

PROVISIONAL REPORT  
DANDARAGAN SHIRE NATURE RESERVES

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PROVISIONAL REPORT ON 6 NATURE RESERVES IN DANDARAGAN SHIRE

Introduction

Dandaragan Shire lies in the Northern Sandplains and has an area of ca. 6 934 sq. kms. It falls almost entirely within the 'Darling' Botanical District, just extending into the rich 'Irwin' district to the north. (Botanical Divisions follow Gardner and Bennetts, 1956). There are 19 Nature Reserves within the Shire excluding islands, totalling some 343 sq. kms., or ca. 4.9% of the area of the Shire. The reserves vary in size, the largest 10 853.7275 ha (Reserve 36053), the smallest 3.0741 ha (Reserve 35191). Five cover areas greater than 1 000 ha, four less than 100 ha. Two of the reserves are vested in the Local Authority and nine in the Western Australian Wildlife Authority. The remainder are unvested, and have no particular protection.

This survey took place in May and June 1980 and consisted of a brief examination of six reserves - 27216, 27219, 27394, 27993, 28558 and 31675. The resultant report is the first of a series which will cover the Nature Reserves of Dandaragan Shire. The object is to provide the basic information from which a comprehensive Management Plan for the area can be drawn up.

The reserves were examined on foot and by vehicle where tracks permitted. Aerial photo coverage at 1:40 000 proved most useful in locating areas of special interest. Physical characteristics were obtained from the relevant 1:50 000 Cadastrals and 80 chain lithos, and interpreted from observations made on the reserves. Field notes were made on the basic plant associations and this information transposed to diagramatic maps drawn up for each area. Where dominant plant species were not recognised in the field, sample specimens were taken for identification at the W.A. Wildlife Research Centre and the W.A. Herbarium. Habitat photographs taken on location have been used to augment the text. Lists were made of the fauna encountered on the reserves. As no trapping was carried out these usually represent the most common and obvious species. Reptiles were very seldom encountered as the inspections were carried out in mid-winter. The season also presented problems in plant identification as most species were not in flower. The vegetation was classified following the B.G. Muir System as used in the W.A. Wheatbelt Survey. Bird nomenclature follows Slater's 'Field Guide to Australian Birds.' Fire histories were determined from vegetation appearance, information from local farmers and sometimes from records on file.

#### Acknowledgements

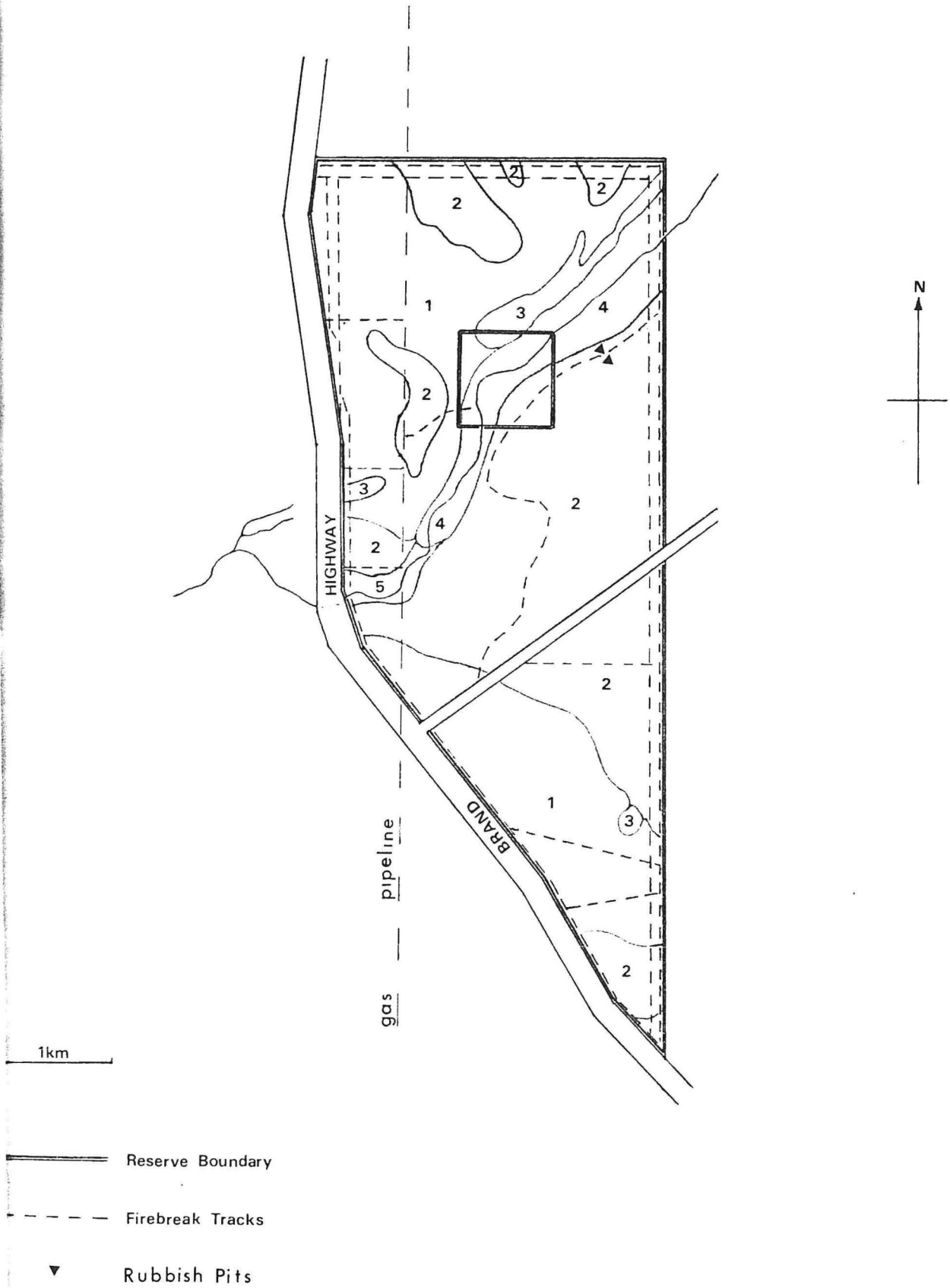
Thanks are due to Dr S.D. Hopper of the W.A. Wildlife Research Centre, Mr N.S. Lander of the W.A. Herbarium and Mr C.J. Robinson

Of Kings Park for their help in identifying the plant specimens collected in the field. Mr J.K. Rolfe kindly identified the reptile specimens.

TABLE 1: VEGETATION CLASSIFICATION AS USED IN WHEATBELT SURVEY

LIFE FORM/HEIGHT CLASS		CANOPY COVER			
		DENSE <sup>d</sup> 70-100%	MID-DENSE <sup>c</sup> 30-70%	SPARSE <sup>i</sup> 10-30%	VERY SPARSE <sup>r</sup> 2-10%
T	Trees >30m	Dense Tall Forest	Tall Forest	Tall Woodland	Open Tall Woodland
M	Trees 15-30m	Dense Forest	Forest	Woodland	Open Woodland
LA	Trees 5-15m	Dense Low Forest A	Low Forest A	Low Woodland A	Open Low Woodland A
LB	Trees <5m	Dense Low Forest B	Low Forest B	Low Woodland B	Open Low Woodland B
KT	Mallee tree form	Dense Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree Mallee
KS	Mallee shrub form	Dense Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub Mallee
S	Shrubs >2m	Dense Thicket	Thicket	Scrub	Open Scrub
SA	Shrubs 1.5-2.0m	Dense Heath A	Heath A	Low Scrub A	Open Low Scrub A
SB	Shrubs 1.0-1.5m	Dense Heath B	Heath B	Low Scrub B	Open Low Scrub B
SC	Shrubs 0.5-1.0m	Dense Low Heath C	Low Heath C	Dwarf Scrub C	Open Dwarf Scrub C
SD	Shrubs 0.0-0.5m	Dense Low Heath D	Low Heath D	Dwarf Scrub D	Open Dwarf Scrub D
P	Mat plants	Dense Mat Plants	Mat Plants	Open Mat Plants	Very Open Mat Plants
H	Hummock Grass	Dense Hummock Grass	Mid-Dense Hummock Grass	Hummock Grass	Open Hummock Grass
GT	Bunch grass >0.5m	Dense Tall Grass	Tall Grass	Open Tall Grass	Very Open Tall Grass
GL	Bunch grass <0.5m	Dense Low Grass	Low Grass	Open Low Grass	Very Open Low Grass
J	Herbaceous spp.	Dense Herbs	Herbs	Open Herbs	Very Open Herbs
VT	Sedges >0.5m	Dense Tall Sedges	Tall Sedges	Open Tall Sedges	Very Open Tall Sedges
YL	Sedges <0.5m	Dense Low Sedges	Low Sedges	Open Low Sedges	Very Open Low Sedges
X	Ferns Mosses, liverwort	Dense Ferns Dense Mosses	Ferns Mosses	Open Ferns Open Mosses	Very Open Ferns Very Open Mosses

RESERVE 27216



RESERVE 27216

Vegetation Areas shown on Map

AREA 1:

"Low Woodland A" over "Low Heath C" to "Low Heath D" over "Very Open Low Sedges" and "Very Open Herbs".

AREA 2:

"Blackboys" over "Low Heath C" to "Low Heath D" over "Open Low Sedges".

AREA 3:

"Dense Thicket" to "Heath A" over "Low Heath C" over "Very Open Low Sedges and Grasses".

AREA 4:

"Woodland" over "Open Scrub" over "Blackboys" over "Open Low Sedges, Grasses and Ferns".

AREA 5:

"Low Woodland A" over "Open Scrub" over "Thicket" to "Heath A".

Location:

Bordering on the eastern side of the Brand Highway and ca. 6 km north-west of Cataby. Located on Lithograph 1936/1 Wongonderrah.

Background:

Reserve 27216 was originally gazetted on 17 September 1965 for the purpose of Recreation, Camping and Conservation of Flora. On 1 April 1977 the area was vested in the Shire of Dandaragan.

Physical Characteristics:

Reserve 27216 is irregular in shape with a total perimeter of 19.5 kms and an area of ca. 1 757.8459 ha. It is situated on the eastern side of the Brand Highway some 6 km north-west of Cataby. A 64.7497 ha block in the centre of the reserve has been excluded and set aside for 'Water and Camping'.

The Brand Highway runs along the western and south-western sides of the reserve, while the eastern edge borders on cleared farmland. About half of the northern boundary borders on farmland, with the remainder still uncleared. Mullering Road cuts across the southern third of the reserve from south-west to north-east. Firebreaks also run around the perimeter



although these have become overgrown in places. There are several vehicle tracks, the most noticeable of which have been marked on the diagrammatic map of the area. An underground gas pipeline runs north to south on the western edge of the reserve.

The area is essentially undulating sandplain country. On the higher ground the sand is mixed with laterite and supports blackboys over low heath formations. The deeper sand in the hollows supports Banksia and Eucalyptus todtiana dominated woodland. Mullering Brook flows through the northern part of the reserve in a south-westerly direction and this watercourse is characterized by Eucalyptus calophylla and E. rudis woodland. The areas which are susceptible to seasonal flooding generally support Melaleuca spp. and Banksia sphaerocarpa dominated vegetation.

#### Vegetation:

##### Area 1:

"Low Woodland B" made up mainly of Banksia attenuata and Eucalyptus todtiana from 2 to 5 metres, with B. menziesii and Nuytsia floribunda less common. This over "Low Heath C" to Low Heath D" made up of several species including Eremaea pauciflora, Stirlingia latifolia, Dasypogon bromeliaefolius, Casuarina humilis, Patersonia occidentalis,

Dryandra nivea aff., Calectasia cyanea, Blancoa canescens, Hibbertia hypericoides, Acacia sp., Conospermum sp. and Daviesia sp. This over "Very Open Low Sedges" and "Very Open Herbs". Conostylis spp., Stylidium spp. and Drosera spp. were common.

Note: In some areas "Thicket" of Adenanthos <sup>cygnorum</sup> ~~sericea~~ ca. 2 to 3 metres forms a dominant intermediate stratum, while in others it is absent.

Area 2:

Blackboys Xanthorrhoea preissii to ca. 2½ metres, 2 to 10% canopy cover, over "Low Heath C" to "Low Heath D" made up a large number of species but with no particular dominants. Common examples include Hakea varia, Dasypogon bromeliaefolius, Stirlingia latifolia, Banksia sphaerocarpa aff., Banksia candolleana, Calectasia cyanea, Acacia pulchella, Conospermum stoechadis, Dryandra nivea, Blancoa canescens, Dryandra sp., Daviesia spp., Calothamnus spp., Grevillea sp. and Drosera spp. This over several species of sedges. Isolated patches of Eucalyptus macrocarpa and E. gittinsii were also noted.

Note: Banksia candolleana to ca. 0.75 metres was most common along the edge of the Banksia woodland, while the Blackboys tended to be concentrated more on the laterite based soils on the higher ground.

Area 3: (seasonal swampy areas)

"Dense Thicket" to "Heath A" of Melaleuca spp. ca. 2 to 3 metres with or without "Low Heath C" of Verticordia sp. to 1 metre and Calothamnus sp. to ca. 0.75 metres over "Very Open Low Sedges and Grasses."

*I think that 'Open Low Woodland B' may be a more appropriate description in this case.*

Area 4:

"Woodland" made up of E. calophylla 15 to 18 metres and E. rudis to 15 metres over "Open Scrub" of predominantly Jacksonia ~~sp.~~ <sup>sternbergiana</sup>, Acacia sp. and Banksia grandis to ca. 6 metres over Blackboys Xanthorrhoea preissii to ca. 2 metres over "Open Low Sedges and Grasses".

Area 5:

"Low Woodland A" of E. rudis to 12 metres (confined to stream bed) over "Open Scrub" of Jacksonia ~~sp.~~ <sup>sternbergiana</sup> to 4 metres and Melaleuca sp. to 3 metres over "Thicket" to "Heath A" dominated by Hakea trifurcata to 2.5 metres.

Human Usage:

Reserve 27216 is in reasonable condition although it has suffered from a certain degree of human pressure in the past. There are numerous old tracks on the reserve though many of these are regenerating well and appear to be seldom, if ever,

used. An underground gas pipeline which runs down the western side of the reserve has an access track maintained for inspection purposes. This acts as an additional firebreak to the ones put in along the reserve boundaries. Mullering Road, which cuts through the southern part of the reserve, is a public right-of-way. Two gravel pits are located alongside this road. There is the usual accumulation of rubbish along the Brand Highway, mainly cans and bottles. Near the eastern side of the reserve the local Shire has excavated two rubbish pits for use by neighbouring farmer, Mr W. Dermer. Decaying sheep carcasses and other farm debris were noted in these pits. Mr Dermer was also found to have illegally fenced off a small portion of the reserve for sheep. This enclosure has now been removed. The block in the centre of the reserve, which was set aside for Camping and Water, is in fact an ideal camping area. Unfortunately, three recently stripped car bodies have been dumped on this site.

#### Fire History:

Nothing specifically recorded. There are, however, signs of fire during the past few years. The eastern side of the reserve appears to have been burnt more recently than the west.

FAUNA

Birds:

5 x Emu	<u>Dromaius novaehollandiae</u>
1 x Wedge-tailed Eagle	<u>Aquila audax</u>
1 x Nankeen Kestrel	<u>Falco cenchroides</u>
100 <sup>+</sup> Galah (roosting in <u>E. calophylla</u> woodland at night)	<u>Eolophus roseicapillus</u>
6 x Port Lincoln Parrot	<u>Barnardius zonarius</u>
2 x Laughing Kookaburra	<u>Dacelo gigas</u>
2 x Welcome Swallow	<u>Hirundo neoxena</u>
10 <sup>+</sup> Tree Martin	<u>Petrochelidon nigricans</u>
2 x Black-faced Cuckoo-shrike	<u>Coracina novaehollandiae</u>
11 x Yellow-tailed Thornbill	<u>Acanthiza chrysorrhoa</u>
4 x Richards Pipit	<u>Anthus novaeseelandiae</u>
3 x Scarlet Robin	<u>Petroica multicolor</u>
2 x Grey Fantail	<u>Rhipidura fuliginosa</u>
1 x Willia Wagtail	<u>Rhipidura leucophrys</u>
1 x Rufous Whistler	<u>Pachycephala rufiventris</u>
1 x White-faced Chat	<u>Ephthianura albifrons</u>
30 <sup>+</sup> Brown Honeyeater	<u>Lichmera indistincta</u>
7 x Western Spinebill	<u>Acanthorhynchus superciliosus</u>
1 x Singing Honeyeater	<u>Meliphaga virescens</u>
3 x White-cheeked Honeyeater	<u>Phylidonyris niger</u>
2 x Tawny-crowned Honeyeater	<u>Gliciphila melanops</u>
1 x Red Wattle-Bird	<u>Anthochaera carunculata</u>
2 x Black-faced Wood-swallow	<u>Artamus cinereus</u>
7 x Australian Raven	<u>Corvus coronoides</u>

Mammals:

Rabbits - some sign but none seen.

1 x Fox

1 x Brush-tailed Wallaby                    Macropus irma

7 x Grey Kangaroo                            Macropus fuliginosus

Reptiles:

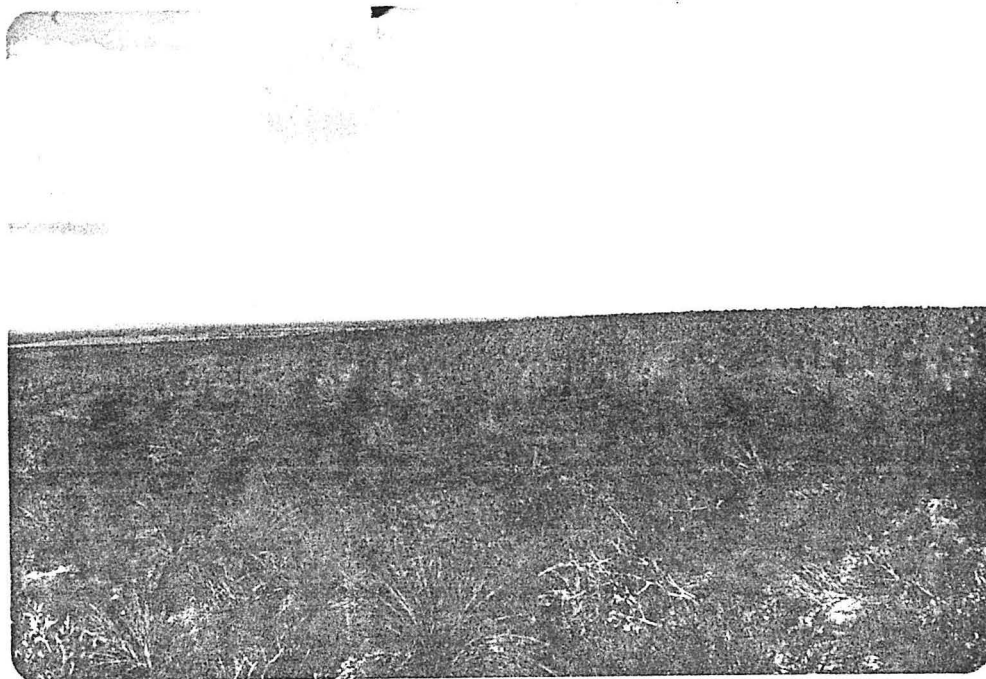
None recorded.

Remarks and Summary:

This is an important reserve for many reasons. It is reasonably large and due to its varied topography contains a number of habitat types. Five separate vegetation zones were recognised and these support a large number of plant species. Examples of the rare Eucalyptus gittinsii were recorded, this representing one of the most southerly known localities for the species. Much of the surrounding land has been utilised for agricultural purposes, though to the north and west large areas of uncleared natural vegetation still remain.

The reserve is vested in the Shire of Dandaragan. It seems strange that they should be prepared to dig rubbish pits on

a reserve whose purpose includes 'Conservation of Flora'.  
Farmers unquestionably need rubbish dumps but these surely  
could be excavated on their own land. Most of the area  
is notably free from rubbish, though the car bodies mentioned  
earlier are a problem. These should be removed by the Shire  
and if possible the offenders prosecuted.

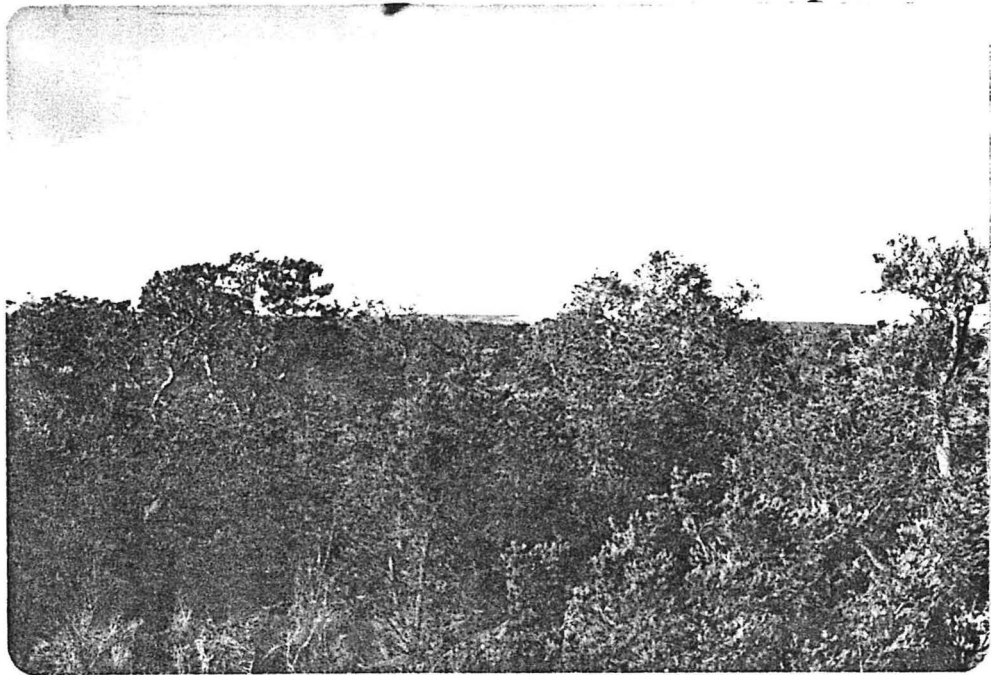


Area 2. Blackboys Xanthorrhoea preissii over Low Heath D.

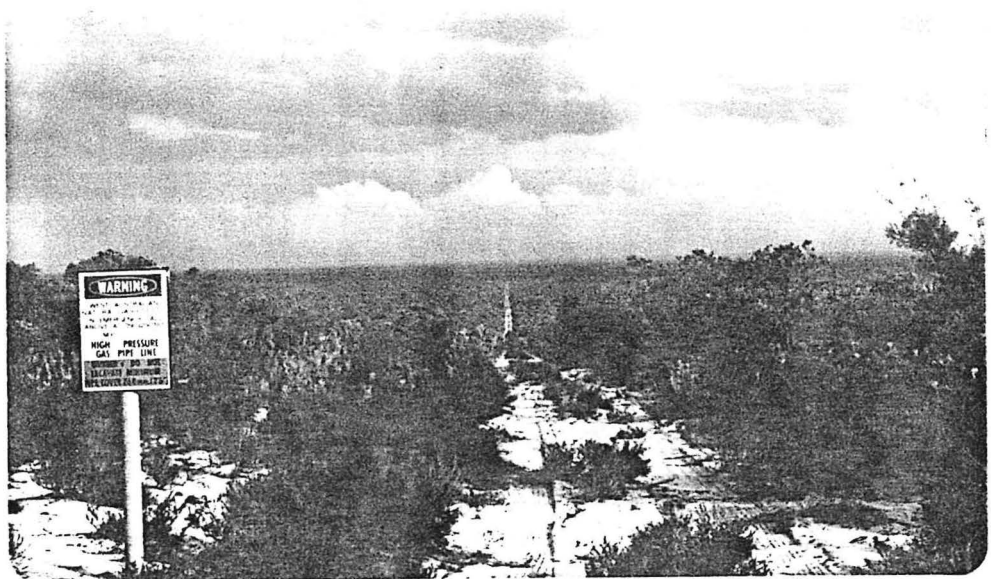


Banksia candolleana dominated heath with Banksia woodland  
in background.

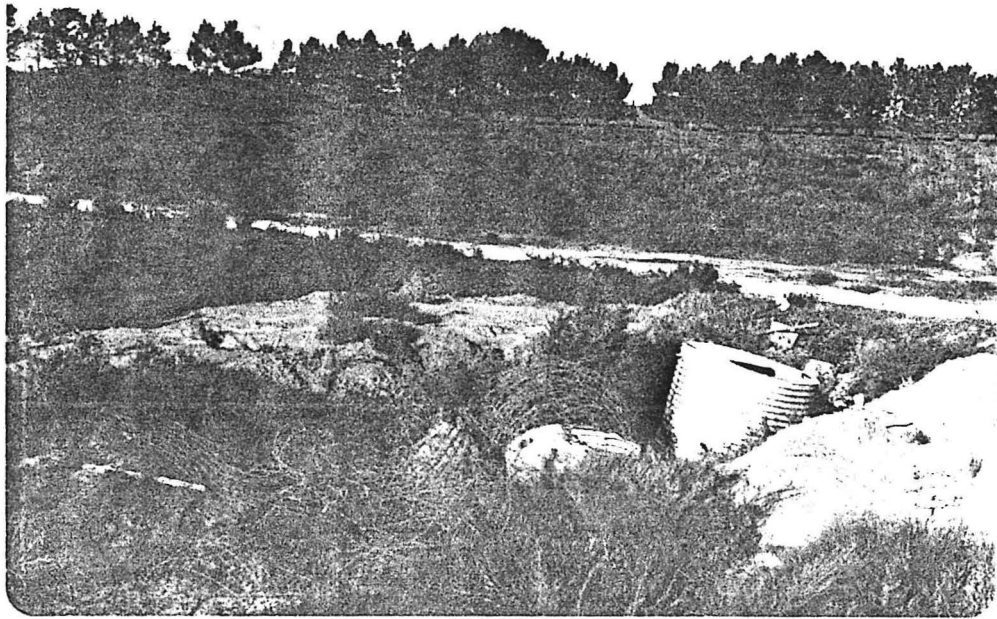




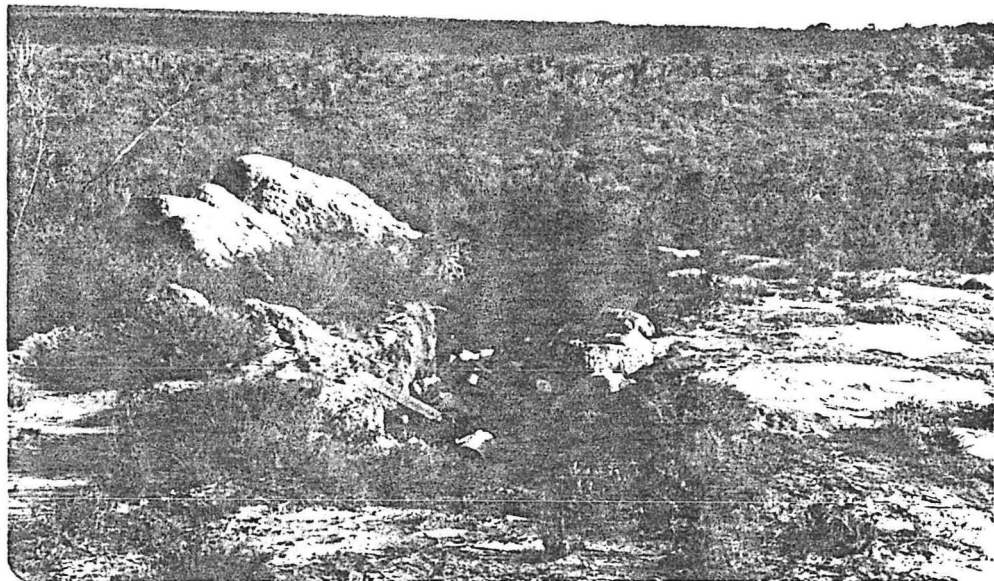
Typical *Banksia* and *E. todtiana* woodland over dense *Adenanthos*.



Natural Gas Pipeline - Note change of soil types on track.



Rubbish pits excavated by Shire on Reserve.



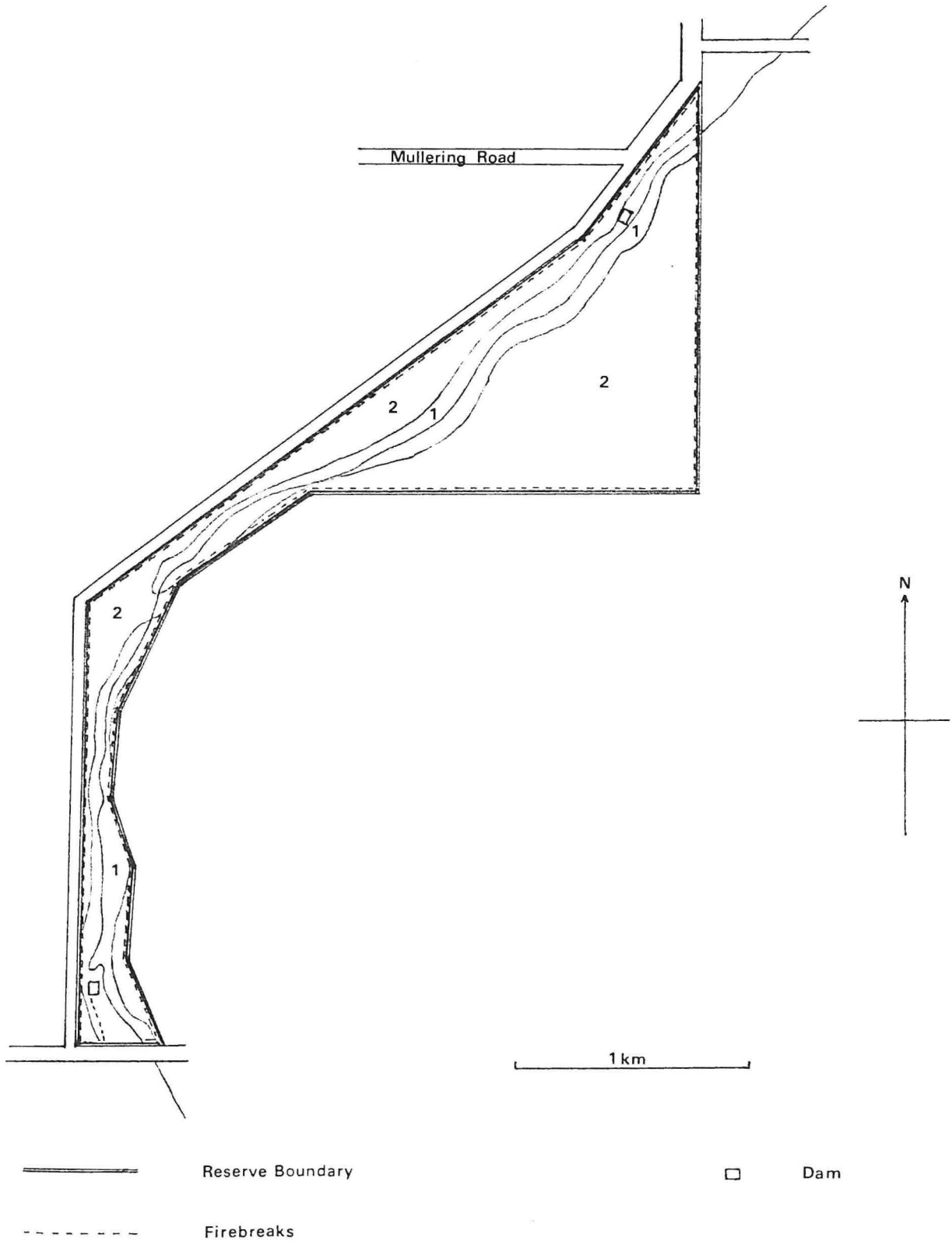
Note decaying sheep carcasses.



Stripped car body on camping area within Reserve No. 27216.



Mullering Brook - mixed E. calophylla and E. rudis woodland.  
Note Blackboys in foreground.



- Area 1. 'Low Woodland A' over 'Open Scrub' to 'Open Low Scrub A' over 'Open Low Grass' and 'Open Low sedges'
- Area 2. 'Open Low Woodland B' over 'Heath A' over 'Low Heath C' over 'Open Low Sedges'

RESERVE NO. 27219

Location:

situated ca. 7.5 km N.N.E. of Cataby and shown on lithograph 2036 - IV - Dandaragan.

Background:

Reserve 27219 was originally set aside for Recreation. By Government Gazette notice of January 19, 1979 the purpose was changed to 'Conservation of Flora and Fauna' and vested in the Western Australian Wildlife Authority following the recommendations of the local Wildlife Officer.

Physical Characteristics:

Reserve 27219 is irregular in shape, long and narrow, and follows a seasonal watercourse which flows in a south-westerly direction. It has an area of 199.7629 ha and has a total perimeter of ca. 12 kms. The reserve is surrounded by farmland to the north, east and west, and by natural vegetation to the south. Good gravel roads border the northern and southern ends, and a well used track (Road No. 14611) runs along the western boundary. A firebreak has been put in around the entire reserve.

The soils vary from reddish loams along the stream bed, to light coloured sandy loams, this mixed with laterite gravel on higher ground. The reserve supports two distinct vegetation associations. Mature Eucalyptus wandoo woodland along the creek, and varying heath formations with or without an upper stratum of Eucalyptus todtiana.

Vegetation:

Area 1:

"Low Woodland A" made up almost exclusively of Eucalyptus wandoo ca. 10 to 14 metres with scattered E. camaldulensis to ca. 12 metres. The understorey is generally open with patches of "Open Scrub" to "Open Low Scrub A" made up of such species as Acacia acuminata, Acacia sp., Hakea varia, and Baeckea sp. This over "Open Low Grasses" and "Open Low Sedges".

Area 2:

"Open Low Woodland B" - Eucalyptus todtiana 4 to 5 metres, over "Heath A" made up primarily of Hakea trifurcata to 2 metres and Banksia attenuata to 2 metres over "Low Heath C" made up of several species including Casuarina campestris, Hakea varia, Hakea incrassata, Conospermum stoechadis, Banksia sphaerocarpa aff., Petrophile macrostachya,

Calectasia cyanea, Acacia pulchella, Daviesia spp., Isopogon sp., and Calothamnus sp. This over "Open Low Sedges". Two species of Drosera were also noted.

On the eastern side of the river the upper stratum of E. todtiana and Hakea trifurcata almost disappears leaving Blackboys Xanthorrhoea preissii to ca. 2 metres over a "Low Heath D" association characterised by the species mentioned above.

Note: Other species noted as uncommon on the reserve include the Christmas tree Nuytsia floribunda, E. calophylla (small group on eastern side), E. loxophleba mallees (pockets growing alongside the watercourse) and Santalum acuminatum.

#### Human Usage:

Reserve 27219 has not suffered from excessive human pressure even though it is surrounded by farmland and can be approached along the Mullering Road. Rubbish is almost non-existent. In the past, two dams were constructed on the reserve, one near the northern and one near the southern end. These hold water during the winter and spring months. Satisfactory firebreaks exist along the boundaries, and an S.E.C. cut line has been put through at the extreme northern end. One of the neighbouring farmers has illegally placed a P.V.C. pipeline across the centre

of the reserve. In so doing he has cut an unattractive swath through the natural vegetation. There is evidence that strainers have been taken from the Wandoo woodland in the proximity of the southern dam, though not in recent years. One case of nest robbing was documented along the southern edge. A 12 bore shotgun shell was also picked up on the reserve.

#### Fire History:

The western side of the reserve does not appear to have been burnt for a considerable number of years. However, the state of the vegetation in the north eastern block suggests that this area sustained a fire, possibly some five years ago.

#### FAUNA

##### Birds:

4 x Mountain Duck	<u>Tadorna tadornoides</u> (flying)
2 x Wood Duck	<u>Chenonetta jubata</u> (on dam)
15 <sup>+</sup> White-tailed Cockatoo	<u>Calyptorhynchus funereus</u>
13 x Long-billed Corella	<u>Cacatua tenuirostris</u>
75 <sup>+</sup> Galah	<u>Eolophus roseicapillis</u>
25 <sup>+</sup> Port Lincoln Parrot	<u>Barnardius zonarius</u>
1 x Laughing Kookaburra	<u>Dacelo gigas</u>
6 x Welcome Swallow	<u>Hirundo neoxena</u>



Birds - cont'd...

16 x Tree Martin	<u>Petrochelidon nigricans</u>
2 x Magpie-Lark	<u>Grallina cyanoleuca</u>
2 x Black-faced Cuckoo-Shrike	<u>Coracina novaehollandiae</u>
9 x Splendid Wren	<u>Malurus splendens</u>
14 x Western Warbler	<u>Gerygone fusca</u>
10 x Weebill	<u>Smicrornis brevirostris</u>
4 x Yellow-tailed Thornbill	<u>Acanthiza chrysorrhoa</u>
3 x Richards Pipit	<u>Anthus novaeseelandiae</u>
4 x Scarlet Robin	<u>Petroica multicolor</u>
9 x Grey Fantail	<u>Rhipidura fuliginosa</u>
4 x Willie Wagtail	<u>Rhipidura leucophrys</u>
1 x Rufous Whistler	<u>Pachycephala rufiventris</u>
5 x White-fronted Chat	<u>Ephthianura albifrons</u>
12 x Striated Pardalote	<u>Pardalotus substriatus</u>
5 x Western Silvereye	<u>Zosterops lateralis</u>
8 x Black-faced Wood-Swallow (Pair noted investigating nesting hole in <u>E. todtiana</u> tree)	<u>Artamis cinereus</u>
4 x Australian Magpie	<u>Gymnorhina dorsalis</u>

Mammals:

6 x Rabbits (Western boundary)	
13 x Grey Kangaroo	<u>Macropus fuliginosus</u>
1 x Brush-tailed Wallaby	<u>Macropus irma</u>
3 x Australian Free-tail Bat	<u>Tadarida australis</u> (heard at night)
1 x Small bat ?	<u>Eptesicus</u> sp. (seen in wandoo woodland at dusk)

Reptiles:

None recorded.

Remarks and Summary:

Reserve 27219 is in excellent condition, much of it having remained unburnt for a considerable time. The mature Wandoo woodland offers innumerable nesting sites for hole-nesting birds (mainly parrots) and retreats for small mammals and reptiles. The watercourse, which flows through the length of the reserve, has steep earth banks which provide nesting potential for Pardalotes. Although only two vegetation formations exist, these contain a wide variety of plant species. The reserve is aesthetically pleasing, and virtually free from rubbish. It supports a large resident bird population, and is no doubt used by migrants as well.

South of the reserve there are still some large tracts of uncleared land (mainly Blackboys over heath formations). Should these areas be cleared the reserve would become totally isolated. The fact that the reserve is free from rubbish suggests that the neighbouring farmers appreciate its value.



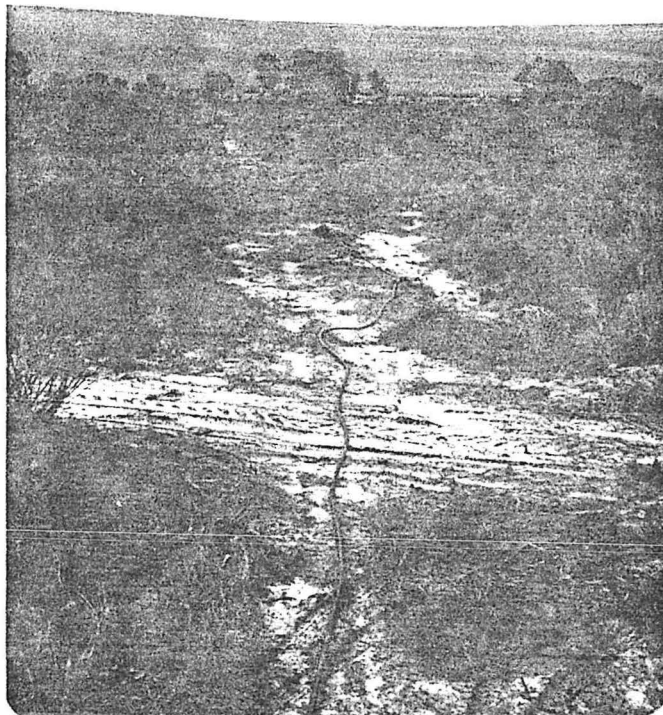
Wandoo woodland with open understorey. Note deep cut creek bed.



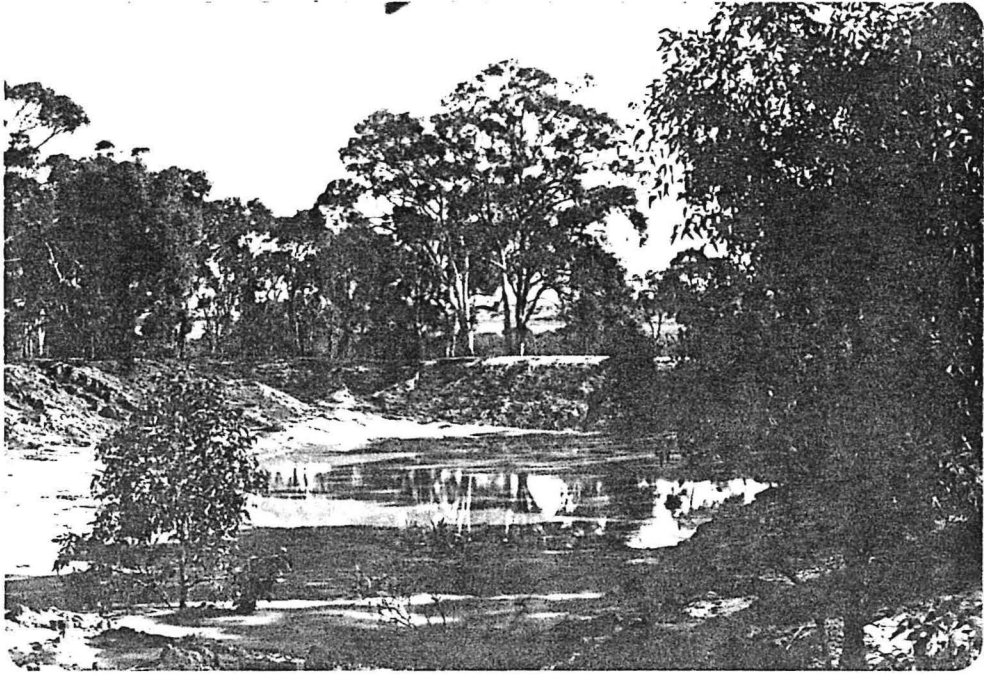
View from eastern boundary. Wandoo woodland in valley with Blackboys over heath in foreground.



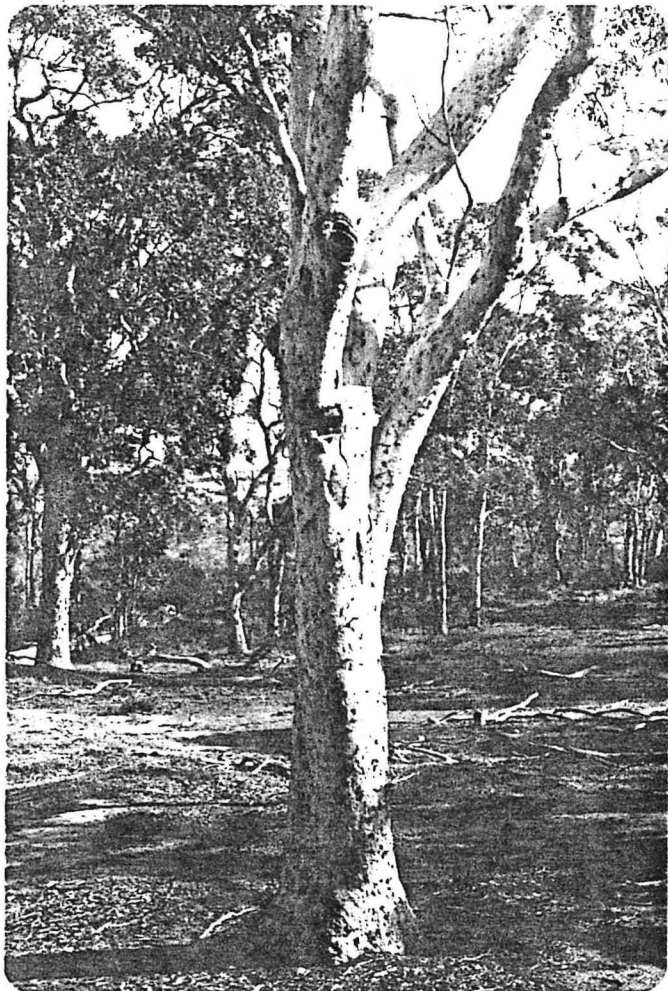
View onto reserve from S.W. corner.



P.V.C. Pipe laid across reserve.

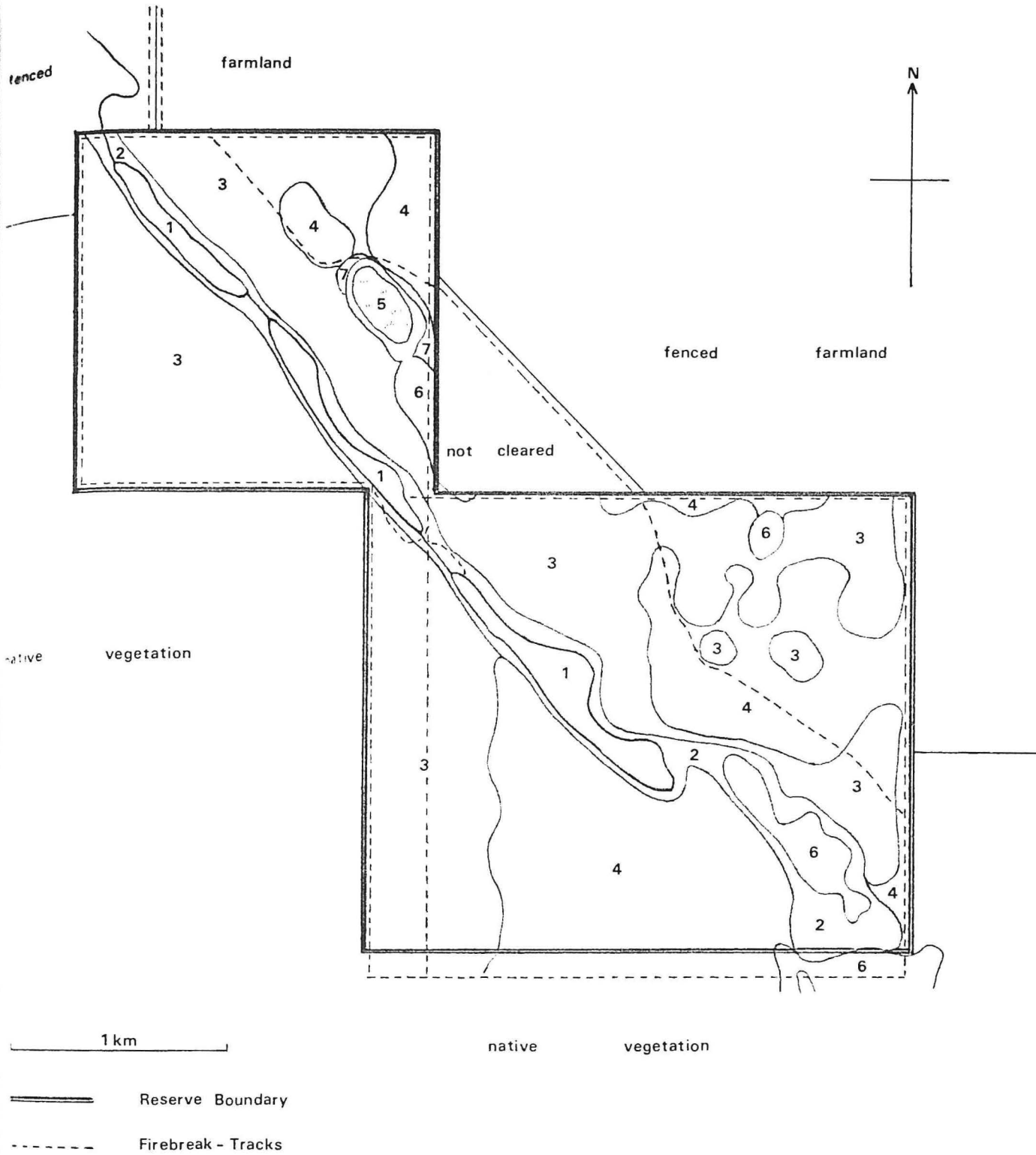


Dam at southern end of reserve.



Parrot nest which had been cut open with a chain saw.

ENEMENGA BROOK RESERVE No. 27394



ENEMINGA BROOK - RESERVE NO. 27394

vegetation areas shown on map:

Area 1:

Dry lake beds with less than 2% cover of Arthrocnemum sp. along the edges.

Area 2:

'Low Woodland A' over 'Thicket' over scattered clumps of 'Tall Sedges'.

Area 3:

'Low Woodland A' over 'Open Dwarf Scrub C' over 'Dwarf Scrub D'.

Area 4:

'Heath B' over 'Low Heath C' to 'Low Heath D'.

Area 5:

'Open Tall Sedges'.

Area 6: (variable)

'Dense Thicket' to 'Scrub' with or without an 'Open Low Woodland' canopy.

Area 7:

'Thicket'.

Location:

Situated ca. 4 km west of the Brand Highway, and ca. 24 km north-west of Regans Ford. Located on Lithograph 2036-111-Yatheroo.

Background:

This area was originally gazetted as Reserve No. 27393 and Reserve No. 27394 on 31 December 1964. They were set aside for the 'Conservation of Flora and Fauna', with No. 27393 having the additional purpose of 'Water'. Both were vested in the Fauna Protection Advisory Committee of W.A. on the 2 March 1979 Reserve 27393 was cancelled and its area added to 27394, which was then vested in the Western Australian Wildlife Authority.



Physical Characteristics:

Reserve No. 27394 is made up of two rectangular blocks of land, joined at one corner and sharing a short common boundary - see map. It covers an area of ca. 740.7062 ha with a total perimeter of ca. 14.6 km. The northern and north eastern sides abut onto fenced farmland, while the southern and south-eastern sections border on uncleared native vegetation. The best route of access is along a farm track which runs from Mimegarra Road and enters the reserve near the north-western corner.

Firebreaks have been constructed along the boundaries. For the most part these are in good condition except for the one on the eastern edge of the southern block which is now completely overgrown. There are a few old tracks on the reserve, the most obvious of which have been marked on the diagramtic map for the area. Eneminga Brook runs diagonally through both blocks from north west to south east. The stream bed is characterised by a series of long thin shallow lakes which hold water in winter but remain dry and devoid of vegetation for the rest of the year. The raised banks support a mixed Melaleuca raphiophylla and Eucalyptus rudis/camaldulensis association, with scattered E. rudis emergent to ca. 20 metres.

To the east of the brook lies Eneminga Swamp, an area which provides the only permanent or semi-permanent water on the reserve. Much of this swamp is covered by the Flag Rush, Baumia articulata. It is surrounded by very dense Melaleuca sp. thicket which in places gives way to tall stands of Jacksonia <sup>sterubergiana</sup> sp. The remainder of the reserve is dominated by four vegetation formations. Banksia woodland is prevalent on the sandy ridges. This gives way to expanses of heathland with seasonal swamps in the hollows.

Vegetation:

Area 1: (lake beds along Eneminga Brook)

Bare clay soil supporting less than 2% cover of Arthrocnemum sp. to ca. 0.2 metres.

Area 2:

'Low Woodland A' predominantly Melaleuca raphiophylla 6 to 10 metres over 'Thicket' 2 to 4 metres of the same species, over scattered clumps of 'Tall Sedges', Baumia articulata to ca. 2 metres.

Away from the watercourse this merges into a mixed Melaleuca raphiophylla, Eucalyptus camaldulensis and Jacksonia <sup>sterubergiana</sup> sp.

'Thicket' 2 to 4 metres with examples of E. rudis emergent to ca. 20 metres. Small patches of Acacia sp. 'Thicket' to 3 metres occur along the "lake" edges.

Area 3:

'Low Woodland A' made up of Banksia attenuata and B. menziesii and ~~B. menziesii~~ from 5 to 8 metres, with B. ilicifolia and B. prionotes less dominant to ca. 7 metres. Scattered examples of Eucalyptus todtiana and Nuytsia floribunda were also noted. Regenerating Banksias and Adenanthos sericea form a very sparse mid-storey element. This over 'Open Dwarf Scrub C' over 'Dwarf Scrub D', made up of many species, common examples being Leptospermum erubescens to ca. 1 metre, Casuarina humilis to ca. 1 metre, Eremaea pauciflora to ca. 0.75 metres (abundant), Dasypogon bromeliaefolius to ca. 0.3 metres, Calothamnus quadrifidus, Stirlingia latifolia, Acacia sp. and Conospermum sp.

Area 4: (Heath association with patches of Banksia woodland on higher ground).

'Heath B' made up of such species as Regelia ciliata, Beaufortia squarrosa, Casuarina humilis, Calothamnus quadrifidus, Banksia sphaerocarpa aff. and Hakea invaginata, over 'Low Heath C' to 'Low Heath D' common examples being

B. sphaerocarpa aff., Calothamnus sp., Stirlingia latifolia,  
Verticordia plumosa and Dryandra nivea.

Area 5:

'Open Tall Sedges' of Flag Rush, Baumea articulata to ca.  
1.5 metres.

Area 6: (seasonal swamps with variable vegetation).

'Dense Thicket' to 'Scrub' of Melaleuca spp. 2.5 to 4 metres  
over an open understorey. In places with 'Open Low Woodland  
A' of Melaleuca sp. emergent to 6 metres.

Area 7:

'Thicket' of predominantly Jacksonia <sup>ster. bergiana</sup> sp. 4 to 6 metres.

Human Usage:

This reserve does not suffer from heavy human pressure.  
Rubbishing is almost non-existent. The only recent signs  
were vehicle tracks left by an A.P.B. officer on patrol  
through the area. One of his poison baits was found  
secured to the fenceline on the eastern edge of the  
southern block. A number of 12 bore shotgun shells were  
seen along the watercourse, and this suggests that the area

is used by duck hunters. Some 20 sheep were also observed on the reserve in the vicinity of Eneminga Swamp, causing considerable damage to the wetland vegetation. Firebreaks are maintained on the reserve boundaries and for the most part are in good condition. Two seismic survey lines put through the reserve in 1971 have been incorporated into this system.

#### Fire History:

There is evidence that most of the reserve has been burnt at one time or another. The most recent fire ran from the north western corner of the reserve down the eastern side of Eneminga Brook and then spread eastwards over most of the Eneminga Swamp area.

#### FAUNA

##### Birds noted on survey:

4 x Emu	<u>Dromaius novaehollandiae</u>
2 x Wedge-tailed Eagle	<u>Aquila audax</u>
1 x Tawny Frogmouth at night - northern end of reserve)	<u>Podargus strigoides</u> (seen
2 x Laughing Kookaburra	<u>Dacelo gigas</u>
7 x White-winged Wren	<u>Malurus leucopterus</u>
3 x Scarlet Robin	<u>Petroica multicolor</u>

Birds - cont'd...

6 x Grey Fantail	<u>Rhipidura fuliginosa</u>
5 x Willie Wagtail	<u>Rhipidura leucophrys</u>
3 x White-fronted Chat	<u>Ephthianura albifrons</u>
14 x Western Silvereye	<u>Zosterops lateralis gouldi</u>
4 x Yellow-throated Miner	<u>Manorina flavigula</u>
2 x Grey Butcher-Bird	<u>Cracticus torquatus</u>
6 x Australian Raven	<u>Corvus coronoides</u>

Mammals:

40 x Grey Kangaroo	<u>Macropus fuliginosus</u>
Rabbits - moderately common	
Fox - tracks noted	

Birds previously recorded on reserve:

Little Grebe	<u>Podiceps novaehollandiae</u>
Little Pied Cormorant	<u>Phalacrocorax melanoleucos</u>
White-necked Heron	<u>Ardea pacifica</u>
White-faced Heron	<u>Ardea novaehollandiae</u>
Nankeen Night Heron	<u>Nycticorax caledonicus</u>
Black Duck	<u>Anus superciliosa</u>
Whistling Kite	<u>Haliastur sphenurus</u>
Coot	<u>Fulica atra</u>
White-tailed Cockatoo	<u>Calyptorhynchus funereus baudinii</u>
Port Lincoln Parrot	<u>Barnardius zonarius</u>
Sacred Kingfisher	<u>Halcyon sancta</u>
Rainbow Bird	<u>Merops ornatus</u>

Birds previously recorded on Reserve - cont'd...

Australian Pipit	<u>Anthus novaeseelandiae</u>
Magpie Lark	<u>Grallina cyanoleuca</u>
Black-faced Cuckoo Shrike	<u>Coracina novaehollandiae</u>
Weebill	<u>Smicrornis brevirostris</u>
Yellow-tailed Thornbill	<u>Acanthiza chrysorrhoa</u>
Spotted Scrub-Wren	<u>Sericornis frontalis maculatus</u>
Singing Honeyeater	<u>Meliphaga virescens</u>
Red Wattle-bird	<u>Anthochaera carunculata</u>
Australian Magpie	<u>Gymnorhina dorsalis</u>

Remarks and Summary:

Eneminga Brook Reserve is important for many reasons. It contains a wide range of habitat types and is large enough to support a considerable avian and mammal population. Thirty-four bird species have been recorded for the area and more would no doubt be added on closer examination. Grey Kangaroos are particularly abundant.

The Reserve contains seven major vegetation associations. These include Banksia woodland, open expanses of heathland and a variety of seasonal and semi-permanent swamps. Eneminga Brook, which flows diagonally through the reserve and is made up of a series of shallow lakes, is especially beautiful when full of water. The large number of plant

species represented on this reserve ensures a spectacular spring flowering.

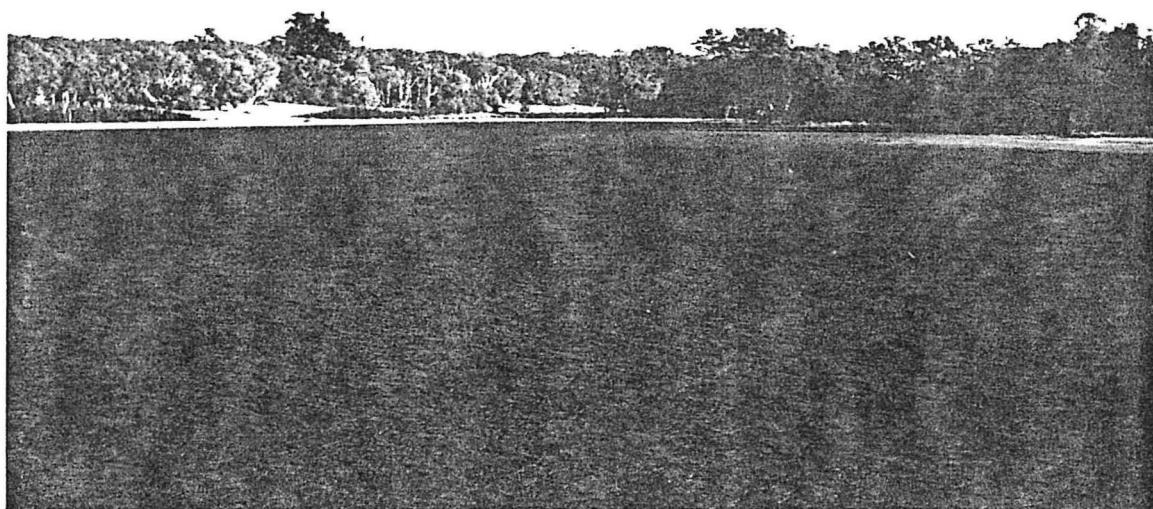
The Reserve forms part of a wetland drainage system. As such it is extremely important as a breeding ground and refuge for waterfowl. The reed beds and dense thickets of *Melaleuca* found around the swamps offer superb nesting sites for ducks.

From the management standpoint, sheep pose a real threat to the wetland vegetation around Eneminga Swamp. The neighbouring farms are adequately fenced but for some inexplicable reason there is no gate at the north-western corner of the reserve. This must be rectified. There is a triangular piece of uncleared land adjoining both blocks. (see map). It would make sense to have this incorporated into the reserve. A forthcoming inspection will examine the suitability of the vacant Crown land to the south as a possible extension to this reserve.

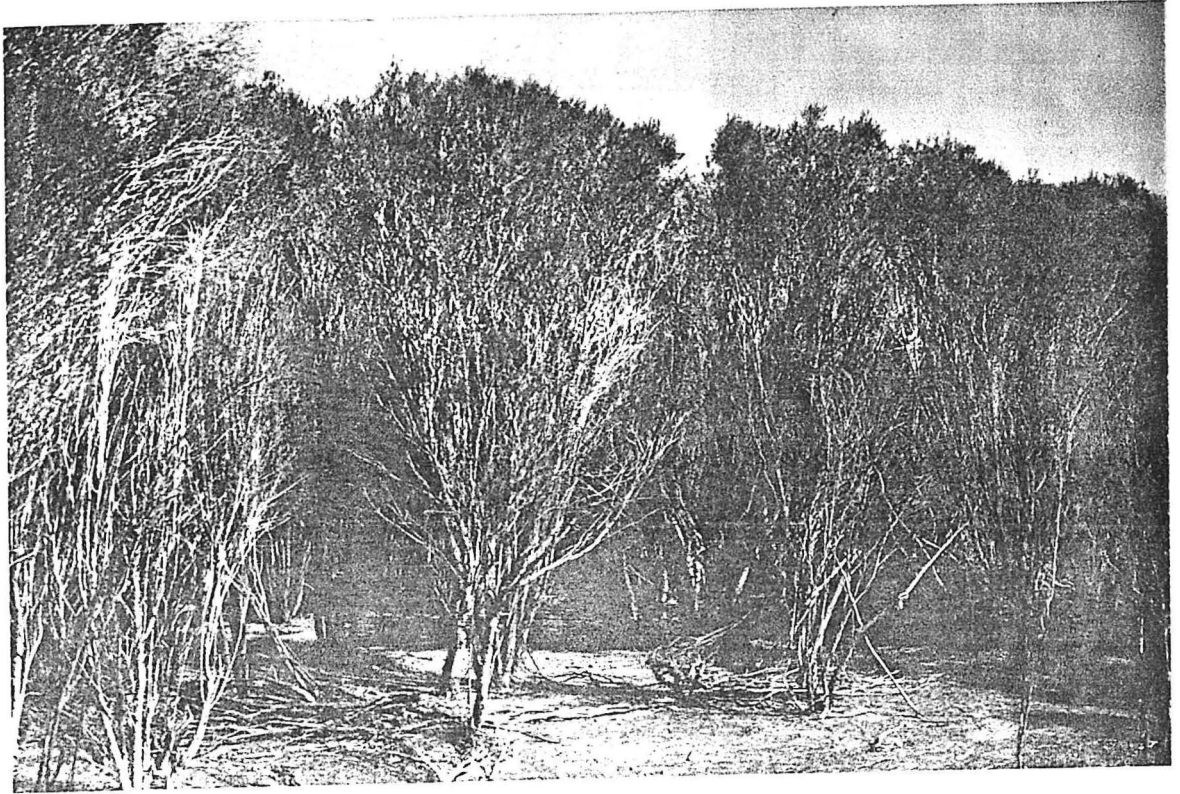




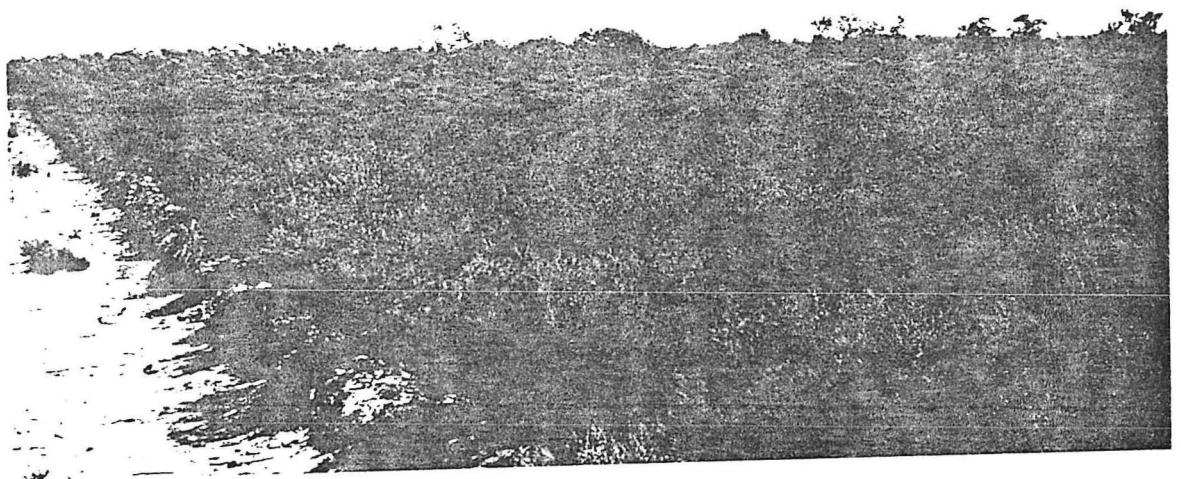
Dry Lake bed on Eneminga Brook. Note lack of vegetation.



Bare Lake Bed with Melaleuca raphiophylla on margin.

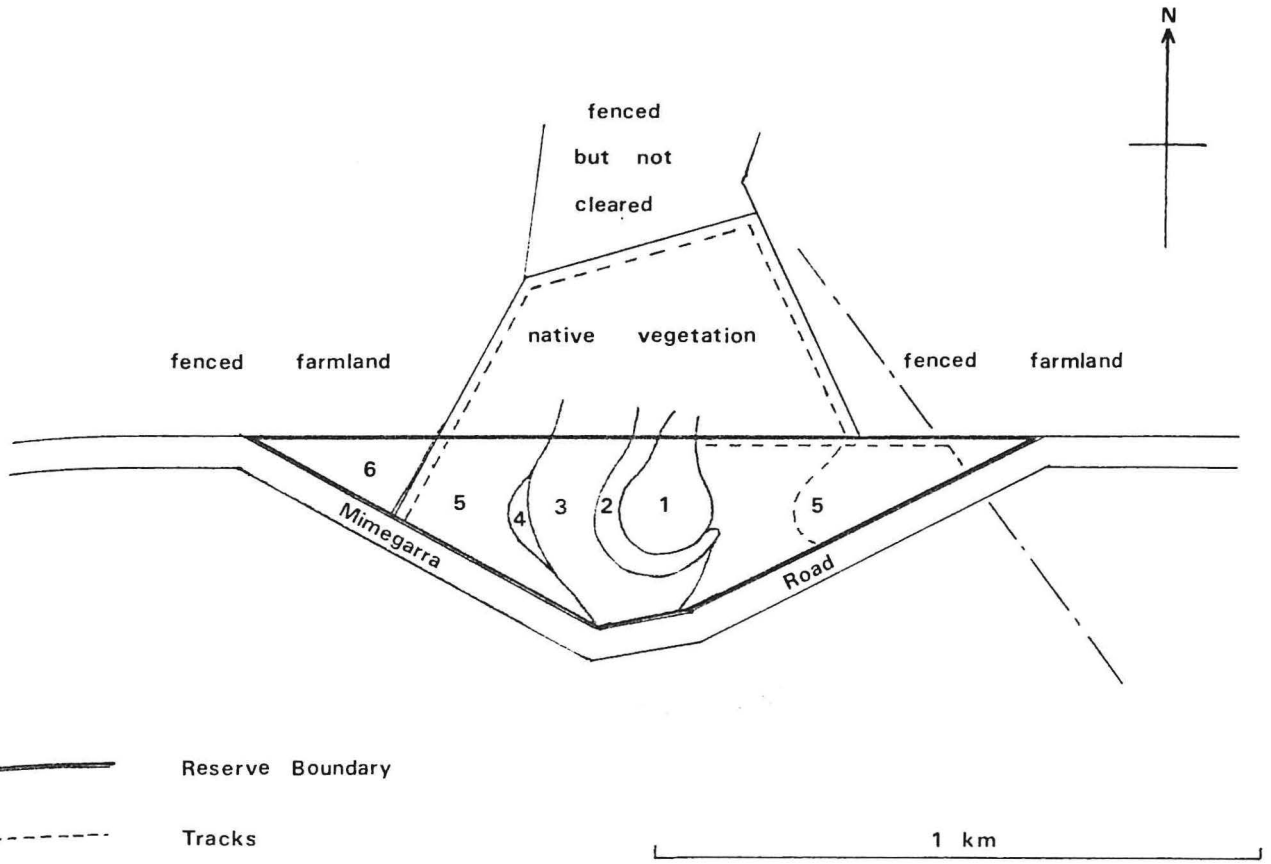





Melaleuca Thicket to 4 metres in seasonal swamp.



Heath on southernmost boundary with Banksia woodland in background.

RESERVE No. 27993



-  Reserve Boundary
-  Tracks
-  S.E.C. line

1 km

- Area 1. 'Dense Thicket' over an open understorey
- Area 2. 'Low Woodland A' over 'Open Tall sedges'
- Area 3. 'Low Woodland A' over 'Open Dwarf Scrub D' and 'Open Low Grasses'.
- Area 4. 'Open Low Woodland A' over 'Blackboys' over 'Very Open Low Sedges'.
- Area 5. 'Dwarf Scrub D' and 'Open Low Sedges'
- Area 6. Cleared and fenced sheep pasture.

## RESERVE 27993

### Location:

situated 2.5 km west of the Brand Highway on the Mimegarra Road and shown on Lithograph 2036-111-Yatheroo.

### Background:

This area was originally gazetted as a reserve for the Conservation of Flora and Fauna on 25 February 1966. It was created on the recommendation of the surveyor when Mimegarra Road was deviated around the swamp which forms the centre of the reserve. The area remains unvested.

### Physical Characteristics

Reserve 27993 is irregular in shape, has an area of 20.8742 ha and a perimeter of ca. 2.51 km. Its northern boundary is straight and runs in an east-west direction. The remaining sides follow the inside curve of a deviation on Mimegarra Road, and this gives the reserve a roughly semi-circular appearance. The soil is greyish-white sand, tending to sandy clay in the swamp.

The area, though small, has a variety of habitats. The central portion is dominated by a sandy ridge which supports Eucalyptus

totdiana and Banksia dominated woodland. To the east of this is a Melaleuca spp. dominated swamp, partly surrounded by a belt of mature E. rudis. This in turn gives way to low heathland. On the western side about 2 hectares of the reserve has been fenced off into the adjoining farmland, this representing ca. 10% of the total area.

Vegetation:

Area 1: - seasonal swamp

'Dense Thicket' of Melaleuca lateritia and Melaleuca graminea to ca. 2.5 metres over an open understorey.

Area 2:

'Low Woodland A' of Eucalyptus rudis (? E. camaldulensis hybrid) to 14 metres over 'Open Tall Sedges' to ca. 0.75 metres. Scattered examples of young E. rudis to ca. 6 metres.

Area 3:

Mixed 'Low Woodland A' of Eucalyptus totdiana to ca. 10 metres, Banksia attenuata and B. menziesii to ca. 7 metres and Jacksonia <sup>sp.</sup> to ca. 5 metres, with examples of E. rudis emergent to 16 metres. This over 'Open Dwarf Scrub D' and 'Open Low Grasses' (Note: B. prionotes and Nuytsia floribunda were also noted).

Area 4:

'Open Low Woodland A' of immature Eucalyptus rudis 4 to 8 metres, over Blackboys, Xanthorrhoea preissii to 2 to 3 metres, over 'Very Open Low Sedges'.

Area 5:

'Dwarf Scrub D' and 'Open Low Sedges'. No particular dominant but represented by several species including Stirlingia latifolia, Conospermum stoechadis, Acacia pulchella, Calectasia cyanea, Dasipogon bromeliaefolius, Dryandra nivea, Dryandra sp., Anigozanthos sp., Casuarina sp., Daviesia sp., Calothamnus sp. and Hakea sp. Banksia sphaerocarpa is common where this zone merges into the swamp.

Human Usage:

There are several signs on this reserve of past human misuse. The heathland vegetation has obviously been frequently burnt. On the western side two hectares of the reserve have been fenced into the adjoining paddock. From examination of the aerial photographs it would appear that this action took place prior to 1970. The area is also covered with numerous brass rifle cartridge cases. This suggests it may have been a military training ground at one time. Old vehicle tracks on

the reserve do not appear to have been used recently and the vegetation is regenerating. Anigozanthos sp. flower spikes have been cut on the reserve, possibly for commercial purposes. There is fortunately no litter problem even though the reserve borders on a public road.

Fire History:

Nothing specifically recorded. The low heath vegetation sustained a fire ca. 2 to 3 years ago. The most recently burnt area is in the extreme eastern corner.

FAUNA

Birds

4 x Long-billed Corella	<u>Cacatua tenuirostris</u> (flying over)
2 x Galah	<u>Eolophus roseicapillus</u> (nesting)
2 x Port Lincoln Parrot	<u>Barnardius zonarius</u>
2 x Laughing Kookaburra	<u>Dacelo gigas</u>
1 x Magpie-Lark	<u>Grallina cyanoleuca</u>
2 x Brown Songlark	<u>Cinclorhamphus cruralis</u> (male displaying)
1 x Willie Wagtail	<u>Rhipidura leucophrys</u>

cont'd...

Birds - cont'd...

3 x White-fronted Chat	<u>Ephthianura albifrons</u>
1 x Tawny-crowned Honeyeater	<u>Gliciphila melanops</u>
6 x Red Wattle-bird	<u>Anthochaera carunculata</u>
2 x Australian Magpie	<u>Gymnorhina dorsalis</u>

Mammals

1 x Brush-tailed Wallaby      Macropus irma

Also fox tracks and some rabbit scats.

Reptiles

1 x Bobtail Lizard      Teliqua rugosa

1 x small skink seen on a blackboy trunk.

Remarks and Summary:

This is a small reserve compared to most of the other reserves in the Shire. However, it does contain several interesting vegetation associations, and for its size a large number of plant species. Its value would be increased by the inclusion of the adjoining uncleared land to the north which supports much the same type of vegetation. Several birds were recorded for the area as well as one Brush-tailed Wallaby. A pair of



Galahs were seen nesting in a mature Eucalyptus rudis tree on the edge of the swamp.

The reserve has suffered from vehicular traffic in the past and its effective area has been reduced by some 10%. It is, however, still worth retaining.



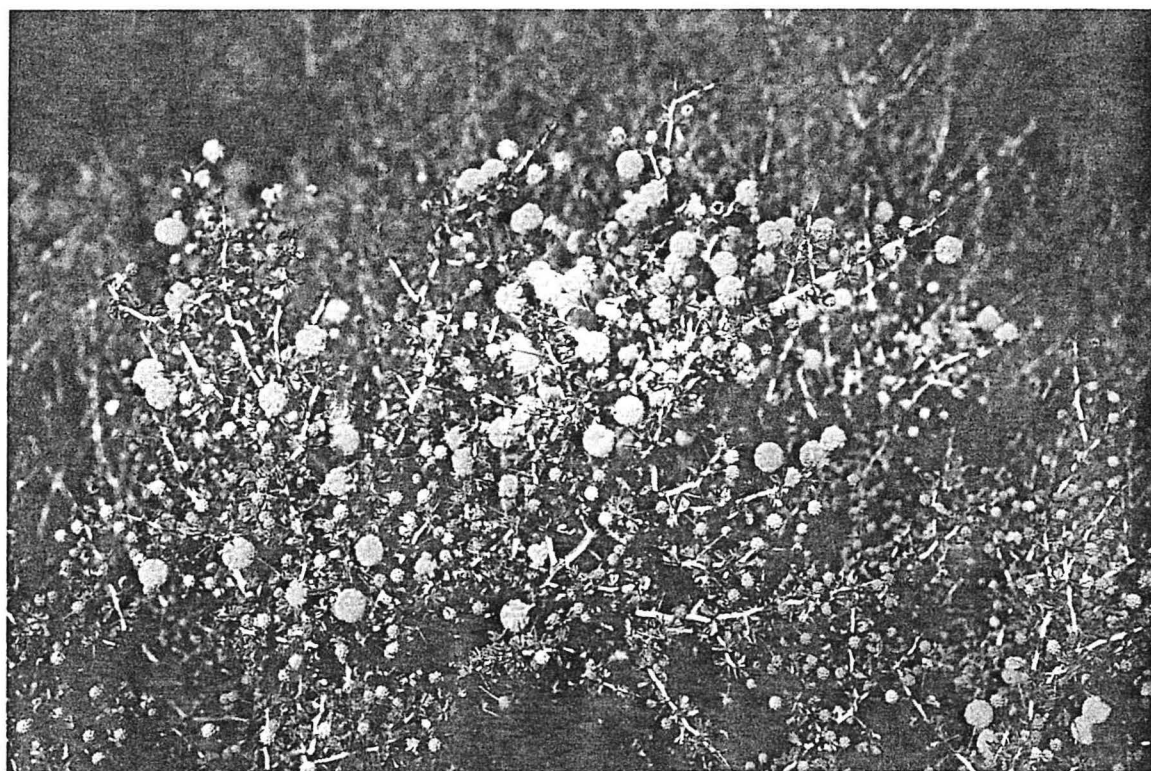
Western end of reserve showing portion under pasture.



Seasonal Melaleuca swamp with Eucalyptus rudis along the edge.

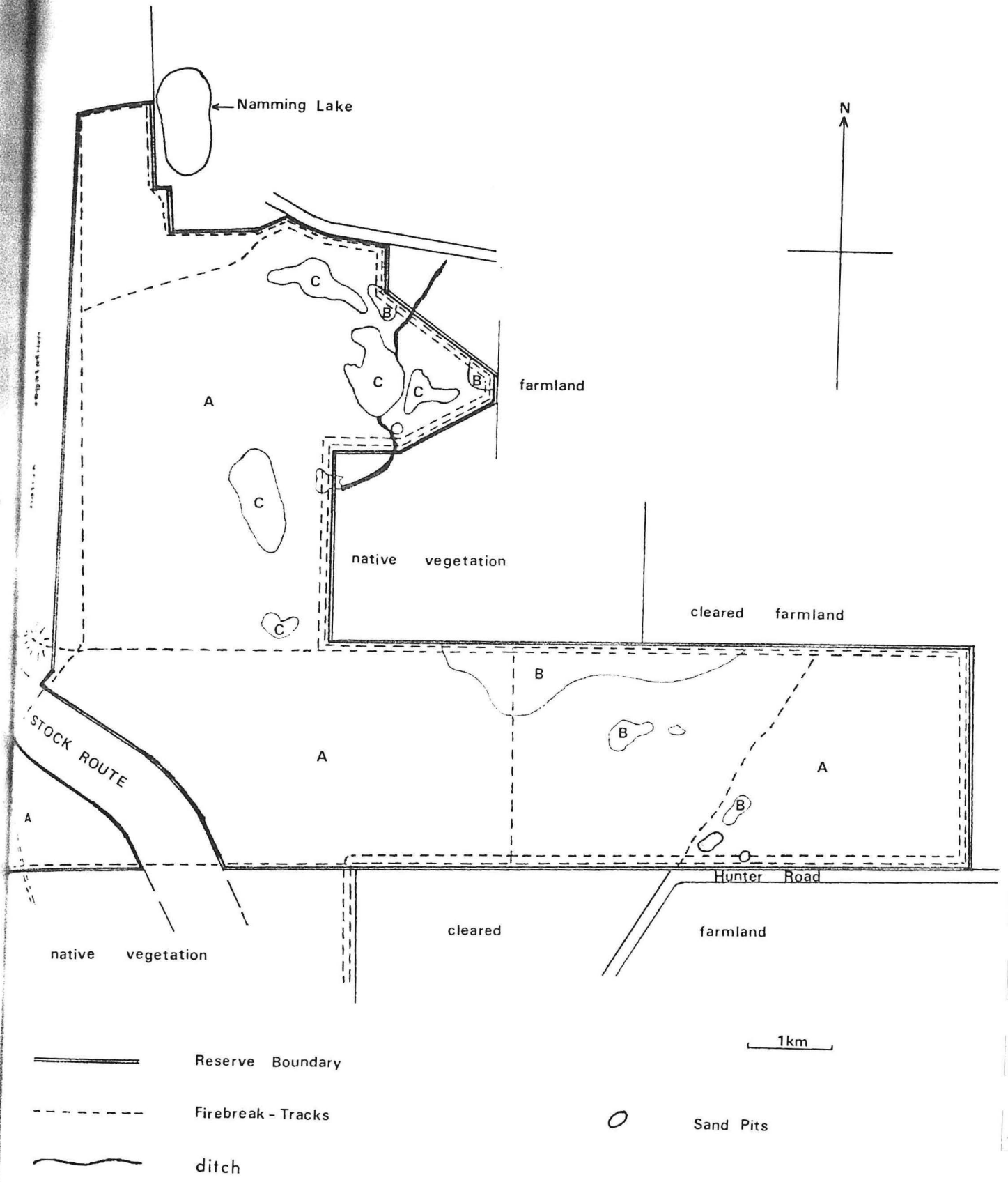


Banksia sphaerocarpa (Note burnt specimen behind).



Acacia pulchella.

NAMMING LAKE RESERVE No. 28558



Area A

'Low Woodland A' over 'Low Heath D' to 'Dwarf Heath D'.

Area B

'Heath B' over 'Low Heath C' to 'Low Heath D'.

Area C

Seasonal fresh-water swamps. Variable habitat. See vegetation description.

NAMMING LAKE - RESERVE NO. 28558

Location:

Situated on the southern boundary of Dandaragan Shire, west of the Brand Highway and ca. 3.5 km W.N.W. of Regans Ford. Located on Lithograph 2036-111-Yatheroo.

Background:

Originally gazetted as a Flora and Fauna Reserve on 12 May 1967. By Government Gazette of 11 May 1979 the area was increased to ca. 5 285.1945 ha with the inclusion of Melbourne Locations 3833 and 3834. A discrepancy in the boundaries of the reserve resulted in a further plan being drawn up, and by Government Gazette notice of 12 October 1979 the area was finally set at 5 411.3388 ha. The reserve was vested in the Western Australian Wildlife Authority on the 1 February 1980.

Physical Characteristics:

Namming Lake Reserve is irregular in shape, covers an area of some 5 411.3388 ha, with a total perimeter of ca. 50 kms. For the most part it is made up of gently undulating sandy country which supports mixed Banksia woodland over low heath.

In shallow depressions which become boggy in winter the Banksia woodland gives way to a predominantly heath type vegetation with scattered Christmas trees and Paperbarks emergent from 5 to 8 metres. In the northern half of the reserve there are a series of seasonal fresh-water swamps which hold water in winter. These swamps and their surrounds vary considerably, but generally support some sort of Melaleuca dominated vegetation.

To the east and south east of the reserve, much of the land has been developed for agriculture while to the west and south west the reserve borders wholly on uncleared native vegetation. Two gravel roads run briefly along the boundaries, Mimegarra Road to the north and Hunter Road to the south. There are a number of 4-wheel drive tracks on the reserve as well as the firebreaks which surround the area. Where farmland abuts the reserve good fencing has been erected. Part of a man-made ditch also runs through the area. This channel was excavated many years ago to divert water from Caren Caren Brook into the Moore River some eight miles to the south. Apparently this diversion still functions. A surveyed stock route some 800 metres wide cuts through the south western corner of the reserve, thus separating a small area from the main body.

Vegetation:

Note: The vegetation on this reserve can be readily separated into three basic associations. There is however considerable variation within some of these groupings and a more detailed study would very likely produce more sub-divisions.

Area A

'Low Woodland A' - predominantly Banksia attenuata and B. menziesii from 5 to 8 metres with B. ilicifolia and B. prionotes less dominant to 7 metres, and with scattered examples of Eucalyptus todtiana often emergent to 10 metres. This over 'Low Heath D' to 'Dwarf Scrub D' made up of such species as Stirlingia latifolia, Calothamnus quadrifidus, Beaufortia squarrosa, Acacia pulchella, Bremea pauciflora and Hibbertia hypericoides. A sparse mid-storey element is present in some areas, made up of regenerating Banksias, Blackboys Xanthorrhoea preissii, and the Woolly Bush Adenanthos sericea.

In the south eastern section of the reserve the understorey vegetation is taller, denser and more complex, with the inclusion of such species as Verticordia nitens, Hakea sp., Hakea trifurcata and Casuarina humilis. Isolated patches of the rare Banksia laricina to ca. 2 metres were located along the southern boundary usually near moist areas. This species was severely knocked back by the 1977 fire though regeneration has now started to take place.

## Area B

widely scattered Christmas trees Nuytsia floribunda to 8 metres and paperbarks Melaleuca preissiana emergent to 7 metres over 'Heath B' made up mainly of Regelia ciliata to 1.5 metres, Hakea sp. to 1.5 metres and Melaleuca sp. to ca. 1.5 metres, over 'Low Heath C' to 'Low Heath D' represented by such species as Banksia sphaerocarpa aff. to 1 metre and Beaufortia squarrosa to 1 metre over Stirlingia latifolia, Patersonia occidentalis, Dryandra nivea and assorted low sedges. This association is invariably found in depressions where the ground is susceptible to seasonal waterlogging.

## Area C

Covers a series of seasonal fresh water swamps which depend on annual winter rainfall and generally dry out in the summer months. The swamps form part of one drainage system, though individually they show considerable variation.

The elevated margins of the swamps generally support narrow belts of 'Low Woodland A' made up of Melaleuca raphiophylla to ca. 8 metres, and/or Melaleuca preissiana to ca. 7 metres. This over 'Thicket' to 'Heath A' made up mainly of regenerating examples of the same species. In some cases Eucalyptus camaldulensis to 7 metres forms part of this association, with individuals emergent to 14 metres. The sandy-clay swamp beds support 'Open Low Woodland A' made up of Melaleuca raphiophylla from 5 to 8 metres over 'Open Scrub' of Melaleuca graminea from 2 to 5 metres with little ground cover but sparse, very



short grasses and odd clumps of sedges.

In the two southernmost swamps this association has died out completely, leaving behind an array of stark dead sticks (see photos).

On sandy flats between the Banksia woodland and the swamps is an intermediate zone which deserves mention. Here the vegetation is variable but usually exists in the form 'Dwarf Scrub C' to 'Dwarf Scrub D'. Species recorded include Acacia pulchella, Daviesia brevifolia aff., Astroloma xerophylla and Hibbertia sp.

Other plant species previously recorded on Reserve 28558 by Wildlife Officer P. Roberts are Conospermum stoechadis, Hypocalymma robustum, Drosera (3 species), Petrophile linearis, Darwinia nieldiana, Byblis gigantea, Grevillea endlicherana, G. leucopteris, Leptospermum sp., Anigozanthos viridis, A. manglesii, A. pulcherrimus, A. humilis, Verticordia grandiflora, V. picta, Acacia blakelyi, Melaleuca huegellii, Styphelia tenoflora, Templetonia retusa, Calytrix flavescens and Dampiera spicigera.

#### Human Usage:

This reserve does not suffer from heavy human pressure and at the time of inspection the firebreaks and tracks showed no sign

of recent vehicular use. There is very little rubbish in the area apart from one car body which was dumped on the reserve some time within the last year. Judging from the number of 12 bore cartridge cases lying about, the swamps provide a popular duck shooting area in winter.

Neighbouring farmers do have a problem with Grey Kangaroos that enter their land from the reserve. As many as 25 individuals were seen at one time in adjacent paddocks. (Photo shows a steel wire snare attached to a fence line under which grey kangaroos had forced an opening. The snare was however closed and not in use).

There are two sand pits alongside Hunter Road but these do not appear to have been worked since the southern extension of the reserve was gazetted in 1979.

In the north east a 2 metre deep man-made ditch cuts through part of the reserve, linking up some of the swamps (see map). This was excavated many years ago to drain excess water from the Namming Lake area towards the Moore River in the south. Apparently, it still functions. The small population of Banksia laricina was exploited by commercial pickers before the area in which they occur received reserve protection. There is an apiary site operated by Mr E. Steele on the southern boundary near Hunter Road.

### Fire History:

It is obvious that different sections of the reserve have sustained fires in the past decade, but its overall condition is good. The most recent fire on record burnt much of the southern section on 25 April 1977. Since then a ca. 40 hectare area in the extreme north of the reserve suffered a severe burn, probably in late 1979. An extensive area outside the reserve on the south western corner was also burnt about this time.

### FAUNA

#### Birds

3 x Emu	<u>Dromaius novaehollandiae</u>
4 x Mountain Duck	<u>Tadorna tadornoides</u>
2 x Black-breasted Buzzard	<u>Hamirostra melanosterna</u>
1 x Wedge-tailed Eagle	<u>Aquila audax</u>
10 x Galah	<u>Eolophus roseicapillus</u>
7 x Port Lincoln Parrot	<u>Barnardius zonarius</u>
2 x White-backed Swallow	<u>Cheramoeca leucosterna</u>
11 x Welcome Swallow	<u>Hirundo neoxena</u>
2 x Richards Pipit	<u>Anthus novaeseelandiae</u>
1 x Magpie Lark	<u>Grallina cyanoleuca</u>
4 x Black-faced Cuckoo-shrike	<u>Coracina novaehollandiae</u>

Birds - cont'd...

11 x Broad-tailed Thornbill	<u>Acanthiza</u> <u>apicalis</u>
4 x Yellow-tailed Thornbill	<u>Acanthiza</u> <u>chrysorrhoa</u>
3 x Red-capped Robin	<u>Petroica</u> <u>goodenovii</u>
4 x Hooded Robin	<u>Petroica</u> <u>cucullata</u>
5 x Grey Fantail	<u>Rhipidura</u> <u>fuliginosa</u>
6 x Willie Wagtail	<u>Rhipidura</u> <u>leucophrys</u>
5 x Crested Bell-bird	<u>Oreoica</u> <u>gutturalis</u>
15 <sup>+</sup> x Brown Honeyeater	<u>Lichmera</u> <u>indistincta</u>
2 x Western Spinebill	<u>Acanthorhynchus</u> <u>superciliosus</u>
8 x Singing Honeyeater	<u>Meliphaga</u> <u>virescens</u>
2 x New Holland Honeyeater	<u>Phylidonyris</u> <u>novaeollandiae</u>
5 x Yellow-throated Miner	<u>Manorina</u> <u>flavigula</u>
1 x Red Wattle-bird	<u>Anthochaera</u> <u>carunculata</u>
9 x Black-faced Woodswallow	<u>Artamus</u> <u>cinereus</u>
2 x Australian Magpie	<u>Gymnorhina</u> <u>dorsalis</u>
3 x Australian Raven	<u>Corvus</u> <u>coronoides</u>

Mammals

150 <sup>+</sup> Grey Kangaroo	<u>Macropus</u> <u>fuliginosus</u>
Fox - tracks noted	
Rabbits - some sign	

Birds previously recorded but not encountered on this survey:

Brown Falcon	<u>Falco</u> <u>berigora</u>
Nankeen Kestrel	<u>Falco</u> <u>cenchroides</u>
Black-shouldered Kite	<u>Elanus</u> <u>notatus</u>

cont'd...

Birds previously recorded - cont'd...

Splendid Wren	<u>Malurus splendens</u>
Rainbow Bird	<u>Merops ornatus</u>
Australian Bustard	<u>Eupodotis australis</u>

Mammals previously recorded but not encountered on this survey:

Brush-tailed Wallaby	<u>Macropus irma</u>
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Wild horses - scats found on reserve.

Remarks and Summary:

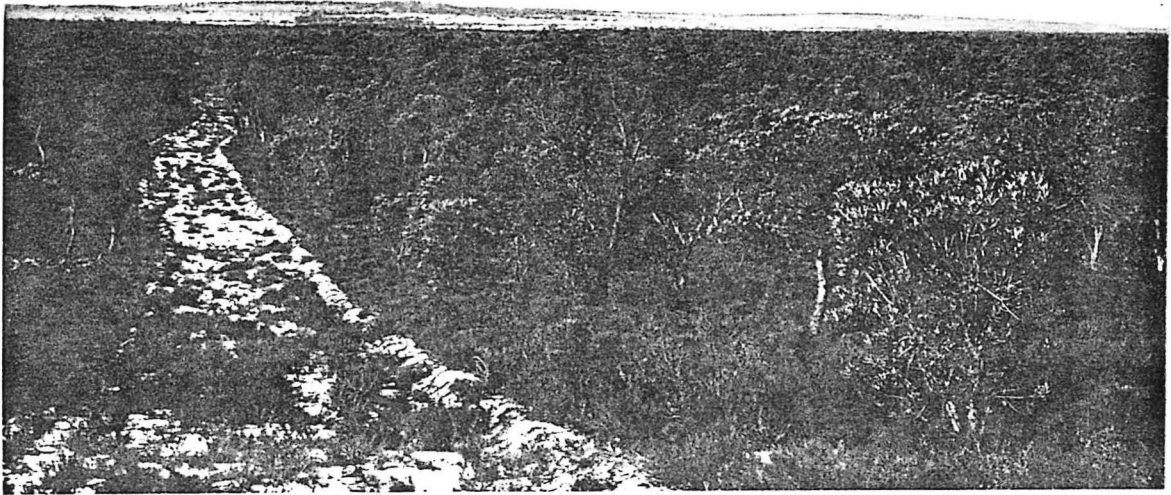
Namming Lake Reserve is valuable for a number of reasons. It covers an area of 5,411.3388 ha and is therefore large enough to support a considerable bird and mammal population. 33 bird species and large numbers of Grey Kangaroos were recorded on the reserve.

The area is characterized by three basic vegetation zones, Banksia dominated woodland, heath formations and a number of seasonal fresh water swamps. The last represent a most important breeding locality for waterfowl and no doubt act as a refuge for the rare and elusive Freckled Duck (personal communication - J.A.K. Lane). The Banksia woodland and heath country provide habitat for a large number of passerine birds. The reserve also supports a reasonably diverse flora. Six species of Banksias were recorded including a small population

of the rare Banksia laricina. The Spring flowers are also prolific, many of them being species exploited by the wild flower seed trade.

The reserve does not suffer from undue human interference. Rubbishing is only a minor problem. One car body was recently dumped on the southern boundary near Hunter Road. There is enough identification on this car to warrant a prosecution, and this should be followed up by the local wildlife officer. An interesting problem also arises in regard to Grey Kangaroos on the reserve. The farmer on the extreme south-western boundary obviously suffers from their forays onto his property. Old nooses attached to his fenceline demonstrate an attempt to control the problem. It may be necessary to issue a damage license to enable him to shoot some of the offenders.

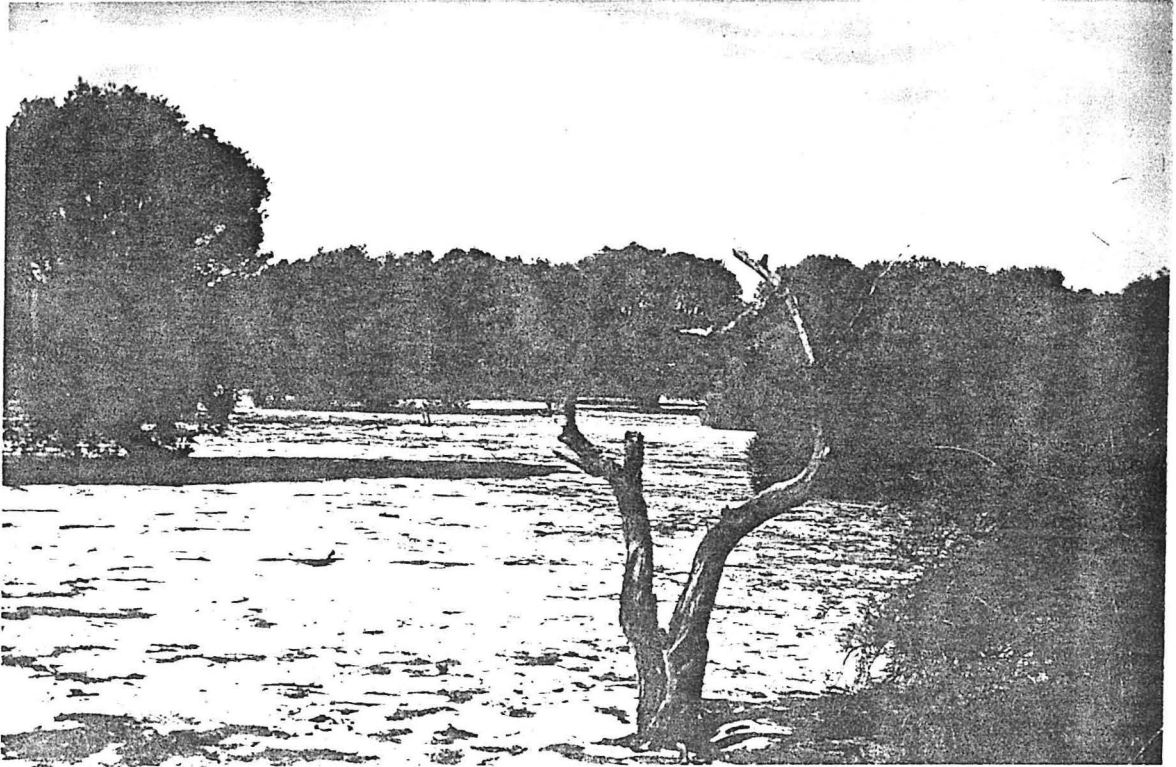
RESERVE 28558



Typical of most of the reserve. Area A. Banksia woodland over low heath.



Christmas trees over heath in area susceptible to waterlogging.



Dry seasonal swamp showing Melaleuca spp. with little ground cover except grasses.

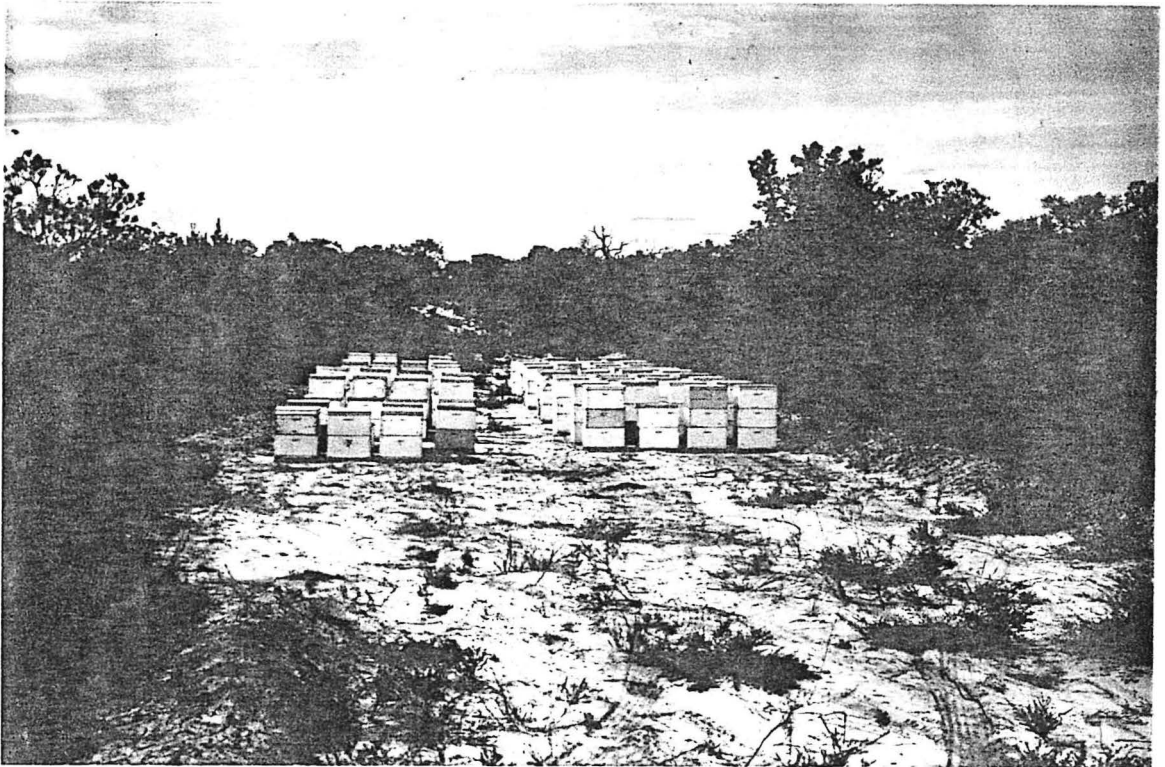


Dry seasonal swamp with stands of dead Melaleuca ? rhaphiophylla?





Old drainage channel on reserve. Note regeneration.



Beehives on southern boundary near Hunter Road. (Property of E. Steele).

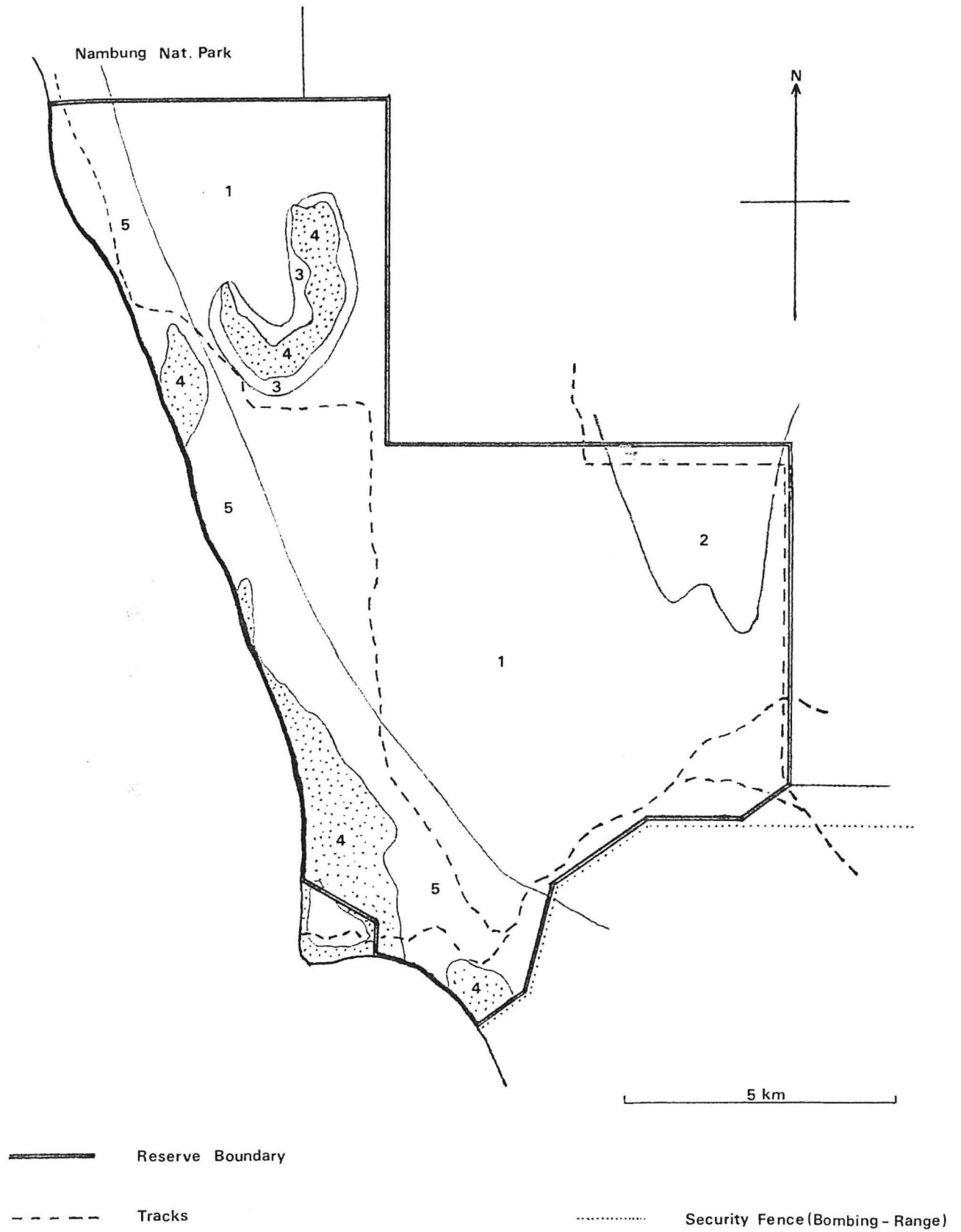


Car body dumped in south eastern part of reserve.



Old wire snare on farmer's fenceline.

WANGARRAN RESERVE - No. 31675



WANGARRAN NATURE RESERVE

Vegetation areas shown on Map.

Area 1:

'Open Dwarf Scrub C' over 'Low Heath D' over 'Low Grass'  
and 'Low Sedge'.

Area 2:

'Open Low Woodland A' over 'Low Scrub B' over 'Open Low  
Grass' and 'Open Low Sedge'.

Area 3:

'Thicket' over 'Dwarf Scrub D'.

Area 4:

Sand dune fringe vegetation.

Area 5:

'Dense Thicket' to 'Heath A' over 'Low Heath C' to 'Low Heath  
D'.

Location:

Reserve No. 31675 is situated about 25 km due west of Cataby on the northern coastal sandplains. It stretches from about Wedge Island north to Green Islets, and can be located on lithograph 59/80.

Background:

Originally gazetted on 8 December 1972 for the Conservation of Flora and Fauna and vested in the Western Australian Wildlife Authority. By Government Gazette notice of 16 September 1977 the southern boundary was amended and the reserve area reduced to about 9,283.9643 hectares.

Physical Characteristics:

Wangarran Nature Reserve is irregular in shape and covers an area of 9,283.9643 ha. Its total perimeter measures ca. 53.5 km. The western side follows the coastline from approximately Wedge Island north to Green Islets. The promontory leading out to Wedge Island is not included in the reserve as a fishing settlement had already been established on this site. This accounts for the irregularity of the coastal boundary. The northern end borders on Nambung National Park. There is a Naval Bombing Range to the south, and to the east the land is privately owned.

The reserve lies in the northern coastal sandplains and encompasses a variety of floral habitats. The country varies from gently rolling plains to stable sand hills and ridges further inland. Limestone outcroppings which break through the surface are a common feature of this landscape. The vast majority of the reserve is covered by a low heath type vegetation with stunted Christmas trees widely distributed throughout. This extends into rugged hilly country near the eastern boundary where Banksia woodland occurs mainly in the upper valleys. Lower down the valleys blackboys grow to 4 metres over the heathland. There is a belt of broken country along the coastline which is often characterised by exposed limestone capping. This strip generally supports a denser and more diverse flora, with thickets of Acacia ~~sp.~~<sup>xanthina</sup> and Eremaea beaufortioides being prevalent. This association is very variable largely due to fire.

One of the most striking characteristics of the area are the huge unstable sand dunes located along this part of the West Australian coastline. Some of these are partially vegetated, while others are so mobile that few plants have been able to establish themselves. The large inland dune at the northern end of the reserve is a classic example.

Vegetation:

Area 1:

'Open Dwarf Scrub C' made up mainly of Melaleuca <sup>acerosa</sup> ~~incana aff.~~, Acacia cochlearis and Hakea prostrata, over 'Low Heath C' to 'Low Heath D' dominated by Melaleuca <sup>acerosa</sup> ~~incana aff.~~, Acacia pulchella and Templetonia retusa. This over assorted 'Low Grass' and 'Low Sedge' including Lepidosperma spp.

Note: Due to fire over recent years much of this association has degenerated to the state of 'Low Heath D' over 'Low Grass' and 'Low Sedge', and on the steep slopes of stable sand ridges to 'Dwarf Scrub D' over 'Open Low Grass'.

Area 2:

'Open Low Woodland A' of Banksia attenuata 4 to 6 metres over 'Low Scrub B' mainly Hakea prostrata, Calothamnus quadrifidus, Hakea trifurcata, Dryandra sessilis, Conospermum stoechadis and Melaleuca <sup>acerosa</sup> ~~incana~~ over 'Open Low Grass' and 'Open Low Sedge'.

Area 3: (Vegetation around inland sand dune)

'Thicket' dominated by Casuarina campestris to 2.5 metres over Melaleuca <sup>acerosa</sup> ~~incana aff.~~, Acacia pulchella and Acacia littorea,

Area 4: (Sand dune fringe vegetation)

'Open Scrub' 2 to 10% cover made up mainly of Olearia axillaris (2) to 2 metres. Acacia xanthina (2) to 2.5 metres and Atriplex isatidea to 3 metres.

Area 5: Variable heath formations.

Patches of 'Dense Thicket' to 'Heath A' dominated by such species as Acacia xanthina (2), Eremaea beaufortioides, Oliaria axillaris and Hakea trifurcata over 'Low Heath C' to 'Low Heath D' common examples being Melaleuca <sup>acerosa</sup> ~~incana~~-aff., Acacia pulchella, Acacia littorea, and Templetonia retusa. This over 'Low Grass' and 'Low Sedge'.

Human Usage:

Wangarran Nature Reserve is subject to very considerable human pressure. Being situated on the coast and within easy reach of Perth it attracts a large number of people. The rough track which runs from Lancelin to the Wedge Island settlement and then on to Nambung National Park, passes right through the reserve. It is not surprising that the route is littered with rubbish and abandoned car bodies.



By far the greatest number of people who utilize the area do so for the fishing. The coastline is quite literally interwoven with tracks made by people in search of suitable fishing sites. Weekend camping is common and their open fires are a real and increasing problem.

The reserve now suffers from a growing population of illegal squatters who have erected numerous delapidated shacks along the coastline. Some of the occupants appear to reside on a semi-permanent basis. Uncontrolled mounds of rubbish have been allowed to accumulate around these dwellings. This is both unsightly and in some cases a health hazard. Dogs and cats are also present.

One of the most serious problems affecting the reserve is the use of Off-road vehicles and trail bikes. They rapidly cut tracks through the fragile vegetation on the stable sand dunes. When these become impassable new ones are made alongside, leaving the old scars exposed to increasing wind erosion. It is a never ending cycle that can only be countered by banning the use of this type of transport.

Other man-made alterations on the reserve include a cyclone fence along the border with the Naval Bombing Range. There is also some poor fencing on the eastern side where the reserve borders private land. The diagrammatic map shows

a shaded area on the reserve which has been illegally fenced by the farmer on location 3770. It seems that shooters may occasionally enter the reserve as some empty shotgun shells were found.

#### Fire History:

Wangarran Reserve has carried several fires over the past decade and most of the area has been burnt during this time. Fires specifically recorded include a small one near Duggan Well in February 1975 and a large one that originated on Nambung National Park and subsequently burnt the northern end of the reserve in March 1978. More recently a fire took out a large area in the southern part of the reserve between the coast and the Wedge Island Road.

#### Fauna

##### Birds:

2 x Emu	<u>Dromaius novaehollandiae</u>
4 x Little Pird Cormorant	<u>Phalacrocorax melanoleucos</u>
1 x Wedge-tailed Eagle	<u>Aquila audax</u>
1 x Osprey	<u>Pandion haliaetus</u>
4 x Nankeen Kestrel	<u>Falco cenchroides</u>
50 <sup>+</sup> Silver Gull	<u>Larus novaehollandiae</u>

cont'd...

13 x Caspian Tern	<u>Hydroprogne caspia</u>
9 x Crested Tern	<u>Sterna bergii</u>
35 x White-tailed Cockatoo	<u>Calyptorhynchus funereus</u>
6 x Galah	<u>Eolophus roseicapillus</u>
11 x White-backed Swallow	<u>Cheramoeca leucosterna</u>
2 x Welcome Swallow	<u>Hirundo neoxena</u>
8 x Richards Pipit	<u>Anthus novaeseelandiae</u>
2 x Black-faced Cuckoo Shrike	<u>Coracina novaehollandiae</u>
10 <sup>+</sup> x Blue Wren sp. - Non-breeding plumage - not identified.	
7 x White-winged Wren	<u>Malurus leucopterus</u>
3 x Willie Wagtail	<u>Rhipidura leucophrys</u>
20 x Western Silvereye	<u>Zosterops lateralis gouldi</u>
6 x Brown Honeyeater	<u>Lichmera indistincta</u>
3 x Singing Honeyeater	<u>Meliphaga virescens</u>
10 <sup>+</sup> x Black-faced Wood-swallow	<u>Artamus cinereus</u>

#### Mammals

40 <sup>+</sup> x Grey Kangaroo	<u>Macropus fuliginosus</u>
Rabbits - common	

#### Birds previously recorded but not encountered on survey

Common Sandpiper	<u>Tringa hypoleucos</u>
Ground Parrot	<u>Pezoporus wallacii</u> (most unlikely)
Australian Raven	<u>Corvus coronoides</u>

## Remarks and Summary

Wangarran Nature Reserve is an extremely important area from the conservation standpoint. It protects a large tract of coastal habitat which would otherwise soon be modified by human settlement. Being on the coast and in easy reach of the city it is subject to considerable pressure from people wishing to use the area for recreational purposes. Management must therefore largely revolve around this specific problem.

The coastline is marred by a number of delapidated fishing shacks. These have been illegally erected, and are in some cases used on a semi-permanent basis. The situation has now reached a critical stage. Should the squatters be allowed to remain they will inevitably attract others and the problem will worsen. For political reasons it may be difficult if not impossible to remove them, although this is the obvious solution. A compromise may well be the only realistic answer. Whatever happens it is imperative that the shacks and the offending rubbish be removed. It may be necessary to offer the proviso that the area remain open for recreation, but on Departmental terms. If this happens then management will probably follow National Park lines with the introduction of one or two designated camp sites. Campers would be required to use only certain maintained tracks and cross country travel would be forbidden. Camp fires would be more easily

controlled and in this way limit the very real danger of wildfires that presently exists. Admittedly, all this would require money and supervising personnel, but the alternative is no reserve at all.

There have been recommendations that the Wedge Island track be upgraded. This would probably be beneficial to the reserve. A properly constructed road would prevent further problems with the access track, and hopefully would tend to keep vehicles away from the fragile vegetation.

Fencelines run along the boundaries on the eastern side of the reserve. The shaded part of the map shows an area which has been illegally fenced into Loc. 3770. This poses a fire control problem. There are two options open for consideration. Either the fenceline be pulled up and moved to its proper position, or the farmer put in gates at both ends of the line to allow access to fire fighting vehicles. Where the present fenceline runs a firebreak would cause erosion and be too steep for water laden vehicles.

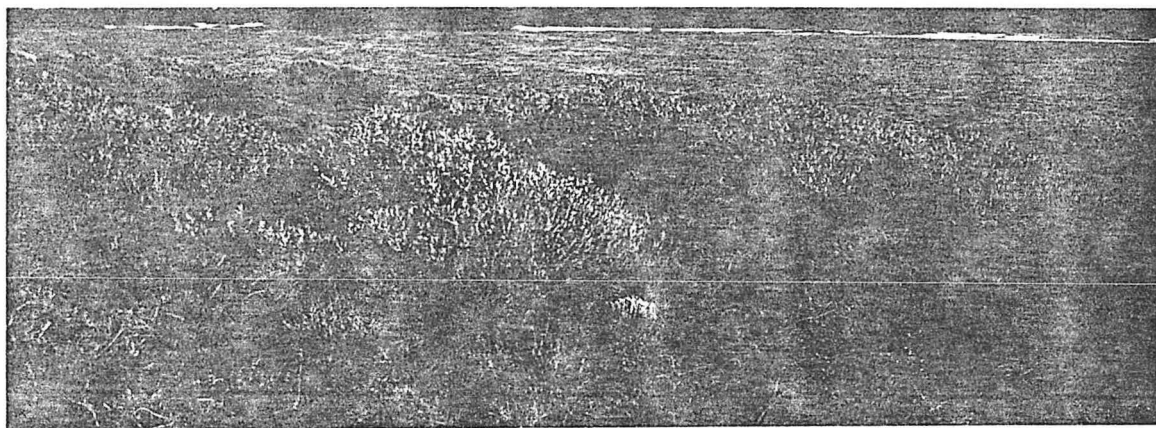
Wangarran is still a magnificent reserve. It can be maintained in something close to its present state, but it will take careful management, and above all cooperation from the people who use it.

Footnote:

It is quite possible that a pipeline from the North West Shelf Project to Perth may pass through this reserve.



Vegetated stable sand dunes on coastline.



Coastal vegetation. Acacia sp. over low heath.

RESERVE 31675

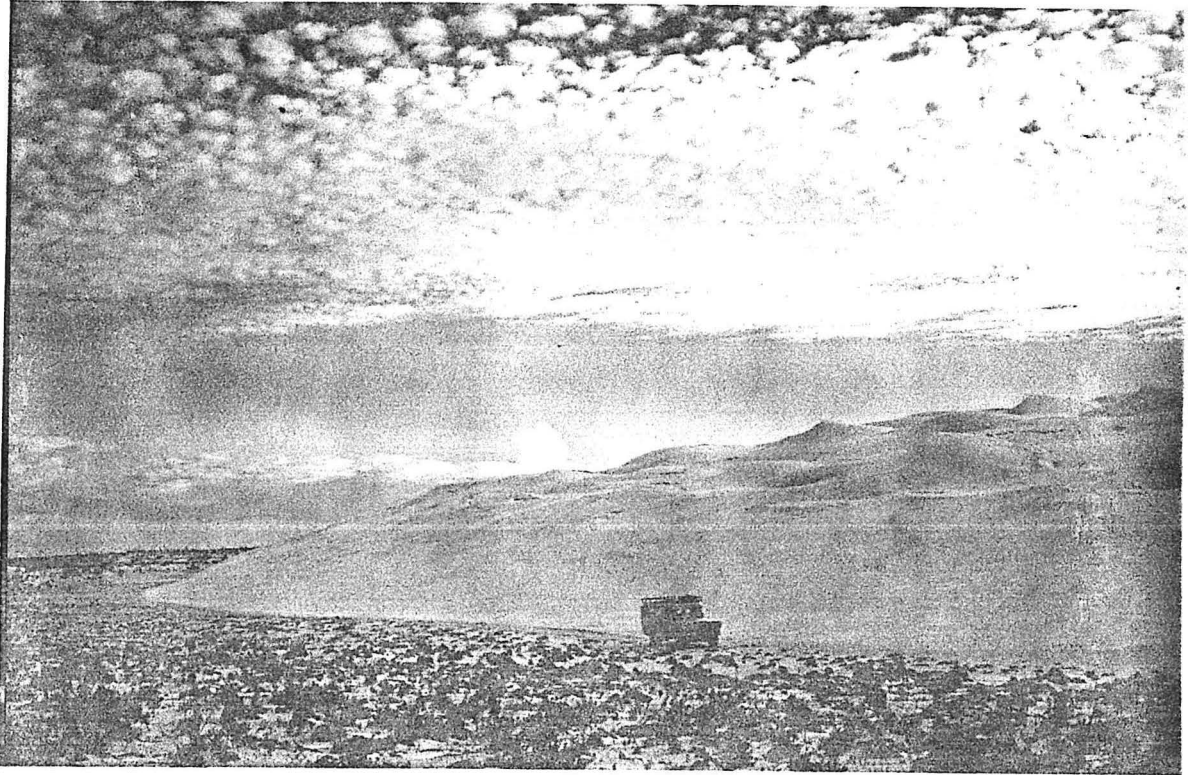


Unstable coastal sand dune. Note Wedge Island in distance.



Unstable coastal sand dune encroaching on low heath. Note Olearia sp. on slopes of dune.

RESERVE 31675

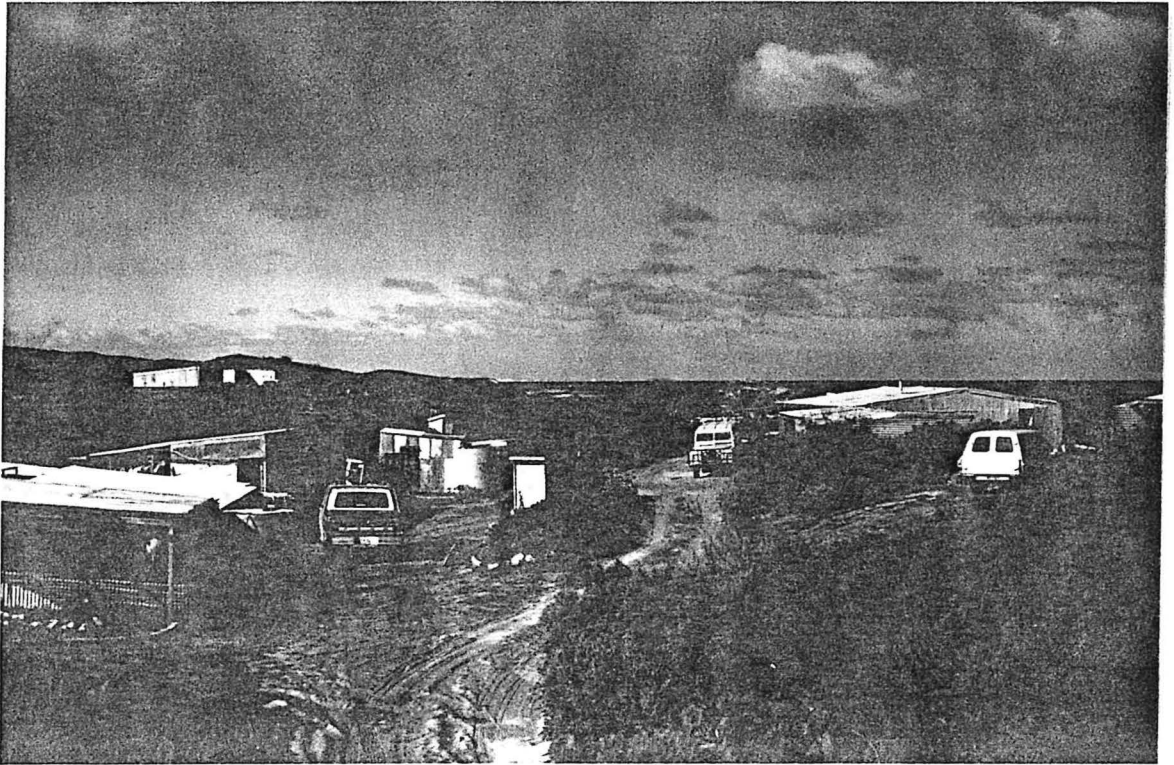


Mobile sand dune in north of reserve. Area in foreground recently uncovered and therefore almost devoid of vegetation.



Dense Acacia sp. thickets near coast.



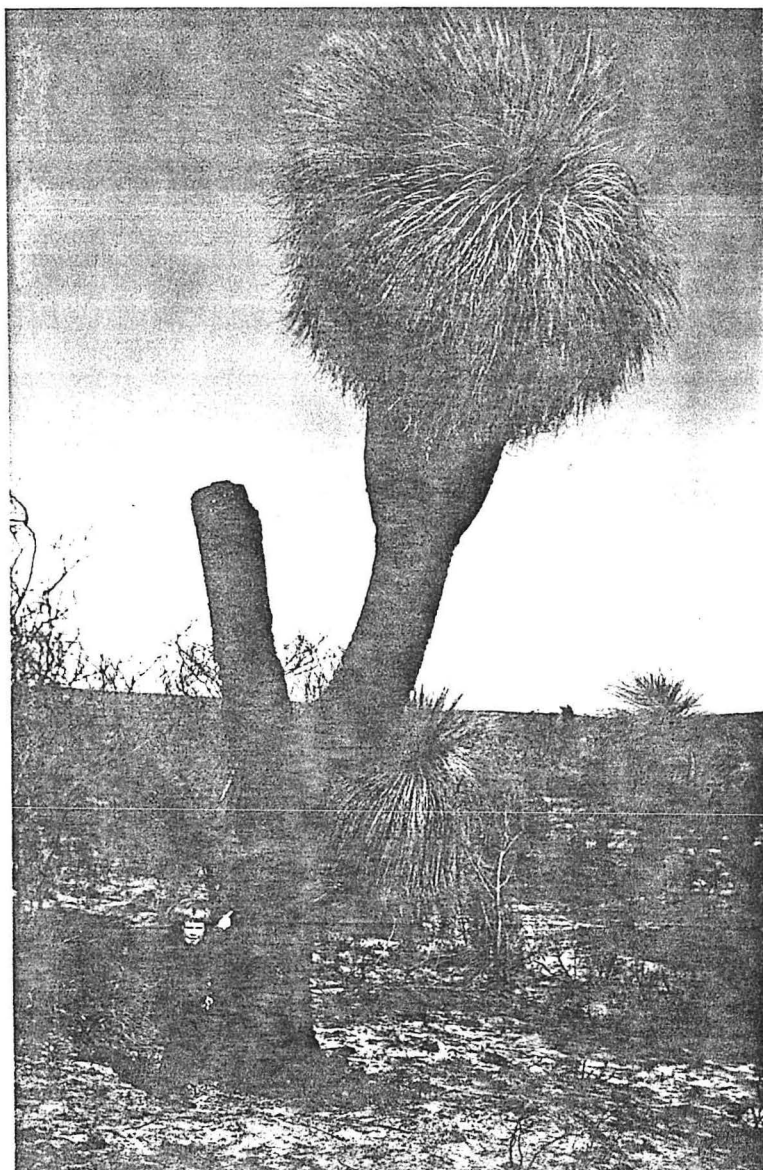
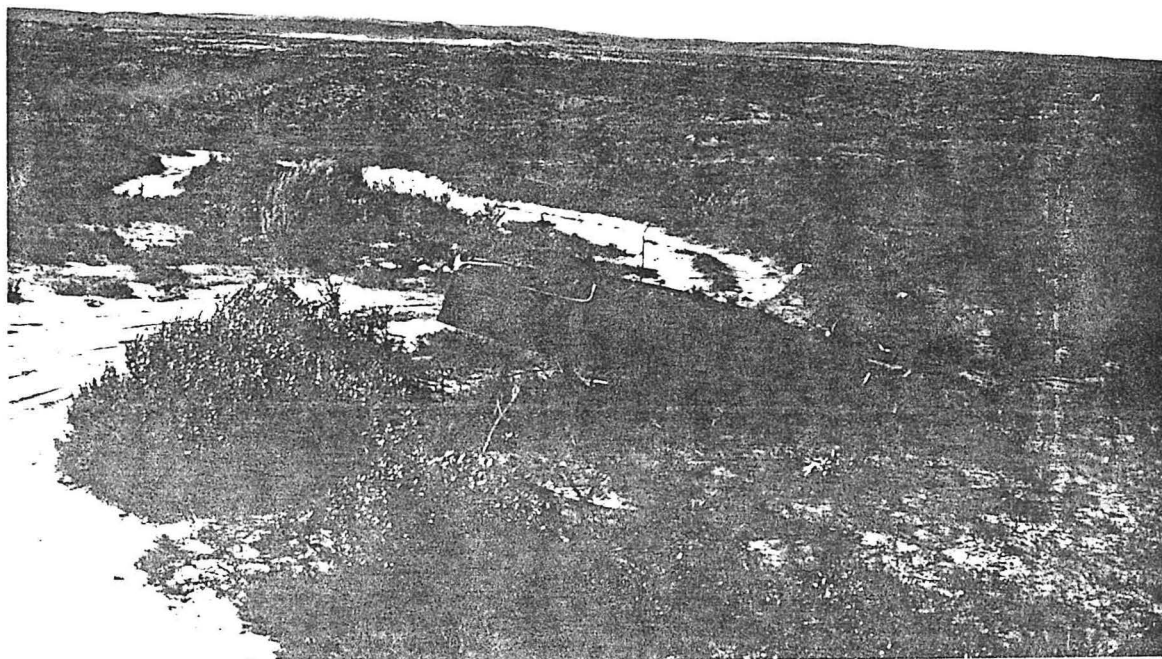


Illegal settlements along coastline.



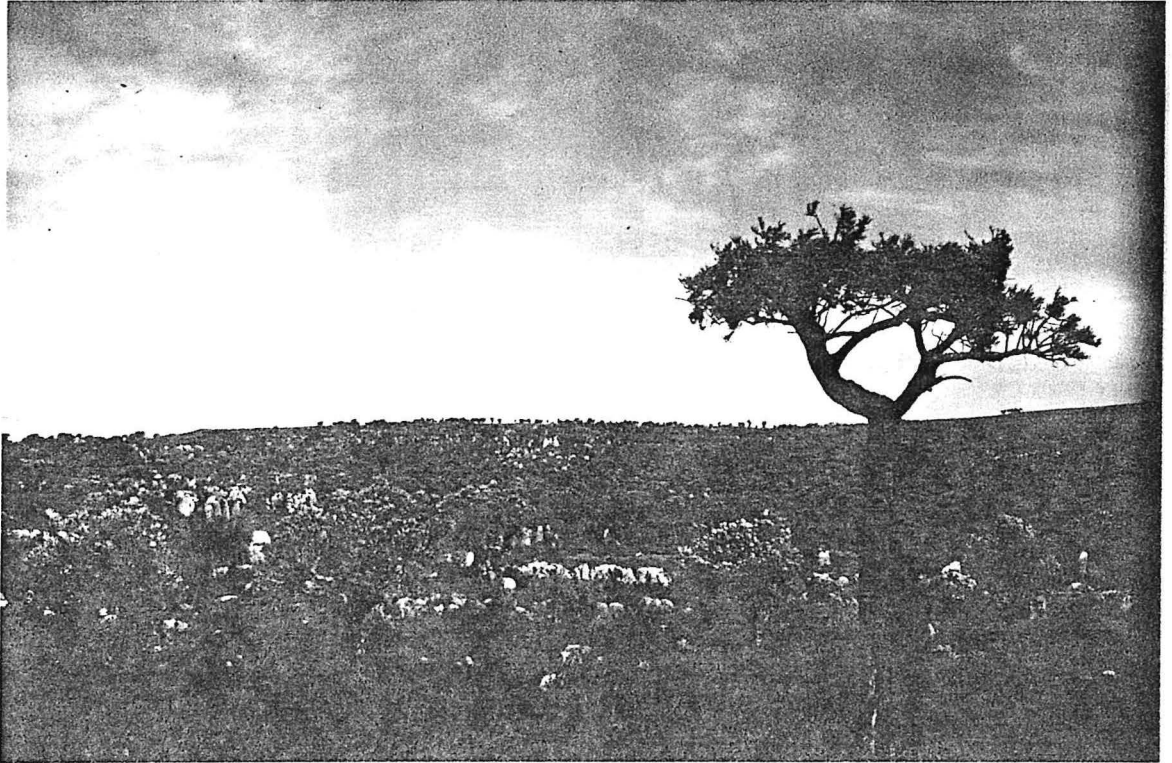
Squatters rubbish next to the Wedge Island - Cervantes track.

RESERVE 31675

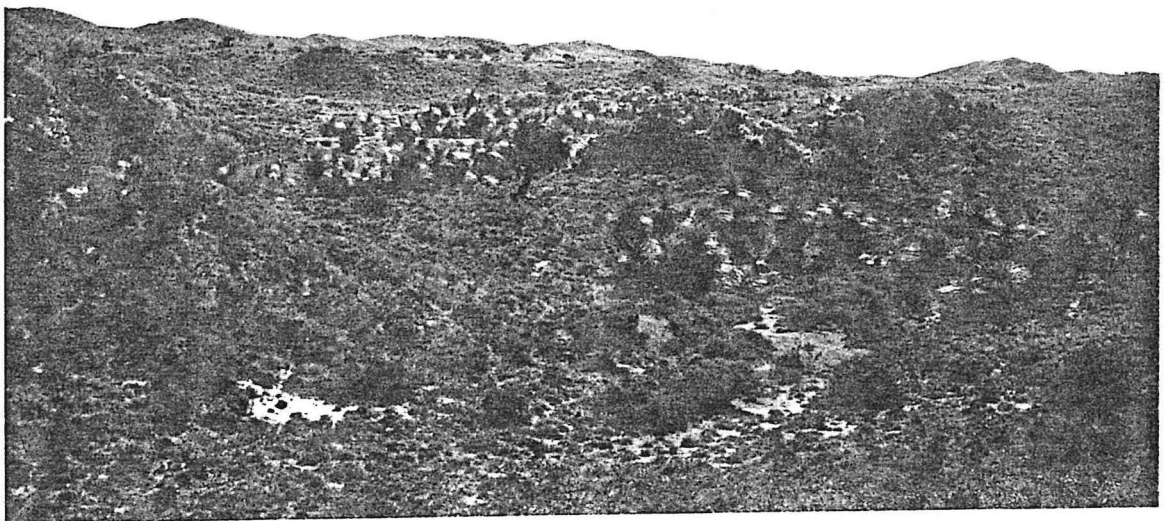


1. Car body on Wedge Island - Lancelin track. Note recently burnt heathland.

2. Burnt blackboys along Wedge Island - Lancelin track.



Banksia woodland in valleys (Area 2). Note limestone outcrops.



Blackboys in valleys on border north of Duggan Well.

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Blackboy over Whiteboy over Open Low Sedges .