GENERAL RESERVE AND VEGETATION SURVEY OF SELECTED SMALLER NATURE RESERVES OF THE CENTRAL WHEATBELT, PINGELLY MANAGEMENT DISTRICT

PART 3. KULIN SHIRE (WEST)

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1.0 INTRODUCTION: THE SHIRE OF KULIN

1.1 Physical Description

The Kulin Shire lies in the eastern-central wheatbelt and has an area of ca 4,791 square km. The Nature Reserves surveyed are located in the western section of the Shire.

a) Climate

The Shire has a typical wheatbelt climate with hot dry summers and mild wet winters. Kulin townsite has an average yearly rainfall of 364 mm (Bureau of Meteorology 1985). Most of the rain is received in winter from May to August with occasional thunderstorms in late summer and early autumn. The closest meteorological recording station with information on average temperatures, rainfall and relative humidity for the region is Corrigin (see Table 1 in Part 1). Winters are mild with the mean temperature of the coldest month exceeding 10 °C with a possibility of light frosts on winter nights. The summers are hot with the mean temperature of the hottest month exceeding 25 °C and absolute maxima above 40 °C occurring.

Beard (1980) classes the Corrigin regime with its seven dry months as Dry Warm Mediterranean.

b) Geology and soils

Beard (1980) describes the geology of the Corrigin area which includes the region of the Kulin Shire in which the seven reserves surveyed are situated.

The area is part of the Yilgarn block a very ancient rigid "Shield" area composed mainly of Archaen granite and gneiss with some altered volcanics and sediments.

The Kulin (west) Shire is underlain by granite rocks, covered by alluvia in the major valleys. The landscape is gently undulating and of low relief. The soils of the area have been mapped in Sheet 5 of the Atlas of Australian Soils (Northcote et al. 1967).

The sandplain soils on depositional slopes are made up of sandy yellow earths containing some ironstone gravels, and yellow earthy sands over ironstone gravels. On erosional ridges and slopes there are ironstone gravels and sands containing ironstone gravels. Granite rocks are surrounded by shallow stony and gritty sandy soils.

Below the sandplains the main soils on the slopes are hard alkaline yellow mottled soils and hard alkaline red soils, either are dominant locally. In broad valleys where small clay pans and salt-lake remnants may occur chief soils are usually hard alkaline yellow soils over lateritic clays. The major valleys contain chains of salt lakes with associated saline loams.

1.2 Nature Reserves

There are 27 Nature Reserves within the Shire. Three of the reserves (27928, A27927 and A36128) are over 2,000 ha in area and reserves 26692, and 27487 are over 1,000 ha. Of the remaining 22 reserves, 12 are less than 200 ha in area.

Six of the reserves have an 'A' classification, 18 are vested in the National Parks and Nature Conservation Authority, 8 are unvested and Reserve 22739 is vested in the Local Authority.

Seven reserves were surveyed in the Kulin Shire. Their purpose and vesting are listed in Table 1.

TABLE 1. NATURE RESERVES SURVEYED IN THE KULIN (WEST) SHIRE

Reserve No.	Name	Area (ha)	Purpose	Vesting
16763	Koolberin Nature Reserve	16.9968	Flora & Fauna	National Parks & Nature Conservation Authority
22739	Kulin Nature Reserve	13.9632	Native Flora	Local Authority
A27979	North Jitarning Nature Reserve	44.5154	Flora & Fauna	National Parks & Nature Conservation Authority
29835	Maublarling Nature Reserve	52.0704	Flora & Fauna	National Parks & Nature Conservation Authority
29988	Jitarning Nature Reserve	19.9637	Fauna	National Parks & Nature Conservation Authority
34136	Rose Road Nature Reserve	49.6540	Flora & Fauna	National Parks & Nature Conservation Authority
34833	South Kulin Nature Reserve	12.9068	Flora & Fauna	National Parks & Nature Conservation Authority

1.3 Vegetation

The vegetation of the Shire has been mapped at a scale of 1:250,000 by Beard (1980). Most of the Shire of Kulin is situated in the Roe Botanical District with a small area in the Avon Botanical District running along the western boundary. The Hyden Vegetation System covers most of the area with a small section in the Corrigin System. All the reserves surveyed are situated in the Hyden System.

Methods ? — see opposite page (missing from copy)

KOOLBERIN NATURE RESERVE 16763

Location

Ca 16 km South South West of Kulin townsite and shown on lithographs 377/80 E4 and 1:50,000 sheet, Koolberin 2532-111.

Background

Koolberin Nature Reserve 16763 was originally gazetted on August 17th, 1917 for the purpose of "Camping and Public Utility". On June 13th, 1969 the reserve was reclassified for the "Conservation of Flora and Fauna" and vested in the National Parks and Nature Conservation Authority. The reserve was officially named Koolberin Nature Reserve on February 25th 1983.

Physical Characteristics

Reserve 16763 is roughly rectangular in shape with a total perimeter of Ca 1.75 km and an area of 16.9968 ha. The highest point on the reserve is towards the north west corner at 320 m Above Sea Level. The reserve grades down to 310 m ASL towards the south east corner.

Adjoining Land

North : Private farm land, cleared. Fence 5 line ring lock with one plain and one barb wire (condition good).

South : Gravel road, Jitarning Road South.

East : Private farm land, cleared. Fence rabbit netting plus 2 plain and one barb wire on wooden posts (condition fair).

West : Gravel road, Koolberin Road.

Within this system the landscape is very gently undulating and soils are very variable. The highly mosaic character exhibited by the vegetation of the Wheatbelt is pronounced. Beard (1980) describes the vegetation of this system as kwongan (heath and thicket) on sandplains, mallee on the slopes, mallee with patches of woodland on upper valley soils, woodland on lower valley soils, and in saline areas a mosaic of woodland, shrubland and samphire.

2.0 Method

The survey was carried out in May, 1985. Because of time limitations only half to one full day was spent on each reserve. The reserves were examined by vehicle where tracks were available or on foot.

Physical characteristics of the reserves were obtained from lithographs (Department of Lands and Survey) and observations made in the field.

The vegetation survey was based on the use of aerial photographs. Lands and Survey Department 1:40,000 and 1:50,000 scale black and white. Approximate boundaries of vegetation types were drawn onto the photographs and these areas examined in the field.

Vegetation was classified using Muirs (1977) system which was designed specifically for describing wheatbelt vegetation.

Due to time limitation only the most common plant species were recorded. Where the identity of a species was doubtful a specimen was collected and taken to the W.A. Herbarium for identification. Because of the time of year in which the survey had to be conducted many of the plants were not in flower and therefore identifications were made from foliage alone.

Weeds

Infestation of wild oats (Avena fatua/sativa) in the York gum woodland and South-West and South-East corners of the reserve. Aira cupaniana was also recorded.

Human Usage and Damage or Degradation

(1) Recent dumping of rubbish along the track in the North West corner of the reserve.

(2) Pig carcases have been dumped near the Mallet woodland near the northern boundary of the reserve and sheep carcases in the South East corner.

(3) A small area on the northern boundary has been cleared and vegetaion is now growing over a small area near the southern boundary which has been previously cleared.

(4) Tracks in the southern section are now growing over in places.

Firebreaks

Perimeter firebreaks on adjacent farm land. None on the reserve. Koolberin road and Jitarning Road South form firebreaks to the west and south.

Fire History

There is no evidence of fire within the last 20 - 30 years.

Vegetation

6 vegetation associations are present on the reserve. Details of these associations and plant species recorded can be found in Appendix 1.

W1 (1) Wandoo Woodland : Eucalyptus wandoo Low Woodland A over Allocasuarina campestris Dense Thicket.

W2 (2) Blue Mallet Woodland : Eucalyptus gardneri Low Forest A. No understorey is present

W3 (3) York Gum Woodland : Eucalyptus loxophleba Low Forest A over Acacia acuminata Open Low Woodland B.

M1 (4) Mallee Area - Type 1 : Eucalyptus albida, Eucalyptus incrassata Very Open Tree Mallee over Melaleuca pungens Dense Heath B over Dryandra pteridifolia Dwarf Scrub D.

M2 (5) Mallee area - Type 2 : Eucalyptus ? loxophleba, Eucalyptus calycogona Tree Mallee. No understorey but scattered shrubs are present.

T (6) Melaleuca thicket : Melaleuca uncinata Dense Thicket with emergent Eucalyptus loxophleba and Eucalyptus celastroides tree mallee.

Plant Species

25 native plant species were recorded for the reserve, 16 of which are reported by Rye et al. (1980) as exploited by the wildflower trade.

Comments and Recommendations

Although small, reserve 16763 is diverse in plant associations and habitat types. It contains nest hollows and is also of value as a resting site for transient birds.

Signs should be erected to prohibit the dumping of rubbish on the reserve.

APPENDIX 1

W1 (1) Wandoo Woodland

Eucalyptus wandoo trees, 8-10 m, 10-30% canopy cover with an understorey of Allocasuarina campestris shrubs to 3 m, 70-100% canopy cover. Other species recorded were : Loxocarya ? pubescens, Melaleuca un cinata, Hakea scoparia, Santalum acuminatum. Soil dark brown sandy loam, ca 80% laterite.

W2 (2) Blue Mallet Woodland

Eucalyptus gardneri trees, 8-10 m, 30-70% canopy cover. No understorey is present. Soil dark brown sandy loam, ca 80% laterite.

W3 (3) York Gum Woodland

Eucalyptus loxophleba trees, 6-9 m, 30-70% canopy cover, with an understorey of Acacia acuminata trees, 4-6 m, 2-10% canopy cover. Other species recorded were:
* *
Aira cupaniana, Avena fatua/sativa, Santalum acuminatum. Soil dark brown sandy clay loam.

M1 (4) Mallee Area - Type 1

Eucalyptus albida and Eucalyptus incrassata tree mallee, 4-5 m, 2-10% canopy cover. With an understorey of Melaleuca pungens shrubs, 1.0-1.5 m, 70-100% cover, over Dryandra pteridifolia shrubs, 0-0.5 m, 10-30% canopy cover. Other species recorded were: Hakea subsulcata, Grevillea paniculata, Gastrolobium spinosum, Isopogon polycephalus, Melaleuca seriata, Santalum acuminalium, Xanthorrhaea reflexa. Soil orange brown sandy loam, ca 20% laterite.

M2. (5) Mallee Area - Type 2

Eucalyptus ? loxophleba, E. calycogona tree and tree mallee of varying dominance, 4-6 m, 30-70% canopy cover. No understorey but scattered shrubs are present including Acacia erinacea. Soil dark brown sandy clay. Eucalyptus salmonophloia is also present on the western edge of this association.

TI (6) Melaleuca Thicket

Melaleuca uncinata shrubs, 2-2.5 m, 70-100% canopy cover with emergent Eucalyptus loxophleba, Eucalyptus ? celastroides tree mallee to 5 m. In places the Mallee form a canopy of 2-10%. Other species recorded were: Allocasuarina campestris, Melaleuca acuminata, Melaleuca ? seriata, Mesomelaena preissii. Soil orange brown silty clay.

In the eastern section of this association Melaleuca ? seriata becomes dominant.

* Introduced species

Vegetation of Koolberin Nature Reserve 16763

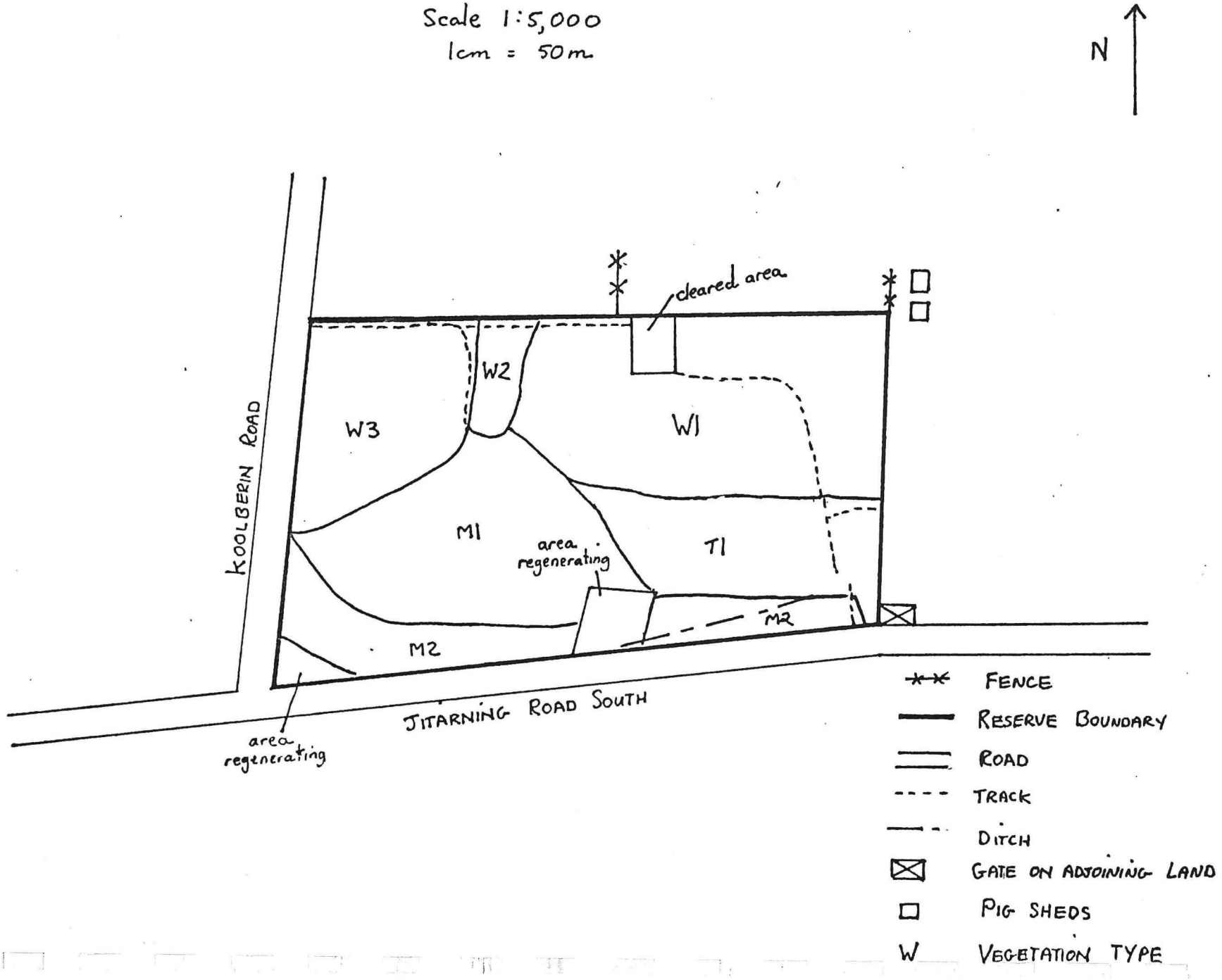
Key to Vegetation Types

		Muir (1977) Vegetation Code
W1	Wandoo (*Eucalyptus wandoo*) woodland	LAc.Sd
W2	Blue Mallet (*Eucalyptus gardneri*) woodland	LAc
W3	York Gum (*Eucalyptus loxophleba*) woodland	LAc.LBr
M1	Mallee Area - Type 1	KTr.SBd.SDc
M2	Mallee Area - Type 2	KTc
T1	*Meleleuca uncinata* thicket	Sd

FIGURE 1.

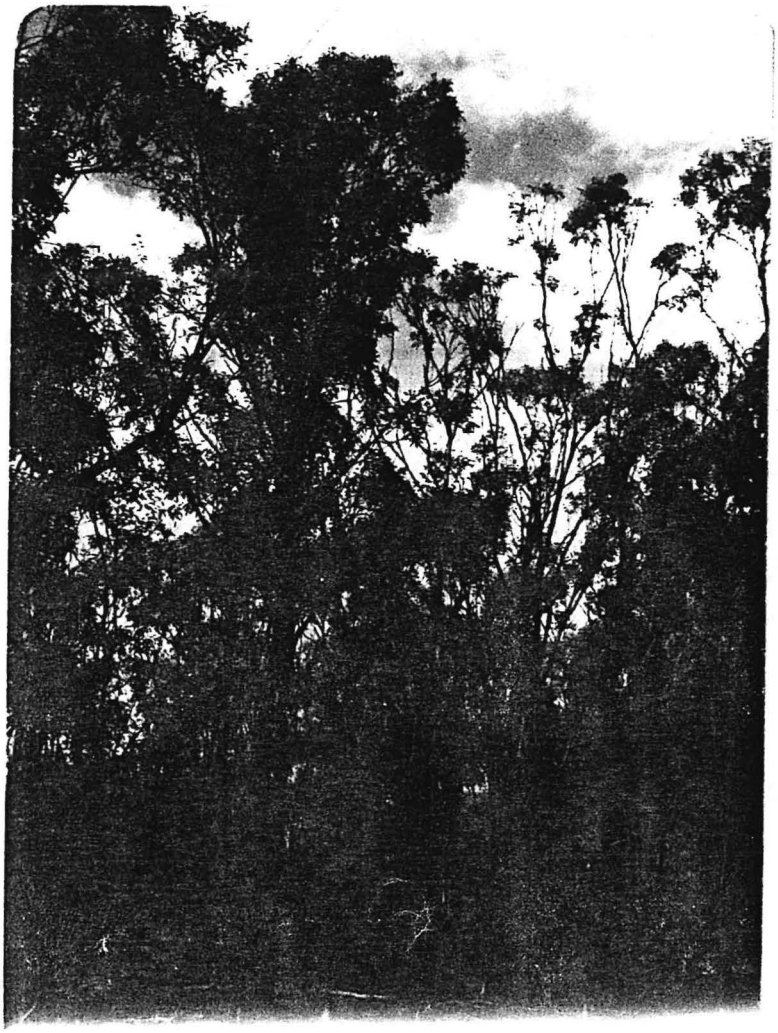
KOOLBERIN NATURE RESERVE 16763

Scale 1:5,000
1cm = 50m



PHOTOGRAPH 1. Eucalyptus wandoo woodland with an understorey of Tamma (Allocasuarina campestris) thicket.

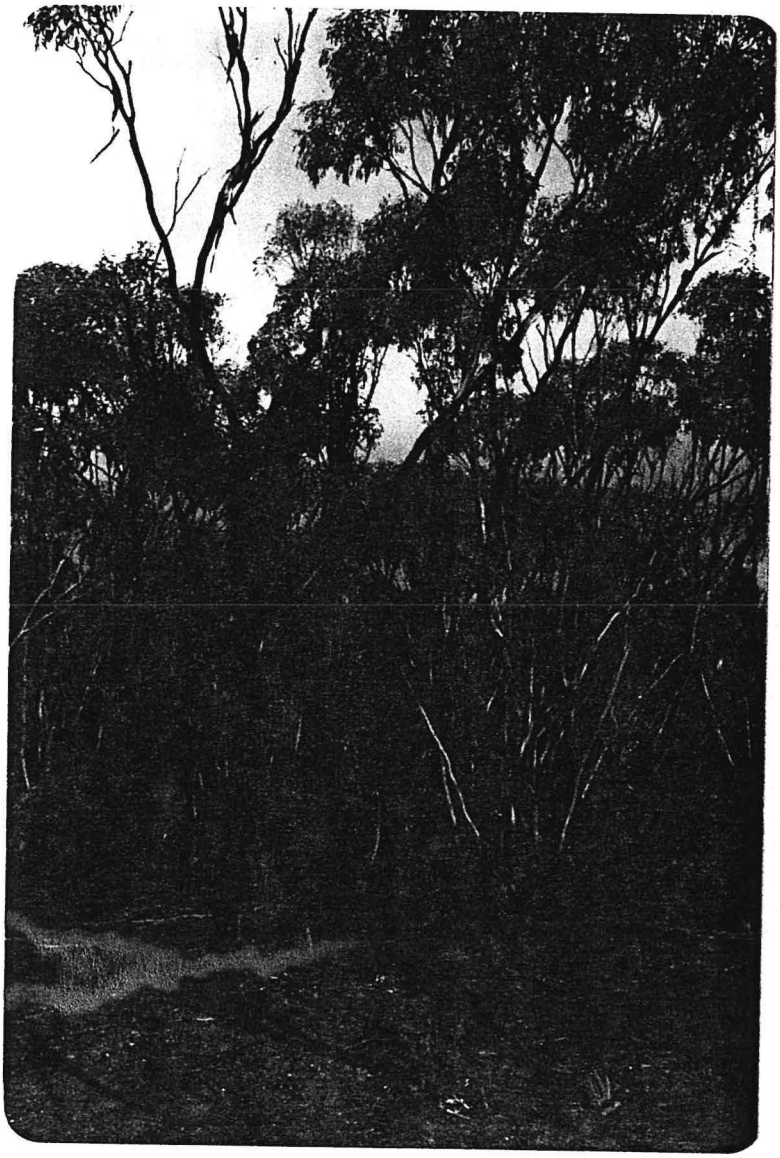
PHOTOGRAPH 2. Blue Mallet (Eucalyptus gardneri) woodland.



PHOTOGRAPH 3. York Gum (Eucalyptus loxophleba) woodland.

PHOTOGRAPH 4. Eucalyptus albida and Eucalyptus incrassata mallee with an understorey of Melaleuca pungens and Dryandra pteridifolia.

PHOTOGRAPH 5. Mallee area. Eucalyptus ? loxophleba dominant.



PHOTOGRAPH 6. Melaleuca uncinata thicket with emergent Mallee.

KULIN NATURE RESERVE 22739

Location

Situated within the Kulin townsite, on the southern boundary and is shown on lithographs of Kulin townsite and 1:50,000 sheet Kulin 2532-IV.

Background

Reserve 22739 was originally gazetted on February 13th, 1948 for the "Conservation of native flora" and vested in the local authority. the original area was ca 16.2 ha, this was amended to ca 13.7 ha on September 9th, 1955 and again on August 16th, 1968 to ca 13.8 ha. The area of the reserve was finally amended to 13.9632 ha on February 26th, 1982.

Physical Characteristics

Reserve 22739 is divided into three sections (see Fig. 2) with a total area of 13.9632 ha. The total perimeter of section one is ca 1.08 km and of section two ca 1.82 km and section three ca 0.52 km. The majority of the reserve is 300 m A.S.L.

Adjoining Land

Section 1

North : Stock Saleyard and Holding Ground. Fence 6 line ring lock plus one plain and one barb wire (condition good).

South : Sealed road. Kulin Road West.

East : Uncleared land, Drain Reserve 22738.

West : Gravel road - access to stock yards.

Section 2

North : Cleared and uncleared land including a playing field (see Fig. 2).

South : Sealed road : Kulin Road West.

East : Sealed road : Kulin - Lake Grace Road.

West : Uncleared land, Drain Reserve 22738.

Section 3

North : Town swimming pool. Fence, rabbit netting plus 4 strands of barb wire (condition poor).

South : Cleared land - dam site and playing field.

East : Sealed road. Kulin - Lake Grace Road.

West : Cleared land - machinery dealer. Fence 8 line ring lock plus one barb wire (condition good).

Weeds

Severe infestation of grasses in Section 3 and general infestation in more open areas in sections 1 and 2.

Human Usage and Damage or Degradation

(1) Drains have been constructed in section 2 of the reserve.

(2) Tracks in section 2 have increased the weed problem in this area.

(3) The banks of the dam adjacent to section 3 appear to encroach on reserve land.

(4) Electricity poles run through section 3.

Firebreaks

Kulin Road West and the Kulin-Lake Grace Road form firebreaks to the south and east. No firebreaks exist on the reserve.

Fire History

There is evidence of recent fire in section 3 of the reserve. Some mallees are now suckering.

Vegetation

The vegetation of the reserve in sections 1 and 2 is a mosaic of Open Tree Mallee over *Melaleuca* Dense Thicket and areas of Dense Tree Mallee with no understorey.

Three vegetation associations are present in section 3.

(1) Open Tree Mallee over *Melaleuca* Dense Thicket similar to that found in sections 1 and 2.

(2) Dense Tall Sedges.

(3) Open Tree Mallee with scattered *Eucalyptus wandoo*. No understorey is present but scattered shrubs and introduced grasses were recorded.

Plant Species

28 native plant species were recorded for the reserve, 20 of which are listed by Rye *et al*. (1980) as exploited by the wildflower trade.

Comments and Recommendations

Sections 1 and 2 of the Reserve are in fairly good condition. To help minimize management difficulties the area of uncleared land separating these sections (part of Drain Reserve 22738) should be incorporated into the reserve.

Section 3 poses major management difficulties. It is small in area and in poor condition. Weeds are a major problem and the land surrounding this section has now been developed for recreation, commerce and water supply. The adjacent dam appears to encroach on reserve land and the main Kulin-Lake Grace Road runs along the eastern side of this section.

APPENDIX 2

M1 open tree mallee
M2 dense tree mallee

Section 1 and 2

Open Eucalyptus species, shrub and tree mallee, 3-5 m, 10-30% (patchy) canopy cover 30-70% in places. Understorey is Melaleuca shrubs 1-3 m, 70-100% canopy cover.

Dense Small areas of Mallee with no understorey, 3-5 m, 70-100% canopy cover were also present. E. spathulata E. eremophila

Species of Mallee recorded were:

Eucalyptus cylindriflora, Eucalyptus eremophila, Eucalyptus erythronema, Eucalyptus leptophylla, Eucalyptus redunca var melanophloia, Eucalyptus transcontinentalis, Eucalyptus ? uncinata, Eucalyptus spathulata.

Species of Melaleuca recorded were:

Melaleuca acuminata, M. adnata, M. lateriflora, Melaleuca ? seriata, M. uncinata, Melaleuca laxiflora, Melaleuca ? acerosa.

Other species recorded were:

Allocasuarina campestris, * Aira cupaniana, Borya nitida, * Brizula maxima, Hakea multilineata, Hakea scoparia, Loxocarya sp., Olearia muelleri, Oxylobium parvifolium, Persoonia ? quinquinervium, Santalum acuminatum.

Soil mainly yellow brown sandy clay loam.

Section 3

M1 (1) Open Tree Mallee over Melaleuca Dense thicket similar to that found in sections 1 and 2. Part of this association has recently been burnt.

Species recorded were :

Eucalyptus redunca, Eucalyptus spathulata, Melaleuca acuminata, Melaleuca adnata, Melaleuca lateriflora, Melaleuca uncinata, Santalum acuminatum.

S1 (2) Sedges (not in flower at the time of the survey), 1.0-1.5 m, 70-100% canopy cover. *Juncus acutus* was also recorded. Soil brown silty clay.

M3 (3) *Eucalyptus* species tree mallee, 3-5 m, 10-30% canopy cover with *Eucalyptus wandoo* emergent to 8 m. Scattered shrubs and introduced grasses are also present. This association has recently been burnt. Many dead trees are present and some of the mallees are suckering. Species recorded were : *Anthocercis genistoides*, *Grevillea paniculata*, *Olearia revoluta*.

Soil dark brown sandy clay loam.

FIG 2. KULIN NATURE RESERVE

22739

Scale 1 : 3,960

1 cm = 396m

KEY

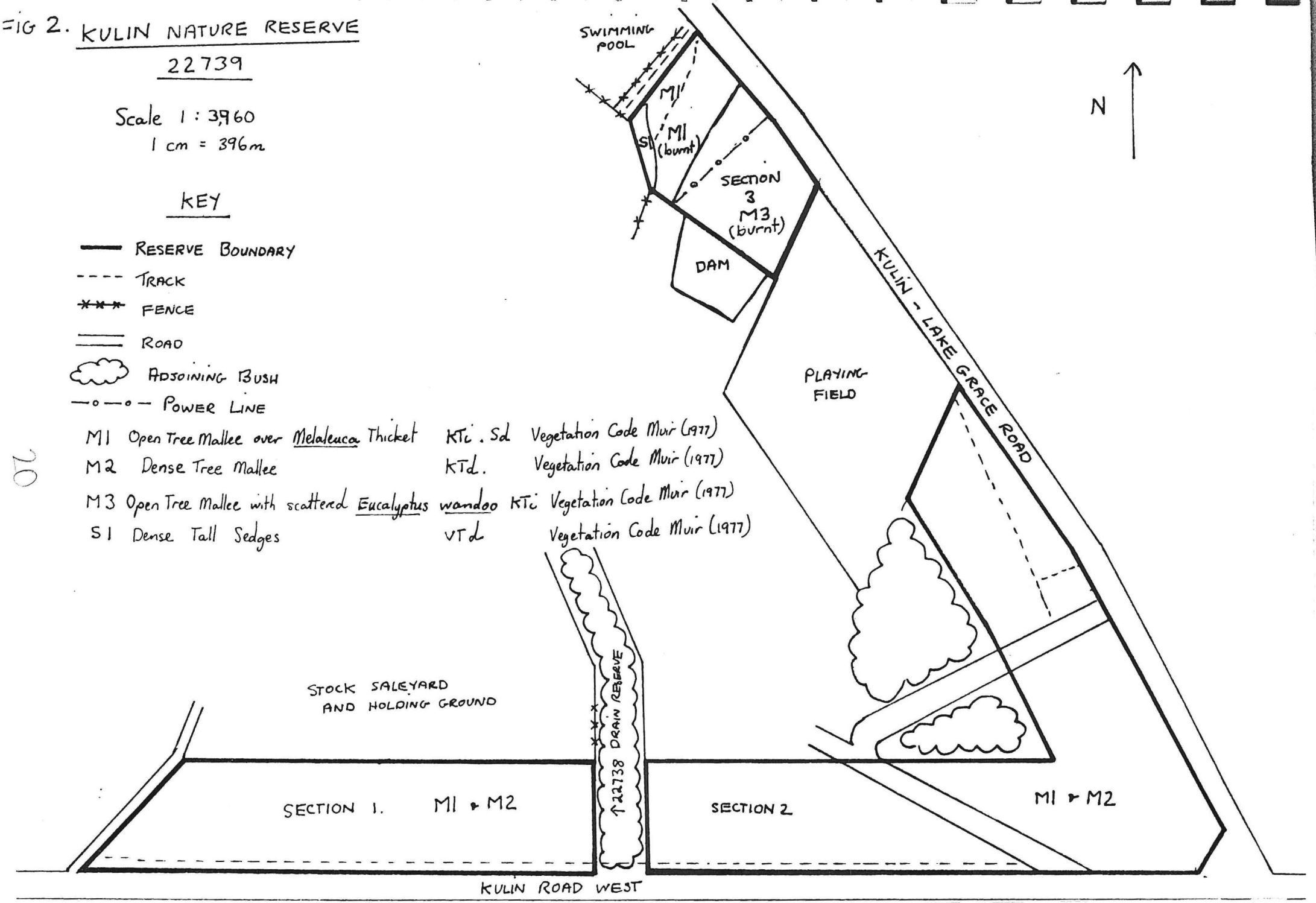
- RESERVE BOUNDARY
- TRACK
- FENCE
- ROAD
- ADJOINING BUSH
- POWER LINE

M1 Open Tree Mallee over Melaleuca Thicket KTi . Sd Vegetation Code Muir (1977)

M2 Dense Tree Mallee KTd. Vegetation Code Muir (1977)

M3 Open Tree Mallee with scattered Eucalyptus wandoo KTi Vegetation Code Muir (1977)

S1 Dense Tall Sedges VTd Vegetation Code Muir (1977)



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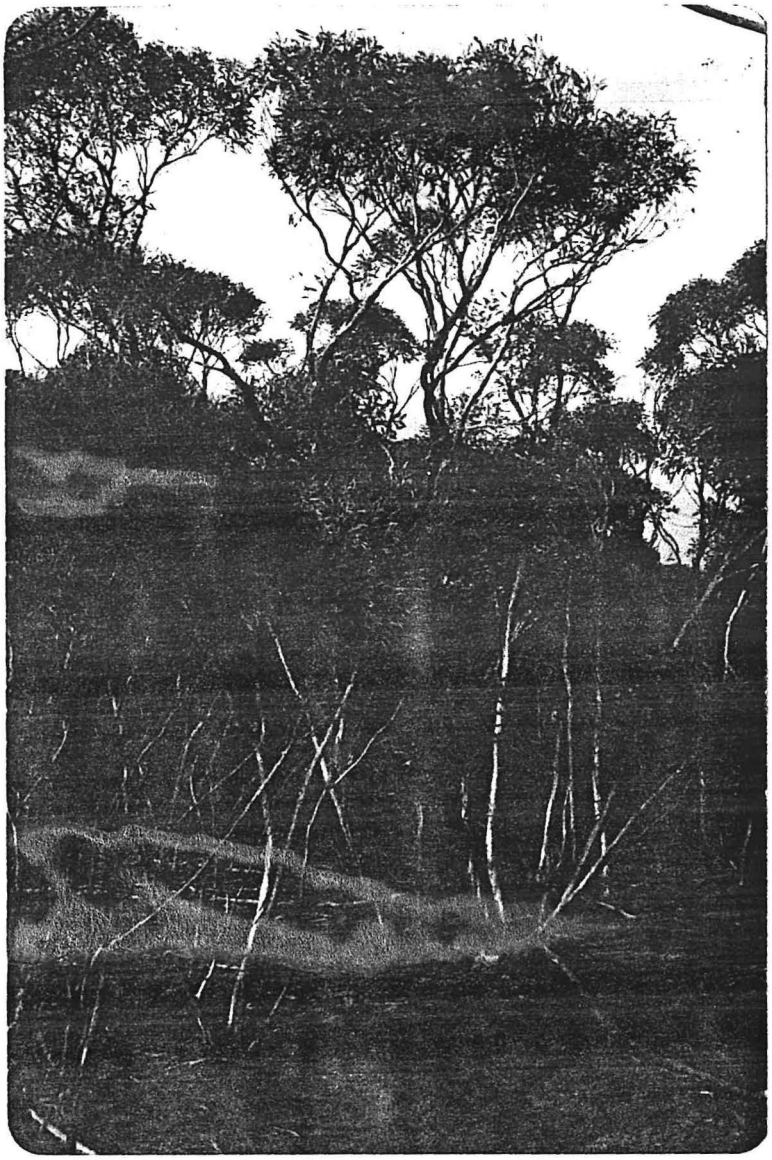
PHOTOGRAPH 1 Area of Open Tree Mallee with an understorey of *Melaleuca* thicket in section 1.

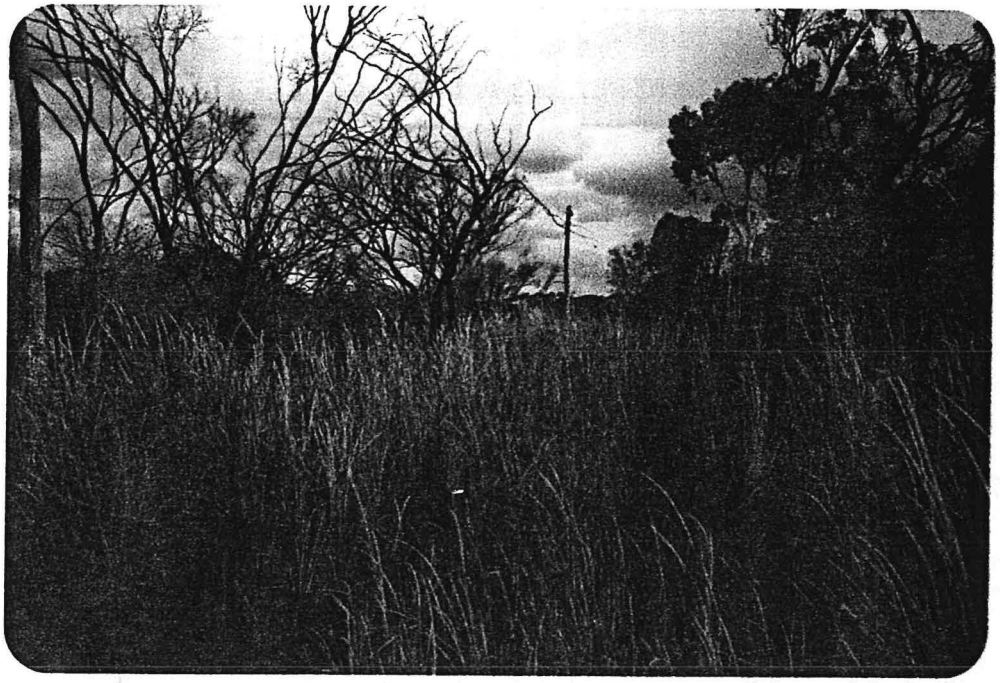
PHOTOGRAPH 2 Infestation of grasses along one of the tracks in Section 2.

PHOTOGRAPH 3 *Eucalyptus spathulata* and *Eucalyptus eremophila*

Dense Tree Mallee with no understorey in Section 1.



PHOTOGRAPH 4 Area of sedges in Section 3.



PHOTOGRAPH 5 Section 3 Open Tree Mallee with scattered Eucalyptus wandoo. Scattered shrubs and introduced grasses are also present.

PHOTOGRAPH 6 Tree mallee in Section 3. The Dam bank can also be seen in the background.

PHOTOGRAPH 7 Mallee with an understorey of Melaleuca thicket. This area has recently been burnt. Section 3

NORTH JITARNING NATURE RESERVE A27979

Location

Ca 15 km South South West of Kulin townsite and shown on lithographs 377/80 E4 and 1:50,000 sheet, Koolberin 2532-111.

Background

Reserve A27979 was originally gazetted on February 18th, 1966 for the purpose of "Government Requirements". On September 4th, 1970 the reserve was reclassified for the "Conservation of Flora and Fauna", A class, and vested in the National Parks and Nature Conservation Authority.

The reserve was officially named North Jitarning Nature Reserve on May 20th, 1983.

Physical Characteristics

Reserve A27979 is roughly triangular in shape with a total perimeter of ca 4.4 km and an area of 44.5154 ha. The highest point on the reserve is towards the western corner 360 m Above Sea Level, grading to 340 m ASL in the Eastern corner.

Human Usage and Damage or Degradation

(1) Gravel pit in the eastern corner

(2) A vehicle has driven through dense heath from the track (North) to the gravel pit. The track has been blocked off just past this point.

(3) Parking bay off the main Williams-Kondinin road.

Adjoining Land

North : Track and Railway Line and Reserve

South : Sealed road. Williams-Kondinin Road

Weeds

No weeds were recorded.

Fire History

No evidence of fire within the last 20 years.

Firebreak

The railway line to the north and the Williams-Kondinin Road in the South form perimeter firebreaks for the reserve.

Vegetation

6 vegetation associations are present on the reserve. Details of these associations and plant species recorded can be found in Appendix 3.

(1) Wandoo woodland - type 1 : Eucalyptus wandoo Open Low Woodland A over Dense Heath A.

(2) Wandoo woodland - type 2 : Eucalyptus wandoo Open Low Woodland A over Allocasuarina campestris Dense Heath A.

(3) Mallee area - type 1 : Eucalyptus calycogona, E. eremophila and E. anceps Dense Tree Mallee. In the northern section over Melaleuca undulata Low Shrub B.

(4) Mallee area - type 2 : Eucalyptus albida, Eucalyptus ? incrassata Open Tree Mallee over Low Heath C.

(5) Melaleuca Heath : Low Heath C with Melaleuca pungens prominant and scattered Eucalyptus albida mallee.

(6) Low Mixed Heath : Low Heath D, mixed shrubs no species dominant.

Plant Species

69 native plant species were recorded for the reserve, of which 38 are reported by Rye et al. (1980) as exploited by the wildflower trade.

Comments and Recommendations

Reserve A27979 is of great value. The vegetation is diverse and rich in plant species. It contains some nest hollows and is of value as a resting site for transient birds. The gravel pit in the eastern section should be closed and the area rehabilitated.

APPENDIX 3

W1 (1) Wandoo woodland - Type 1

Eucalyptus wandoo trees, 6-8 m, 2-10% canopy cover with an understorey of mixed shrubs, 1.5-2 m, 70-100% canopy cover. Other plant species recorded were:

Allocasuarina campestris, Banksia sphaerocarpa var caesia, Beaufortia incana, Calothamnus ? quadrifidus, Dryandra cirsioides, Dryandra conferta, Dryandra nivea, Dryandra ? pteridifolia, Gastrolobium spinosum, Hakea lissocarpha, Hakea subsulcata, Hakea gilbertii, Leptospermum? erubescens, Melaleuca seriata, Petrophile sp nov, Phebalium tuberculatum.

Soil light brown sandy loam, ca 80-90% laterite.

W2. (2) Wandoo woodland - Type 2

Eucalyptus wandoo trees, 6-8 m, 2-10% canopy cover. Understorey is Allocasuarina campestris shrubs, 1.5 m - 2 m, 70-100% canopy cover. Other species recorded were:

Astroloma serratifolium, Billardiera ? bicolor, Dryandra cirsioides, Callitris roei, Eucalyptus albida, Eucalyptus gardneri, Gastrolobium spinosum, Grevillea ? hookeriana, Hakea incrassata, Hakea lissocarpha, Hakea multilineata, Hakea scoparia, Hakea subsulcata, Isopogon polycephalus, Leptospermum ? erubescens, Melaleuca pungens, Melaleuca seriata, Melaleuca uncinata, Santalum acuminatum, Synaphaea ? petiolaris.

Soil yellow brown sandy loam, ca 20% laterite.

M1 (3) Mallee Area - Type 1

Eucalyptus calycogona, E. eremophila, E. anceps shrub and tree mallee of varying dominance, 3-6 m, 70-100% canopy cover. In the northern section of this association the understorey is Melaleuca undulata shrubs 1.0-1.5 m, 10-30% canopy cover. Other species recorded in this section were Astroloma sp, Dodonaea bursariifolia, Grevillea huegelii, Hakea lissocarpha, Melaleuca uncinata, Olearia muelleri. In the southern section of this association scattered shrubs of Melaleuca uncinata and Melaleuca acuminata shrubs to 2 m were recorded.

M2 (4) Mallee Area - Type 2

Eucalyptus albida, Eucalyptus ? incrassata tree mallee, 4-5 m, 10-30% canopy cover, with an understorey of mixed shrubs 0.5-1.0 m, 30-70% canopy cover. Scattered shrubs to 2 m are also present. Species recorded were: Allocasuarina campestris, Beaufortia micrantha var puberula, Banksia sphaerocarpa var caesia, Callitris roei, Dryandra cirsioides, Dryandra conferta, Dryandra ? pteridifolia, Gastrolobium spinosum, Grevillea ? hookeriana, Hakea ? falcata, Hakea gilbertii, Isopogon polycephalus, Isopogon teretifolius, Leptospermum ? erubescens, Leucopogon dielsiana, Petrophile brevifolia, Petrophile ericifolia, Petrophile seminuda, Melaleuca seriata.

Soil yellow sandy loam, ca 60% laterite.

H1 (5) Melaleuca Heath

Mixed shrubs, 0.5-1.0 m, 70-100% canopy cover. Melaleuca pungens prominant. Scattered Eucalyptus albida mallee emergent to 4 m together with scattered shrubs of Allocasuarina campestris and Banksia sphaerocarpa to 1.5 m.

Other species recorded were:

Allocasuarina humilis, Beaufortia micrantha var puberula, Caustis dioica, Dryandra conferta, D. cirsioides, D. nivea, Eremaea pauciflora, Gastrolobium spinosum, Hakea gilbertii, H. baxteri, Hakea ? falcata, H. incrassata, Isopogon polycephalus, Isopogon teretifolius, Melaleuca seriata, Mesomelaena preissii, Persoonia ? quinquenervis, Petrophile brevifolia, P. heterophylla, Petrophile sp (456), Xanthorrhoea reflexa.

Soil light brown sandy loam, ca 30% laterite.

H2 (6) Low Mixed Heath

Mixed shrubs, 0–0.5 m, canopy cover 30–70%, with scattered shrubs to 1.5 m.

Species recorded were:

Allocasuarina campestris, Allocasuarina microstachya, Banksia sphaerocarpa, Dryandra cirsioides, Hakea incrassata, Hakea falcata, Leptospermum ? erubescens, Lepidosperma sp, Mesomelaena preissii, Petrophile brevifolia, Synaphaea ? petiolaris.

Also recorded for the northern section of this association were:

Astroloma serratifolium, Beaufortia ? bracteosa, Cassytha sp. Isopogon teretifolius, Leucopogon dielsiana, Melaleuca leptospermoides.

Eastern section: Caustis dioica, Calothamnus ? quadrifidus, Calytix ? leschenaultii, Grevillea ? hookeriana, Melaleuca uncinata, Melaleuca scabra, Verticordia ? brownii.

Soil light brown sandy loam.

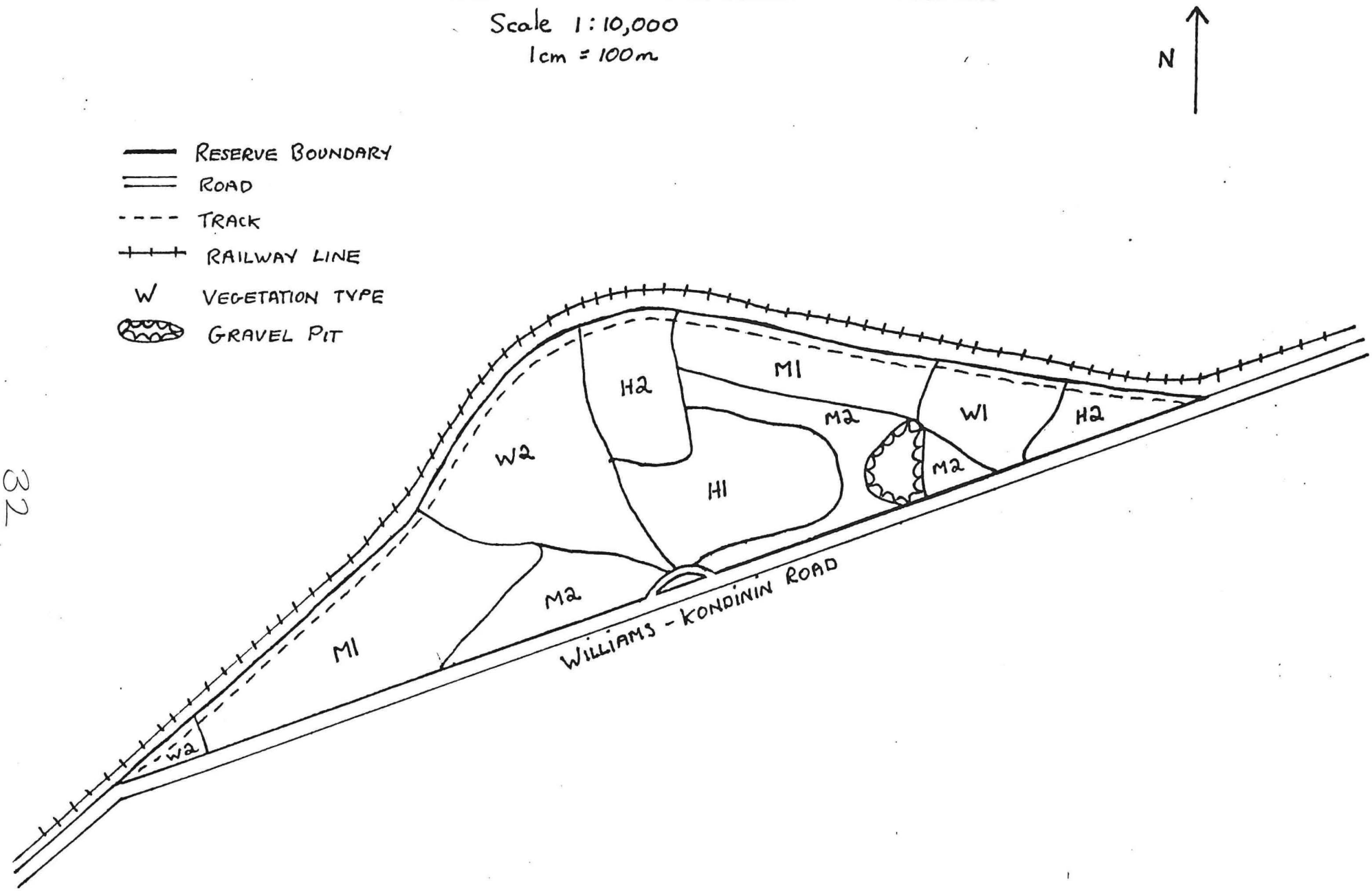
Vegetation of North Jitarning Nature Reserve A27979

Key to Vegetation Types

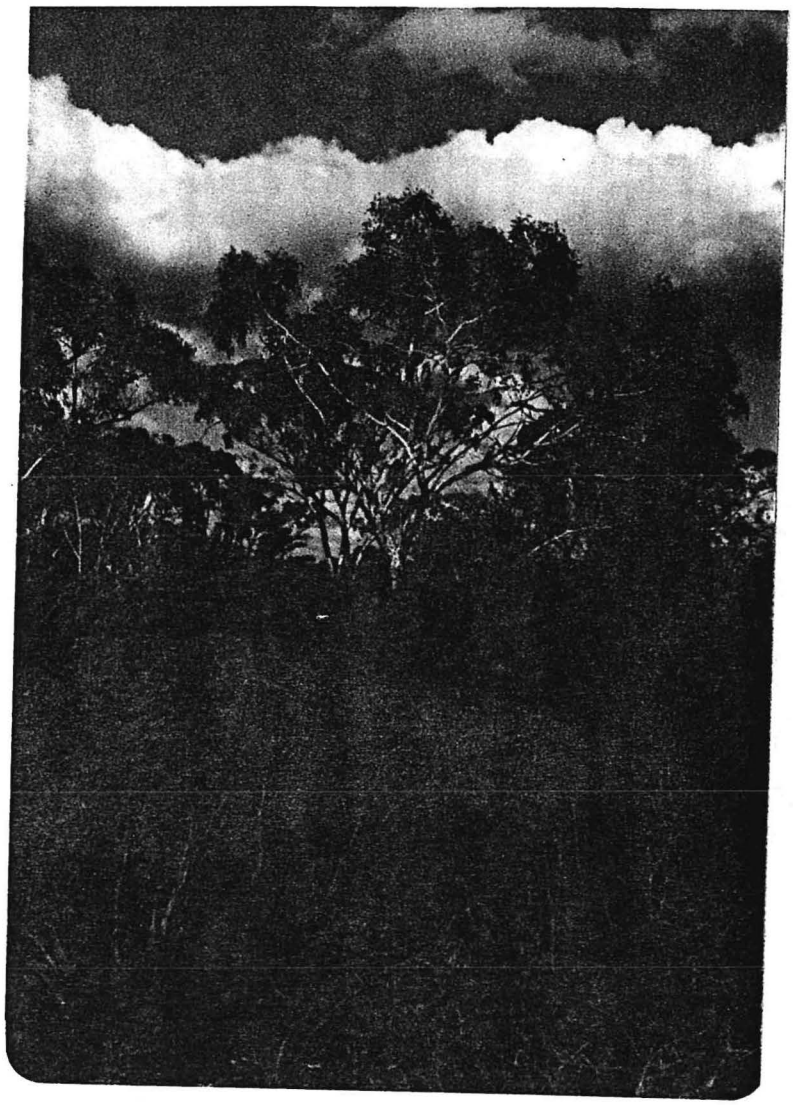
		Muir (1977) Vegetation Code
W1	Wandoo (*Eucalyptus wandoo*) woodland - type 1	LAr.SAd
W2	Wandoo (*Eucalyptus wandoo*) woodland - type 2	LAr.SAd
M1	Mallee Area - Type 1	KTd
M2	Mallee Area - Type 2	KTc.SCc
H1	*Melaleuca* Heath	SCd
H2	Low Mixed Heath	SDc

FIGURE 3 NORTH JITARNING NATURE RESERVE A27979

Scale 1:10,000
1cm = 100m



PHOTOGRAPH 1 Eucalyptus wandoo woodland (Type 1)



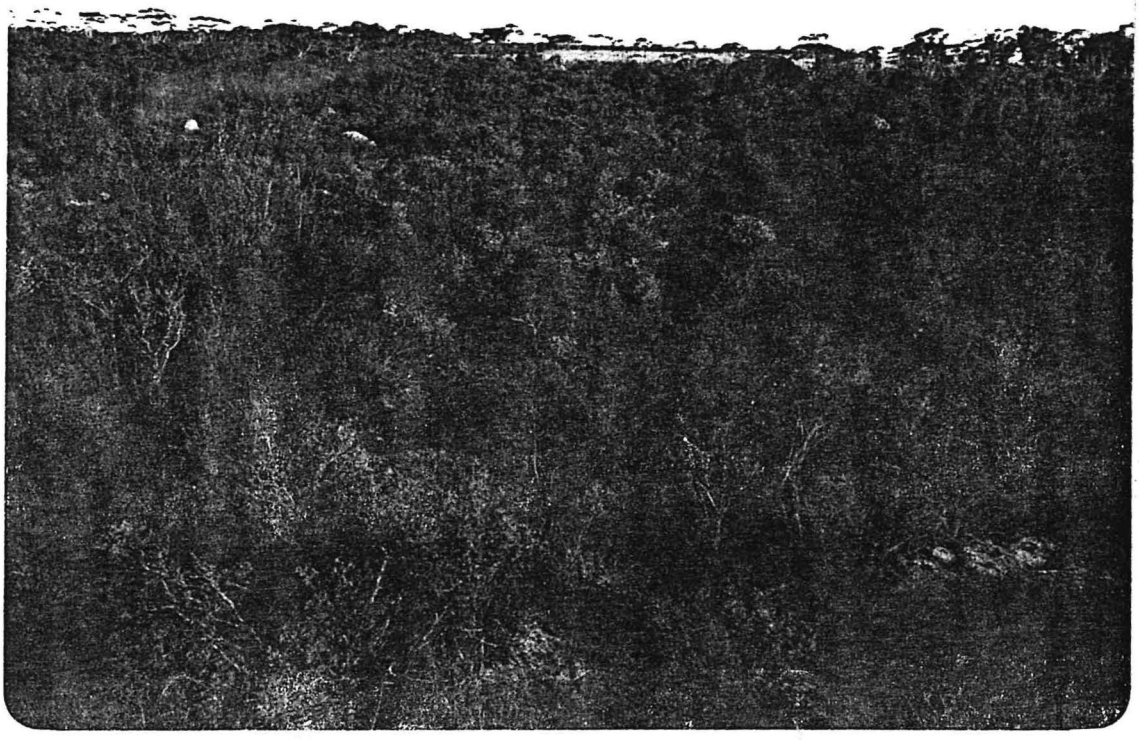
PHOTOGRAPH 2 Eucalyptus wandoo woodland (Type 2)

PHOTOGRAPH 3 Mallee area - Type 1 with Melaleuca undulata understorey.

PHOTOGRAPH 4 Mallee area - Type 2

PHOTOGRAPH 5 *Melaleuca* heath. Mixed shrubs with *Melaleuca pungens* prominent.

PHOTOGRAPH 6 Low mixed heath



MAUBLARLING NATURE RESERVE 29835

Location

Ca 33 km south South East of Kulin townsite on the shire boundary and shown on lithograph 1:50,000 sheet Maublarling 2532-11.

Background

Reserve 29835 was originally gazetted on June 27th, 1969 for the "Conservation of Flora and Fauna" and vested in the National Parks and Nature Conservation Authority. The reserve was officially named Maublarling Nature Reserve on May 20th, 1983.

Physical Characteristics

The reserve is rectangular in shape with the western corner missing and with a total perimeter of ca 3.2 km and an area of 52.0704 ha.

The highest point on the reserve is near the north east corner, ca 330 m Above Sea Level, grading down to 320 m ASL along the southern boundary and the south west corner.

Adjoining Land

North : Private farmland, cleared and uncleared, (see Fig. 4). Fence 6 line ring lock on steel posts (condition good).

The boundary defining the north-west corner borders mainly on cleared farmland. No fence is present.

South : Private farmland, cleared. Fence 5 line ring lock plus one barb wire on wooden posts (condition fair).

East : Private farmland, cleared. Fence 6 line ring lock plus one plain and one barb wire (condition good).

West : Private farmland, cleared. Fence 5 line ring lock plus one plain and one barb wire on wooden posts (condition good).

Weeds

Weeds are not a problem on the reserve. Aira cupaniana and Ursinia anthemoides were recorded.

Firebreaks

Perimeter firebreaks on adjacent cleared farm land and on the reserve along the boundary to the south, east and west and part of the north (See Fig.4).

Fire History

The reserve was burnt in 1964-65. There is good regeneration of Eucalyptus gardneri to ca 3 m.

Human Usage and Damage or Degradation

1. Report 493/69, 23rd June 1983, indicates that the reserve should be east and north of its present position by ca 3 metres. It appears that the whole area, when originally fenced is out of kilter with new survey pegs.
2. The track along the western boundary is used for farm access.

Vegetation

8 vegetation associations are present on the reserve. For details of these associations and plant species recorded, see Appendix 4.

(1) Blue Mallet woodland (regenerating): Eucalyptus gardneri Low Forest B over Low Heath C.

(2) Blue Mallet woodland : Eucalyptus gardneri Low Forest A over Low Heath C.

(3) Eucalyptus species woodland : Eucalyptus sp Low Forest B over Heath B.

(4) White Mallet woodland : Eucalyptus falcata Low Woodland A with scattered shrubs.

(5) Mallee Area - Type 1 : Eucalyptus conglobata, Eucalyptus redunca Shrub Mallee over Low Heath D.

(6) Mallee Area - Type 2 : Eucalyptus flocktoniae Open Tree Mallee over Heath B.

(7) Mallee Area - Type 3 : Eucalyptus calycogona, Eucalyptus conglobata, Eucalyptus sargentii Shrub Mallee over Low Heath C.

(8) Mallee Area - Type 4 : Eucalyptus calycogona, Eucalyptus conglobata, Eucalyptus sargentii Dense Shrub Mallee with scattered shrubs.

Plant Species

50 native plant species were recorded for the reserve, 29 of which are listed by Rye et al. (1980) as exploited by the wild flower trade.

Comments and Recommendations

Reserve 29835 is diverse in associations and habitat types and is also rich in plant species. The reserve is isolated and accessible only through neighbouring farm land.

APPENDIX 4

(1) Regenerating Blue Mallet Woodland

Eucalyptus gardneri trees, immature, 2.5-3 m, 30-70% canopy cover. The understorey is mixed shrubs 0.5-1 m, 30-70% canopy cover. Species recorded were :

Acacia erinacea, Astroloma aff microphyllum, Callitris roei, Cassytha melantha, Cryptandra ? tomentosa, Dodonaea bursariifolia, Exocarpus aphyllus, Grevillea insignis, Grevillea huegelii, Hakea subsulcata, Hakea nitida, Hakea aff oldfieldii, Isopogon polycephalus, Melaleuca acuminata, Melaleuca uncinata, Phebalium tuberculosum, Santalum acuminatum.

Soil dark brown sandy loam, ca 50% laterite.

W2 (2) Blue Mallet Woodland

Eucalyptus gardneri trees, 8-10 m, 30-70% canopy cover. The understorey is mixed shrubs 0.5-1.0 m,30-70% canopy cover. Scattered shrubs of Allocasuarina acutivalvis, Hakea laurina, Malaleuca acuminata and Santalum acuminatum are also present to 2 m. Other species recorded were:

Eucalyptus ? falcata, Eucalyptus flocktoniae, Eucalyptus uncinata, Exocarpus aphyllus, Grevillea huegelii, Hakea corymbosa, Hakea lissocarpha, Melaleuca uncinatum, Phebalium tuberculosum, Santalum acuminatum, Spyridium denticuliferum.

Soil dark brown sandy loam, 50% laterite.

W3 (3) Eucalyptus Species Woodland

Eucalyptus trees, immature 4-5 m, 30-70% canopy cover. Understorey is Gastrolobiom spinosum shrubs, 1.0-1.5 m, 30-70% canopy cover. Other species recorded were:

Allocasuarina acutivalvis, Astroloma aff microphyllum, Eucalyptus gardneri,

Exocarpus aphyllus, Grevillea insignis, Hakea subsulcata, Hakea multilineata, Labichea stellata, Melaleuca uncinata.

Soil yellow brown sandy clay loam ca 40% laterite.

W4 (4) White Mallet Woodland

Eucalyptus falcata trees, 10-15 m, 10-30% canopy cover. Scattered shrubs are also present. Other species recorded were:

Eucalyptus gardneri, Gastrolobium reticulatum, Gastrolobium spinosum, Phebalium filifolium, Santalum acuminatum, Spyridium denticuliferum.

Soil orange brown sandy loam, ca 10% laterite.

M1 (5) Mallee Area - Type 1

Eucalyptus conglobata, Eucalyptus redunca shrub mallee, 2-3 m, 30-70% canopy cover. Understorey is mixed shrubs, 0.0-0.5 m, 30-70% canopy cover. Other species recorded were : Dryandra ? cirsioides, Gastrolobium reticulatum, Gastrolobium spinosum, Grevillea huegelii, Hakea lissocarpha, Hakea strumosa, Isopogon polycephalus, Leptospermum ? erubescens, Leucopogon minutifolius, Lysinema ciliatum, Melaleuca spicigera, Melaleuca ? pentagona, Melaleuca ? scabra, Melaleuca uncinata, Phebalium filifolium, Spyridium denticuliferum, Santalum acuminatum.

Soil light brown sandy clay loam.

(6) Mallee Area - Type 2

M2 Eucalyptus flocktoniae tree mallee, 6-8 m, 10-30% canopy cover with an understorey of mixed shrubs, 1.0-1.5 m, 30-70% canopy cover. Santalum acuminatum and Daviesia benthamii prominant. Species recorded were:

Daviesia benthamii, Dodonaea bursariifolia, Eucalyptus gardneri, Santalum acuminatum, Spyridium denticuliferum.

Soil light brown sandy loam, ca 5% laterite.

(7) Mallee Area - Type 3

Eucalyptus calycogona, E. conglobata, E. sargentii shrub mallee 2.5-3 m, 30-70% canopy cover. Understorey is mixed shrubs, 0.5-1.0 m, 30-70% canopy cover. Species recorded were:

Daviesia benthamii, Melaleuca cuticularis, Melaleuca adnata, Melaleuca undulata.

Soil dark brown clay loam.

(8) Mallee Area - Type 4

Eucalyptus calycogona, E. conglobata, E. sargentii shrub and tree Mallee, 3-4 m, 70-100% canopy cover. Scattered shrubs. Species recorded were:

Acacia ? erinacea, Acacia ? glaucoptera, Melaleuca cuticularis.

Soils orange brown sandy clay loam.

Vegetation of Maublarling Nature Reserve 29835

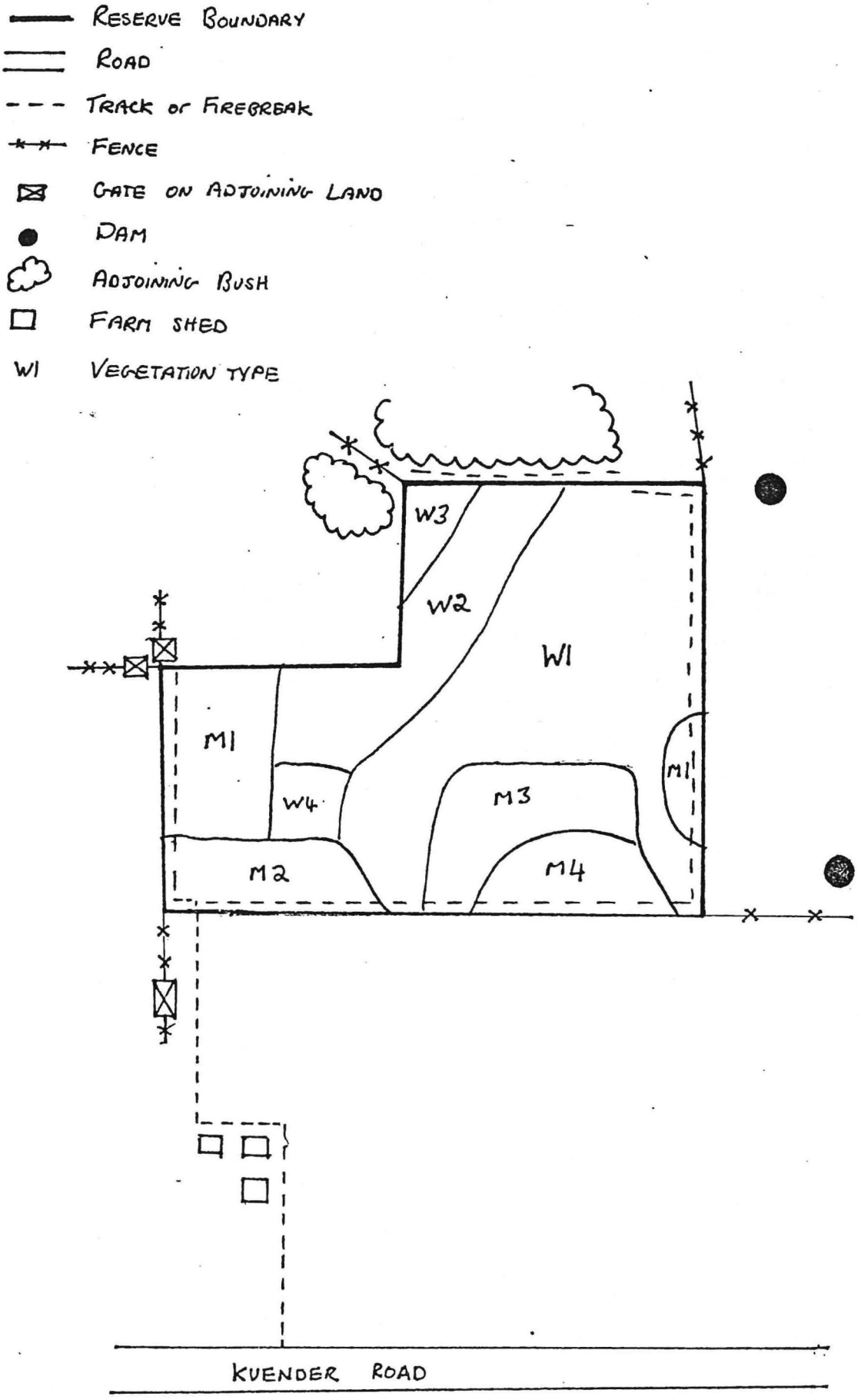
Key to Vegetation Types

		Muir (1977) Vegetation Code
W1	Blue Mallet (*Eucalyptus gardneri*) woodland (regenerating)	LBc.SCc
W2	Blue Mallet (*Eucalyptus gardneri*) woodland	LAc.SCc
W3	*Eucalyptus* species woodland	LBc.SBc
W4	White Mallet (*Eucalyptus falcata*) woodland	LAc
M1	Mallee Area - Type 1	KSc.SDc
M2	Mallee Area - Type 2	KTc.SBc
M3	Mallee Area - Type 3	KSc.SCc
M4	Mallee Area - Type 4	KS/KT d

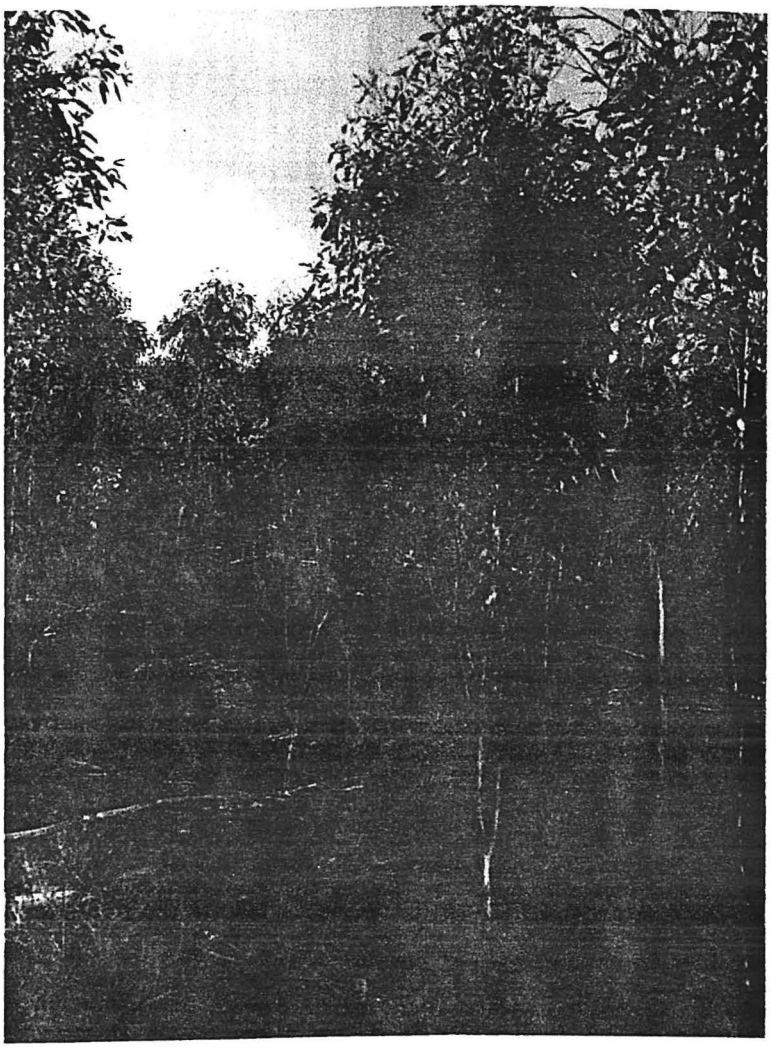
FIGURE 4 MAUBLARLING NATURE RESERVE 29835

Scale 1 : 10,000

1cm = 100m

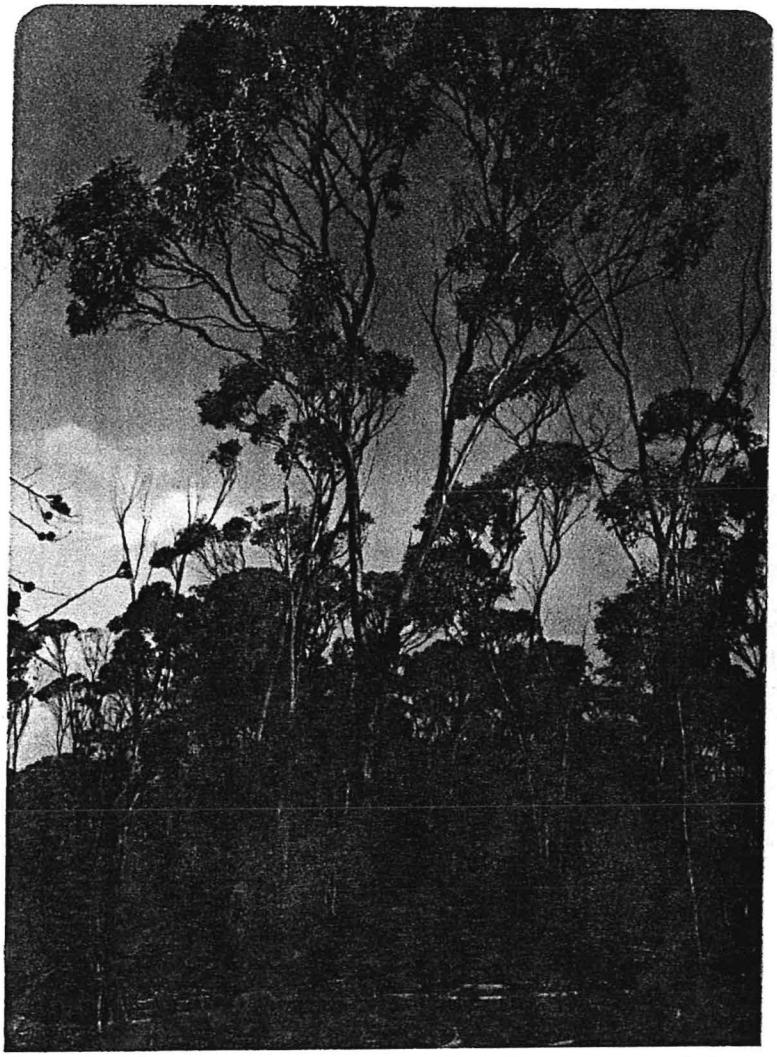


PHOTOGRAPH 1 Regenerating Blue Mallet (Eucalyptus gardneri)

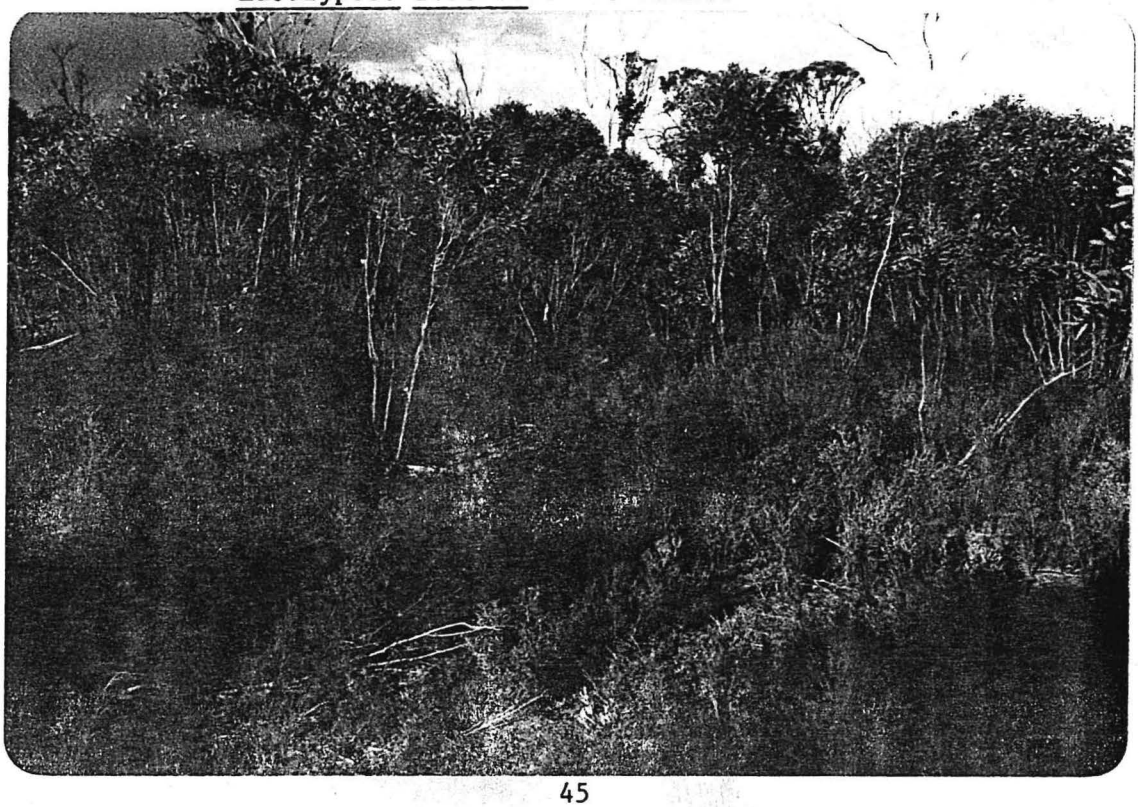


PHOTOGRAPH 2 White Mallet (Eucalyptus falcata) Woodland

PHOTOGRAPH 3. Blue Mallet (Eucalyptus gardneri) Woodland



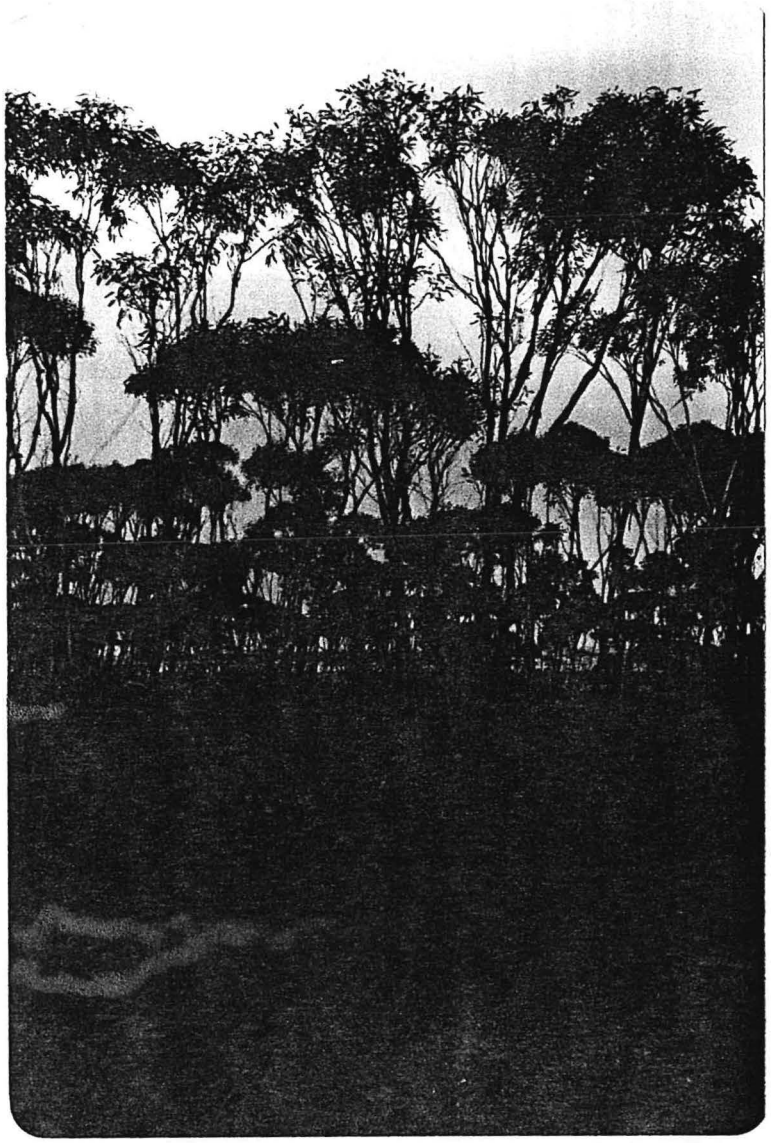
PHOTOGRAPH 4 Mallee Area - Type 1. Eucalyptus conglobata, Eucalyptus redunca Shrub Mallee



PHOTOGRAPH 5 Mallee Area - Type 3. Eucalyptus calycogona, Eucalyptus conglobata, Eucalyptus sargentii Shrub Mallee

PHOTOGRAPH 6 Mallee Area - Type 4. Eucalyptus calycogona, Eucalyptus conglobata and Eucalyptus sargentii Dense Shrub Mallee

PHOTOGRAPH 7 Mallee Area - Type 2. Eucalyptus flocktoniae mallee



PHOTOGRAPH 8 Eucalyptus species woodland

JITARNING NATURE RESERVE 29988

Location

Ca 19 km South West of Kulin townsite on the Northern boundary of Jitarning townsite and shown on lithographs 377/80 D, E4 and 1:50,000 sheet Koolberin and Harrismith 2432-11.

Background

Reserve 29988 was originally gazetted on September 26th, 1969 for the "Conservation of Fauna" and vested in the National Parks and Nature Conservation Authority. The original area was ca 17.9 ha and this was increased to the present area of 19.9637 ha on May 26th, 1972. The reserve was officially named Jitarning Nature Reserve on February 25th, 1983.

Physical Characteristics

Reserve 29988 is irregular in shape (see Fig. 5) with a total perimeter of ca 2.75 km and an area of 19.9637 ha. The highest point on the reserve is the north east corner, ca 355 m A.S.L., grading to ca 340 m A.S.L. toward the south east and south west corners.

Adjoining Land

North : Water Reserve and Private, cleared farmland. Fence adjacent to cleared farm land 6 line ring lock plus 2 plain wires (condition good).

South : Sealed road. Williams-Kondinin Road. And boundary to Jitarning townsite, uncleared in places.

East : Private farm land, cleared. Fence 6 line ring lock plus 1 plain wire and 1 barb wire (condition good).

West : Gravel road, Jitarning Road West.

Human Usage and Damage or Degradation

(1) Past dumping of rubbish in the Wandoo woodland.

(2) An area in the north west corner of the reserve has previously been cleared and is now regenerating.

Weeds

No weeds were recorded.

Fire History

No evidence of fire within the past 20 years.

Firebreaks

Perimeter firebreaks on adjacent cleared farm land, none on the reserve. The Williams-Kondinin Road and Jitarning Road West form firebreaks to the south and west.

Vegetation

5 vegetation associations are present on the reserve. Details of these associations and plant species recorded can be found in Appendix 5.

(1) York Gum Woodland : Eucalyptus loxophleba Low Forest A with scattered shrubs and emergent Eucalyptus salmonophloia.

(2) Salmon Gum Woodland : Eucalyptus salmonophloia Forest with scattered Eucalyptus wandoo. Scattered shrubs are also present.

(3) Wandoo Woodland : Eucalyptus wandoo Low Forest A over Open Dwarf Scrub C.

(4) Mallee Area : Eucalyptus calycogona, Eucalyptus redunca Dense Tree Mallee. No understorey but scattered shrubs are present.

(5) Tamma Heath : Allocasuarina campestris Dense Heath A with scattered Eucalyptus wandoo.

Plant Species

36 native plant species were recorded for the reserve, 25 of which are listed by Rye *et al.* (1980) as exploited by the wildflower trade.

Comments and Recommendations

Reserve 29988 has a fairly diverse vegetation. It also contains nest hollows and is of value as a resting site for transient birds. The value of the reserve would be enhanced by the addition of adjacent uncleared land.

APPENDIX 5

(1) York Gum Woodland

Eucalyptus loxophleba trees, 8-15 m, 30-70% canopy cover. Scattered shrubs and Eucalyptus salmonophloia emergent to 15 m are also present. Species recorded were:

Acacia acuminata, Melaleuca acuminata, Hakea scoparia.

Soil dark brown clay loam.

(2) Salmon Gum Woodland

Eucalyptus salmonophloia trees, 20-25 m, 30-70% canopy cover with scattered Eucalyptus wandoo to 15 m. Scattered shrubs are also present. Species recorded were:

Acacia erinacea, Eucalyptus falcata, Dianella revoluta, Gastrolobium spinosum, Gastrolobium trilobum, Grevillea patentiloba, Melaleuca spicigera, Olearia revoluta, Olearia muelleri, Templetonia sulcata.

Soil light brown clay loam.

(3) Wandoo Woodland

Eucalyptus wandoo trees, 8-15 m, 30-70% canopy cover with an understorey of mixed shrubs 0.5-1.0 m, 2-10% canopy cover. Species recorded were :

Acacia lasiocarpa, Borya nitida, Dianella revoluta, Gastrolobium trilobum, Hakea multilineata, Hakea lissocarpha, Loxocarya ? pubescens, Melaleuca uncinata, Olearia revoluta, Oxylobium parviflorum, Podolepis capillaris, Santalum acuminatum.

Soil light brown sandy loam over clay.

(4) Mallee Area

Eucalyptus calycogona, Eucalyptus redunca tree mallee, 5-8 m, 70-100% canopy cover. No understorey but scattered shrubs are present. Species recorded were Eucalyptus salmonophloia, Gastrolobium trilobum, Melaleuca acuminata, Oxylobium parviflorum.

(5) Tamma Heath

Allocasuarina campestris shrubs, 1.5-2.0 m, 70-100% canopy cover. Scattered Eucalyptus wandoo emergent to 8 m. Other species recorded were : Borya nitida, Isopogon divergens, Hakea scoparia, Xanthorrhoea reflexa. Soil dark brown sandy loam, 50% laterite.

Species recorded in the north east corner where the vegetation is regenerating:

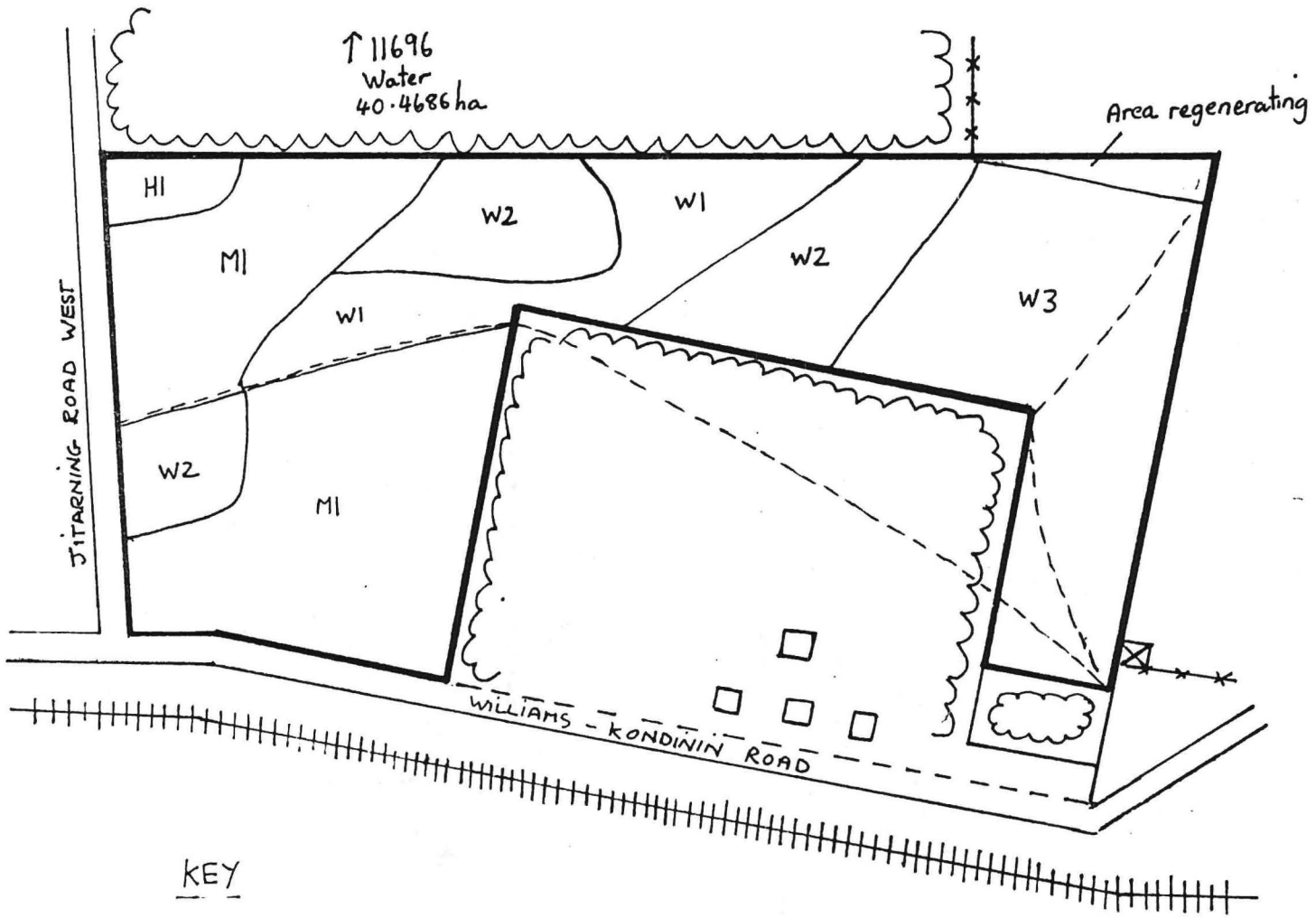
Acacia microbotrya, Astroloma compactum, Astroloma serratifolium, Allocasuarina campestris, Bossiaea ? peduncularis, Gastrolobium trilobum, Hakea multilineata, Hakea subsulcata, Leptospermum erubescens, Melaleuca acuminata, Melaleuca uncinata, Oxylobium parviflorum.

Vegetation of Jitarning Nature Reserve 29988

Key to Vegetation Types

		Muir (1977) Vegetation Code
W1	York Gum (*Eucalyptus loxophleba*) woodland	LAc
W2	Salmon Gum (*Eucalyptus salmonophloia*) woodland	Mc
W3	Wandoo (*Eucalyptus wandoo*) woodland	LAc.SCr
M1	Mallee Area	KTd
H1	Tamma (*Allocasuarina campestris*) heath	SAd

FIGURE 5 JITARNING TOWNSITE NATURE RESERVE 29988



N

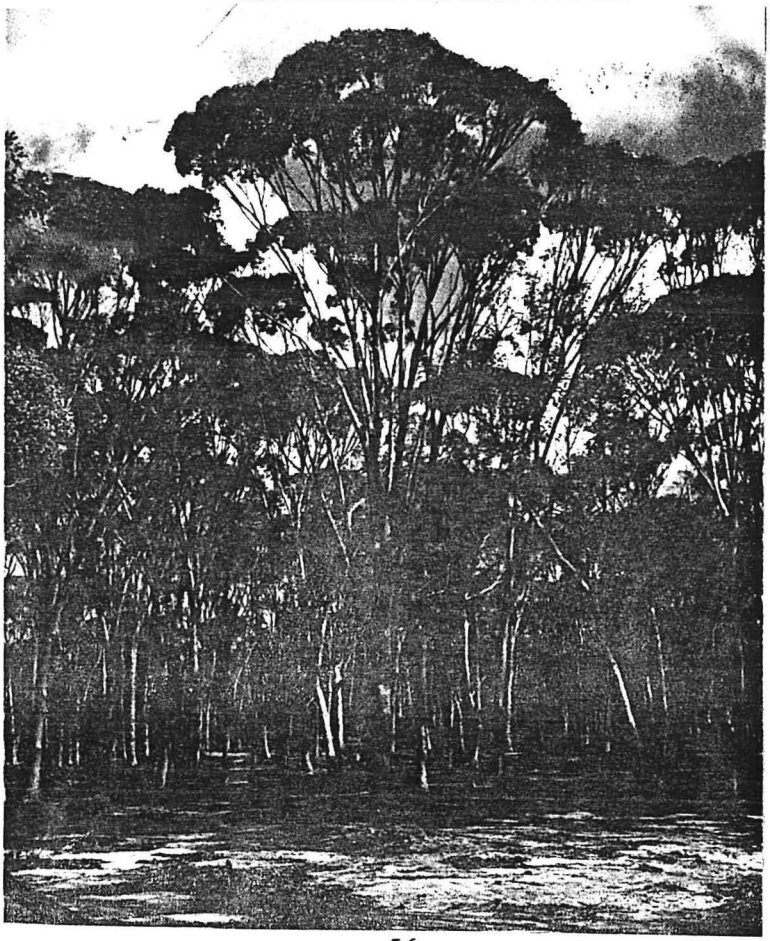
Scale 1:5,000
1cm = 50m

KEY

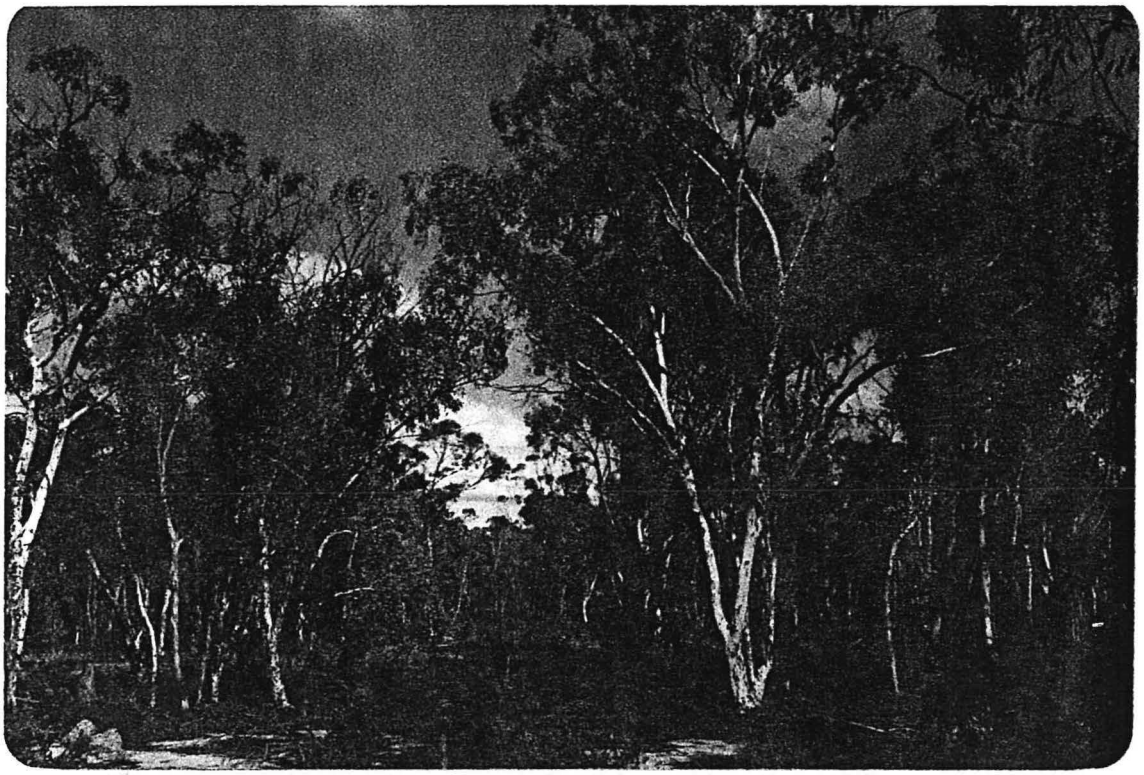
- RESERVE BOUNDARY
- ROAD
- FENCE
- GATE ON ADJOINING LAND
- TRACK
- W VEGETATION TYPE
- RAILWAY
- ADJOINING BUSH
- HOUSES

PHOTOGRAPH 1 York Gum (Eucalyptus loxophleba) Woodland

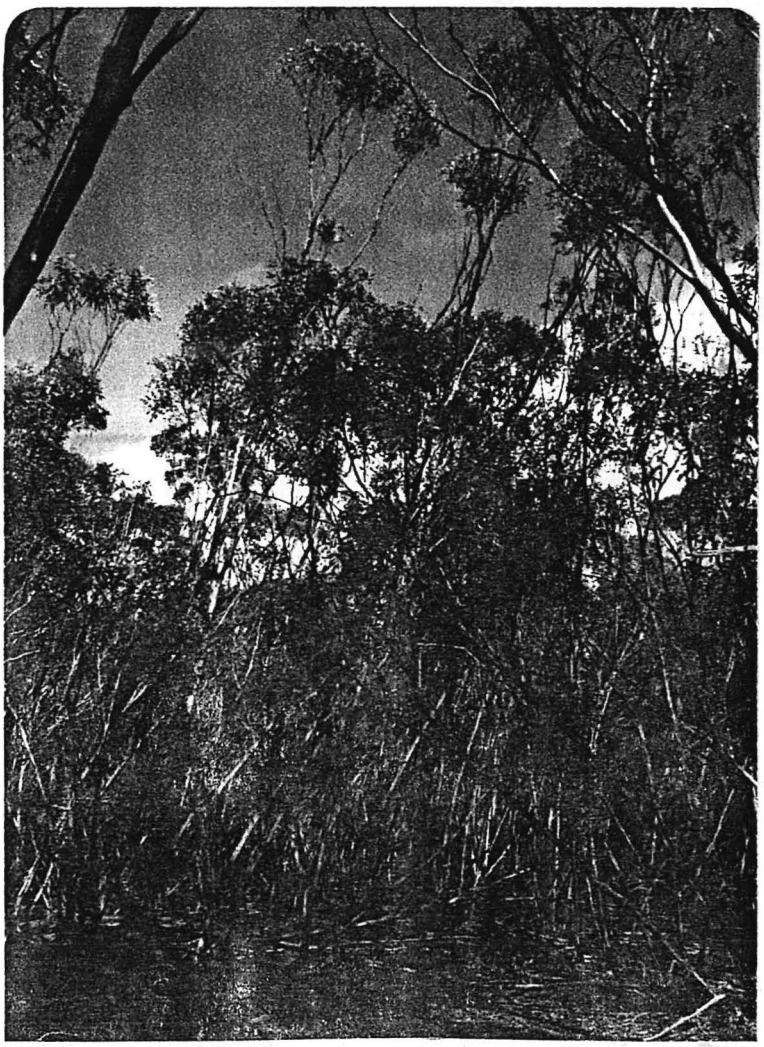
PHOTOGRAPH 2 Salmon Gum (Eucalyptus salmonophloia) Woodland



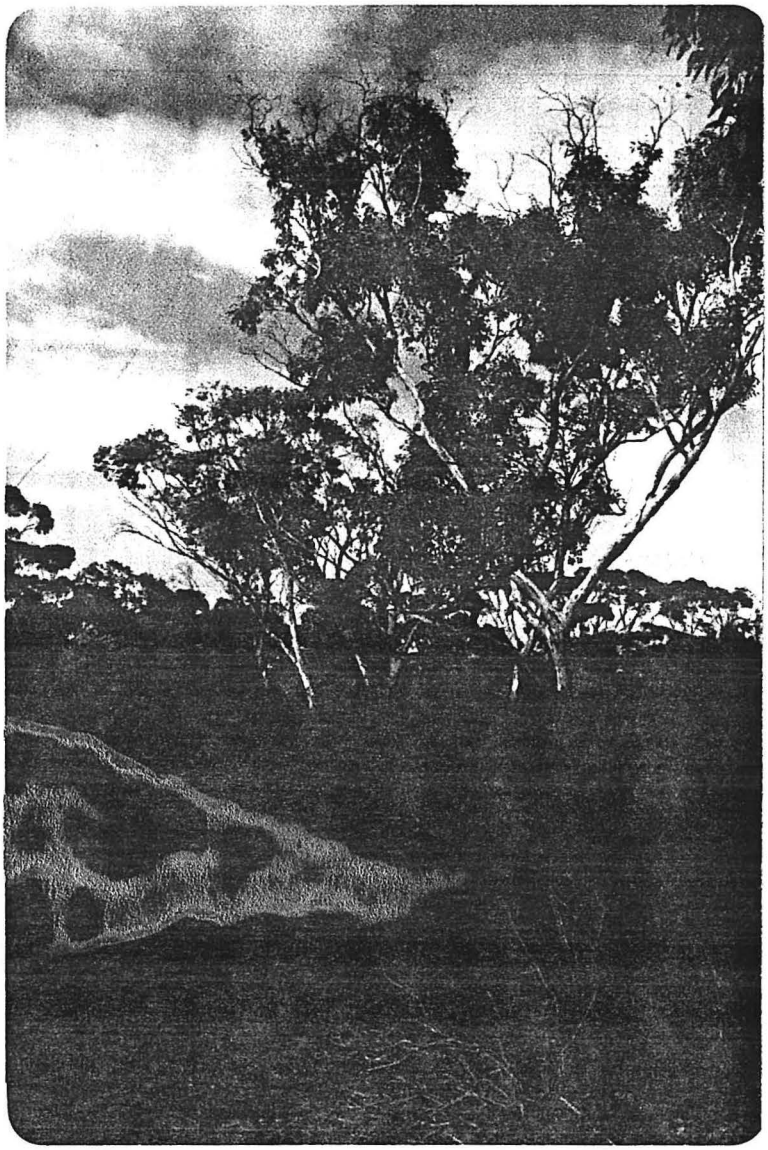
PHOTOGRAPH 3 Wandoo (Eucalyptus wandoo) Woodland



PHOTOGRAPH 4 Mallee Area



PHOTOGRAPH 5 Tamma (Allocasuarina campestris) Thicket



ROSE ROAD NATURE RESERVE 34136

Location

Ca 21.5 km South East of Kulin townsite and shown on lithographs 376/80 A, B4 and 1:50,000 sheet Maublarling 2532-11.

Background

Reserve 34136 was orginally gazetted on August 6th, 1976 for the "Conservation of Flora and Fauna" and vested in the National Parks and Nature Conservation Authority. The reserve was officially named Rose Road Nature Reserve on May 20th, 1983.

Physical Characteristics

The reserve is rectangular in shape with a total perimeter of ca 2.85 km and area of 49.6540 ha. The majority of the reserve is 310 m A.S.L. grading to ca 305 m A.S.L. near the south east corner.

Adjoining Land

North : Private farmland, cleared. Fence, rabbit netting plus two barb wires on wooden posts (condition fair).

South : Gravel road, Rose Road.

East : Private farmland, cleared and uncleared (see Fig. 6). Fence, 7 line ring lock on steel posts (condition good).

West : Gravel road, Rose Road.

Human Usage and Damage or Degradation

Lack of undergrowth in places may indicate past grazing of stock.

Weeds

Infestation of grasses in Jam and York Gum woodlands. Aira cupaniana was recorded.

Fire History

No evidence of fire within the last 20 years.

Firebreaks

Perimeter firebreaks on adjacent cleared farmland, none on the reserve. Rose Road forms a firebreak to the south and west.

Vegetation

8 vegetation associations are present on the reserve. For details of these associations and plant species recorded see Appendix 6.

(1) York Gum woodland : Eucalyptus loxophleba Low Forest A with scattered Acacia acuminata trees.

(2) Jam woodland : Acacia acuminata Low Forest B with scattered Eucalyptus loxophleba emergent to 7 m.

(3) Gimlet woodland : Eucalyptus salubris Low Forest A with scattered shrubs.

(4) Salmon Gum woodland : Eucalyptus salmonophloia Open Woodland over Eucalyptus celastroides Open Shrub Mallee over Dwarf Scrub C.

(5) Mallee Area - Type 1 : Eucalyptus celastroides, E. eremophila, E ? anceps, E. spathulata Very Open Tree Mallee over Melaleuca Thicket.

(6) Mallee Area - Type 2 : Eucalyptus celastroides, E. eremophila, E. spathulata, E. flocktoniae Dense Tree Mallee with scattered shrubs.

(7) Mallee Area - Type 3 : Eucalyptus loxophleba ssp gratiae Tree Mallee over Spartochloa scirpoides Tall Grass.

(8) Mallee Area - Type 4 : Eucalyptus celastroides, E. eremophila, E. flocktoniae, E. redunca Tree Mallee over Heath B.

Plant Species

34 native plant species were recorded for the reserve, 25 of which are listed by Rye *et al.* (1980) as exploited by the wildflower trade.

Comments and Recommendations

Reserve 34136 has a diverse vegetation providing numerous habitats for fauna. The reserve is isolated and supports a large number of resident and transient bird species. Nest hollows are also present.

APPENDIX 6

(1) York Gum Woodland

Eucalyptus loxophleba trees and tree mallee, 5-7 m, 30-70% canopy cover with scattered Acacia acuminata trees. * Aira cupaniana, Waitzia ? acuminata were also recorded.

Soil reddish brown sandy clay loam.

(2) Jam Woodland

Acacia acuminata trees, 2-5 m, 30-70% canopy cover with scattered Eucalyptus loxophleba emergent to 7 m. * Aira cupaniana and Waitzia ? acuminata were also recorded. In places Eucalyptus loxophleba reaches a density of 2-10% canopy cover.

Soil orange brown sandy clay loam.

In the eastern section of this association Acacia acuminata becomes less dense, 10-30% canopy cover.

(3) Gimlet Woodland

Eucalyptus salubris trees, 6-8 m, 30-70% canopy cover, scattered shrubs of Melaleuca acuminata and Melaleuca adnata are also present.

Soil grey sandy clay.

(4) Salmon Gum woodland

Eucalyptus salmonophloia trees, 15-20 m, 2-10% canopy cover. Understorey is Eucalyptus celastroides shrub mallee, 2-5 m, 10-30% canopy cover over mixed shrubs, 0.5-1 m, 10-30% canopy cover. Other species recorded were : Acacia erinacea, Grevillea patentiloba, Melaleuca acuminata, Melaleuca adnata, Olearia muelleri, Santalum acuminatum, Templetonia sulcata.

Soil light brown sandy clay loam.

(5) Mallee Area - Type 1

Eucalyptus celastroides, Eucalyptus eremophila and Eucalyptus ? anceps, Eucalyptus spathulata ssp grandiflora tree mallee, 4-5 m, 2-10% canopy cover, 10-30% in places. Understorey is Melaleuca adnata, Melaleuca lateriflora, Melaleuca uncinata shrubs 1.5-2.5 m, 30-70% canopy cover. Other species recorded were :

Allocasuarina acutivalvis, Allocasuarina campestris, Borya nitida, Gastrolobium spinosum, Grevillea ? paniculata, Leptospermum ? erubescens, Loxocarya ? pubescens, Melaleuca laxiflora, Melaleuca spicigera, Melaleuca ? scabra, Oxylobium parviflorum, Santalum acuminatum, Spartochloa scirpoidea.

Soil light brown sandy day loam.

(6) Mallee Area - Type 2

Eucalyptus celastroides, Eucalyptus eremophila, Eucalyptus spathulata, Eucalyptus flocktoniae, tree and shrub mallee, 3-5 m, 70-100% canopy cover. Scattered shrubs are present. Species recorded were: Olearia muelleri, Melaleuca adnata.

Soil light brown sandy clay loam.

(7) Mallee Area - Type 3

Eucalyptus loxophleba ssp gratiae tree and shrub mallee, 4-5 m, 30-70% canopy cover with an understorey of Spartochloa scirpoides grass, 0.5-1.0 m, 30-70% canopy cover. Other species recorded were:

Acacia acuminata, Allocasuarina campestris, Grevillea ? paniculata, loxocarya ? pubescens, Santalum acuminatum, Waitzia ? acuminata.

Soil light brown sandy clay loam.

Towards the southern boundary the Allocasuarina campestris shrubs, 2-3 m, increase in density to 70-100% canopy cover and the Eucalyptus loxophleba

mallee emerges to 6 m, 10-30% canopy cover with the Spartochloa scirpoides grass becoming less dense (10-30%). Soil orange brown sandy loam, Melaleuca lateriflora, Melaleuca ? scabra and Melaleuca uncinata were also recorded here.

(8) Mallee Area - Type 4

Eucalyptus celastroides, Eucalyptus eremophila, Eucalyptus flocktoniae and Eucalptus redunca var melanophloia shrub and tree mallee, 4-5 m, 30-70% canopy cover (patchy). Understorey is mixed shrubs 1.0-1.5 m, 30-70% canopy cover. Species recorded were:

Gastrolobium spinosum, Melaleuca adnata, M. acuminata, M. lateriflora, M. uncinata, Hakea lissocarpha, Hakea scoparia, Olearia muelleri, Templetonia sulcata.

Soil light brown sandy clay loam.

* Introduced species.

Vegetation of Rose Road Nature Reserve 34136

Key to Vegetation Types

		Muir (1977) Vegetation Code
W1	York Gum (*Eucalyptus loxophleba*) woodland	LAc
W2	Jam (*Acacia acuminata*) woodland	LBc
W3	Gimlet (*Eucalyptus salubins*) woodland	LAc
W4	Salmon Gum (*Eucalyptus salmonophloia*) woodland	Mr.KSi.SCi
M1	Mallee Area - Type 1	KTr.SAc
M2	Mallee Area - Type 2	KTd
M3	Mallee Area - Type 3	KTc.GTc
M4	Mallee Area - Type 4	KTc.SBc

FIGURE 6 ROSE ROAD NATURE RESERVE 34136

Scale 1: 10,000

1cm = 100m

RESERVE BOUNDARY

ROAD

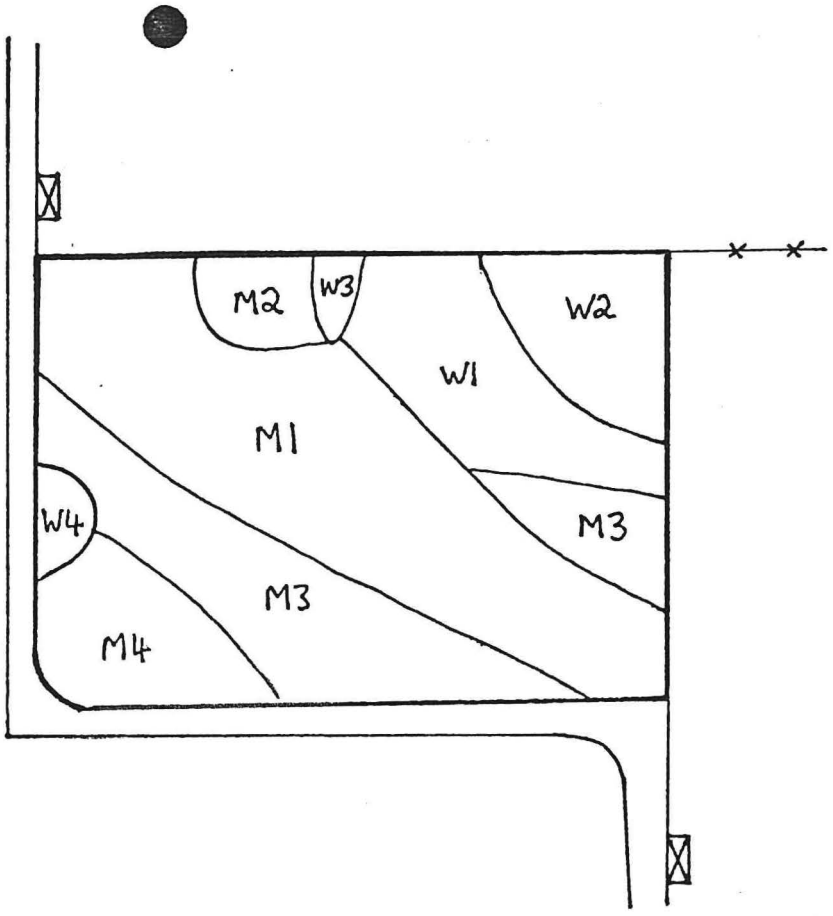
FENCE

GATE ON ADJOINING LAND

DAM

W1 VEGETATION TYPE

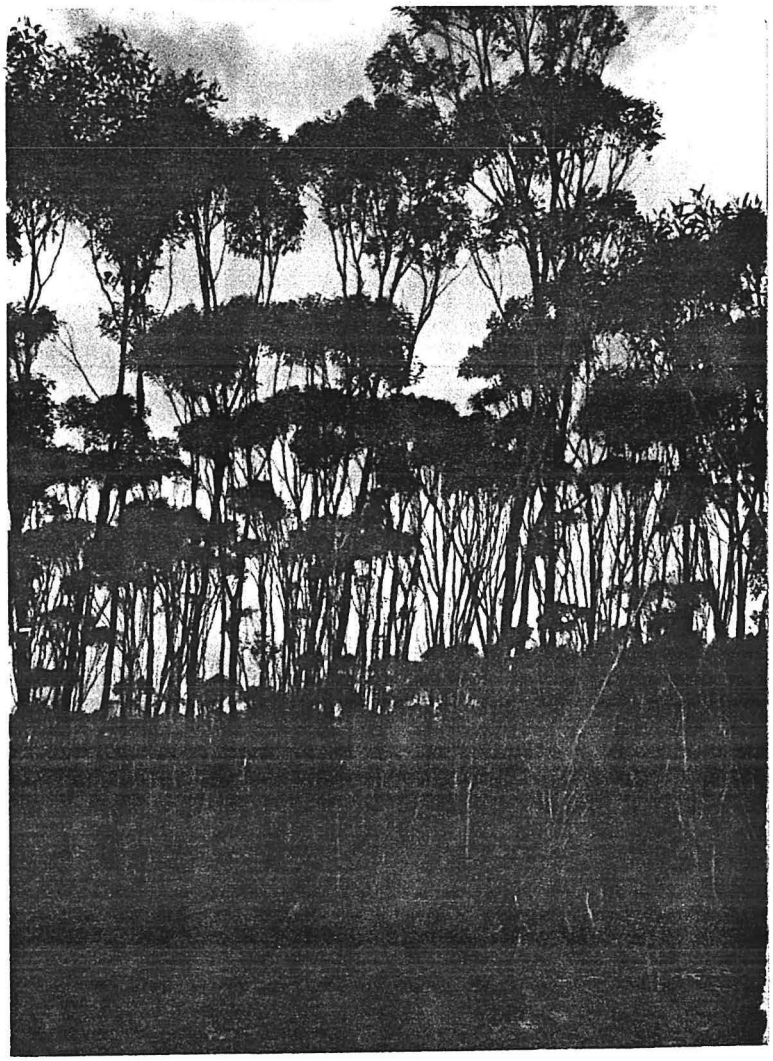
N



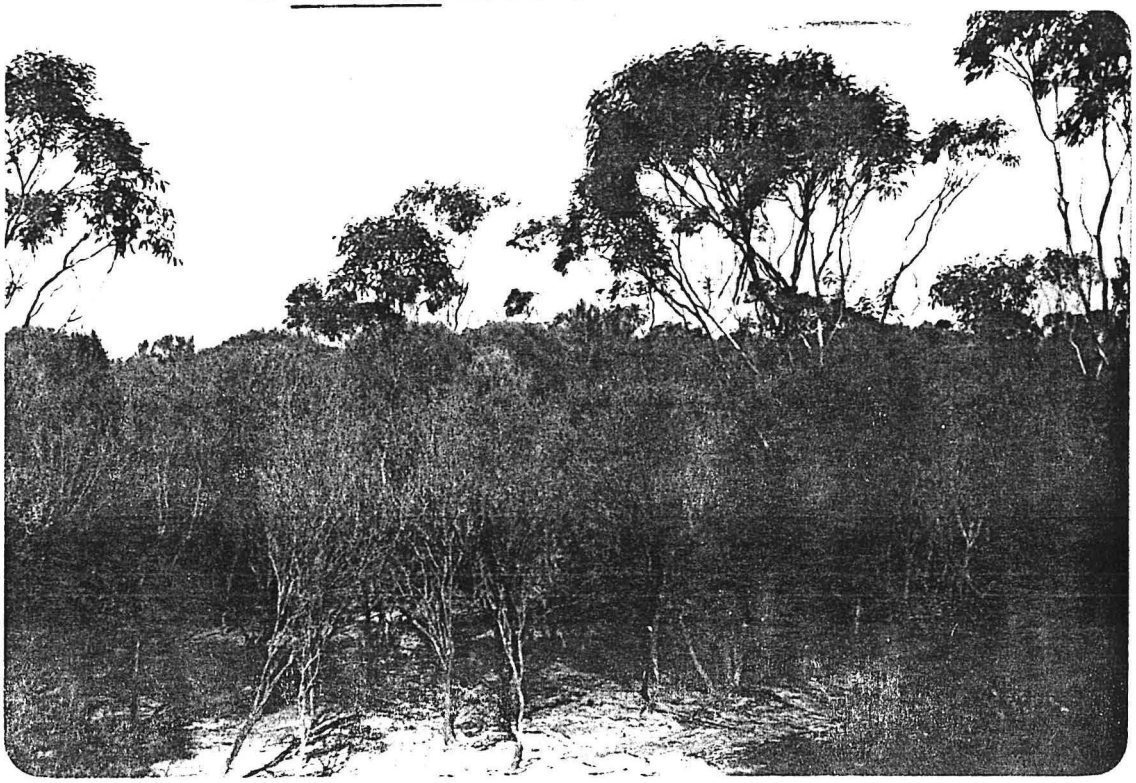
PHOTOGRAPH 1 York Gum (*Eucalyptus loxophleba*) woodland

PHOTOGRAPH 2 Jam (*Acacia acuminata*) woodland with emergent *Eucalyptus loxophleba*

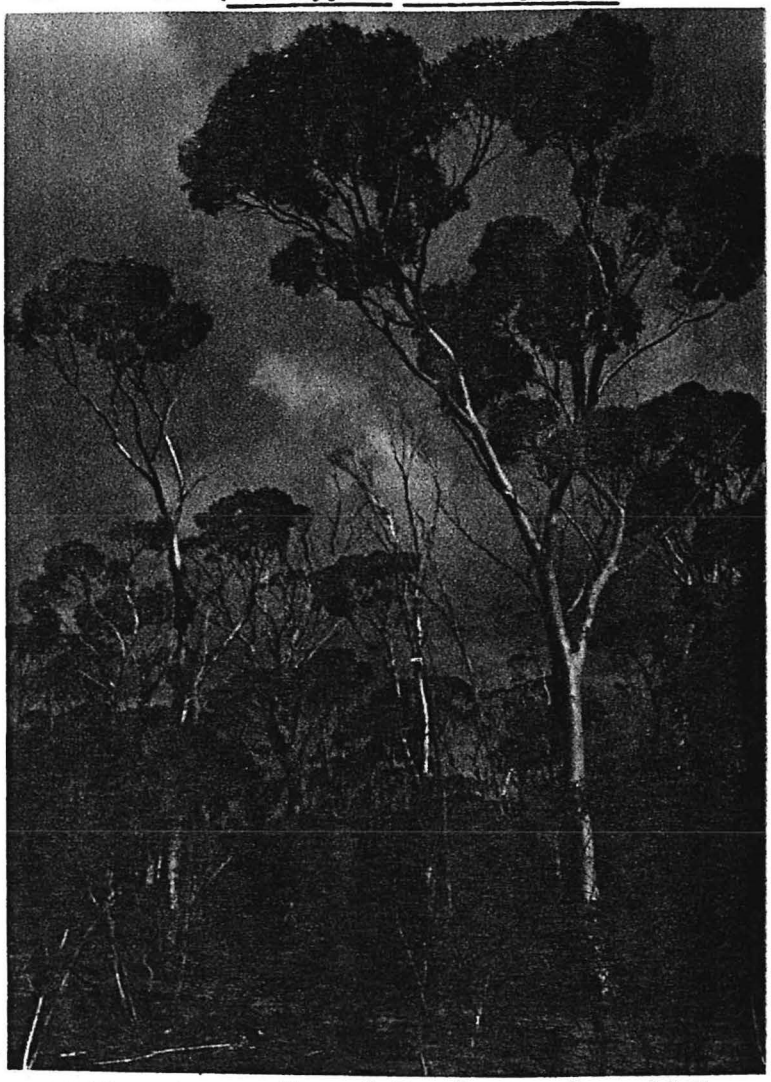
PHOTOGRAPH 3 Gimlet (Eucalyptus salubris) woodland



PHOTOGRAPH 4 Mallee Area Type 1 - Mallee with an understorey of Melaleuca thicket.

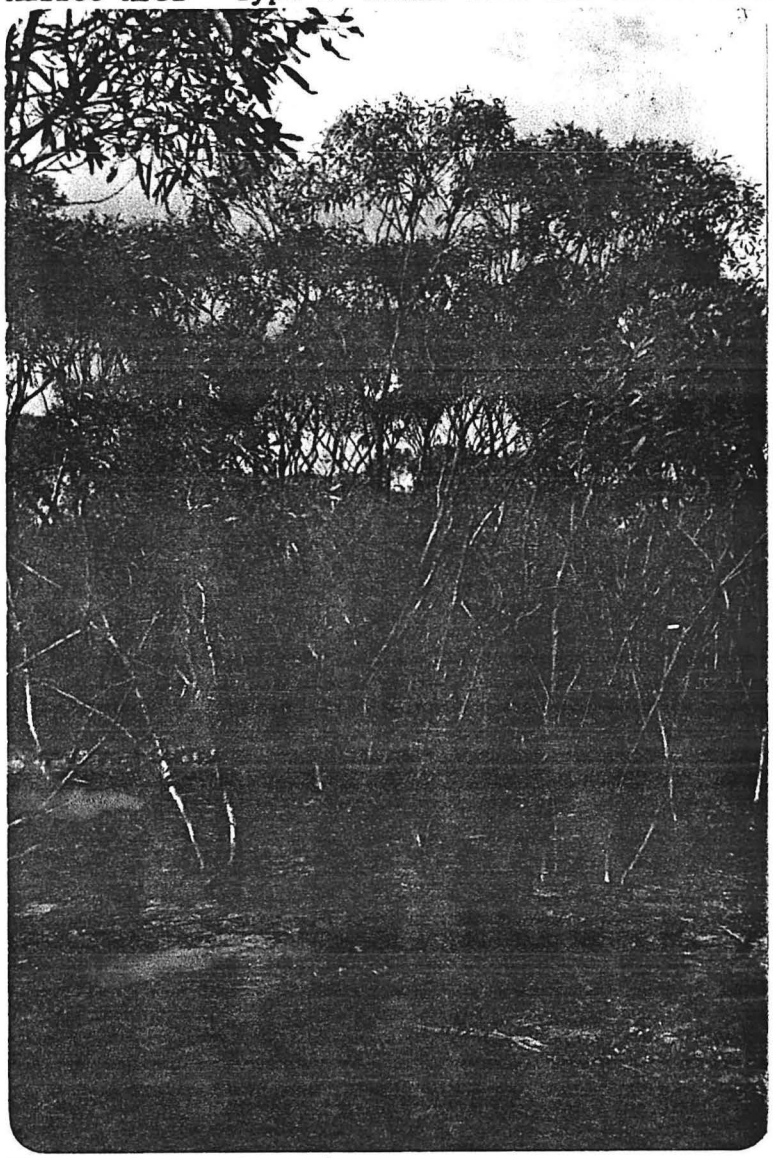


PHOTOGRAPH 5 Salmon Gum (Eucalyptus salmonophloia) woodland



PHOTOGRAPH 6 Mallee Area - Type 3 Eucalyptus loxophleba mallee with and understorey of Spartochloria scirpoides grass.

PHOTOGRAPH 7 Mallee Area - Type 2 Dense tree and shrub mallee



PHOTOGRAPH 8 Mallee Area - Type 4

PHOTOGRAPH 9 Eastern section of the Jam (Acacia acuminata) woodland association. Here the Jam is less dense (10-30% canopy cover).

SOUTH KULIN NATURE RESERVE 34833

Location

Ca 13 km South South West of Kulin townsite and shown on lithographs 377/80 and 1:50,000 sheet Koolberin 2532-111.

Background

Reserve 34833 was originally gazetted on August 26th, 1977 for the "Conservation of Flora and Fauna" and vested in the National Parks and Nature Conservation Authority. The reserve was officially named South Kulin Nature Reserve on May 20th, 1983.

Physical Characteristics

Reserve 34833 is triangular in shape with a total perimeter of ca 1.95 km and an area of 12.9068 ha. The majority of the reserve is 330 m A.S.L. grading to ca 325 m A.S.L. in the south east corner.

Adjoining Land

North : Sealed road. Williams-Kondinin Road.

South : Private farmland, cleared. Fence, rabbit netting plus 2 barb wires on wooden posts (condition fair).

East : Private farmland, cleared. A small strip of uncleared land adjacent to the fence. Fence, 5 line ring lock plus one plain wire on steel posts (condition good).

Human Usage and Damage Degradation

(1) Gravel pit in the western corner. Blue metal has also been dumped here.

(2) Parking bay next to the gravel pit.

Weeds

No weeds were recorded.

Fire History

No evidence of fire within the last 20 years.

Firebreaks

Perimeter firebreaks on adjacent cleared farmland, none on the reserve. The Williams-Kondinin Road forms a firebreak to the north.

Vegetation

Five vegetation associations are present on the reserve. For details of these associations and plant species recorded see Appendix 7.

(1) Blue Mallet woodland : *Eucalyptus gardneri* Low Forest A over Dwarf Shrub C.

(2) Mallee Area - Type 1 : *Eucalyptus incrassata*, *Eucalyptus reduncа* Open Tree Mallee over Shrub over Dwarf Shrub C.

(3) Mallee Area - Type 2 : *Eucalyptus eremophila*, *Eucalyptus loxophleba* Shrub Mallee over *Melaleuca uncinata* Heath A.

(4) Mallee Area - Type 3 : *Eucalyptus albida* Very Open Shrub Mallee over Dense Low Heath C.

(5) Tamma thicket : *Allocasuarina campestris* Dense Thicket with emergent *Eucalyptus* sp.

Plant Species

34 native plant species were recorded for the reserve, 24 of which are listed by Rye *et al.* (1980) as exploited by the wildflower trade.

Comments and Recommendations

Reserve 34833 although small in size is quite diverse in plant associations and habitat types. It is of value as a resting site for transient birds.

The gravel pit in the western corner of the reserve should be closed and the area rehabilitated.

APPENDIX 7

(1) Blue Mallet Woodland

Eucalyptus gardneri trees, 8-10 m, 30-70% canopy cover with an understorey of mixed shrubs, 0.5-1 m, 10-30% canopy cover. Species recorded were: Grevillea paniculata, Hakea scoparia, Hakea subsulcata, Lepidosperma drummondii, Leptospermum ? erubescens, Phebalium microphyllum, Phebalium tuberculosum.

Soil brown sandy clay loam ca 70% laterite.

(2) Mallee Area - Type 1

Eucalyptus incrassata, Eucalyptus redunca tree mallee, 6-10 m, 10-30% canopy cover. Understorey is mixed shrubs, 2-3 m, 10-30% canopy cover and mixed shrubs, 0.5-1.0 m, 10-30% canopy cover. Species recorded were: Allocasuarina acutivalvis, Allocasuarina campestris, Acacia ? fragilis, Astroloma serratifolium, Astroloma sp (prostrate), Eucalyptus gardneri, Eucalyptus wandoo, Gastrolobium spinosum, Grevillea ? hookeriana, Hakea falcata, Hakea multilineata, Hakea lissocarpha, Hakea scoparia, Hypocalymma ? angustifolium, Lepidosperma drummondii, Melaleuca spicigera, Melaleuca uncinata, Melaleuca ? seriata, Phebalium tuberculosum, Persoonia quinquenervis, Santalum acuminatum.

Soil yellow brown sandy loam, ca 10% laterite.

(3) Mallee Area - Type 2

Eucalyptus eremophila, Eucalyptus loxophleba tree and shrub mallee, 3-5 m, 30-70% canopy cover with an understorey of Melaleuca uncinata shrubs, 1.5 m, 30-70% canopy cover over mixed shrubs, 0.5-1.0 m, 30-70% canopy cover. Species recorded were:

Acacia andrewsii, Allocasuarina campestris, Dianella revoluta, Hakea falcata, Loxocarya sp, Melaleuca platycalyx, Phlebalium tuberculosum.

Soil orange brown sandy clay loam.

(4) Mallee Area - Type 3

Eucalyptus albida shrub Mallee, 2-3 m, 2-10% canopy cover (patchy distribution) with an understorey of mixed shrubs 0.5-1 m, 70-100% canopy cover. Species recorded were:

Acacia ? fragilis, Dryandra cirsioides, Allocasuarina humilis, Beaufortia micrantha, Dryandra nivea, Gastrolobium spinosum, Hakea falcata, Isopogon teretifolius, Melaleuca pungens, Melaleuca ? seriata, Petrophile brevifolia, Santalum acuminatum, Synaphaea ? petiolaris, Xanthorrhoea reflexa.

Soil brown sandy loam ca 30% laterite.

(5) Tamma Thicket

Allocasuarina campestris shrubs, 2-3 m, 70-100% canopy cover, with emergent Eucalyptus sp tree mallee to 8 m, canopy cover < 2%. Other species recorded were:

Allocasuarina acutivalvis, Hakea multilineata, Santalum acuminatum.

Soil sandy clay loam, ca 60% laterite.

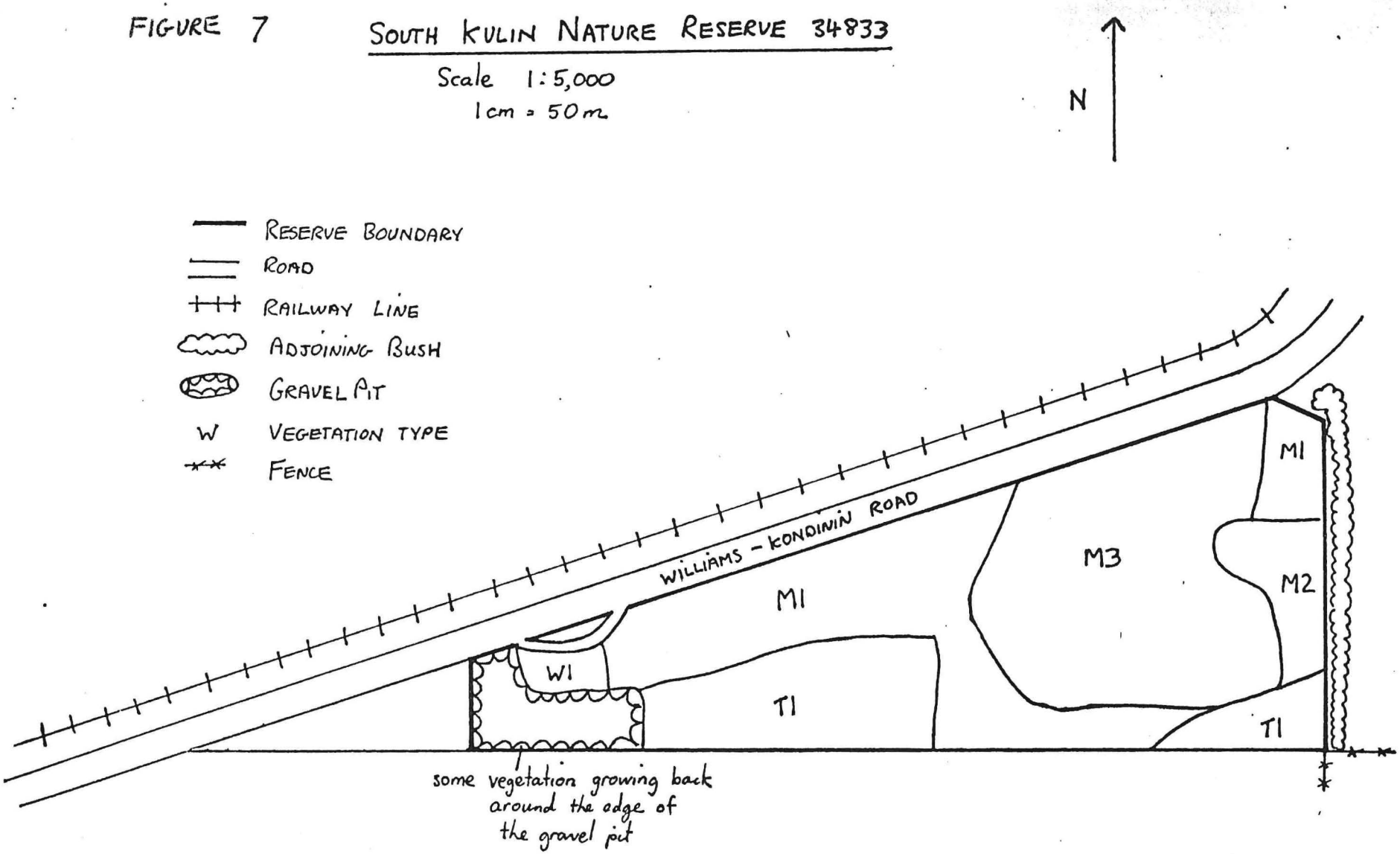
Vegetation of South Kulin Nature Reserve 34833

Key to Vegetation Types

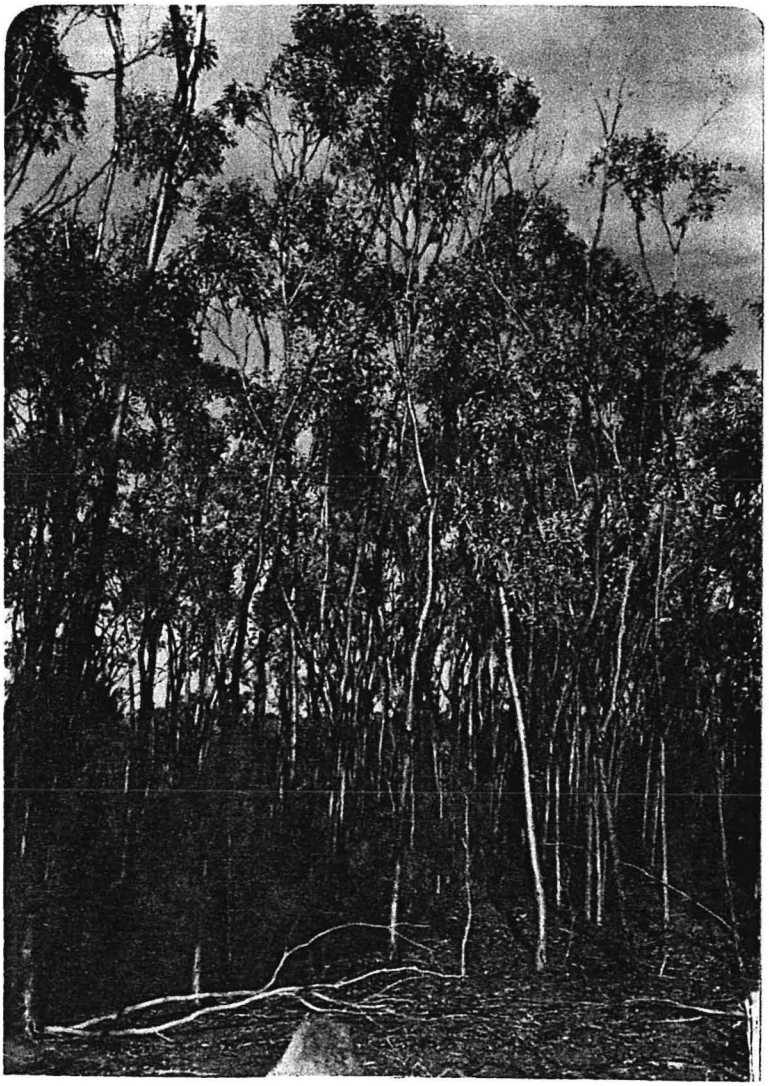
		Muir (1977) Vegetation Code
W1	Blue Mallet (*Eucalyptus gardneri*) woodland	LAc.SCi
M1	Mallee Area - Type 1	KTi.Si.SCi
M2	Mallee Area - Type 2	KT/KSc.SBc
M3	Mallee Area - Type 3	KSr.SCd
T1	Tamma (*Allocasuarina campestris*) Thicket	Sd

FIGURE 7 SOUTH KULIN NATURE RESERVE 34833

Scale 1:5,000
1cm = 50m



PHOTOGRAPH 1 Blue Mallet (Eucalyptus gardneri) Woodland



PHOTOGRAPH 2 Eucalyptus incrassata, Eucalyptus redunca mallee

PHOTOGRAPH 3 Edge of Mallee Area - Type 2. Eucalyptus eremophila, and Eucalyptus loxophleba mallee. The density of Melaleuca uncinata shrubs increases further into this association.

PHOTOGRAPH 4 Heath with Eucalyptus albida in the background. (Mallee Area - Type 3)

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