A FLORISTIC VEGETATION MAP OF

THE TALLARINGA AREA

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National Parks and Wildlife Service
Department of Environment and Planning,South Australia
1988

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FIGURES

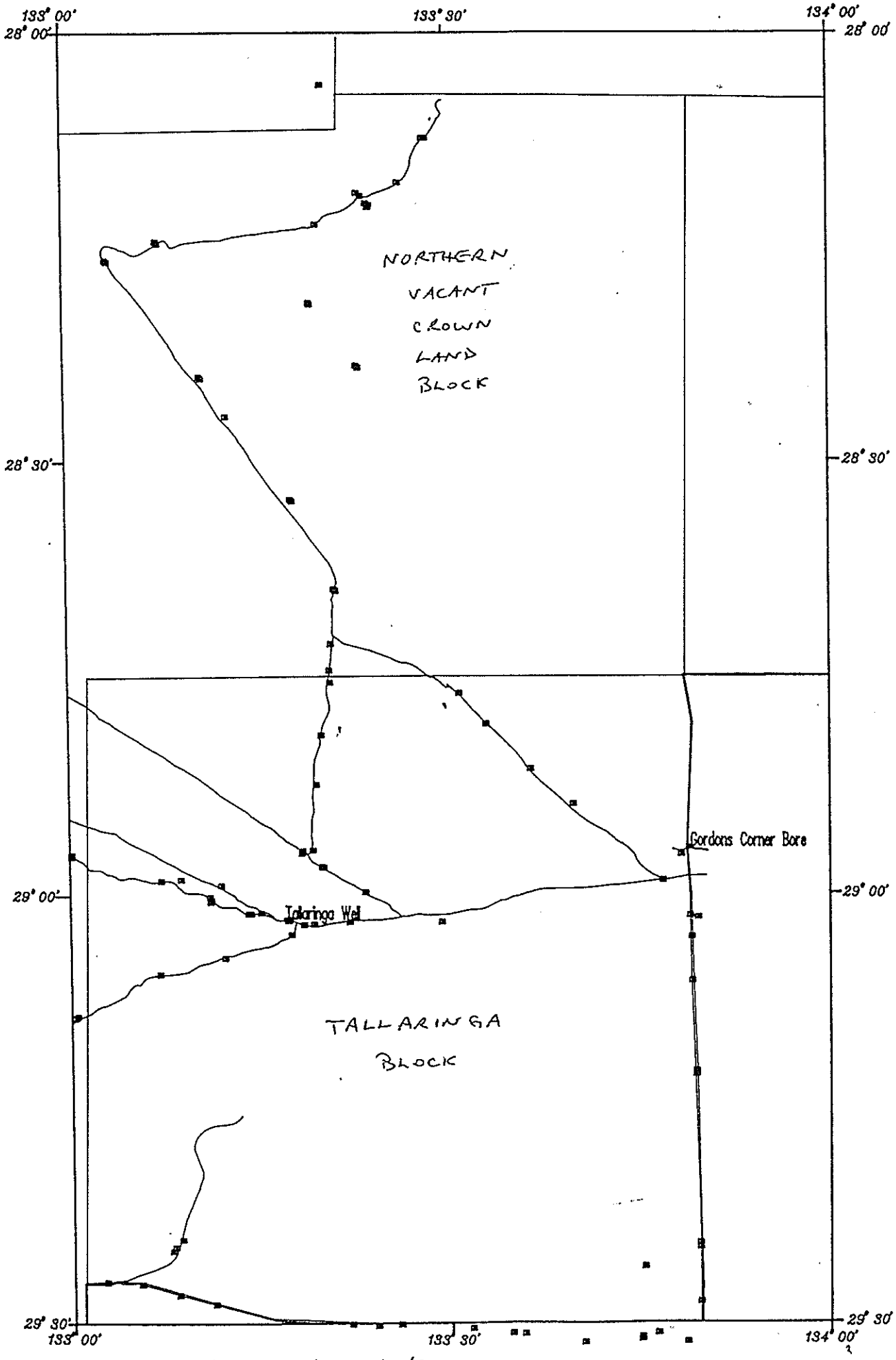


FIGURE 1
The Study Area

INTRODUCTION

The Tallaringa Area (Fig.1) which is the subject of this report is located to the west of Coober Pedy. It is bounded in the west by the Maralinga Tjarutja (Maralinga Aboriginal Lands) and to the east by the dog fence alongthe west boundary of Mabel Creek pastorallease to the south and the western boundary of Mt Willoughby pastoral lease to the north. The northern boundary abuts the Anangu Pitjantjaraku Lands (Pitjanttjara Aboriginal Lands) and the southern boundary is the northern dog fence boundary of Commonwealth Hill pastoral lease. The total area of the Tallaringa study area is almost 12 000 km2, and it is divided into two almost equal sized blocks. The northern block is Vacant Crown Land while the southern block has, since 1959, been held on Annual Licence 9741 issued to Mabel Creek Ltd. This annual licence land is known as the Tallaringa Block and covers 5 696 km2.

With the exception of the southern and eastern boundaries with the dog fence the Tallaringa area is unfenced and vehicle access is limited to the dog fence track, several east-west tracks across the Tallaringa Block and a series of seismic lines established by Comalco in 1984 in the north and western parts of the Vacant Crown Land block.

During the period of 24 years that the Tallaringa block has been held under Annual Licence by Mabel Creek the land has been used for ad hoc grazing relief during drought. Further details of pastoral use can be found in the Pastoral Land Use report associated with this assessment.

The Annual Licence for the Tallaringa Block expired on 31 August 1988, and on 3 February 1988 the Manager, Outback Region,S.A.Department of Lands recommended, on the advice of the South Australian Pastoral Board that"the question of the future occupation/use of the Tallaringa block will be determined following a joint land use assessment/analysis of block 1249 by the Departments of Lands and Environment and Planning respectively"

To this end, field sampling was carried out on the Tallaringa area from 20/9/88 to 1/10/88 with a team from the National Parks and Wildlife Service (the authors of this report) concentrating their efforts in the northern Vacant Crown Land block and the team of Roger Tynan and Mary Tothill from the Rangeland Assessment Unit,Outback Management Branch,Department of Lands concentrating on the Tallaringa Annual Licence block.

It was decided that the most practical method of carrying out both a pastoral and conservation land use assessment was to prepare both a Land Systems and a Floristic Vegetation map of the area.The vegetation mapping is the subject of this report,the Land Systems mapping will be covered in a complimentary report prepared by the Department of Lands. The Floristic Vegetation map and the general layout of this report is also a pilot project for a systematic programme of floristic vegetation mapping of the pastoral and northern arid areas of South Australia. It will be based on pattern analysis of site-based vegetation data and both the data and the resulting vegetation maps will be electronically stored on the S.A.Department of Environment and Planning,Geographic Information System.

Subsequent maps will be produced at 1:250 000 following the National Mapping map series(note that the Tallaringa study area falls on four adjacent 1:250 000 map sheets-GILES, MURLOOCOPPIE, TALLARINGA and COOBERPEDY.

METHODS

The biological assessment of the Tallaringa area was carried out using methods developed for large regional surveys carried out previously in South Australia by the NPWS and the S.A.Museum (McKenzie and Robinson 1987, Robinson et.al.1988).In this case however only the vegetation was sampled systematically at sites, while observations of the vertebrate fauna were only recorded opportunistically during the course of the field work. Vertebrate observations from the study area are therefore incomplete and are included in this report as species lists only in the appendices.

An aerial reconnaissance of the study area was carried out on 21 April 1988. The route was flown in a fixed wing aircraft at 2 000 feet and 120 knots (fig. 2). Broad scale variation in the vegetation was noted and photographed and potential access tracks marked on maps.

The field survey, from 20 October to 1 September 1988 sampled the maximum number of sites that could be covered during the daylight hours.The two groups collected slightly different types of site data but the floristic composition of each site was collected in a consistent manner and so all sites have been included in the vegetation analysis. A total of 97 sites (Fig.1) were analysed, 26(designated GI) were in the northern Vacant Crown Land block and 71(designated TA) were in the Tallaringa block. Details of the vegetation sampling proceedure used are in Robinson et.al.(1988).

The data analysis carried out to generate the floristic vegetation groups described in this report is outlined in Robinson et.al.(1988). In the Tallaringa analysis only perennial plants were included.These included most species of grasses except those which were obviously ephemeral and, in genera with both perennial and ephemeral species such as Salsola and Sclerolaena,all species were included in the analysis.

Two outputs from this analysis are published here :-
1.A dendrogram which shows the relationship between quadrats and the level of dissimilarity used to define quadrat groups(Fig. 3)
.2.A two-way table(enclosed). The initial two-way tables produced from the analysis contained all raw survey data in sorted form.The table presented however contains only a portion of the total number of species found in the survey. Those species retained are those which characterise each of the floristic vegetation groups at a chi square value of greater than 0.4. A complete list of plant species recorded from the study area on the survey is given in Appendix I.

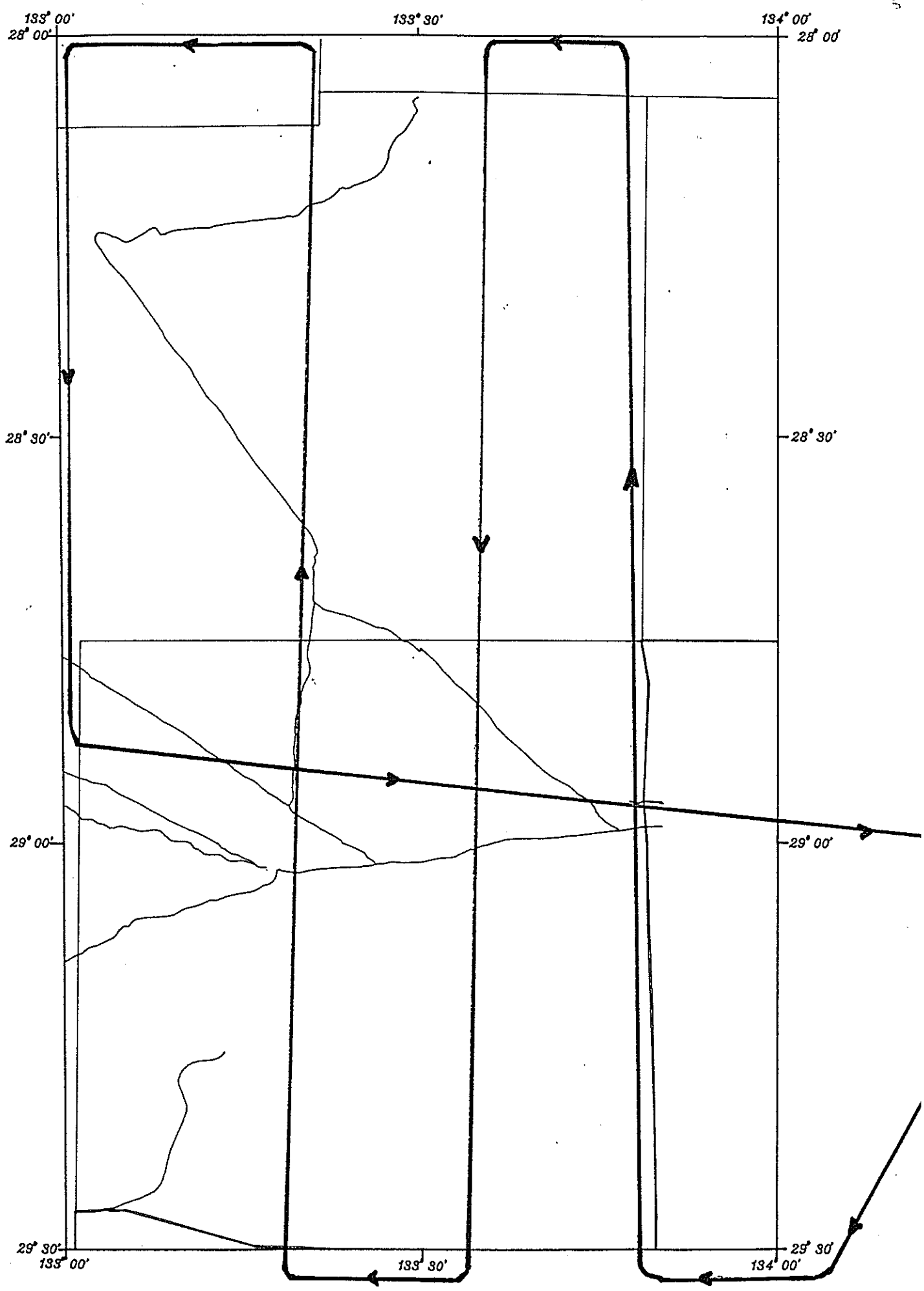


FIGURE 2
Aerial Reconnaissance Route

RESULTS

The floristic analysis of the 166 perennial plant species recorded on the 97 quadrats revealed 9 floristic vegetation groups, two of which contained sub-groups (Fig.3). These groups are mapped from patterns on the aerial photographic coverage of the area on the enclosed vegetation map.The relationship between these groups is further illistrated on the enclosed twoway table.

The following section describes each floristic vegetation group and includes;

a) A map showing the location of the quadrats in the group.

b) A photograph of a typical example.

c) A table of species which characterise the group in order of their chi squae value (see Robinson et.al.(1988) for details).

d) A statement of the typical environment supporting the floristic group.

e) The soils on which the group is found.

f) The geological surface type/s on which the group is found.

g) Other comments.

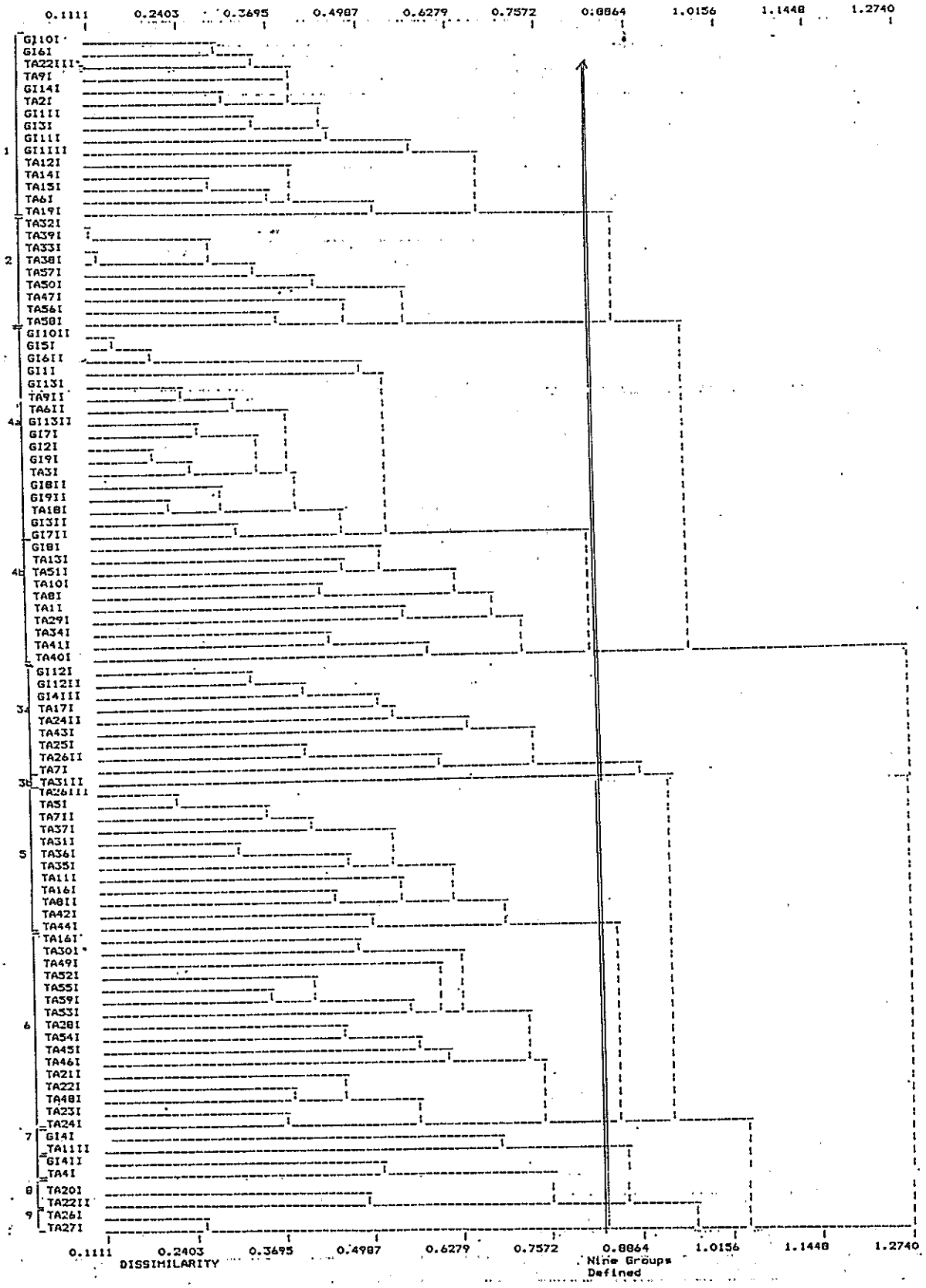
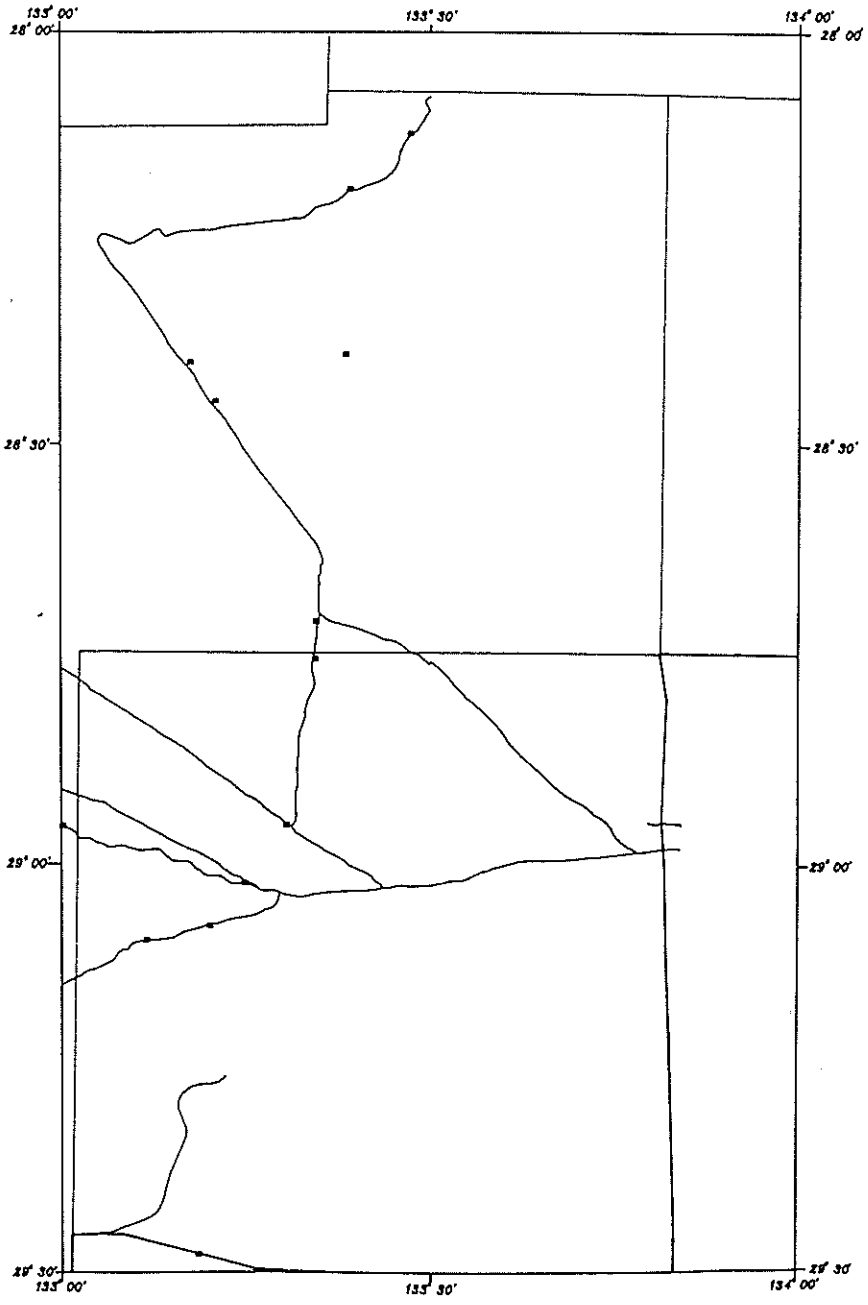


FIGURE 3
DENDROGRAM OF QUADRAT GROUPS FROM THE PERENNIAL PLANT ANALYSIS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GROUP 1 ACACIA ANEURA/MAIREANA VILLOSA TALL OPEN SHRUBLAND

Species	Frequency	Gps	Ind	Overall chi squ	Group Signif. std resid
Maireana villosa	0.8667	3	65	4.5341	2.13
Eremophila gilesii	0.4000	1	72	3.6364	1.91
Rhyncharrhena linearis	0.7333	3	68	2.8572	1.69
Eriachne mucronata	0.6000	3	59	2.1379	1.46
Grevillea stenobotrya	0.4000	2	53	1.9668	1.40
Solanum lasiophyllum	0.2000	1	36	1.8182	1.35
Dysphania kalpari	0.2000	1	36	1.8182	1.35
Thyridolepis mitchelliana	0.4000	3	38	1.4762	1.21
Sclerolaena patenticuspis	0.2667	2	35	1.3113	1.15
Spartothamnella teucriiflora	0.4667	4	38	1.1795	1.09
Eragrostis setifolia	0.7333	6	46	0.9859	0.99
Solanum coactiliferum	0.2000	2	31	0.7707	0.88
Stenopetalum velutinum	0.2667	3	32	0.7141	0.85
Eragrostis eriopoda	1.0000	7	56	0.6542	0.81
Eremophila latrobei var. glabra	0.9333	7	55	0.5534	0.74
Brachycome iberidifolia	0.3333	2	104	0.4081	0.64
Acacia aneura	1.0000	9	42	0.3153	0.56

Environment: On flat to undulating sandplains with a variable veneer of ironstone gravel.Drainage lines predominate in this group and tend to support denser stands of mulga and species such as Grevillea stenobotrya,Rhyncharrhena linearis and Spartothamnella teucriiflora.
Soil: Sands with an ironstone gravel surface layer.
Geology: Qp(f),Klc,Qrs.
Comments: More sampling in this vegetation group would result in a better distinction between run-on and run-off areas.


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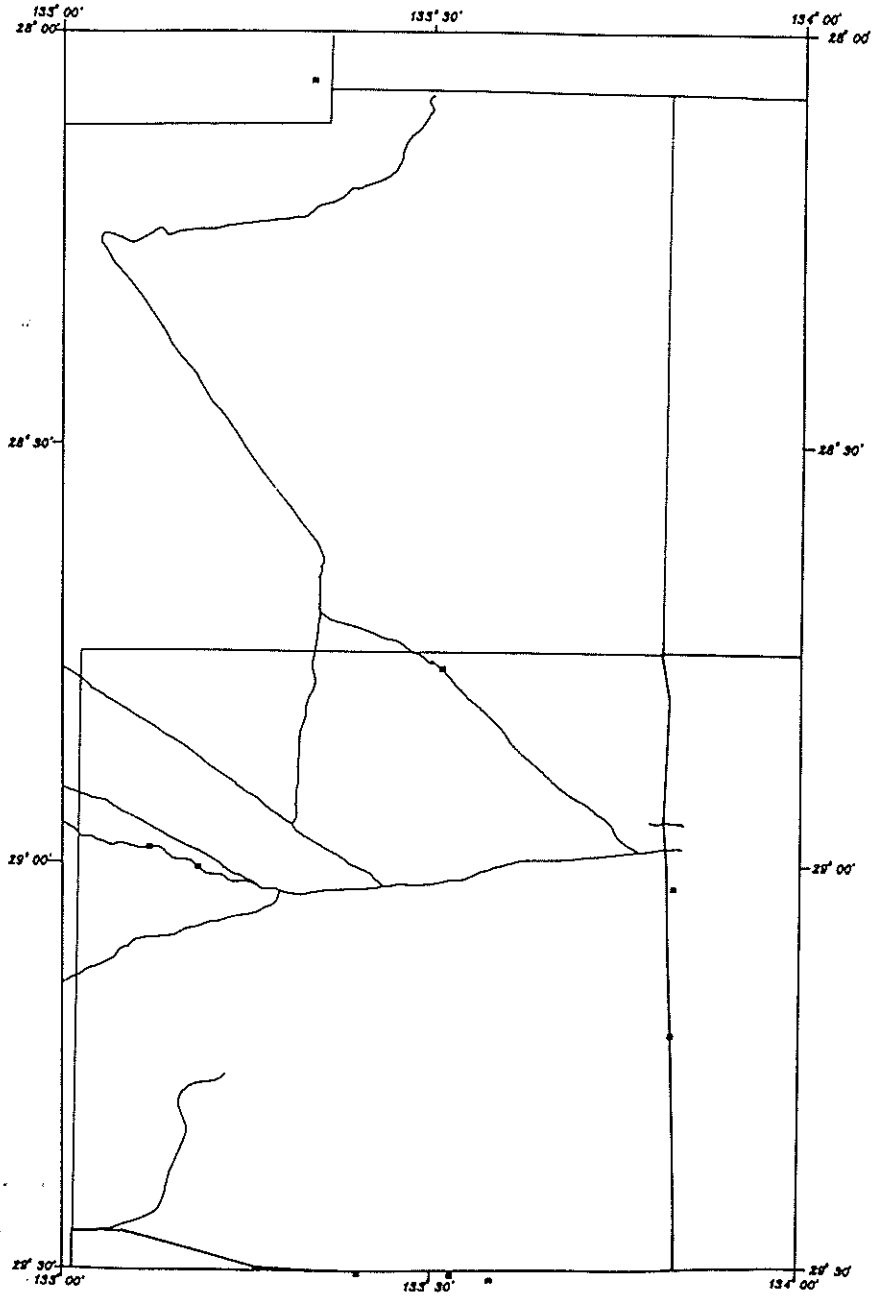
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GROUP 2 ACACIA ANEURA/MONOCHATHER PARADOXA TALL OPEN SHRUBLAND

Species	Frequency	Overall Gps	Overall Ind	Group chi squ	Signif. std resid
Eriachne helmsii	0.6667	2	70	4.3868	2.09
Monochather paradoxa	1.0000	4	76	2.8520	1.69
Sclerolaena convexula	0.2222	1	40	2.0200	1.42
Aristida holothera	0.8889	7	60	2.0127	1.42
Sclerochlamys brachyptera	0.1111	1	20	1.0100	1.00
Cassia helmsii	0.1111	1	20	1.0100	1.00
Sclerolaena cuneata	0.1111	1	20	1.0100	1.00
Sida calyxhymenia	0.2222	2	33	0.9185	0.96
Eremophila latrobei var. glabra	1.0000	7	55	0.7131	0.84
Eriachne mucronata	0.3333	3	59	0.4406	0.66
Eragrostis eriopoda	0.8889	7	56	0.4148	0.64

Environment: on flat to undulating sandplains,generally with less ironstone gravel than group 1. There is however considerable intergradation between these two groups and they have been mapped through the appearence of the substrate on the aerial photography as much as from the vegetation patterns.
Soil: Sands with an ironstone gravel surface layer.
Geology: Qhs,Qp(f),Qra,Qrs.


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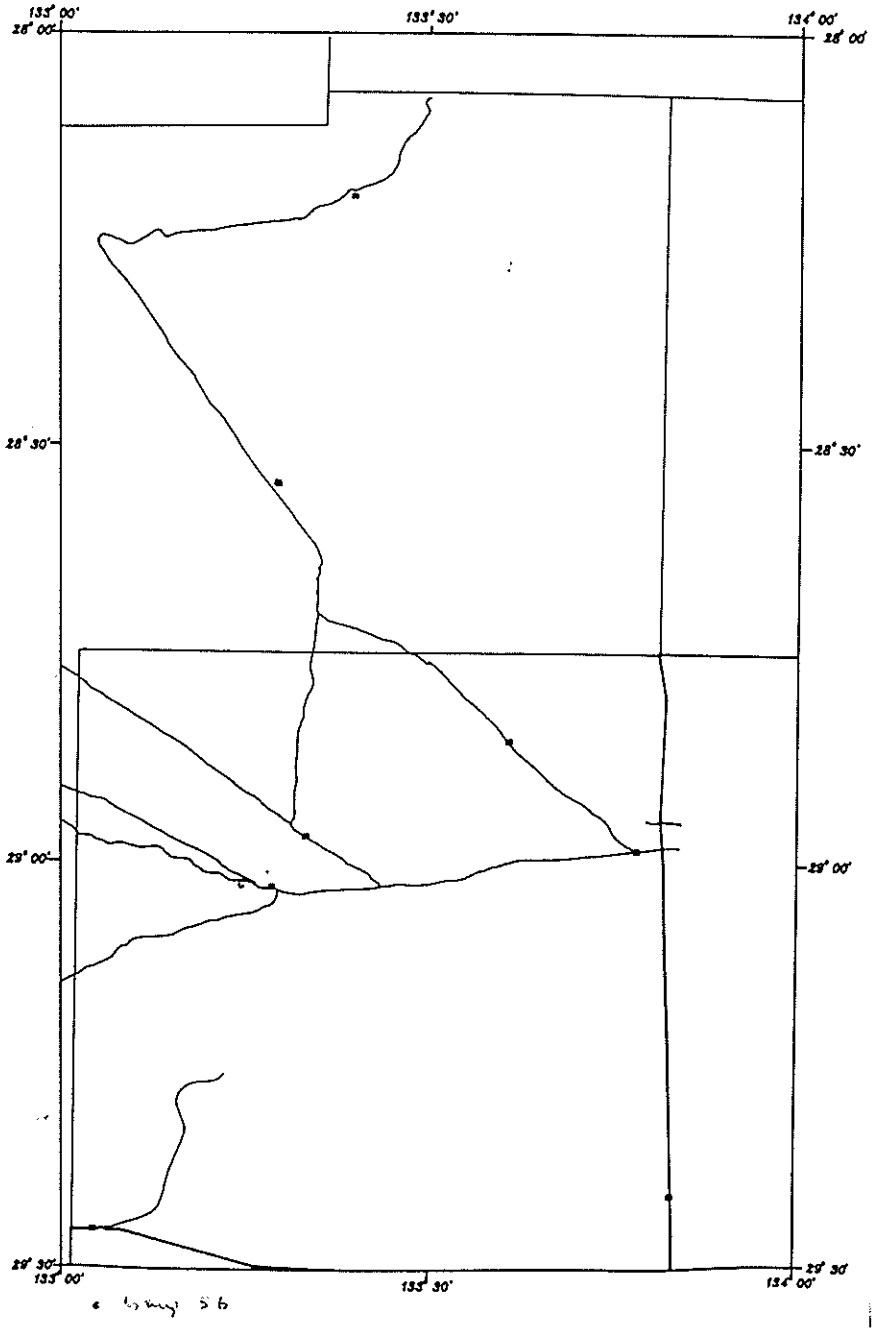
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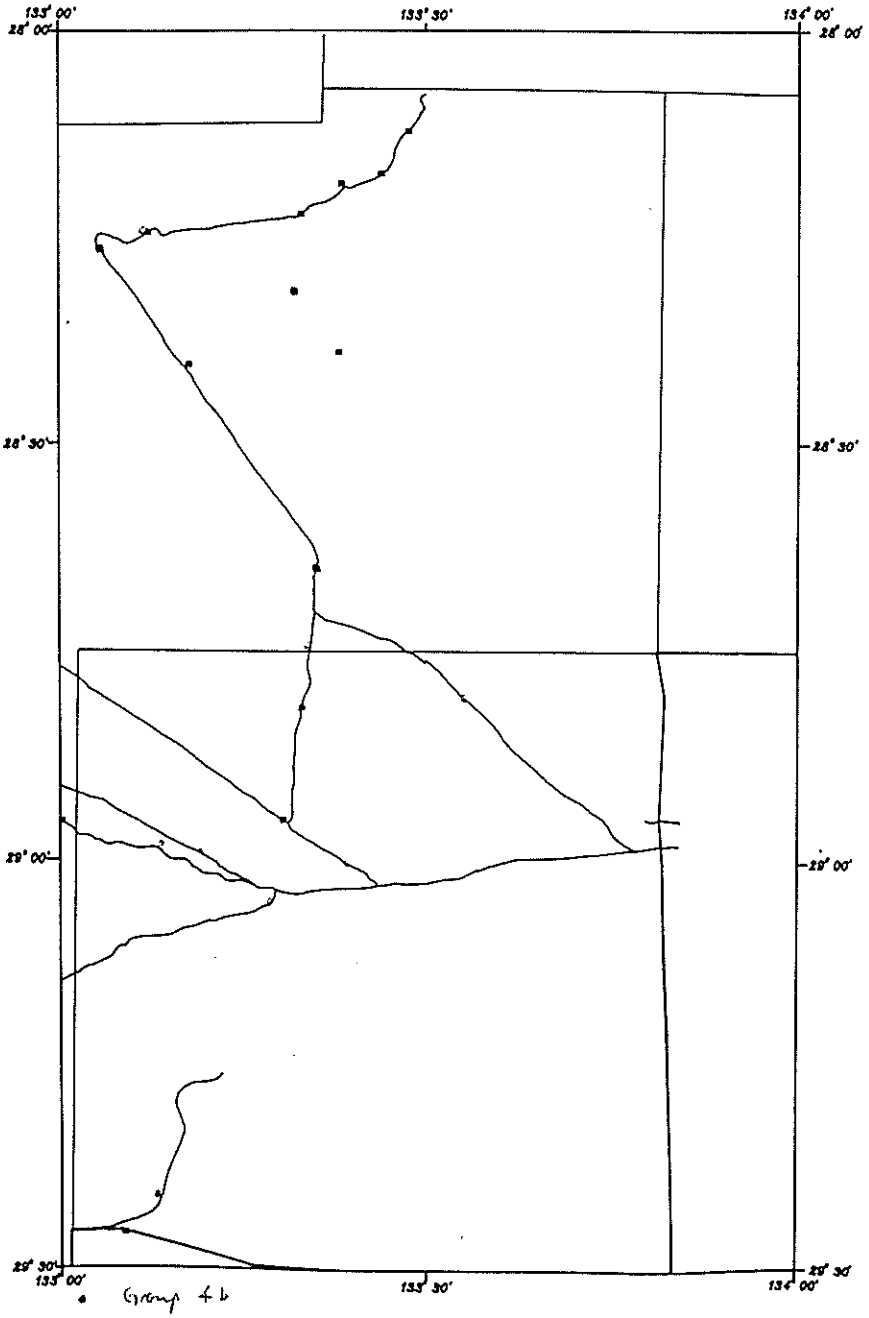
GROUP 3 CASSIA STURTII/DODONAEA MICROZYGA LOW OPEN SHRUBLAND
Group 3a

Species	Frequency	Overall Gps	Overall Ind	Group chi squ	Signif. std resid
Sclerolaena lanicuspis	0.5556	1	101	5.0509	2.25
Zygophyllum humillimum	0.7778	2	84	5.0125	2.24
Ptilotus exaltatus var. exaltatus	0.2222	1	40	2.0200	1.42
Acacia kempeana	0.2222	1	40	2.0200	1.42
Cassia nemophila var. coriacea	0.2222	1	40	2.0200	1.42
Stipa nitida	0.6667	5	42	1.5818	1.26
Stenopetalum velutinum	0.3333	3	32	1.2481	1.12
Maireana triptera	0.1111	1	20	1.0100	1.00
Eremophila serrulata	0.1111	1	20	1.0100	1.00
Dodonaea microzyga	0.5556	3	84	0.9953	1.00
Cassia sturtii	0.6667	4	76	0.9095	0.95
Zygophyllum eremaeum	0.4444	3	86	0.4948	0.70
Maireana georgei	0.4444	5	39	0.4826	0.69

Group 3b. A single quadrat on a minor calcrete outcrop in the southern part of the study area.

Species	Frequency	Overall Gps	Overall Ind	Group chi squ	Signif. std resid
Stipa scabra ssp. scabra	1.0000	1	181	9.0909	3.02
Paractaenum novaehollandiae	1.0000	1	181	9.0909	3.02
Zygophyllum billardierei	1.0000	2	90	8.0011	2.83
Abutilon cryptopetalum	1.0000	2	90	8.0011	2.83
Sida fibulifera	1.0000	2	95	7.5344	2.74
Solanum ellipticum	1.0000	2	99	7.1113	2.67
Eremophila sturtii	1.0000	2	109	6.3714	2.52
Dodonaea microzyga	1.0000	3	84	4.4691	2.11
Acacia oswaldii	1.0000	3	88	4.1668	2.04
Cassia sturtii	1.0000	4	76	2.7714	1.66
Aristida holothera	1.0000	7	60	2.7384	1.65
Ptilotus obovatus var. obovatus	1.0000	9	31	0.9612	0.98
Enchylaena tomentosa var. tomentosa	1.0000	9	30	0.8960	0.95

Environment: Stony rises scattered throughout the study area.
Soil: Shallow sandy loams with a considerable cover of rocks on the surface.
Geology: Klc,Qp(f),Qp(l).



Group 4b

GROUP 4 ACACIA RAMULOSA TALL OPEN SHRUBLAND
4a

Species	Frequency	Overall Gps	Overall Ind	Overall chi squ	Group Signif. std resid
Brachycome iberidifolia	0.9412	2	104	5.8792	2.42
Goodenia pusillifera	0.9412	2	109	5.5050	2.35
Acacia murrayana	0.4118	2	66	1.5480	1.24
Acacia ramulosa	0.7059	3	115	1.1141	1.06
Monochather paradoxa	0.7059	4	76	1.1141	1.06
Paractaenum novaehollandiae	0.1176	1	21	1.0691	1.03
Thyridolepis multiculmis	0.1176	1	21	1.0691	1.03
Solanum centrale	0.2941	3	33	0.8457	0.92
Eremophila latrobei var. gla	1.0000	7	55	0.7131	0.84
Eragrostis setifolia	0.6471	6	46	0.6695	0.82
Gyrostemon ramulosus	0.0588	1	10	0.5347	0.73
Rhagodia parabolica	0.0588	1	10	0.5347	0.73
Eragrostis eriopoda	0.9412	7	56	0.5208	0.72
Maireana villosa	0.3529	3	65	0.4353	0.66
Aristida holothera	0.2353	7	60	0.4245	0.65

4b. A group of quadrats which tend to include the crests of the higher dunes.

Species	Frequency	Overall Gps	Overall Ind	Overall chi squ	Group Signif. std resid
Dicrastylis beveridgei var lanata	0.5000	2	50	3.5089	1.87
Acacia ramulosa	1.0000	3	115	2.8520	1.69
Aristida holothera	0.5000	7	60	2.8068	1.68
Eremophila willsii	0.3000	1	54	2.7273	1.65
Codonocarpus cotinifolius	0.6000	3	50	2.7191	1.65
Grevillea juncifolia	0.2000	1	36	1.8182	1.35
Brachycome ciliaris	0.2000	1	36	1.8182	1.35
Brachycome ciliocarpa	0.2000	1	36	1.8182	1.35
Thryptomene maisonneuvei	0.2000	1	36	1.8182	1.35
Acacia murrayana	0.4000	2	66	1.4418	1.20
Goodenia pusillifera	0.4000	2	109	0.6342	0.80

Environment: The slopes and crests of the extensive parallel dune-fields of the eastern Great Victoria Desert.The extensive fires of 1974 has resulted in the presence of typical post-fire colonising species such as Dicrastylis beveridgei,Codonocarpus cotinifolius and Gyrostemon ramulosus on the burnt dunes.Soil: Deep siliceous sands. Geology: Qrs,Qhs,Qra.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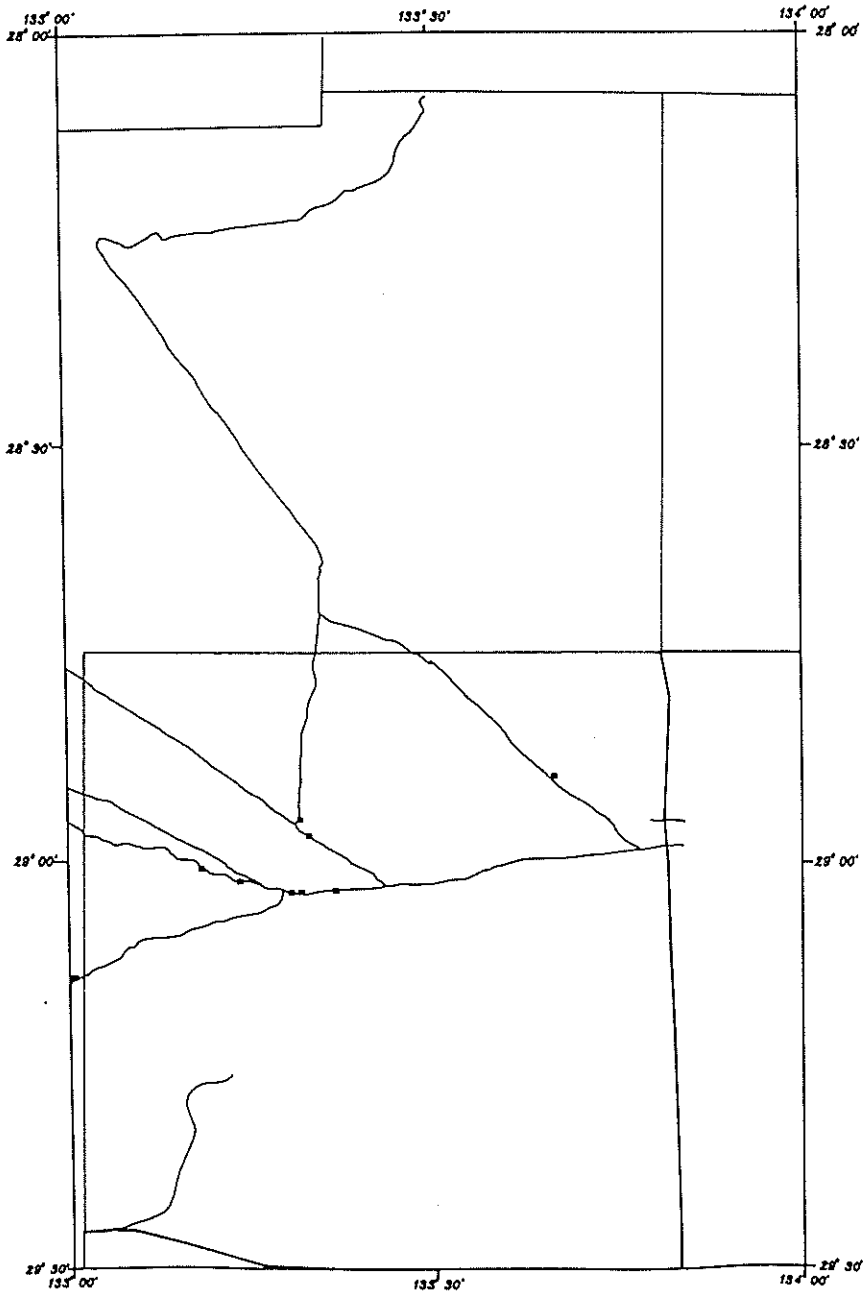
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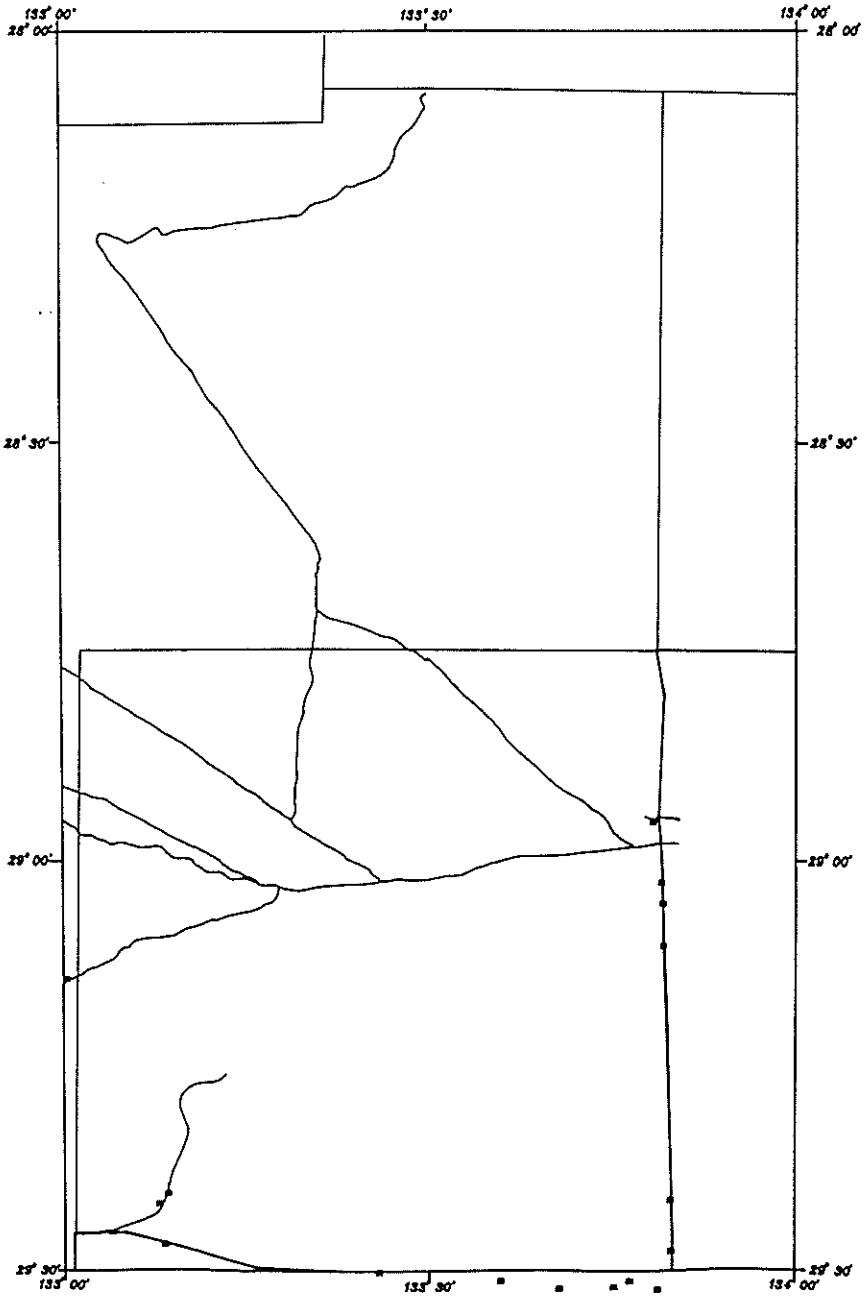
GROUP 5 CASSIA NEMOPHILA VAR PLATYPODA TALL OPEN SHRUBLAND

Species	Overall Frequency	Group Gps	Group Ind	Signif. chi squ	Signif. std resid
Eremophila glabra	0.7500	4	42	3.3385	1.83
Ptilotus atriplicifolius var atriplicifolius	0.3333	1	60	3.0300	1.74
Santalum acuminatum	0.3333	1	60	3.0300	1.74
Acacia ligulata	0.7500	4	52	2.4000	1.55
Sclerolaena uniflora	0.2500	1	45	2.2727	1.51
Dodonaea viscosa ssp. angustisima	0.5000	4	37	1.4472	1.20
Cassia nemophila var Platypoda	0.9167	7	43	1.4374	1.20
Sclerolaena obliquicuspis	0.4167	3	44	1.3335	1.15
Acacia ramulosa	0.6667	3	115	0.9431	0.97
Stipa nitida	0.5000	5	42	0.7103	0.84
Sclerolaena patenticuspis	0.1667	2	35	0.4113	0.64

Environment: The more irregular dune and sandplain systems of the southern half of the study area supporting Cassia nemophila var platypoda and Acacia ligulata in particular.
Soils: Deep calcareous sands
Geology: Qhs,Qrs.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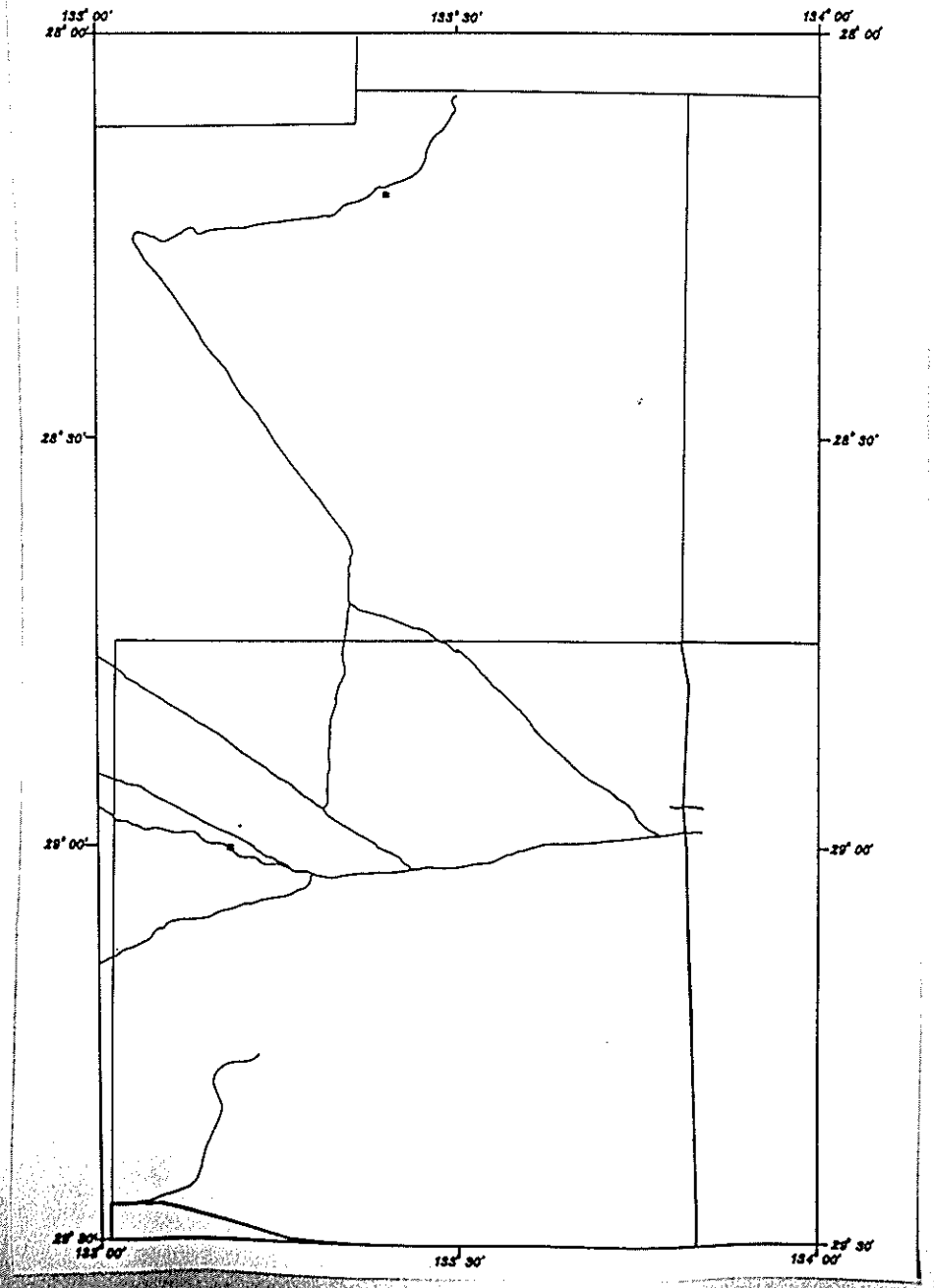
GROUP 6 SCLEROLAENA DIACANTHA/MAIREANA ERIOCLADA LOW OPEN SHRUBLAND

Species	Overall Frequency	Gps	Ind	Group chi squ	Signif. std resid
Sclerolaena diacantha	0.8750	3	66	4.5000	2.12
Maireana sedifolia	0.2500	1	45	2.2727	1.51
Maireana erioclada	0.5000	3	44	2.0658	1.44
Atriplex vesicaria	0.5625	3	75	1.2445	1.12
Dissocarpus paradoxux var paradoxus	0.1250	1	22	1.1364	1.07
Sida ammophila	0.2500	3	22	1.0329	1.02
Solanum coactiliferum	0.1875	2	31	0.6582	0.81
Sida calyxhymenia	0.1875	2	33	0.6062	0.78
Maireana eriocalda	0.3125	3	47	0.5611	0.75
Lycium australe	0.1875	2	35	0.5487	0.74
Sclerolaena eriacantha	0.1250	2	19	0.4994	0.71
Maireana georgei	0.4375	5	39	0.4592	0.68

Environment: Sandplains over limestone in the southern part of the study area.There is considerable variation in floristic composition between sites which could be due to grazing history (particularly by rabbits) and soil pH changes.Only more extensive sampling will enable the recognition of sub-groups within the rather extensive floristic group defined here.
Soils: Calcareous sands.
Geology: Qs1,Qpo,Qhs.
Comments: Note:- The single quadrat containing Acacia papyrocarpa Low Open Woodland is in this group.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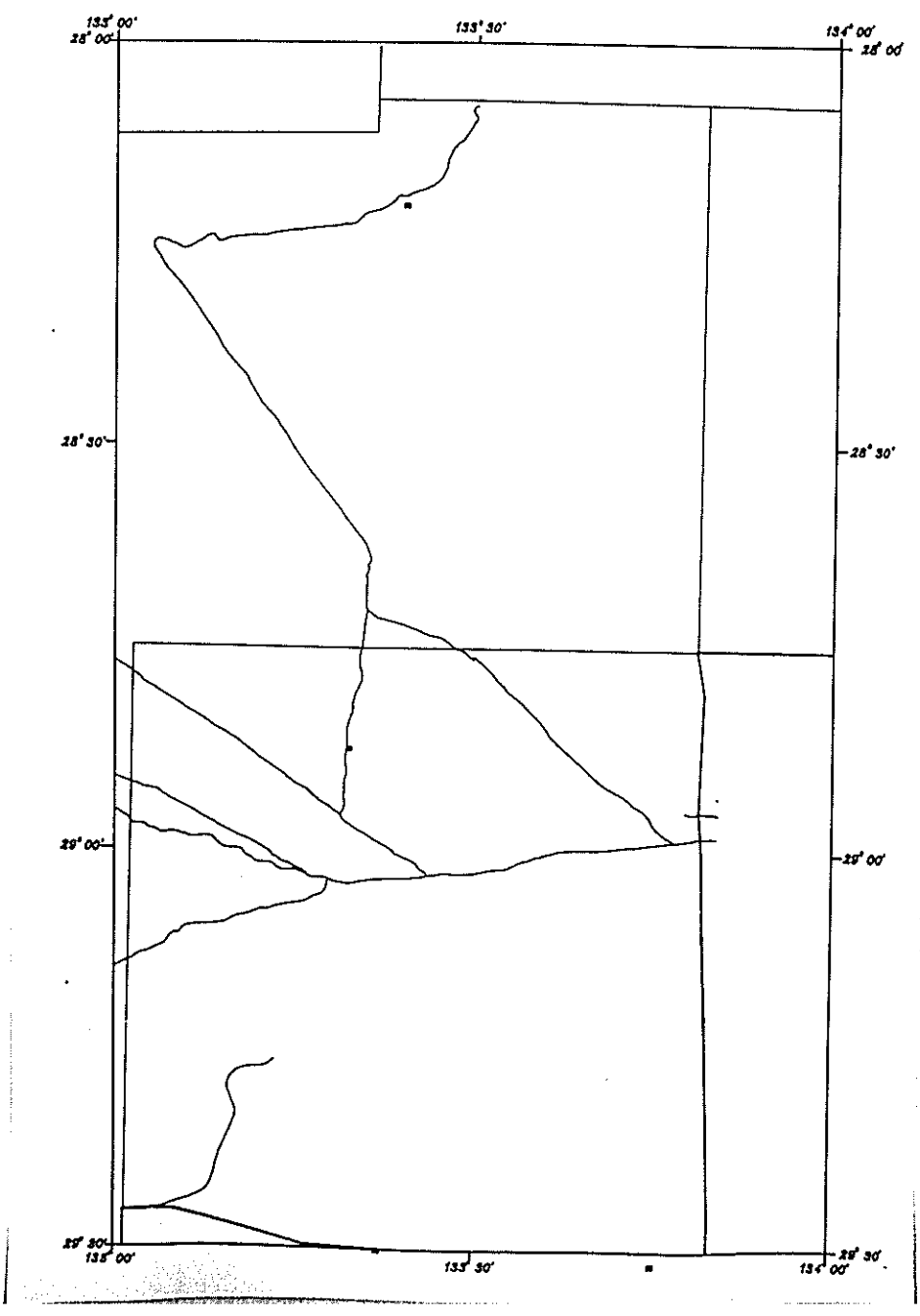
GROUP 7 ERAGROSTIS FALCATA/ZYGOPHYLLUM EREMAEUM OPEN HERBLAND

Species	Frequency	Overall Gps	Overall Ind	Group chi squ	Signif. std resid
Sclerolaena symoniana	0.5000	1	90	4.5455	2.13
Scaevola collaris	0.5000	1	90	4.5455	2.13
Dysphania rhadinostachya	0.5000	1	90	4.5455	2.13
Cassia nemophila var. nemophila	0.5000	1	90	4.5455	2.13
Stipa eremophila	0.5000	1	90	4.5455	2.13
Cheilanthes sieberi	0.5000	1	90	4.5455	2.13
Eragrostis falcata	1.0000	2	143	4.4448	2.11
Zygophyllum eremaeum	1.0000	3	86	4.3494	2.09
Eremophila freelingii	0.5000	2	49	3.5556	1.89
Cassia artemisioides	0.5000	2	59	2.8735	1.70
Eremophila maculata var. maculata	0.5000	2	61	2.7348	1.65
Maireana eriocalda	0.5000	3	47	1.8974	1.38
Eriachne pulchella	0.5000	4	35	1.5859	1.26
Spartothamnella teucriiflora	0.5000	4	38	1.4092	1.19
Rhyncharrhena linearis	0.5000	3	68	1.0788	1.04
Atriplex vesicaria	0.5000	3	75	0.9020	0.95
Enchylaena tomentosa var. tomentosa	1.0000	9	30	0.8960	0.95
Myoporum platycarpum	0.5000	3	84	0.7305	0.85

Environment: Claypans which hold fresh water following rains.These are very rare in the study area and only two were sampled. One had a silted up Aboriginal well associated with it.
Soil: Clay to clay loams.
Geology: Qra.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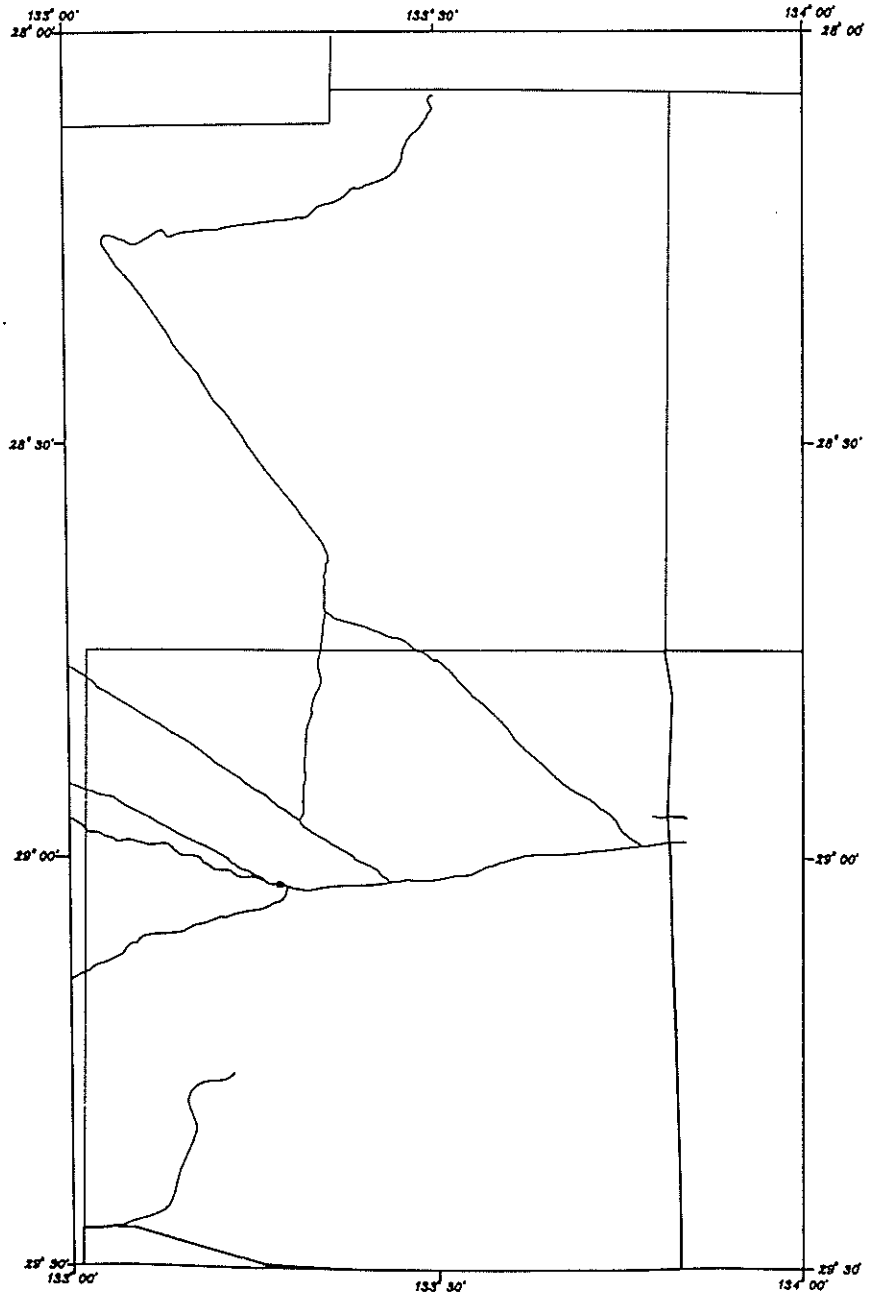
GROUP 8 HALOSARCIA INDICA SSP LEIOSTACHYA LOW SHRUBLAND

Species	Overall Frequency	Gps	Ind	Group chi squ	Signif. std resid
Alternanthera denticulata	0.5000	1	90	4.5455	2.13
Halosarcia indica ssp. leiostachya	0.5000	1	90	4.5455	2.13
Maireana pyramidata	0.2500	1	45	2.2727	1.51
Maireana oppositifolia	0.2500	1	45	2.2727	1.51
Hakea leucoptera	0.2500	1	45	2.2727	1.51
Boerhavia diffusa	0.2500	1	45	2.2727	1.51
Sarcozona praecox	0.2500	1	45	2.2727	1.51
Marsilea exarata	0.2500	1	45	2.2727	1.51
Goodenia modesta	0.2500	1	45	2.2727	1.51
Sclerolaena decurrens	0.2500	1	45	2.2727	1.51
Hemichroa diandra	0.2500	1	45	2.2727	1.51
Gunniopsis quadrifida	0.2500	1	45	2.2727	1.51
Eremophila macdonnellii	0.2500	1	45	2.2727	1.51
Panicum laevinode	0.2500	1	45	2.2727	1.51
Eragrostis falcata	0.7500	2	143	2.1948	1.48
Acacia tetragonophylla	1.0000	6	43	2.1578	1.47
Eremophila longifolia	0.5000	5	29	1.1288	1.06
Lycium australe	0.2500	2	35	1.1112	1.05
Eragrostis setifolia	0.7500	6	46	1.0543	1.03
Atriplex vesicaria	0.5000	3	75	0.9020	0.95
Solanum elipticum	0.2500	3	25	0.8506	0.92
Acacia ligulata	0.5000	4	52	0.8167	0.90
Grevillea stenobotrya	0.2500	2	53	0.6168	0.79
Eremophila maculata var. maculata	0.2500	2	61	0.4848	0.70

Environment: The fringes of gypseous salt pans and their associated lunette dune systems. This floristic group contains a number of distinctive sub-groups which occur as narrow bands around the fringes of the salt pans at increasing distances from the salt crust.The scale of this variation is too fine to show on the enclosed map.
Soil: Gypseous clays overlain with sand.
Geology: Qg, Qra, Qrs.


TA
12


133° 00'
133° 30'
134° 00'
28° 00'
28° 30'
29° 00'
29° 30'

GROUP 9 MYOPORUM PLATYCARPUM LOW OPEN WOODLAND

Species	Frequency	Overall Gps	Overall Ind	Group chi squ	Signif. std resid
Zygophyllum aurantiacum	1.0000	2	90	8.0011	2.83
Amyema quandang var. quandang	0.5000	1	90	4.5455	2.13
Myoporum platycarpum	1.0000	3	84	4.4448	2.11
Rhagodia spinescens	0.5000	4	31	1.8409	1.36
Cassia nemophila var. platypoda	1.0000	7	43	1.8389	1.36
Acacia oswaldii	0.5000	3	88	0.6667	0.82

Environment: The palaeodrainage area into Tallaringa Well with a variety of sand flats and gypseous rises.Once again, with additional sampling, a number of sub-groups could be recognised in this floristic group.
Soil: Alkaline sandy loams.
Geology: Qg/Qhs.

CONSERVATION VALUE

a) Comparison with other areas

The Tallaringa and northern Vacant Crown Land blocks support a variety of plant communities dominated by Mulga (Acacia aneura) on sandy and stony plains and Umbrella Mulga (A.ramulosa) on dunes. There have been a number of other more general studies of mulga dominated plant communities elsewhere in both Australia and South Australia.

A general classification of mulga vegetation throughout the species range in arid Australia has placed all the South Australian mulga communities (with the exception of those in the far northwest of the state) within the Southern Mulgalands (Nelder,1986). This is clearly a very generalised classification. Rowberry (1986) has identified eight conservation areas in South Australia which support mulga communities. Unfortunately, there are as yet no other studies of mulga carried out in sufficient detail to be directly comparable with this study on any of these eight existing conservation areas to allow a direct comparative assessment.

Johnson and Venning (1982) carried out a vegetation and land system study of the Wilkinson Lakes Vacant Crown Land block which is located directly to the southwest of the present study area. They recognised seven structural vegetation types of which only their "Acacia aneura (mulga) low woodland/low open woodland" and "Acacia aneura (mulga) - Acacia brachystachya (umbrella mulga) tall shrubland" are directly comparable with any of the vegetation types recognised in this study. There is clearly a significant change in the vegetation south and west from the present study area.

Lay and Magarey (1985) recorded data from sites for 42 tree and shrub species along traverses in two areas, one in the area to the east of the present survey area and one a traverse from Coober Pedy to Maralinga and south to Watson, an area to the south of the present study area. This study provided a good indication of general trends in distribution of individual tree and shrub species but made no attempt to classify particular vegetation communities and it is not therefore possible to directly compare the data from this study with ours.

In his assessment of the conservation of major plant associations in South Australia, Davies, 1982, considers that "Tall Shrubland with semi-succulent shrubs, tussock grasses sparse sclerophyllous shrubs or ephemerals (Acacia aneura + A. brachystachya Association) is MODERATELY conserved. There are however no significant areas of this association within the existing South Australian conservation reserve system. Tall shrubland with sparse sclerophyll shrubs (A. ramulosa Association) is REASONABLY conserved, particularly in the Unnamed Conservation Park. Williams (1986) has mapped and described in general terms the structural vegetation types in the Unnamed Conservation Park and only his "Acacia aneura woodland and Casuarina cristata/A.aneura

woodland types" appear to be comparable with the present study area. Davies et.al. (1986) have described in more detail the floristics and structure of the vegetation at five sites in the Unnamed Conservation Park and this provides a small amount of data comparable with this study. Their site 1 vegetation appears to be most comparable with the present study area, however the widespread presence of Triodia sp. in the understorey is a clear difference. We consider that when more comparable site data on vegetation floristics is gathered from the dunes in the Unnamed Conservation Park that they will be classified as a clearly different floristic vegetation type from those in the present study area.

b) Special Characteristics of the Study Area

The Tallaringa and Vacant Crown blocks, representing as they do a 150 km north to south coverage across the prevailing environmental gradients and at the extreme eastern limits of the Great Victoria Desert must therefore be considered an extremely valuable addition of PREVIOUSLY UNCONSERVED vegetation alliances in South Australia.

In addition, the absence of surfacewater and hard land surfaces in the Vacant Crown Land block in particular has meant that rabbit populations are very low. This coupled with the exceptional rainfall from 1973-75 and the widespread wildfires in 1974(Lay 1976a,b) has led to considerable mulga regeneration. Although the burst of mulga regeneration has also occurred on the adjacent pastoral lease of Mabel Creek, it did not generally occur over pastoral leasehold land elsewhere in South Australia.

The study area includes nine major mapped vegetation types and it can be seen from the map that to secure conservation of all these types both the Vacant Crown Land and Tallaringa blocks should be included in any conservation strategy.

Although this study was designed to produce a systematic classification and mapping of the vegetation,a number of opportunistic observations of the fauna were made and these are compiled in Appendices II-IV. Of particular note from a conservation viewpoint were the large number of observations of the Bourke Parrot (Neophema bourkii) in the Vacant Crown Land block. This species is classified as 'rare' in South Australia (Parker 1985) and is largely confined to mulga shrubland habitat. This survey revealed that the lands support at least 205 plant, 9 native mammal, 62 native bird, 34 reptile and 1 amphibian species, an extremely rich flora and fauna for such an arid area which superficially looks a rather uniform and monotonous landscape.

c) Conservation Recommendtions

This study represents the third and, perhaps most detailed assesment of land use in the Vacant Crown Lands of arid northern South Australia. Vickery et.al. (1981) considered that at that time all remaining areas of Vacant Crown Land in the arid zone had value for conservation and recommended that they be added to the State conservation reserve systems. Johnson and Venning (1982) recommended against development of the Wilkinson Lakes Vacant Crown Land Block for pastoralism but made no other specific recommendations regarding future management.

The results of this study of the Tallaringa Annual Licence block and the Northern Vacant Crown Land block clearly demonstrate their significant conservation value. The reasons are summarised below:-

1) They represent an important opportunity to conserve nine major vegetation types spread across a 150km north-south environmental gradient.

2) They include a representative sample of the extreme eastern fringe of the Great Victoria Desert, a major Australian landform.

3) The area represents an important ungrazed benchmark against which to compare the impact of pastoralism in mulga lands further to the east and south.

4) The area supports a wide variety of flora and fauna for such an arid and topographically simple area.

5) The relatively low number of tracks into the area make it a significant arid wilderness.

6) Paradoxically the two major access tracks to the northern and central parts of the block from the Stuart Hightway, make it one of the more easily accessible arid mulga wilderness areas for well prepared arid zone travellers. It is much more accessible than the other great wilderness reserve in western South Australia, the Unnamed Conservation Park.

7) The majority of the area has either never been grazed or only very lightly grazed by domestic stock and, at least the northern Vacant Crown Land block, appears to support very low densities of rabbits.

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APPENDIX I
THE PLANTS RECORDED DURING THE SURVEY OF THE TALLARINGA AREA, SEPTEMBER 1988

Plant taxonomy follows Jessop and Toelken (1986)

ADIANTACEAE
- Cheilanthes sieberi

AIZOACEAE
- Gunniopsis quadrifida

AIZOACEAE
- Sarcozona praecox

AMARANTHACEAE
- Alternanthera denticulata
- Hemichroa diandra
- Ptilotus atriplicifolius var. atriplicifolius
- Ptilotus exaltatus var. exaltatus
- Ptilotus gaudichaudii var. gaudichaudii
- Ptilotus obovatus var. obovatus
- Ptilotus polystachyus var. polystachyus

ASCLEPIADACEAE
- Rhyncharrhena linearis

CHENOPODIACEAE
- Atriplex vesicaria
- Chenopodium desertorum ssp. desertorum
- Dissocarpus paradoxus var. paradoxus
- Dysphania kalpari
- Dysphania rhadinostachya
- Einadia nutans
- Enchylaena tomentosa var. tomentosa
- Halosarcia indica ssp. leiostachya
- Maireana appressa
- Maireana astrotricha
- Maireana campanulata
- Maireana erioclada
- Maireana georgei
- Maireana integra
- Maireana oppositifolia
- Maireana pyramidata
- Maireana sedifolia
- Maireana trichoptera
- Maireana turbinata
- Maireana villosa
- Osteocarpum acropterum
- Rhagodia parabolica
- Rhagodia spinescens
- Salsola kali var. strobilifera
- Sclerochlamys brachyptera
- Sclerolaena convexula
- Sclerolaena cuneata
- Sclerolaena decurrens
- Sclerolaena diacantha
- Sclerolaena divaricata
- Sclerolaena eriacantha
- Sclerolaena johnsonii
- Sclerolaena lanicuspis
- Sclerolaena obliquicuspis
- Sclerolaena patenticuspis
- Sclerolaena symoniana
- Sclerolaena uniflora

CHLOANTHACEAE
Dicrastylis beveridgei var. lanata
Spartothamnella teucriiflora
COMPOSITAE
Brachycome ciliaris
Brachycome ciliocarpa
Brachycome iberidifolia
Calocephalus knappii
Calotis plumifera
Chrysocoryne pusilla
Chthonocephalus pseudevax
Gnephosis arachnoides
Helichrysum bracteatum
Helichrysum davenportii
Helichrysum pterochaetum
Helipterum cassineanum
Helipterum fitzgibbonii
Helipterum floribundum
Helipterum stipitatum
Helipterum tietkensii
Minuria leptophylla
Podolepis canescens
Podolepis capillaris
Waitzia acuminata
Waitzia citrina
CONVOLVULACEAE
Convolvulus erubescens
CRUCIFERAE
Lepidium oxytrichum
Lepidium phlebopetalum
Stenopetalum velutinum
EUPHORBIACEAE
Euphorbia inappendiculata
Euphorbia tannensis ssp. eremophila (Cunn.)Hassall var. eremophila
FRANKENIACEAE
Frankenia crispa
GERANIACEAE
Erodium botrys
Erodium cygnorum ssp. cygnorum
Erodium cygnorum ssp. glandulosum
GOODENIACEAE
Brunonia australis
Goodenia cycloptera
Goodenia glabra
Goodenia havillandii
Goodenia hirsuta
Goodenia modesta
Goodenia pusilliflora
Scaevola collaris
Scaevola spinescens
Velleia arguta
GRAMINEAE
Amphipogon carcinus
Aristida contorta
Aristida holothera
Enneapogon avenaceus
Enneapogon caerulescens
Enneapogon cylindricus

Enneapogon polyphyllus
Enteropogon acicularis
Eragrostis eriopoda
Eragrostis falcata
Eragrostis lanifolia
Eragrostis lanipes
Eragrostis setifolia
Eriachne helmsii
Eriachne mucronata
Eriachne pulchella
Monochather paradoxa
Panicum laevinode
Paractaenum novaehollandiae
Stipa eremophila
Stipa nitida
Stipa scabra var. scabra
Thyridolepis mitchelliana
Thyridolepis multiculmis

GYROSTEMONACEAE

Codonocarpus cotinifolius
Gyrostemon ramulosus

HALORAGACEAE

Haloragis odontocarpa

LABIATEAE

Prostanthera althoferi

LEGIMINOSAE

Acacia sp. near aneura complex
Acacia aneura
Acacia kempeana
Acacia ligulata
Acacia murrayana
Acacia oswaldii
Acacia papyrocarpa
Acacia ramulosa
Acacia tetragonophylla
Cassia artemisioides
Cassia helmsii
Cassia nemophila var. coriacea
Cassia nemophila var. nemophila
Cassia nemophila var. platypoda
Cassia sturtii
Crotalaria eremaea ssp. strehlowii
Swainsona oroboides
Muelleranthus stipularis
Swainsona canescens
Swainsona unifoliata

LILIACEAE

Thysanotus exiliflorus

LORANTHACEAE

Amyema gibberulum
Amyema preissii
Amyema quandang var. quandang
Lysiana exocarpi

MALVACEAE

Abutilon cryptopetalum
Hibiscus krichauffianus
Hibiscus sturtii
Selenothamnus squamatus
Sida ammophila
Sida fibulifera
Sida filiformis

MARSILEACEAE
Marsilea exarata
MYOPORACEAE
Eremophila alternifolia var. alternifolia
Eremophila deserti
Eremophila duttonii
Eremophila freelingii
Eremophila gilesii
Eremophila glabra
Eremophila latrobei var. glabra
Eremophila longifolia
Eremophila macdonnellii
Eremophila maculata var. maculata
Eremophila neglecta
Eremophila paisleyi
Eremophila scoparia
Eremophila serrulata
Eremophila sturtii
Eremophila willsii ssp. integrifolia
Myoporum platycarpum
MYRTACEAE
Eucalyptus socialis
Melaleuca uncinata
Micromyrtus flaviflora
Thryptomene maisonneuvei
NYCTAGINACEAE
Boerhavia diffusa
PITTOSPORACEAE
Pittosporum phylliraeoides var. microcarpa
PLANTAGINACEAE
Plantago sp. B
PORTULACACEAE
Calandrinia balonensis
Calandrinia eremaea
Calandrinia polyandra
Portulaca oleracea
PROTEACEAE
Grevillea juncifolia
Grevillea nematophylla
Grevillea stenobotrya
Hakea leucoptera
RUBIACEAE
Canthium lineare
SANTALACEAE
Santalum acuminatum
SAPINDACEAE
Dodonaea microzyga
Dodonaea viscosa ssp. angustissima
SOLANACEAE
Duboisia hopwoodii
Lycium australe
Nicotiana velutina
Solanum centrale
Solanum coactiliferum
Solanum ellipticum
Solanum lasiophyllum
THYMELEACEAE
Pimelea microcephala ssp. microcephala
UMBELLIFERAE
Trachymene glaucifolia

ZYGOPHYLLACEAE

- *Tribulus occidentalis*
- *Zygophyllum ammophilum*
- *Zygophyllum aurantiacum*
- *Zygophyllum billardierei*
- *Zygophyllum eremaeum*
- *Zygophyllum humillimum*
- *Zygophyllum ovatum*
- *Zygophyllum prismatothecum*

APPENDIX II
THE MAMMALS RECORDED IN THE TALLARINGA STUDY AREA TO 1988

Mammal taxonomy follows Kemper (1985). Specimen records from the present survey are given in the first column.In the second column(Sinclair/Bird) species noted by R.G.Sinclair and P.L.Bird onCommonwealth Hill (sites 1-8) and Mabel Creek (sites 5,8 & 11)Stations during vertebrate surveys along the dog fence between1978-1981 are recorded. This only includes records from habitatsthat are represented in the present study area.The third column(Kemper) represents observations made on Mabel Creek Station (Kemperet al 1985) Again,only records for habitats in the present studyarea are included.

	This Survey	Sinclair Bird	Kemper
CAMELIDAE			
Camelus dromedarius Camel	X		
CANIDAE			
Canis familiaris,Dog/Dingo	X		
*Vulpes vulpes,Fox			X
DASYURIDAE			
Sminthopsis crassicaudata,Fat-tailed Dunnart			X
Sminthopsis macroura,Stripe-faced Dunnart			X
Sminthopsis ooldea, Ooldea Dunnart	X	X	X
FELIDAE			
*Felis catus,Cat	X	X	X
LEPORIDAE			
*Oryctolagus cuniculus,Rabbit	X	X	X
MACROPODIDAE			
Macropus rufus,Red Kangaroo	X	X	X
MURIDAE			
*Mus domesticus,House Mouse	X	X	X
Notomys alexis,Spinifex Hopping Mouse		X	
Pseudomys hermannsburgensis,Sandy Inland Mouse		X	X
TACHYGLOSSIDAE			
Tachyglossus aculeatus,Short-beaked Echidna	X		
VESPERTILIONIDAE			
Chalinolobus gouldii,Gould's Wattled Bat			X
Nyctophilus geoffroyi,Lesser Long-eared Bat			X
Scotorepens balstoni,Little Broad-nosed Bat			X

APPENDIX III

THE BIRDS RECORDED IN THE TALLARINGA STUDY AREA TO 1988

Bird taxonomy follows Parker (1985).Records from the present survey are givenin the first column.In the second column (Reid) observations made on Mabel CreekStation (Kemper et al 1985) are given.Only records for habitats in the present study study area are included

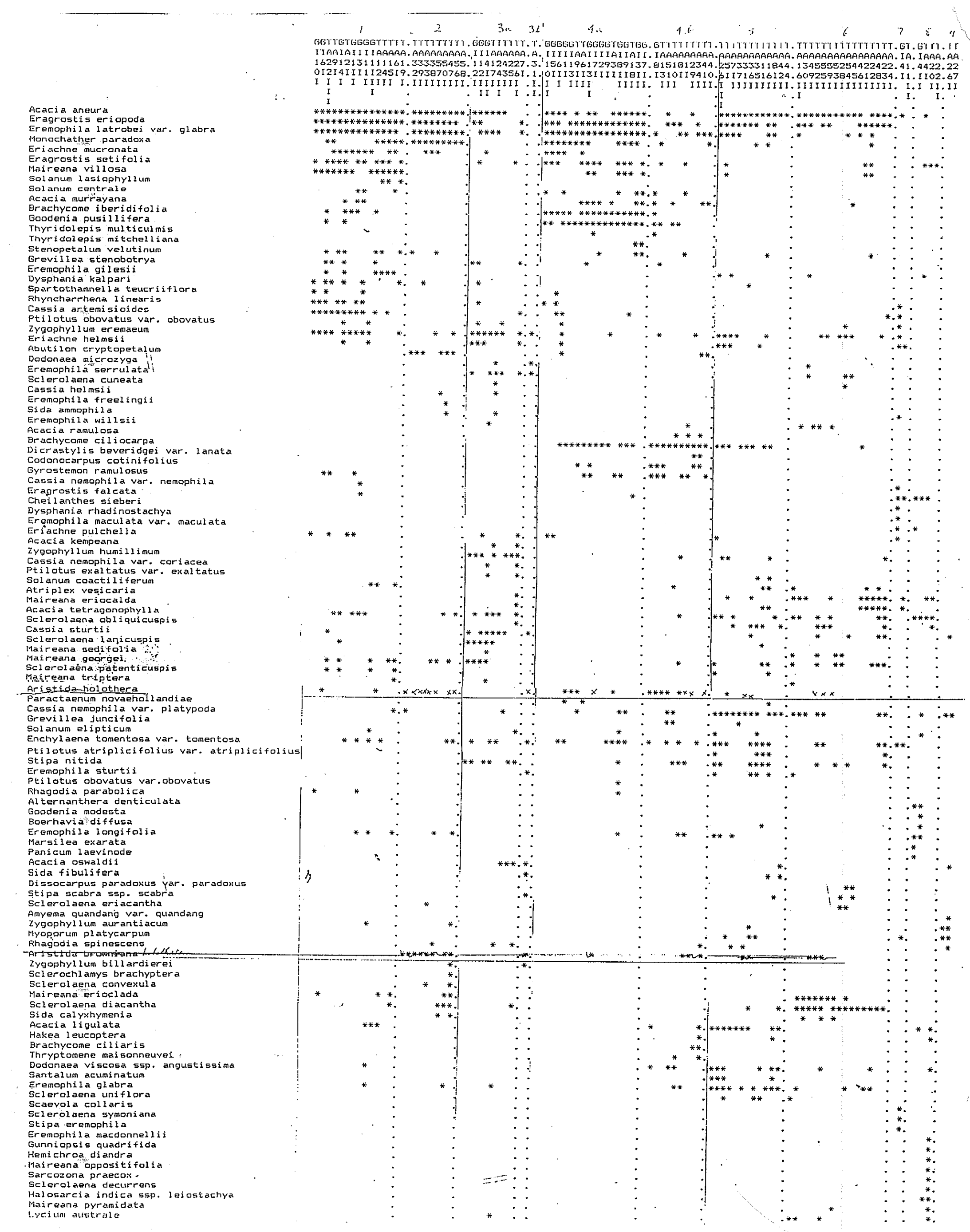
	This Survey	Reid
ACANTHIZIDAE		
ACANTHIZINAE		
Acanthiza chrysorrhoa Yellow-rumped Thornbill		X
Acanthiza uropygialis Chestnut-rumped Thornbill	X	X
Aphelocephala leucopsis Southern Whiteface	X	X
Pyrrholaemus brunneus Redthroat	X	X
ACCIPITRIDAE		
Aquila audax Wedge-tailed Eagle	X	X
Circus assimilis Spotted Harrier	X	X
Hieraaetus morphnoides Little Eagle	X	X
Milvus migrans Black Kite	X	
AEGOTHELIDAE		
Aegotheles cristatus Owlet Nightjar	X	X
ALECIDINAE		
Halcyon pyrrhopygia Red-backed Kingfisher	X	X
CAPPRIMULGIDAE		
Eurostopodus argus Spotted Nightjar	X	X
CASUARIDAE		
Dromaius novaehollandiae Emu	X	X
CHARADRIIDAE		
Vanellus tricolor Banded Plover	X	X
COLUMBIDAE		
Geopelia cuneata Diamond Dove	X	X
Ocyphaps lophotes Crested Pigeon	X	X
CORVIDAE		
CORVINAE		
Artamus cinereus Black-faced Woodswallow	X	X
Artamus personatus Masked Woodswallow	X	X
Artamus superciliosus White-browed Woodswallow		X
Coracina novaehollandiae Black-faced Cuckoo-shrike		X
Corvus bennetti Little Crow	X	X
Cracticus torquatus Grey Butcherbird	X	X
Gymnorhina tibicen Australian Magpie	X	X
Lalage sueurii White-winged Triller		X
MONARCHINAE		
Rhipidura leucophrys Willie Wagtail	X	X
PACHYCEPHALINAE		
Colluricincla harmonica rufiventris Western Shrikethrush	X	X
Oreoica gutturalis Crested Bellbird	X	X
Pachycephala inornata Gilbert's Whistler	X	
Pachycephala rufiventris Rufous Whistler	X	X
CUCULIDAE		
Chrysococcyx basalis Horsfield's Bronze Cuckoo	X	X
Chrysococcyx osculans Black-eared Cuckoo	X	X
EOPSALTRIDAE		
Daphoenositta chrysoptera pileata Black-capped Sitella	X	X
Melanodryas cucculata Hooded Robin	X	X
Petroica goodenovii Red-capped Robin	X	X

FALCONIDAE		
Falco berigora Brown Falcon	X	X
Falco cenchroides Nankeen Kestrel	X	X
HIRUNDINIDAE		
Cheramoeca leucosternum White-backed Swallow	X	X
MALURIDAE		
Malurus lamberti assimilis Purple-backed Wren	X	X
Malurus leucopterus White-winged Wren	X	X
Malurus splendens callainus Turquoise Wren	X	X
MELIPHAGIDAE		
Acanthogenys rufogularis Spiny-cheeked Honeyeater	X	X
Certhionyx variegatus Pied Honeyeater		X
Ephthianura tricolor Crimson Chat	X	X
Manorina flavigula Yellow-throated Miner	X	X
Meliphaga virescens Singing Honeyeater	X	X
Phylidonyris albifrons White-eared Honeyeater		X
MEROPIDAE		
Merops ornatus Rainbow Bird	X	X
NECTARINIDAE		
Dicaeum hirundinaceum Mistletoebird		X
OTIDIDAE		
Ardeotis australis Australian Bustard	X	X
PHASIANIDAE		
Coturnix novaezeelandiae Stubble Quail		X
PLOCEIDAE		
ESTRILIDINAE		
Poephila guttata Zebra Finch	X	X
MOTACILLINAE		
Anthus novaeseelandiae Richard's Pipit	X	X
PODARGIDAE		
Podargus strigoides Tawny Frogmouth		X
POMATOSTOMIDAE		
Pomatostomus superciliosus White-browed Babbler	X	X
PSITTACIDAE		
Cacatua roseicapilla Galah	X	X
Melopsittacus undulatus Budgerigah	X	X
Neophema bourkii Bourkes parrot	X	X
Northiella haematogaster Bluebonnet	X	
Nymphicus hollandicus Cockatiel	X	X
Psephotus varius Mulga Parrot	X	X
SILVIIDAE		
Cincloramphus cruralis Brown Songlark		X
Cincloramphus mathewsi Rufous Songlark	X	X
TURNICIDAE		
Turnix velox Little Button-quail		X

APPENDIX IV
THE AMPHIBIANS AND REPTILES RECORDED IN THE TALLARINGA STUDY AREA TO 1988.

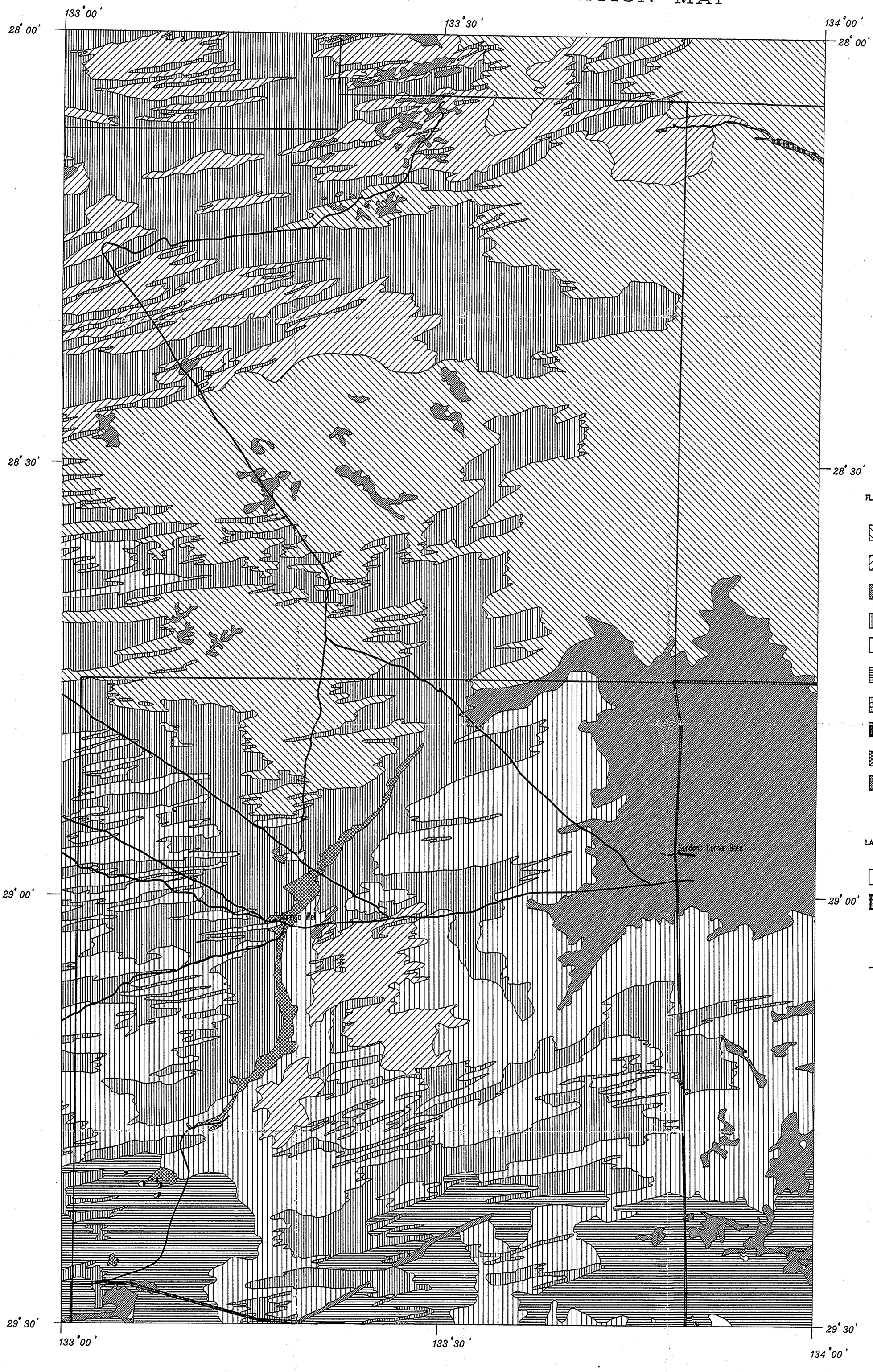
Reptile taxonomy follows Schwaner (1985). Specimen records from the presentsurvey are given in the first column.In the second column(sinclair/Bird)species noted by R.G.Sinclair and P.L.Bird on Commonwealth Hill (sites 1-8)and Mabel Creek (sites 5,8 & 11) Stations during vertebrate surveys alongthe dog fence between 1978-1981 are recorded. This only includes records fromhabitats that are represented in the present study area. The third column(Edwards) represents observations made on Mabel Creek Station (Kemper et al1985). Again,only records for habitats in the present study area are included.

	This Survey	Sinclair Bird	Edwards
AGAMIDAE			
Ctenophorus cristatus Crested Dragon			X
Ctenophorus isolepis Military Dragon	X	X	X
Ctenophorus nuchalis Central Netted Dragon	X		X
Moloch horridus Thorny Devil			X
Pogona minor Dwarf Bearded Dragon	X	X	X
Pogona vitticeps	X	X	X
Tympanocryptis lineata			X
ELAPIDAE			
Pseudechis australis Mulga Snake		X	
Simoselaps bertholdi Desert Banded Snake	X	X	X
Simoselaps fasciolatus Narrow-banded Snake	X	X	X
Unechis monarchus Hooded Snake			X
GEKKONIDAE			
Diplodactylus ciliaris Spiny-tailed Gecko			X
Diplodactylus conspicillatus Fat-tailed		X	X
Gecko			X
Diplodactylux intermedius Eastern			
Spiney-tailed Gecko			X
Diplodactylus stenodactylus	X	X	X
Diplodactylus tessellatus Tesselated Gecko			X
Gehyra variegata Tree Dtella			X
Heteronotia binoei Binoe's Gecko			X
Lucasium damaeum Beaded Gecko			X
Nephrurus levis	X	X	X
Rhynchoedura ornata Beaked Gecko	X	X	X
Underwoodisaurus millii Thick-tailed Gecko			X
LEPTODACTYLIDAE			
Neobatrachus centralis Trilling Frog			X
PYGOPODIDAE			
Pygopus nigriceps Hooded Scaly-foot		X	X
SCINCIDAE			
Ctenotus brooksi			X
Ctenotus leonhardii			
Ctenotus regius		X	X
Ctenotus schomburgkii		X	X
Egernia inornata Desert Skink	X		
Lerista desertorum			X
Lerista labialis		X	X
Menetia greyi		X	X
Morethia boulengeri			X
TYPHLOPIDAE			
Ramphotyphlops endoterus		X	X
VARANIDA			
Varanus gouldii Gould's Goanna	X	X	X



TWO-WAY TABLE

TALLARINGA FLORISTIC VEGETATION MAP



N

SCALE 1:250 000

5 Kilometres 0 5 10 15 20 25

AERIAL PHOTOGRAPHY BASE
1:100000 Standard Mosaics

Sheet No.	Sheet Name	Date of Photography
5539	Tallaringa	Jan 1979
5540	Alinya	Jan 1975
5541	Mammala	Jun 1975
5639	Yerarda	Oct 1977
5640	Yarlie	Jun 1981
5641	Naarack	Jun 1981

SITE SURVEY
October 1988

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