



A botanical survey of remnant vegetation in the Mid-North and Western Murray Flats

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South Australian Department of Environment and Planning October 1981

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### ISBN 7243 4451 9

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ACKNOWLEDGEMENTS

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### ACKNOWLEDGEMENTS

The authors wish to acknowledge the following for their advice, access to information and general assistance.

- The Projects Section, Department for the Environment.
- Mr. P. Brown, Mr. P. Gill and Ms. A. Johnson for assistance in field inspections.
- Mr. R. Smythe for the plant species list for Area 1.
- Mr. D. Whibley of the State Herbarium, for his assistance in identifying plant specimens.
- Ms. S. Austin and Ms. A. Prescott for technical editing.
- Drafting Unit for cartography and compilation.
- The following for typing services, R. Fitzgerald, G. McGuiness and D. Wallace.

### ABSTRACT

Seventy-one remnant vegetation areas in the Mid-North and Western Murray Flats have been surveyed, evaluated and ranked for their scientific significance. It is recommended that areas with a high ranking (1-11) receive conservation priority. Similarly, priority should be given to the retention of associations with a high rating within each site.

However, due to the general lack of vegetation in the area, it is further recommended that landowners of all sites be given encouragement to retain vegetation under the Heritage Agreement Scheme. This study was prepared by Ms. J. Venning and Mr. A. Rowett, research biologists, on contract for the Department for the Environment. They were supervised by Mr. T. Dendy, an Environmental Officer of the Department.

### **1. INTRODUCTION**

In the relatively short period since European settlement, over 75% of South Australia's agricultural regions have been cleared of their original native vegetation cover. In the regions surveyed for this report, the Mid-North and Western Murray Flats, there are large expanses of country with no substantial remnant areas of native vegetation. Less than 5% of the area as a whole remains uncleared.

While native vegetation clearance has been necessary for the development of a strong rural base in this State, recognition of the inherent worth of our indigenous vegetation has grown. In 1976 a State Government Interdepartmental Committee submitted a report entitled <u>Vegetation Clearance in South Australia</u> in which it expressed concern at the rate of on-going clearance. It recommended that, <u>inter alia</u>, the co-operation of landholders be sought to retain significant areas of native vegetation. State Cabinet gave approval in February 1980 to the implementation of such a scheme. To assist in the determination of suitable areas, the Committee also recommended that all remnant areas of native vegetation be assessed for their environmental significance and relevance to a variety of possible uses or needs.

In response to this recommendation, several large scale botanical surveys have been carried out in the State's agricultural regions by both public and private organizations. To date, the natural vegetation of the West Coast, South Central Mt. Lofty Ranges, Eyre Peninsula, Yorke Peninsula, Fleurieu Peninsula, Murray Lands and the South-East have been surveyed. The Mid-North and Western Murray Flats survey is one of the last to be carried out before all agricultural regions of the State have been surveyed. A survey of Kangaroo Island is currently being finalized.

This survey deals with areas of remnant vegetation not already included within the conservation parks in the Mid-North and Western Murray Flats. These areas have been mapped, described and evaluated for their scientific significance using procedures designed by Mitchell *et al.* (1981). In this way continuity is maintained. The report does not attempt to evaluate the vegetation areas for their recreation potential, aesthetic significance or other social values, but contains data that should be useful to those considering these aspects.

### 2. STUDY AREA

Remnant vegetation areas in the Mid-North and Western Murray Flats were surveyed.

The study area includes:

County Blachford County Burra

County Dalhousie

Hundreds of Black Rock Plain, Coomooroo, Mannanarie, Morgan, Pekina, Tarcowie and Yongala and part Hundreds of Erskine, Eurelia, Oladdie and

Hundreds of Apoinga and Kooringa and part Hundreds of Baldina, Bright,

Hundred of Barunga, Mundoora and Redhill and part Hundreds of Cameron, Wiltunga and Wokurna.

Part Hundred of Wonoka

Bundey and Hallet.

Walloway.

Hundreds of Bagot, Bower, Dutton, English and Neales and part Hundreds of Anna, Beatty, Brownlow and Fisher.

Hundred of Appila, Booleroo, Coonatto, Pinda, Willochra and Willowie and part Hundreds of Darling, Gregory, Wongyarra and Woolundunga.

Hundreds of Alma, Dalkey, Grace, Mudla Wirra and Port Gawler.

Part Hundreds of Eurilpa, Uroonda and Yanyarrie.

Part Hundred of Arkaba.

Part Hundred of Coglin.

Part Hundreds of Gumbowie, Parnaroo and Terowie.

Hundreds of Belvidere, Gilbert, Julia Creek, Kapunda, Light, Moorooroo, Nuriootpa, Saddleworth and Waterloo.

County Newcastle Hundreds of Boolcunda, Cudla Mudla, Moockra and Palmer and part Hundreds Kanyaka and Pichi Richi.

County Daly

County Eyre

County Frome

County Gawler

County Granville

County Hanson

County Herbert

County Kimberley

County Light

#### County Stanley

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Hundreds of Andrews, Ayers, Boucaut, Blyth, Clare, Everard, Goyder, Hall Hanson, Hart, Koolunga, Milne, Stanley Stow, Upper Wakefield and Yackamoorundie.

County Sturt

County Victoria

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Hundreds of Angas, Brinkley, Finniss, Freeling, Jutland, Mobilong, Monarto and Ridley.

Hundreds of Anne, Belalie, Booyoolie, Bundaleer, Caltowie, Crystal Brook, Narridy, Reynolds, Wandearah, Whyte and Yangya and part hundreds Howe, Napperby and Pirie.



### 3. AIMS

The aim of the study was to survey the remnant areas of vegetation within the study area and specifically to:

- 1. describe their botanical composition and structure,
- 2. assess these conditions (impact of grazing, weed invasion, etc.),
- 3. evaluate their scientific significance,
- 4. recommend conservation priorities.

### 4. METHODOLOGY

#### 4.1 Site Selection

Study areas were selected using two criteria, .

- 1. their size, and
- 2. the environmental association number with which they were classified.

Initially within each county, areas larger than 50ha were noted from the Vegetation Clearance Maps (map files, S.A. Dept. for the Environment) of these areas. Those which represented each of the possible association numbers were chosen as potential study areas. When more than one area of 50ha or larger was available in a particular association, site inspection was used to choose a 'type' area.

Many areas of pre-selected vegetation, when inspected in the field, were found to be extensively modified and due to a lack of shrub and undershrub strata, not suitable for quantitative sampling. In these degraded areas the species present and the structure of the plant community were noted, and the nature of the damage (e.g. grazing, logging) was assessed.

Eventually the emphasis in site selection changed from size to condition. Consequently small areas of native vegetation (10ha) were used if they were undisturbed and therefore a good example of a vegetation type in the environmental association. Thirteen areas were consequently quantitatively sampled and referred to as 'type' areas.

#### 4.2 Survey Techniques

Within each 'type' area the sampling technique follows that of Mitchell *et al.* (1981), in which the point-centred quarter plotless sampling method (after Mueller-Dombois and Ellenberg 1974) was used. <u>Sampling points</u> were located along a transect at intervals of 20 to 40m depending on the density of the vegetation. Attempts were made to place a constant number of sampling points (20) along the transect in each area to validate comparisons between sampled areas. However, sometimes in the smaller areas it was only possible to accommodate 10 sampling points along the transect.

The strata divisions were modified from those recognised by Mitchell *et al.* (1981). In their study, the tree stratum incorporated plants greater than 8m. However, in this survey relatively few trees were found in the 'type' areas 8m or higher, therefore the tree stratum incorporates all plants  $\ge$  2m, including both the tree and small trees/tall shrub layers of Mitchell *et al.* (1981). The shrub layer was defined by those plants greater than 0.5m and less than 2m high. Any plant  $\le$  0.5m was regarded as an undershrub.

The following <u>variables</u> were <u>measured</u> for the tree and shrub strata in each of four quadrants around the sampling point:

- 1. the distance from the sampling point to the mid-point of the
- nearest plant in each of the strata,
- 2. height, and
- 3. cover

When the tree and/or shrub layers were very sparse and a plant was not present within 40m of the sampling point in a quadrant no measures were taken.

Species of the undershrub layer and their relative abundances were recorded in quadrats of lm radius placed at each sampling point along the transect. The extent of litter cover, its depth and composition was noted. This additional sampling was implemented as it was considered that grazing pressure was more likely to be reflected in the lower plant stratum and that this extra data may allow more detailed comparisons should site assessment ever be repeated. This data has not been analysed for this report. Density readings were taken and plotted as in Mitchell *et al.* (1981).

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The following information can be derived from the data:

- 1. species list (supplemented by collections beyond the transect).
- 2. density (from mean distance)
- 3. dominance (from cover), and
- 4. frequency

The relative density, relative dominance and relative frequency were calculated using the following <u>methods of analyses</u> (as for Mitchell *et al.* 1981). The tree and shrub layers were considered separately.

#### Species Y, tree layer -

 Average Dominance =D=
 Total cover of individuals of species Y

 Value
 Number of individuals of species Y measured

Mean area/= (<u>Total point-plant distance from all individuals</u>)<sup>2</sup> Plant ( Total number of individuals sampled )

Density of all plants/ha =A= <u>10,000</u> mean area/plant

Relative density of = <u>Number of individuals of species Y sampled X 100</u> species Y Total number of individuals sampled

Density of Species Y =B= <u>Relative density of species Y x A</u> 100

Dominance =  $B \times D = E$ 

Relative dominance = <u>E</u> X 100 Total dominance of all species

Frequency =F= Number of sampling points at which species Y occurs Total number of sampling points

Relative frequency = \_\_\_\_\_ F \_\_\_\_ X 100 Total frequency values of all species

Importance Value = Rel. dominance + Rel. density + Rel. frequency

#### 4.3 Site Description

Site

<u>Presentation of information</u> very closely follows that of Mitchell et al. (1981) to aid in continuity of these reports of adjacent areas. It is as follows:

DateDate of surveyLocationThe 1:50 000 series mapsheet name and number, the grid<br/>reference and the approximate area (ha) of the site are<br/>listed. The area given is that of the entire block of<br/>vegetation in which the site was located.

Environmental Classification from Laut  $et \ al.$  (1977) Environments of Association South Australia

Physiography Description of slope and elevation.

Site number

<u>Plant</u> Composition and structual formation are given for areas <u>communities</u> either quantitatively or qualitatively examined. Species lists are given for each area. Plant nomenclature is based on Black (1948-56, 1978), Boomsma (1972), and Eichler (1965). Plants introduced to South Australia are prefixed with an asterisk and pest plants prefixed with a cross.

<u>Condition</u> The occurrences of vermin, pest plants, grazing, logging, rubbish dumping, fire, dieback and land excavation are noted.

<u>General</u> The presence of rare and endangered plants and plant associations, ecological diversity and other factors which contribute to the scientific significance of each site are considered.

### 4.4 Evaluation of Scientific Significance

It is essential that the value of remnant areas of native vegetation be seen in perspective before any decisions are made regarding the development of such areas; be it a proposal to clear the land or acquire it for conservation purposes. An objective of this survey was to provide this information in respect of an area's scientific significance.

It is difficult, if not impossible, to remove all subjectivity from such an assessment. However, based on certain clearly-listed assumptions (see Table 6.1, 6.2) this report ranks the areas of remnant vegetation in the study area according to their scientific significance (See table 7.1). These criteria are primarily based on those of Mitchell *et al.* (1981) with any adjustments discussed in Table 6.1.

It is accepted that experience and/or new scientific evidence may lead to an alteration of these assumptions and/or the values placed on certain features.

To assist comparison of vegetation between environmental associations, Table 6.3 lists the scores of areas within each environmental association.

Further areas of native vegetation could be sampled if required and ranked against the sites included in this report providing survey techniques are similar and the significance criteria and weighting are consistent.

# 5. SITE DESCRIPTION

#### 5.1 Co. Gawler, Hd Alma

#### SITE 1

Date: 11/2/1980

Location: Co. Gawler Hd Alma Pt Secs 55 and 56

<u>Map Sheet</u>: Halbury 6629-IV 1:50 000

Grid Reference: 843-133 54H 283843 6214129

Area: 68.2 ha.

Environmental Association: 3.3.13

#### Physiography

The vegetation, east of Salter Springs, covers an area of gentle slopes, valleys and ridges. Altitude range is 350mm to 400m above sea level.

#### Plant Communities

Eucalyptus odorata dominates the area, forming a woodland with E. leucoxylon. Acacia pycnantha dominates the open shrub layer and in same parts is a distinct component of the tree layer. Other shrub components (e.g. A. paradoxa, Dodonaea viscosa) were found in localised clumps.

#### Conditions

The lack of diversity of sclerophyllous species in the shrub and under-shrub layers and the lack of young plants of many of the component shrubs indicates that the area has been intensively grazed in the past. However the area does not appear to have been grazed in recent times, as there are a large number of young *Acacia pycnantha* and dense tall grasses standing *(Themeda australis* being particularly dense in localised areas).

#### General

This area has been reserved by its owners, Mr. and Mrs. Smythe of Salter Springs, and is part of Flagstaff Sanctuary.

Site 1

5 1	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Dom	Freq.	Rel Freq.	IMPT VALUE
Trees > 2m									
Comparing stricts	12	2.2	87.7	15	192.9	11.5	0.35	16.6	43.1
Casuarina scricca		0.7	29.2	5	20.4	1.2	0.15	7.1	13.3
Bursaria spinosa	28	0.6	204.7	35	122.8	7.3	0.6	28.5	70.8
Acacia pychancha	18	6.8	134.5	23	914.6	54.6	0.5	23.8	101.4
Eucalyptus odoraca	11	1.4	81.9	14	114.7	6.8	0.25	11.9	32.7
Dodonaea Viscosa		2.8	29.2	5	81.8	4.9	0.15	7.1	17.0
Eucalyptus leucoxylon	2	13.0	17.5	3	227.5	13.6	0.1	4.7	21.3
	80		584.8		1674.7		2.10		
.5m 🔬 Shrubs 🔬 2m									
	20	0.3	474 7	48.7	142.4	32.2	.9	46.2	87.1
Acacia pycnantha	39	0.5	193 2	18.8	91.6	20.7	.35	17.9	57.4
Pultenaea largiflorens	15	0.5	24 4	2.5	9.8	2.2	.1	5.1	9.8
Eucalyptus odorata	2	0.4	95 9	8.8	68.6	15.5	.2	10.3	34.6
Acacia paradoxa		0.8	121 9	12.5	97.4	22.0	.2	10.3	44.8
Bursaria spinosa	10	0.8	121.0	7.5	29 2	6 6	.15	7.6	21.7
Dodonaea viscosa	6	0.4	/3.1	1.3	2 5	8	.05	2.6	4.6
Casuarina stricta	1	0.3	11.7	1.2	3.5				
	80		974.7		442.5		1.95		

#### SPECIES LIST

#### Trees > 2m

Acacia paradoxa A. pycnantha Callitris preissii. Casuarina stricta Eucalyptus leucoxylon E. odorata

#### Exocarpos cupressiformis

.5m < Shrubs < 2m

- . Acacia acinacea A. paradoxa Bursaria spinosa
- . Cassinia arcuata
- . Dillwynia hispida
- Dodonaea viscosa . Epacridaceae sp.
- Eucalyptus odorata
- . Eutaxia microphylla
- . Hardenbergia violacea Helichrysum bilobum
- . Hybanthus floribundus
- . Olearia spp. Pultenaea largiflorens var. latifolia

#### Prostrate and Twining Plants, Parasites

- . Cassytha melantha
- . Clematis microphylla
- . Glycine clandestina
- . Kennedia prostrata . Lysiana exocarpi

#### Bulbous Plants

- . Anguillaria dioica
- . Arthropodium strictum . Bulbinopsis bulbosa
- . Caesia vittata Calostemma purpureum

#### Orchids

- . Caladenia carnea
- . C. deformis . C. dilatata
- . C. leptochila
- . C. patersonii
- . Diuris maculata
- . Microtis unifolia
- . Pterostylis robusta
- . Thelymitra aristata
- . T. longifolia . T. grandiflora

#### Other Herbs

- Acaena ovina
- . Cheilanthes tenuifolia . Craspedia uniflora
  - . Dianella laevis
  - D. revoluta
  - . Drosera planchonii Goodenia albiflora
- . G. primulacea Haloragis elata . H. teucrioides
- . Helichrysum apiculatum . Hydrocotyle laxiflora
- Lepidosperma laterale
- . Lobelia gibbosa Lomandra dura L. micrantha
- . Microseris scapigera
- . Oxalis corniculata
- . Ranunculus lappaceus Scaevola albida
- . Senecio spp.
- . Stackhousia monogyna
- . Velleia paradoxa
- . Wahlenbergia stricta

. Species recorded from the area by the owner Mr. R. Smyth but not observed on our visit.

Date: 11/2/1980

Location: Co. Gawler Hd Alma Pt Sec. 431

Map Sheet: Hamley Bridge 1:50 000

6629-III

Grid Reference: 859-074

Area: 68.2 ha prior to recent clearing

Environmental Association: 3.3.11

#### Physiography

East of Owen, a gently undulating area covered with natural vegetation. Elevation ranges between 300m and 326m above sea level.

#### Plant Communities

The tree species found at Site 1 again occur here. *Eucalyptus* odorata dominates with *E. leucoxylon* in association. Together with a small number of *Callitris preissii* and *Casuarina stricta* these trees form a low woodland. A distinct shrub layer does not exist, only scattered individuals of *Acacia paradoxa* and *Bursaria spinosa* are present. Introduced grasses make up the ground cover.

#### Conaition

The area is more open than Site 1. The complete absence of an undershrub layer suggests the area has been heavily grazed.

#### General

The tree stratum, though more open, is identical to that of Site 1.

SPECIES LIST

Trees ≥ 2m

Callitris preissii Casuarina stricta Eucalyptus leucoxylon E. odorata .5m < Shrubs < 2m

Acacia paradoxa Bursaria spinosa 17

Date: 11/2/1980

Location: Co. Gawler Hd Alma Pt Sec. 458

Map Sheet: Hamley Bridge 6629-III. 1:50 000

Grid Reference: 867-027

Area: approximately 30ha

Environmental Association: 3.3.11

#### Physiography

East of Owen and south of Site 2, a small area of natural vegetation. Elevation ranges from 260m to 280m above sea level.

#### Plant Communities

The plant species found in Site 2 again occur here. Eucalyptus odorata dominates the tree layer in association with E. leucoxylon while the shrub layer is absent.

#### Condition

Like Site 2 this area also appears to have been subjected to intensive grazing. This would probably account for the absence of shrub species and the ground cover being composed of introduced grasses.

#### General

This site is similar to Site 2 in all aspects.

SPECIES LIST

Trees 🍃 2m

Eucalyptus leucoxylon E. odorata

18

Date: 11/2/1980

Location: Co. Gawler Hd Alma Pt Sec. 780

Map Sheet:Hamley Bridge6629-III1:50 000

Grid Reference: 793-993

Area: approximately 10ha

Environmental Association: 4.6.6

#### Physiography

A small area of natural vegetation halfway between Owen and Hamley Bridge. Elevation is approximately 120m above sea level.

#### Plant Communities

Eucalyptus odorata open scrub is the dominant plant community at this site. E. calycogona is found in association with E. odorata. The only shrub present in the area was Dodonaea baueri. Dianella revoluta, Enchylaena tomentosa and introduced grasses make up the ground cover.

#### Condition

The absence of a well defined shrub layer suggests the area has been heavily grazed at one time. However, the height of the grasses and the fact that ground cover is almost 100% would indicate that the area has not been grazed recently.

#### General

This area has been heavily grazed and only a tree stratum remains.

SPECIES LIST

Trees ≥ 2m

Eucalyptus calycogona E. odorata Undershrubs  $\leq$  .5m

Dianella revoluta Enchylaena tomentosa 19

.5m < Shrubs < 2m

Dodonaea baueri

#### Co. Gawler, Hd Dalkey

SITE 5

Date: 11/2/1980

Location: Co. Gawler Hd Dalkey Pt Sec. 191

Map Sheet: Hamley Bridge 6629-III 1:50 000

Grid Reference: 791-990

Area: approximately 20ha.

Environmental Association: 4.6.6

Physiography

The area, adjacent to Site 4, is a flat plain covered with natural vegetation. Elevation is approximately 120m above sea level.

#### Plant Communities

Eucalyptus odorata dominates the area and in association with E. socialis forms an open scrub community. Melaleuca lanceolata is the only other tree species present. A shrub layer was not evident. Enchylaena tomentosa and introduced grasses make up the undershrub layer.

#### Condition

As in Site 4 the area has been heavily grazed and only an open tree stratum remains.

SPECIES LIST

Trees 2m

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Eucalyptus odorata E. socialis

Undershrubs .5m

Enchylaena tomentosa Melaleuca lanceolata

#### 5.2 Co. Light, Hd Nuricopta

SITE 6

Date: 12/2/1980

Location: Co. Light Hd Nuriootpa Pt Sec. 845

Map Sheet: Barossa 1:50 000 6628-I

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Grid Reference: 094-729

Area: 34.1 ha

Environmental Association: 3.2.18

#### Physiography

A small stand of natural vegetation situated on the northern side of the Monier Rowland Flat Sand Quarry. Elevation range is 230 to 240m above sea level.

#### Plant Communities

The plant community at this site is a low woodland dominated by Callitris preissii, with Eucalyptus fasciculosa and E. odorata in association. The understorey is dense but areas of open ground exist. Astroloma conostephioides dominates the shrub layer which also includes Calytrix tetragona, Grevillea lavandulacea and Dillwynia hispida.

#### Condition

A number of tracks which are used for access to beehives traverse the site. Signs of earth removal by heavy earthmoving vehicles are also evident.

Olea europaea occurs throughout the site but its numbers are relatively low. Other pest plants are only found near the roadside boundary.

#### <u>General</u>

Regeneration of *Callitris preissii* suggests that grazing has not occurred at the site for some time.

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SITE	ó	

	Nos of Indiv	Ave Dom Value	Den/ Ra	Rel Den	Dom	Rel Dom	Freq.	Rel. Freq.	IMPT VALUE
Trees > 2m									
Acacia paradoxa	1	4.0	2.1	1.32	8.4	0.9	0.05	2.52	4.7
Acacla pycnantha	3	1.0	6.4	3.94	6.4	0.7	0.16	8,1	12.7
Callitris preissii	45	6.12	96.3	59.21	\$89.3	62.7	0.89	44.9	166.8
Dodonawa viscosa	1	1.50	2.1	1.32	3.1	0.3	0.05	2.52	4.1
Eucaluptus fasciculosa	19	7.24	40.7	25.	25.0	31.4	0.47	23.7	80.
Eucalyptus odorata	1	4.0	2.1	1.32	8.4	0.9	0.05	2.52	4.7
Olea europaea	5	2.6	10.7	6.58	27.8	2.9	0.26	13.1	22.7
Santalum acuminatum	1	0.5	2.1	1,32	1.0	0.1	0.05	2.52	3.9
TOTAL	76		162.6		939.1		•		
,5m < Shruba < 2m									
Anglenias rotundifolia	2	0.25	25.6	2.6	6.4	2.0	0.05	2.6	7.2
Astroione conostentioides	50	0.34	641.2	65.8	218.0	68.0	0.94	48.7	182.5
Callitris preissii	11	0.32	141.1	14.5	45.1	14.1	0.47	24.3	52.9
Calutrix tetragona	12	0.29	153.9	15.8	44,6	13.9	0.42	21.7	51.4
Grevilles lavandulaces	1	0.50	12,8	1.3	6.4	2.0	0.05	2.6	5.9
TOTAL	76		974.6		320.5				

SPECIES LIST

Trees 🍃 2m

- Callitris preissii Eucalyptus fasciculosa E, odorata

Olea europaea
 Santalum acuminatum

.5m < Shrubs < 2m

- Acacia paradoxa A. pycnantha Asclepias rotundifolia Astroloma conostephioides Banksia marginata Calytrix tetragona Calytrix tetragona \* Chrysanthemoides monilifera Dillwynia hispida Dodonaea viscosa Grevillea lavandulacea Hibbertia stricta Pimelea glauca P. stricta

Undershrubs ≼ .5m

Carpobrotus aequilaterus Dianella revoluta Hibbertia virgata var. crassifolia Kunzea pomifera Lepidosperma laterale L. semiteres Lomandra densifiora

Climbers

Clematis microphylla



SITE 6-Callitris preissii low woodland

Date: 12/2/1980

Location: Co. Light Hd Nuriootpa Sec. 230

<u>Map Sheet</u>: Kapunda 6629-II 1:50 000

Grid Reference: 074-862

Area: 85.2 ha

Environmental Association: 3.3.2

#### **Physiography**

North-east of Greenock an area of natural vegetation covers the slopes of a series of small ridges running in a north-south direction. Elevation ranges between 320m and 388m above sea level.

#### Plant Communities

Eucalyptus odorata dominates the low woodland in association with E. leucoxylon. On the ridge tops a number of Callitris preissii, Casuarina stricta and Exocarpos cupressiformis also occur in the tree layer. Acacia pycnantha dominates the shrub layer on the western slopes in association with Xanthorrhoea quadrangulata. A more diverse shrub layer including Dodonaea viscosa, Acacia paradoxa and Bursaria spinosa occurs nearer the ridgetops. Dianella revoluta and Lepidosperma congestum were found in the undershrub layer. Themeda australis was found on the southern slopes of Section 230.

#### Condition

The vegetation is confined to the ridges where clearing has not occurred. Intensive grazing has occurred but the regeneration of Acacia pycnantha down the slopes suggests the area has not been grazed for some time.

Sheds are situated on the eastern side of the ridge in Section 230 and appear to be some kind of temporary residence. A track runs from these sheds down to the main road.

Rabbits were present.

#### General

As the site includes a number of granite ridges with large exposed boulders it is unlikely that the vegetation present will be cleared. Past grazing has left the shrub layer in a much depleted state.

### SPECIES LIST

 $\texttt{Trees} \geqslant 2\texttt{m}$ 

Callitris preissii Casuarina stricta Eucalyptus leucoxylon E. odorata Exocarpos cupressiformis

.5m < Shrubs < 2m

Acacia paradoxa A. pycnantha Bursaria spinosa

- + Lycium ferocissimum \* Olea europaea
- Xanthorrhoea quadrangulata

Undershrubs  $\leq .5m$ 

Cassinia arcuata Dianella revoluta + Echium plantagineum Helichrysum sp. Lepidosperma congestum


SITE 7-Eucalyptus odorata low woodland



SITE 7-Eucalyptus odorata and Acacia pycnantha regeneration beyond the established area of woodland

Date: 12/2/80

Location: Co. Light Hd Nuriootpa Sec. 229

 Map Sheet:
 Kapunda
 6629-II

 1:50 000
 1:50 000

Grid Reference: 073-861

Area: 51.1 ha

Environmental Association: 3.3.1

#### **Physiography**

This site is part of the ridge system described for Site 7. The natural vegetation covers a western slope of the ridge system. Elevation ranges between 310m and 340m above sea level.

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## Plant Communities

Eucalyptus odorata dominates this low woodland and is in association with E. leucoxylon. Callitris preissii is confined to the ridge top. A number of Olea europaea are scattered throughout the area.

The sparse shrub layer consists of Acacia pycnantha and Acacia paradoxa.

### Condition

Sheep droppings indicate the site has been recently grazed. The absence of shrub and undershrub layers indicates grazing has occurred for some time.

Exposed granite outcrops occur near the ridge top. Tufts of introduced grasses are scattered over the area.

### General

The tree stratum is similar to that of Site 9, but intensive grazing has left the site with very few shrub and undershrub species.

Trees  $\geq 2m$ 

Eucalyptus leucoxylon E. odorata

.5m < Shrubs < 2m

Acacia paradoxa A. pycnantha \* Olea europaea

## Co. Light, Hd Belvidere

### SITE 9

Date: 12/2/80

Location: Co. Light Hd Belvidere Pt Sec. 603

<u>Map Sheet</u>: Truro 1:50 000

#### 6729-III

Grid Reference: 244-869.

Area: 34.1 ha

### Environmental Association: 3.3.6

### Physiography

The site is approximately 5km east of Stockwell. Natural vegetation covers the gently undulating terrain which is interspersed with rock outcrops. Elevation ranges from 350m to 380m above sea level.

## Plant Communities

Eucalyptus odorata dominates the woodland in association with Callitris preissii and Casuarina stricta. The latter two tree species are few in number and scattered throughout the area. A distinct layer was not evident, only a few scattered Acacia paradoxa individuals were observed. Introduced grasses are all that remains of the undershrub stratum.

## Condition

The absence of shrub and undershrub strata would suggest the area has been intensively grazed. The presence of well established sheep tracks would indicate the site has also been grazed continually. Introduced grasses, being the main food source at this site, have been reduced to a low broken stubble.

## General

Heavy grazing has destroyed both the shrub and undershrub layers leaving only an open tree stratum as is the case in Site 3.

# Trees $\geqslant 2m$

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Callitris preissii Casuarina stricta Eucalyptus odorata

.5m < Shrubs < 2m

Acacia paradoxa

## Co. Light, Hd Moorooroo

## SITE 10

Date: 13/2/1980

Location: Co. Light Hd Moorooroo Sec. 724

Map Sheet: Angaston 1:50 000 6728-IV

Grid Reference: 169-724

Area: 783.8 ha

### Environmental Association: 3.2.19

#### Physiography

The vegetation sampled covered a gentle, south-west facing slope on which numerous granite outcrops were found. The altitude range is 560m to 580m above sea level.

## Plant Communities

Eucalyptus baxteri dominates the tree stratum at this site, forming a low open forest. The shrub layer, dominated by Astroloma conostephioides, Spyridium parvifolium and Xanthorrhoea semiplana, is dense and apparently undisturbed.

#### Condition

This vegetation appears to be in its original state with no evidence of logging or intensive grazing. However, the area sampled is surrounded on two sides by pasture and the grasses of this pasture are invading the native vegetation. These grasses extend up to 20m into the vegetation from the fence line and are competing with the cyperaceous species (Lepidosperma semiteres, L. viscidum) and woody undershrub species. General

The vegetation sampled is essentially similar to that observed in Section 730 (part of Kaiserstuhl Conservation Park) and Section 723 near the access track. However, vegetation observed in Sections 734 and 735 has been cleared of the shrub and undershrub strata.

The section in which the vegetation was sampled, though contiguous to the reserve is not acting as an effective buffer zone to it, due to the relative position of the two areas.

According to Specht et al. (1974) Cheiranthera alternifolia and Hymenathera angustifolia are rare species and Acrotriche serrulata a depleted species. None of these species are prevalent in this area.

	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Dom	Freq.	Rel Freq.	IMPT VALUE
rees ≥ 2m									
asuarina stricta	12	0.8	82.8	15	66.2	4.0	.5	21.3	40.3
cacia pucnantha	29	0.6	200.6	36.3	120.4	7.3	.75	31.9	47.5
ucaluntus baxteri	34	5.8	234.8	42.5	1361.8	82.9	.9	38.3	163.7
xocarbos cupressiformis	1	6.0	6.9	1.25	41.4	2,5	.05	2.1	5.9
anksia marginata	3	2.2	21.0	3.0	46.2	2.8	.1	4.3	10.9
uzalyptus leucoxylon	1 .	1.0	6.9	1.25	6.9	0.4	,05	2.1	3.8
TOTALS	80		552.5		1642.9		2.35		
.5m < Shrubs <2m									
strcioma conostennioides	43	0.5	942.9	53.75	471.5	40.3	.85	37.8	131.9
puridium parvifolium	13	0.6	285.1	16.25	171.1	14.6	.4	17.8	48.7
arthorrhoea semiplana	- 4	4.3	67.7	5.0	377.1	32.3	-2	1.1	46.2
asuarina stricta	4	0.3	87.7	5.0	26.3	2.3	. 15	6.7	14.0
cacia pucnantha	5	0.3	109.7	6.25	32.9	2.8	.2	4.9	18.0
ymenanthera angustifolia	2	0.3	43.9	2,5	13.2	1.1	.1	4.4	8.0
anksia marginata	4	0.3	87.7	5.0	26.3	2.3	.15	6.7	14.0
ucalyptus baxteri	2	0.3	43.9	2.5	13.2	1.1	.05	2.2	5.8
cacia myrtifolia	2	0.6	43.9	2.5	26.3	2.3	.1	4.4	9.2
libbertia sericea	1	0.5	21.9	1.25	11.0	.9	.05	2.2	4.4
TOTALS	80		1754.4		1168.9		2.25		

SPECIES LIST

Trees ≥2m

Acacia pycnanthe Banksia marginata Casuarina stricta Eucalyptus baxteri E. leucoxylon Exocarpos cupressiformis

#### .5m < Shrubs < 2m

Acacia myrtifolia \* Asclepias rotundifolia Astroloma conostephioides Calytrix tetragona Cheiranthera alternifolia Hakea rostrata Hiybentia sericea Hymenanthera angustifolia Ixodia achillaeoides Leptospermum myrsinoides Pimelea octophylla Spyridium parvifolium Xanthorrhoea semiplana

#### Undershrubs < .5s

Acaena anserinifolia Acrotriche serrulata Astroloma humifusum var. denticulatum Dianella revoluta Dillwynia hispida Gonocarpus sp. Haloragis sp. Hybanthus floribundus "Hypochoeris radicata Lepidosperma semiteres L. viscidum Pimelee octophylla Platylobium obtusangulum

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SITE 10-Eucalyptus baxteri low open forest



SITE 10-Dense shrub layer dominated by Astroloma conostephioides

## Date: 13/2/1980

Location: Co. Light Hd Waterloo Sec. 142

<u>Map Sheet</u>: Riverton 1:50 000 6629-I

Grid Reference: 066-115

Area: 102.2 ha (before northern most part cleared)

Environmental Association: 3.3.6

### Physiography

Vegetation covers a knoll over which exposed rocks are scattered. Altitude range is 410m to 430m above sea level.

#### Plant Communities

The vegetation remaining is a woodland of *E. leucoxylon* and *E. odorata*, which are co-dominant. *Casuarina stricta* and *Exocarpos cupressiformis* are also present in the tree stratum but in considerably fewer numbers. Other than a clump of *Acacia paradoxa* and scattered individuals of *Bursaria spinosa*, there are no shrub or undershrub species.

### Condition

This block of vegetation is surrounded on three sides by stubble. At the time of observation a herd of sheep was resting amongst the trees. The large number of droppings indicated frequent use of the area by the sheep. Ground cover under the trees is minimal and that present comprises dead annual grasses and a few *Echium plantagineum* (Salvation Jane).

SPECIES LIST

Trees ≥2m

Casuarina stricta Eucalyptus leucoxylon E. odorata Exocarpos cupressiformis .5m < Shrubs < 2m

Acacia paradoxa Bursaría spinosa

Undershrubs ≤.5m

+ Echium plantagineum

Date: 14/2/1980

Location: Co. Light Hd Waterloo Sec. 318

Map Sheet: Riverton 1:50 000 6629-I

Grid Reference: 065-306

Area: approximately 20 ha

Environmental Association: 3.3.10

### Physiography

Gentle slopes of dissected ridgetops with granite outcrops. Altitude is approximately 450m above sea level.

## Plant Communities

The vegetation very closely resembles that of Site 16 being a low woodland in which Eucalyptus leucoxylon and E. odorata characterise the tree stratum. However at this site E. odorata dominates and Casuarina stricta is also present. Bursaria spinosa was the only shrub or undershrub species recorded.

## Condition

A much depleted area of vegetation, which has been subjected to heavy grazing.

SPECIES LIST

Trees ≥ 2m

Casuarina stricta Eucalyptus leucoxylon E. odorata

.5m < Shrubs < 2m

Bursaria spinosa

Date: 14/2/1980

Location: Co. Light Hd Waterloo Sec. 301,302

 Map Sheet:
 Riverton
 6629-1

 1:50 000
 1:50 000
 1:50 000

Grid Reference: 068-282

Area: 187.4 ha prior to recent clearing

Environmental Association: 3.3.10

## Physiography

Ridge top dissected by gentle slopes. Altitude ranges from 450m to 470m above sea level.

## Plant Communities

The tree stratum of this low woodland is comprised solely of Eucalyptus odorata. No shrubs or undershrubs were recorded.

## Condition

A much depleted area of vegetation, subject to heavy grazing.

SPECIES LIST

Trees ≥ 2m

Eucalyptus odorata

Date: 14/2/1980

Location: Co. Light Hd Waterloo Sec. 257, 263

<u>Map Sheet</u>: Riverton 6629-I 1:50 000

Grid Reference: 109-272

Area: 340.8 ha

Environmental Association: 3.3.9

### Physiography

Ridgetop dissected by gentle slopes. Altitude is approximately 500m above sea level.

## Plant Communities

Eucalyptus odorata dominates the tree stratum of this low woodland. Acacia pycnantha was also recorded. No shrub or undershrub species were observed.

## Condition

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The vegetation has been severely depleted by logging and grazing.

SPECIES LIST

Trees ≥ 2m

Acacia pycnantha Eucalyptus odorata

Date: 14/2/1980

Location: Co. Light Hd Waterloo Sec. 394

Map Sheet: Riverton 1:50 000

6629-1

Grid Reference: 120-231

Area: 187.4 ha

Environmental Association 3.3.9

## Physiography

Ridgetop dissected by gentle slopes. Altitude is approximately 500m above sea level.

## Plant Communities

Eucalyptus odorata dominates the tree stratum of this low woodland. Scattered individuals of Acacia pycnantha and Casuarina stricta were also observed in the tree stratum. The only shrub species found were Bursaria spinosa and Dodonaea viscosa and these were few in number.

### Condition

The vegetation is characterised by a tree layer of *Eucalyptus odorata* and an extensive ground cover of grasses. Other species recorded were few in number reflecting heavy grazing. Kangaroo droppings were found.

SPECIES LIST

Trees ≥ 2m

Undershrubs ≤.5m

Acacia pycnantha Casuarina stricta Eucalyptus odorata Astroloma humifusum var. denticulatum Dianella revoluta Lomandra aff. densiflora

.5m < Shrubs < 2m

Bursaria spinosa Dodonaea viscosa

Date: 13/2/1980

Location: Co. Light Hd Gilbert Pt Sec. 375

<u>Map Sheet</u>: Riverton 6629-I 1:50 000

Grid Reference: 013-118

Area: 68.2 ha (before last clearing)

Environmental Association: 3.3.5

### Physiography

Ridge top vegetation. Altitude is approximatley 400m above sea level.

## Plant Communities

Eucalyptus odorata dominates this woodland with few *E. leucoxylon* present. Within the paddocks in the above listed section no other native vegetation was observed, however along an access track outside the fence line a few shrub species were found.

### Condition

The vegetation is much modified due to heavy grazing and is of low diversity.

SPECIES LIST

Trees ≥ 2m

Undershrubs  $\leq .5m$ 

Dianella revoluta

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Eucalyptus leucoxylon E. odorata

.5m < Shrubs < 2m

Acacia pycnantha Bursaria spinosa Pultenaea largiflorens var. latifolia



SITE 12-Heavily grazed Eucalyptus odorata woodland



SITE 12-Eucalyptus odorata woodland in which selective logging has occurred

Date: 13/2/1980

Location: Co. Light Hd Gilbert Pt Sec. 1600

<u>Map Sheet</u>: Riverton 6629-I 1:50 000

Grid Reference: 006-212

Area: 34.1 ha

Environmental Association: 3.3.5

## **Physiography**

A gentle north-facing slope. Altitude is approximately 430m above sea level.

## Plant Community

This area is essentially the same as Site 12, but fewer individuals of *Eucalyptus leucoxylon* were observed in the tree stratum. No shrubs or undershrubs were recorded in the paddock which abuts the Saddleworth - Marrabel Road.

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## Condition

A heavily grazed area of woodland which is of very low plant diversity.

SPECIES LIST

Trees ≥ 2m

Eucalyptus leucoxylon

# Co. Light, Hd Saddleworth

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SITE 14

Date: 14/2/1980

Location: Co. Light Hd Saddleworth Sec. 198

Map Sheet: Halbury 1:50 000 6629-IV

Grid Reference: 897-248

Area: 85.2 ha

Environmental Association: 3.3.11

### Physiography

A gentle west-facing slope with an elevation range of 330m to 340m above sea level in the area observed.

### Plant Communities

The vegetation is the same as that in Site 12, with *Eucalyptus* odorata dominating the tree stratum of the woodland. *E. leucoxylon* also is present, but in fewer numbers. No shrub or undershrub species were recorded.

## Condition

A heavily grazed area of woodland which is of very low plant diversity.

SPECIES LIST

Trees ≥ 2m

Eucalyptus leucoxylon E. odorata

Date 14/2/1980

Location: Co. Light Hd Saddleworth Pt Secs 303,307

<u>Map Sheet</u>: Riverton 6629-I, IV 1:50 000

Grid Reference: 915-273

Area: 34.1 ha

Environmental Association: 3.3.11

#### Physiography

The flat terrain is covered by natural vegetation. Elevation approximately 350m above sea level.

## Plant Communities

A woodland dominated by Acacia pycnantha which has Casuarina stricta and Eucalyptus odorata in association. The understorey which has a variety of sclerophyllous shrubs, varies from sparse to mid dense over the site. Dense areas of Lepidosperma viscidum are scattered throughout the site.

### Condition

The presence of sheep and kangaroo droppings suggests grazing has occurred but this has had little impact on the understorey vegetation.

Possum droppings were also observed.

Extensive regeneration of Acacia pycnantha occurs throughout the site but few juveniles of the other tree species were observed.

A number of small excavations were also present. The fences were in a poor state and there were signs that rabbits inhabited the area.

A few Olea europaea were found near the roadside boundaries. General

This site proved to be quite different to those in the surrounding areas in that there exists a rather diverse understorey. Choretrum glomeratum, an endangered species according to Specht *et al.*(1974), is scattered throughout the area.

	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Dom	Freq.	Rel Fræg.	IMPT VALUE
 Trees > 2m									
ia nuonantha	69	0.79	611.5	86.25	483	45.5	1.00	74.1	205.8
Camparina stricta	2	0.63	17.7	2.5	11.15	1.0	0,05	3.7	/+4 9 4 9
Eucalyptus odorata	9	7.11	79.8	11.25	\$67.3	53.5	0,30	44.4 	
TOTAL	80		709		1061.45				
.5m < Shrubs < 2m Acacia acinacea Acacia paradoxa Acacia pyonantha Bursaria spinosa Casuarina stricta Eucalyptus odorata Eutaxia microphylla Helichrysum bilobum Pimelea stricta Pultenaea largiflorens	21 3 5 1 1 7 6 1	0.57 0.33 0.45 0.35 0.25 0.5 0.92 0.92 0.25 0.25	430.2 61.5 696.6 102.4 20.5 20.5 143.4 122.9 20.5 20.5	26.25 3.75 42.5 6.25 1.25 1.25 8.75 7.5 1.25 1.25	245.2 20.3 313.5 35.8 5.1 35.8 113 5.1 5.1 5.1	31 2.6 39.7 4.5 3.6 0.6 4.5 14.3 7.6 0.6	0.16 0.04 0.05 0.01 0.01 0.04 0.05 0.01 0.01	27.6 6.9 34.5 8.6 1.7 6.9 8.6 1.7 1.7	94.8 13.2 116.7 19.3 3.5 20.1 30.4 3.5 3.5
var. latirolla TOTAL	80	·	1639		789.1				

SPECIES LIST

Trees ≥ 2m

Acacia pycnantha Casuarina stricta Eucalyptus odorata • Olea europaga

## .5m < Shrubs < 2m

Acacia acinacea A. paradoxa Bursaria spinosa Choretrum glomeratum Eutaxia microphylla Grevillea ilicifolia Helichrysum bilobum Pimelea stricta Pultenaea largiflorens var. latifolia

#### Undershrubs ≼ .5m

Lepidosperma viscidum Lomandra sp.

Date: 14/2/1980

Location: Co. Light Hd Saddleworth Sec. 131

<u>Map Sheet</u>: Riverton 6629-I 1:50 000

Grid Reference: 952-336

Area: 85.2 ha (prior to last clearance approval)

Environmental Association: 3.3.11

### Physiography

Gentle slopes of dissected ridge tops. Altitude is approximately 400m above sea level.

### Plant Communities

In this low woodland only the tree stratum remains. *Eucalyptus leucoxylon* and *E. odorata*, the only tree species observed, are co-dominant.

#### Condition

As a result of logging and grazing the vegetation has been altered drastically both in composition and structure.

SPECIES LIST

Trees ≥ 2m

Eucalyptus leucoxylon E. odorata



SITE 16-Extensively modified area of Eucalyptus leucoxylon and E. odorata low woodland



SITE 16-Understorey significantly altered by grazing

## Co. Light, Hd Julia Creek

SITE 21

Date: 14/2/1980

Location: Co. Light Hd Julia Creek Sec. 384

<u>Map Sheet</u>: Riverton 6629-I 1:50 000

Grid\_Reference: 122-201

Area: 187.4 ha

Environmental Association: 3.3.9

## Physiography

Ridgetop dissected by gentle slopes. Altitude is approximately 500m above sea level.

## Plant Communities

The tree stratum of this low woodland contains only *Eucalyptus* odorata. Within the paddocks no shrub or undershrub species were found. However along an adjacent road *Acacia pycnantha* and a few scattered undershrub species were observed.

## Condition

A much depleted area of vegetation reflecting heavy grazing.

SPECIES LIST

Trees  $\geq 2m$ 

Acacia pycnantha Eucalyptus odorata

## Undershrubs $\leq .5m$

Enchylaena tomentosa Eutaxia microphylla Lomandra sp.

Date: 15/2/1980

Location: Co. Sturt Hd Finniss Sec. 398

<u>Map Sheet</u>: Mannum 6728-II 1:50 000

Gria Reference: 467-405

Area: 119.3 ha

Environmental Association: 2.4.3

#### Physiography

Gently undulating plain. Altitude range is 70 - 80m above sea level.

49

## Plant Communities

Eucalyptus gracilis and E. oleosa dominate this open scrub which has a very open shrub and undershrub strata. Ground cover in the openings between shrubs and undershrubs comprises grasses and chenopodiaceous species.

#### Condition

The understorey is lightly grazed by stock, and sheep tracks dissect the area. Lycium ferocissimum and Marrubium vulgare were found near the road.

## <u>General</u>

The vegetation in this area appears minimally disturbed by grazing and the shrub/undershrub layers produce an aesthetically pleasing accompaniment to the tree stratum. Despite apparent light stocking levels in the area no regeneration was found. Many bird species, and kangaroos were observed.

According to Specht *et al.* (1974) *Dodonaea cuneata* is a depleted species.

Trees  $\geq 2m$ 

Callitris preissii Eucalyptus gracilis E. oleosa Heterodendrum oleaefolium Melaleuca lanceolata Pittosporum phillyraeoides Santalum acuminatum

.5m < Shrubs < 2m

Acacia myrtifolia A. sp. Cassia nemophila var. platypoda C. nemophila var. zygophylla Dodonaea cuneata Ceijera linearifolia

+ Lycium ferocissimum

Undershrubs ≤.5m

Enchylaena tomentosa Maireana brevifolia +Marrubium vulgare Rhagodia crassifolia Scaevola spinescens Zygophyllum aurantiacum Z. glaucescens



SITE 22-Eucalyptus gracilis/E. oleosa open scrub



SITE 22-Sparse undershrub stratum dominated by chenopodiaceous species and grasses

Date: 15/2/1980

Location: Co. Sturt Hd Finniss Sec. 415

<u>Map Sheet</u>: Mannum 6728-II 1:50 000

Grid Reference: 461-501

Area: 374.9 ha

Environmental Association: 2.4.3

### Physiography

The vegetation covers the steep slopes rising from a sunken creek bed which is lined by exposed limestone. Altitude range is 40 to 60m above sea level.

### Plant Communities

Eucalyptus gracilis covers the slopes forming an open scrub, with the majority of the shrub and undershrub species occurring adjacent to the creek bed. Further up the slopes from the dry creek bed, Enchylaena tomentosa was generally the main shrub/undershrub found.

## Condition

The area has been extensively grazed and ground cover is sparse, particularly in the area furthest from the creek bed.

### <u>General</u>

An area of native vegetation in Section 198 adjacent to this site, the Lenger Reserve, has been nominated for inclusion in the Heritage List.

# Trees $\geq 2m$

Callitris preissii Eucalyptus gracilis Santalum acuminatum

.5m < Shrubs < 2m

Acacia nyssophylla Eremophila scoparia Geijera linearifolia Melaleuca lanceolata

## Undershrubs≼.5m

Acacia sp. Beyeria leschenaultii \*Convolvulus sp. Dianella revoluta Enchylaena tomentosa Eutaxia microphylla var. diffusa Leucopogon rufus Lomandra effusa Maireana sedifolia +Marrubium vulgare Rhagodia spinescens Sclerolaena uniflora Westringia rigida Zygophyll.m aurantiacum

## Co. Sturt, Hd Ridley

### SITE 24

## Date: 15/2/80

Location:	Co. S	turt				
	Hd Ridley					
	Pt Se	c. 110				

Map Sheet: Mannum 1:50 000 6728-II

## Grid Reference: 618-460

Area: 1,363 ha

### Environmental Association: 2.4.3

# Physiography

The site is a flat plain covered by natural vegetation. Elevation is approximately 85m above sea level.

## Plant Communities

The plant association is a mixed open scrub dominated by Eucalyptus anceps with E. oleosa, E. gracilis, E. socialis and E. odorata in association. E. odorata is confined to a small area around the starting point of the transect. The shrub layer is very open and dominated by Beyeria leschenaultii. A number of sclerophyllous shrubs are found in association. Triodia irritans and Carpobrotus aequilaterus are the dominant species of the undershrub layer.

### Condition

The site shows no signs of grazing. Regeneration of plant species appears to be minimal.

Limestone outcrops are common throughout the area. A single track passes along a fence south of the transect starting point. Fences along the main road are in a very poor condition.

### General

This site which is a relatively open scrub community reflects the state of adjoining scrubland.

	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Re1 Dom	řreg.	Bel Freq.	IMPT VALUE
Trees ≥2m									
Eucalyptus anceps	36	2,472	199	45	492	27.8	0.90	42.8	115.6
E. gracilis	32	3.81	178	40	678	38.2	0.80	38.1	116.3
E. odorata	2	3	11	2.5	33	1.9	0.05	2.3	6.7
E. oleosa	1	2	5.5	1.25	11	0.6	0.05	2.3	4.2
E. socialis	9	11.25	49.7	11.25	559	31.5	0.30	14.3	57
TOTALS	80		442		1773		2,10		
.5m $<$ Shrubs $< 2m$									
Acacia sp.	1	2	4.889	1.25	9.778	3.26	0.05	2.5	7.010
Beyeria leschenaultii	53	0.57	259.136	66.25	148.38	49.47	0.95	47.5	163.2
Cassia nemophila var. nemophila	4	2.25	19.55	5.0	43.9875	14.67	0.20	10.0	29.67
Dodonaea bursariifolia	5	0.75	24.447	6.25	18.3353	6.11	0.15	7.5	19.86
Bucalyptus gracilis	1	3.0	4,889	1.25	14.668	4.89	0.05	2.5	8.64
Melaleuca lanceolata	8	1.1875	39.1149	10.0	46.449	15.49	0.25	12.5	37.99
Rhagodia spinescens	2	0.375	9.77	2.5	3.664	1.22	0.10	5.0	8.72
Westringia rigida	6	0.5	29.3362	7.5	14,668	4.89	0.25	12.5	24.69
TOTALS	80		391,1496		299.93		2.0		

SPECIES LIST

### Trees $\ge 2m$

- Bucalyptus anceps E. gracilis E. odorata
- E. oleosa E. socialis

### .5m < Shrubs < 2m

.

Acacia sp. Beyeria leschenaultii Cassia nemophilla var. nemophila Dodonaea bursariifolia Eutaxia microphylla var. defusa Melaleuca lanceolata Santalum acuminatum Westringia rigida

#### Undershrubs <.5m

Carpobrotus aequilaterus Dianella revoluta Maireana sp. Rhagodia crassifolia R. spinescens Triodia irritans Zygophyllum glaucescens



SITE 24-Eucalyptus anceps open scrub



SITE 24-Sparse undershrub stratum dominated by Carpobrotus aequilaterus and Triodia irritans

Date: 21/2/1980

Location: Co. Sturt Hd Ridley Sec. 448

Map Sheet: Mannum 1:50 000 6728-II

Grid Reference: 569-469

Area: 85.2 ha

### Environmental Association: 2.4.3

#### Physiography

Flat terrain, north east of Mannum, which is covered with natural vegetation. Elevation is approximately 70m above sea  $lev \in 1$ .

### Plant Communities

The open scrub community is dominated by E. gracilis, E. socialis and E. anceps . Santalum acuminatum is found in association with the Eucalyptus species. The shrub layer is open and dominated by Beyeria leschenaultii. Other sclerophylous shrub found in association are Melaleuca lanceolata, Cassia nemophila var. platypoda and Beyeria opaca. The open undershrub layer contains Rhagodia crassifolia, Zygophyllum glaucescens, Triodia irritans and Carpobrotus aequilaterus.

## Condition

Large areas of exposed ground are scattered throughout the site producing an open community. Limestone rocks occur over the whole area.

There were no signs of grazing but kangaroo droppings were observed. Relatively new fences have been erected around part of the vegetation.

#### General

The site examined is a privately owned sanctuary and similar to Site 24.

Trees  $\ge 2m$ 

Eucalyptus anceps E. gracilis E. socialis Santalum acuminatum

.5m < Shruks < 2m

Acacia lineata Acacia sp. Beyeria leschenaultii B. opaca Callitris canescens Cassia nemophila var. platypoda Cryptandra amara Maireana brevifolia M. radiata M. sedifolia Melaleuca lanceolata Rhagodia crassifolia Westringia rigida

# Undershrubs $\leq .5m$

Carpobrotus aequilaterus Dianella revoluta Halgania lavandulacea Triodia irritans Zygophyllum aurantiacum Z. glaucescens



SITE 26-Eucalyptus anceps/E. gracilis/E. socialis open scrub



SITE 26-Large patches of exposed ground occur throughout the understorey

Date: 21/2/1980

Location: Co. Sturt Hd Ridley Sec. 258

<u>Map Sheet</u>: Cambrai 6728-I 1:50 000

Grid Reference: 593-673

Area: 85.2 ha

Environmental Association: 2.4.8

## Physiography

Gently undulating plain. Altitude is 80m above sea level.

## Plant Communities

Eucalyptus anceps, E. gracilis and E. socialis are co-dominant in the tree stratum of this open scrub. The shrub and undershrub species are scattered amongst the trees, with no obviously dominant species. A wide break has been ploughed around the vegetation and it was here that most of the chenopodiaceous species were found.

## Condition

The vegetation has been heavily grazed as is indicated by relatively few undershrub species and sparse ground cover.

## General

The area is within sight of the Swan Reach Conservation Park but separated from it by cleared land reducing its potential as a buffer zone considerably.

Trees ≥ 2m

Eucalyptus anceps E. gracilis E. socialis Melaleuca lanceolata Santalum acuminatum

.5m < Shrubs < 2m

Acacia sclerophylla Atriplex stipitata Cassia nemophila var. nemophila Dodonaea bursariifolia Eremophila glabra Geijera linearifolia Goodenia sp. Maireana brevifolia M. radiata Rhagodia crassifolia Westringia rigida

## Undershrubs≼.5m

Atriplex campanulata Dianella revoluta Eriochiton sclerolaenoides Maireana trichoptera Olearia pimeleoides var. minor Sclerolaena uniflora Zygophyllum aurantiacum Z. sp.
Date: 21/2/1980

Location: Co. Sturt Hd Mobilong Pt Sec. 239, 240

<u>Map Sheet</u>: Mobilong 1:50 000 6727-I

Grid Reference: 433-237

Area: approximately 34 ha

Environmental Association: 2.3.12

#### Physiography

The site, 5 kilometres north-west of Mypolonga, is a small flat area covered with natural vegetation. Elevation is 50m above sea level.

#### Plant Communities

Open scrub with a tree stratum consisting of Eucalyptus incrassata, E. socialis, E. oleosa, E. anceps, E. gracilis and E. foecunda, with Santalum acuminatum in association (especially on roadside).

The shrub layer includes the sclerophyllous shrubs, Acacia calamifolia, Beyeria leschenaultii and Cassia nemophila var. zygophylla. Triodia irritans dominates the undershrub layer in association with Lomandra effusa.

### Condition

Heavy grazing has reduced the shrub and undershrub layers to a number of scattered individuals. Introduced grasses have also been heavily grazed.

Sheep and vehicular tracks traverse the site.

### General

Grazing has greatly depleted the shrub and undershrub layers, only the tree stratum remains unmodified.

 $\mathrm{Trees} \ge 2\mathrm{m}$ 

# Undershrubs $\leq$ .5m

Chenopodium sp. Lomandra effusa Triodia irritans

Eucalyptus anceps E. foecunda E. gracilis E. incrassata E. oleosa E. socialis

Santalum acuminatum

.5m < Shrubs < 2m

Acacia calamifolia A. hakeoides Beyeria leschenaultii Cassia nemophila var. zygophylla Enchylaena tomentosa Hibbertia virgata var. crassifolia Rhagodia crassifolia R. spinescens

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Date: 22/2/1980

Location: Co. Sturt Hd Freeling Sec. 316

Map Sheet: Monarto 1:50 000 6727-IV

Grid Reference: 243-077

Area: 119.3 ha

Environmental Association: 3.2.7

#### Physiography

The vegetation covers a broad ridge in an area of gently sloping hills. Altitude range is 140 - 150m above sea level.

# Plant Communities

Within the tree stratum of this open scrub the components are evenly represented. The shrub layer is exceedingly sparse, though of relatively high diversity. Lepidosperma laterale forms dense clumps throughout the area with other undershrubs being relatively rare.

#### Condition

The area is surrounded by wheat fields and has been grazed, though not heavily in recent times. A few individuals of Lycium ferocissimum were found near the perimeter of the vegetation. Numerous vehicular tracks traverse the area.

# <u>General</u>

The initial view of this area indicated a much disturbed piece of vegetation of low diversity. The exceedingly sparse distribution of those shrub species found, could indicate previous clearing and/or heavy grazing. The abundance of *Lepidosperma laterale* indicates that present grazing is light.

# $Trees \ge 2m$

Callitris preissii Casuarina stricta Eucalyptus aff. anceps E. gracilis E. incrassata E. leucoxylon E. odorata Melaleuca lanceolata M. uncinata Santalum acuminatum

# .5m < Shrubs(2m

Acacia calamifolia A. rigens A. rupicola

- \* Asclepias rotundifolia Bursaria spinosa Cassia nemophila var. platypoda Daviesia sp. Dodonaea viscosa Enchylaena tomentosa Hakea muelleriana Lasiopetalum behrii + Lycium ferocissimum
- Maireana brevifolia Olearia passerinoides Solanum sodomaeum Thomasia petalocalyx

# Undershrubs≼.5m

Atriplex semibaccata Dianella revoluta Eutaxia microphylla Hibbertia sericea Lepidosperma laterale Lomandra dura L. effusa Rhagodia nutans

# Climbers

+ Asparagus asparagoides Clematis microphylla





SITE 28-Understorey dominated by Lepidosperma laterale



SITE 28-Isolated clump of Melaleuca lanceolata

Date: 22/2/1980

Location: Co. Sturt Hd Freeling Sec.. 289,290

Map Sheet: Monarto 6 1:50 000

6727-IV

Grid Reference: 212-020

Area: 170.4 ha

### Environmental Association: 3.2.7

#### **Physiography**

Gently undulating plain. Altitude range is 50-60m above sea level.

# Plant Communities

1. Part of the scrub is dominated by *Eucalyptus incrassata*. Beneath this tree stratum *Gahnia lanigera* and *G. radula* are prevalent. The other sedge species are less common. The shrub layer is almost totally lacking, being represented by only a few individuals of *Melaleuca uncinata* and *Phebalium bullatum*.

2. From the above described association there is an abrupt change to low open woodland in which Eucalyptus fasciculosa and E. porosa are co-dominant. Melaleuca lanceolata and M. uncinata are the dominant shrubs with the sedge species similar to that found in the Eucalyptus incrassata scrub.

The majority of the undershrub species recorded were found along the roadside.

#### Condition

The comparative lack of undershrub species within the fenced vegetation compared with the roadside vegetation indicates past grazing of the former area, though there were no signs of current grazing.

### General

According to Specht *et al.* (1974) *Gahnia radula*, a very common species in the undershrub layer of the area, is a rare species and *Muehlenbeckia horrida*, found in the roadside vegetation, an endangered species.

# $Trees \ge 2m$

Eucalyptus fasciculosa E. incrassata E. porosa

# .5m < Shrubs < 2m

Acacia calamifolia A. myrtifolia A. sp. Bursaria spinosa Dampiera rosmarinifolia Dodonaea hexandra Enchylaena tomentosa Grevillea lavandulacea Hakea muelleriana Lasiopetalum behrii Leptospermum coriaceum Melaleuca lanceolata M. uncinata Muehlenbeckia horrida Phebalium bullatum Rhagodia crassifolia Thomasia petalocalyx

# Undershrubs $\leq .5m$

Dianella revoluta Gahnia lanigera G. radula Lepidosperma sp. Lomandra dura L. micrantha

Date: 22/2/1980

Location: Co. Sturt Hd Freeling Sec. 294

<u>Map Sheet</u>: Monarto 1:50 000 6727-IV

Grid Reference: 235-015

Area: 170 ha

Environmental Association: 2.3.12/3.2.7

#### Physiography

The vegetation covers a gentle, south-facing slope. Altitude range is 70-90m above sea level.

# Plant Communities

1. Eucalyptus incrassata open scrub occurs on the northern end of the slope. Leptospermum cortaceum dominates the thick shrub stratum, except for a dense clump of Banksia ornata on the upper slope.

2. Eucalyptus fasciculosa open scrub occurs lower down on the slope. The open shrub layer, when present, is still dominated by Leptospermum coriaceum. In a few localised areas, the shrub stratum is absent, and here Gahnia sp dominates the lower strata. Clumps of Melaleuca lanceolata occur near the road.

# **Condition**

The area appeared relatively undisturbed, with no evidence of recent grazing or logging. No introduced plant species were found.

#### General

The vegetation in this section is a transition between associations 2.3.12/3.2.7 (Laut *et al.*, 1977). The variation to be found was exemplified along the transect. However, further west on the northern part of the slope, the vegetation changes to a shrub steppe due to the absence of *Eucalyptus incrassata*. Here the dense shrub layer is dominated by dense *Leptospermum coriaceun* and the other shrub and undershrub species are essentially the same as in the area sampled.

			•						
SITE JO			:						
	Nos	Ave	Den/	Rel	Dom	Rel	Freq.	Rel Freg.	IMPT VALUE
	of	Dom	Ha	Den					
	Indiv	Value			<u> </u>				
Amer > 2m Points 1 - 11									
			• <b>•</b> •		463.3	85.9	.91	62.75	232.7
Sucalyptus incrassata	37	4,95	10 1	9.1	55.5	10.3	.27	18.6	38.0
5. fasciculosa	4	. 5.3	2 4	2.3	13	2.4	.09	6.2	10.9
Nelaleuca uncinata	1	2	3 6	2.3	5.2	1.0	09	6.2	9.5
Leptospermum coriaceum	1	2	2.6	2.3	2.6	.5	.09	6.2	9.0
Banksia ornaca	1	<u> </u>					1 46		
TOTALS	44		111.4		539.6		1.44		
Trees Points 12-20		•							
			·	1 0	5.2	.7	.1	7.7	11.2
Eucaluptus incressate	1	1	3.1/	4.9	676 6	82.6	9	69.2	226.8
E fasciculosa	27	4.6	138.4	/3.4	118 1	15.3	.2	15.4	50.1
Melaleuca lanceolata	7	3.3	35.6	17.4	10 4	1.4	.1	7.7	11.9
N. Uncinata	1	2	5.17						
TOTALS	36		184.5		770.3		1.3		
c - < Chrube < 2m Points [e]]									
.om < Shrube < sm rornwit-ti						00.4	1.0	78.7	264.3
Lentospermum CoriaCeum	41	. 59	789.9	93.2	466.0	34.9		7.1	13.2
Phenodia crassifolia	1	1	19.2	2.27	19.4	3.0	.09	7.1	12.3
Najaleuca uncinata	ī	.75	19.2	2.27	14.4	2.7	.09	7.1	10.4
Banksia oznata	7	. 25	19.2	2.27	4.5	1.0			
TOTALS	44		847.5		504.4		1.27		
.5a < Shrubs < 2m Points 12-20					•			74 7	80
	13	0.6	70.03	35.3	42.0	28.0		20.7	44 6
Leptospermum corractum	14	1.25	23.41	11.8	29.3	19.5	.2	13.3	17.4
Lasiopecalum penrii		1	5.8	2.94	5.8	3.9	.1	0.0	13
Thomasia petalocalyx			75.79	38.2	37.9	25.3	.4	26.7	70.2
Cahnia sp.	13		5.8	2.94	8.7	5.8	.1 '	0.0	13.3
Melaleuca lanceolata	1	1.5	17.5	8.8	26.3	17.5	.3	20.0	40.3
H. uncinata	3						1 C		
TOTALS	34		198.4		150				

### Trees ≥ 2m

5 70

- 2
- Callitris preissii Eucalyptus fasciculosa E. incrassata E. porosa 2
- 1
- 2
- E. porosa Exocarpos cupressiformis Melaleuca lanceolata 12
- .5m < Shrubs < 2m

  - Acacia calamifolia ١ ī
  - 1
  - A. myrtifolia A. rigens Astroloma conostephioides 1
  - Astronoma constanta Banksia offata Enchylaena tomentosa Hakea muelleriana Lasioptetalum behrii Loptospermum coriaceum

  - 1 2 2 1,2 1,2 1,2 2,2
  - Melaleuca uncinata Rhagodia crassifolia

  - Thomasia petalocalyx

Under shrub# 6.5m

1	Acrotriche	depressa	

- Billardiera sericophora 1
- 1
- 1
- Brachyloma ericoides Clematis microphylla Cryptandra leucophracta C. tomentosa 1 i
- 1,2
- 1
- C. tomentosa Dianella revoluta Gahnia radula Hibbartia stricta H. virgata var. crassifolia Hupolaena fastigiata Lepidosperma laterale L. semiteres Lomandra dura L. effusa L. effusa L. leucocephala Rhagodia nutana Stuphalia exarthena
- 1,2
- 1
- 1,2
- 2
- 1,2
  - 1
  - ī
  - Styphelis exerchena Tricoryne elatior 1 1

The numbers indicate in which association the species were found.



SITE 30-Eucalyptus incrassata open scrub



SITE 30-Understorey dominated by Gahnia sp.

Date: 22/2/1980

- Location: Co. Sturt Hd Freeling Pt Sec. 3359, 3364, 3368
- Map Sheet: Alexandrina 6727-III 1:50 000

Grid Reference: 236-894

Area: 68.2 ha (includes surface area of lake)

Environmental Association: 2.3.11

# Physiography

The vegetation surrounds a shallow lake which is adjacent to Mosquito Creek and is on a flat plain. Altitude is 10m above sea level.

### Plant Communities

A dense stand of *Eucalyptus camaldulensis* surrounds the lake with sedges (*Cyperus* sp. and *Scirpus* sp.) growing along the water line.

### Condition

The ring of *Eucalyptus camaldulensis* is surrounded by pasture and stock use the lake as a water source.

### General

A picturesque area supporting abundant bird life.

SPECIES LIST

Trees 2m

Eucalyptus camaldulensis

Undershrubs .5m

Cyperus sp. Scirpus sp.



SITE 32-A dense stand of Eucalyptus camaldulensis surrounds a small lake



SITE 32-Cyperus sp. and Scirpus sp. crowded along the edge of the lake

# Co. Sturt, Hd Brinkley

SITE 31

Date: 22/2/1980

Location: Co. Sturt Hd Brinkley Sec. 1213

<u>Map Sheet</u>: Monarto 6727-IV 1:50 000

Grid Reference: 402-004

Area: approximately 60 ha

Environmental Association: 2.3.12

#### Physiography

Sand dune ridge. Altitude is 10m above sea level.

# Plant Communities

Closed scrub which is dominated by Eucalyptus incrassata. The other species recorded are not common. Individuals of Melaleuca lanceolata, M. uncinata and Leptospermum coriaceum are very old and are up to 4m high.

# Condition

The vegetation is surrounded by wheat fields and the shrub and undershrub layers are no longer present. No grasses or sedges were found which indicates heavy grazing of the area.

# SPECEIS LIST

### Trees≥2m

Callitris canescens C. preissii Eucalyptus foecunda E. incrassata Leptospermum coriaceum Melaleuca lanceolata M. uncinata

# 5.4 Co. Eyre, Hd Anna

SITE 33

Date: 3/3/80

Location:	Co. Eyre				
	Hd Anna				
	Sec. 179				

Map Sheet: Sandleton 1:50 000

6729-11

Grid Reference: 525-908

Area: 1448.4 ha

Environmental Association: 2.4.5

## Physiography

A flat area of natural vegetation immediately west of Lake Short. Elevation is approximately 50m above sea level.

# Plant Communities

Eucalyptus gracilis dominates the majority of the area in association with E. socialis and E. oleosa. The open shrub layer was sparse. Clusters of Melaleuca lanceolata were found throughout the open mallee community, while Acacia nyssophylla has a more scattered distribution. The undershrub layer includes the chenopods Maireana brevifolia, M. sedifolia and Sclerolaena patenticuspis and Zygophyllum glaucescens.

Truro Creek runs into low lying land in Section 179 and this area has a distinctly different tree stratum. *Eucalyptus largiflorens* dominates the area. A shrub layer does not exist and the only undershrub species found was *Zygophyllum glaucescens*.

#### Condition

The area has been heavily grazed and the shrub and undershrub layers are much depleted in species and numbers. Gate signs indicate stock still graze in the area. The site has been subdivided and a number of vehicular tracks pass through the vegetation. Earth moving and the clearing of stumps have left crater-like holes in the area. These activities may be associated with subdivision of the site.

# General

Grazing and subdivision of the site has left the natural vegetation in a very disturbed state.

SPECIES LIST

Trees ≥2m

Eucalyptus gracilis E. largiflorens E. oleosa E. socialis

.5m < Shrubs < 2m

Acacia nyssophylla Eremophila scoparia Melaleuca lanceolata Muehlenbeckia cunninghamii Undershrubs  $\leq .5m$ 

Atriplex semibaccata Sclerolaena patenticuspis Maireana brevifolia M, sedifolia

\* Onopordum acaulon Salsola kali Teucrium racemosum Zygophyllum glaucescens

Date: 3/3/1980

Location: Co. Eyre Hd Anna Sec. 289

Map Sheet: Sandleton 1:50 000 6729-II

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Grid Reference: 533-847

Area: 306 ha

Environmental Association: 2.4.7

Physiography

An area of flat land covered with natural vegetation. Elevation is approximately 50m above sea level.

# Plant Communities

Eucalyptus gracilis dominates the open scrub community in association with Eucalyptus anceps and E. foecunda. Other tree species which are scattered throughout the area include Santalum acuminatum, Pittosporum phylliraeoides, Heterodendrum oleaefolium and Exocarpos aphyllus. The undershrub layer is dominated by Eremophila scoparia in association with Westringia rigida, Acacia nyssophylla and Acacia oswaldii. The undershrub layer consists of Zygophyllum aurantiacum, Sclerolaena patenticuspis and other small chenopods.

### Condition

Sheep droppings, and sheep tracks were observed which suggests the area is still actively grazed. Rabbit burrows and scratchings were also observed.

### General

The presence of chenopods in the undershrub layer suggests that the area has been disturbed.

Trees 🝃 2m

Eucalyptus anceps E. foecunda E. gracilis Exocarpos aphyllus Heterodendrum oleaefolium Pittosporum phillyraeoides Santalum acuminatum

.5m < Shrubs < 2m

Acacia nyssophylla A. oswaldii Atriplex semibaccata Dodonaea bursariifolia Eremophila scoparia Olearia sp. Rhagodia crassifolia R. spinescens Westringia rigida

Maireana brevifolia M sedifolia Sclerolaena patenticuspis Zygophyllum aurantiacum

# Undershrubs $\leq .5m$

# Co. Eyre, Hd Bagot

SITE 35

Date: 3/3/1980

Location: Co. Eyre Hd Bagot Sec. 112

Map Sheet: Cambrai 1:50 000 6728-I

Grid Reference: 442-808

Area: 68.2 ha

Environmental Association: 2.4.6

### Physiography

Gently undulating land covered with natural vegetation 5km north-east of Towitta. Elevation is 100m above sea level.

### Plant Communities

Eucalyptus gracilis dominates the open scrub in association with Callitris preissii, Santalum acuminatum, Exocarpos aphyllus, Casuarina stricta, Heterodendrum oleaefolium and Melaleuca lanceolata. The sparse, open shrub layer is represented by Acacia hakeoides and Geijera linearifolia. On the roadside Cassia nemophila var. platypoda and Cassia nemophila var. nemophila are found.

A well defined undershrub layer does not exist, only a few Zygophyllum glaucescens, Z. aurantiacum, Sclerolaena patenticuspis and Maireana sedifolia specimens were found.

# Condition

Grazing has greatly reduced the shrub and undershrub layers. All shrubs are well established and have been grazed up to lm above the ground.

Several sheep tracks traverse the site.

#### General

Grazing has greatly altered this site. There is no regeneration and all plants have been grazed up to lm above the ground.

# Trees $\ge 2m$

Callitris preissii Casuarina stricta Eucalyptus gracilis Exocarpos aphyllus Heterodendrum oleaefolium Melaleuca lanceolata Santalum acuminatum

.5m < Shrubs < 2m

Acacia hakeoides Cassia nemophila var. nemophila C. nemophila var. platypoda Geijera linearifolia Undershrubs ≤.5m

Maireana sedifolia Sclerolaena patenticuspis Zygophyllum aurantiacum Z. gláucescens

Date: 3/3/1980

Location: Co. Eyre Hd Bagot Sec. 88

<u>Map Sheet</u>: Cambrai 6728-I 1:50 000

Grid Reference: 438-804

Area: 119.3 ha

Environmental Association: 2.4.4

# Physiography

Flat land covered with natural vegetation. Elevation is approximately 100m above sea level.

# Plant Communities

Eucalyptus brachycalyx, E. socialis and E. anceps are co-dominants in the open scrub. A shrub layer does not exist. The undershrub layer is dominated by the chenopods Maireana brevifolia, M. sedifolia and Enchylaena tomentosa. Zygophyllum glaucescens and Salsola kali are in association. The shrub Geijera linearifolia is found on the roadside boundary of the site.

# Condition

Sheep tracks and rabbit warrens occur throughout the site. The absence of a shrub stratum and a much depleted undershrub layer suggests heavy grazing. The area therefore represents a very modified piece of natural vegetation.

# General

The degraded tree stratum may be considered a remnant of the E. socialis - E. brachycalyx open scrub alliance which according to Margules (1978) is an endangered plant alliance.

Trees≥2m

Eucalyptus anceps E. brachycalyx E. socialis

# .5m < Shrubs < 2m

Geijera linearifolia

Undershrubs  $\leq .5m$ 

Enchylaena tomentosa Maireana brevifolia M. sedifolia Salsola kali Zygophyllum glaucescens

Date: 14/3/1980

Location: Co. Eyre Hd Bagot Sec. 256

<u>Map Sheet</u>: Sandleton 1:50 000

6729-II

Grid Reference: 411-833

Area: approximately 50 ha

Environmental Association: 2.4.4

#### Physiography

Natural vegetation covers an undulating plain dissected by a small creek running east-west. The site is approximately 5km NNE of Towitta. Elevation is approximately 150m above sea level.

#### Plant Communities

An open scrub dominated by Eucalyptus porosa in association with Callitris preissii, Heterodendrum oleaefolium and Santalum acuminatum. Eucalyptus camaldulensis occurs in the creek bed. The shrub layer is very sparse, Acacia argyrophylla, A. oswaldii, Cassia nemophila var. nemophila, C. nemophila var. platypoda and Dodonaea viscosa all occur in the immediate vicinity of the creek. Chenopodiaceous plants dominate the undershrub layer. These include Atriplex paludosa, A. semibaccata, Sclerolaena uniflora, Rhagodia spinescens and Salsoli kali.

# Condition

The area is located at the junction of a number of roads and is bisected by a small creek. There are no signs of recent grazing. Annual grasses are a common ground cover.

#### General

The area is best described as roadside vegetation.

 ${\tt Tr\,ees}\geqslant 2{\tt m}$ 

Callitris preissii Eucalyptus camaldulensis E. porosa Heterodendrum oleaefolium Santalum acuminatum

.5m < Shrubs < 2m

Acacia argyrophylla A. oswaldii

\* Asclepias rotundifolia Cassia nemophila var. nemophila C. nemophila var. platypoda Dodonaea viscosa Undershrubs  $\leq .5m$ 

Atriplex paludosa A. semibaccata Enchylaena tomentosa Maireana brevifolia Rhagodia spinescens Salsola kali Sclerolaena obliquicuspis S. uniflora Zygophyllum aurantiacum



SITE 56-Eucalyptus porosa open scrub

Date: 14/3/80

Location: Co. Eyre Hd Bagot Sec. 175

<u>Map Sheet</u>: Cambrai 6728-I 1:50 000

Grid\_Reference: 508-795

Area: 221.5 ha

Environmental Association: 2.4.7

### Physiography

Natural vegetation covers an undulating plain approximately 12km NE of Sedan. Elevation is approximately 130m above sea level.

### Plant Communities

The closed scrub is dominated by Eucalyptus gracilis in association with E. anceps and E. oleosa. The open shrub layer consists of a number of sclerophyllous plants including Cassia nemophila var. platypoda. C. nemophila var. zygophylla, Dodonaea stenozyga and Melaleuca lanceolata. Chenopodiaceous plants are abundant in the open undershrub stratum.

# Condition

Limestone rocks of varying size litter the entire area. Birdlife is plentiful and there are signs that indicate kangaroos are common in the area.

Roadside fences in Section 175 are in poor condition.

# <u>General</u>

There is an abundance of fauna in the area and the endangered species  $Grevillea\ huegelii$ , according to Specht *et al.* (1974), also occurs here.

	Nos of Indiv	Ave Dom Value	Den/ Ka	Rel Den	Dom	Rel Dom	freq.	Rel Freq.	IMPT VALUE
Trees ≥ 2m								· .	
Eucalyptus anceps E. gracilis E. oleosa	6 57 17	6.7 4.9 5.7	28.4 269.9 80.5	7.5 71.25 21.25	190.3 1332.5 458.8	9.6 67.2 23.3	.25 .95 .55	14.3 54.3 31.4	31.4 192.8 76.0
Totals	80		378.8		1981.6		1.75		
.5m < Shrubs < 2m									
Acriplex stipitata	3	.33	12.1	3.75	4.0	1.7	.15	6.1	11.6
Cassia nemophila var. zygophylla	8	. 59	32.3	10.0	19.1	7.9	. 25	10.2	28.1
DoJonaea stenozyga	20	.1	80.7	25.0	56.5	23.5	. 45	18.4	66.9
Melaleuca lanceolata	7	- 2.64	28.2	8.75	74.5	30.9	. 25	10.2	49.9
Nyoporum platycarpum	.1	1.0	4.0	1.25	4.0	1.7	.05	2.0	5.0
Olearia muelleri	25	.44	100.8	31.25	44.4	18.4	.65	26.5	76.2
Rhagodia crassifolia	11	.5	44.4	13.75	22.2	9.2	.4	16.3	39.3
Westringia rigida	3	.92	12.1	3.75	11.1	4.6	.15	6.1	14.5
Cassia nemophila var. platypoda	1	.5	4.0	1.25	2.0	.6	.05	2.0	4.1
Eucalyptus oleosa	1	.75	4.0	1.25	3.0	1.2	.05	2.0	4.5
Totals	80		322.6		240.8		2,45		

#### Trees ≥ 2m

Eucalyptus anceps E. gracilis E. oleosa Myoporum platycarpum Santalum murrayanum

.5m < Shrubs < 2m

Atriplex stipitata Cassia nemophila var. platypoda C. nemophila var. zygophylla Dodonaea stenozyga Eucalyptus oleosa Geijera linearifolia Crevillea huegelii Melaleuca lanceolata Myoporum platycarpum Nitraria billardieri Olearia muelleri Rhayodia crassifolia Westringia rigida Undershrubs ≼.5m

Atriplex semibraccata A. stipitata Enchylaena tomentosa Halgania cyanea Maireana sp. Olearia floribunda Rhagodia parabolica Sclerolaena uniflora Zygophyllum aurantiacum Z. glaucescens

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Date: 3/3/1980

Location: Co. Eyre Hd Brownlow Sec. 61

Map Sheet: Mt Mary 1:50 000

Grid Reference: 480-110

Area: approximately 200 ha

Environmental Association: 2.4.14

#### Physiography

Gently undulating plain covered with natural vegetation. Elevation ranges from 90m to 110m above sea level.

6729-I

## Plant Communities

Eucalyptus gracilis dominates the open scrub in association with E. foecunda and Santalum acuminatum. The sparse open shrub layer is represented by Acacia nyssophylla, Lycium australe, Geijera linearifolia, Grevillea huegelii and Eremophila scoparia.

The undershrub layer is dominated by young Maireana sedifolia plants in association with Enchylaena tomentosa, Rhagodia spinescens, and Sclerolaena patenticuspis. Zygophyllum glaucescens and Z. aurantiacum are present in the undershrub layer.

#### Condition

Regeneration is evident in the shrub and undershrub layers suggesting grazing has not occurrred in this area for some time.

Sheep tracks exist. Grey kangaroos were observed in Section 67.

### General

According to Specht *et al.* (1974) *Grevillea huegelii*, which is scattered throughout the area, is an endangered species.

Trees≥2m

Eucalyptus foecunda E. gracilis Santalum acuminatum

.5m < Shrubs < 2m

Acacia nyssophylla Eremophila scoparia Geijera linearifolia Grevillea huegelii Lycium australe Undershrubs ≪.5m

Enchylaena tomentosa Maireana sedifolia Rhagodia spinescens Sclerolaena patenticuspis Zygophyllum aurantiacum Z. glaucescens

### Co. Eyre, Hd Neales

SITE 38

#### Date: 3/3/1980

Location: Co. Eyre Hd Neales Sec. 249

Map Sheet: Eudunda 1:50 000 6729-IV

# Grid Reference: 369-205

Area: 68.2 ha

## Environmental Association: 2.4.15

### Physiography

A gently undulating plain covered with natural vegetation, 0.5 km north-east of Sutherland. Elevation is approximately 100m above sea level.

#### Plant Communities

Eucalyptus gracilis, the only tree species present, forms a closed scrub. The shrub layer does not exist and the sparse open undershrub layer is dominated by the chenopod species Maireana brevifolia, Sclerolaena patenticuspis, Enchylaena tomentosa and Atriplex semibaccata.

#### Condition

A stock watering trough is located in the south western corner of Section 249 which suggests the area is regularly used for grazing.

### SPECIES LIST

Trees≥2m

Eucalyptus gracilis

Undershrubs <.5m

Atriplex semibaccata Enchylaena tomentosa Maireana brevifolia Sclerolaena patenticuspis

ЧU

Date: 3/3/1980

Location: Co. Eyre Hd Neales Sec. 244,290

<u>Map Sheet</u>: Eudunda 6729-IV 1:50 000

Grid Reference: 343-168

Area: 68.2 ha

Environmental Association: 3.3.8

### Physiography

Natural vegetation covers the steeply sloping blanks of Deep Creek, lkm south west of Sutherlands. Elevation is approximately 400m above sea level. 91

#### Plant Communities

Eucalyptus brachycalyx is a co-dominant with E. gracilis in the open tree stratum. Santalum acuminatum and Melaleuca lanceolata occur on the roadside in association with the eucalypt species. The shrub layer consists of Geijera linearifolia, Melaleuca lanceolata and Rhagodia crassifolia. The undershrub layer, as in Site 38, is dominated by chenopod species, including Atriplex semibaccata, Sclerolaena patenticuspis and Enchylaena tomentosa.

### Condition

The vegetation around the creek bed is relatively undisturbed, while that in the nearby paddocks is heavily grazed.

Only the tree stratum is well defined. The shrub and undershrub layers are poorly represented which is probably a result of heavy grazing. Sheep droppings were observed.

Trees>2m

Eucalyptus brachycalyx E. gracilis Melaleuca lanceolata Santalum acuminatum

.5m  $< {\tt Shrubs} < {\tt 2m}$ 

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Geijera linearifolia Lycium australe Rhagodia crassifolia

Atriplex semibaccata Enchylaena tomentosa Rhagodia gaudichaudiana Sclerolaena patenticuspis

Undershrubs  $\leq .5m$ 



SITE 38-Eucalyptus gracilis closed scrub



SITE 39-Eucalyptus brachycalyx/E. gracilis open scrub

### 5.5 Co. Stanley, Hd Everard

SITE 40

Date: 10/3/1980

Location: Co. Stanley Hd Everard Pt Sec. 190

<u>Map Sheet</u>: Blyth 6530-II 1:50 000

Grid Reference: 469-453

Area: approximately 100 ha

Environmental Association: 4.6.10

#### Physiography

The vegetation covers the upper part of a gentle, eastward facing slope in undulating country. Altitude is 150m above sea level.

# Plant Communities

An open scrub which is dominated by *Eucalyptus oleosa*. No shrub or undershrub species were found.

# Condition

The vegetation is surrounded by wheat fields, and when visited, was being grazed by a herd of goats. A small rubbish dump containing car bodies, wire and tin was found.

A much disturbed area of vegetation which is of low diversity.

### SPECIES LIST

# Trees ≥2m

Callitris preissii Eucalyptus foecunda E. gracilis E. oleosa E. socialis Melaleuca lanceolata

- -

Date: 10/3/1980

Location: Co. Stanley Hd Everard Sec. 383

Map Sheet: Blyth 1:50 000 6530 II

Grid Reference: 532-382

Area: 204.5 ha

Environmental Association: 4.6.10

#### Physiography

A gently undulating plain that falls away to low lying samphire flats. The site is approximately 2km west of Everard Central. Elevation is approximately 75m above sea level.

### Plant Communities

The open scrub is dominated by Eucalyptus anceps with E. socialis and E. gracilis in association. Callitris preissii, Heterodendrum oleaefolium and Myoporum platycarpum are also represented in the tree stratum. The shrub layer is poorly defined with only a few scattered Acacia ligulata and Lycium ferocissimum present.

The sparse undershrub layer is represented by Maireana brevifolia, Sclerolaena uniflora, Enchylaena tomentosa and Salsola kali. Cucumis myriocarpus, Heliotropium eruopaeum and Marrubium vulgare are also present.

An abrupt change in the vegetation occurs approximately lkm east of the western boundary. Here the open woodland gives way to a samphire flat that runs north-south through the area.

# Condition

Vehicular tracks which radiate from the south-western entrance to the paddock traverse the area. No tracks pass through the samphire flat.

A dump containing rusting water tanks, farm machinery and wire is located near the entrance to the paddock. Fallen trees are scattered over the area.

# General

The degraded state of the vegetation and the presence of weed species suggest that this area has been grazed.

# SPECIES LIST

Trees ≥2m

Callitris preissii Eucalyptus anceps E. gracilis E. socialis Heterodendrum oleaefolium Myoporum platycarpum

.5m < Shrubs < 2m

Acacia ligulata Lawrencia incana + Lycium ferocissimum Undershrubs <.5m

Arthrocnemum sp. Atriplex stipitata

- \* Cucumis myriocarpus Enchylaena tomentosa
- \* Heliotropium europaeum Maireana brevifolia
  M. sedifolia
- + Marrubium vulgare
- \* Onopordum acaulon Salsola kali Sclerolaena uniflora

Climbers

Convolvulus sp.



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SITE 41-Eucalyptus anceps open scrub
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SITE 41-Samphire swamp dominated by Arthrocnemum sp.
### Co. Stanley, Hd Milne

SITE 42

Date: 10/3/1980

Location: Co. Stanley Hd Milne Sec. 407

<u>Map Sheet</u>: Spalding 6630-IV 1:50 000

Grid Reference: 737-664

Area: 119.3 ha

Environmental Association: 3.3.13

# Physiography

The vegetation covers an eastern facing slope in undulating country. Altitude ranges from 360m to 370m above sea level over the area observed.

# Plant Communities

Eucalyptus leucoxylon dominates this low woodland with only a few individuals of *E. odorata* present. No shrub or undershrub species were found. Grasses provide complete ground cover.

### Condition

A disturbed area of vegetation with ample evidence of sheep and rabbit grazing.

SPECIES LIST

Trees  $\geq 2m$ 

Eucalyptus leucoxylon E. odorata

# 5.6 Co. Burra, Hd Apoinga

SITE 43

Date: 11/3/1980

Location: Co. Burra Hd Apoinga Sec. 483

Map Sheet: Apoinga 1:50 000 6630-II

Grid Reference: 106-432

Area: 715.7ha

#### Environmental Association: 3.3.8

Physiography

Natural vegetation on the eastern slope of the ridge system at Niblet Gap, 2.5km south-west of Emu Downs. Elevation ranges from 550m to 600m above sea level.

#### Plant Communities

The low woodland on the ridge top is dominated by Casuarina stricta with Callitris preissii and Exocarpos cupressiformis in association. The poorly defined shrublayer consists of a number of sclerophyllous shrubs including Xanthorrhoea quadrangulata, Dodonaea viscosa and Acacia paradoxa.

The undershrub layer consists of Astroloma humifusum, Rhagodia nutana and Dianella revoluta.

The steeply inclined granite outcrops of the ridge restricts the distribution of vegetation making the identification of strata difficult. Further down the eastern slope where the gradient is much reduced these vegetation strata became more easily recognisable. The vegetation also changes. Here an open woodland is dominated by Eucalyptus odorata and the shrub layer represented by Bursaria spinosa. The undershrub layer consists of Lomandra dura, Lepidosperma viscidum and introduced pasture grasses.

# Condition

Sheep tracks and rabbits were observed on the eastern slopes. The tences in this region are down and in need of repair. Kangaroo droppings were observed on the ridge top.

### General

The ridge top vegetation and that of the western slope is relatively undisturbed whereas the vegetation of the lower eastern slope has been intensively grazed.

#### SPECIES LIST

Trees  $\geqslant 2m$ 

Callitris preissii Casuarina stricta Eucalyptus odorata Exocarpos cupressiformis

.5m < Shrubs < 2m

Acacia paradoxa A. pycnantha Bursaria spinosa Correa sp. Dodonaea viscosa Pultenaea largiflorens Spyridium parvifolium Xanthorrhoea quadrangulata

# Undershrubs $\leq .5m$

Astroloma humifusum Dianella revoluta Gonocarpus sp. Helichrysum bracteatum Lepidosperma viscidum Lomandra densiflora L. dura Rhagodia nutans

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SITE 43-Callitris preissii and Xanthorrhoea quadrangulata scattered over granite outcropping



SITE 43—Acacia paradoxa occurs immediately beyond the outcropping with Eucalyptus odorata low woodland on the lower slopes

Co. Burra, Hd Bright

SITE 44

Date: 11/3/1980

Location:	Co. Burra
	Hd Bright
	Sec. 30

<u>Map Sheet</u>: Worlds End 6730-III 1:50 000

Grid Reference: 477-192

Area: 1380.2 ha

Environmental Association: 3.3.8

#### Physiography

The area is 2.5km north east of Emu Downs. The natural vegetation covers gently sloping hillsides on which small granite outcrops occur. Elevation is approximately 500m above sea level.

# Plant Communities

Eucalyptus socialis dominates the open scrub in association with E. gracilis, Callitris preissii, Casuarina stricta, Heterodendrum oleaefolium and Santalum acuminatum. The open shrub layer consists of a number of sclerophyllous shrubs including Acacia calamifolia, A. pycnantha, A. oswaldii, Melaleuca lanceolata, Bursaria spinosa and Cassia nemophila var. platypoda.

An open undershrub layer, which includes Acrotriche patula, Atriplex stipitata, Dodonaea baueri, Dianella revoluta and Westringia rigida, is confined to the wooded areas. Pasture grasses occur in all other areas.

#### Condition

The presence of shrub species on the more open areas suggests that this area has not been recently grazed. There were no signs of grazing.

A number of well established vehicular tracks give easy access to this area.

#### General

The low rolling hills with their expanses of natural vegetation make this a very scenic area. There is an abundance of bird and reptile life. Trees  $\geqslant 2m$ 

Callitris preissii Casuarina stricta Eucalyptus gracilis E. socialis Heterodendrum oleaefolium Melaleuca lanceolata \* Olea europaea Santalum acuminatum

```
Cassia nemophila var. platypoda
Dodonaea baueri
Eriostemon linearis
Eutaxia microphylla var. diffusa
Olearia decurrens
Pimelea stricta
Westringia rigida
```

# Undershrubs $\leq$ .5m

Acrotriche patula Atriplex stipitata Chenopodium pseudomicrophyllum Dianella revoluta Gahnia lanigera Lomandra effusa L. micrantha Olearia floribunda Phyllanthus saxosus

.5m < Shrubs < 2m

Acacia brachybotrya A. calamifolia A. oswaldii A. pycnantha Bursaria spinosa

Climbers & Others

Amyema miquelii Cassytha sp.





SITE 44-Eucalyptus oleosa open scrub with understorey



SITE 44-The open scrub covers gently sloping hillsides

Date: 11/3/1980

Location: Co. Burra Hd Bright Sec. 224

Map Sheet: Worlds End 1:50 000 6730-111

Grid Reference: 276-554

Area: 5316.5 ha

Environmental Association: 3.3.9

#### Physiography

Natural vegetation covers a flat plain, 25km east of Worlds End. Elevation is approximately 300m above sea level.

#### Plant Communities

The open scrub is dominated by Eucalyptus gracilis which is in association with Myoporum platycarpum and Santalum acuminatum. Geijera linearifolia and Eremophila scoparia are present in the very open shrub layer. The undershrub layer which is dominated by chenopodiaceous plants includes Atriplex stipitata, Sclerolaena uniflora, Sclerolaena obliquicuspis, Enchylaena tomentosa, Maireana brevifolia, M. georgei, M. sedijolia, Rhagodia spinescens and Salsola kali. Zygophyllum glaucescens and Cassytha sp. are also present.

#### Condition

The vegetation is much degraded. The sparse shrub layer and the presence of chenopods in the undershrub stratum suggest grazing has occurred.

Kangaroo droppings and rabbits were observed. A vehicular track ran along the eastern boundary of the area.

#### General

A degraded piece of vegetation with a diverse chenopod undershrub stratum.

# SPECIES LIST

Trees  $\geq 2m$ 

Eucalyptus gracilis Myoporum platycarpum Santalum acuminatum

.5m < Shrubs < 2m

Acacia oswaldii Eremophila scoparia Geijera linearifolia Undershrubs  $\leq .5m$ 

Atriplex acutibractea A. stipitata Enchylaena tomentosa \* Heliotropium europaeum Maireana sp. M, brevifolia M. georgei M. pyramidata M. sedifolia Rhagodia gaudichaudiana Salsola kali Sclerolaena obliquicuspis S. patenticuspis S. uniflora Zygophyllum aurantiacum Z. glaucescens

Climbers

Cassytha sp.

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Date: 11/3/1980

Location: Co. Burra Hd Bundey Sec. 65

Map Sheet: Worlds End 1:50 000 6730-III

Grid Reference: 325-442

Area: 170.4 ha

#### Environmental Association 2.4.15

#### Physiography

A gently undulating area traversed by numerous small water courses. Altitude is approximately 100m above sea level.

#### Plant Communities

An area of open scrub in which *Eucalyptus gracilis* and *E. oleosa* are co-dominant. Scattered chenopods form poorly-defined understories. *Sclerolaena patenticuspis* and annual grasses contribute to the sparse ground cover.

# Condition

It is a much modified area of vegetation.

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#### General

Jessup (1948) recorded *Eucalyptus oleosa - E. gracilis* association in this area and noted a large number of associated shrubs and undershrubs. The absence of a well-defined understorey probably signifies that heavy grazing has occurred in the past.

# SPECIES LIST

Trees  $\geqslant$  2m

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Eucalyptus gracilis E. oleosa

.5m < Shrubs < 2m

\* Agave americana

.?

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Undershrubs

 $\leqslant$  .5m

Atriplex campanulata A. sp. Enchylaena tomentosa Maireana brevifolia Salsola kali Sclerolaena patenticuspis Zygophyllum sp.

Date: 11/3/1980

Location: Co. Burra Hd Bundey Sec. 41

<u>Map Sheet</u>: Florieton 1:50 000 6730-11

Grid Reference: 408-441

Area: 4958.6 ha

# Environmental Association: 2.4.15

#### **Physiography**

Natural vegetation covers a gently undulating plain, approximately 30km south west of Church Land. Elevation is approximately 200m above sea level.

#### Plant Communities

The open scrub is dominated by Eucalyptus gracilis with E. oleosa, Exocarpos aphyllus, Heterodendrum oleaefolium and Santalum acuminatum. Acacia colletioides, Cassia nemophila var. platypoda, C. nemophila var. zygophylla, Geijera linearifolia and Grevillea huegelii are present in the open shrub layer. The open undershrub layer includes Atriplex paludosa, A. vesicaria, Sclerolaena uniflora, Sclerolaena patenticuspis, Rhagodia spinescens and Zygophyllum aurantiacum.

#### Condition

The area is dissected by a number of well established sheep tracks, though there is little indication of present grazing. There is regrowth in both the shrub and undershrub strata.

#### General

The regrowth of the understories suggests grazing has not occurred recently.

According to Specht et al. (1974), Grevillea huegelii is an endangered species.

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	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Domi	Freq.	Rel Freq.	VALUE
Trees ≥ 2m Bucalyptus gracilis Geijera linearıfolia Heterodendrum oleaefolium	44 4 2	9.75 2.6 4.5	63.6 5.8 2.9	88.0 8.0 4.0	620.1 15.08 13.05	95.66 2.3 2.0	1. .15 .15	76.9 11.5 11.5	260.6 21.8 17.5
Totals	50		72.3		648.23		1.3		
.Sm < Shrubs < 2m Atriplex vesicaria Eremophib scoparia Maireana sedifolia M.sp. Nitraria billardieri Rhaqodia spinescens Cratystylis conocephala Cassia nemophila var. platypoda	1 4 23 16 2 4 1 1	.25 .75 .61 0.25 1.5 .44 1.0 .25	14.0 56.8 326.2 227.3 28.8 56.8 14.0 14.0	1.9 7.7 44.2 30.8 3.9 7.7 1.9 1.9	3.5 42.6 200.0 56.8 43.2 25.0 14.0 3.5	.9 11.0 51.5 14.6 11.1 6.4 3.6 .9	.08 .23 .69 .46 .15 .23 .08 .08	4.0 11.5 34.5 23. 7.5 11.5 4.0 4.0	6.8 30.2 130.2 68.4 22.5 25.6 9.5 6.0
Totals	52		738.0		398.6	<u> </u>	2.0		

SPECIES LIST

frens - im Eucalyptus gracilis E. Jicosa Exocarpos aphyllus Hoterodundrum oleaerolium Saptalum acuminatum

.5m < Shrubs < 2m

Acacia colletioides A. sp. Cassia nemophila var. platypoda C. nemophila var. zygophylla Cratystylis conocephala Eremophila glabra E. scoparia Geijera linearifolia Grevillea nuegelii Hakea leucoptera Nitraria tillardieri Olearia sp. . Undershrubs 🛛 🗧 -5m

Climbers

Atriplex paludosa A. vesicaria Eriochiton sclerolaemoides Lepidium leptopetalum Maireana sp. H. radiata M. sedifolia Rhagodia gaudichaudiana R. spinescens Sclerolaena obliquicuspis S. patenticuspis S. uniflora Zygophyllum glaucescens Z. sp.

Amyema miquelii



SITE 47-Eucalyptus gracilis open scrub

#### Co. Burra, Hd Kooringa

SITE 48

Date: 12/3/1980

Location: Co. Burra Hd Kooringa Pt Sec. 260

<u>Map Sheet</u>: Apoinga 6630-II 1:50 000

Grid Reference: 084-622

Area: 596.4 ha

Environmental Association: 3.3.9

#### Physiography

West-facing, gentle slope. Altitude range is 510m to 520m above sea level.

## Plant Communities

<u>Eucalyptus leucoxylon</u> dominates this open woodland. In the observed area no other tree or shrub species are present. Ground cover is provided by annual grasses.

#### Condition

The vegetation has been modified by agricultural practices.

#### General

All vegetation marked in the Hundred of Kooringa on the Vegetation Clearance Map of County Burra (map files, Department for the Environment, unpubl. 1974) is essentially the same as the vegetation described in Sec. 260.

Jessup (1948) recorded Eucalyptus leucoxylon association in this area and noted that shrubs and undershrubs were not a conspicuous feature of the community. He also noted that grazing and invasion by introduced species had considerably modified the native pastures. SPECIES LIST

Trees ≥2m

Eucalyptus leucoxylon

Co. Burra, Hd Hallet

# SITE 49

# Date: 12/3/1980

Location: Co. Burra Hd Hallet Sec. 609

Map Sheet: Hallett 1:50 000 6631-II

Grid Reference: 118-942

Area: 136.3 ha

#### Environmental Association: 5.2.1

#### Physiography

Ridgetop and gentle, eastern-facing slope. Altitude is approximately 850m above sea level.

#### Plant Communities

Eucalyptus leucoxylon dominates this open woodland. Pasture grasses provide thick ground cover.

#### Condition

A much disturbed area of vegetation which is of low diversity.

# General

Jessup (1948) recorded the vegetation in this area as Lomandra dura in association with L. multiflora. Although this association is characterised by its lack of trees, there are some isolated occurrences of Eucalyptus leucoxylon and E. odorata.

In this area no sedges were observed and it is probable that the native pastures have been modified by grazing.

SPECIES LIST

# Trees $\geq 2m$

Eucalyptus leucoxylon

114

Date: 12/3/1980

Location:	Co. Burra	1
	Hd Hallet	:
	Sec. 678,	679

Map Sheet: Hallett 1:50 000 6631-II

Gria Reference: 125-043

Area: 460.1 ha

Environmental Association: 5.2.1

#### Physiography

A gentle north-facing slope of a dissected ridge on which granite is prevalent. Attitude is approximately 780m above sea level.

### Plant Communities

Low woodland of *Eucalyptus odorata* covers the slope. Isolated individuals of *E. leucoxylon* were found in the tree stratum. *Rhagodia parabolica* dominates the sparse understories. Pasture grasses contribute most to the ground cover.

#### Condition

The vegetation has been heavily grazed. Most plants show signs of current grazing and numerous sheep tracks traverse the site.

#### General

Jessup (1948) also recorded the Lomandra dura, L. multiflora association at this site. Unlike Site 49, scattered individuals of Lomandra dura were found, but those present had been heavily browsed. It is possible that these species, once common in this low woodland, have been removed by heavy grazing.

SPECIES LIST

Trees  $\geq 2m$ 

Eucalyptus leucoxylon E. odorata

.5m < Shrubs < 2m

Enchylaena tomentosa \* Lycium ferocissimum Maireana aphylla Rhagodia parabolica Undershrubs <.5m

Abutilon sp. Atriplex muelleri Gonocarpos sp. Lomandra dura Maireana georgii Salsola kali



SITE 50-Extensively modified area of Eucalyptus odorata low woodland



SITE 50-Grass understorey around granite outcropping

# 5.7 Co. Victoria, Hd Belalie

SITE 51

Date: 12/3/1980

Location: Co. Victoria Hd Belalie Pt Secs BK 102 and 204

Map Sheet: Jamestown 6631-IV 1:50 000

Grid Reference: 874-218

Area: 255.6 ha

Environmental Association: 3.3.13

#### Physiography

Gently undulating country. A creek bed runs east-west through Sec. BK 102. Elevation ranges from 600m to 610m above sea level.

# Plant Communities

Eucalyptus leucoxylon dominates the low open woodland with only a few individuals of Casuarina stricta present. No shrubs or undershrubs were found, the ground cover being provided by dense pasture grasses.

# Condition

A frequently grazed area of low plant diversity. A house was being built in the area observed.

SPECIES LIST

Trees  $\geq 2m$ 

Casuarina stricta Eucalyptus leucoxylon



SITE 51-Eucalyptus leucoxylon low open woodland

#### Co. Victoria, Hd Howe, Booyoolie

SITE 52

Date: 12/3/1980

Location: Co. Victoria Hd Howe Sec. 183

<u>Map Sheet</u>: Pirie 6531-IV 1:50 000

Grid Reference: 415-221

Area: 12,268.8 ha

Environmental Association: 3.3.19

#### Physiography

Natural vegetation covers the steep rocky slopes above Beetaloo Creek in the White Cliff Range. The area is 3km south-west of the Beetaloo Reservoir on the road leading to the reservoir. Elevation is approximately 380m above sea level.

# Plant Communities

Eucalyptus cladocalyx dominated the open forest in association with Eucalyptus leucoxylon and Casuarina stricta. Eucalyptus camaldulensis was found in the immediate vicinity of the creek. An open shrub layer occurs on the steep rocky slopes and includes Acacia continua, A. wattsiana, Callistemon rugulosus, Cassinia aculeata and Xanthorrhoea quadrangulata. A group of Acacia wattsiana which occurs in the south-western corner of Section 210 forms a dense shrub layer in this area.

The open undershrub layer includes Astroloma humifusum, Hibbertia exutiacies and Lomandra dura. The area of Acacia wattsiana has no recognisable undershrub layer.

# Condition

The Beetaloo Creek runs north-south through the area. Sheep were grazing in the dried up creek bed while kangaroos were seen on the higher slopes. Though grazing occurs in this area, the natural vegetation shows little sign of disturbance.

### <u>General</u>

Acacia wattsiana and Cassinia aculeata, which according to Specht et al.(1974) are endangered species, occur in this area. Acacia wattsiana is a particularly abundant shrub.

	Nos of Indiv	λve Dom Value	Den/ Ba	Rel Den	Dom	Rel Dom	řreq.	Rel Freq.	IMPT VALUE
Trees > 2m									
	16	7 59	37 3	35.7	96.2	12.9	.55	26.3	74.9
Acacia wattsiana	12	1 5	17 4	16.7	26.1	3.5	. 45	21.5	41.7
Casuarina stricta	:	1.7	2 5	2 4	40.0	5.4	-09	4.3	12.1
Eucalyptus camaidulensis	1	10.0	37 3	25 7	503.6	67.6	.73	34.9	138.2
E. cladocalyx	15	13.3	37,3	33.7	79.2	10.6	.27	12.9	33.0
E. leucoxylon	4	8	3.3	3.5					
Totals	42		104.4		745.1		2.09		
.5m < Shrubs < 2m									
			• 1		4 1	.95	-09	5.8	9.1
Acacia continua	1		112 2	37 7	322 6	74.81	.46	29.7	141.7
A. wattsiana	16	2.42	133.3	3/.4	22.0	5.28	- 36	23.2	44.8
Bursaria spinosa	7	. 39	20.9	10.3	22.0	18 46	-55	35.5	95.9
Cassinia aculeata	18	- 53	150.2	41.9	79.0	10.40		5.8	8.6
Hibbertia exutiacies	1	.25	8.2	4.3	2.05	. 10			
Totals	43		358.4		431.2		1.55		

SPECIES LIST

- Trees ≥ 2m
  - Callitris preissii Casuarina stricta Eucalyptus camaldulensis E. cladocalyx E. leucoxylon

.5m < Shrubs < 2m

Acacia continuă A. wattsiană Bursaria spinosă Callistemon rugulosus Cassinia aculeata Hibbertia exutiacies \* Rosa rubiginosă Solanum aviculare Xanthornhoea guadrangulata Undershrubs ≼ .5m

Astroloma humifusum Cyperus vaginatus Dianella revoluta Gonocarpus elatus Juncus sarophorus Lomandra densiflora L. dura

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SITE 52-Eucalyptus cledocalyx open forest



SITE 52-Eucalyptus camaldulensis along the creek

Date: 13/3/1980

Location: Co. Victoria Hds Howe, Booyoolie Sec. 51 (Howe) 352N (Booyoolie)

<u>Map Sheet</u>: Gladstone 6531-IV 1:50 000

Grid Reference: 445-130

Area: 647.5 ha

Environmental Association: 3.3.19

#### Physiography

Natural vegetation covers a system of low hills approximately 10km west of Gladstone. The Gladstone - Port Pirie road passes through the southern tip of this vegetation. Elevation is approximately 300m above sea level.

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#### Plant Communities

The low woodland is dominated by Casuarina stricta with Callitris preissii, Eucalyptus leucoxylon, E. odorata and E. porosa in association. Acacia continua, Bursaris spinosa, Callistemon teretifolius and Dampiera rosmarinifolia are present in the open shrub layer. The undershrub stratum which is dense in parts is dominated by Lepidosperma laterale and Triodia irritans.

#### Condition

A number of small fire scars were observed in the area. Some plant regeneration has occurred in these scars. Grazing by sheep and kangaroos has had little affect on the shrub and undershrub layers. No recent logging has occurred. A sand quarry is situated south of the main road in Section 352N.

#### <u>General</u>

Acacia wattsiana, Cassinia aculeata and Callistemon teretijolium, which are endangered plants in South Australia (Specht *et al.* 1974), occur at this site.

The vegetation at this site continues for some distance north of the Glaastone - Pt. Pirie road.

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SPTE 53									···
	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Dom	freg.	Rel Freq.	IMPT VAĻUE
'frees >> 2m									
Acacia pycnantha Bursaria spinosa Casuarina stricta Eucalyptus porosa E. odorata E. leucoxylon	1 11 67 11 6	1.0 1.3 2.4 5.3 4.7 15.0	1.5 16.1 68.6 16.1 8.8 1.5	1.3 14.3 61.0 14.3 7.8 1.3	1.5 20.9 164.6 85.3 41.4 22.5	.45 6.2 48.95 25.37 12.3 6.7	.05 .25 .9 .25 .2 .2	2.9 14.7 52.9 14.7 11.8 2.9	4.7 35.2 162.9 54.4 31.9 10.9
Totals	77		112.5		336.2	<u> </u>	1.7		
.Sm -{ Shrubs < 2m Acacla centinua Bursaria spinosa Casuarina stricta Butaxia microphylla Pimelea stricta	20 54 4 1 1	0.28 .69 .25 .5 .25	67.2 181.4 13.4 3.4 3.4	25.0 67.5 5.0 1.25 1.25	18.8 125.2 3.4 1.7 .9	12.5 03.5 2.3 1.1 .6	.6 .95 .2 .05 .05	32.4 51.4 10.8 2.7 2.7	69.9 202.4 18.1 5.05 4.55
Totals	80		268.8		15 0		1.85		<u> </u>

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SPECIES LIST

#### Trees > 2m

Callitris preissii Cusuarina strictă Eucalyptus incertexta E. leucoxylon E. odorata E. porosa

#### .5m < Shrubs < 2m

Acacia continua A. pychantha A. wattsiana Bursaria spinosa Callistemon teretifolius Cassinia aculeata Lumpiera rosmarinifolia Daviesia sp. Eutaxia microphylla • Lycium ferocissimum Olearia decurrens Pimelea stricta Xunthorrhosa guadrangulata

#### Undershrubs 🔾.5m

Dianella revoluta Gonocarpus elatus Goodenia Sp. Lepidosperma laterale Lomandra dura \* Onopordum acanthium Triodia irritans

# Climbers and Others .

Convolvulus erubescens

# 5.8 Co. Frome, Hd Appila

# SITE 54

#### Date: 13/3/1980

Location: Co. Frome Hd Appila Sec. 356

<u>Map Sheet</u>: Pirie 1:50 000 6531-IV

#### Grid Reference: 432-363

Area: 187.44 ha (greatly reduced due to recent clearing)

#### Environmental Association: 3.3.19

#### Physiography

Undisturbed natural vegetation covers gently sloping hills, approximately 3km south west of Wirrabara. Elevation is approximately 360m above sea level.

#### Plant Communities

The open forest is dominated by Eucalyptus odorata with E. cladocalyx and Casuarina stricta in association. The dense shrub layer includes Acacia pycnantha, A. rupicola, A. wattsiana, Bursaria spinosa and Calytrix tetragona. The undershrub layer includes Astroloma humifusum, Hibbertia exutiacies and Lomandra dura.

# Condition

This small piece of scrub shows no signs of disturbance. The recent clearing of adjacent pieces of scrub has left this area isolated.

# General

A particularly attractive area of undisturbed vegetation which contains Acacia wattsiana and Choretrum glomeratum, endangered species according to Specht et al. (1974).

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STTE 54	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Don	Dom	Re 1 Dom	Freq.	Rel Freq.	IMPT VALUE
Trees 2m Acacla pychantha Casuarina stricta Bucalyptus cladocalyx F. odocata	6 14 3 17	.7 .7 10.7 6.8	93.8 218.9 46.9 265.6	15 35 7.5 42.5	65.7 153.2 501.8 1806.1	2.6 6.1 19.9 71.5	.3 .5 .2 .7	17.7 29.4 11.8 41.2	35.3 70.5 39.2 155.2
Totals	40		625		2526.8		1.7		
.Sm - Shrubs - 2m Acucia pychantha A. rupicola A. wattsiana Burusria spinosa Calytrix tetragona Casuarina stricta Pultenaea laryitlorens var. latifolia Shoretrum ylomeratum	1 1 12 7 3 9 2	.75 .63 .25 .42 .32 .25 .39 .5	65.6 264.8 65.6 791.8 460.2 197.9 593.8 131.1	2.55 10.3 2.55 30.6 17.9 7.7 23.1 5.1	49.2 166.8 16.4 332.6 147.3 49.5 231.6 65.6	4.6 15.8 1.5 31.4 13.9 4.7 21.9 6.2	.1 .2 .1 .6 .3 .3 .5 .2	4.4 8.7 4.4 26.1 13.0 13.0 21.7 8.7	11.6 34.0 0.5 88.3 44.0 25.4 56.7 20.0
Totals	39		2570.7		105 9		2.3	<u> </u>	_ · ·

#### SPECIES LIST

Trees 🍃 2m

Callitris preissii Casuarina stricta Eucalyptus cladocalyx E. odorata

 $\rm ,Sm$   $\rm < Shrubu$   $\rm < 2m$ 

Acucia pycnantha A. rupicola A. wattsiana Bursaria spinosa Calytrix tetragona Choretrum glomeratum Daviesia genistifolia Hibbertia exutiacies Pultenaea largiflorens var. latifolia

#### Undershrubs 🔬 . Sa

Astroloma humifusum Dianella revoluta Lomandra densiflora L. dura

# Climbers and Others

Cassytha sp. Hardenbergia violacea

<u>Date</u>: 1/4/1980

Location: Co. Frome Hd Appila Sec. 220S

Map Sheet: Laura 1:50 000 6531-I

Grid Reference: 457-432

Area: 391.9 ha

Environmental Association: 3.3.18

### Physiography

The vegetation, approximately 4km north-east of Wirrabara, covers a ridgetop on which granite outcrops are prevalent and also the east-facing slope down to a running creek.

#### Plant Communities

Eucalyptus odorata dominates the tree stratum of the vegetation on the ridge and slope, while immediately around the creek *E. camaldulensis* dominates. The only shrub species found in the low open woodland was *Bursaria spinosa*, with *Lomandra dura* scattered amongst the pasture grasses.

### Condition

This vegetation, which is surrounded by wheat fields, has been heavily grazed.

SPECIES LIST

Trees  $\geq 2m$ 

Eucalyptus camaldulensis E. odorata Myoporum montanum

.5m < Shrubs < 2m

Bursaria spinosa

Undershrubs <.5m

Lomandra dura

#### Co. Frome, Hd Darling

SITE 55

# Date: 13/3/1980

Location: Co. Frome Hd Darling Sec. 4

Map Sheet: Pirie 1:50 000 6531-IV

Grid Reference: 367-353

Area: 4396.32 ha

# Environmental Association: 3.3.19

#### Physiography

Undisturbed natural vegetation covers the steep slopes of a gorge in the southern Flinders Ranges. The site is 10km west of Tandowie on the road leading to The Bluff. Elevation is approximately 550m above sea level.

# Plant Communities

The open forest plant community is dominated by Eucalyptus cladocalyx, E. camaldulensis and E. leucoxylon with Casuarina stricta and Exocarpos cupressiformis forming a sparse small tree layer. Acacia wattsiana dominates the dense shrub layer. The sparse undershrub layer includes Astroloma humifusum and Dianella revoluta.

#### Condition

Although grazing of select undershrub species has occurred the affect on the whole plant community is minimal.

#### General

This area is part of a large expanse of undisturbed open forest which has belonged to the Department of Woods and Forests for almost 100 years.

Acacia wattsiana and Cassinia aculeata, endangered species according to Specht et al. (1974), occur in this area.

# SPECIES LIST

Trees  $\geqslant 2m$ 

Casuarina stricta Eucalyptus camaldulensis E. cladocalyx E. leucoxylon Exocarpos cupressiformis \* Pinus radiata

.5m < Shrubs < 2m

Acacia wattsiana Cassinia aculeata Hibbertia exutiacies \* Rosa rubiginosa Undershrubs  $\leq$ .5m

Acaena sp. Astroloma humifusum Dianella revoluta Lomandra dura Senecio quadridentatus

# Climbers and Others

Cassytha sp. Clematis microphylla

#### Co. Frome, Hd Gregory

SITE 61

Date: 1/4/1980

Location: Co. Frome Hd Gregory Sns 74, 230S

<u>Map Sheet</u>: Melrose 1:50 000 6532-111

Grid Reference: 344-271

Area: 25253.3 ha

Environmental Association: 3.3.16

#### Physiography

Gentle east-facing slope at the base of a broad ridge of the southern Flinders Ranges. Altitude range is 290m to 330m above sea level.

#### Plant Communities

In this open forest Eucalyptus camaldulensis, E. cladocalyx and E. odorata are the main components of the tree stratum. E. camaldulensis is dominant in the vegetation nearest the Wilmington - Melrose road, but is replaced by E. cladocalyx near the ridge. Scattered individuals of *Callitris columellaris* and *Casuarina cristata* are present in the tree layer. The dense shrub layer is dominated by *Dodonaea viscosa*, though dense localised patches of *Calytrix tetragona* were found. The sedge species were found in a dried watercourse which runs parallel to the main road in the area observed.

#### Condition

There are no signs of recent grazing. However, the area close to the main road appears to have been subjected to earth removal and this may have occurred when the Wilmington - Gladstone Railway line was built. It runs immediately adjacent to the main road. The disturbed vegetation is very localised so that further west of the main road the vegetation appears untouched.

#### General

In 1919, Section 74 was declared a ballast reserve, not to be fenced and/or leased, and since completion of the railway line, has not been used.

	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Rel Dom	Freg.	R <b>el</b> Freq.	IMPT VALUI
Trees > 2m									
Acadia puchantha	6	3.6	98.8	10.0	355.7	4.6	.3	17.6	32.2
Casuarina cristata	4	.9	49.4	5.0	44.5	.6	.05	2.9	8.5
Callitris columellaris	1	10	12.4	1.25	124.0	1.6	.05	2.9	5.8
Eucaluptus camaldulensis	42	7.5	518.8	52.5	3891.0	50.2	.8	47.1	149.8
E, odorata	25	10.8	308.8	31,25	3335.0	43.0	.5	29.4	103.7
Totals	80		988.1		7750.2		1.7		
.5m < Shruba < 2m		·							
Acadia continua	1	1.0	5.16	1.3	5.2	1.25	.05	3.6	6.2
	2	.25	10.3	2.6	2.6	.6	.1	7,1	10.3
Calutrix tetragona	2	.75	10.3	2.6	7.7	1.85	.1	7.1	11.6
Dodonaea viscosa	67	1.1	350.0	88.2	38 5	92.5	.95	67.9	248.6
Eucalyptus camaldulensis	4	.75	21.0	5.3	15.8	3.8	.2	14.3	23.4
Totals	76		396.8		416,3		1.4		

Undershrubs ∠.5m

#### SPECIES LIST

Trees ≥ 2m

Callitris columeilaris Casuarina cristata Eucalyptus camaldulensis S. cladocalyx E. odorata.

#### .5m < Shrubs < 2m

Acacia continua A. pycnantha A. victoriae Billardiera sericophora Bursaria spinosa Calytrix tetragona Cassinia laevis C. punctulata Daviesia genistifolia Dodonae viscosa Hibbertia exutiacies Astroloma humifusum var. denticulatum Carex sp. Cyperus gymnocaulos Dianella revoluta Gonocarpus elatus Goodenia amplexans Lomandra dura Pomax umbellata Triodia irritans

#### Co. Frome, Hd Coonatta

## SITE 59

Date: 31/3/1980

Location: Co. Frome Hd Coonatta Sec. 32

<u>Map Sheet:</u> Moockra 6533-II 1:50 000

Gria Reference: 454-016

Area: approximately 50 ha

Environmental Association: 6.1.2

#### Physiography

A very gentle, east-facing slope, approximately 5km north-east of Hammond. Altitude ranges from 310 to 320m above sea level.

#### Plant Communities

Canuarina cristata dominates this low woodland, in which Callitris columellaris and Heterodendrum oleaefolium are also present. The shrub layer is composed mainly of scattered individuals of Exocarpos aphyllus. Rhagodia spinescens and R. gaudichaudiana. Dissocarpus paradoxa and Sclerolaena patenticuspis form a dense undershrub layer.

## Condition

An area subject to grazing as evident by the browsed shrubs.

#### SPECIES LIST

Trees ≥ 2m

Undershrubs <<.5m

Callitris columellaris Casuarina crístata Heterodendrum oleaefolium Jasminum lineare

.5m < Shrubs < 2m

Acacia victoriae Cassia nemophila var. zygophylla Exocarpos aphyllus Scaevola spinescens Abutilon sp. Dissocarpus paradoxa Lomandra dura Maireana aphylla M. brevifolia + Marrubium vulgare Rhagodia sp. R. spinescens Salsola kali Sclerolaena patenticuepis



SITE 59-Casuarina cristata low woodland

# 5.9 Co. Granville, Hd Yanyarrie

SITE 58

Date: 31/3/1980

Location: Co. Granville Hd Yanyarrie Sec. 164

<u>Map Sheet</u>: Moockra 6533-II 1:50 000

Grid Reference: 632-187

Area: approximately 80 ha

Environmental Association: 6.1.4

Physiography

The vegetation covers a flat plain and the steep slopes by Yanyarrie Creek approximately 8km north-east of Carrieton. The altitude of the plain is 390m above sea level with a steep descent of 10m to the creek bed.

#### Plant Communities

There are no trees on the plain but along the erosion gully a few individuals of *Callitris columellaris* and *Eucalyptus comaldulensis* were found. The dominant shrub species is *Acacia victoriae* with other recorded shrubs and undershrubs scattered over the site.

#### Condition

The dense ground cover provided by annual grasses indicates a lack of grazing in the site. However, in this unfenced area evidence (e.g. warrens, droppings) of kangaroos and rabbits were found.

## <u>General</u>

This plant community dominated by *Acacia victoriae* is common throughout the area but in a much disturbed form. The best examples of this vegetation were noted to be in unfenced areas along Yackara, Yanyarrie, Boolcunda and Pekina Creeks by the Cradock - Carrieton road.

# SPECIES LIST

# Trees ≥ 2m

Callitris columellaris Eucalyptus camaldulensis

.5m  $< {\rm Shrubs} < 2{\rm m}$ 

Acacia calamifolia A.victoriae Beyeria leschenaultii Bursaria spinosa Dodonaea attenuata Eremophila longifolia

+ Lycium ferocissimum

Undershrubs  $\leq$  .5m

Atriplex spongiosa Dianella revoluta Enchylaena tomentosa Maireana brevifolia M. georgei M. sedifolia + Marrubium vulgare Salsola kali

Climbers and Others

Amyema miquelii

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#### 5.10 Co. Newcastle, Hd Palmer

#### SITE 60

Date: 1/4/1980

Location: Co. Newcastle Hd Palmer Sec. 191

Map Sheet: Quorn 1:50 000 6533-III

Grid Reference: 252-153

Area: 34.08 ha

# Environmental Association: 6.1.2

#### Physiography

Natural vegetation covers gently undulating slopes of hills approximately 5km out of Quorn, on the main road to Wilmington. Elevation is 280m above sea level.

#### Plant Communities

There is no tree stratum. The shrub steppe is dominated by Acacia victoriac and Cassia species. Atriplex stipitata, Dissocarpus paradoxa and Maircana georgei are present in the open undershrub stratum.

#### Condition

Though grazing occurs in this area, it has had little affect on the vegetation. A large water tank is situated near the southern fence line, which runs parallel to the main road to Wilmington.

#### SPECIES LIST

Undershrubs < .5m

.5m Shrubs ≥ 2m

Acacia victoriae Atriplex stipitata Cassia artemisioides C. nemophila var. playpoda C. nemophila var. zygophylla C. aff. sturtii J Lycium ferocissimum Nitraria billardieri Pimelea microcophala Atriplex stipitata Dissocarpus paradoxa Enchylaena tomentosa Maireana georgei Rhagodia sp. R. spinescens Salsola kali Scleroclamys brachyptera Sclerolaena patenticuspis Solanum sp. Zygophyllum aurantiacum

Climbers and Others

Convolvulus sp. Lysiana exocarpi

	Nos of Indiv	Ave Dom Value	Den/ Ha	Rel Den	Dom	Re1 Dom	Freq.	Rel Freq.	IMPT VALUE
Trees ≥ 2m									
Atriplex stipitata	1	.25	105	1.25	26.3	. 29	.05	3.2	4.74
Cassia artemísicides	15	1.05	1575.6	18.75	1654.4	18.4	.35	22.6	59.75
C. nemophila var.platupoda	58	1.14	6092.5	72.5	6945.5	77.25	.95	61.3	211.05
C. nemophila var zugophulla	2	,625	210.1	2.5	131.3	1.46	.05	3.2	7.16
C. aff. sturtii	2	.375	210.1	2.5	78.6	.88	.05	3.2	6.58
Maireana georgei	1	.75	105	1.25	78.8	.88	.05	3.2	5.33
Rhagodia sp.	1	.5	105	1.25	75	.83	.05	3.2	5.28
Totals	80		8403.4		8990.1		1.55		



SITE 60-Shrub steppe dominated by Acacia victoriae and Cassia spp.

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#### 5.11 Co. Dalhousie, Hd Black Rock Plain

#### SITE 63

Date: 1/4/1980

Location: Co. Dalhousie Hd Black Rock Plain Sec. 197

<u>Map Sheet</u>: Pekina 6632-III 1:50 000

Grid Reference: 792-613

Area: 3885.1 ha

Environmental Association: 3.3.17

#### Physiography

A gentle, east-facing slope with an altitude range of 520 to 530m above sea level.

#### Plant Community

Eucalyptus odorata dominates this low woodland with Heterodendrum oleaefolium and Melaleuca lanceolata in association. Within the fenced area no shrubs were found, ground cover being provided by pasture grasses, Atriplex semibaccata and Enchylaena tomentosa. Along the access road, the shrub Rhagodia parabolica is present.

#### Condition

The vegetation, which is surrounded by cultivated land, is dissected by numerous sheep tracks and has been heavily grazed.

SPECIES LIST

Trees  $\geq 2m$ 

Eucalyptus odorata Heterodendrum oleaefolium Melaleuca lanceolata Myoporum montanum

.5m < Shrubs < 2m

Rhagodia parabolica

Undershrubs .5m

Atriplex semibaccata Enchylaena tomentosa

#### Co. Dalhousie, Hd Morgan

SITE 64

### Date: 1/4/1980

Location: Co. Dalhousie Hd Morgan Sec. 168

Map Sheet: Peterborough 1:50 000 6632-II

Grid Reference: 929-652

Area: 2504.88 ha

#### Environmental Association: 5.2.1

#### Physiography

Natural vegetation covers the southern slope of a low hill, approximately 16km east of Black Rock. Elevation is approximately 550m above sea level.

#### Plant Communities

Open scrub which is dominated by Eucalyptus socialis with E. odorata and Heterodendrum oleaefolium in association. A sparse shrub layer exists within the fenced area and includes Exocarpos aphyllus and Grevillea heugelii. The majority of shrubs are, however, located on the roadside.

The undershrub layer is also poorly represented inside the paddock, with only a few chenopod species present.

#### Condition

Heavy grazing by stock is indicated by the amount of droppings and the degree to which shrubs and undershrubs have been browsed.

#### General

The vegetation in this area is in a very degraded state but *Grevillea* heugelii, an endangered species according to Specht *et al.* (1974), occurs here.

### SPECIES LIST

Trees  $\ge 2m$ 

Callitris columellaris Eucalyptus odorata E. socialis Heterodendrum oleaefolium Myoporum platycarpum

.5m < Shrubs < 2m

Acacia argyrophylla A. hakeoides A. oswaldii Cassia artemisioides Exocarpos aphyllus Grevillea huegelii

+ Lycium ferocissimum

- Undershrubs  $\leq$  .5m
  - Artiplex sp.
  - A. eardleyae
  - A. spongiosa
  - A. stipitata
  - Enchylaena tomentosa Maireana brevifolia
  - M. georgei
  - + Marrubium vulgare Rhagodia parabolica Salsola kali Sclerolaena patenticuspis S. uniflora
    - Zygophyllum aurantiacum
    - Z. glaucescens

### Co. Dalhousie, Hd Coomooroo

#### S1TE 65

Date: 1/4/1980

Location: Co. Dalhousie Hd Coomooroo Sec. 122 and adjoining T.S.R.

<u>Map Sheet</u>: Orroroo 6632-IV 1:50 000

Grid Reference: 708-916

Area: approximately 40 ha

Environmental Association: 3.3.17

#### Physiography

An area of gently sloping hills with the vegetation confined to a shallow valley through which a creek runs. Altitude range is 500 to 520m above sea level.

#### Plant Community

This woodland is dominated by Callitris columellaris. No other tree species were observed. A few isolated shrubs of Acacia pycnantha, A. victoriae and Enchylaena tomentosa are present amongst the trees. Pasture grasses provide dense ground cover.

#### Condition

The hillsides surrounding this isolated clump of trees are almost totally denuded of trees and shrubs. Numerous kangaroos, rabbits and a fox were observed amongst the trees.

SPECIES LIST

Trees ≥ 2m

Callitris columellaris

.5m < Shrubs < 2m

Acacia pycnantha A. victoriae

Undershrubs <<.5m

Atriplex sp. Enchylaena tomentosa + Marrubium vulgare Salsola kali

#### Co. Dalhousie, Hd Oladdie

SITE 66

Date: 2/4/1980

Location: Co. Dalhousie Hd Oladdie Sec. 24

Map Sheet: Orroroo 1:50 000

#### 6632-IV

Grid Reference: 797-980

Area: 21,794.16 ha

#### Environmental Association: 6.1.4

#### Physiography

Natural vegetation covers the lower slopes of the Oladdie Hills, approximately 9km east-south-east of Euralia. Elevation is approximately 420m above sea level.

#### Plant Communities

The open scrub is dominated by Eucalyptus socialis and in association with E. gracilis, Callitris columellaris and Heterodendrum oleaefolium. The open shrub layer includes Acacia oswaldii and Grevillea huegelii. Atriplex stipitata, Sclerolaena patenticuspis and Zygophyllum aurantiacum occur in the open undershrub stratum.

#### Condition

A number of small creeks originating in the nearby Oladdie Hills pass through the area. Erosion caused by these streams is evident.

Well established sheep tracks indicate that the area is regularly grazed. Rabbit droppings were also observed.

Birds are plentiful in this area.

#### General

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Though degraded, the vegetation in the area provides residence for an abundance of birdlife. *Grevillea huegelii*, an endangered species according to Specht *et al.* (1974), occurs in this area.

An application has been made for the clearing of the vegetation in this area.

#### SPECIES LIST

Trees  $\geqslant 2m$ 

Callitris columellaris Eucalyptus gracilis E. socialis Heterodendrum oleaefolium Myoporum platycarpum

Shrubs < 2m

Acacia oswaldii Grevillea huegelii Undershrubs  $\leq .5m$ 

Atriplex eardleyae A. stipitata Enchylaena tomentosa Maireana georgei + Marrubium vulgare Rhagodia parabolica Salsola kali Sclerolaena patenticuspis



SITE 66-Eucalyptus socialis open scrub



SITE 66-Extensively modified open scrub understorey

#### Co. Dalhousie, Hd Yongala

SITE 67

Date: 2/4/1980

Location: Co. Dalhousie Hd Yongala Sec. 193W, 193N

<u>Map Sheet</u>: Pekina 6632-III 1:50 000

Grid Reference: 874-504

Area: 85.2 ha

Environmental Association: 3.3.14

#### Physiography

Natural vegetation covers gently undulating hills, approximately 7km south-east of Yatina on the road to Peterborough. Elevation is approximately 520m above sea level.

#### Plant Communities

A low woodland dominated by Callitris columellaris with Eucalyptus odorata and Heterodendrum oleaefolium in association. The sparse shrub layer includes Cassia nemophila var. zygophylla and Lycium australe. A sparse undershrub layer includes Atriplex semibaccata and Westringia rigida. Pasture grasses are the dominant ground cover.

#### Condition

Regeneration of browsed plants indicates grazing has not occurred recently. A small creek runs north-south through Section 193N.

There is an abundance of birdlife in this area.

#### General

This stand of *Callitris columellaris* provides pleasant relief in a region generally devoid of vegetation and provides suitable habitats for a number of bird species.

#### SPECIES LIST

 $\texttt{Trees} \geqslant \texttt{2m}$ 

Callitris columellaris Eremophila longifolia Eucalyptus odorata Heterodendrum oleaefolium Santalum acuminatum .5m < Shrubs < 2m

Acacia calamifolia A. victoriae Cassia nemophila var. zygophylla Dodonaea attenuata Exocarpos aphyllus Scaevola spinescens

#### Undershrubs <.5m

Atriplex semibaccata Dianella revoluta Dodonaea baueri Enchylaena tomentosa Lomandra dura L. effusa Maireana brevifolia M. georgei + Marrubium vulgare

Rhagodia parabolica R. spinescens Salsola kali Westringia rigida SITE 71

Date: 2/4/1980

Location: Co. Dalhousie Hd Yongala Sec. 139

> Terowie 1:50 000

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6631-I

Grid Reference: 935-416

### Area:

Map Sheet:

Environmental Association: 3.3.14

#### Physiography

Gently undulating country ranging from 550 to 560m above sea level.

### Plant Communities

Eucalyptus odorata which dominates this low woodland occurs in association with Callitris columellaris; Melaleuca lanceolata and Myoporum platycarpum: Exocarpos aphyllus and Lycium ferocissimum, which are sparsely scattered over the site, are the most common shrub species. Atriplex spp., Enchylaena tomentosa and Maireana georgii are the main contributors to the sparse undershrub layer. Pasture grasses are prevalent:

#### Condition

sheep tracks dissect the site and the browsed trees and shrubs indicate frequent grazing.

SPECIES LIST

Trees 🍃 2m

callitris columellaris Eucalyptus odorata Melaleuca lanceolata Myöporum platycarpum

.5 m < Shrubs < 2 m

Exocarpos aphyllus + Lycium ferocissimum Undershrubs  $\leq .5$ m

Atriplėx muėlleri A. semibaccata Enchyläenä tomentosa Mäireana brevifolia M. georgei Salsolä kali

#### 5.12 Co. Herbert, Hd Coglin

#### SITE 68

Date: 2/4/1980

Location: Co. Herbert Hd Coglin Sec. 108

Map Sheet:Peterborough6632-II1:50 000

Grid Reference: 065-670

Area: approximately 40 ha

#### Environmental Association: 5.2.1

#### Physiography

Natural vegetation covers a gently undulating plain approximately 5km west-south-west of Dawson on the road to Peterborough. Elevation is approximately 450m above sea level.

#### Plant Communities

The open scrub is dominated by Eucalyptus socialis with Callitris columellaris and Heterodendrum oleaefolium in association. Acacia oswaldii, A. victoriae, Cassia nemophila var. platypoda, Exocarpos aphyllus and Lycium ferocissimum are present in the open shrub layer. A sparse undershrub stratum includes Atriplex stipitata, Maireana brevifolia and Salsola kali.

#### Condition

The presence of sheep and heavily browsed plants indicates grazing occurs in the area. Sheep tracks are common. Large areas of bare ground littered with loose stones occur throughout the area.

Birdlife is plentiful in the area. A large rabbit warren was observed near the eastern fence in Section 108.

#### General

The vegetation in this area is much degraded but provides suitable habitats for the numerous birds that inhabit the area.

148

#### SPECIES LIST

Trees  $\ge 2m$ 

Callitris columellaris Eucalyptus socialis Hakea leucoptera Heterodendrum oleaefolium

0.5m < Shrubs < 2m

Acacia oswaldii A. victoriae Cassia nemophila var. platypoda C. nemophila var. zygophylla Dodonaea attenuata Exocarpos aphyllus

+ Lycium ferocissimum

Undershrubs  $\leq \cdot 5m$ 

Atriplex spongiosa A. stipitata Enchylaena tomentosa Maireana brevifolia M. pyramidata + Marrubium vulgare

Rhagodia parabolica Salsola kali Sclerolaena patenticuspis

#### 5.13 Co. Kimberley, Hd Gumbowie

#### SITE 69

Date: 2/4/1980

Location: Co. Kimberley Hd Gumbowie Sec. 330

Map Sheet: Peterborough 1:50 000 6632-11

Grid Reference: 093-563

Area: approximately 20 ha

Environmental Association: 5.2.1

#### Physiography

Natural vegetation covers the banks of a creek, 12km south of Dawson, east of the road to Ucotta. Elevation is approximately 500m above sea level.

#### Plant Communities

Eucalyptus gracilis dominates the tree stratum of this open scrub with Callitris columellaris and Heterodendrum oleaefolium in association. The open shrub stratum includes Cassia nemophila var. platypoda and Eremophila glabra. Dianella revoluta and Lomandra effusa are present in the sparse undershrub layer.

#### Condition

Well established sheep tracks and browsed undershrubs indicate grazing occurs in this area. Loose stones litter the large areas of open ground. Kangaroo droppings were observed near the roadside. Birdlife is plentiful.

#### General

Grazing has extensively modified this area.

150

#### SPECIES LIST

 $\texttt{Trees} \geqslant 2\texttt{m}$ 

Callitris columellaris Eremophila longifolia Eucalyptus gracilis Heterodendrum oleaefolium

.5m < Shrubs < 2m

Acacia pycnantha A. victoriae Cassia nemophila var. platypoda Cassia nemophila var. zygophylla Dodonaea lobulata Eremophila glabra Exocarpos aphyllus

+ Lycium ferocissimum

Undershrubs  $\leq .5m$ 

Dianella revoluta Lomandra effusa Maireana brevifolia + Marrubium vulgare Olearia pimeleoides Rhagodia parabolica Sclerolaena patenticuspis



SITE 69-Eucalyptus gracilis open scrub



SITE 70-Eucalyptus socialis open scrub disturbed by earth removal

#### Co. Kimberley, Hd Parnaroo

SITE 70

Date: 2/4/1980

Location: Co. Kimberley Hd Parnaroo Sec. 85N

<u>Map Sheet</u>: Nackara 6732-III 1:50 000

#### Grid Reference:

Area: 13,257.1 ha

Environmental Association: 5.2.1

#### Physiography

A gently undulating plain approximately 520m above sea level.

#### Plant Communities

The tree stratum of this open scrub is dominated by *Eucalyptus* socialis with a few scattered individuals of *Callitris columellaris*. *Cassia nemophila* var. *zygophylla* is the most common shrub species with the other shrub and undershrub species being evently represented in the open understories.

#### Condition

Several shallow quarries are present over the site and may have been excavated for road making. Sheep droppings were found but there was no evidence of grazing and it is possible that a flock of sheep may have been moved through this unfenced area which is at the turn off of the Pitcairn road from the Eucolta - Parnaroo main road.

#### <u>General</u>

According to Specht *et al.* (1974), *Acacia montana* which is present in the area, is a rare species.

### SPECIES LIST

Trees  $\geq 2m$ 

Callitris columellaris Eucalyptus socialis Santalum acuminatum

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.5m < Shrubs < 2m

Acacia hakeoides A. montana A. nyssophylla Cassia nemophila var. platypoda C. nemophila var. zygophylla

153

Undershrubs  $\leq .5m$ 

Atriplex muelleri A. semibaccata Dissocarpus paradoxa Enchylaena tomentosa Maireana brevifolia M. georgei

+ Marrubium vulgare Olearia pimeleoides Rhagodia parabolica Salsola kali Zygophyllum aurantiacum Z. glaucescens

## 6. SITE EVALUATION

As stated previously in 4.4, a system has been developed to attempt to remove subjectivity from the evaluation of these remnant vegetation areas, or, at least to indicate the assumptions made.

Factors which are considered to attribute to (i.e. diversity, habitat, uniqueness, biogeographical significance) or detract from (i.e. modification) the scientific integrity of the native vegetation are detailed and weighted according to their significance in table 6.1. These criteria are primarily based on those of Mitchell (1981), with any adjustments discussed in Table 6.1.

Items A-I relate to each individual plant association within a site. This information is combined with items J-U to give a numerical value for each site. Table 6.2 lists a numerical score for each site.

# SITE EVALUATION

Table 6.1 - Criteria and Weighting for the Evaluation of Remnant Native Vegetation

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ITEM	WEIGHTING	CATEGORY	COMMENT
А	5/association	Rare or endangered plant	Uniqueness:
••	<i>5)</i> <b>4500024020</b>	association (based on	Weighting changed from that used by
		Margules 1978)	Mitchell et $aL$ (1981) as a value of 5
		······································	was considered more suitable for the
			present study area. In view of the
			subjectivity involved in site assessme
			it was considered that the weighting
			values were not so critical providing
		·	they were clearly indicated and
			consistently applied.
B		Number of species/tree	Diversity:
		layer	
	0	0 species	This category was not included by
	1	1 - 5 species	Mitchell $et \ al$ . (1981) but it was
	2	6 - 10 species	decided that each stratum in a plant
			community should be given equal
			consideration.
с		Number of species/shrub	Diversity:
		layer	
	0	0 species	Category intervals changed for
	1	1 - 5 species	vegetation of lower species richness.
	2	6 - 10 species	
	3	ll of more species	
D		Number of species/under-	Diversity
		shrub layer	See Item B
	0	0 species	
	1	1 - 5 species	· ·
	2	6 - 10 species	·
	3	11 or more species	

ITEM	WEIGHTING	CATEGORY	COMMENT
Е	2/species	Rare or endangered plant species present (based on Specht <i>et st</i> . 1974).	Uniqueness: The weighting for this category has been increased. It is considered that the presence of these plant species should outweigh the presence of pest plants (item H) in an area.
F	2/species	Depleted species and/or those of geographical importance (based on Specht <i>et al</i> . 1974)	Uniqueness: As for item E. Also no distinction is made between E and F in this report as the distinction between these categories is not clearly defined. However, they have been included as separate items to allow manipulation of the weighting if desired.
G	0 1 2 3	Density of shrub layers Absent Sparse- more than 5m spaces open - up to 5m spaces dense - plants touching	Habitat: Due to the low diversity of many areas observed, quantitative sampling was not warranted. This more subjective method of determining density has consequently been used.
н	-l/species	Pest Plants (from Pest Plants Act, 1975)	Modification:
I	-l/species	Other exotic plants (based on Black 1948-56)	Modification: Annuals excluded. See comments for

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J l/association	Number of plant associations	Diversity:
K	Size of vegetation	Habitat:
	0-50 has	Category intervals increased as areas
2	51 - 500; ha	in Mid-North generally larger.
3.	501 or more ha	
L	Site as approximate percentage of vegetation in County.	Biogeographic Importance: Due to the larger size of areas in the Mid-North it was considered that % of
1	0-5%	vegetation within radius of 2.5km from
2	5.1 - 10%	centre of area was too small a radius
3	10.1 or more %	for determining the importance of the vegetation.
M	Proximity to Conservation	Habitat:
	and/or Recreation Parks	Contiguous 🗲 0.2 km from Park.
1	Contiguous	
. 0	Not contiguous	
N	Buffer zone	Park protection from weed, vermin
1	Area provides an effective	invasion. This category is not included in Mitchell $et al.$ (1981).
0	Not an effective buffer	
Ĵ	zone.	
0	Tracks 2 1m wide dissect	Modification:
v	vegetation	INVELIVELOUI
-1	present	
- 0	absent	
v		

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ITEM	WEIGHTING	CATEGORY	COMMENT
P		Land excavation, buildings	Modification.
		and dams	
	-1	present	
	0	abcont	·
0		Grazing	Modification:
-	-2	significant	Evidence of numerous droppings and
	_1	ingignificant	browsed plants indicates significant
	0	abcont	araging
			grazing.
R		Recent logging	Modification:
	-1	present	
	-	absent	
S		Rubbish	Modification:
	-1	present	
	0	absent	
		Dichach	
Т	3	DIEDACK	MOGIFICATION:
	-1	present	No evidence of dieback was noted in the
	0	absent	study area.
U		Fire	
	<b>_</b> 1	Recent history	Modification
	•	MOUTH HIBLOLY	mailication:

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Numerical Evaluation of Remnant Vegetation

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ENVIRONMENTAL ASSOCIATION	2.3.11	2.3.12					2.4.3	<del>,</del>		
Site	32	25	30		31		22	23	24	26
Association No.			1	2						
Item A	0	0	0	0	0	1	0	0	0	0.
В	1	2	1	1	2		2	1	1	1
с	0	2	2	2	0 ·		2	1	2	3
D	1	1	3	2	0		2	<b>3</b> . ·	1	2
Е	0	0	0	0	0		0	0	0	0
F	0	0	0	0	0		2	0	0	0
G	1	1	2	1	0		2	2	2	2
H	0	0	0	0	0		-2	-1	0	0
1	0	o	0	0	0		0	-1	0	0
Totals for Plant										
Association	3 = 3	6 = 6	· 8	+ 6 = 14	2 = 2		8 = 8	5 = 5	6 = 6	8 = 8
J	1	1		2	1		1	1	1	1
к	1	1		2	2		2	2	3	2
L	1	1		1	1	.	1	1	3	1
M	0	o		0	0		. 0	0	0	0
N	0	0		0	0		0	0	0	0
0	0	-1		0	0	)	0	0	0	0
р.	0	0		0	0	)	0	0	0	0
0	-2	-2		0	-2	2	-1	-2	0	-1
R	0	0		0	c	)	0	0	0	0
, S	· 0	0		0	0	)	0	0	0	0
T.	0	0		0	0	)	0	0	0	0
U U	0	0		0	(	)	0	0	0	0
Ŭ								<u> </u>		ļ
Totals for Sites	4	6		19		4	11	7	13	11

							·	
ENVIRONMENTAL ASSOCIATION	2.4.4	2.4.5	2.4.6	2.4.7		2.4.8	2.4.14	
Site	36	56	33	35	34	57	27	37
Association No.				*				
Item A	5	0	0	0	0	0	0	0
В	1	1	1	2	2	1	1	1
с	1	2	1	1	2	3	2	1
D	1	2	2	1	1	2	2	2
E ·	0	O .	0	0	0	2	0	2
F	o	0	0	o	0	0	0	0
G	0	1	2	1	2	2	1	1
н	0	0	0	0	0	0	0	0
I	0	-1	-1	0	0	0	0	.0
Totals for Plant				· ·				
Association	8 = 8	5'= 5	5 = 5	5 = 5	7 = 7	10 = 10	6 = 6	7 = 7
	1	· ·		1		· ,		,
J	1					1	1	2
ĸ								
M	U			0		0	1	
N	U	0		0		0	0	0
0	0	0	-1	0		U	U	0
P	0	0	-1	0	0	0	0	U
Q	-2	0	-2	-2	-2	0	-2	0
R	0	0	0	0	0	U		0
S S	0		0	0				0
Ť	0	0	0	0		0	0	U
u .	0	0	0	0	0	. 0		U
Totals for Sites	10	8	6	7	8	14	9	11
L				1	L	L	<u> </u>	L

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## Numerical Evaluation of Remnant Vegetation

Numerical Evaluation of Remnant Vegetation

					312.31								T			
ENVIRONMENTAL ASSOCIATION	2.4.	.15			N		3.2.	7				3.2.	18	3.2.19	3.3.	1
Site	38	240	46		47		28		29			6		10	8	
Acception No.									1	2		8				
ASSOCIACIÓN NO.	0		0		0		0		0	0		0		0	0	
Item A	0				2		2		1	1		1		2	1	
В	1				2		2		1	3		3		3	1	
С	0		1		3		5		1	2		2		3	0	
D	1		2		3		2		2	2		2		s c	0	
Е	0		0		2		0		2	2		0		6	0	
F	0		0		0		0		0	0		0		0	0	
G	0		1		2	1	1		1	2		2		3	1	
Н	0		0		0		-2		0	0		0		0	0	
I	0		-1		0		-1		0	0		-3		-2	-1	
'lotals for Plant						E										
Association	2	= 2	4 =	4	12 =	12	5 =	= 5	7	+ 10	= 17	5 =	5	15 = 15	2 =	= 2
J	-	1		1		1		1			2		1	1		1
ĸ		2		2		3		2			2		1	3		2
T.	<b>n</b>	1		1		2	1	1			1		1	3		1
M	<b>.</b> .	0	1	0	-	0		0			0	1	0	1		0
M	-	0	- 1	0		0		0	1		0		0	0		0
N		0		0		0		-1			0		-1	0		0
0	1.	U		0		0		0			0		-1	0		0
Р		0		0		0		1			0		0	0	-	-2
Q		-2		-2		0		-1			0		0	0	-	0
R		0		0		0		0			0		0	0		0
S		0		0		0	1	0			0		0	0		0
т		0		0		0		0			0		0	0		0
U	1C	0		0		0		0			0		0	0		0
Totals for Sites		4		6		18		7			22		6	23		4

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ENVIRONMENTAL ASSOCIATION	3.3.2	3.3.5		3.3.6	3.3.8			3.3.9
Site	7	12	13	9	39	43	44	11
Association No.								
Item A	0	0	0	0	0	0	0	0
B	1	1	1	1 ·	ì	1	2	1
С	2	1	0	1	1	2	3	1
D	1	1	0	0	1	2	2	1
Е	O	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0
G	2	1	0	1	1	2	1	1
Н	-2	0	0	0	0	0	0	-1
I	-1	0	0	0	0	0	-1	0
Totals for Plant								
Association	3 = 3	4 = 4	1 = 1	3 = 3	4 = 4	7 = 7	7 = 7	3 = 3
	,		,		, ,	······································	,	
J 	1	1						1
K	2			L L		د ا	3	2
L	1			1		1		1
M	0	0	0	0	0	0	U	U
N	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
P	-1	0	0	0	0	0	0	0
Q	-2	-2	-2	-2	-2	-1	0	-2
R	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0
Т	0	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0	0
Totals for Sites	4	6	2	4	5	11	12	5

## Numerical Evaluation of Remnant Vegetation

ENVIKONMENTAL ASSOCIATION	3.3.9				3.3.10		3.3.11	
Site	19	20	21	45	48	17	18	2
Association No.								
Item A	0	0	0	0	0	0	0	0
в	1	1	1	1	1	1	1	1
С	0	1	0	1	0	1	0	1
D	0	1	1	3	0	0	0	0
E	0	0	0	0	0	0	0	0
F	0	0	o	0	<u>,</u> 0	0	0	0
G	0	1	0	1	0	1	0	1
H	0	0	0	o	0	0	0	0
Į	0	0	0	-1	0	0	0	0
Totals for Plant								
Association	1 = 1	4 = 4	2 = 2	5 = 5	1 = 1	3 = 3	1 = 1	3 = 3
J	1	1	1	1	1	1	1	1
К	2	2	1	3	3	1	2	_ 1
L	2	1	1	2	1	1	1	1
M	0	0	0	0	0	0	0	0
N	۵	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
₽	0	0	0	0	0	0	0	0
Q	-2	-2	-2	-1	-2	-2	-2	-2
R R	0	0	. 0	0	0	0	0	0
S	0	0	0	0	0	· 0	0	0
T T	0	0	0	0	0	0	0	0
Ŭ,	0	0	0	0	0	0	0	0
Totals for Sites	4	6	3	10	4	4	3	4

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# Numerical Evaluation of Remnant Vegetation

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ENVIRONMENTAL ASSOCIATION	3.3.11				3.3.13		3.3.14	
Site	3	14	15	16	1	42	51	67
Association No.								
Item A	0	0	0	0	0	0	0	<sub>,</sub> 0
Б	ı	1	1	1	2	1	1	1
С	0	0	2	0	1	0	0	2
G	0	0	1	0	1	0	0	3
Е	0	0	2	0	0	0	0	0
F	0	0	0	0	0	0	0	0
G	0	0 ·	2	0	2	0	0	1
н	0	0.	0	o	0	0	0	-1
I	0	0	-1	0	0	0	0	0
Totals for Plant								
Association	1 = 1	1 = 1	7 = 7	1 = 1	6 = 6	1 = 1	1 = 1	6 = 6
J	1	1	1	1	1	1	1	1
ĸ	1	2	1	2	2	2	2	2
L	1	1	1	1	1	1	1	1
м	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
P	0	0	-1	0	0	0	-1	0
Q	-2	-2	-1	-2	0	-2	-2	-2
R	0	0	ј о	0	0	0	0	0
s	0	0	0	0	0	0	0	0
т	0	0	0	0	0	0	0	0
υ	0	0	0	0	0	0	0	0
Totals for Sites	2	3	8	3	10	3	2	8.

# Numerical Evaluation of Remnant Vegetation

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Numerical	Evaluation	of	Remnant	Vegetat	:ion
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ENVIRONMENTAL ASSOCIATION	3.3.14	3.3.16	3.3.17		3.3.18	3.3.19		<del></del> -	
Site	71	61	63	65	62	53	54	55	52
Association No.									
Item A	0	0	0	0	0	0	0	0	. 0
В	1	1	1	1	1	1 ·	1	2	1
с	1	3	1	1	1	3	2	1	2
D	2	2	1	1	1	2	1	1	2
Е	0	0	0	0	0	4	4	2	4
F	0	0	0	0	0	0	0	0	0
G	1	3	1	1	1	2	3	3	3
Н	-1	0	0	-1	0	-1	0	0	0
I	0	o	0	0	0	-1	0	-2	-1
Totals for Plant									
Association	4 = 4	9 = 9	4 = 4	3 = 3	4 = 4	10 = 10	11 - 11	7 = 7	11 = 11
J	1	2	1	1	1	1	1	1	2
к	2	3	3	1	2	3	1	3	3
L	1	3	1	1	1	1	1	2	3
м	0	0	0	0	0	0	0	0	C
N	0	0	0	0	0	0	0	0	c c
0	0	-1	0	0	0	0	0	0	C
P	0	-1	0	0	0	-1	0	0	C
0	-2	0	-2	-2	-2	-1	0	0	[
R	0	0	0	0	0	0	0	0	0
S	0	. 0	0	0	0	-1	0	0	(
Ţ	0	0	0	υ	0	0	0	0	(
U	0	0	0	0	0	0	0	0	
Motala for Sites	6	15	7	4	6	12	14	13	11

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Numerical Evaluation of Remnant Vegetation

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Numerical Evaluation of Remnant Vegetation

ENVIRONMENTAL ASSOCIATION	5.2.1	6.1.2		6.1.4		
Site	70	59	60	58	66	
Association No.						
Item A	0	0	0	0	0	
В	1	1	o	1	1	
С	1	1	2	2	1	
D	3	2	3	2	2	
Е	2	0	o	0	2	
F	o	0	o	0	0	
G	2	1	3	3	1	
Н	-1	-1	-1	-2	-1	
I	0	0	0	o	0	
Totals for Plant						
Association	8 = 8	4 = 4	7 = 7	6 = 6	<b>6</b> ≖ 6	
J	1	1	1	1	1	
K	3	1	1	2	3	
L	3	1	1	1	3	
M	0	0	0	0	0	
N	0	0	0	0	0	
0	-1	0	0	O	. 0	
Р	-1	0	0	0	0	
Q	0	-2	-1	0	-2	
R	0	0	0	0	0	
S	0	0	0	0	0	
Т	0	0	0	0	0	
υ	0	0	0	0	0	
Totals for Sites	13	5	. 9	10	11	

### 7. SUMMARY AND RECOMMDENDATIONS

Seventy one areas of vegetation were studied in the Mid-North and Western Murray Plains during this survey. Based on the criteria and weightings discussed in Table 6.1, each of these areas has been numerically evaluated for comparative purposes (Table 6.2). Table 8.1 summarises the scores given and ranks the sites according to their conservation significance.

Most of the sites considered have a very low score, which is indicative of their degraded nature due to grazing and past clearing. However, in parts of the Mid-North (e.g. County Victoria, Hundred Booyoolie) these disturbed areas of vegetation are the only relief from broad expanses of sown pastures and wheatfields, and for this reason alone they are worth retaining.

The highly ranked sites (rank 1-11) scored well because they had not been grazed or only very lightly grazed and consequently the shrub and undershrub layers were relatively diverse. These areas are exceptional in the study area representing only 18% of those areas observed.

It is recommended that landowners of all sites be given encouragement to retain vegetation under the Heritage Agreement Scheme.

TABLE 7.1

[			Score	Rank
	County	Hundred	1 = 10W	l = high
Area	County	nullated	1 - 10%	
	· · · · ·	Marine	22	, · ·
10	Light	Moorooroo	23	2
29	Sturt	Freeling	22	2
30	Sturt	Freeling	19	- 1
47	Burra	Bundey	10	4-
52	Victoria	Howe	18	4=
61	Frome	Gregory	15	6
54	Frome	Appila	14	/=
57	Eyre	Bagot	14	/=
24	Sturt	Ridley	13	9≃ 2
55	Frome	Darling	13	9=
70	Kimberley	Parnaroo	13	9=
44	Burra	Bright	12	12=
53	Victoria	Howe, Booyoolie	12	12=
22	Sturt	Finniss	11	· 14=
26	Sturt	Ridley	11	14= .
37	Eyre	Brownlow	- 11	14=
43	Burra	Apoinga	11	14=
66	Dalhousie	Oladdie	11	14=
1 1	Gawler	Alma	10	19=
36	Eyre	Bagot	10	19=
45	Burra	Bright	10	19=
58	Granville	Yanyarrie	10	19=
64	Dalhousie	Morgan	10	19=
27	Sturt	Ridley	9	24=
60	Newcastle	Palmer	· 9	24=
15	Light	Saddleworth	8	26=
34	Evre	Anna	8	26=
56	Evre	Bagot	8	26=
67	Dalbousie	Yongala	8	26=
23	Sturt	Finniss	7	30=
23	Sturt	Freeling	7	30=
20	Evre	Bagot	7	30=
63	Dalhousie	Black Rock Plain	7	30=
	Light	Nuriootpa	6	34=
	Light	Gilbert	6	34=
20	Light	Waterloo	6	34=
20	Stort	Mobilong	6	34=
	Buro	Anna	6	34=
	Burra	Bundey	6	34=
40 E0		Hallet		34=
50	Build Bromo		6	34=
62	Kimberlov	Cumbowie	6	34=
לס	Dalhourie	Vongala	6	34=
			с – С	
	Gawler	Alma	, , ,	A44-
	Light	Waterioo		
39	Lyre	Neales	5	1 <del>1</del> <del>1</del> <del>1</del> <del>1</del> <del>1</del>
			l	
# TABLE 7.1 (Cont'd)

Area	County	Hundred	Score 1 = low	Rank 1 = high
59	Frome	Coonatta	5	44=
68	Herbert	Coglin	5	44=
2	Cawler		4	49=
7	Light	Nuriootpa	4	49=
8	Light	Nuricotpa	4	49=
0	Light	Bolyidoro	1	49=
17	Light	Waterlee	4	49=
19	Light	Waterloo	4	49=
21	Sturt	Brinkley	• 4	49=
32	Sturt		4	49=
38	Fure	Noalos		49=
48	Burra	Kooringa	Δ	49=
65	Dalhousie	Comportoo	4	49=
5	Cawlor	Dalkey	3	60=
14	Light	Saddleworth	3	60=
16	Light	Saddleworth	3	60=
10	Light	Waterloo	3	60=
21	Light	Julia Crock	3	60=
21		Build Creek	L L	60-
40	Stanley	Everard		60-
41	Stanley	Everard	د   د	60-
42	Stanley	Milne	2	69-
3	Gawler		2	69-
13	Light	Gilbert	2	00-
49	Burra	Hallet		68=
51	Victoria	Belaile	<b>∠</b>	= 60

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A comparison between the reported (Laut, P. (Ed.), 1977) and the observed plant asociations in the Mid-North and Western Murray Flats

The environmental associations for the areas surveyed in this report have been obtained by consulting <u>Supplementary Maps for the "Environments</u> <u>of South Australia</u>" (Laut, 1978). The descriptions of these environmental associations are presented in the text, <u>Environments of South Australia</u> (Laut, P. (Ed.), 1977). However, when comparing the plant associations, difficulties have arisen in extrapolating the location of surveyed areas onto cross-sectional diagrams of the environmental associations. Hence some of the plant associations credited to Laut, P. (Ed.)(1977) may be inaccurate. The <u>Environments of South Australia</u> (Laut, P. (Ed.),1977) as a literary review is not expected to be completely precise.

In the environmental associations listed, there are several instances where no native vegetation has been recorded. Where this has been the situation the section titled "Vegetative Cover" was consulted.

Of the 71 areas surveyed in this study, 47 of these areas have plant associations that compare favourably with those listed by Laut, P.(Ed.), (1977).

Note: In the following table: \* = Dominant tree species

ITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
32	2.3.11	OPEN PARKLAND E. camaldulensis	OPEN FOREST E. camaldulensis*
25	2.3.12	OPEN SCRUB E. incrassata – E. foecunda – Melaleuca uncinata	OPEN SCRUB E. anceps*, E. foecunda*, E. gracilis*, E. oleosa*, E. socialis*, OVER Melaleuca lanceolata, Beyeria leschenaultii
30	2.3.12	OPEN SCRUB E. incrassata – E. foecunda – Melaleuca uncinata	OPEN SCRUB E. incrassata*, E. fasciculosa* OVER Leptospermum coriaceum, Melaleuca lanceolata
31	2,3.12	OPEN SCRUB E. incrassata – E. foecunda – Melaleuca uncinata	CLOSED SCRUB E. incrassata*, Melaleuca lanceolata OVER M. uncinata, Leptospermum coriaceum
22	2.4.3	OPEN PARKLAND - SCRUB Various mallee spp.	OPEN SCRUB E. oleosa*, E. gracilis,
t. ·			Callitris preissii, Santalum acuminatum OVER Cassia spp., Geijera linearifolia
23	2.4.3	OPEN PARKLAND - SCRUB Various mallee spp.	OPEN SCRUB E. gracilis*, Callitris preissii, Santalum acuminatum OVER Eremophila scoparia
24	2.4.3	OPEN PARKLAND - SCRUB Various mallee spp.	OPEN SCRUB E. anceps*, E. gracilis, E. odorata, E. oleosa, E. socialis OVER Melaleuca lanceolata
26	2.4.3	OPEN PARKLAND - SCRUB Various mallee spp.	OPEN SCRUB E. anceps*, E. gracilis*, E. socialis*, Santalum acuminatum OVER Acacia lineata Cassia nemophila var. platypoda
36	2.4.4	OPEN SCRUB E. socialis - E. gracilis	OPEN SCRUB E. brachycalyx*, E. anceps*, E. socialis*, OVER Geijera linearifolia
56	2.4.4	OPEN SCRUB E. socialis - E. gracilis	OPEN SCRUB E. porosa*, E. comaldulensis, Callitris preissii, Sontalum acuminatum OVER Acacia argyrophylla, Acacia oswaldii

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SITE	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
33	2.4.5	OPEN SCRUB E. socialis – E. gracilis	OPEN SCRUB E. gracilis*, E. oleosa, E. socialis OVER Melaleuca lanceolata, Meuhlenbeckia cunninghamii
			LOW WOODLAND E. largiflorens*
35	2.4.6	OPEN SCRUB E. socialis – E. dumosa ssp. (pileata) – E. gracilis	OPEN SCRUB E. gracilis*, Callitris preisst Santalum acuminatum Casuarina stricta, OVER Aca ia hakeoides, Geijera linearifolia
34	2.4.7	OPEN SCRUB E. socialis - E. dumosa ssp. (pileata) - E. gracilis WOODLAND E. largiflorens	OPEN SCRUB E. gracilis*, E. anceps, E. foecunda, Santalum acuminatum, Pittosporum phillyraeoides, Heterodendrum oleaefolium, Exocarpos aphyllus OVER Acacia nyssophylla Eremophila scoparia Westringia rigida
57	2.4.7	OPEN SCRUB E. socialis – E. dumosa ssp. (pileata) – E. gracilis WOODLAND E. largiflorens	CLOSED SCRUB E. gracilis*, E. oleosa, E. anceps OVER Dodonaea stenozyga, Melaleuca lanceolata
27	2.4.8	OPEN SCRUB - LOW OPEN WOODLAND E. dumosa, E. socialis, E. gracilis, Myoporum platycarpum	OPEN SCRUB E. anceps*, E. gracilis*, OVER Dodonaea bursariifolia, Eremophila glabra, Geijera linearifolia
37	2.4.14	OPEN SCRUB E. socialis LOW OPEN WOODLAND Myoporum platycarpum Casuarina cristata CHENOPODIOID SHRUBLAND Maireana pyramidata Nitraria billardieri	OPEN SCRUB E. gracilis*, E. foecunda, Santalum acuminatum OVER Eremophila scorparia, Grevillea huegelii, Acacia nyssophylla
38	2.4.15	OPEN SCRUB E. socialis LOW OPEN WOODLAND Myoporum platycarpum Casuarina cristata	CLOSED SCRUB E. gracilis*

SITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
46	2.4.15	OPEN SCRUB E. socialis	OPEN SCRUB E. gracilis*
		LOW OPEN WOODLAND Myoporum platycarpum, Casuarina cristata	
47	2.4.15	OPEN SCRUB E. socialis	OPEN SCRUB E. gracilis*, E. oleosa, Exocarpos aphullus.
		IOW OPEN WOODLAND Myoporum platycarpum, Casuarina cristata	Santalum acuminatum OVER Acacia colletioides, Cassia nemophila var. platypoda
28	3.2.7	OPEN WOODLAND E. odorata	OPEN SCRUB E. aff. anceps*, E. gracilis*, E. incrassata*, E. leucoxylon*,
		OPEN SCRUB E. incrassata - E. foecunda Melaleuca uncinata	E. odorata*, OVER Hibbertia sericea, Acacia calamifolia, Melaleuca uncinata,
		LOW OPEN FOREST E. baxteri	Lasiopetalum behrii
`	·.	LOW OPEN FOREST E. baxteri – E. fasciculosa	
		OPEN SCRUB E. cosmophylla – Banksia ornata	
29	3.2.7	OPEN WOODLAND E. odorata	OPEN SCRUB E. incrassata*, Melaleuca uncinata
		OPEN SCRUB E. incrassata – E. foecunda Melaleuca uncinata	E. fasciculosa*, E. porosa* OVER Melaleuca lanceolata,
		LOW OPEN FOREST E. baxteri	M. uncinata, Phebalium bullatum, Dampiera rosmarinifolia
		LOW OPEN FOREST E. baxteri – E. fasciculosa	
		OPEN SCRUB E. cosmophylla – Banksia ornata	
6	3.2.18	WOODLAND – OPEN SCRUB E. camaldulensis, E. leucoxylon, E. odorata, E. incrassata	LOW WOODLAND E. odorata, E. fasciculosa, Callitris preissii*, OVER Astroloma conostephioides

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SITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
10	3.2.19	WOODLAND – OPEN FOREST E. camaldulensis, E. leucoxylon, E. obliqua – E. goniocalyx, E. fasciculosa – E. goniocalyx	LOW OPEN FOREST E. baxteri*, E. leucoxylon, Casuarina stricta, Acacia pycnantha OVER Astroloma conostephioides, Ixodia achillaeoides
8	3.3.1	OPEN PARKLAND – GRASSLAND E. leucoxylon, E. cladocalyx	LOW WOODLAND E. odorata*, E. leucoxylon, Callitris preissii, OVER Acacia pycnantha, Acacia paradoxa
7	3.3.2	OPEN PARKLAND – GRASSLAND E. odorata, E. cladocalyx	LOW WOODLAND E. odorata*, E. leucoxylon, Callitris preissii, Casuarina stri ta, OVER Acacia pycnantha, Acacia paradoxa
12	3.3.5	LOW WOODLAND E. odorata	WOODLAND E. odorata*, E. leucoxylon OVEF Acacia pycnantha
13	3.3.5	LOW WOODLAND E. odorata	LOW WOODLAND E. odorata*, E. leucoxylon
9	3.3.6	OPEN PARKLAND E. leucoxylon, E. odorata, E. cladocalyx	WOODLAND E. odorata*, Casuarina stricta, Callitris preissii, OVER Acacia paradoxa
39	3.3.8	OPEN SCRUB E. socialis – E. gracilis LOW WOODLAND E. odorata – Callitris preissii	OPEN SCRUB E. brachycalyx*, E. gracilis* Melaleuca lanceolata, Santalum acuminatum OVER Geijera linearifolia, Rhagodia crassifolia
43	3.3.8	OPEN SCRUB E. socialis – E. gracilis LOW WOODLAND Callitris preissii – E. odorata	LOW WOODLAND E. odorata*, Casuarina stricta, Callitris preissii OVER Acacia paradoxa, Dodonaea viscosa, Xanthorrhoea quadrangulata
44	3.3.8	OPEN SCRUB E. socialis – E. gracilis LOW WOODLAND Callitris preissii – E. odorata	OPEN SCRUB E. socialis*, K. gracilis, Callitris preissii, Santalum acuminatum, OVER Acacia calamifolia, A. pycnantha, A. oswaldii

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SITE NO:	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
11	3.3.9	WOODLAND È. leucoxylon – È. odorata, E. leucoxylon	WOODLAND E. odorata*, E. leucoxylon*, Acacia pycnantha OVER paradoxa, Bursaria spinosa
19	3.3.9	WOODLAND E. leucoxylon – E. odorata, E. leucoxylon	LOW WOODLAND E. odorata* OVER Acacia pycnantha
. 20	3.3.9	WOODLAND E. leucoxylon – E. odorata, F. leucoxylon	LOW WOODLAND E. odorata*, Acacia pycnantha OVER Dodonaea viscosa
21	3.3.9	WOODLAND E. leucoxylon – E. odorata, E. leucoxylon	LOW WOODLAND E. odorata*, Casuarina stricta, Acacia pycnantha
45	3.3.9	WOODLAND E. leucoxylon – E. odorata, E. leucoxylon	OPEN SCRUB E. gracilis*, Myoporum platy- carpum OVER Eremophila scoparia, Geijera linearifolia
48	3.3.9	WOODLAND E. Leucoxylon - E. odorata, E. Leucoxylon	OPEN WOODLAND E. leucoxylon*
17	3.3.10	LOW WOODLAND, OPEN PARKLAND E. leucoxylon, E. odorata, E. cladocalyx	LOW WOODLAND E. odorata*, Casuarina stricta
18	3.3.10	LOW WOODLAND, OPEN PARKLAND E. leucoxylon, E. odorata, E. cladocalyx	LOW WOODLAND E. odorata*
2	3.3.11	OPEN PARKLAND E. leucoxylon, E. cladocalyx, Casuarina stricta	LOW WOODLAND E. odorata*, E. leucoxylon, Casuarina stricta, OVER Acacia paradoxa, Bursaris spinosa
3	3.3.11	OPEN PARKLAND E. leucoxylon, E. cladocalyx, Casuarina stricta	LOW WOODLAND E. odorata*, E. leucoxylon OVER Bursaria spinosa
14	3.3.11	OPEN PARKLAND E. leucoxylön, E. cladocalyx, Casuarina stricta	WOODLAND E. odorata*, E. leucoxylon*
15	3.3.11	OPEN PARKLAND E. leucoxylon, E. cladocalyx, Casuarina stricta	WOODLAND E. odorata*, Casuarina stricta, Acacia pycnantha OVER Acacia acinacea, Pimelea stricta
16	3.3.11	OPEN PARKLAND E. leucoxylon, E. cladocalyx, Casuarina stricta	LOW WOODLAND E. odorata*, E. leucoxylon*

SITE NO.	C.S.I.R.O. ENVIRONMENTAL	C.S.I.R.O. DOMINANT PLANT	OBSERVED DOMINANT PLANT
	ASSOCIATION	ASSOCIATION	ASSOCIATION
1	3.3.13	WOODLAND E. leucoxylon	WOODLAND E. odorata*, E. leucoxylon, Casuarina stricta OVER Dodonaea viscosa, Acacia paradoxa
42	3.3.13	WOODLAND E. leucoxylon	LOW WOODLAND E. leucoxylon*, E. odorata
51	3.3.13	WOODLAND E. leucoxylon	LOW OPEN WOODLAND E. leucoxylon*, Casuarina stricta
67	3.3.14	OPEN PARKLAND E. cladocalyx, exotic conifers	<sup>•</sup> OW WOODLAND Callitris columellaris*, E. odorata, Heterodendrum c'eaefolium OVER Dodonaea attenuata, Exocarpos aphyllus
71	3.3.14	OPEN PARKLAND E. cladocalyx, exotic conifers	LOW WOODLAND E. odorata*, Callitris columellaris OVER Exocarpos aphyllus
61	3.3.16	OPEN PARKLAND E. cladocalyx, Callitris spp.	OPEN FOREST E. cladocalyx, E. camaldulensis, E. odorata OVER Calytrix tetragona, Dodonaea viscosa
63	3.3.16	OPEN PARKLAND E. cladocalyx, Callitris spp.	LOW WOODLAND E. odorata*, Heterodendrum oleaefolium,Melaleuca lanceolata
65	3.3.17	LOW WOODLAND E. leucoxylon – E. odorata, E. odorata, Casuarina stricta – E. odorata	WOODLAND Callitris columellaris* OVER Acacia pycnantha, Acacia victoriae
62	3.3.18	LOW WOODLAND E. odorata, E. leucoxylan – E. odorata	LOW OPEN WOODLAND E. odorata* OVER Bursaria spinosa
53	3.3.19	OPEN FOREST E. goniocalyx – E. leucoxylon, E. cladocalyx WOODLAND E. leucoxylon – E. microcarpa	LOW WOODLAND E. leucoxylon, E. odorata, E. porosa, Casuarina stricta Acacia pycnantha OVER Acacia continua, Callistemon teretifolius

WOODLAND E. leucoxylon, E. camaldulensis

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ITF. NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
54	3.3.19	OPEN FOREST E. goniocalyx – E. leucoxylon, E. cladocalyx	OPEN FOREST E. odorata*, E. cladocalyx, A. pycnantha, Casuarina stricta OVER Acacia pycnantha,
		WOODLAND E. leucoxylon – E. microcarpa WOODLAND	A. Puprcola, A. wallstand
		E. leucoxylon, E. camaldulensis	
55	3.3.19	OPEN FOREST E. goniocalyx – E. leucoxylon, E. cladocalyx	OPEN FOREST E. cladocalyx OVER Acacia wattsiana
		WOODLAND E. leucoxylon – E. microcarpa	
		WOODLAND E. leucoxylon, E. comaldulensis	
52	3,3,19	OPEN FOREST E. goniocalyx – E. leucoxylon, E. cladocalyx	OPEN FOREST E. leucoxylon, E. comaldulensis*, E. cladocalyx*, Callitris preissii. Cosuarina stricta OVER
		WOODLAND E. leucoxylon – E. micropcarpa	Acacia continua, A. wattsiana, Callistemon rugulosus Cassinia aculeata
		WOODLAND E. leucoxylon, E. comaldulensis	
4	4.6.6	GRASSLAND	OPEN SCRUB E. odorata, E. calycogona* OVER Dodonaea baueri
5	4.6.6	GRASSLAND	OPEN SCRUB E. odorata*, E. socialis* OVER Melaleuca lanceolata
40	4.6.10	CHENOPOD SHRUBLAND Arthrocnemum halocnemoides, Salicornia quinqueflora Suaeda australis	OPEN SCRUB E. oleosa*, E. gracilis, E. foecunda, E. socialis, Melaleuca lanceolata
41	4.6.10	CHENOPOD SHRUBLAND Arthrocnemum halocnemoides Salicornia quinqueflora – Suaeda australis	OPEN SCRUB E. anceps*, E. socialis, E. gracilis, Heterodendrum oleaefolium OVER Acacia ligulata

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SITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
49	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa	OPEN WOODLAND E. leucoxylon*
		TALL SHRUBLAND Acacia – Eremophila – Dodonaea – Cassia, Myoporum platycarpum	
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
50	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa	OPEN WOODLAND E. odorata*, E. leucoxylon, OVER Enchylaena tomentosa
		TALL SHRUBLAND Acacia - Eremophila - Dodonaea - Cassia, Myoporum platycarpum	
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
68	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa	OPEN SCRUB E. socialis*, Callitris columellaris, Heterodendrum
		TALL SHRUBLAND Acacia - Eremophila - Dodonaea - Cassia, Myoporum platycarpum	oleaefolium OVER Acacia victoriae Cassia nemophila var. platypoda
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
69	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa	OPEN SCRUB E. gracilis*, Callitris columellaris, Heterodendrum
		<b>TALL</b> SH <b>RUBLAND</b> Acacia - Eremophila - Dodonaea - Cassia, Myoporum platycarpum	olcaefolium OVER Cassia nemophila var. platypoda, Eremophila glabra
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
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SITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
64	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa TALL SHRUBLAND Acacia – Eremophila – Dodonaea – Cassia, Myoporum platycarpum	OPEN SCRUB E. socialis*, E. odorata, OVER Exocarpos aphyllus, Grevillea huegelii
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
70	5.2.1	TUSSOCK SEDGELAND Lomandra dura – L. effusa	OPEN SCRUB E. socialis*, Callitris columellaris OVER Cassia
		TALL SHRUBLAND Acacia _ Eremophila _ Dodonaea _ Cassia, Myoporum platycarpum	nemophila var. zygophylla
		OPEN SCRUB E. socialis	
		WOODLAND E. camaldulensis	
59	6.1.2	LOW WOODLAND Heterodendrum oleaefolium, Casuarina cristata, Myoporum platycarpum	LOW WOODLAND Callitris columellaris*, Heterodendrum oleaefolium, OVER Acacia victoriae, Cassia nemonhila var nemonhilo
		woodland E. camaldulensis	Ехосатров арнуллив
60	6.1.2	LOW WOODLAND Heterodendrum oleaefolium, Casuarina cristata, Myoporum platycarpum	TALL SHRUBLAND Acacia victoriae, Cassia nemophila var. platypoda, Cassia nemophila var. zygophylla
		WOODLAND E. camaldulensis	

SITE NO.	C.S.I.R.O. ENVIRONMENTAL ASSOCIATION	C.S.I.R.O. DOMINANT PLANT ASSOCIATION	OBSERVED DOMINANT PLANT ASSOCIATION
58	6.1.4	LOW OPEN SHRUBLAND Callitris collumellaris TALL SHRUBLAND E. socialis, Acacia – Eremophila – Dodonaea – Cassia	<b>TALL SHRUBLAND</b> Acacia victoriae*, Beyeria leschenaultii, Bursaria spinosa
		LOW OPEN WOODLAND Casuarina cristata, Heterodendrum oleaefolium, Myoporum platycarpum	1
		TALL SHRUBLAND Acacia victoriae, Acacia – Eremophila – Dodonaea – Cassia	
		WOODLAND E. comaldulensis	
66	6.1.4	LOW OPEN SHRUBLAND Callitris collumellaris TALL SHRUBLAND E. socialis, Acacia – Eremophila – Dodonaca – Cassia	OPEN SCRUB E. socialis*, E. graeilis, Callitris columellaris, Heterodendrum oleacfolium OVER Acacia oswaldii, Grevillea hucgelii
		LOW OPEN WOODLAND Casuarina cristata, Heterodendrum oleaefolium, Myoporum platycarpum	
		<b>TALL SHRUBLAND</b> Acacia victoriae, Acacia – Eremophila – Dodonaea – Cassia	
		WOODLAND E. camaldulensis	

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A. brachybotrya																		*															1
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A. montana																					•												
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A. nyssophylla											-		-																	•			
A. oswaldii			-		-													•	•											•			5
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A. sclerophylla											-			•													-						
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A. wattsiana	1																						•	-	•					•	•	-	
A. SD.																																	1
A. anserinifolia			-							-																							2
Acaena ovina													-																				
A sp.																						*					•						
Acrotriche depressa											•																*						2
A. natula		*																_															1
A. serrulata																		•	r														1
Amera miquelii(Loranthus miquelii													•																				1
* Agave americana																		-														•	
Arthrochemum sp.										-																							
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Astroloma conostenbioides	ļ										-																						
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A. campanulata								•	ł		•																						2

APPENDIX 11

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A. semibaccat	a				*	*		*			+	*							•					•		•								9
A. spongiosa																																		
A. stipitata								*	•										*	*											•	-	-	
A. vesicaria		1																								_								
A. sp.											+															•					•			
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B. ornata			•	,																														
Beyería lesci	henaultii		•	• •	•																												•	
B. opaca				•	I																											•		
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Brachyloma e	ricoides		4	•																													•	
Bursaria spi	nosa											•	r			1			•	*	•	•	-	•	•		-						_	
Callistemon	rugulosus																																	
C. teretifol	ius																											-						
Callitris ca	nescens		1	£ 1	•																•					•					*	*	•	
C. columella	ris																-														r			
C. preissii			•	* 1	•	•	•					•		*				-		ſ		-							•					1 <u>₹</u>
Calostemma p	urpureum																						•	-				• • •	,					
Calytrix tet	ragona													*	•																			
Carex sp.																										-								
Carpobrotus	aequilaterus	1			*									•																				2
Cassia artem	nisioides							_																										4
C. nemophila	a var. nemophila				*	•	. '	•		-									1	<b>.</b>														9
C. nemophila	a var. platypoda				•	•		•	• • •			-	•												•						4		,	7
C. nemophil.	a var. zygophylla			•	*				-			-																				1		1
C. sturtii																													•					1
Cassinia ac	uleata						•										•																	1
C. arcuata																										•								1
C. laevis													•													•								2
C. punctula	τa																			*									•					3
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*Chrysanthemoides monilifera												٠																					1
Clematis microphylla											*	٠															•						4
Convolvulus erubescens																											+		•				1
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Correa sp.	•																	*															1
Cratystylis conocephala	ļ									٠																							1
Cryptandra amàra			٠																														1
C. leucophracta	ļ	٠																															1
C. tomentosa		. •																										·					1
*Cucumis myriocarpus									·																•				*				1
Cyperus gymnocaulos																								*									1
C. vaginatus																											*				-		1
C. sp.	*																																1
Dampiera rosmarinifolia											•																+						ੇ ਤ
Daviesia genistifolia	ł																							*			+						2 6
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Dianella revoluta		•	*					•			*	*	*		*	*		*	*	•		*		•			*	*		•		*	16
Dissocarpus paradoxa (Bassià para	doxa	)																												•	*		
Dillwynia hispida												*	•																				2 00
Dodonaea attenuata	ł																						*							٠		*	
D. bursariifolia			*				*	•																									3
D. baueri																		*					*										2
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D. hexandra											*																						1
D. lobulata																														*			1
D. stenozyga							•	•																									1
D. viscosa				1	<b>b</b>						•	•	r					*	*			*		*									7
*Echium plantagineum (E. lycopsis	1														4	ł			*								-					-	2
Bnchylaena tomentosa		•	• •	r 1	•		1	ł			•							*	*	•			*		•	•					•	•	16
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E. scoparia	ł		•	•		•	1	*	•	1									•														6
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Geijera linearifolia			*	*		*	*	•	*	*								*	*														9 6
Gonocarpos elatus																								+			*						2
G. sp.													·#					*												*			3
Goodenia albiflora																						*											1
G. amplexans				•																				•									1
G. sp.								•	r																		*						2
Grevillea huegelii							*	r	•	•	•																			*		•	5
G. ilicifolia																					*												1
<b>G. lava</b> ndulacea											•	• •	•																				2
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H. muelleriana			ł								•	<b>b</b>																					2
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Halgania cyanea							•	r																									1
H. lavandulacea			•	•																													1
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B. sp.													•	•																			1
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8. stricta		+										•																					2	ļ
B. virgata var. crassifolia		٠										+																					2	i
Bybanthus floribundus													*																				] 1	ļ
Hymenanthera angustifolia													•																				1	
*Bypochoeris radicata													*																				1	
Bypolaena fastigiata		*																															1	
Ixodia achillaeoides													*																				1	
Jasminum lineare																															٠		1	
Juncus sarophorus																											•						1	5
Kunzea pomifera												٠																					1	õ
Lasiopetalum behrii			,								•	•	,																				3	enc.
Lawrencia incana										•																			+				1	ö
Lepidosperma congestum															*																		1	- îŝ
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L. sp.												ł																					1 1	
Lepidium leptopetalum	ì									•																							1	
Leptospermum coriaceum	ļ	,	•								•	•																					2	
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L. leucocephala	1		•																														1	
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*L. ferocissimum				•								*				*							•					ŀ	,	• •	•	*	8	
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Maireana aphylla	-																												*	*		2
M. brevifolia			•*		*		*			*	*			( <b>•</b> 35					• -			*						*	*	*	*	13
M. georgei	6																		*			*							*	***	*	5
M. pyramidata	-																		*										*			2
M. radiata	*		*					*		*																						3
M. sedifolia			*	*	*	*	*		*	•									*									*			*	10
M. trichoptera								*																								1
M. sp.			**	1			*			*									* .													4
*Marrubium vulgare			**	٤.,																		*		*				*	*	*	*	7
Melaleuca lanceolata		*		8))	*	*	*	*			*					*		*				*		*			*	*				12
M. uncinata		*	1								*																					2
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M. horrida	1										*					я																1
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Nitraria billardieri (N. schoberi)	4						*	0		*																				*		3 10
*Olea europaea												*		*	*			*			*											5 ide
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Phebalium bullatum											,																					1
Phyllanthus saxosus																		*														1
Pimelea glauca													100																			1
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P. octophylla														*																		1
P. stricta													-					*			*											4
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Pittosporum phillyraeoides			1	***				*																								2
Platylobium obtusangulum														*																		1
Pomax umbellata																																1
Pultenaea largiflorens	-																	* .														1
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R. gaudichaudiana											*							*	*						_		-		-			3

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Species	2.3.11	2.3.12	2.4.3	2.4.4	2.4.5	2.4.6	2.4.7	2.4.8	2.4.14	2.4.15	3.2.7	3.2.18	3.2.19	3.3.1	3.3.2	3,3,5	3.3.6	3.3.8	3.3.9	3.3.10	3.3.11	3.3.13	3.3.14	3.3.16	3.3.17	3.3.18	3.3.19	4.6.6	4.6.10	5.2.1	6.1.2	6.1.4	
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Santalum acuminatum	•	*	*	*		•		*	*		•							*					•										14
S. murrayanum							-																										1
Scaevola albida																						•											1
S. spinescens	ľ		•																				*								*		3
Scirpus sp.	•																																1
Scleroclamys brachyptera (Bassia brachy,	ptera	•)	•																												•		1
Sclerolaena obliguicuspis bassia obligu	icus	p15)		*						*									*													Ì	
S. patenticuspis (Bassia patenticuspus;					+	•	٠		*	٠								*	٠											ŧ	*	•	10
S. uniflora (Bassia uniflora)	]		*	÷			٠	*		•									*				••						*	*			8
S. sp.			*																											*			2
Senecio quadridentatus																	•						•										1
Solanum aviculare																											*						1
*5. sodomaeum																																	
S. sp.																															٠		1
Spyridium parvifolium													٠					*															2
Styphelia exarrhena		•'																															1
Teucrium racemosum		•			•																												1
Thomasia petalocalyx		*									٠																						2
Tricoryne elatior		+																															1
Triodia irritans			٠																								ŧ						4
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X. semiplana													*																				ĺ
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2. glaucescens				+	*	٠			•	+									•											*			9
Z. sp.	}							٠		٠																							

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- revised by S.A. Botanic Gardens, 1980

species introduced to South Australia

## BOTANICAL NAMES OF SPECIES DISCUSSED IN TEXT, AND THEIR VERNACULAR EQUIVALENT

This information has been compiled from Black (1943-56) Black (1978), Galbraith (1977) and Whibley (1980).

#### SCIENTIFIC NAME

Acacia argyrophylla A. calamifolia A. colletioides A. continua A. hakeoides A. ligulata A. montana A. oswaldii A. paradoxa A. pycnantha A. rupicola A. victoriae A. wattsiana Acrotriche patula A. serrulata Astroloma conostephioides A. humifusum Atriplex paludosa A. semibaccata A. vesicaria Beyeria leschenaultii Bursaria spinosa Callistemon rugulosus C. teretifolius Callitris columellaris C. preissii Calytrix tetragona Carpobrotus aequilaterus Cassia nemophila var. nemophila C. nemophila var. platypoda C. nemophila var. zygophylla Cassinia aculeata Cassytha sp. Casuarina stricta Choretrum glomeratum Cucumis myriocarpus Dampiera rosmarinifolia Dianella revoluta Dillwynia hispida Dodonaea baueri D. cuneata D. viscosa Enchylaena tomentosa Eremophila glabra Eucalyptus baxteri

## COMMON NAME

Silver Mulga Wallowa Wait-a-while Thorn Wattle Hakea Wattle Umbrella Bush Mallee Wattle Umbrella Wattle Kangaroo Thorn Golden Wattle Rock Wattle Elegant Wattle Watt's Wattle Shiny Ground Berry Honeypots Flame Heath Cranberry Heath Marsh Saltbush Berry Saltbush Bladder Saltbush Pale Turpentine-bush Sweet Bursaria Scarlet Bottlebrush Flinders Range Bottlebrush Murray Pine Slender Cypress Pine Common Fringe-myrtle Angular Pigface Scented Cassia Desert Cassia Scented Cassia Common Cassinia Dodder-Laurel Drooping Sheoak Common Sour-bush Paddy Melon Rosemary Dampiera Black-anther Flax-lily Red Parrot-Pea Crinkled Hop-bush Wedge-leap Hop-bush Giant Hop-bush Barrier Saltbush Dwarf Emu-bush Brown Stringybark

#### SCIENTIFIC NAME

Eucalyptus brachycalyx E. calycogona E, camaldulensis K. cladocalyx E. fasciculosa E. foecunda E. gracilis E. incrassata E. largiflorens E. leucoxylon E. odorataE. oleosa E. porosa E. socialis Exocarpos aphyllus E. cupressiformis Gahnia radula Geijera linearifolia Grevillea huegelii G. lavandulacea Heliotropium europaeum lleterodendrum oleaefolium Hibbertia exutiacies Hymenanthera angustifolia Leptospermum coriaceum Lomandra dura L. effusa Lycium australe L. ferocissimum Marrubium vulgare Melaleuca lanceolata M. uncinata Muehlenbeckia cunninghamii Myoporum montanum M. platycarpum Olea europaea Phebalium bullatum Pittosporum phillyraeoides Rhagodia crassifolia R. nutans R. parabolica Salsola kali Santalum acuminatum Sclerolaena uniflora Spyridium parvifolium Triodia irritans Westringia rigida Xanthorrhoea quadrangulata X. semiplana Zygophyllum aurantiacum

#### COMMON NAME

Gilja Gooseberry Mallee River Red gum Sugar Gum Pink Gum Slender Leaf Mallee Yorrell Yellow Mallee Black Box Yellow Gum Peppermint Gum Oil Mallee Mallee Box Willow leaf Mallee Leafless Ballart Cherry Ballart Thatch Saw-sedge Sheep Bush Comb Grevillea Lavander Grevillea Potato Weed Bullock Bush Tangled Guinea-flower Shrubby Violet-bush Coast Teatree Stiff Mat-rush Scented Mat-rush Australian Boxthorn African Boxthorn Horehound Black Paperbark Broom Honey-myrtle Tangled Lignum Native Myrtle Sugarwood Olive Silvery Phebalium Wild Apricot Thick-leaf Saltbush Nodding Saltbush Fragrant Saltbush Prickly Saltwort Sweet Quandong Two-spined Saltbush Dusty Miller Spinifex Stiff Westringia Mt. Lofty Grass-tree Tufted Grass-tree Shrubby Twin-leaf

## **APPENDIX 4**

Areas of vegetation marked on Vegetation Clearance Maps but now completely cleared.

Location

County Stanley Hd Hanson Secs 500, 505, 509, 901, & 905

## Comments

Area adjacent to Porter Lagoon on both sides of main road to Burra - much disturbed by boat launching site and elsewhere primarily pasture grasses.

County Victoria Hd Narridy Secs 244, 245, 249, 250, 251, 252 and 254 Ridge west of Georgetown now covered only by pasture grasses.

County Victoria Hd Bundaleer Secs 71, 74, 77, 162E, 162W, 167, 174S, 175, 181, 182, 189, 190, 407, 408, 451 and 452. Ridge east of Georgetown now covered only by pasture grasses.

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ISBN 7243 4451 9