTHOPTERA	Gryllacrididae	*Gn sp.*								1		15		1			1		
ORTHOPTERA	Gryllacrididae	*Paragryllacris sp.*										2							
ORTHOPTERA	Gryllacrididae	*Pareremus sp.1*	1									1							
ORTHOPTERA	Gryllidae	*Endacusta sp.*								2		17						1	
ORTHOPTERA	Gryllidae	*Eneopterinae gn sp.*					1					3			1				
ORTHOPTERA	Gryllidae	*Eurepa marginipennis*										2							
ORTHOPTERA	Gryllidae	*Lepidogryllus sp.*					3		1			3						3	6
ORTHOPTERA	Gryllidae	*Teleogryllus commodus*																	2
ORTHOPTERA	Gryllidae	*Yarrita sp1*													2				
ORTHOPTERA	GRYLLOTALPIDAE	*Gryllotalpa sp.*								1									1
ORTHOPTERA	PYRGOMORPHIDAE	*Monistria sp.*										3				1			
ORTHOPTERA	Tettigoniidae	*Anisoptera sp.*										1							
ORTHOPTERA	Tettigoniidae	*Chlororbalius sp.*										1							
ORTHOPTERA	Tettigoniidae	*Elephantodeta sp.*										1							
		# species	4	1	8	7	10	3	32	16	1	82	3	18	16	6	11	23	8

APPENDIX 35. Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each surface soil category.

Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each surface soil category.

		# sites	7	5	16	4	8	4	3	7	25	12	1	3	10
Order	**Family**	**Genus species**	**clay loam**	**clay loam, [illegible]**	**clayey sand**	**light clay**	**loam**	**loamy sand**	**medium clay**	**sand**	**sandy clay loam**	**sandy loam**	**silt loam**	**silty clay loam**	**skeletal**
BLATTODEA	Blaberidae	*Calolampra aspera*									1				
BLATTODEA	Blaberidae	*Calolampra sp.*	1	1	1		8			3	9	4			2
BLATTODEA	Blaberidae	*Calolampra sp.B*			1		1	1		1					
BLATTODEA	Blaberidae	*Gn sp.*					1				1				
BLATTODEA	Blaberidae	*Laxta sp.*										1			
BLATTODEA	Blattellidae	*Blatella sp1*	1												
BLATTODEA	Blattellidae	*Gn sp.*								1					
BLATTODEA	Blattidae	*Desmozosteria sp.*	1	1	3			1			7	5			
BLATTODEA	Blattidae	*Eppertia sp.*	1	1						1					
BLATTODEA	Blattidae	*Euzosteria sp.*			1	2					2	4			
BLATTODEA	Blattidae	*Gn sp.*								2		1			
BLATTODEA	Blattidae	*Megazosteria sp.*			1						1	1			
BLATTODEA	Blattidae	*Platyzosteria baltea*	3									1			
BLATTODEA	Blattidae	*Platyzosteria melana*	1								2				
BLATTODEA	Blattidae	*Platyzosteria sp.*	3	3	1		1	1		5	5	5		1	5
BLATTODEA	Blattidae	*Polyzosteria sp.*									1			1	
BLATTODEA	Blattidae	*Robshelfordia sp.*	1		1										
BLATTODEA	Blattidae	*Zonioploca sp.*					2	1			3	3			1
COLEOPTERA	Bostrychidae	*Bostrychopsis jesuita*								1		1			
COLEOPTERA	Burprestidae	*Castiarina crenata*									1				
COLEOPTERA	Carabidae	*Anthropterus sp.*									1				
COLEOPTERA	Carabidae	*Carenum sp black*			1						1	1			
COLEOPTERA	Carabidae	*Carenum sp thin black*									1	1			
COLEOPTERA	Carabidae	*Conopterum sp.*				1									
COLEOPTERA	Carabidae	*Conopterum sp. green*	1								1				
COLEOPTERA	Carabidae	*Craspedophorus sp.*			26										
COLEOPTERA	Carabidae	*Euryscaphus sp.*													1
COLEOPTERA	Carabidae	*Gigadema small*								3					
COLEOPTERA	Carabidae	*Gigadema sp.*							1			1			
COLEOPTERA	Carabidae	*Gnathaphanus pulcher*			13										
COLEOPTERA	Carabidae	*Gnathaphanus sp.*	1									1			
COLEOPTERA	Carabidae	*Megacephala cylindricus*			1	5			4						
COLEOPTERA	Carabidae	*Neocarenum sp.*				1									
COLEOPTERA	Carabidae	*Parroa sp.*								2					
COLEOPTERA	Carabidae	*Phorticosomus sp.*										1			
COLEOPTERA	Carabidae	*Pseudoceneus sp.*				1									
COLEOPTERA	Carabidae	*Rhytisternus sp.*			1										
COLEOPTERA	Carabidae	*Teropha sp.*			1	1					1	1			
COLEOPTERA	Chrysomelidae	*Aulacophora sp.*		1							1				
COLEOPTERA	Chrysomelidae	*Gn sp.*		1											
COLEOPTERA	COCCINELLIDAE	*Coccinella rapanda*											1		
COLEOPTERA	CURCULIONIDAE	*Acantholopus sp.*			1		2	1		1	1				
COLEOPTERA	CURCULIONIDAE	*Amycterinae nr P. calciformis*			4					4					
COLEOPTERA	CURCULIONIDAE	*Dialeptopus sp.*						1				1			
COLEOPTERA	CURCULIONIDAE	*Gn sp.*								1					
COLEOPTERA	CURCULIONIDAE	*Leptopinae gn sp.*					1				1				
COLEOPTERA	DYTISCIDAE	*Antiporus gilberti*		1											
COLEOPTERA	DYTISCIDAE	*Eretes australis*		2											
COLEOPTERA	DYTISCIDAE	*Nectenosoma dispar*		4											
COLEOPTERA	ELATERIDAE	*Gn sp.*	1												
COLEOPTERA	ELATERIDAE	*Paracalais suboculatus*										1			
COLEOPTERA	GARINIDAE	*Macrogyrus australis*		1											
COLEOPTERA	LYCIIDAE	*Metriorrhynchus sp.*		1											
COLEOPTERA	SCARABIDAE	*Blackburnium sp.*								1					
COLEOPTERA	SCARABIDAE	*Colpochila sp*										1			
COLEOPTERA	SCARABIDAE	*Heteronyx sp. near*		10			2				2	1			
COLEOPTERA	TENEBRIONIDAE	*Agasthenes sp.*		1											
COLEOPTERA	TENEBRIONIDAE	*Brises sp.*									1				
COLEOPTERA	TENEBRIONIDAE	*Chalcopteroides purpureus*									1				

Appendix 35. (continued)

Order	Family	Genus species	clay loam	clay loam, sandy	clayey sand	light clay	loam	loamy sand	medium clay	sand	sandy clay loam	sandy loam	silt loam	silty clay loam	skeletal
COLEOPTERA	TENEBRIONIDAE	*Gn sp.*					2				2				
COLEOPTERA	TENEBRIONIDAE	*Helea castor*									3				
COLEOPTERA	TENEBRIONIDAE	*Hybrenia sp.*		1			5				5				
COLEOPTERA	TENEBRIONIDAE	*Saragus latus*			1					1					
DIPTERA	ASILIDAE	*Gn sp.*		1											
DIPTERA	CALLIPHORIDAE	*Calliphora dubia*	4		1	4				1	4	1		1	
DIPTERA	CULICIDAE	*Aedes alternans*		1											
DIPTERA	MUSCIDAE	*Gn sp.*	1												
DIPTERA	PYRGOTIDAE	*Gn sp.*		3											
DIPTERA	SYRPHIDAE	*Eristalis punctulatus*									1				
DIPTERA	THEREVIDAE	*Ananbarhynchus sp.*		2											
DIPTERA	THEREVIDAE	*Gn sp.*									1	1			
HEMIPTERA	Cicadidae	*Gn sp.*										1			
HEMIPTERA	Cicadidae	*Melampsalta sp.*								5	1				
HEMIPTERA	Fulgoridae	*Eurystheus sp.*		4											
HEMIPTERA	Lygaeidae	*Dieuches scutellatus*					1								
HEMIPTERA	Lygaeidae	*Dieuches sp.*					1				1				
HEMIPTERA	Lygaeidae	*Leptocoris sp.*			1										
HEMIPTERA	Lygaeidae	*Udeocoris sp.*			1										
HEMIPTERA	NEPIDAE	*Laccotrephes tristis*		1											
HEMIPTERA	Notonectidae	*Anisops sp.*		13											
HEMIPTERA	PENTATOMIDAE	*Boocoris rufiformis*													2
HEMIPTERA	PENTATOMIDAE	*Choerocoris paganus*									1				1
HEMIPTERA	PENTATOMIDAE	*Choerocoris variegatus*							1						
HEMIPTERA	PENTATOMIDAE	*Kapunda troughtoni*									2				2
HEMIPTERA	PENTATOMIDAE	*Oechalia schellenbergi*								1					
HEMIPTERA	PENTATOMIDAE	*Poecilometis borealis*								1		1			
HEMIPTERA	PENTATOMIDAE	*Poecilometis patruelis*										1			
HEMIPTERA	Reduvidae	*Agylla nigrecans*		1			1	1							
HEMIPTERA	Reduvidae	*Coranus sp.*									1				
HEMIPTERA	Reduvidae	*Coranus sp. Near*		4											
HEMIPTERA	Reduvidae	*Ectomocoris truculens*			1										
HEMIPTERA	Reduvidae	*Horcinia spA*					1								1
HEMIPTERA	Reduvidae	*Oncocephalus sp.*			1						1				
HYMENOPTERA	APIDAE	*Apis mellifera*									1				
HYMENOPTERA	BRACONIDAE	*Gn sp.*									1				
HYMENOPTERA	FORMICIDAE	*Camponotus consibrinus*							1						
HYMENOPTERA	Ichneumonidae	*Netelia sp.*		4								1			
HYMENOPTERA	POMPILIDAE	*Gn sp.*										1			
HYMENOPTERA	SCOLIIDAE	*Scolia soror*			1										
LEPIDOPTERA	NYMPHALIDAE	*Danaus chrysippus*										1			
MANTODEA	Amorphoscellida	*Cliomantis dispar*													1
MANTODEA	Amorphoscellida	*Paraoxypilinae Gn sp*		1											
MANTODEA	Mantidae	*Archimantis sp.*													1
MANTODEA	Mantidae	*Coenomantis sp.*										1			
MANTODEA	Mantidae	*Sphodropoda sp.*									1				
NEUROPTERA	Chrysopidae	*Chrysopa sp.*		5											
NEUROPTERA	ITHONIDAE	*Ithone sp.*									7				
NEUROPTERA	Myrmeleontidae	*Glenoleon roseipennis*		1											
ODONATA	LESTIDAE	*Austrolestes cingula*		1											
ORTHOPTERA	ACRIDIDAE	*Acridinae Gn sp.*			1	1	3			1	2	1			1
ORTHOPTERA	ACRIDIDAE	*Apotropis sp.*													1
ORTHOPTERA	ACRIDIDAE	*Austacris sp.*	1												
ORTHOPTERA	ACRIDIDAE	*Beplessia sp.*	1												1
ORTHOPTERA	ACRIDIDAE	*Buforania sp.*									2	3			2
ORTHOPTERA	ACRIDIDAE	*Catantopinae Gn sp.*	1				2								1
ORTHOPTERA	ACRIDIDAE	*Chortoicetes sp.*		1					1			2			
ORTHOPTERA	ACRIDIDAE	*Coryphistes sp.*	2			2	1			1	3	1			
ORTHOPTERA	ACRIDIDAE	*Ecphantus quadrilobus*				1				2					1
ORTHOPTERA	ACRIDIDAE	*Genus novum 6*									1				1
ORTHOPTERA	ACRIDIDAE	*Gn sp.*									1		1		2
ORTHOPTERA	ACRIDIDAE	*Goniaea australasiae*		1											

Appendix 35. (continued)

Order	**Family**	**Genus species**	**clay loam**	**clay loam, [illegible]**	**clayey sand**	**light clay**	**loam**	**loamy sand**	**medium clay**	**sand**	**sandy clay loam**	**sandy loam**	**silt loam**	**silty clay loam**	**skeletal**
ORTHOPTERA	ACRIDIDAE	*Goniaea sp.*	1	1	4	3	1			4	9	2		1	6
ORTHOPTERA	ACRIDIDAE	*Phaulacridium sp Near*			1										
ORTHOPTERA	ACRIDIDAE	*Rusurplia tristis*	1												
ORTHOPTERA	ACRIDIDAE	*Sjoestedtacris sp.*	1												
ORTHOPTERA	ACRIDIDAE	*Sphingonotus sp.*			2							1			
ORTHOPTERA	ACRIDIDAE	*Stropis sp.*								1					1
ORTHOPTERA	ACRIDIDAE	*Urnisa sp.*					1		1	3	2				4
ORTHOPTERA	EUMASTACIDAE	*Morabinae Gn sp.*	1	1					1						
ORTHOPTERA	Gryllacrididae	*Gn sp.*		2	1	3	2	1		3	5				1
ORTHOPTERA	Gryllacrididae	*Paragryllacris sp.*					1				1				
ORTHOPTERA	Gryllacrididae	*Pareremus sp.1*	1		1										
ORTHOPTERA	Gryllidae	*Endacusta sp.*	10		2	1	1	1		2	2	1			
ORTHOPTERA	Gryllidae	*Eneopterinae gn sp.*				1				3	1				
ORTHOPTERA	Gryllidae	*Eurepa marginipennis*												2	
ORTHOPTERA	Gryllidae	*Lepidogryllus sp.*	2	1	7	3					1	2			
ORTHOPTERA	Gryllidae	*Teleogryllus commodus*			2										
ORTHOPTERA	Gryllidae	*Yarrita sp1*									2				
ORTHOPTERA	GRYLLOTALPIDAE	*Gryllotalpa sp.*			1						1				
ORTHOPTERA	PYRGOMORPHIDAE	*Monistria sp.*		2											2
ORTHOPTERA	Tettigoniidae	*Anisoptera sp.*										1			
ORTHOPTERA	Tettigoniidae	*Chlororbalius sp.*													
ORTHOPTERA	Tettigoniidae	*Elephantodeta sp.*													
		# species	24	35	32	15	22	9	7	27	52	38	2	5	23

APPENDIX 36 Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each structural vegetation categories.

Selected invertebrate species sorted by Order and Family and the frequency at which they were recorded within each surface structural vegetation category.

		# sites	3	2	1	6	11	5	14	15	9	11	15	14
Order	**Family**	**Genus species**	**forest**	**grassland**	**herbland**	**hummock grassland**	**low forest**	**low mallee**	**low shrubland**	**low woodland**	**mallee**	**shrubland**	**tall shrubland**	**woodland**
BLATTODEA	Blaberidae	*Calolampra aspera*											1	
BLATTODEA	Blaberidae	*Calolampra sp.*	1	1			10	3				3	1	10
BLATTODEA	Blaberidae	*Calolampra sp.B*								2			1	1
BLATTODEA	Blaberidae	*Gn sp.*					1							1
BLATTODEA	Blaberidae	*Laxta sp.*	1											
BLATTODEA	Blattellidae	*Blatella sp1*						1						
BLATTODEA	Blattellidae	*Gn sp.*											1	
BLATTODEA	Blattidae	*Desmozosteria sp.*	1			1		1		2	3	4	4	2
BLATTODEA	Blattidae	*Eppertia sp.*		1									1	1
BLATTODEA	Blattidae	*Euzosteria sp.*					1	1				3	4	
BLATTODEA	Blattidae	*Gn sp.*								2		1		
BLATTODEA	Blattidae	*Megazosteria sp.*						1	1			1		
BLATTODEA	Blattidae	*Platyzosteria baltea*						2				1	1	
BLATTODEA	Blattidae	*Platyzosteria melana*				1	1						1	
BLATTODEA	Blattidae	*Platyzosteria sp.*		3			4	4		5	1	4	4	5
BLATTODEA	Blattidae	*Polyzosteria sp.*	1				1							
BLATTODEA	Blattidae	*Robshelfordia sp.*											2	
BLATTODEA	Blattidae	*Zonioploca sp.*				1		3	1	1		3		1
COLEOPTERA	Bostrychidae	*Bostrychopsis jesuita*						1				1		
COLEOPTERA	Burprestidae	*Castiarina crenata*											1	
COLEOPTERA	Carabidae	*Anthropterus sp.*									1			
COLEOPTERA	Carabidae	*Carenum sp black*							1	1	1			
COLEOPTERA	Carabidae	*Carenum sp thin black*							1		1			
COLEOPTERA	Carabidae	*Conopterum sp.*											1	
COLEOPTERA	Carabidae	*Conopterum sp. green*						1		1				
COLEOPTERA	Carabidae	*Craspedophorus sp.*												26
COLEOPTERA	Carabidae	*Euryscaphus sp.*								1				
COLEOPTERA	Carabidae	*Gigadema small*						3						
COLEOPTERA	Carabidae	*Gigadema sp.*							2					
COLEOPTERA	Carabidae	*Gnathaphanus pulcher*												13
COLEOPTERA	Carabidae	*Gnathaphanus sp.*						1				1		
COLEOPTERA	Carabidae	*Megacephala cylindricus*		4					1				5	
COLEOPTERA	Carabidae	*Neocarenum sp.*											1	
COLEOPTERA	Carabidae	*Parroa sp.*						2						
COLEOPTERA	Carabidae	*Phorticosomus sp.*					1							
COLEOPTERA	Carabidae	*Pseudoceneus sp.*				1								
COLEOPTERA	Carabidae	*Rhytisternus sp.*												1
COLEOPTERA	Carabidae	*Teropha sp.*				1		1				1		1
COLEOPTERA	Chrysomelidae	*Aulacophora sp.*						1						1
COLEOPTERA	Chrysomelidae	*Gn sp.*												1
COLEOPTERA	COCCINELLIDAE	*Coccinella rapanda*			1									
COLEOPTERA	CURCULIONIDAE	*Acantholopus sp.*					1			2			1	2
COLEOPTERA	CURCULIONIDAE	*Amycterinae nr P. calciformis*								4			4	
COLEOPTERA	CURCULIONIDAE	*Dialeptopus sp.*								1	1			
COLEOPTERA	CURCULIONIDAE	*Gn sp.*										1		
COLEOPTERA	CURCULIONIDAE	*Leptopinae gn sp.*					1							1
COLEOPTERA	DYTISCIDAE	*Antiporus gilberti*												1
COLEOPTERA	DYTISCIDAE	*Eretes australis*												2
COLEOPTERA	DYTISCIDAE	*Nectenosoma dispar*												4
COLEOPTERA	ELATERIDAE	*Gn sp.*						1						
COLEOPTERA	ELATERIDAE	*Paracalais suboculatus*								1				
COLEOPTERA	GARINIDAE	*Macrogyrus australis*												1
COLEOPTERA	LYCIIDAE	*Metriorrhynchus sp.*												1
COLEOPTERA	SCARABIDAE	*Blackburnium sp.*											1	
COLEOPTERA	SCARABIDAE	*Colpochila sp*										1		
COLEOPTERA	SCARABIDAE	*Heteronyx sp. near*					3							12
COLEOPTERA	TENEBRIONIDAE	*Agasthenes sp.*								1				
COLEOPTERA	TENEBRIONIDAE	*Brises sp.*											1	

Appendix 36. (continued)

Order	Family	Genus species	forest	grassland	herbland	hummock grassland	low forest	low mallee	low shrubland	low woodland	mallee	shrubland	tall shrubland	woodland
COLEOPTERA	TENEBRIONIDAE	*Chalcopteroides purpureaus*									1			
COLEOPTERA	TENEBRIONIDAE	*Gn sp.*					2							2
COLEOPTERA	TENEBRIONIDAE	*Helea castor*									3			
COLEOPTERA	TENEBRIONIDAE	*Hybrenia sp.*					5			1				5
COLEOPTERA	TENEBRIONIDAE	*Saragus latus*								1			1	
DIPTERA	ASILIDAE	*Gn sp.*												1
DIPTERA	CALLIPHORIDAE	*Calliphora dubia*		1			2	3		1	1	3	4	1
DIPTERA	CULICIDAE	*Aedes alternans*												1
DIPTERA	MUSCIDAE	*Gn sp.*						1						
DIPTERA	PYRGOTIDAE	*Gn sp.*												3
DIPTERA	SYRPHIDAE	*Eristalis punctulatus*						1						
DIPTERA	THEREVIDAE	*Ananbarhynchus sp.*												2
DIPTERA	THEREVIDAE	*Gn sp.*						1				1		
HEMIPTERA	Cicadidae	*Gn sp.*											1	
HEMIPTERA	Cicadidae	*Melampsalta sp.*								5			1	
HEMIPTERA	Fulgoridae	*Eurystheus sp.*												4
HEMIPTERA	Lygaeidae	*Dieuches scutellatus*				1								
HEMIPTERA	Lygaeidae	*Dieuches sp.*					1							1
HEMIPTERA	Lygaeidae	*Leptocoris sp.*												1
HEMIPTERA	Lygaeidae	*Udeocoris sp.*							1					
HEMIPTERA	NEPIDAE	*Laccotrephes tristis*												1
HEMIPTERA	Notonectidae	*Anisops sp.*												13
HEMIPTERA	PENTATOMIDAE	*Boocoris rufiformis*							1				1	
HEMIPTERA	PENTATOMIDAE	*Choerocoris paganus*									1	1		
HEMIPTERA	PENTATOMIDAE	*Choerocoris variegatus*									1			
HEMIPTERA	PENTATOMIDAE	*Kapunda troughtoni*					1		3					
HEMIPTERA	PENTATOMIDAE	*Oechalia schellenbergi*								1				
HEMIPTERA	PENTATOMIDAE	*Poecilometis borealis*										2		
HEMIPTERA	PENTATOMIDAE	*Poecilometis patruelis*										1		
HEMIPTERA	Reduvidae	*Agylla nigrecans*								1				2
HEMIPTERA	Reduvidae	*Coranus sp.*							1					
HEMIPTERA	Reduvidae	*Coranus sp. Near*												4
HEMIPTERA	Reduvidae	*Ectomocoris truculens*												1
HEMIPTERA	Reduvidae	*Horcinia spA*				1	1							
HEMIPTERA	Reduvidae	*Oncocephalus sp.*							2					
HYMENOPTERA	APIDAE	*Apis mellifera*						1						
HYMENOPTERA	BRACONIDAE	*Gn sp.*						1						
HYMENOPTERA	FORMICIDAE	*Camponotus consibrinus*									1			
HYMENOPTERA	Ichneumonidae	*Netelia sp.*										1		4
HYMENOPTERA	POMPILIDAE	*Gn sp.*										1		
HYMENOPTERA	SCOLIIDAE	*Scolia soror*									1			
LEPIDOPTERA	NYMPHALIDAE	*Danaus chrysippus*										1		
MANTODEA	Amorphoscellida	*Cliomantis dispar*										1		
MANTODEA	Amorphoscellida	*Paraoxypilinae Gn sp*												1
MANTODEA	Mantidae	*Archimantis sp.*											1	
MANTODEA	Mantidae	*Coenomantis sp.*								1				
MANTODEA	Mantidae	*Sphodropoda sp.*									1			
NEUROPTERA	Chrysopidae	*Chrysopa sp.*												5
NEUROPTERA	ITHONIDAE	*Ithone sp.*									7			
NEUROPTERA	Myrmeleontidae	*Glenoleon roseipennis*												1
ODONATA	LESTIDAE	*Austrolestes cingula*												1
ORTHOPTERA	ACRIDIDAE	*Acridinae Gn sp.*				1			3	2			3	1
ORTHOPTERA	ACRIDIDAE	*Apotropis sp.*											1	
ORTHOPTERA	ACRIDIDAE	*Austacris sp.*							1					
ORTHOPTERA	ACRIDIDAE	*Beplessia sp.*							1				1	
ORTHOPTERA	ACRIDIDAE	*Buforania sp.*							1	2		1	3	
ORTHOPTERA	ACRIDIDAE	*Catantopinae Gn sp.*										2	1	1
ORTHOPTERA	ACRIDIDAE	*Chortoicetes sp.*							3					1
ORTHOPTERA	ACRIDIDAE	*Coryphistes sp.*					1		3	1	1		3	1
ORTHOPTERA	ACRIDIDAE	*Ecphantus quadrilobus*								3		1		
ORTHOPTERA	ACRIDIDAE	*Genus novum 6*							2					

Appendix 36. (continued)

Order	Family	Genus species	forest	grassland	herbland	hummock grassland	low forest	low mallee	low shrubland	low woodland	mallee	shrubland	tall shrubland	woodland
ORTHOPTERA	ACRIDIDAE	*Gn sp.*			1	1					2	1		
ORTHOPTERA	ACRIDIDAE	*Goniaea australasiae*												1
ORTHOPTERA	ACRIDIDAE	*Goniaea sp.*				4	5		2	7	8		2	4
ORTHOPTERA	ACRIDIDAE	*Phaulacridium sp Near*					1							
ORTHOPTERA	ACRIDIDAE	*Rusurplia tristis*						1						
ORTHOPTERA	ACRIDIDAE	*Sjoestedtacris sp.*				1								
ORTHOPTERA	ACRIDIDAE	*Sphingonotus sp.*					2		1					
ORTHOPTERA	ACRIDIDAE	*Stropis sp.*								1			1	
ORTHOPTERA	ACRIDIDAE	*Urnisa sp.*		1		2				4			2	2
ORTHOPTERA	EUMASTACIDAE	*Morabinae Gn sp.*						1			1			1
ORTHOPTERA	Gryllacrididae	*Gn sp.*		3					5	7		2	1	
ORTHOPTERA	Gryllacrididae	*Paragryllacris sp.*					1							1
ORTHOPTERA	Gryllacrididae	*Pareremus sp.1*							1		1			
ORTHOPTERA	Gryllidae	*Endacusta sp.*		1		3	1		2	2	1	1	9	
ORTHOPTERA	Gryllidae	*Eneopterinae gn sp.*		3									2	
ORTHOPTERA	Gryllidae	*Eurepa marginipennis*									2			
ORTHOPTERA	Gryllidae	*Lepidogryllus sp.*											6	10
ORTHOPTERA	Gryllidae	*Teleogryllus commodus*												2
ORTHOPTERA	Gryllidae	*Yarrita sp1*											2	
ORTHOPTERA	GRYLLOTALPIDAE	*Gryllotalpa sp.*											1	1
ORTHOPTERA	PYRGOMORPHIDAE	*Monistria sp.*								1		1		2
ORTHOPTERA	Tettigoniidae	*Anisoptera sp.*										1		
ORTHOPTERA	Tettigoniidae	*Chlororbalius sp.*									1			
ORTHOPTERA	Tettigoniidae	*Elephantodeta sp.*									1			
		# species	4	9	2	13	22	24	23	30	24	30	40	54