

SOME NATURE RESERVES OF THE WESTERN AUSTRALIAN
WHEATBELT

PART 6 : MERREDIN SHIRE

B.G. MUIR
Western Australian Museum

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SOME NATURE RESERVES OF THE MERREDIN SHIRE

B.G. MUIR

Introduction

Merredin Shire lies in the central wheatbelt and has an area of about 3372 square km. There are 17 Nature Reserves within the Shire totalling about 57 square km or 1.7% of the area of the Shire.

Of the Reserves ca 35% are less than 100 ha in area. The largest Reserve is ca 1375 ha in area and the smallest ca 40 ha.

Two of the Nature Reserves within the Shire has "A" classifications, A1313 (Totadjin Well) and A13594. The former is vested in the Minister for Water Supply, the latter is unvested. The remaining Reserves enjoy no particular protection and are unvested, with the exception of 24367 which is vested in the Merredin Shire. None of the Reserves have been studied by biologists prior to these brief surveys.

The current survey took place in May 1978 and consisted of brief examinations of 14 Reserves: A13594, 18198, 19476, 20504, 13795, 24507, 24532, 24835, 25872, 27584, 28403, 28406, 28940 and 29738. Reports on these Reserves are presented.

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 reserves.

Reserves were examined by vehicle where tracks were available, or 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 (1978) system (Table 1), which was designed specifically for describing wheatbelt vegetation. In the presentation of the abbreviated descriptions (in 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

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 GT Bunch grass >0.5m GL Bunch grass <0.5m J Herbaceous spp.	Dense Mat Plants Dense Hummock Grass Dense Tall Grass Dense Low Grass Dense Herbs	Mat Plants Mid-Dense Hummock Grass Tall Grass Low Grass Herbs	Open Mat Plants Hummock Grass Open Tall Grass Open Low Grass Open Herbs	Very Open Mat Plants Open Hummock Grass 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

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 brought 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.

Opinions 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.

Results and discussion

The features of each reserve can be summarised as follows:

Reserve A13594 - ca 40 ha; mostly Gimlet or Gimlet-Salmon Gum woodland; contains dam which holds water well into early summer; important conservation Reserve.

Reserve 18198 - ca 202 ha; woodland, mallee, shrubland, heath and sedgeland represented; very rich in flora, associations and fauna.

Reserve 19476 - ca 91 ha; mallee-wattle; rich in plant species but of low diversity at formation and association level; important conservation reserve.

Reserve 20504 - ca 203 ha; Casuarina shrubland with burnt area; excellent condition; good representative shrubland; isolated from other bushland.

Reserve 23795 - ca 203 ha; woodland, shrublands and regrown disturbed areas; important wildlife refuge despite disturbance.

Reserve 24507 - ca 803 ha; Yorrell and Gimlet woodlands; large area of excellent woodland; important for fauna and represents vegetation type now mostly cleared in the wheatbelt.

Reserve 24532 - ca 47 ha; woodland; type locality for 3 species and one sub-species of mollusc; partly disturbed. Fairly rich flora for such a small area.

- Reserve 24835 - ca 71 ha; wandoo woodland, mallee, Tamma shrubland; important for transient birds.
- Reserve 25872 - ca 441 ha; mallee, 2 shrublands and salt flat; interesting plant assemblage; important for soil conservation.
- Reserve 27584 - ca 75 ha; wandoo woodland, shrubland; diverse flora; supports Southern Scrub-robin; requires purchase of adjacent uncleared land to ensure viability.
- Reserve 28403 - ca 68 ha; woodland, mallee, Tamma heath; isolated and fairly species rich; important for transient birds. Only vegetation of its type in the area.
- Reserve 28406 - ca 88 ha; Gimlet woodland, mallee; surrounds Nukarni townsite; little disturbed, residents value it highly; isolated; contains interesting flora.
- Reserve 28940 - ca 1375 ha; woodlands, mallee, shrublands and post-fire heaths; excellent condition; undisturbed; rich in habitats; abundant fauna.
- Reserve 29738 - ca 480 ha; woodland, shrubland, 2 heaths; may contain unusual plant assemblages; only site where Acacia sp. 11 (very unusual life-form) has been recorded; excellent representative of heath in the region; requires detailed examination.

Of the 14 reserves examined, 4 were mostly woodland and 7 contained fairly large areas of 2 or more formations. Most of the reserves are relatively undisturbed. Granite outcrops and salt complex are relatively scarce on the reserves examined, unlike many other shires where these formations make up the majority of the uncleared land. One Reserve, 28940, is large (1375 ha) and in excellent condition.

The Merredin Shire probably contains some of the best preserved and most representative Nature Reserves in this portion of the wheatbelt.

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Reserve Al3594

Located ca 26 km SSE Merredin Townsite and shown on lithograph 2534-1, AB2 ~~3~~ 3.

Background

Originally gazetted 14 July 1911 as a "Water Reserve" then converted to "Conservation of Flora" and made "A" class on 12 November 1956.

Physical characteristics

Reserve Al3594 is almost square, 40.4686 ha in area and has a total perimeter of ca 2.6 km.

The highest point on the Reserve is the SE corner, being 350 m above sea level (ASL) and the lowest point the NW corner at about 335 m ASL.

Vegetation

The majority of Reserve Al3594 is woodland, the only other formations being a small area of Casuarina shrubland on the NE corner and a lithic complex on the SE.

Gimlet woodland: Eucalyptus salubris (Gimlet) Low Woodland A over mixed Open Dwarf Scrub C with scattered E. loxophleba (York Gum) around the damsite and edges of the association. Some E. salmonophloia (Salmon Gum) and E. wandoo (Wandoo) were also on the margins.

Gimlet-Salmon Gum woodland: Gimlet and Salmon Gum Open Low Woodland A with no understory.

Casuarina shrubland: Casuarina acutivalvis Scrub over mixed Open Dwarf Scrub D.

Lithic association: Shallow soil and pavement granite outcrop with scattered Casuarina huegeliana (Huegel's she-oak), wattles, Grevillea and grasses. Numerous other plant species present as a scattered mosaic depending on soil depth and drainage.

Plant species

Forty-eight species of plants were recorded, about 10 of which are exploited by the wildflower seed trade.

Weeds

The weeds Anagallis arvensis (Pimpernel), Raphanus raphanistrum (Wild Radish), Arctotheca calendula (Capeweed) and several other species of weed (present only as seedlings) were common in the moist areas of the dam overflow and along the creek edges.

Fire history

No evidence of fire for at least 20-30 years.

Fauna

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

Galah (Cacatua roseicapilla): several in woodlands.

Australian Raven (Corvus coronoides): 3 flying over Reserve.

Neobatrachus ?centralis: thousands of tadpoles in dam.

Heleoporus albopunctatus (Spotted Burrowing Frog): 2 calling from burrows.

Exotic fauna

Rabbit scats were noted and footprints, probably a fox, seen at the dam site.

Firebreaks and fences

Firebreaks (in adjacent paddocks) and good fences on all sides except N, which is adjacent to a roadway.

Human usage

A dam on the N side holds water and is much used by wildlife. Some of the water which drains into the dam comes from contour ploughed farmland to the E of the Reserve. Some timber has been removed.

Adjacent uncleared land.

None; the Reserve is totally isolated.

Opinion and recommendations

Reserve A13594 is in excellent condition and little disturbed. Its isolation makes it a significant rest site and feeding site for migratory birds.

The dam provides an important watering point for wildlife as it is well surrounded by trees and hence safer for small granivorous birds and for mammals. I recommend that Reserve A13594 be vested in the Western Australian Wildlife Authority.

APPENDIX 1

VEGETATION DETAILS RESERVE A13594

Gimlet woodland

Eucalyptus salubris trees, mature to senescent, stratum 11-15 m tall, 10-30% canopy cover over mixed shrubs, mature, stratum 1 m tall, 2-10% canopy cover. Scattered E. loxophleba, E. salmonophloia and E. wandoo trees are present on the edges of the association. E. loxophleba are particularly common around the dam site. Other plant species recorded were: Acacia acuaria, A. acuminata, A. erinacea, A. graffiana, Bassia diacantha, Cheiranthra parviflora, Dianella revoluta, Enchylaena tomentosa, Eremophila drummondii, Grevillea paradoxa, Hibbertia verrucosa, Olearia muelleri, O. revoluta, Rhagodia preissii, R. semibaccata, Stipa elegantissima, Triodia scariosa. Soil reddish brown, sandy clay. Poorly drained.

Gimlet-Salmon Gum woodland

Eucalyptus salubris trees, mature to senescent, and E. salmonophloia trees, immature to mature, stratum 7-10 m tall with scattered trees to 26 m tall, 3-4% canopy cover. Also recorded were: Acacia erinacea, A. graffiana, Bassia diacantha, Enchylaena tomentosa, Eremophila drummondii, Exocarpus aphyllus, Olearia muelleri. Soil light reddish brown, fine sandy clay loam. Poorly drained.

Casuarina shrubland

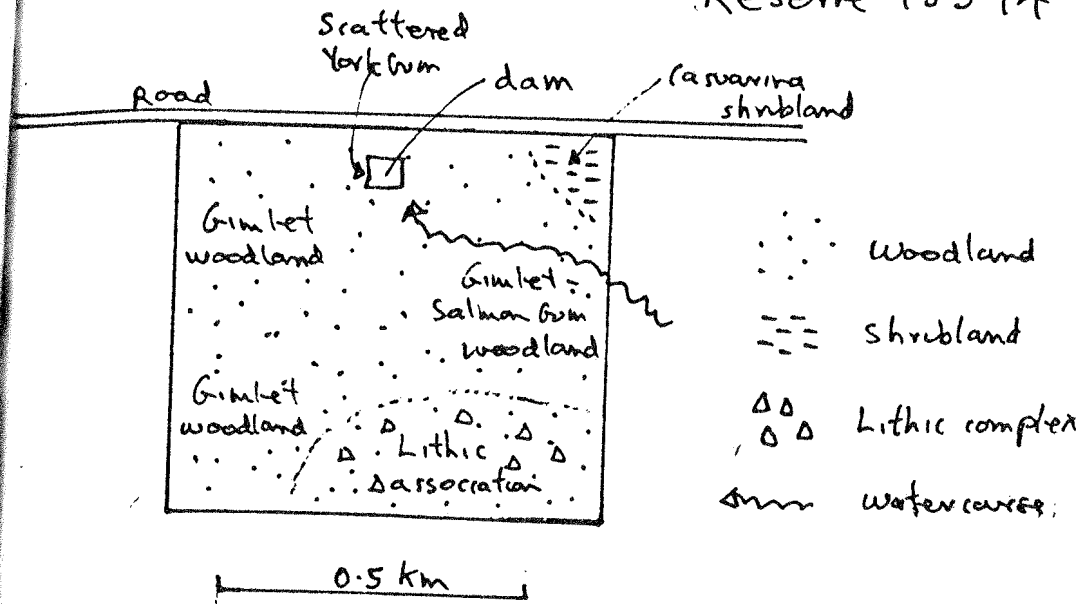
Casuarina acutivalvis shrubs, mature, stratum 3-4.5 m tall, 10-30% canopy cover over mixed shrubs (no particular dominant) mature, stratum 0.5 m tall, 2-10% canopy cover. Other species recorded were: Astroloma serratifolium, Baeckea heteranthera, Ecdeiocolea monostachya, Grevillea paradoxa, Hakea subsulcata, Melaleuca cordata, Verticordia chrysanthera. Soil yellow brown, fine sandy loam with ca 40% laterite. Well drained.

Lithic association

Shallow soil and granite pavement with scattered Casuarina huegeliana trees to 12 m, Acacia lasiocalyx trees and shrubs, Grevillea paniculata shrubs to 3 m tall and clumps of Spartochloa scirpoides grass. The entire association is complex and mosaic. Plant species recorded were: Acacia acuminata, A. assimilis, A. microbotrya, Baeckea conspiflora, Borya nitida,

Brachysema daviesioides, Cassytha glabella, Casuarina campestris, Corynotheca micrantha, Pianella revoluta, Enneapogon caerulescens, Glischrocaryon flavescens, Hannafordia bissillii, Hibbertia verrucosa, Leptospermum erubescens, Melaleuca macrorycha, Mirbelia spinosa, Muhlenbeckia adpressa, Santalum spicatum, Stipa elegantissima, Waitzia acuminata.

Reserve 13594



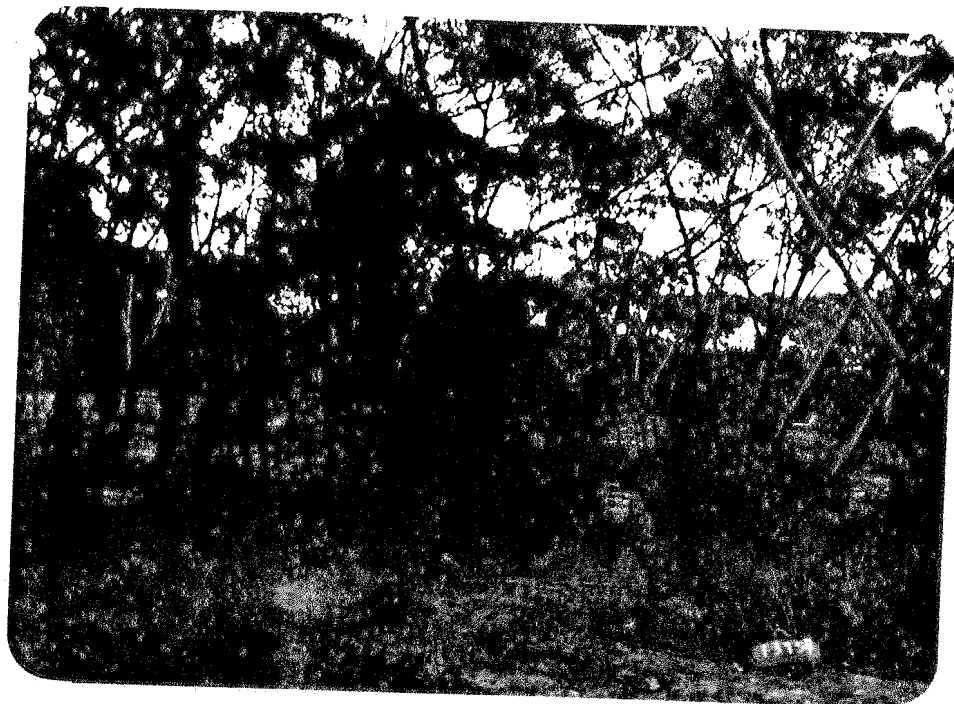


Plate 1. Reserve A13594 showing Gimlet woodland in distance and York Gum shrub mallee in foreground.



Plate 2. Dam with abundant frog population and surrounding belt of York Gum.

Reserve 18198
Burracoppin Reserve

Located ca 2 km SE Burracoppin Townsite (ca 23 km ENE Merredin) and shown on lithograph 24/80, C1 and partly on lithograph 2535-11, C2-3.

Background

Originally gazetted 19 January 1923 as a "Water" Reserve and vested in the Minister for Water Supply. Its classification was changed to "Conservation of Flora and Fauna" on 3 November 1967.

Physical characteristics

Reserve 18198 is approximately square, with an area of 202.3428 ha and a total perimeter of ca 4.9 km. The S end of the Reserve is ca 380 m above sea level (ASL) and the N end 360 m ASL.

Vegetation

Five formations (each of a single association) are present on Reserve 18198.

Gimlet-Salmon Gum woodland: Eucalyptus salubris (Gimlet) and E. salmonophloia (Salmon Gum) Open Woodland over mixed Open Dwarf Scrub C.

Mallee patch: small area of E. redunca (Black Marlock) Open Shrub Mallee with a marginal understory of Melaleuca uncinata (Broombush) thicket. Understory is virtually absent in both the central and marginal areas.

Acacia signata shrubland: A. signata Dense Thicket with no understory.

Acacia-Hakea heath: A. signata and H. falcata Heath A over Ecdeiocolea monostachya and mixed shrubs Tall Sedges and Low Heath C.

Ecdeiocolea sedgeland: E. monostachya Low Sedges with no understory.

Plant species

Fifty-three plant species were recorded, of which 13 are exploited by the wildflower seed trade.

Weeds

A few very small weeds were present in the wettest areas.

Fire history

No evidence of fire within the last 30 years.

Fauna

Echidna (Tachyglossus aculeatus): scats in woodland.

Grey Kangaroo (Macropus fuliginosus): scats common.

Emu (Dromaius novaehollandiae): scats common.

Mallee Fowl (Leipoa ocellata): nearby farmer informs me that occasionally mallee fowl from Reserve feed in his paddocks.

Mulga Parrot (Platycercus varius): 2 on NE corner.

Galah (Cacatua roseicapilla): flocks of up to 40 in woodland.

Tawny Frogmouth (Podargus strigoides): 2 calling at night.

Crested Bellbird (Oroica guttaralis): heard calling.

Southern Scrub Robin (Drymodes brunneopygius): calling in dense thickets.

Weebill (Smicrornis brevirostris): common in woodland.

Western Silvereye (Zosterops lateralis gouldi): common in woodland.

Magpie-lark (Grallina cyanoleuca): heard in woodland.

Grey Butcher Bird (Cracticus torquatus): 2 seen in woodland.

Western Magpie (C. tibicen dorsalis): several in woodland.

Australian Raven (Corvus coronoides): several in woodland.

Unidentified skink lizard (probably Ctenotus sp.): seen in heath.

Exotic fauna

Scats or footprints of rabbits, fox, dog and rat were noted.

Firebreaks and fences

The E and the southern half of the W boundary are fenced. The rest is unfenced. There are no firebreaks but a road passes diagonally through the Reserve and effectively divides it into 2 discreet blocks of bushland.

Human usage

A small amount of rubbish has been dumped and some timber removed. There is a small gravel pit present.

Adjacent uncleared land

About 1000+ ha of mostly Casuarina acutivalvis shrubland continuous with the S end of the Reserve and about 100+ ha of Gimlet woodland and granite outcrops to the W.

Opinion

Reserve 18198 is in excellent condition and has quite a high diversity of plant species and associations, considering its area. Even during this brief survey 2 mammals, 13 birds and 1 reptile species were recorded. I recommend that Reserve 18198 be vested in the Western Australian Wildlife Authority.

APPENDIX 2

VEGETATION DETAILS RESERVE 18198

Gimlet-Salmon Gum woodland

Eucalyptus salubris and E. salmonophloia trees, mature, 16-24 m tall, 2-10% canopy cover over mixed shrubs (no particular dominant) mature, 1 m tall, 2-10% canopy cover. Other species recorded were: Acacia graffiana, Bassia diacantha, B. forrestiana, Eremophila drummondii, Grevillea acuaria, Olearia muelleri, Santalum acuminatum, Stipa elegantissima, Templetonia sulcata. Soil light reddish brown, fine sandy clay loam. Poorly drained.

Mallee patch

Eucalyptus redunca shrub mallee, mature, 4-7 m tall, 10-30% canopy cover. No understory in the centre of the stand, but the margins have Melaleuca uncinata shrubs, mature, 1.5-2.5 m tall, 30-70% canopy cover. The central area has only Dianella revoluta, Olearia revoluta, Patersonia sp. and Phebalium filifolium present. Margins have these species and also Acacia signata, Beyeria leschenaultii, Ecdeiocolea monostachya, Hibbertia affin. aurea, Lepidosperma drummondii, Patersonia sp., Persoonia striata, Phebalium tuberculosum and Platysace effusa. Soil light brownish grey, loam. Poorly drained.

Acacia signata shrubland

Acacia signata shrubs, mature, stratum 3-4 m tall, 70-100% canopy cover. No understory but the following species were present: Baeckea crispiflora, Casuarina corniculata, Eucalyptus drummondii, Hakea multilineata, Melaleuca cordata, Phebalium sp., Schoenus sp., Stipa elegantissima. Soil yellow, light sandy clay loam with ca 70% laterite. Well drained.

Acacia-Hakea heath

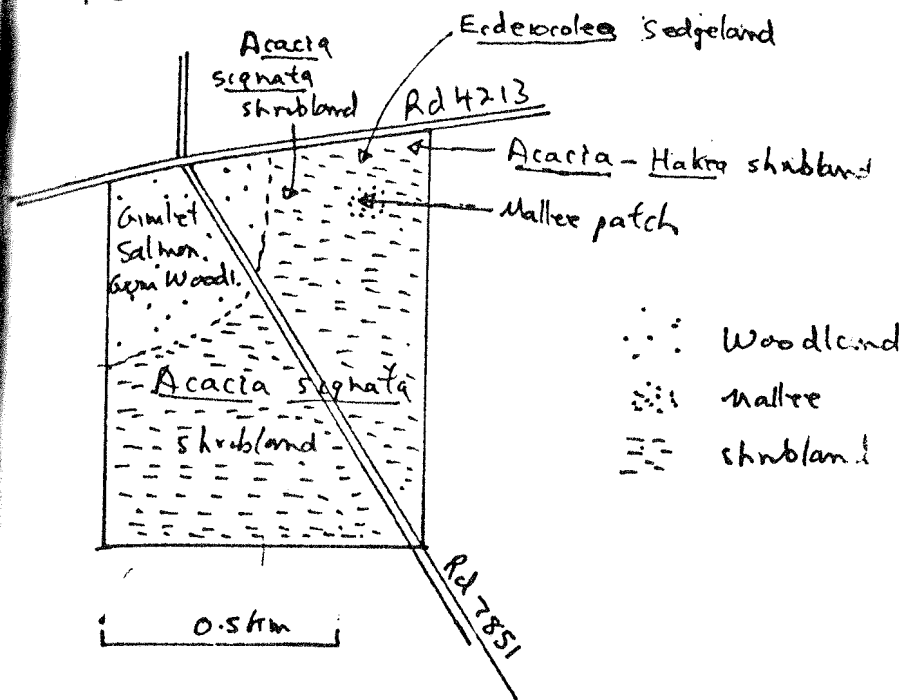
Acacia signata, Hakea falcata shrubs, immature, stratum 0.5-2 m tall, 30-70% canopy cover over Ecdeiocolea monostachya and mixed shrubs, mature, stratum 1 m tall, 30-70% canopy cover. Numerous other species were present. Acacia dielsii, A. signata, Beaufortia macrantha, Borja nitida, Casuarina

acutivalvis, Choretrum pritzellii, Grevillea ?pritzellii, Hakea falcata,
Harperia lateriflora, Lepidosperma drummondii, Leucopogon hamulosus,
Melaleuca cordata, M. platycalyx, M. scabra, M. uncinata, Persoonia
coriacea, P. striata, Santalum acuminatum, Schoenus sp. Soil yellow, sandy
loam with ca 5% laterite. Well drained.

Ecdeiocolea sedgeland

Ecdeiocolea monostachya sedges, mature, stratum 0.4 m tall, 30-70%
canopy cover. Also present were: Acacia dielsii, A. signata, Baeckea
crispiflora, B. ?floribunda, Chamaexeros fimbriata, Eriostemon sp. B,
Eucalyptus drummondii, Grevillea hookerana, G. paradoxa, Harperia lateriflora,
Lepidosperma tenue, Lygenia tenax, Melaleuca cordata, Phebalium filifolia,
P. tuberculosum, Philotheca drummondita, Platysace effusa, Schoenus sp.
Soil brownish yellow, clayey sand with ca 30% laterite. Well drained.

Reserve 18198



Reserve 19476

Located ca 6.5 km SSW Merredin Townsite and shown on lithograph 2534-IV, Cl.

Background

Reserve 19476 was "Excepted from Sale" on 11 March 1927 but was not vested or classified. On 2 June 1952 it was declared a Reserve for "Conservation of Flora and Fauna".

Physical characteristics

Reserve 19476 is ~~where~~, 90.7508 ha in area and with a total perimeter of ca 3.9 km. The highest portion of the Reserve is the SE corner at ca 320 m above sea level (ASL) and the lowest portion the NW corner at ca 300 m ASL.

Vegetation

Most of the Reserve is dominated by a single association (Mallee-wattle) except the NE corner where the wattle is absent.

Mallee-wattle: Eucalyptus redunca (Black Marlock) and Acacia sp. 16 Very Open Shrub Mallee/Open Scrub over Hakea subsulcata and mixed Low Scrub B over Ecdiocolea monostachya sedge and Borya nitida herbs Open Low Sedges/Open ~~Herb~~. Small patches of clayey soil were present and had Black Marlock Open Shrub Mallee over mixed shrubs Low Scrub B.

North-east corner mallee: Black Marlock Very Open Shrub Mallee over Acacia signata Open Scrub over Ecdiocolea monostachya Low Sedges.

Plant species

Thirty-two plant species were recorded, of which 10 are exploited in the wildflower seed trade.

Weeds

None were recorded.

Fire

No evidence of fire within the last 20-30 years.

Fauna

White-browed Babbler (Pomatostomus superciliosus): small flock in shrubby areas.

Western Magpie (Cracticus tibicen dorsalis): two flying over Reserve.

Exotic fauna

None were recorded.

Firebreaks and fences

Fences are only on adjacent farmland and are in good condition. There are no firebreaks.

Human usage

A gravel pit ca 60 x 40 x 1 m deep is present in the centre of the Reserve. Some rubbish has been dumped along the track leading to the gravel pit.

Adjacent uncleared land

Reserve 19476 is completely isolated except for narrow verges following the railway line.

Opinion and recommendations

Reserve 19476 is of low diversity at formation and association levels but is fairly rich in plant species. Although very few animal species were noted, the isolation of the Reserve makes it a significant feeding and resting site for migratory bird species. It also represents a vegetation type largely cleared in the region. I recommend that Reserve 19476 be vested in the Western Australian Wildlife Authority.

APPENDIX 3

VEGETATION DETAILS RESERVE 19476

Mallee-wattle

Eucalyptus redunca shrub mallee and Acacia sp. 16 shrubs, mature, stratum 4-8 m tall, 2-10% canopy cover over Hakea subsulcata and mixed shrubs, stratum 0.5-1.5 m tall, 10-30% canopy cover over Ecdeiocolea monostachya sedges 30 cm tall and Borya nitida herbs 10 cm tall, 10-30% canopy cover. Also recorded were Baeckea heteranthera and B. muricata, Calothamnus gilesii, Casuarina acutivalvis, C. campestris, Choretrum pritzellii, Dianella revoluta, Grevillea paradoxa, Hibbertia uncinata, Melaleuca cordata, M. uncinata and Platysace effusa. Soil was yellow clayey sand over laterite. Well drained.

In some areas pallid zone clays were close to the surface and supported patches of E. redunca shrub mallee 8-10 m tall, 10-30% canopy cover. Understory was ca 1.5 m tall and 10-30% cover but was locally dominated by a mixed stand of Acacia affin. brachyclada, A. mackayana, Amphipogon debilis, Borya nitida, Dodonaea bursariifolia, Eremophila drummondii, Gastrolobium crassifolium, Olearia muelleri, Stipa elegantissima and Thryptomene sp. Soil light grey, sandy clay loam. Poorly drained.

North-east corner mallee

Eucalyptus redunca shrub mallee, mature, stratum 6-12 m tall, 2-10% canopy cover over Acacia signata shrubs, mature, 1.5-3 m tall, 2-10% canopy cover over Ecdeiocolea monostachya sedges, mature, 30 cm tall, 30-70% canopy cover.

Also recorded were: Acacia multispicata, Alyxia buxifolia, Borya nitida, Dianella revoluta, Santalum acuminatum and Scholtzia sp. Soil was very pale brown, silty clay loam. Poorly drained.

Reserve 19476

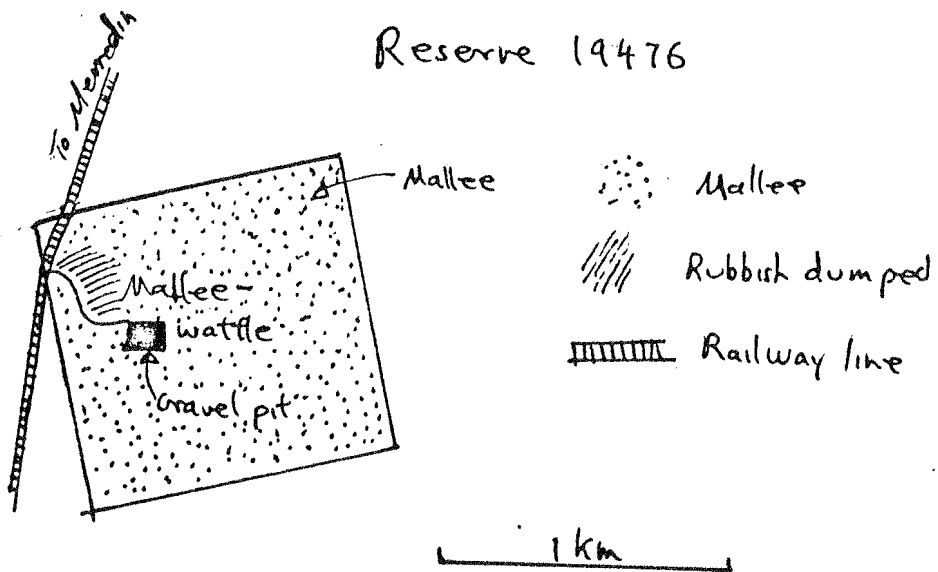




Plate 3. Reserve 19476 showing a typical area of Mallee-wattle association.
View S from gravel pit.

Reserve 20504

Located at Norpa Siding, ca 21 km SE Merredin Townsite and shown on lithograph 2534-1, B-C, 1-2.

Background

Originally gazetted 8 August 1930 as Norpa Townsite and with an area of ca 209 ha. It was decreased in area to ca 205 ha on 9 December 1932 then increased back to ca 209 ha and declared a "Flora Reserve" on 26 January 1968. The Reserve was then decreased again to its present area of 203.0409 ha by the development of road no. 14030 on 11 July 1969.

Physical characteristics

Reserve 20504 is approximately square, 203.0409 ha in area and with a total perimeter of ca 6.1 km. The highest portion of the Reserve is the NE corner at ca 411 m above sea level and the lowest portions the NW corner and S edge at ca 390 m ASL.

Vegetation

Probably only one association existed on the Reserve before the fire; Casuarina acutivalvis Scrub over mixed Open Dwarf Scrub D. After the fire a heath association has developed, dominated by Gastrolobium calycinum (York Road Poison) and Grevillea didymobotrya and having the form of a Low Heath C.

Plant species

Thirty-three species of plants were recorded, of which 7 are exploited by the wildflower seed trade.

Weeds

Absent except in the immediate vicinity of the old railway siding.

Fire

No evidence of fire in the shrubland. The heath area is ca 8 years old.

Fauna

Crested Bellbird (Oreoica gutturalis): heard calling.

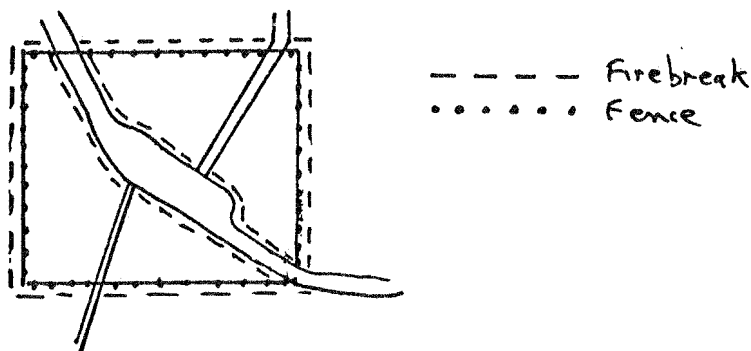
White-browed Babbler (Pomatostomus superciliosus): several seen.

Blue-breasted Wren (Maluris pulcherrimus): 1 seen in dense scrub.

Exotic fauna

Rabbit scats were noted, particularly around the siding.

Firebreaks and fences



Human usage

Railway siding and associated firebreaks have cleared part of the Reserve. A small amount of rubbish has been dumped and two gravel pits are present.

Opinion and recommendations

Reserve 20504 is in excellent condition, little disturbed and is a good representative area of shrubland, a formation poorly represented elsewhere in the region. One or preferably two signs should be erected in strategic points on the Reserve to indicate that Flora and Fauna are protected and that rubbish dumping and removal of gravel is prohibited. I recommend that Reserve 20504 be vested in the Western Australian Wildlife Authority.

APPENDIX 4

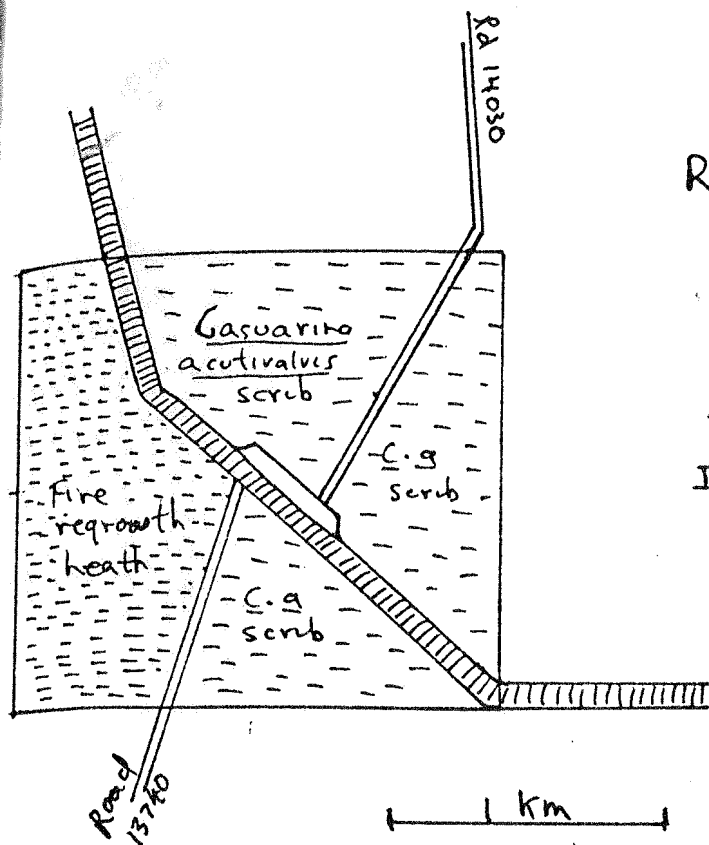
VEGETATION DETAILS RESERVE 20504

Casuarina shrubland

Casuarina acutivalvis shrubs, mature, stratum 4-5 m tall, 10-30% canopy cover over mixed shrubs (no particular dominant) mature, stratum 0.5 m tall, 2-10% canopy cover. Other plant species recorded were: Acacia assimilis, A. signata, Astroloma serratifolium, Baeckea heteranthera, Beaufortia imbricata, Calothamnus gilesii, Calytrix fraseri, Cassytha glabella, Daviesia aphylla, Ecdeiocolea monostachya, Eucalyptus burracoppinensis, Gastrolobium calycinum, Grevillea didymobotrya, G. paradoxa, G. pritzellii, Hakea falcata, H. multilineata, H. subsulcata, Isopogon scabriusculus, Melaleuca cordata, M. uncinata, Mirbelia spinosa, Persoonia coriacea, P. saundersiana, Petrophile ericifolia, Phebalium tuberculatum, P. sp. 6, Philotheca drummondita, Schoenus sp., Thryptomene australis, Verticordia chrysanthera. Soil yellow, clayey sand with ca 90% laterite pebbles. Well drained.

Fire regrowth heath

Gastrolobium calycinum and Grevillea didymobotrya shrubs, immature, stratum 0.5-1 m tall, 30-70% canopy cover. Also recorded were: Acacia assimilis, A. signata, Eucalyptus burracoppinensis, E. drummondii, Grevillea didymobotrya, G. excelsior, G. paradoxa, G. ?pritzellii, Philotheca drummondita, Thryptomene australis. Soil as above.



Reserve 20504
Norpa siding

shrubland
Heath
Railway line



Plate 4. Reserve 20504 looking NE into Casuarina acutivalvis shrubland.



Plate 5. View SW across fire regrowth heath. The eucalypts are just beginning to gain dominance.

Located ca 1 km NNE Hines Hill Siding and ca 21 km due W of Merredin Townsite.
Shown on lithograph 2534-1V, A-B1.

Background

Originally gazetted as Reserve for "Flora" on 24 July 1953. The Reserve at this time was 207.3 ha. On 8 July 1966 it was decreased to its present size by the exclusion of Avon Loc. 28290 for a "Rubbish Site". Also refer section "Remarks" this report.

Physical characteristics

Reserve 23795 is approximately 'S' shaped and has an area of 203.2003 ha. It is about 3 km long (N-S axis) and 0.5-1 km wide (E-W axis) and has a total perimeter of ca 9.1 km. The Reserve is relatively flat and has an altitude of ca 260 m above sea level. There are small scale topographic differences of 1-2 m between the salt flats and the shrublands and woodlands and of 3-4 m where gypsum dunes surround lake edges.

Vegetation

Salmon Gum-Yorrell woodland: Eucalyptus salmonophloia (Salmon Gum) and E. gracilis (Yorrell) Open Woodland over Melaleuca spp. Thicket.

Acacia shrubland: Acacia multispicata Open Scrub with no understory.

Acacia-Melaleuca shrubland: Acacia multispicata and Melaleuca hamulosa Open Scrub over Acacia merrallii Open Dwarf Scrub C with scattered E. salubris (Gimlet) trees. Partly disturbed. Lake Margins have samphires and Melaleuca shrubs or, where gypseous dunes have accumulated, very old Callitris canescens (Native Pine) and Melaleuca trees.

Disturbed areas are present in many parts of the Reserve and support various regrowth according to their history.

Area 1: Leptospermum erubescens (Ti-tree) and Gastrolobium spinosum (Prickly Poison) have replaced Melaleuca uncinata (Broombush) thicket.

Area 2: Area cleared, ploughed and seeded with wheat has regrown into Salsola kali (Prickly Saltwort) and Erodium cygnorum (Heron's Bill) with

abundant grasses.

Area 3: Entirely dominated by dense cover of Prickly Saltwort.

plant species

Forty-six species of plants were recorded of which 6 are exploited by the wildflower seed trade.

Weeds

The only weeds of consequence on the Reserve were Salsola kali (Prickly saltwort) and Erodium cygnorum (Heron's Bill). Neither are of agricultural importance.

Fire

Evidence of old burnt stumps in uncleared areas. Vegetation in these areas is presently older than 10-15 years.

Fauna

Echidna (Tachyglossus aculeatus): scats in woodland.

Grey Kangaroo (Macropus fuliginosus): 2 seen in woodland.

White-faced Heron (Ardea novaehollandiae): 2 on lake.

Grey Teal (Anas gibberifrons): 5 flying over Reserve.

Unidentified small wading birds: 3 on lake.

Crested Pigeon (Ocyphaps lophotes): common.

Rainbow Bird (Merops ornatus): flock of 23 in woodland.

Australian Pipit (Anthus novaeseelandiae): mostly on paddock edges.

Black-faced Cuckoo-Shrike (Coracina novaehollandiae): 2 in woodland.

White-browed Babbler (Pomatostomus superciliosus): common.

Yellow-rumped Thornbill (Acanthiza chrysorrhoa): in eucalypts.

White-fronted Chats (Epthianura albifrons): common in samphires and heath.

Black-faced Wood-swallow (Artamus cinereus): several just S of Reserve.

Western Magpie (Cracticus tibicen dorsalis): 8 in open heathy areas.

Australian Raven (Corvus coronoides): common, several nests seen.

Exotic fauna

Cat and dog footprints were noted and a rabbit warren found. A nearby farmer reports occasional foxes on the Reserve.

Fences and firebreaks

See map for position of fences. There are no firebreaks.

Human usage

An extensive rubbish tip and gravel pit are present on the S end of the Reserve. Some timber has been removed. Extensive areas have been cleared or cleared, ploughed and cropped then allowed to regrow. The tongue at the N end of the Reserve has been fenced off and partly cleared. Sheep have been run in the area.

Adjacent uncleared land

Many square kilometres of saltland extend to the N and SW of the Reserve.

Remarks.

In spite of the Reserve being set aside for conservation of Flora in 1953, the Merredin Shire applied to have Lot 64 made available for cropping on the basis it was a fire hazard (wild oats and other grass) and was a breeding ground for locusts. The Reserve was inspected in July and October by an officer of the Agricultural Protection Board. He stated there was no fire hazard and no locust problem, and recommended that cropping should not be allowed. Subsequently the right of agistment on the Reserve was granted.

It is also noted that the "Rubbish Site (Lot. 28290) which was excised from the Reserve in 1966 has not been used but that there is an extensive rubbish dump developed on Lot 64 (see map).

Opinion and recommendations

Reserve 23795 appears to have had a turbulent history of clearing, rubbish dumping and other effects. Most of the cleared areas are now regrowing and providing useful shrub associations for small birds. There is no evidence of extensive grass development except in the Pricely Saltwort areas, where there may be some seasonal grasses. Nearby farmers indicate that locusts are not common in the area and never have been. The Reserve as it exists at present is an important wildlife refuge and should be preserved. An attempt should be made to stop further rubbish dumping on Lot 64 and to rehabilitate some of the area. The current status of the N end needs to be examined, and action taken against the farmer if thought necessary. I recommend that Reserve 23795 be vested in the Western Australian Wildlife Authority.

APPENDIX 5

VEGETATION DETAILS RESERVE 23795

Salmon Gum-Yorrell woodland

Eucalyptus salmonophloia and E. gracilis trees, mature to senescent, stratum 16-24 m tall, 2-10% canopy cover over Melaleuca hamulosa and/or M. uncinata shrubs, mature, stratum 2-4 m tall, 30-70% canopy cover. There are occasional thickets of Callitris huegellii, M. hamulosa and M. cymbifolia and some open areas. Other plant species recorded were: Acacia colletioides, A. multispicata, Brachysema aphyllum, Exocarpus sparteus, Lomandra effusa. Soil is pink, clay loam. Poorly drained.

Acacia shrubland

Acacia multispicata shrubs, mature, 5 m tall, 2-10% canopy cover. No understory but scattered shrubs of: Acacia colletioides, A. desertorum, A. mackayana, Dodonaea bursariifolia, Melaleuca uncinata, Olearia axillaris eremicola and Rhagodia nutans. Soil is light grey, silty clay loam. Poorly drained.

Acacia-Melaleuca shrubland

Acacia multispicata and Melaleuca hamulosa shrubs, mature, stratum 3-4 m tall, 2-10% canopy cover over Acacia merrallii shrubs, mature, 1 m tall, 2-10% canopy cover. Scattered Eucalyptus salubris trees, 16-20 m tall are present. Area has been partly cleared and regrown. Other plant species recorded were: Acacia colletioides, A. graffiana, Alyxia buxifolia, Atriplex paludosa graciliflora, Bassia ?diacantha, ?Bertya cunninghami, Callitris huegellii, Darwinia affin. diosmoides, Daviesia aphylla, Eremophila drummondii, Eucalyptus wandoo, Exocarpus sparteus, Grevillea acuaria, Hakea preissii, Lycium australe, Olearia exiguiifolia, O. muelleri, Podolepis capillaris, Rhagodia nutans, Santalum acuminatum, Scaevola spinescens, Stipa elegantissima, Templetonia sulcata. Soil pinkish grey, fine sandy loam. Poorly drained.

Lake Margins

Flat lake margins had Arthrocnemum, Melaleuca cymbifolia and M. uncinata. Gypseous dunes commonly supported very old Callitris canescens and Melaleuca hamulosa trees.

Reserve 23795

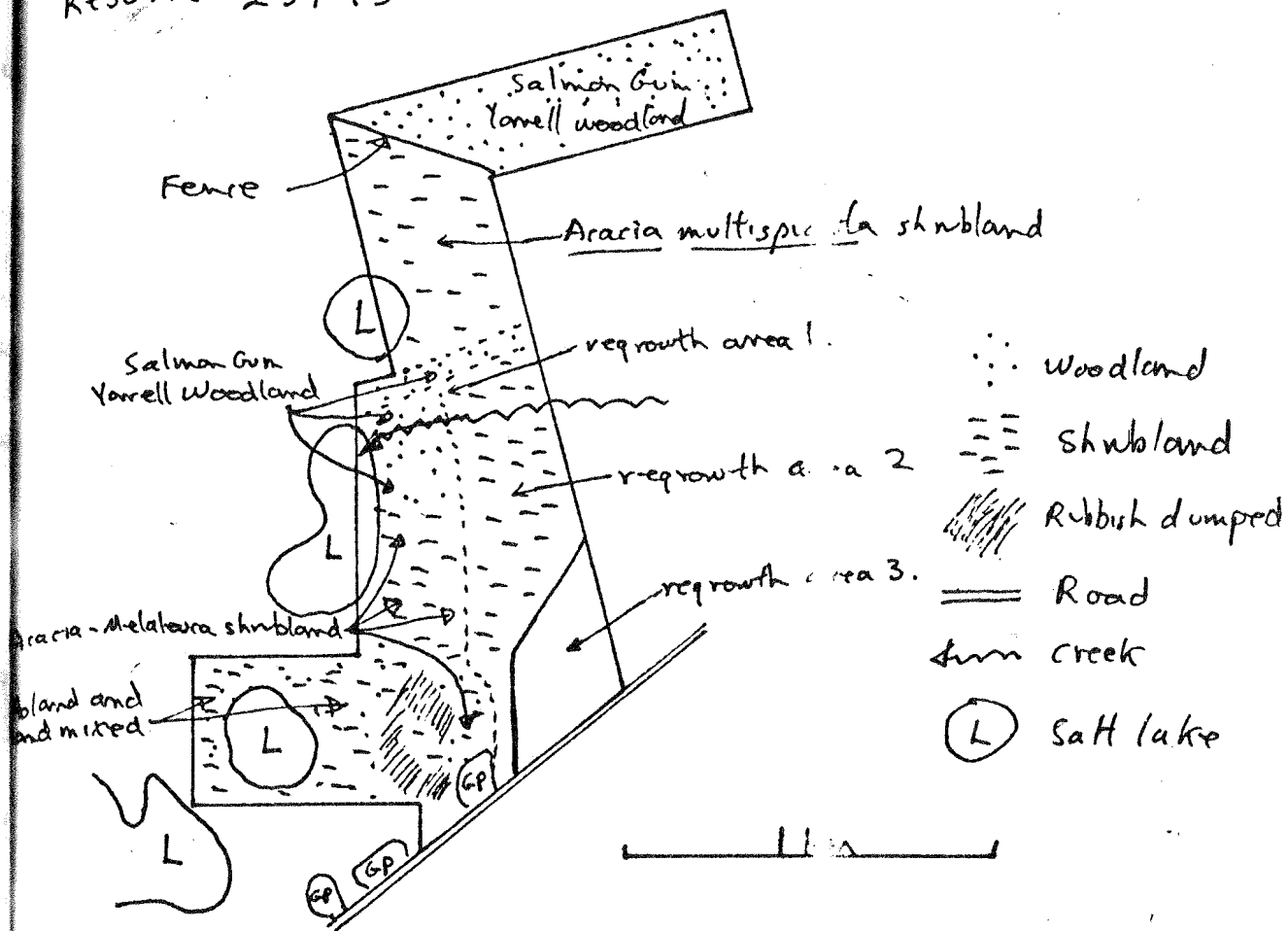




plate 6. Reserve 23795. Rounded clumped Acacia multispicata shrubs with no understory.

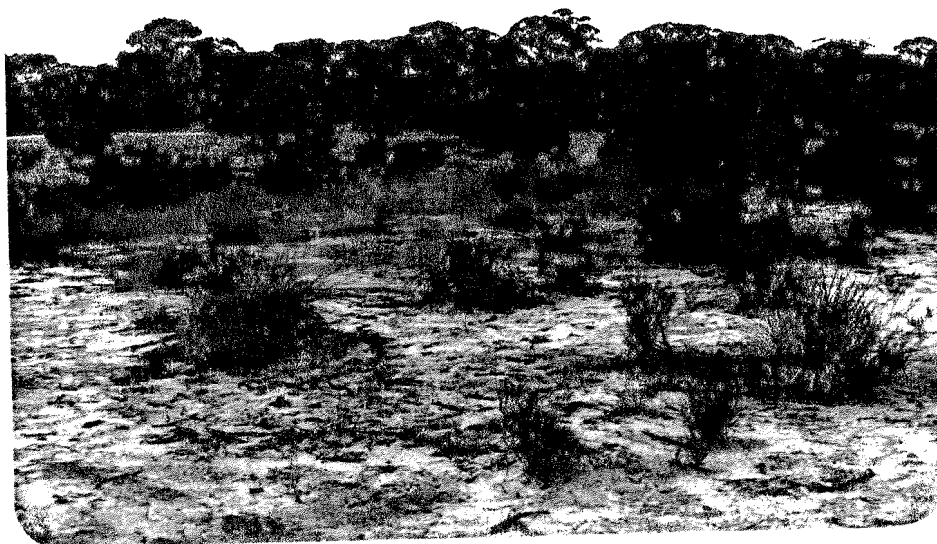


Plate 7. Acacia and Melaleuca shrubland and open areas which are regrowth following clearing.



plate 8. Melaleuca thicket on Lake Margin on Reserve 23795.

located ca 38 km NNE of Merredin Townsite and shown on lithograph 2535-1, C2.

Background

Originally gazetted 3 August 1956 for "Conservation of Flora".

physical characteristics

Reserve 24507 is roughly rectangular, ca 3.2 km long (N-S axis) by ca 1.9 km broad (E-W axis) and has a total perimeter of ca 10.4 km and an area of 803.3769 ha. The Reserve is very flat, being ca 290 m above sea level. There is a 1-2 m variation in topography around the salt pans.

Vegetation

The majority of Reserve 24507 is covered with excellent and extensive stands of Eucalyptus gracilis (Yorrell) and E. salbris (Gimlet) woodland.

The woodland is an intimate mosaic of Yorrell Open Woodland and Gimlet Open Low Woodland A with patchily distributed understory of Melaleuca cymbifolia Open Low Woodland A over Atriplex paludosa graciliflora and Acacia colletioides Open Dwarf Scrub D under both dominants.

On the SW corner of the Reserve is a small area of Melaleuca uncinata (Broombush) and Acacia affin. resinomarginea Dense Thicket with no understory.

Northern and NE sides of the Reserve are mostly salt watercourses with low sandy mounds supporting shrubland. The watercourses are generally bare and so probably support a fairly large volume of rapidly moving water in some seasons. The immediate creek margins have sedge shrubs bordered by Broombush thicket in clumps. Low sandy ridges under salt influence support Templetonia sulcata (Centipede Bush) and Hakea prostrata Scrub with scattered native White Cypress Pine (Callitris huegellii).

Plant species

Forty-five species of plants were recorded of which 6 are exploited by the wildflower seed trade. Two Acacia, an Atriplex, an Enchylaena and a Phebalium of uncertain affinities were collected.

Weeds

None recorded.

Fire

Evidence of very old firescars in most parts of the woodland. The present vegetation is at least 20 years old.

Fauna

Echidna (Tachyglossus aculeatus): droppings in woodland.

Grey Kangaroo (Macropus fuliginosus): 2 seen in woodland and tracks near salt lakes.

Emu (Dromaius novaehollandiae): scats common.

Weebill (Smicromis brevirostris): common in woodland.

Magpie-lark (Grallina cyanoleuca): common.

Grey Butcher-bird (Cracticus torquatus): 1 in woodland.

Western Magpie (C. tibicen dorsalis): several in woodland.

Australian Raven (Corvus coronoides): common.

Vermicella b. bertholdi (Bandy-Bandy): in hollow log.

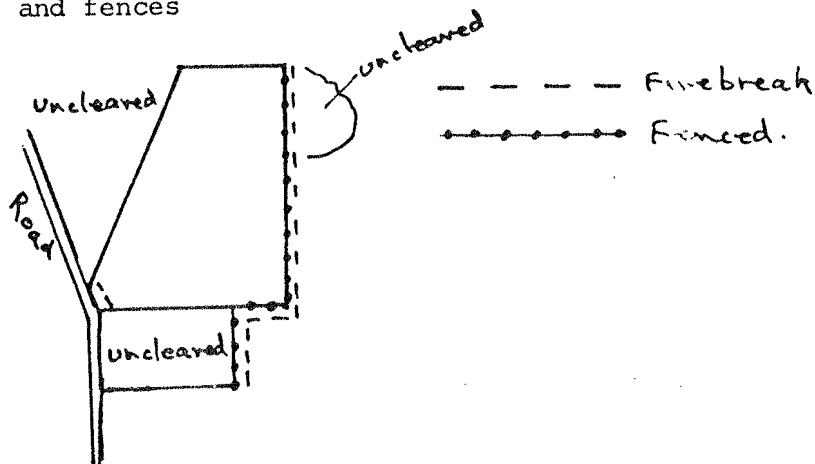
Diplodactylus granariensis: in hollow log.

Gehyra variegata (Tree Dtella): caught in pit trap at night.

Exotic fauna

Rabbit scats and diggings were noted. Dog footprints were seen in mud at 2 places.

Firebreaks and fences



Human usage

Extensive timber cutting has taken place throughout the woodland.
A small amount of rubbish has been dumped.

Adjacent uncleared land

Several hundred square kilometres of uncleared land are contiguous with the Reserve. (Refer map).

Opinion and recommendations

There is a high probability that Reserve 24507 represents perhaps the most south-western block of extensive woodland to penetrate into the wheatbelt from the goldfields region. Woodland, generally an indicator of rich soil, was one of the first vegetation types to be cleared after opening up of land throughout the wheatbelt. As a result, woodlands of any type are now scarce and the remnants should be retained for scientific as well as recreational use.

I recommend that Reserve 24507 be vested in the Western Australian Wildlife Authority and investigations be made of 2 other reserves nearby. These are 21759, a "Common" and 24789 a reserve for "Conservation of Flora and Fauna". Neither of these Reserves are vested and so enjoy no particular protection. I feel it would be advantageous to have all the reserves making up the Lake Campion complex under the control of a single Governmental body.

APPENDIX 6

VEGETATION DETAILS RESERVE 24507

Yorrell-Gimlet woodland

The majority of the Reserve has a cover of woodland comprising an intimate and complex mosaic of two associations.

1. Eucalyptus gracilis trees, mature, stratum 4-22 m tall, 2-10% canopy cover with scattered E. salubris.
2. E. salubris trees, mature, stratum 8-15 m tall, 2-10% canopy cover with scattered E. gracilis and some E. salubris emergent to 25 m tall.

Understory throughout the woodland is basically Melaleuca cymbifolia trees, mature, 4-7 m tall, 2-10% canopy cover (but patchily distributed) over Atriplex paludosa graciliflora and Acacia colletioides shrubs, 0.5 m tall, 2-10% canopy cover (but patchily distributed). Other plant species recorded are listed below.

E. gracilis area (those marked * were also in E. salubris area): Acacia colletioides*, A. erinacea*, A. merrallii*, Atriplex paludosa, Daviesia brevifolia, Eremophila scoparia, Exocarpus sparteus*, Grevillea acuaria*, G. huegellii, Olearia muelleri, Phebalium sp.*, Santalum acuminatum, Westringia cephalantha. Soil pinkish grey, sandy clay loam. Poorly drained.

E. salubris area: those species marked * above and in addition, Cassia nemophylla, Eremophila drummondii, Lycium australe, Olearia axillaris eremicola, Rhagodia nutans, Stipa elegantissima. Soil as above but weak red.

Broombush-wattle thicket

Melaleuca uncinata and Acacia affin. resinomarginea shrubs, mature, stratum 2-3 m tall, 70-100% canopy cover. No understory present but scattered plants of: Amphipogon debilis, Dianella revoluta, Olearia axillaris eremicola. Soil light reddish brown, light sandy clay loam. Poorly drained.

salt creek margins and flats

The creek area had Arthrocnemum halocnemoides and A. sp. 16 patchily distributed along the edges and bordered by Melaleuca uncinata 2-5 m tall and 30-70% cover as a narrow belt. On slightly higher ground this gave way to a narrow belt of Templetonia sulcata and Hakea preissii shrubs 1.5-2.5 m tall, 10-30% canopy cover with scattered Callitris huegellii emergent to 7 m tall. Other plant species recorded were: Acacia affin. filifolia, A. sp. 9, Alyxia buxifolia, Argyroglottis turbinatus, Atriplex sp. 18, Disphyma blackii, Enchylaena sp. 2, Eremophila clarkii, E. oppositifolia, Eucalyptus salubris, Exocarpus aphyllus, Grevillea acuaria, Lomandra effusa, Maireana sp. 11, Melaleuca hamulosa, Scaevola spinescens. Soil was pink, sandy clay loam. Well drained but with shallow water table.

Reserve 24507

now listed as part of
Res 24789
(Lake Campeon NR)

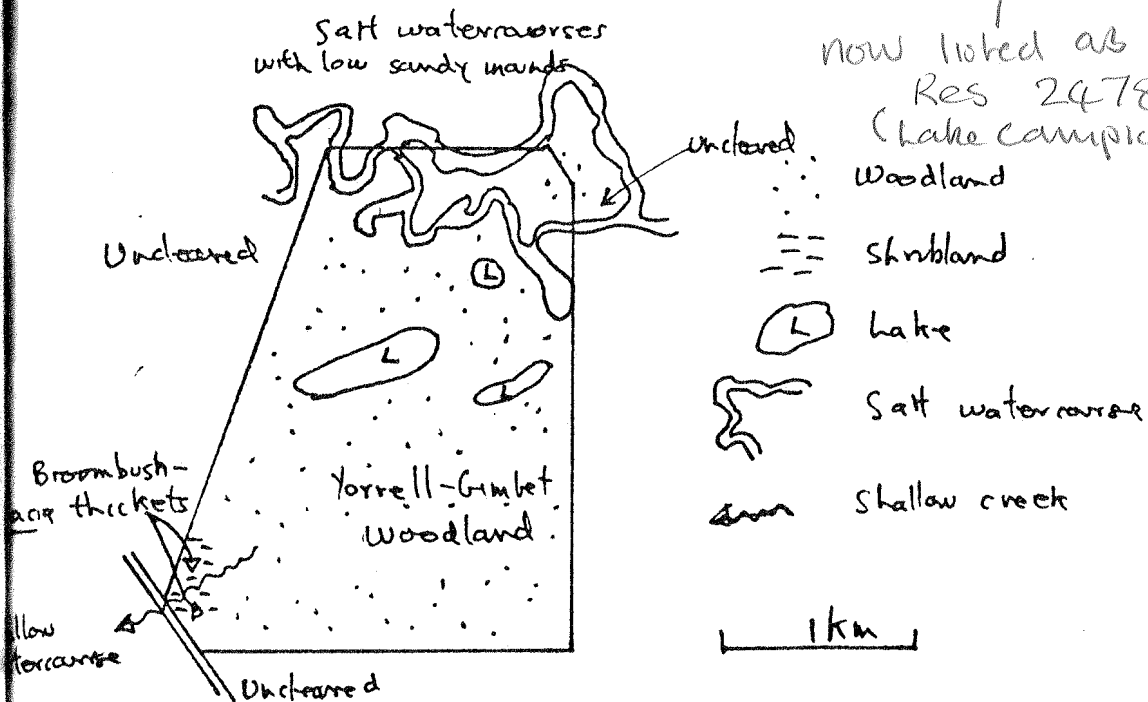




Plate 9. Reserve 24507 showing an area of Yorrrell woodland typical of much of the Reserve.



Plate 10. Templetonia sulcata, Hakea preissii shrubland.

Reserve 24532

Located immediately N of Nangeenan Siding and ca 13 km WSW of Merredin Townsite. Shown on lithograph 2534-1V, BC1.

Background

Originally gazetted 31 August 1956 for "Flora". Its area was originally 35.5 ha but was enlarged to 46.8 ha on 5 October 1962 by the addition of lots 144-149.

physical characteristics

Reserve 24532 is almost square, 46.7588 ha in area and with a total perimeter of ca 4.5 km. The Reserve is relatively flat, the W side being close to the 270 m above sea level (ASL) contour line and a Bench Mark on the S boundary being 271.69 m ASL.

Vegetation

Except for totally cleared areas the Reserve is covered in woodland.

The S end of the Reserve has Eucalyptus salmonophloia (Salmon Gum) Low Woodland A over mixed Open Low Scrub B with scattered E. salubris (Gimlet) trees.

Towards the N end of the Reserve, and blending gradually into the southern association is a stand of E. longicornis (Morrell) Open Woodland over Melaleuca cymbifolia Open Low Woodland B.

Lots 147 and 148 were totally cleared prior to 1955 and have been cultivated. At the time of this survey the ground was bare except for a cover of Erodium sp. weeds and seedling grasses. Scattered Atriplex semibaccata, Salsola kali and Solanum hystrix plants were present.

Plant species

Twenty-five plant species were recorded, of which 4 are exploited by the wildflower seed trade. An Atriplex of uncertain affinities was collected.

Weeds

Only in cleared area and around houses. Mostly Salsola kali, Solanum hystrix and grasses.

Fire

No evidence of fire for at least 30 years.

Fauna

Crested Pigeon (Ocyphaps lophotes)

Mulga Parrot (Platycercus varius)

Galah (Cacatua roseicapilla)

Yellow Throated Miner (Manorina flavigula)

Magpie-lark (Grallina cyanoleuca)

Western Magpie (Cracticus tibicen dorsalis)

This Reserve is also the type locality for 3 species of terrestrial mollusc (refer to "Remarks").

Exotic fauna

A resident of one of the houses reported that a fox was occasionally sighted. Rabbits are absent. Cats and dogs live in several of the houses and must enter the Reserve frequently.

Firebreaks and fences

No firebreaks except in adjacent farmland. Fences on adjoining farmland are in excellent condition but the S boundary (behind the houses and on the roadway) is unfenced.

Human usage

Extensive use of the southern portion but less at the northern end. The area around the occupied houses is very disturbed and there is some rubbish dumping. Rubbish is also abundant on the E side of the Reserve but appears to be fairly localised. Timber has been removed throughout the woodland but all a long time ago. The houses are all supplied with gas and

electricity and fences nearby are all steel star pickets, so future wood cutting is likely to be minimal. A playing field and lots 147 and 148 are cleared. Tracks of vehicles are common in the Reserve.

Adjacent uncleared land

A few ha of uncleared woodland are present S of the railway line. Otherwise the Reserve is completely isolated.

Remarks

Reserve 24532 is of considerable scientific importance as the type locality of some terrestrial molluscs. Mr. Eric Sedgewick, a teacher at the Nangeenan State School (closed in 1945) collected a number of snail species which were later examined by T. Iredale and identified as new species. These were Bothriembryon sedgewicki, Westralaoma aprica, W. expicta and a previously undescribed subspecies (named asserta) of another species, Themapupa beltiana (Tate 1894). A fifth species, described from elsewhere, was also collected (Australbinula complexa).

The original descriptions of all these species is published in: Iredale, T. (1939) A review of the land mollusca of Western Australia. Rec. West. Aust. Mus. and Art Gall. 2(1). B. sedgewicki is also described in Iredale, T. (1939) J. R. Soc. West. Aust. 25: 1-88.

Opinion and recommendations

Although the understory of Reserve 24532 is disturbed and some areas cleared, there is still quite a good stand of woodland present. No doubt the continued human occupation and accompanying domestic pets have destroyed the majority, if not all of the vertebrate ground fauna. There is however a high probability that the mollusc species for which this is the type locality still persist, largely because of the well developed litter layer, long period since fire and the cryptic nature of the molluscs. The 6 species of bird recorded in this survey indicate that the woodland is still important as a resting and feeding site.

Despite the disturbance to the understory 25 species of plants are present in the woodland (including the eucalypts) and this represents 0.53 species/ha, quite a rich flora for such a small area.

I recommend that Reserve 24532 be vested in the Western Australian Wildlife Authority and that moves be undertaken to ensure that no further development be undertaken on the Reserve. I also recommend that an investigation be made into the possibility of placing a restriction on the existing private blocks to ensure that when they become vacated that the site is cleared and allowed to revert to natural bushland.

APPENDIX 7
VEGETATION DETAILS RESERVE 24532

South end

Eucalyptus salmonophloia trees, mature, stratum 8-14 m tall, 10-30% canopy cover over mixed shrubs (no particular dominant) mature, stratum 1-1.5 m tall, 2-10% canopy cover. Scattered E. salubris trees are present. Other plant species recorded were: Acacia erinacea, A. mackayana, A. merrallii, A. microbotrya, Alyxia buxifolia, Atriplex sp. 4, Bassia diacantha, Casuarina campestris, Enchylaena tomentosa, Eremophila drummondii, Eucalyptus longicornis, E. transcontinentalis, Exocarpus aphyllus, E. sparteus, Grevillea huegellii, Olearia muelleri, Rhagodia nutans, Santalum acuminatum, Scaevola spinescens, Stipa elegantissima. Soil was red, medium clay. Poorly drained.

North end

Eucalyptus longicornis trees, mature, stratum 12-22 m tall, 2-10% canopy cover over Melaleuca cymbifolia trees, mature, stratum 1-2.5 m tall, 2-10% canopy cover. Other species recorded were: Acacia mackayana, Bassia diacantha, Eremophila drummondii, E. oppositifolia, Exocarpus sparteus, Grevillea acuararia, G. huegellii, Scaevola spinescens. Soil was red, medium clay, poorly drained.

Reserve 24532

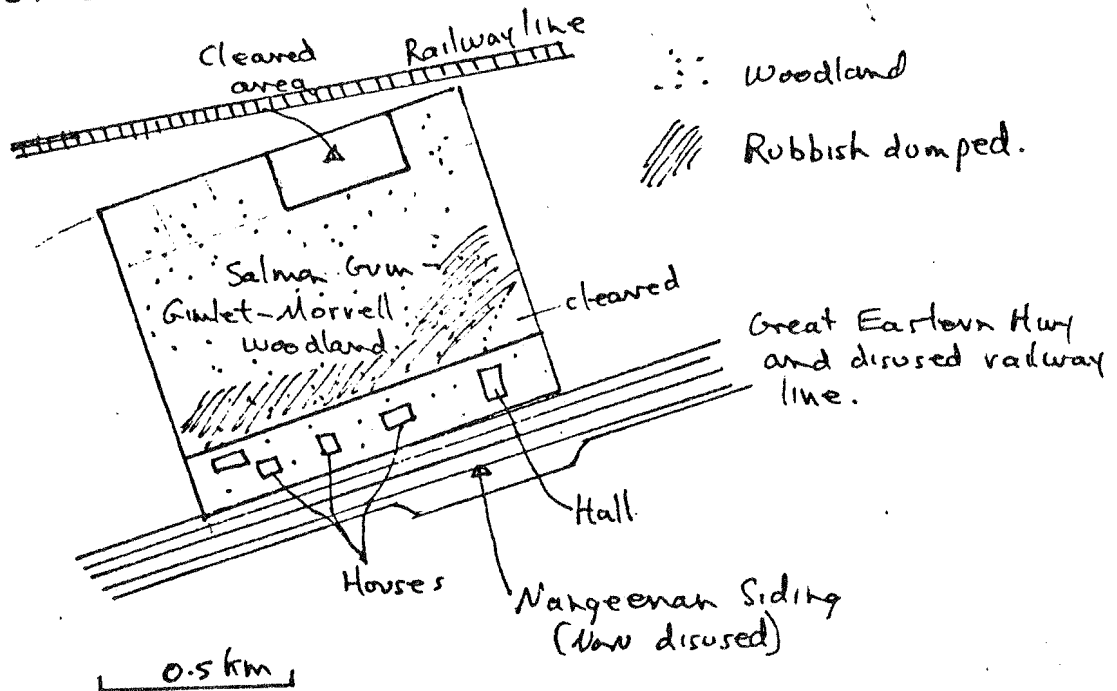




plate 11. Reserve 24532. ViewNW from E side of Reserve showing rubbish dumping area and woodland with fairly intact understory.

Reserve 24835

Located at Ulva Siding, ca 14 km SSW of Merredin Townsite and shown on lithograph 2534-IV, C2.

Background

Originally gazetted 25 May 1958 for "Conservation of Flora".

physical characteristics

Reserve 24835 is approximately rectangular, ca 0.9 km long (NE-SW axis) by ca 0.7 km broad (NW-SE axis) and with a total perimeter of ca 3.3 km. The area is 70.8200 ha. The highest point on the Reserve is the SE side at ca 310 m above sea level (ASL) and the lowest point the SW corner at ca 295 m ASL.

Vegetation

Wandoo woodland: Eucalyptus wandoo (Wandoo) Open Woodland over mixed shrubs
Open Dwarf Scrub C.

Mallee area: E. cylindriflora (White Mallee) Shrub Mallee surrounded by
narrow belt of E. redunca (Black Marlock) Open Shrub Mallee.

Wattle thicket: Acacia signata and A. resinomarginea Thicket.

Tamma shrubland: Casuarina campestris (Tamma) Thicket over Ecdeiocolea monostachya Open Low Sedges. The association is variable according to soil depth.

Plant species

Fifty-three plant species were recorded, of which 9 are exploited by the wildflower seed trade.

Weeds

None recorded.

Fire

Evidence of very old fire scars on the NW side of the Reserve. No evidence of fire on the SE side. The vegetation of both sides is probably older than 30 years.

Fauna

Rainbow Bird (Merops ornatus): 12 flying over Reserve.

White-browed Babbler (Pomatostomus superciliosus): 2 flocks of about 6 birds each noted.

Weebill (Smicrornis brevirostris): in woodland.

Australian Raven (Corvus coronoides): several along railway line.

Exotic fauna

Rabbit scats and scratchings were noted.

Fences and firebreaks

Fences are only present on adjacent farmland. Firebreaks are absent except along the sides of the railway line.

Human usage

Some rubbish has been dumped on the SW corner of the Reserve. A railway line passes through the centre of the Reserve and effectively divides it into 2 more or less equal halves.

Adjacent uncleared land

None except a narrow strip along the railway line.

Opinion and recommendations

Reserve 24835 is in excellent condition and supports sizeable stands of woodland and 2 shrubland associations. It is undoubtedly a significant refuge for fauna and a good representative of shrubland in this region. I recommend it be vested in the Western Australian Wildlife Authority.

APPENDIX 8

VEGETATION DETAILS RESERVE 24835

Wandoo woodland

Eucalyptus wandoo trees, mature to senescent, stratum 8-20 m tall and ca 2-5% canopy cover over mixed shrubs (no particular dominant) to 1 m tall, 2-10% canopy cover. Other plant species recorded were: Acacia assimilis, A. erinacea, A. mackayana, Borya nitida, Casuarina acutivalvis, Daviesia nematophylla, Dianella revoluta, Grevillea paniculata, Lomandra glauca collena, Olearia muelleri, O. revoluta, Rhagodia preissii, Santalum acuminatum. Soil was light grey, loam (fine sandy). Poorly drained.

Mallee area

Eucalyptus cylindriflora and scattered E. redunca shrub mallee, mature, stratum 6-10 m tall, 30-70% canopy cover. Understory is absent except for scattered plants of Daviesia nematophylla, Olearia muelleri and Rhagodia preissii.

Surrounding this stand is a narrow belt of E. redunca and some E. transcontinentalis shrub mallee, 6-10 m tall, 10-30% canopy cover with no understory but scattered Acacia mackayana, Borya nitida, Casuarina acutivalvis, Dianella revoluta and Lomandra glauca collena. Scattered E. wandoo trees are present. Soil was pinkish grey, clay loam. Poorly drained.

Wattle shrubland

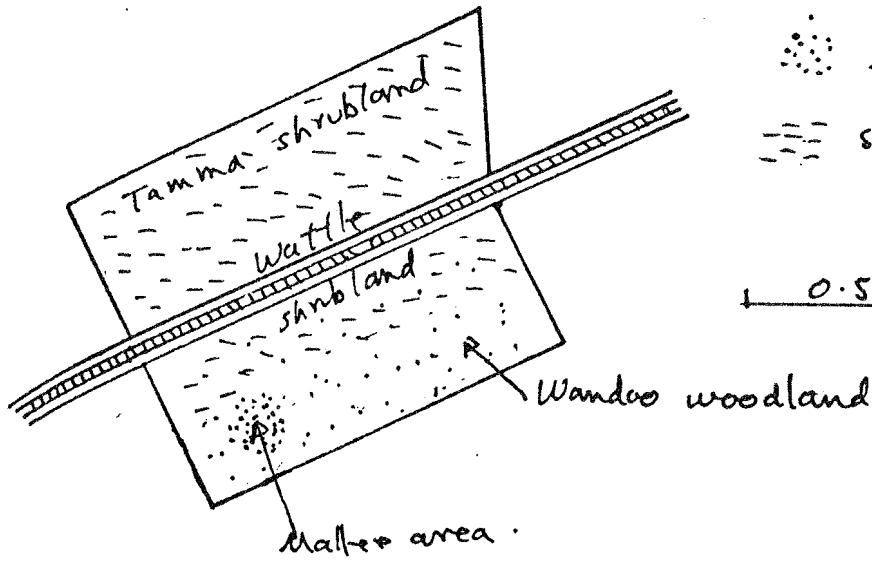
Acacia signata and A. resinomarginea shrubs, mature to senescent, stratum 6-8 m tall, 30-70% canopy cover over mixed shrubs (no particular dominant) to 1 m tall, 2-10% canopy cover. Other plant species recorded were: Acacia fragilis, Astroloma serratifolium, Baeckea muricata, Boronia ternata foliosa, Casuarina campestris, Eucalyptus burracoppinensis, Glyschrocaryon flavescens, Grevillea excelsior, G. integrifolia, G. paradoxa, Hakea falcata, H. francisiana, Lepidosperma drummondii, Melaleuca cordata, M. pungens, M. subtrigona, Micromyrtus imbricata, Parsoonia striata, Platysace effusa, Schoenus affin. globifer, Stipa elegantissima, Thryptomene australis. Soil was reddish yellow, fine sandy loam with some laterite. Well drained.

Tamma shrubland

Casuarina campestris shrubs, mature, stratum 1.5-2.5 m tall, 30-70% canopy cover over Ecdeiocolea monostachya and mixed shrubs, stratum 30 cm tall, 10-30% canopy cover. The following species were recorded: Acacia filifolia, A. mackayana, A. stereophylla, Astroloma serratifolium, Baeckea crispiflora, Borya nitida, Cyperaceae gen. 1, Eucalyptus redunca, Hakea subsulcata, Lepidosperma drummondii, Melaleuca cordata, M. uncinata, Phebalium tuberculosum, Platysace effusa, Schoenus affin. globifer. Soil was yellow, sandy clay loam with ca 30% laterite and about 30 cm deep over laterite. Well drained.

In other areas the upper stratum drops to less than 2 m tall and there is no understory. In these places laterite almost reaches the surface. In other places the sandy soil is 0.5-1.0 m deep and Melaleuca uncinata becomes co-dominant or dominant to C. campestris. The association in these areas is 2-2.5 m tall and 30-70% canopy cover over Melaleuca densa and M. lateriflora, 1-1.5 m tall, 2-10% canopy cover. Plant species are more or less as listed above, with the addition of Gastrolobium crassifolium, Leptospermum erubescens and Santalum acuminatum.

Reserve 24835



- Woodland
- Mallee
- shrubland

0.5 km



plate 12. Reserve 24835. Wandoo woodland with mixed shrub understory passing into mallee area in the distance.



Plate 13. Wattle shrubland with an understory rich in plant species.



Plate 14. Tamma shrubland on Reserve 24835. Viewed from firebreak.

Reserve 25872

located ca 2 km S of Hines Hill Siding and ca 19 km SW of Merredin Townsite. shown on lithograph 2534-IV, A1.

Background

Originally gazetted 3 March 1961 for "Conservation of Flora". Files of the Department of Fisheries and Wildlife record that the Reserve has a history of rapid salt encroachment. In 1935 to 1940 the streams flowing in the Reserve were reported to be fresh water. By 1960 the streams and adjacent land were salty.

Physical characteristics

Reserve 25872 is approximately rectangular, ca 3.9 km long (N-S axis) by ca 1.2 km broad (E-W axis). It has a total perimeter of ca 10.3 km and an area of 440.7963 ha. The Reserve is relatively flat and about 260 m above sea level. There are minor topographic differences of 1-2 m around the salt lakes.

Vegetation

Only 3 formations and 4 associations are present on Reserve 25872.

Mallee area: Eucalyptus redunca (Black Marlock) Very Open Shrub Mallee over Olearia revoluta (and other shrubs) Dwarf Scrub C.

Wattle shrubland: Acacia collettioides, A. multispicata and Hakea sp. 3
Open Scrub with scattered trees (Yorrell and Salmon Gum) .

Melaleuca shrubland: Melaleuca hamulosa or M. uncinata (Broombush) Scrub
along margins of salt flat.

Salt flat: Arthrocnemum pergranulatum (Samphire) varying from almost absent
to Dense Low Heath D.

plant species

Forty plant species were recorded, of which 6 are exploited by the wildflower seed trade. An Atriplex and Enchylaena of uncertain affinities were collected. Additionally a Hakea closely related to H. preissii and occupying similar habitat was collected. I believe it to be an undescribed species previously mistaken for, and grouped with, H. preissii.

Weeds

The commonest weeds were Arctotheca calendula (Cape weed), Emex australis (Doublegee) and Solanum hystrix (Afghan Thistle).

Fire

No definite evidence of fire in any area although there may have been fires in the mallee within the last 30-40 years.

Fauna

Echidna (Tachyglossus aculeatus): droppings in mallee area.

White-faced heron (Ardea novaehollandiae): 1 on salt flat.

Black Swan (Cygnus atratus): 3 on salt lake.

Mountain Duck (Tadorna tadornoides): 4 on salt lake.

Grey Teal (Anas gibberifrons): about 12 on salt lake.

Mulga Parrot (Platycercus varius): 2 in wattle shrubland.

Galah (Cacatua roseicapilla): common.

Willy Wagtail (Rhipidura leucophrys): common.

White-browed Babbler (Pomatostomus superciliosus): 2 flocks of 6 birds each in wattle shrubland.

Weebill (Smicrornis brevirostris): in eucalypts.

White-fronted Chat (Epthianura albifrons): common on salt flats and samphire heaths.

Zebra Finch (Peophila guttata): 8 on fence near Reserve.

Australian Raven (Corvus coronoides): common.

Exotic fauna

Evidence of fox and rabbits was found.

firebreaks and fences

Only the W side of the Reserve is fenced. The N, E and S sides are adjacent to roadways. There are no firebreaks.

Human usage

Some timber has been removed. The mallee area has abundant rubbish including car bodies, farm and household refuse, garden refuse, etc.

Adjacent uncleared land

Salt complex extends to the N and S of the Reserve and occupies at least 1000 ha.

Remarks

The watercourse was fresh water in 1935-40 and became salty about 1960. Salting up has progressed since that time.

The stream flows N through the Reserve.

Opinion

Reserve 25872 supports an interesting assemblage of plants and several bird species and is a significant conservation area. Perhaps its most important function, however, is for soil conservation. The rapid development of salting up over recent years makes it imperative that as much natural bushland as possible be retained, in order to slow the advancement of the salt into adjacent farmland. I recommend that Reserve 25872 be vested in the Western Australian Wildlife Authority.

APPENDIX 9

VEGETATION DETAILS RESERVE 25872

Mallee area

Eucalyptus redunca shrub mallee (and some tree mallee) stratum 6-12 m tall, 2-10% canopy cover over Olearia revoluta and several other shrubs, stratum 1 m tall, 10-30% canopy cover. Scattered E. salmonophloia trees 16-22 m tall. Other plant species recorded were: Alyxia buxifolia, Amphipogon debilis, Arctotheca calendula, Dianella revoluta, Disphyma blackii, Lomandra effusa, Melaleuca hamulosa, Rhagodia spinescens, Stipa elegantissima, Westringia cephalantha. Soil was pinkish grey, sandy clay loam. Poorly drained.

Wattle shrubland

Acacia colletioides, A. multispicata and Hakea sp. 3 shrubs, mature, stratum 5-8 m tall, 2-10% canopy cover. Scattered Eucalyptus gracilis trees 6-10 m tall and E. salmonophloia trees 8-14 m tall are present. They may reach 3% canopy cover in small areas. This association is on the higher portions of the Reserve, usually 1-2 m above the level of the salt flat. Other species recorded were: Acacia colletioides, A. merrallii, A. multispicata, Amphipogon debilis, Arctotheca calendula, Argyroglossis turbinatus, Atriplex paludosa graciliflora, A. sp. 8, Bassia diacantha, B. forrestiana, Carpobrotus edulus, Cheiranthra parviflora, Emex australis, Enchylaena sp. 4, Eremophila clarkii, E. drummondii, Lycium australe, Rhagodia nutans, R. spinescens, Salsola kali, Solanum hystrix, Templetonia sulcata. Soil reddish grey, fine sandy clay loam. Poorly drained.

Melaleuca shrubland

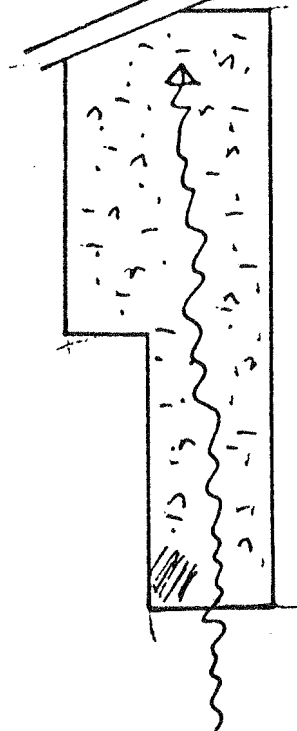
Melaleuca hamulosa or M. uncinata shrubs, mature to senescent, stratum 2-4 m tall, 10-30% canopy cover. This association is right on the saltflat margins, on the slopes between the Wattle shrubland and the salt flat. The only other species recorded in this association were Acacia multispicata, (with heavy infestations of the Mistletoe Amyema gibberulum), Arthrocnemum bidens, and Disphyma blackii. Soil reddish grey, fine sandy clay loam. Poorly drained and with shallow water table.

Salt flat

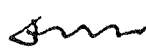
Arthrocnemum pergranulatum and some A. bidens on the slightly higher ground, 30 cm tall, varying from 0 to 80% canopy cover.

Reserve 25872

Disused
railway line



Mosaic of mallee
shrubland and salt flat.



watercourse



Rubbish dumped

1 km



plate 15. Reserve 25872 showing Mallee area on SW corner. Rubbish dumping has disturbed part of the association.



Plate 16. View across wattle shrubland towards saltflat.

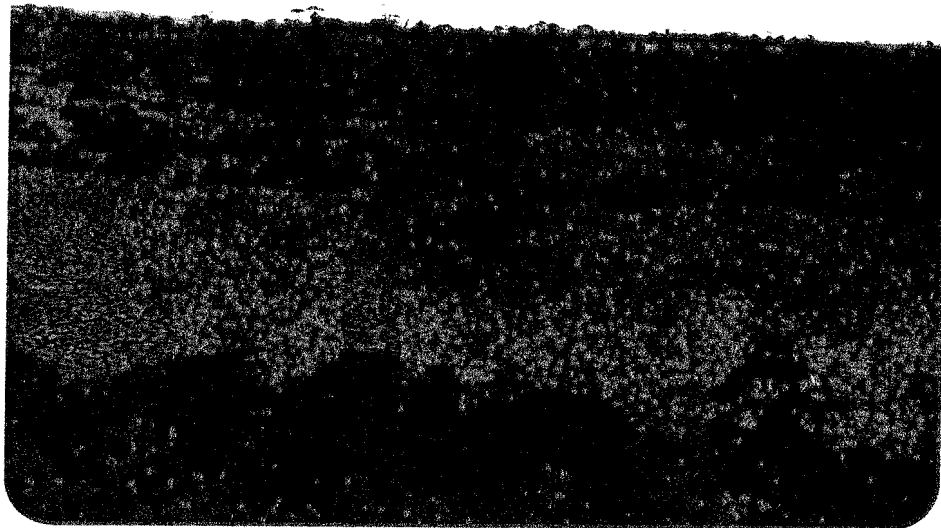


Plate 17. Samphire on salt flats on Reserve 25872.

Reserve 27584

located ca 14 km NE of Merredin Townsite and shown on lithograph 2535-11, B-C, 2-3.

background

Originally gazetted 25 June 1965 for "Conservation of Natural Flora".

physical characteristics

Reserve 27584 is linear, ca 3.2 km long (N-S axis) by ca 0.2 km broad (E-W axis) and with a total perimeter of ca 6.7 km. The area of the Reserve is 74.8988 ha. The highest part of the Reserve is ca 420 m above sea level (ASL) just N of the S end of the Reserve, and the lowest part 380 m ASL at the extreme N end.

Vegetation

Basically only two associations are present.

Wandoo woodland: Eucalyptus wandoo (Wandoo) Open Woodland over mixed Open Low Scrub B with localised denser patches.

Casuarina shrubland: variable association, the structure and floristics of which depends on soil type and drainage. The stand varies from C. acutivalvis Dense Thicket over Acacia neurophylla Open Scrub to C. acutivalvis and Melaleuca uncinata (Broombush) Dense Heath A with no understory, or in the wetter, more clayey sites just C. acutivalvis Open Scrub over M. cordata and mixed Low Heath C with scattered mallee.

Plant species

Forty-four plant species were recorded, of which 8 are exploited by the wildflower seed trade. Two Acacia and a Phebalium of uncertain affinity were collected.

Weeds

None were recorded.

Fire history

No evidence of fire within the last 20 years.

Fauna

Echidna (Tachyglossus aculeatus): droppings in woodland.

Grey Kangaroo (Macropus fuliginosus): droppings in woodland.

Southern Scrub-robin (Drymodes brunneopygius): seen in dense shrubland.

Exotic fauna

No evidence of any exotic species recorded.

Firebreaks and fences

Unfenced except N end. Firebreaks are absent except on the E side.

Human usage

None recorded.

Adjacent uncleared land

Uncleared bushland is extensive to the N end of the Reserve and to the W except for a narrow strip of recently scrub-rolled shrubland adjacent to the Reserve.

Opinion and recommendations

The Reserve is in excellent condition, carries a diverse flora and supports Scrub Robin, a species becoming increasingly scarce in the wheatbelt. Unfortunately, as clearing progresses, the Reserve will be unable to support the Robins due to limitation of the available habitat and, owing to its narrow linear shape will be greatly influenced by fertiliser penetration and probably grazing by stock. Unless some adjacent uncleared land can be purchased and added to its area promptly there is little hope for Reserve 27584 retaining its integrity in the future. I recommend that it be vested in the Western Australian Wildlife Authority.

APPENDIX 10
VEGETATION DETAILS RESERVE 27584

Wandoo woodland

Eucalyptus wandoo trees, mature, 12-22 m tall, 2-10% canopy cover over mixed shrubs (no particular dominant) mature, stratum 0.5-1.5 m tall, 2-10% canopy cover, locally up to 70%. Also recorded were: Acacia acuminata, A. colletioides, A. erinacea, A. sp. 10, Callitris roei, Casuarina acutivalvis, Enneapogon caerulescens, Eucalyptus cylindriflora, E. gardneri, E. salubris, Gastrolobium crassifolium, Grevillea paradoxa, Hibbertia uncinata, Olearia muelleri, Persoonia affin. teretifolia, Santalum acuminatum, Spartochloa scirpoidea. Soil is pinkish grey, sandy clay loam. Poorly drained.

Casuarina shrubland

This association is variable, depending on soil type. On highly lateritic, very dry sites it is; Casuarina acutivalvis shrubs, mature, stratum 2-4 m tall, 70-100% canopy cover over Acacia neurophylla shrubs, mature, stratum 1-2 m tall, 2-10% canopy cover. Species present were Acacia sp. 8, Astroloma serratifolium, Boronia ternata var. foliosa, Callitris roei, Grevillea paradoxa, Hakea subsulcata, Hibbertia affin. aurea, H. uncinata, Melaleuca uncinata, Phebalium sp. 7, and Thryptomene australis.

On slightly moister clay sand and laterite sites the dominant stratum is C. acutivalvis and M. uncinata 1.5-2 m tall and 70-100% canopy cover with no understory. Acacia neurophylla, Callitris roei and Thryptomene australis are absent and Beaufortia imbricata, Dampiera affin. coronata, Gastrolobium trilobium, Melaleuca laxiflora and Stylidium caricifolium nungarinense present.

The poorest drained site has sandy clay with almost no gravel and here the association is C. acutivalvis, mature, 1.5-2.5 m tall, 2-10% canopy cover over Melaleuca cordata and mixed shrubs, 1 m tall, 30-70% canopy cover. Scattered clumps or single plants of Eucalyptus burracoppinensis, E. cylindriflora and E. redunca are present. Other plant species recorded were: Beaufortia micrantha, Coleanthera myrtoides, Gastrolobium calycinum, Grevillea affin. didymobotrya, Hakea falcata, H. subsulcata, Hibbertia uncinata, Isopogon scabriusculus, Lysinema ciliatum, Melaleuca cordata, Persoonia striata, Scholtzia sp.

Uncleared

Reserve 27584

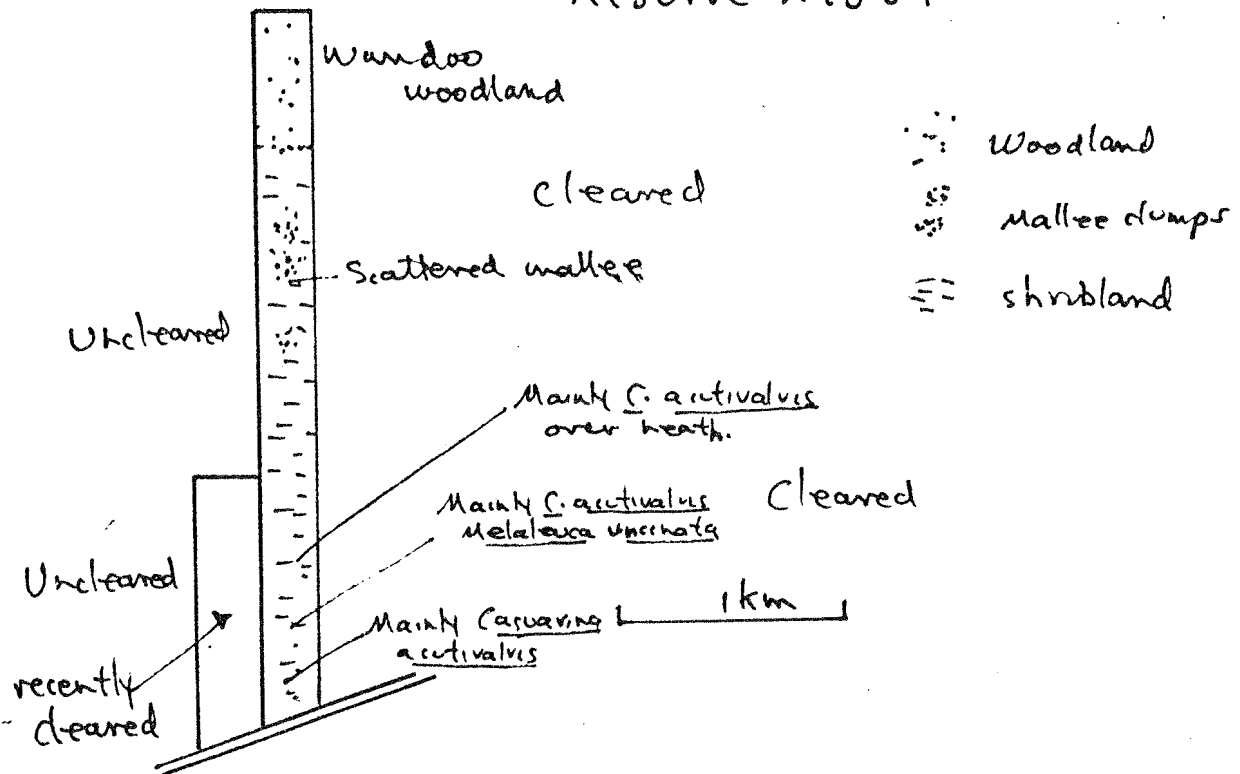




plate 18. Reserve 27584. View NE into Casuarina shrubland with Acacia neurophylla understory.



Plate 19. Wandoo woodland with mixed shrub understory.

Reserve 28403

Located at Nokaning Siding, ca 14 km NNW Merredin Townsite and shown on lithograph 2535-111, C2.

Background

Originally gazetted 20 January 1967 for "Conservation of Flora".

physical characteristics

Reserve 28403 is roughly rectangular, ca 1.3 km long (N-S axis) and varying from 1 km broad (E-W axis) at the S end to 0.5 km broad at the N end. The total perimeter of the Reserve is ca 4.2 km and its area 67.8152 ha.

The highest points on the Reserve are the SW corner and the N end of the W side at ca 340 m above sea level (ASL) and the lowest part the E side at ca 328 m ASL.

Vegetation

Although of small area Reserve 28403 has 3 associations, as set out below.

Wandoo-Salmon Gum woodland: Eucalyptus wandoo (Wandoo) and E. salmonophloia (Salmon Gum) Open Woodland over Acacia graffiana and mixed shrubs Open Dwarf Scrub C.

Black Marlock mallee: Eucalyptus redunca (Black Marlock) Very Open Shrub Mallee over Casuarina campestris (Tamma) Thicket over Borya nitida Open Herbs.

Tamma heath: Tamma Dense Heath A with varying proportions of Casuarina corniculata. Understory absent or locally heaths.

Disturbed area: grassy area with scattered shrubs.

plant species

Forty-two species of plants were recorded, of which 13 are exploited by the wildflower seed trade. A Schoenus and Hibbertia of unknown affinities were collected.

Weeds

The disturbed area (see map) had a cover of grass seedlings at the time of survey. Based on remains of old stalks the dominant is probably Avena sativa fatua. Additionally there were scattered plants of Chenopodium pumilio (Wild Mint), Ptilotus polystachys and Solanum hystrix (Afghan Thistle). There was also a small group of Shinus molle (Japanese Pepper Tree) planted near old foundations of a building.

Fire

No evidence of fire for at least 20 years.

Fauna

Brown Falcon (Falco berigora): 1 over Reserve.

Weebill (Smicrornis brevirostris): common in eucalypts.

Chestnut-rumped Thornbill (Acanthiza uropygialis): 2 seen in Tamma on edge of disturbed area.

Yellow-rumped Thornbill (A. chrysorrhoea): several in woodland.

Blue-breasted Wren (Malurus pulcherrimus): 1 seen in Tamma shrubland.

Trachydosaurus rugosus (Bob-tail Skink): 1 in Tamma shrubland.

Exotic fauna

Rabbit scats and scratching were noted in several places.

Firebreaks and fences

Absent except on adjacent farmland.

Human usage

A disturbed area where buildings once stood, and a gravel pit, occupy part of the E side of the Reserve. Some rubbish has been dumped around the pit and some remains after demolition of the buildings.

Timber has been removed from the Wandoo woodland and a telephone line crosses through the Reserve on its E boundary.

Adjacent uncleared land

The Reserve is completely isolated.

Opinion and recommendations

The isolation of the Reserve, and its diversity, make it of significant value as a "stepping-stone" of bushland for transient bird species. Additionally it represents a vegetation type which has been completely cleared from the surrounding region. I recommend Reserve 28403 be vested in the Western Australian Wildlife Authority.

APPENDIX 11

VEGETATION DETAILS RESERVE 28403

Wandoo-Salmon Gum woodland

Eucalyptus wandoo and E. salmonophloia trees, mature to senescent, stratum 16-20 m tall, 2-10% canopy cover over Acacia graffiana and mixed shrubs, mature, stratum 1 m tall, ca 2-3% canopy cover. Other plant species recorded were: Acacia erinacea, Daviesia filifolia, Eremophila drummondii, Eucalyptus redunca, Olearia muelleri, O. revoluta, Santalum acuminatum. Soil pinkish grey, fine sandy clay loam. Poorly drained.

Black Marlock mallee

Eucalyptus redunca shrub mallee, mature, stratum 4-7 m tall, 2-10% canopy cover over Casuarina campestris shrubs, mature, stratum 1.5-2.5 m tall, 30-70% canopy cover over Borya nitida herbs, mature, 10 cm tall, 10-30% canopy cover. Also recorded were: Acacia graffiana, Astroloma serratifolium, Cassytha glabella, Cheiranthra parviflora, Cryptandra myriantha, Daviesia brevifolia, Ecdeiocolea monostachya, Enneapogon caerulescens, Hakea subsulcata, Leptospermum erubescens, Melaleuca eleutherostachya, M. laxiflora, Santalum acuminatum, Stipa elegantissima. Soil light brownish grey, loam. Well drained.

Tamma heath

Casuarina campestris shrubs, immature, stratum 1-2 m tall, 70-100% canopy cover with no understory. Some areas have C. campestris replaced by, or co-dominant with, C. corniculata. In these areas a heathy understory develops. Other species recorded were: Acacia filifolia, A. stereophylla, Baeckea heteranthera, Borya nitida, Calothamnus gilesii, Cyperaceae gen. 1, Ecdeiocolea monostachya, Eucalyptus redunca, Hakea subsulcata, Melaleuca cordata, M. uncinata, Schoenus sp. Soil yellow, light sandy clay loam with ca 60% laterite pebbles. Well drained.

Disturbed area

Grassy area with scattered shrubs. Species recorded were: Acacia acuminata, Artemesia sp. 1, Chenopodium pumilio, Chloris truncata, Gastrolobium calycinum, Hibbertia sp., Maeriana georgei, Ptilotus polystachys, Shinus molle, and Solanum hystrix.

Reserve 28403

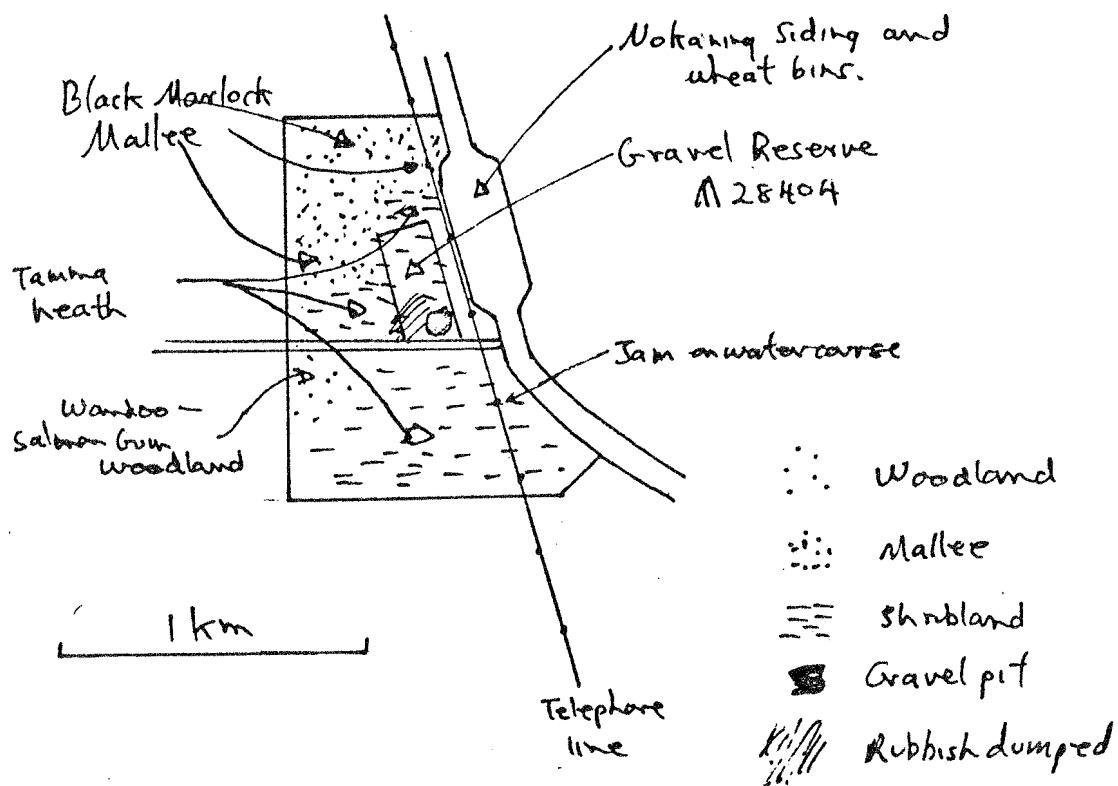




Plate 20. Reserve 28403 looking SW into Wandoo woodland with scattered Salmon gums and clumps of E. redunca mallee.



Plate 21. View W into Black Marlock mallee stand with Tamma understory.



Plate 22. Reserve 28403 showing Tamma heath with minimal understory development.

Reserve 28406
Nukarni Reserve

Located ca 22 km NNW Merredin Townsite and shown on lithograph 2535-111, Cl.

background

Originally gazetted 28 April 1967 for "Conservation of Flora and Fauna". At this time it was ca 85 ha in area but was increased to ca 88 ha on 23 January 1970.

physical characteristics

Reserve 28406 is square but with a truncated SW corner. The total perimeter of the Reserve is ca 4.9 km and its area 87.9129 ha. The Reserve is very flat, the NE corner being perhaps only 1 or 2 m higher than the SW corner. The whole Reserve is thus ca 290 m above sea level.

A creek flowing from the NE crosses the NW corner of the Reserve and another drains from the SW corner.

Vegetation

The majority of the Reserve is dominated by 2 associations.

Gimlet woodland: Eucalyptus salubris (Gimlet) Open Woodland over mixed Open Dwarf Scrub C.

Mallee areas: E. redunca (Black Marlock) Shrub Mallee over Triodia scariosa (Spinifex) Hummock Grass.

On the SE end of the Reserve there is a small swamp ca 100 x 150 m in diameter and, after rain, carries about 30 cm depth of water. The whole area is covered with Melaleuca acuminata Dense Thicket. Ecotones are narrow and pass abruptly into the surrounding woodland.

Plant species

Forty-two species of plants were recorded, 8 of which are exploited by the wildflower seed trade.

Weeds

Heavy rain had fallen about 4 weeks before this survey, flooding Mukarni Townsite and putting the Reserve under about 30 cm of water.

Pools of water and piles of water-borne debris were scattered throughout the Reserve. At the time of survey, weeds arising from the scattered debris and abundant moisture formed almost total cover in some areas. Species recorded were: Arctotheca calendula (Capeweed), Amaranthus albus (Tumbleweed), Anagallis arvensis (Pimpernel), Brassica tournfortii (Wild turnip), Chenopodium pumilio (Wildmint), Cucumis myriocarpus (Paddy melon), Emex australis (Doublegee), Erodium cygnorum (Heron's Bill), Hypochaeris glabra (Dandelion), Inula graveolens (Stinkwort), Oxalis pes-caprae (Soursob), Ptilotis polystachys and Raphanus raphanistrum (Wild radish). Additionally there were numerous species of other weeds and native annuals as seedlings which could not be identified.

Fire history

No evidence of fire within the last 30 years for most of the Reserve. The NW portion has been burnt within 6 months of this survey.

Fauna

Grey Teal (Anas gibberifrons): 4 on creek NW corner.

Crested Pigeon (Ocyphaps lophotes): common.

Galah (Cacatua roseicapilla): common mostly around siding.

Red-capped Robin (Petroica goodenovii): 2 in woodland, 2 in mallee, 1 in swamp.

Crested Bellbird (Oreoica gutturalis): heard in woodland.

White-browed Babbler (Pomatostomus superciliosus): heard in mallee.

Weebill (Smicrornis brevirostris): common in woodland.

Chestnut-rumped Thornbill (Acanthiza uropygialis): in mallee.

Yellow-rumped Thornbill (A. chrysorrhoa): in mallee.

Western Spinebill (Acanthorhynchus superciliosus): 1 seen in mallee.

White-fronted Chat (Epthianura albifrons): 2 seen in mallee along creek.

Magpie-lark (Grallina cyanoleuca): common around buildings.

Black-faced Wood Swallow (Artramus cinereus): 6 on power lines.

Grey Butcher-bird (Cracticus torquatus): 1 calling near swamp.

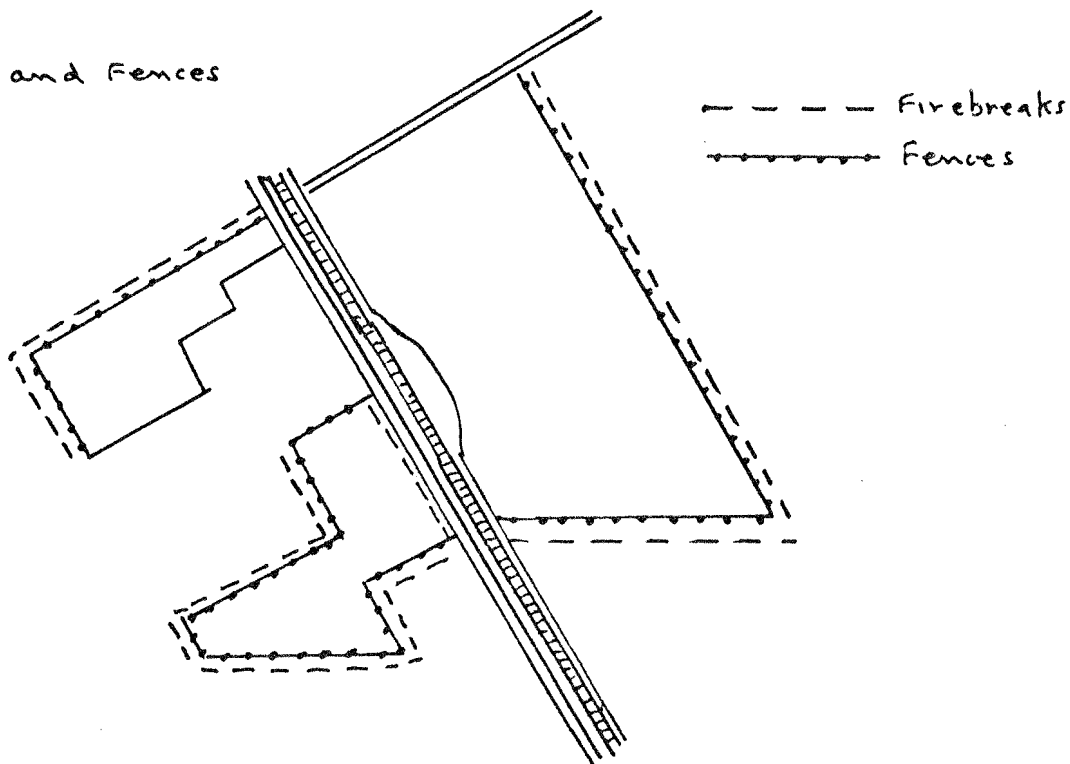
Western Magpie (C. tibicen dorsalis): common near rubbish tip.

Australian Raven (Corvus coronoides): common near playing field.

Exotic fauna

Rabbit scats were noted. Dogs and cats are common in houses along the main road and on homesteads nearby. A local resident reports that foxes are occasionally seen.

Firebreaks and Fences



Human usage

Several homes, a store and a Post Office are present. There is little indication that the townsite is likely to be abandoned, as has happened in many other parts of the wheatbelt. A gravel pit, gravel dump and rubbish tip are present in the eastern portion of the Reserve. Timber has been removed. Several roads, tracks and a wheat storage area are in the Reserve. A large and often used playing field is at the S end of the Reserve on adjacent land.

Adjacent uncleared land

Some woodland surrounds the playing field and there is some uncleared woodland contiguous with the SW corner of the Reserve.

Opinion and recommendations

Despite the pressure of human usage on this Reserve the majority of its vegetation remains intact. The aesthetic appeal of the bushland

was commented on by several residents and who feel strongly about its retention in its present form.

The Reserve also has some importance as a resting and feeding site for migratory birds and has some interesting flora e.g. the spinifex understory. I recommend that Reserve 28406 be left more or less in its present state but that a sign be erected at the rubbish tip requesting that further dumping be restricted to the area already in use. Perhaps negotiations with the Shire could lead to the development of a more suitable rubbish disposal site further from houses and the playing field.

I also recommend that Reserve 28406 be vested in the Western Australian Wildlife Authority.

APPENDIX 12

VEGETATION DETAILS RESERVE 28406

Gimlet woodland

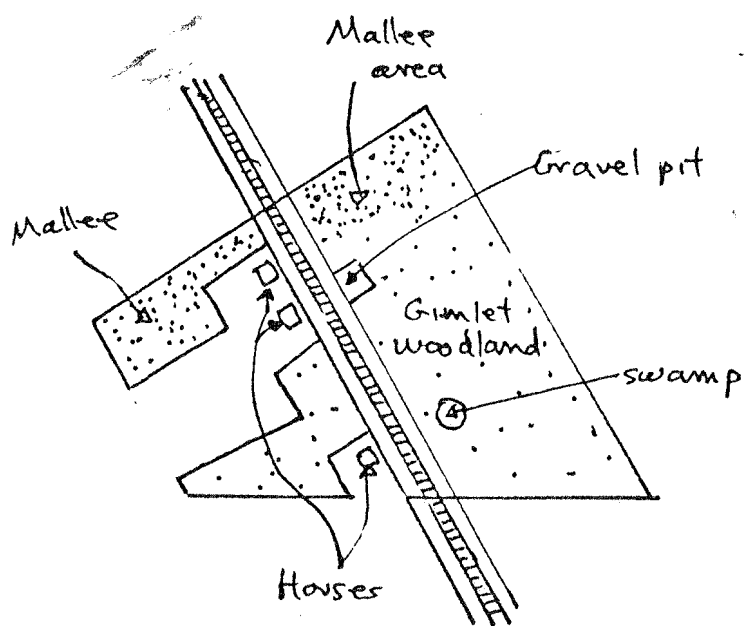
Eucalyptus salubris trees, mature, stratum 8-16 m tall, 2-10% canopy cover. Scattered E. salmonophloia trees to 20 m tall and E. wandoo to 15 m tall. Understory of mixed shrubs (no particular dominant) mature, 1 m tall, 2-10% canopy cover. Other species recorded were: Acacia colletioides, A. erinacea, A. graffiana, A. merrallii, Amphipogon debilis, Bassia diacantha, Beyeria leschenaultii, Cassia nemophylla, Dianella revoluta, Enchylaena tomentosa, Eremophila clarkii, Exocarpus aphyllus, E. sparteus, Grevillea acuaria, G. huegellii, Lomandra effusa, Melaleuca uncinata, Olearia revoluta, Rhagodia nutans, R. affin. semibaccata, Salsola kali, Santalum acuminatum, Stipa elegantissima. Soil red, light clay. Poorly drained.

Mallee areas

Eucalyptus redunca shrub mallee, mature, 6-9 m tall, 30-70% canopy cover over Triodia scariosa hummock grass, 30 cm tall, 10-30% canopy cover. Also recorded were: Acacia colletioides, A. graffiana, A. tetragonophylla, Borya nitida, Cheilanthes tenuifolia, Daviesia nematophylla, Dianella revoluta, Dodonaea affin. attenuata, Ecdeiocolea monostachya, Grevillea acuaria, G. paradoxa, Hakea subsulcata, Harperia lateriflora, Lepidosperma drummondii, Leptospermum erubescens, Lomandra effusa, Olearia revoluta, Stipa elegantissima, S. hemipogon. Euphorbia drummondii was common in disturbed areas. Soil reddish brown, fine sandy clay loam. Poorly drained.

Swamp

Melaleuca acuminata shrubs, immature, stratum 1.5-2.5 m tall, 70-100% canopy cover. No other species recorded except on margins where other species from surrounding woodland penetrate. Grevillea acuaria was particularly abundant in the ecotone. Soil red, light clay. Pooling after rain.



- ⊙ Mallee
- ⊙ woodland
- ⊢⊢⊢⊢⊢⊢ Railway line

0.5 km



Plate 23. View S into mallee over spinifex association on N and S



Plate 24. A typical rea of Gimlet woodland on Reserve 28406.

Reserve 28940

Located ca 48 km ESE Merredin Townsite and shown on lithograph 24/80, E-F, 3-4.

Background

Originally gazetted 22 March 1968 for "Conservation of Flora and Fauna".

Physical characteristics

Reserve 28940 is '7' shaped, and with a total perimeter of ca 17.6 km and an area of 1375.1218 ha.

No contour maps are available for the Reserve but spot altitudes of 398 m above sea level (ASL) 2 km S, 367 m ASL 4 km W and 428 m ASL 6 km N of the Reserve are shown on sheet SH50-16 of the 1:250,000 series Survey Maps.

A shallow creek flows from the NE corner of the Reserve to the SW corner of the N part of the Reserve.

Vegetation

Vegetation on Reserve 28940 is presently quite diverse, but this is largely due to a fire 5-6 years before this survey. Prior to the fire 3 formations (woodland, mallee and shrubland) and 6 associations were present. Currently there are 11 vegetation types represented. These are listed below.

Type 1: Eucalyptus wandoo (Wandoo) Woodland over mixed Low Scrub A.

Type 2: As for type 1 with some E. salmonophloia (Salmon Gum) present.

Type 3*: regrowth from burnt type 1. Can be described as Low Forest B.

Type 4: E. salubris (Gimlet) Low Woodland A over mixed Open Dwarf Scrub C.

type 5*: E. burracoppinensis Very Open Shrub Mallee over mixed Open Dwarf Scrub C.

type 6*: E. burracoppinensis and E. concinna Open Low Scrub B over mixed Open Dwarf Scrub D.

type 7: E. redunca (Black Marlock) Open Shrub Mallee over Melaleuca uncinata (Broombush) Open Low Scrub B with Broombush Dense Heath B on the margins.

type 8: E. calycogona, E. eremophila, E. sheathiana and E. transcontinentalis Shrub Mallee with scattered Wandoo.

type 9: Acacia signata and Broombush Thicket.

type 10*: Melaleuca subtrigona, M. oldfieldii, Dwarf Scrub D.

type 11*: Mosaic of types 5, 6, and 9.

* Types resulting from fire regeneration.

Plant species

Ninety-four plant species were recorded, of which 17 are exploited by the wildflower seed trade. Two Acacia, a Microcybe, a Schoenus and a Trymalium of uncertain affinities were collected.

Weeds

None recorded.

Fire history

Vegetation types 3, 5, 6, 10 and 11 represent areas burnt 5-6 years before this survey. The rest of the vegetation is older than 20 years.

Fauna

Echidna (Tachyglossus aculeata): droppings seen in wandoo woodland (Type 1).

Grey Kangaroo (Macropus fuliginosus): droppings common throughout. Local farmer indicates that Grey Kangaroo are the only sort he has seen on the Reserve. He recognises Brush Wallaby (Macropus irma) but believes that they don't occur on this Reserve.

Emu (Dromaius novaehollandiae): droppings seen in vegetation types 1, 3, 5, 7 and 8.

Mallee Fowl (Leipoa ocellata): farmer indicates that Mallee Fowl are often seen feeding in his paddocks and mostly emerge from the Reserve near associations 1 and 7.

Quail (possibly Stubble Quail, Coturnix novaezelandiae or Painted Quail, Turnix varia, most likely the former). Farmer indicates they are occasionally seen in his paddocks on the W side of the Reserve.

Australian Bustard (Otis australis): farmer indicates that Bustard have been seen more often than usual over the last 2 years (drought years). His last sighting was ca 3 months before this survey.

Common Bronzewing (Phaps chalcoptera): 1 seen in associations 1 and 7.

Crested Pigeon (Ocyphaps lophotes): 2 seen in type 7.

Port Lincoln Parrot (Platycercus zonarius): 4 flying over type 11.

Mulga Parrot (P. varius): 2 in Wandoo woodland type 1.

Galah (Cacatua roseicapilla): 2 in Wandoo woodland type 1.

Black-faced Cuckoo-shrike (Coracina novaehollandiae): 1 seen perched on tree on edge of type 5 heath.

Western Shrike-thrush (Colluricincla harmonica rufiventris): 1 seen in type 8 mallee.

Crested Bell-bird (Oreoica gutturalis): 1 heard on W side of Reserve.

Grey Fantail (Rhipidura fuliginosa): 1 seen in type 7.

Willy Wagtail (R. leucophrys): 2 seen in Wandoo woodland.

Southern Scrub-robin (Drymodes brunneopygius): heard calling in mallee type 7.

White-fronted Chats (Epthianura albifrons): several seen in regrowth heath types 5 and 6.

Grey Butcher-bird (Cracticus torquatus): 1 seen in mallee type 8.

Amphibolurus maculatus griseus (Military Dragon): common in associations 5, 6 and 9.

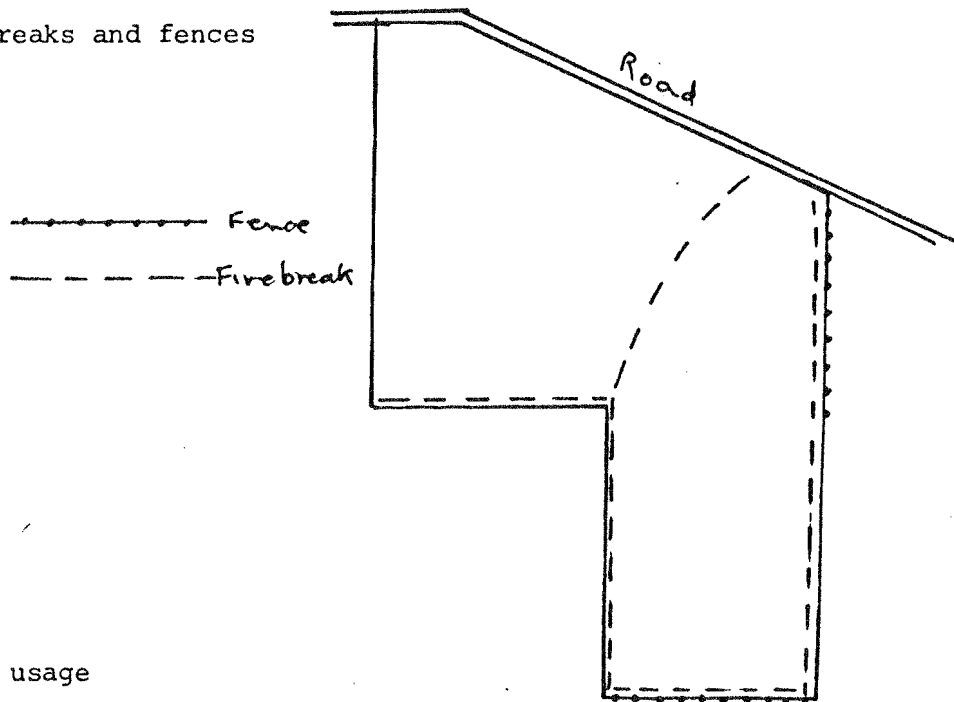
A. cristatus (Crested Dragon): 1 collected in mallee type 8.

Helioporus albopunctatus (Spotted Burrowing Frog): numerous near roadside pools and in shallow watercourse in association 6.

Exotic fauna

None recorded. A farmer on adjacent land (Graham Beck) informs me that rabbits are scarce in the area and that the only exotic fauna seen by him is the occasional fox.

Firebreaks and fences



Human usage

None recorded.

Adjacent uncleared land

At least 25 square km of uncleared land is directly or indirectly contiguous with the N boundary of the Reserve.

Opinion and recommendations

At present Reserve 28940 is in excellent condition and has virtually no disturbance from humans or exotic fauna. It carries a wide variety of vegetation types and hence habitat availability is high for fauna. Its fairly large area, diversity and only recent encroachment by agriculture make Reserve 28940 a valuable conservation resource. I recommend it be vested in the Western Australian Wildlife Authority.

APPENDIX 13
VEGETATION DETAILS RESERVE 28940

due to the complexity of the vegetation the various types have been designated by numbers. The distribution of each type is illustrated on the accompanying map.

Type 1

Eucalyptus wandoo trees, mature to senescent, stratum 8-20 m tall, 10-30% canopy cover over mixed shrubs, mature, stratum 1-2 m tall, 10-30% canopy cover. Plant species recorded are listed below: Acacia acuminata, A. erinacea, A. sp. 13, A. sp. 14, Bertya cunninghami, Casuarina acutivalvis, Dodonaea attenuata, Enneapogon caerulescens, Eremophila drummondii, Eucalyptus redunca, Grevillea acuaria, Melaleuca acuminata, M. hamulosa, Olearia muelleri, Phebalium tuberculatum, Rhagodia preissii, Santalum acuminatum, Trymalium sp. 1, Verticordia drummondii (marginal areas). Soil pinkish grey, sandy clay. Poorly drained.

Type 2

As for type 1 but with scattered Eucalyptus salmonophloia to 22 m tall.

Type 3

Fire regeneration area of woodland similar to type 1. Epicormic shoots have developed strongly and form a distinct stratum 3-4 m tall and 30-70% canopy cover. No understory has developed.

Type 4

Eucalyptus salubris trees, mature to senescent, stratum 6-12 m tall, 10-30% canopy cover over scattered shrubs to 1 m tall, ca 2% canopy cover. Other species recorded were: Acacia graffiana, Alyxia buxifolia, Bassia diacantha, Eucalyptus salmonophloia, Melaleuca adnata, Olearia muelleri, Santalum acuminatum. Soil light reddish brown, fine sandy clay loam. Well drained.

Type 5

Eucalyptus burracoppinensis, immature, 1.5 m tall, 2-10% canopy cover over Acacia assimilis and numerous other shrubs, immature, 0.5 m tall, 2-10% canopy cover. Association is regrowth following a fire 5-6 years before this survey. Other plant species recorded were: Acacia brachyclada, A. graffiana, A. rossii, A. signata, Boronia ternata foliosa, Chamelaucium megalopetalum, Choretrum preissii, Dodonaea bursariifolia, Eriostemon thryptomenoides, Glischrocaryon flavescens, Goodenia pinifolia, Grevillea excelsior, Melaleuca cordata, M. laxiflora, M. oldfieldii, M. pungens, M. uncinata, Microcybe sp. 1, Persoonia coriacea, Phebalium filifolium, Thryptomene urceolaris. Soil was red brown, clayey sand with ca 70% laterite pebbles. Well drained.

Type 6

Eucalyptus burracoppinensis and ?E. concinna shrub mallee, immature, stratum 1.5 m tall, ca 3% canopy cover over mixed shrubs (no particular dominant), 0.5 m tall, ca 2% canopy cover. Association is 5-6 years old. Other species recorded were: Acacia hynesiana, Beaufortia imbricata, Codonocarpus cotinifolius, Conospermum sp., Cryptandra myriantha, Dampiera tomentosa, Dryandra cirsioides, Gastrolobium spinosum, Grevillea didymobotrya, G. eryngioides, G. paradoxa, Hakea coriacea, H. subsulcata, Lepidosperma drummondii, Melaleuca laxiflora, M. scabra, Santalum acuminatum, Schoenus sp. Soil yellow, clayey sand with ca 50% laterite pebbles. Well drained.

Type 7

Eucalyptus redunca shrub mallee, mature, stratum 4-5 m tall, 10-30% canopy cover over Melaleuca uncinata shrubs, mature, 1.5 m tall, 2-10% canopy cover. On the margins of the stand the E. redunca canopy cover dropped to ca 2% and the M. uncinata remained the same height but increased to 70-100% cover. Other species recorded were: Acacia graffiana, Dodonaea bursariifolia, Melaleuca adnata, M. hamulosa, M. laxiflora and Phebalium filifolium. Soil pinkish grey, fine sandy loam. Well drained.

Type 8

Eucalyptus calycogona, E. eremophila, E. sheathiana and E. transcontinentalis shrub mallee, mature, stratum 4-7 m tall, 30-70% canopy cover. Scattered E. wandoo emergent 16-20 m tall. No understory. Other

species recorded were: Acacia colletioides, A. erinacea, A. intricata, A. leptospermoides, Beyeria leschenaultii, Casuarina acutivalvis, Eucalyptus cylindriflora, Olearia muelleri, O. revoluta, Stipa elegantissima. Soil pinkish grey, sandy clay. Poorly drained.

Type 9

Acacia signata, Melaleuca uncinata shrubs, immature to mature, stratum 2-2.5 m tall, 30-70% canopy cover. Understory was absent. Also recorded were: Acacia hynesiana, Casuarina acutivalvis, Dryandra cirsioides, Grevillea affin. filifolia, G. affin. juncifolia, Hakea multilineata, Hibbertia pungens, Isopogon scabriusculus, Lepidosperma drummondii, Melaleuca pungens, Persoonia coriacea, Santalum acuminatum, Thryptomene urceolaris, T. sp. Verticordia drummondii. Soil yellow, clayey sand with ca 20% laterite pebbles. Well drained.

Type 10

Melaleuca subtrigona, M. oldfieldii, immature, 30 cm tall, 10-30% canopy cover. This association is Type 9 which was burnt 5-6 years before this survey. Other species recorded were: Acacia assimilis, Beaufortia micrantha, Cassytha glabella, Chortrum pritzellii, Conospermum sp., Cryptandra myriantha, Cyperaceae gen. 1, Gastrolobium calycinum, G. spinosum, Glischrocaryon roei, Grevillea didymobotrya, G. hookerana, G. paradoxa, Hakea subsulcata, Lepidosperma pubisquameum, Platysace effusa, Verticordia chrysanthia, Xanthorrhoea nana. Soil as for type 9.

Type 11

Mosaic of regrowth vegetation similar to that described for types 5, 6 and 9. The only species different to those listed under types 5, 6 and 9 was Brachysema daviesioides.

Reserve 28940

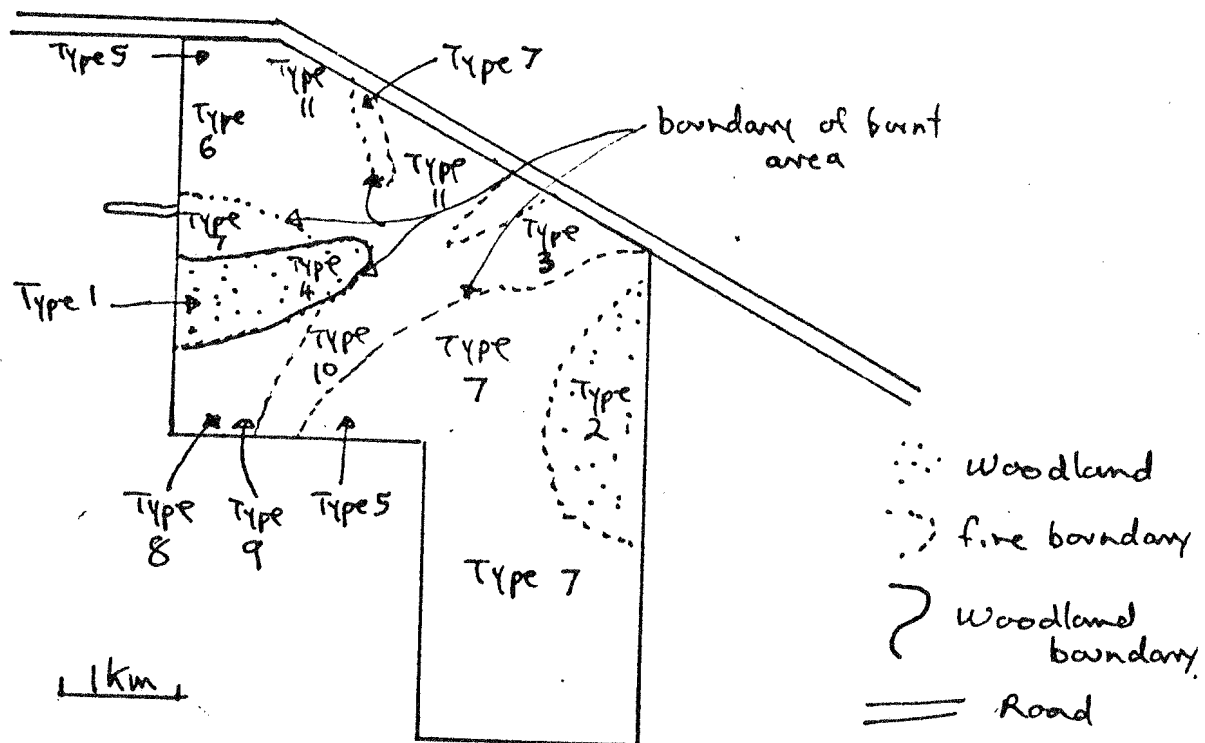




Plate 25. View E on Reserve 28940 showing Type 1 woodland.



Plate 26. View SE into mallee regrowth of Type 6. Vegetation is 5-6 years old.



plate 27. Reserve 28940 showing mallee area with no understory. Dominant species were Eucalyptus calycogona, E. eremophila, E. sheathiana, and E. transcontinentalis.

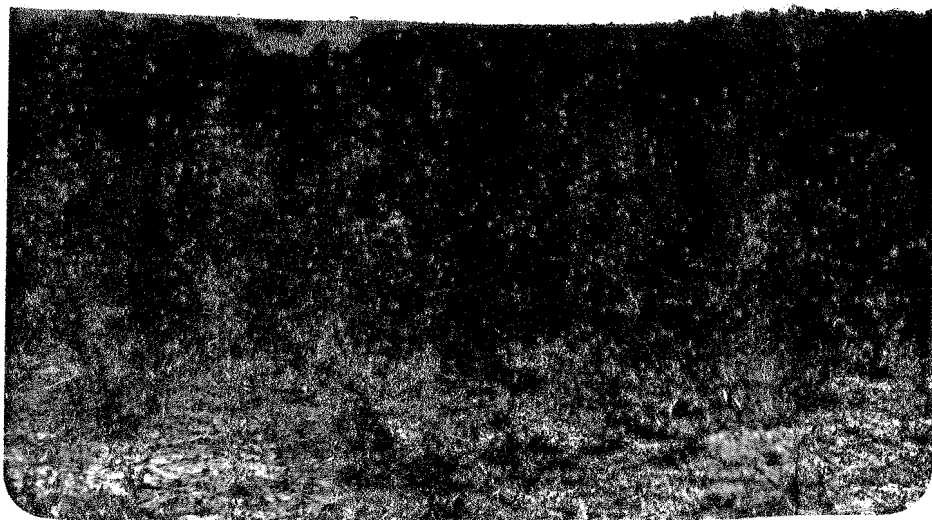


Plate 28. View NE on Reserve 28940 showing vegetation types 9 (unburnt) and 10 (burnt). Mallee occupies the depression in the centre of the Reserve and Wandoo woodland on the distant hills.

Reserve 29738
Booraan Reserve

Located ca 14 km E Merredin Townsite and shown on lithograph 2535-11, C3.

Background

Originally gazetted 18 April 1909 for Conservation of Flora and Fauna.

Physical characteristics

Reserve 29738 is roughly rectangular, ca 2.5 km long (E-W axis) by ca 2 km broad (N-S axis). It has a total perimeter of ca 9.2 km and an area of 479.9521 ha. The highest point on the Reserve is the SW corner, being ca 422 m above sea level (ASL) and the lowest part the NE corner being ca 380 m ASL.

Vegetation

Four associations are present on Reserve 29738, a woodland, shrubland and 2 heaths.

Wandoo woodland: Eucalyptus wandoo (Wandoo) Open Woodland over mixed Open Dwarf Scrub C.

Casuarina-Acacia shrubland: Casuarina acutivalvis and Acacia signata. Dense thicket over mixed Dwarf Scrub C.

Melaleuca heath: Melaleuca cordata and mixed Dense Low Heath C with numerous emergent shrubs of Acacia sp. 11.

Ecdeiocolea and Melaleuca heath: Ecdeiocolea monostachya and Melaleuca cordata Low Heath D with scattered emergent Casuarina campestris (Tamma) and Eucalyptus burracoppinensis (Burracoppin mallee).

These latter two associations are unusual in several respects. The Acacia sp. 11 which is emergent in the Melaleuca heath has not been encountered elsewhere during these surveys (now covering 59 reserves in 6 shires) although it may exist elsewhere. The Ecdeiocolea-Melaleuca heath is a little unusual in that Ecdeiocolea monostachya has most commonly been encountered in the moister heath sites and Melaleuca cordata

most commonly in the drier heath sites. Their combined occurrence here together with some other species in the association is of interest.

Plant species

Thirty-nine species of plants were recorded, of which 10 are exploited by the wildflower seed trade. An Acacia and a Phebalium of uncertain affinities were collected. An undescribed but well known genus of Cyperaceae was found.

Weeds

None were recorded.

Fire

No evidence of fire within the last 20 years.

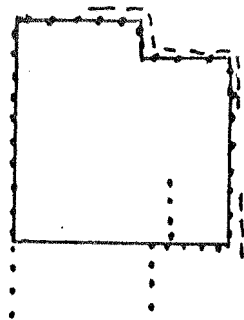
Fauna

Due to very windy, cold conditions with threatening thunderstorms very little fauna was seen. Emu and kangaroo tracks were noted.

Exotic fauna

No evidence of any exotic fauna was seen.

Firebreaks and fences



..... Fences
----- Firebreaks

Human usage

None recorded.

Adjacent uncleared land

Extensive areas of heath and shrubland are contiguous with the S and W boundaries of Reserve 29738.

opinion and recommendations

Although the examination of Reserve 29738 was brief due to poor access and inclement weather, it was immediately obvious that it probably contains the best representative area of heath in the region. Additionally there appears to be some unusual plant assemblages in the heath and this may indicate a peculiar soil type. If so, perhaps a more detailed study would produce plant species rare or unknown elsewhere. Currently the Reserve is isolated from public access and not disturbed and so is in little danger of immediate interference. I recommend that a more detailed examination be made of the flora, particularly the heaths. If they prove to be of interest enquiries should be made with regards the addition of some of the uncleared land adjacent to the Reserve to within the Reserves' boundaries. Inclusion of such land should be seriously considered while it is still available. I also recommend that Reserve 29738 be vested in the Western Australian Wildlife Authority.

APPENDIX 14

VEGETATION DETAILS RESERVE 29738

Wandoo woodland

Eucalyptus wandoo trees, mature to senescent, stratum 12-22 m tall, 2-10% canopy cover over mixed shrubs (no particular dominant), mature stratum 1 m tall, 2-10% canopy cover but patchy and locally up to 70%. Other plant species recorded were: Acacia erinacea, Casuarina acutivalvis, Eremophila drummondii, Grevillea acuaria, Olearia muelleri, Rhagodia preissii. Soil was pinkish grey, sandy clay. Poorly drained.

Casuarina-Acacia shrubland

Casuarina acutivalvis and Acacia signata shrubs, mature, stratum 1 m tall, 10-30% canopy cover. Also present were: Beaufortia micrantha, Calothamnus gilesii, Cassytha pubescens, C. racemosa, Eucalyptus burracoppinensis, Grevillea paradoxa, Hakea falcata, H. multilineata, Melaleuca cordata, M. pungens, Petrophile ericifolia, Phebalium filifolium, P. tuberculosum, Philotheca drummondii, Thryptomene australis, Verticordia chrysantha, V. drummondii. Soil yellow brown, sandy clay. Well drained.

Melaleuca heath

Melaleuca cordata and mixed shrub heath, mature stratum 1.5 m tall, 70-100% canopy cover. Continuous over the whole area were Acacia sp. 11 "shrubs" which formed emergents to 2-3 m tall. Although very numerous they were very spindly and created almost no canopy cover. Several other plant species were recorded including: Daviesia nudiflora, Grevillea? excelsior, Hakea subsulcata, Mirbelia spinosa, Phebalium sp. 5, Verticordia brownii. Soil yellowish brown, sandy clay. Well drained.

Ecdeiocolea - Melaleuca heath

Ecdeiocolea monostachya sedge and Melaleuca cordata shrubs forming, together with several other shrubs, a heath stratum 0.5 m tall and 30-70% canopy cover. Casuarina campestris shrubs were emergent to 1.5 m tall. Other plant species recorded were the same as in Melaleuca heath above, with the addition of Cyperaceae gen 1, Gastrolobium calycinum, Melaleuca scabra, Synaphaea polymorpha, Xanthorrhoea nana. Soil yellowish brown, fine sandy clay loam with ca 30% laterite pebbles. Well drained.

9/10

Reserve 29738

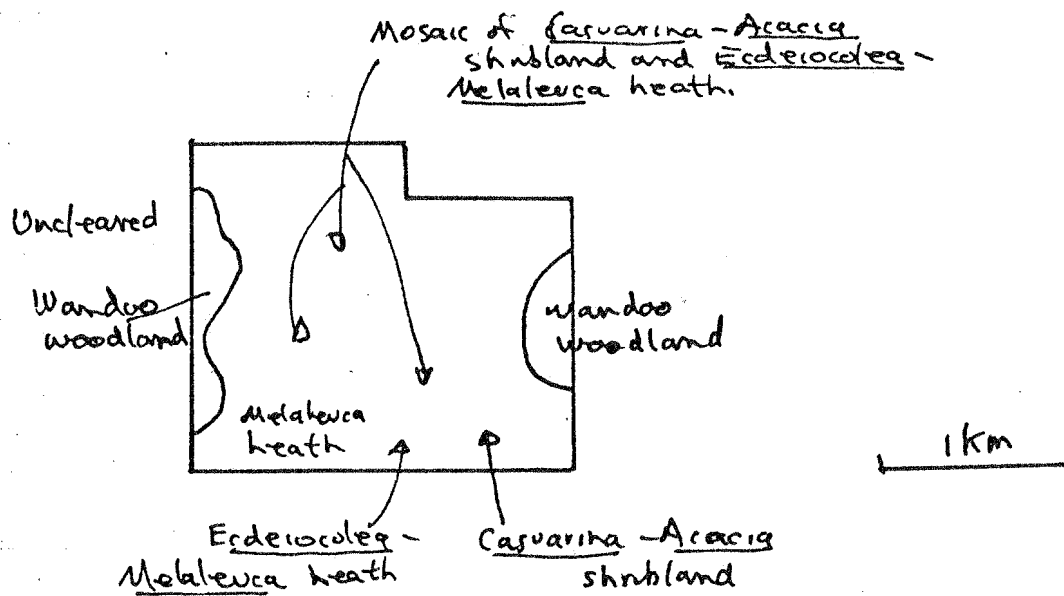




Plate 29: Reserve 29738. Casuarina-Acacia Dense Thicket over heaths.



Plate 30: Melaleuca cordata and mixed shrub heath with numerous emergent Acacia sp. 11. Poor lighting conditions obscure the species rich nature of the understory.