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**SOME NATURE RESERVES
OF THE
WESTERN AUSTRALIAN
WHEATBELT**

**PART 15
NUNGARIN SHIRE**

B.G. MUIR

1979

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PART 15 : NUNGARIN SHIRE

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Western Australian Museum

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SOME NATURE RESERVES OF THE WESTERN
AUSTRALIAN WHEATBELT

Part 15 : Nungarin Shire

B.G. MUIR

INTRODUCTION

Nungarin Shire lies in the eastern-central wheatbelt and has an area of 1145 square km. There are 4 Nature Reserves within the Shire, totalling ca 109 sq. km or ca 9.5% of the area of the Shire. This represents a very large proportion of the area of the Shire, compared to most other Shires, but is a falsely inflated figure because of Reserve 24789 which occupies nearly 101 square km of the total area of Reserves, and is about 90% bare salt flat. The actual reserved area of vegetation is thus about 8 sq. km or only about 0.7% of the area of the Shire. This latter figure means that in fact reserved bushland is more poorly represented in Nungarin Shire than it is in most other Shires.

None of the Reserves are vested or have any particular protection.

This survey took place in March 1979 and consisted of brief examinations of all the Reserves: 11522, 16932, 17798 and 24789. A report on each Reserve is appended.

METHODOLOGY

Physical characteristics of the reserves were obtained directly from the most recently available lithographs as published by the Department of Lands and Survey, and interpreted from observations made on the reserve.

Reserves were examined by vehicle where tracks were available, and on foot. Local knowledge and air-photographs were consulted to find areas of particular interest. Only a very short time could be spent on

each reserve, the smaller ones being examined in 1 or 2 hours, the larger ones in a full day.

Vegetation was classified using Muir's (1977) system (Table 1), which was designed specifically for describing wheatbelt vegetation. In the presentation of the abbreviated descriptions (in the section titled "Vegetation") capital letters in descriptive terms refer to specific classes of life form, height and canopy cover as used in the classification.

As the survey period on any reserve was very brief only the commonest plant species could be noted. Any species in which less than 3 individual plants were encountered within a space of 10-15 minutes examination of the vegetation were considered uncommon and are not listed. As much of the survey work was carried out rapidly and in unfavourable seasons, many plants were not flowering and so identifications were made from foliage alone. Only if an important dominant plant was not recognised were specimens bought back to the laboratory for examination.

Soil was examined very briefly and classified according to Northcote's (1971) texture groups and Munsell (1954) colour terms.

Fire history was determined from observation of the area, appearance of air-photographs and information from nearby farmers.

Fauna were not specifically sought, but some species (usually the most obvious) were encountered while examining vegetation. The lists provided are only a small fraction of the species present on nearly every reserve examined. Scats, footprints, burrows, nests and other indirect evidence is used only where identification is certain. Observations by farmers are used if considered reliable.

Opinion and recommendations expressed in these reports are entirely those of the author and are based on extensive experience in vegetation mapping and description in the wheatbelt, and association with faunal and habitat studies conducted by suitably qualified researchers.

TABLE 1: VEGETATION CLASSIFICATION AS USED IN WHEATBELT SURVEY

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

RESULTS AND DISCUSSION

The features of each Reserve can be summarised as follows:

Reserve 11522 - ca 227 ha : Salmon Gum-Gimlet woodland, Eucalyptus transcontinentalis mallee and 2 types of shrubland; in good condition and supports a varied vegetation.

Reserve 16932 - ca 516 ha : Acacia scrub with areas of woodland, heath and lithic complex; diverse flora with several interesting plant species including an undescribed eucalypt; valuable wind break.

Reserve 17798 - ca 65 ha : Gimlet woodland and Acacia scrub; excellent condition and supports diverse flora; isolated.

Reserve 24789 - ca 10071 ha of which ca 80-90% is bare salt flat; marginal woodland and shrublands; important for soil conservation, nest sites and wind break; mining operations in some parts; silt movement within the lake may be a problem; recommend inclusion of Reserve 21759.

Of the 4 reserves examined all are in good condition and valuable conservation reserves for fauna. Lake Champion and Lake Brown make up most of Reserve 24789, inflating the reserve area figure, but providing only a small proportion of actual bushland.

All the Reserves are worth retaining, and should be vested in the Western Australian Wildlife Authority.

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ACKNOWLEDGEMENTS

Mrs J.H. Muir assisted in the field. The Western Australian Herbarium provided access to collections and assistance in identifying plants.

Reserve 11522

Located ca 4 km SW of Elabbin Siding and shown on lithograph 34/80, EF-3 and 1:100,000 Topo map 2535/0641.

Background

Originally set aside as a Reserve for Conservation of Flora on 17 March 1961.

Physical characteristics

Reserve 11522 is triangular, with a total perimeter of ca 7.2 km and an area of 227.4333 ha. The topographic map shows the highest altitude to be near the SE corner (360 m above sea level (ASL)) and the lowest point to be the N corner (330 m ASL). There is thus a 30 m topographic range on the Reserve.

Vegetation

1. Salmon Gum-Gimlet Open Low Woodland A with some areas of Wandoo.
2. Eucalyptus transcontinentalis Very Open Shrub Mallee
3. Hakea / Bracoppin mallee Scrub over mixed Dwarf Scrub C.
4. Casuarina Scrub, Thicket and Dense Thicket over variable sedges and heaths.

Plant species

Fifty-five plant species were recorded, of which 18 are exploited by the wildflower seed trade.

Nest hollows

Abundant in woodland area. Some young trees present.

Weeds

None recorded.

Fire history

The NE corner and possibly part of the E side may be less than 20 years old. The remainder of the Reserve is probably older than 30 years.

Fauna

Port Lincoln Parrot (Platycercus zonarius) : several in woodland.

Galah (Cacatua roseicapilla) : numerous in woodland. Several pulling bark from trees.

Weebill (Smicronis brevirostris) : common in woodland and mallee.

Chestnut-rumped Thornbill (Acanthiza uropygialis) : 2 seen in Hakea shrubland.

Western Silvereye (Zosterops lateralis gouldii) : common in mallee and Hakea shrubland.

Exotic fauna

None recorded.

Fire breaks and fences

Roads on NW and NE sides are effective fire breaks. There is a fire break in adjacent paddocks to the S. Only the S side of the Reserve is fenced.

Human Usage

Timber has been removed from the Reserve, particularly on the W corner. There is extensive rubbish dumping on the E corner, and a gravel pit on the NE side.

Adjacent uncleared land

None present.

Opinion and recommendations

Reserve 11522 is in good condition and supports a varied vegetation. Although faunal records are scarce, there is little doubt the fauna of the Reserve is richer than apparent during the survey. The Reserve is located on a hill top, and provides an excellent wind break for adjacent farmland. I recommend that Reserve 11522 be retained in its present condition and be vested in the Western Australian Wildlife Authority.

APPENDIX 1

Reserve 11522

Salmon Gum-Gimlet woodland

Eucalyptus salmonophloia trees 20 m tall and E. salubris trees 10-14 m tall, 2-10% cover and locally up to 10-30% cover. No understory but scattered shrubs of Acacia graffiana, A. merrallii and Bassia diacantha. Soil yellowish brown sandy clay. Poorly drained.

Salmon Gum-Wandoo woodland

E. salmonophloia trees 24 m tall and E. wandoo 12 m tall, overall canopy cover 2-10%. Understory to 1 m tall and 2% canopy cover. Species were Acacia graffiana, A. ixiophylla, A. mackayana and G astrolobium crassifolium. Soil red brown, sandy clay. Poorly drained.

Eucalyptus transcontinentalis mallee area

E. transcontinentalis mallee 4-10 m tall and scattered E. cylindriflora mallee, 2-10% canopy cover. Scattered E. salmonophloia 20 m tall and E. salubris 6-14 m tall also present. Second stratum of Melaleuca cymbifolia trees 3-5 m tall and ca 2-3% cover. Also present were Acacia graffiana, A. merrallii, A. nodiflora, Bassia diacantha, Dodonaea attenuata, Exocarpus aphyllus and Stipa elegantissima. Soil pink, sandy clay loam. Moderately drained.

York Gum Mallee

A narrow belt of Eucalyptus loxophleba tree mallee, 8 m tall, 2-10% cover. Also present were Acacia acuminata, A. colletioides, A. graffiana, Dianella revoluta, Dodonaea inequifolia.

Black Marlock Mallee

Eucalyptus redunca mallee, 6 m tall, 70-100% cover over Westringia cephalantha and Acacia graffiana shrubs 1 m tall 1-2% cover.

Hakea/Burracoppin mallee shrubland

Hakea coriacea and Eucalyptus burracoppinensis shrubs and mallee, 3-4.5 m tall, 10-30% cover over mixed shrubs 1 m tall, 10-30% cover.

Also recorded were: Acacia heteroneura, A. neurophylla, Amphipogon debilis, Astroloma serratifolium, Baeckea muricata, Borya nitida, Casuarina acutivalvis, C. corniculata, Choretrum pritzellii, Ecdeiocolia monostachya, Eriostemon deserti, Melaleuca cordata, Micromyrtus affin. rosea, Phebalium filifolium, Santalum acuminatum, Wehlia affin. thryptomenoides. Soil was yellow brown, fine sandy clay loam with ca 60% laterite pebbles. Well drained.

Casuarina shrubland

C. campestris, C. acutivalvis, C. corniculata shrubs, 1-2.5 m tall, 30-70% cover over Ecdeiocolea monostachya 0.5 m tall, 2-10% cover. Also present were Acacia stereophylla, Hakea subsulcata, Melaleuca uncinata and Platysace effusa. Soil yellow, sandy clay, well drained. In some areas there is 10-20% gravel in the soil and the association becomes C. campestris 1-2.5 m tall, 2-10% cover over E. monostachya and mixed shrubs 1 m tall 2-10% cover. There is some Acacia stereophylla emergent to 3 m. As well as the species previously listed Acacia dielsii, Baeckea crispiflora, Borya nitida, Grevillea paradoxa, G. yorkkrakinensis, Lepidosperma sp., and Persoonia striata are present.

In other areas the gravel content of the soil increases to ca 60% and the texture becomes fine sandy loam. These areas are dominated by C. acutivalvis 3-4 m tall and 70-100% cover. The understory in these areas is Acacia signata, A. stereophylla, Cassytha glabella, Eucalyptus burracoppinensis, Hakea coriacea, Melaleuca uncinata and Schoenus sp.

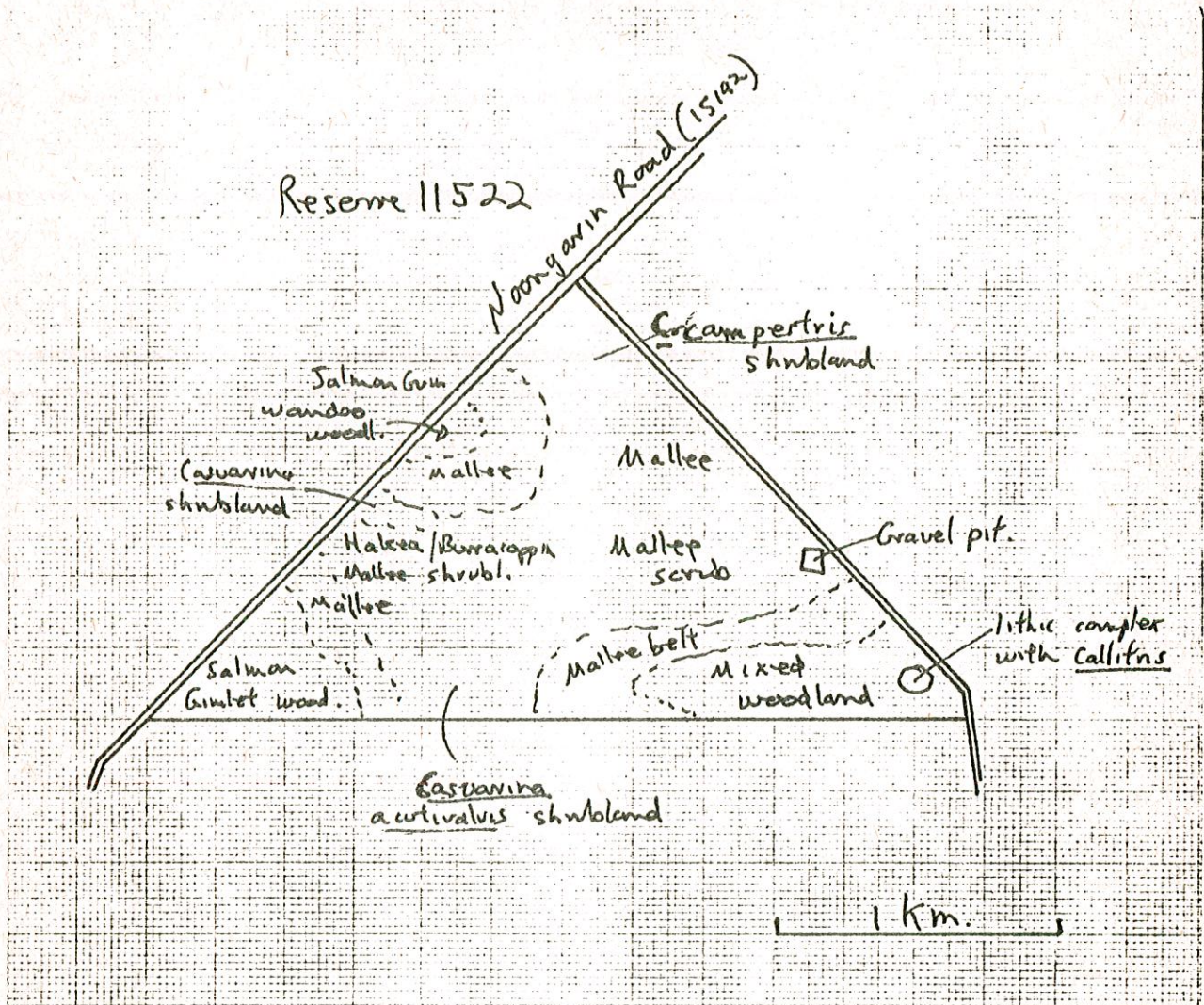




Plate 1. Eucalyptus transcontinentalis mallee area on Reserve 11522.



Plate 2. Hakea/Burracoppin Mallee shrubland.



Plate 3. Casuarina acutivalvis dominates this portion of Casuarina shrubland on Reserve 11522. Note the almost complete absence of understory.



Plate 4. An area of Casuarina shrubland where Tamma dominates and a heathy understory develops.

Reserve 16932

Located ca 3 km NE of Elabbin Siding and shown on lithograph 34/80, F3, and 1:100,000 Topo sheet 2535/1146.

Background

Originally set aside on 10 May 1918 as "Railways (Water Supply)". At this time the Reserve was ca 1683 ha in area. It was decreased to ca 866 ha on 15 July 1921 and again to its present area of ca 516 ha on 5 September 1930. Its title was changed to "Protection of Flora" on 10 December 1954.

Physical characteristics

Reserve 16932 is irregular rectangular, ca 3.2 km long (N-S axis) by ca 1.8 km broad (E-W axis). It has a total perimeter of ca 9.4 km and an area of 515.5695 ha. The topographic sheet shows the highest part of the Reserve to be near the NE corner where there is an altitude of ca 360-370 m above sea level. The lowest part is ca 330 m above sea level on the west side. There is a altitudinal range of ca 35 m.

Vegetation

Mostly Acacia Scrub with areas of Salmon Gum-Wandoo-Gimlet Open Low Woodland A, Tamma Heath B, and lithic complex with areas of exposed granite. There are also small areas of mallee and other shrublands.

Plant species

Fifty-one plant species were recorded, 17 of which are exploited by the wildflower seed trade. One species Scaevola oxyclona has previously been collected only from between Norseman and Balladonia, and Eucalyptus sp. is an undescribed species collected only from a few granite outcrops in the eastern wheatbelt.

Nest hollows

Abundant in woodland.

Weeds

None recorded.

Fire history

The heath area is a fire seral stage and has been burnt within the last 30 years. The remainder of the bushland has not been burnt for at least 30 years.

Fauna

Mallee fowl (Leipoa ocellata) : disused nest mound on SE side in Acacia stereophylla shrubland.

Port Lincoln Parrot (Platycercus zonarius) : common throughout Reserve, particularly in woodland.

Yellow-throated Miner (Manorina flavigula) : several in mallees.

Magpie-lark (Grallina cyanoleuca) : common on road sides and open areas of reserve.

Western Magpie (Cracticus tibicen dorsalis) : common in woodland area and paddocks adjacent to reserve.

Australian Raven (Corvus coronoides) : common throughout Reserve.

Exotic fauna

None recorded.

Fire breaks and fences

Fire breaks created by roadway on S side, none on other sides.

Fenced on E, N and W sides.

Human usage

Timber has been removed from the woodland.

Adjacent uncleared land

About 20 ha on the NE side of the Reserve and narrow belts of uncleared land connected to Warraling Hill S of the Reserve.

Opinion and recommendations

Reserve 16932 carries a diverse flora for such a small area, particularly at the association level. It forms a valuable wind break for adjacent farms and provides excellent nesting and roosting sites for birds. Several plant species of interest occur in the granite area, including an undescribed Eucalypt and a Scaevola normally found between Norseman and Balladonia. The area requires more detailed botanical study to determine if other unusual species are present and what factors are determining their presence. I recommend that Reserve 16932 be retained in its present form and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 2

Reserve 16932

Salmon Gum-Wandoo-Gimlet woodland

Eucalyptus salmonophloia and E. wandoo trees 12-16 m tall and E. salubris trees 8-11 m tall, overall canopy cover 2-10%. Understory of mixed shrubs locally up to 10% canopy cover, but with an overall cover of less than 2%. Species present were: Acacia graffiana, A. merrallii, Bassia diacantha, Enchylaena tomentosa, Eucalyptus transcontinentalis, Exocarpus aphyllus, Melaleuca cymbifolia, Olearia muelleri and Santalum acuminatum. Soil red-brown sandy clay. Poorly drained.

Acacia shrubland

Acacia neurophylla, A. signata and Casuarina acutivalvis shrubland, 2-4 m tall, 30-70% canopy cover. No understory but scattered shrubs of Acacia affin. jutsoni, Drummondita hassellii, Eriostemon deserti, E. thryptomenoides, Eucalyptus burracoppinensis, Grevillea paradoxa, Melaleuca cordata, Micromyrtus sp., Phebalium tuberculosum, Stipa elegantissima. Soil yellow brown, sandy clay. Well drained. In some areas Acacia stereophylla dominates and is 1.5-2.5 m tall, 70-100% cover over mixed shrubs 1 m tall, 2-10% cover. These areas have the species listed above in the understory and scattered Eucalyptus ovularis mallee. Soil here is of fine sandy loam texture with ca 60% laterite pebbles.

Tamma heath

Casuarina campestris shrubs, 1-1.5 m tall, 30-70% cover over Borya nitida herbs, 10 cm tall, 2-10% cover. Other species present were Ecdeiocolea monostachya, Jacksonia ulicina, Lyginea tenax, Melaleuca fulgens, Prostanthera sp. 2., Wehlia aurea. Soil pink, sandy clay, moderately well drained with some pooling after heavy rain.

Lithic complex

Bare granite pavements with lichens and moss. Soil pockets of variable depth and deep soils on the edges of the outcrops which receive additional runoff from the granite. Species recorded were Acacia acuminata, A. lasiocalyx, Billardiera coriacea, Borya nitida, Casuarina campestris, Dampiera affin. altissima, Dianella revoluta, Eucalyptus sp. 1., Gyrostemon affin. subnudus, Hibbertia glomerosa, H. rupicola, Leptospermum erubescens, Rhagodia preissii, Santalum spicatum, Scaevola oxyclona, Spartochloa scirpoidea, Thryptomene australis.

Other areas

Small areas of : Eucalyptus loxophleba tree mallee and Acacia acuminata woodland; Eucalyptus redunca shrub mallee, 10-30% cover; or Acacia shrubland where the Casuarina acutivalvis becomes a major dominant.

Reserve 16932

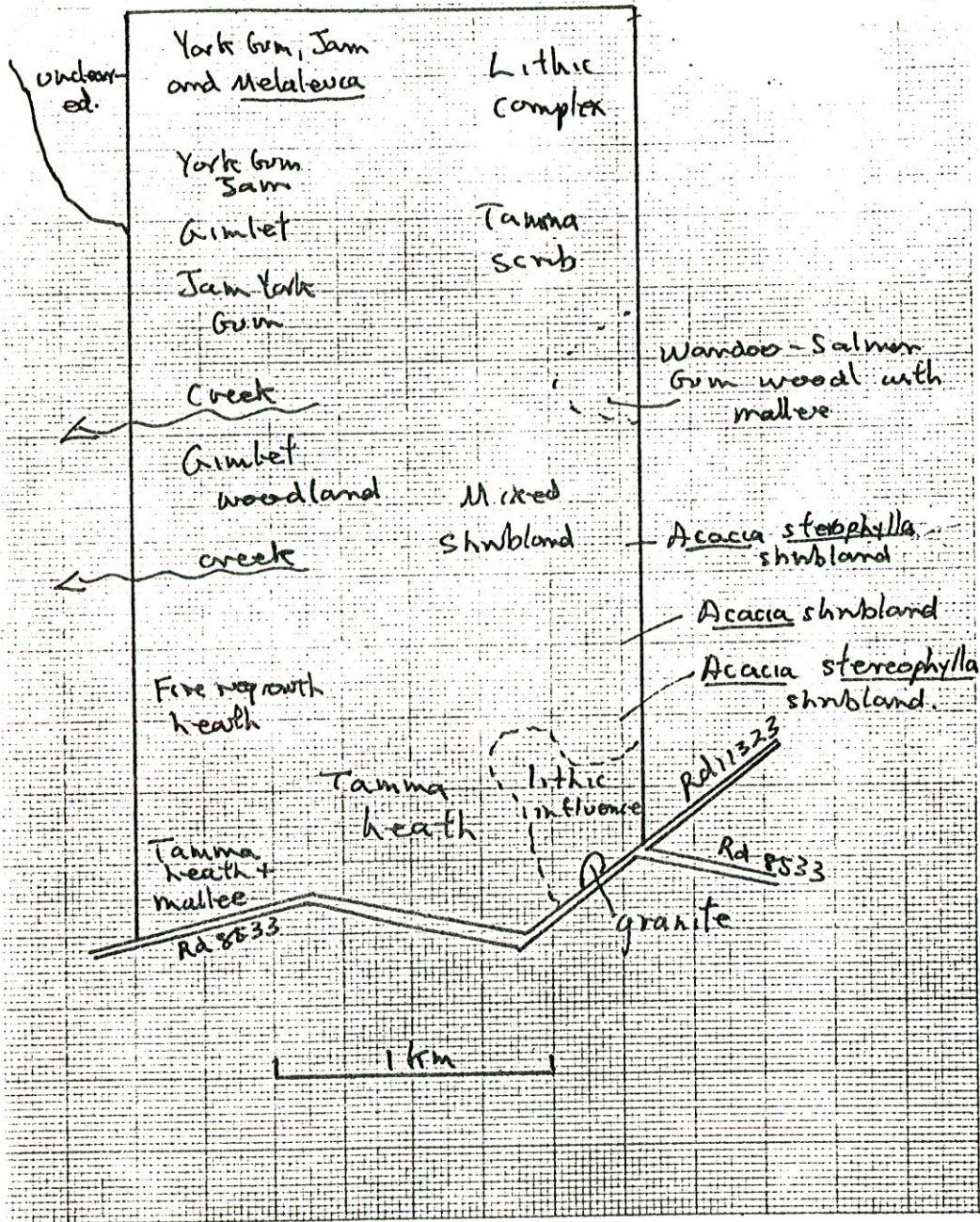




Plate 5. Salmon Gum-Wandoo-Gimlet woodland with shrubby understory.

View W on Reserve 16932.



Plate 6. Acacia shrubland. Most of this association has no understory, but this area has a well developed stratum of Melaleuca cordata.



Plate 7. Lithic complex on Reserve 16932. Mostly bare granite pavement with clumps of shrubs in shallow soil pockets. Tall trees are Acacia lasiocalyx.

Reserve 17798

Located ca 15 km NE of Elabbin Siding and shown on lithograph 35/80, A2 and 1:100,000 Topographic sheet 2535/2250.

Background

Originally set aside 26 August, 1921 as a Water Reserve. It was ca 32 ha in area and was vested in the Metropolitan Water Supply, Sewerage and Drainage Board. The area of the Reserve was then increased to its present size on 25 June 1965 and changed to Conservation of Flora on the same date. The vesting was ~~revoked~~ on 2 September, 1966 and the Reserve has been unvested since then.

Physical Characteristics.

Reserve 17798 is square, with its sides trending NNW and ENE, i.e. the sides are ca 30° W of N. It has a total perimeter of ca 3.2 km and an area of 64.7497 ha.

No spot altitudes are available on the Reserve but it is very flat and has an altitude of ca 310 m above sea level.

Vegetation.

Gimlet Woodland occupies most of the E side of the Reserve, and Acacia Dense Thicket most of the W side. An area of Jam-Broom ~~bush~~ Thicket surrounds the damsite.

Plant Species.

Twenty-three plant species were recorded, of which 8 are exploited by the wildflower seed trade.

Nest Hollows.

Abundant in woodland area; some present in mallee.

Weeds.

Cucumis myriocarpus (Paddy melon) and Ptilotus polystachys present, mostly in disturbed areas and where soil drainage is poorer .

Fire History.

No evidence of fire within the last 30 years.

Fauna.

Wedgetail Eagle (Aquila audax): one over reserve.

Weebill (Smicrornis brevirostris): common in eucalypts.

Singing Honey-eater (Meliphaga virescens): 2 in Acacia area.

Yellow-throated Miner (Manorina flavigula): several in eucalypts.

Magpie-lark (Grallina cyanoleuca): several on roadways but flying into Reserve when disturbed.

Pied Butcherbird (Cracticus nigrogularis): 2 near dam.

Western Magpie (C. tibicen dorsalis): common particularly on Reserve edges and near dam.

Australian Raven (Corvus coronoides): several in woodland.

Exotic Fauna.

Rabbit droppings noted.

Firebreaks and Fences.

Roadway forms effective firebreak on the N and E sides. The S and W sides are fenced.

Human Usage.

Timber has been cut from the woodland area. A dam with drains leading to it has been placed on the E side and there has been some

rubbish dumping along the track leading to the dam.

Adjacent uncleared land.

None present.

Opinion and Recommendations.

Reserve 17798 is in excellent condition and supports a reasonably diverse flora. The dam holds water and probably provides an important watering point for fauna. Absence of other bushland near the Reserve makes it a valuable resting and feeding site for birds and the woodland is also used for nesting.

I recommend Reserve 17798 be retained in its present form and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 3

Reserve 17798

Gimlet Woodland.

Eucalyptus salubris trees, 8-16 m tall and some E. loxophleba trees 10 m tall, combined canopy cover 10-30%. No understory present but scattered shrubs of Acacia colletioides, A. graffiana, Alyxia buxifolia, Bassia diacantha, Enchylaena tomentosa, Lomandra effusa, Melaleuca hamulosa, Olearia meulleri, Santalum acuminatum. Soil reddish brown, Sandy clay. Poorly drained.

Jam-Broombush shrubland.

Acacia acuminata and Melaleuca uncinata shrubs, 2-4m tall, 30-70% cover over Amphipogon debilis and Spartochloa scirpoidea grass and sedge, 0.5m tall, 2-10% cover. Also recorded were Acacia colletioides, Dianella revoluta and Melaleuca eleutherostachya. Soil pinkish grey, Sandy loam. Poorly drained.

Acacia shrubland.

Acacia resinomarginea shrubs, 2-3 m tall, 70-100% canopy cover, with no understory. Also recorded were Acacia sessilispica, Amphipogon debilis, Dianella revoluta, Ecdeiocolea monostachya, Eucalyptus loxophleba, Hakea minyma, Melaleuca uncinata, Spartochloa scirpoidea and Waitzia acuminata. Soil yellowish brown, loamy sand with ca 40% laternite pebbles. Well drained.

Reserve 17798

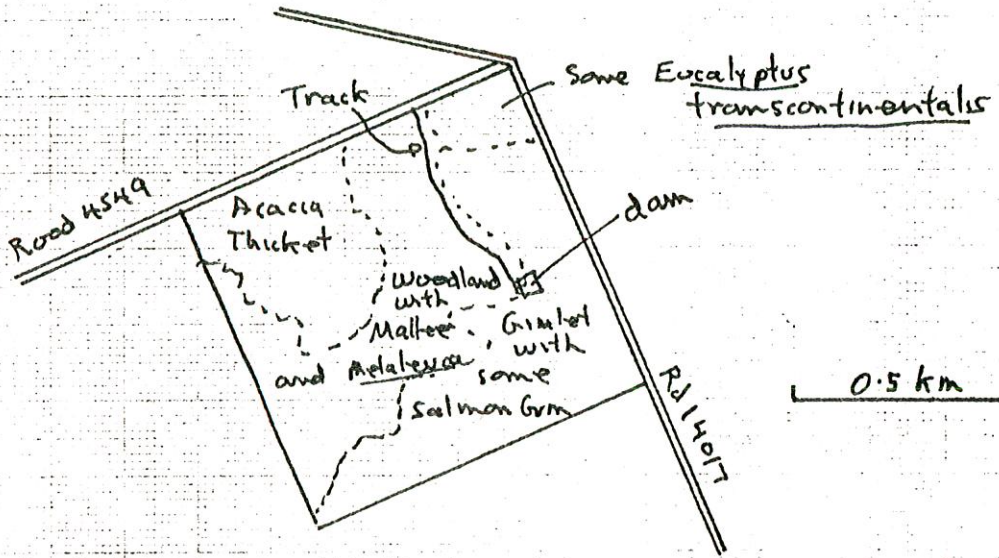




Plate 8. Gimlet woodland on Reserve 17798.



Plate 9. Jam-Broombush shrubland with an understory of grasses.

Reserve 24789

Located at Lake Campion and Lake Brown and including all the Lake area.

The lakes are situated ca 40 km due N of Merredin. The area is covered by lithograph 35/80.

Background.

Originally set aside 6 September, 1957, with an area of ca 688 ha. It was increased to ca 1025 ha on 18 August, 1967, ca 1241 on 1 November, 1968 and 10071.0071 ha on 29 November, 1968. The area was then decreased by the installation of road number 15200 to an area of 10070.0409 ha on 12 September, 1975 then increased again to 10070.9919 ha on 19 November, 1976.

Physical Characteristics.

Reserve 24789 is irregular in shape, following the boundaries of the salt lake. The whole lake system (Lakes Brown and Campion) are together ca 26 km long by ca 6 km broad (N-S axis). The total perimeter of the Reserve is ca 91 km and its area 10070.9919 ha. No spot altitudes or contour maps are available. Altitudinal variation within the lake is probably 1 m while dunes, ridges and vegetated lake margins probably rise to 5 - 10 m above the level of the lake floor.

Vegetation.

The salt lake itself is bare, with marginal bushland. There is usually Arthrocnemum flats on the edge with shallow belt of shrubland. Woodland then develops on higher ground. On dunes between salt flats, Templetonia or Acacia shrublands are developed.

Plant Species.

Twenty-six plant species were recorded, of which 8 are exploited by the wildflower seed trade.

Nest Hollows.

Abundant in trees on lake margin. Very few young trees present.

Weeds.

Numerous small ephemerals on lake edges and in disturbed areas.

Fire History.

Lake margins in most parts of the Reserve are open woodlands or shrublands which probably never, or rarely, support fire.

Fauna.

Because of the nature of the vegetation, distributed around the lake margins, there is little point in specifying exact localities where a species was seen. A list of species is presented, with habitat comments

Emu (Dromaius novae-hollandiae): footprints on lake.

White-faced Heron (Ardea novaehollandiae): flying.

Wedgetail Eagle (Aquila audax): 2 flying above lake.

Crested Pigeon (Ocyphaps lophotes): common.

Port Lincoln (Platycercus zonarius): common in trees.

Galah (Cacatua roseicapilla): common in trees.

Rainbow Bird (Merops ornatus): 4 in woodland.

Tree Martin (Hirundo nigricans): 3 in woodland.

Black-faced Cuckoo-Shrike (Coracina novaehollandiae): 5 individuals seen.

Crested Bellbird (Oreoica gutturalis): 2 on N side lake, probably in woodland.

Grey Fantail (Rhipidura fuliginosa): common.

Willie Wagtail (R. leucophrys): common particularly in shrublands.

White-fronted Chat (Epthianura albifrons): common in samphires.

Western Magpie (Cracticus tibicen dorsalis): common

Australian Raven (Corvus coronoides): common.

Exotic Fauna.

Fox tracks and droppings were seen on the salt lake, together with sheep footprints. Rabbit scats and diggings were also noted.

Firebreaks and Fences.

Variable distribution of firebreaks, mostly those in paddocks, or roadways. The nature of the vegetation does not really require breaks. Fences in adjacent paddocks but many portions are unfenced, e.g. road verges, and access of sheep to the Reserve is possible.

Human Usage.

Mining in lake for gypsum and alunite. The two operations combined occupy less than 5% of the total lake floor. Timber has been removed from most of the woodland area. There are numerous tracks and roadways in the Reserve, particularly on lake margins.

Adjacent uncleared land.

There are numerous small pockets of uncleared land contiguous with the lake and some extensive areas where salt affected land penetrates onto adjacent farmland. Two extensive areas of reserve land (21759, Common) and (14507, Conservation of Flora, surveyed by Muir, 1978) are also present. There is a considerable area of uncleared bushland surrounding the Chandler townsite.

Opinion and Recommendation.

The Reserve has a vital function for soil conservation in an area badly affected by salt. Unfortunately clearing in many areas has been allowed too close to the lake edge and salt encroachment is still occurring, but slowly. The bushland is also a valuable windbreak for adjacent farms, the area being very flat and prone to high winds. The effects of mining operations are at the moment relatively unimportant but have undoubtedly

altered the flushing and drainage characteristics of the lake to some degree. Any further expansion of mining should be carefully examined and monitored. This is particularly important near the Common, where Lakes Brown and Campion are connected. In this sense Mining Claim no. 66 is particularly poorly placed. The causeway near the common has slightly restricted water flow, but is probably fairly unimportant.

Wading birds and those using the Lakes in winter are probably numerous and dependant to some extent on the aquatic fauna. Care should be taken to minimise clay and silt movement in the Lake because of this. Woodlands on the Lake margins are probably used extensively by nesting birds.

I recommend that Reserve 24789 be vested in the Western Australian Wildlife Authority and that that body be kept informed of any further mining operations or installation of causeways. Providing such alterations are kept minimal, there seems to be little reason why the Reserve should not be retained in its present state.

It would also be of considerable advantage to include the Common (Reserve 21759) within the boundaries of Reserve 24789.

APPENDIX 4

Reserve 24789

The nature of the Reserve precludes separation into distinct associations, the whole area being a mosaic of woodland, shrubland and salt heaths completely surrounding the bare lake.

Species recorded were: Acacia eremaea, A. multispicata, Aizoon glabrum, A. quadrifidum, Arthrocnemum halocnemoides, A. pergranulatum, A. bidens, Atiplex paludosa graciliflora, Callitris preissii, Carpobrotus edulis, Disphyma blackii, Eucalyptus gracilis, E. kondininensis, E. loxophleba, E. salmonophloia, Maraeana brevifolia, Melaleuca cymbifolia, M. hamulosa, Mesembryanthemum crystallinum, M. nodiflorum, Pittosporum phylliraoides, Rhagodia nutans, Santalum acuminatum, S. spicatum, Selenothamnus squamatus and Templetonia sulcata. Soil was mostly red, silty clay or sandy clay. Poorly drained.

Rabbit Proof Fence.

Reserve 24789.

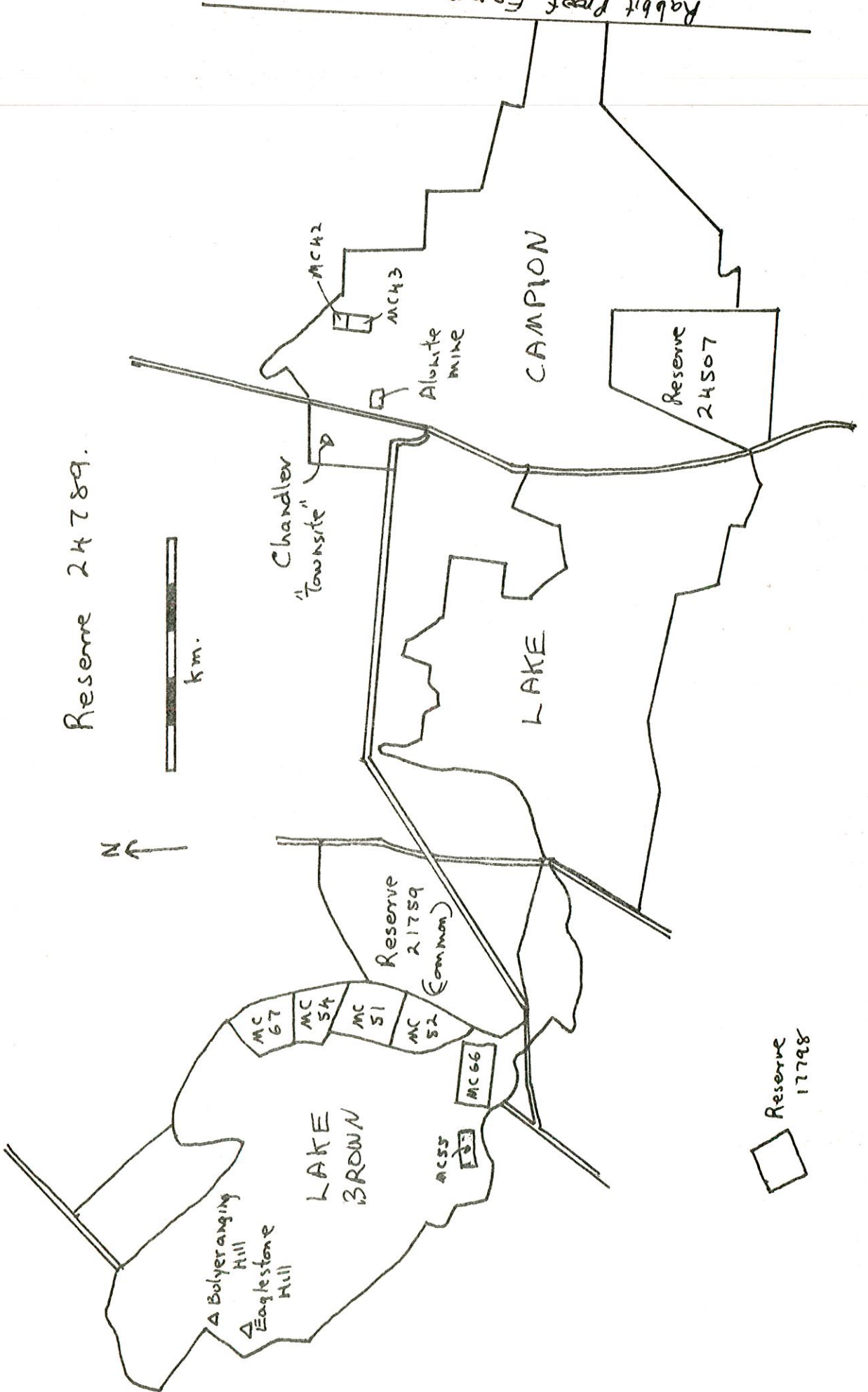




Plate 10. Reserve 24789 showing marginal Samphires and bare portions of salt flat near causeway at SW end of "Common" (Reserve 21759). Trees of Salmon Gum, Yorrell and Eucalyptus kondininensis are on the lake margin.



Plate 11. Shrubland of Acacia over Samphire on the lake margin.