

SOME NATURE RESERVES OF THE WESTERN AUSTRALIAN

WHEATBELT

PART 4 : NAREMBEEN SHIRE

B.G. MUIR

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SOME NATURE RESERVES OF THE NAREMBEEN SHIRE
B.G. MUIR

Preamble

Narembreen Shire lies in the central, eastern wheatbelt and has an area of about 3821 square km. There are 8 Nature Reserves within the Shire, totalling about 34.95 square km or 0.9% of the area of the Shire.

Only one of the Nature Reserves within the Shire has an "A" classification (Emu Hill Reserve, A25039). Reserves 29885 and 30305 are both vested in the Western Australian Wildlife Authority. Reserve A25039 and the other 5 reserves have no vesting. As far as can be determined none of the reserves have been studied by biologists. The superficial examination presented in this report suggests that the Narembreen Shire may contain areas of great biological significance and detailed studies should be initiated.

The current survey took place in April 1978 and consisted of brief examinations of 5 reserves: 9754, 13565, A25039, 27521 and 31091. Reports on these reserves are presented. Methodology of survey is presented in Appendix 6.

Overview

Of the 5 reserves examined, 2 were granite outcrops with varying amounts of associated vegetation, 2 were mallee, woodland or heath covered and 1 was greatly degraded by stock.

Four of the reserves survive because they are not arable and the fifth because it is at the eastern limit of the wheatbelt in an area where clearing has been slower than elsewhere. Additionally it was set aside for a reserve in the early history (1911) of the eastern wheatbelt, making it more difficult for farmers to obtain.

As stated above, some detailed biological studies are needed in the area. Plant species which do not appear to be represented in collections in the State Herbarium have been found on all Reserves except 31091. R.D. Royce from the State Herbarium inspected Reserve 27521 in 1963 and subsequently stated that the reserve contained "unusual floral associations". All the reserves except 31091 are presently in good condition and in no immediate danger, but an attempt to survey them in detail should be carried out before isolation has affected them to too great an extent.

Reserve 9754

Located ca 28 km due E of Cramphorne Siding and ca 50 km NE of Narembreen Townsite. The reserve is shown on lithograph 5/80, F1-2 and 6/80, A2.

Background

Originally gazetted 16 June 1905 as a "Paddock for Stock (Rabbit Dept.)." The title was changed to "Preservation of Timber and Flora" on 21 February 1964. On 16 December 1966 permission was granted to direct a telephone line through the reserve.

Physical characteristics

Reserve 9754 is roughly rectangular (long axis oriented NW-SE) and is 687.9656 ha in area. It has a total perimeter of ca 13 km. No contour maps are available but a single spot altitude of 424 m above sea level is available for the SW corner of the reserve. There is an altitudinal difference of at least 100 m between the S end (highest) and N end (lowest) parts of the Reserve.

Vegetation

Four formations and 6 associations are present on the Reserve. Lithic complex contains 5 different vegetation types as a mosaic. The dominant associations are as follows:

Salmon Gum woodland: Eucalyptus salmonophloia (Salmon Gum) Open Woodland over

E. loxophleba (York Gum) Low Woodland A over Lomandra effusa Very Open Herbs.

Jam woodland: Acacia acuminata (Jam) Low Woodland A with no understory.

York Gum tree mallee: York Gum Tree Mallee with no understory.

Casuarina corniculata heath: C. corniculata Heath A over Ecdeiocolea monostachya Very Open Tall Sedges.

Ecdeiocolea sedgeland: E. monostachya Dense Low Sedges.

Granite outcrop: highly variable mosaic of many vegetation types and large areas of granite rock outcrop. Commonest assemblages were bare rock with film of lichens and mosses; cracks, boulder heaps and shallow soils with scattered shrubs and fern swards; deep soil pockets with Thryptomene australis Dense Heath B or Leptospermum erubescens (Ti-trees) Scrub or Casuarina huegeliana (Huegel's she-oak) Low Woodland A over Ti-tree Scrub.

Plant species

Sixty-five species of larger perennial plants were recorded, about one-third of which are directly associated with the granite outcrop. Of interest is the trailing

4.

perennial Kennedia prostrata, normally a species of deep, white, leached sands on the coastal plain this plant occurs in several places in the wheatbelt on wet granitic soils; Reserve 9754 may be near the eastern limits of its range. Twenty-one of the species recorded are exploited by the wildflower seed trade.

Weeds

Relatively weed free except for areas of highest runoff and disturbed areas. The weeds present in the wet areas were all small, innocuous species such as Hypochaeris glabra and Ursinia anthemoides. The only large, agriculturally important weeds noted were in the disturbed area, where Anagallis arvensis (Blue Pimpernel), Chenopodium pumilio (Wild Mint), Inula graveolens (Stinkwort), Solanum hystrix (Afghan Thistle) and S. nigrum (Black Nightshade) were common.

Fire history

The heath areas are reputed to have been burnt within the last 15 years. The rest of the reserve has not been burnt for at least 30 years and some of the stands on granite outcrops may never have been burnt.

Fauna

- Grey Kangaroo (Macropus fuliginosus): scats common.
Chiroptera (Bats); numerous seen and heard at night.
Emu (Dromaius novaehollandiae): scats in woodland.
Mountain Duck (Tadorna tadornoides): pair in woodland.
Common Bronzewing (Phaps chalcoptera): common throughout.
Crested Pigeon (Ocyphaps lophotes): common throughout.
Port Lincoln Parrot (Platycercus zonarius): common throughout.
Mulga Parrot (P. varius): 4 seen in heath.
Galah (Cacatua roseicapilla): common in woodland and Jam association.
Red-capped Robin (Petroica goodenovii): pair in salmon gum woodland and another pair near creek at S end.
Willy Wagtail (Rhipidura leucophrys): numerous throughout.
Weebill (Smicrornis brevirostris): in eucalypt woodlands.
Honeyeater - unidentified: Jam woodland on W side reserve.
Red-Wattlebird (Anthochaera carunculata): occasional in woodland and Jam association.
Australian Raven (Corvus coronoides): common throughout.
Ornate Dragon (Amphibolurus ornatus): several seen on granite outcrop.
Tree Otella (Gehyra variegata): collected under granite slab.
Spotted Burrowing Frog (Helioporus albopunctatus): common along watercourse.
Banjo Frog (Lymnodynastes dorsalis dorsalis): 2 heard along watercourse.
Neobatrachus centralis: common along watercourse.

N. pelobatoides: common along watercourse.

Pseudophryne guentheri: under sedge clumps or granite slabs along watercourses

Ranidella pseudinsignifera: common along watercourse.

Exotic fauna

No trace of exotic fauna except a few rabbit scats. Undoubtedly foxes live in the reserve occasionally, but no traces were seen.

Firebreaks and fences

The reserve is fenced on its NW and N boundary by farm fences and accompanying firebreaks. The E boundary is adjacent to the Rabbit Proof Fence and has no firebreak. The SW and S boundaries of the reserve are unfenced and have adjacent roadways. A road passes through the reserve from mid-way along the W boundary to the NE corner, forming an effective firebreak.

Human usage

Some timber removed from woodland areas. A cleared area (see map) is used 2 or 3 times each year for sports. Car tyres used as markers, bench seats and a brushwood lean-to hut are present. Damage from recreation is minimal and does not extend beyond the cleared area. A shallow pond has been dug out near the W side of the Reserve, and some well liners installed in the watercourse. A small campsite and picnic area is also present.

Adjacent uncleared land

None on N, W or S sides. There is bushland present on the E side of the reserve.

Remarks

About 10 years ago the Country Water Supply division of the Public Works Department investigated the possibility of placing dams across the two largest gullies on the rock to provide water locally. The programme never eventuated.

Opinion and recommendations

Reserve 9754 is, without doubt, one of the finest reserves in the wheatbelt. Mallee, heath and sedgeland associations are present as well as woodland, and a large, very diverse area of lithic complex. The lithic complex is particularly variable in altitude, drainage patterns and soil depth and carries a variety of vegetation types. A detailed study of the lithic associations will almost certainly produce some new or little known species of plants. The extensive watercourse which drains north from the rock and through the Reserve has numerous pools, small cliffs, swamps and tumbled boulders which provide innumerable microhabitats for fauna. Over nearly all the exposed granite areas are dense covers of lichens of many species. This lichen cover

6.

is in fact unlike many other areas of the wheatbelt where trail-bikes and walking destroyed cohesiveness of the growth. Reserve 9754 appears to have a rich fauna, particularly in frogs (6 species recorded).

I strongly recommend that Reserve 9754 be declared a class "A" reserve for "Flora and Fauna" and that it be vested in the Western Australian Wildlife Authority. I feel that the Reserve may still be used for recreation but that signs be erected near the entrance to the picnic area to indicate that flora and fauna are protected. Perhaps a sign could also be erected near the cleared area requesting that activities be restricted as much as possible to the clearing. This would not effect the activities, but would ensure minimal damage to the surrounding bushland. The granite outcrop is shown on lithographs as a Cairn and local farmers know the place as Cairn Rock. I suggest the name Cairn Rock Nature Reserve may be suitable, if a name is allocated to it.

5

APPENDIX 1

VEGETATION DETAILS RESERVE 9754

Salmon Gum woodland

Eucalyptus salmonophloia trees, mature, 16-22 m tall, ca 2% canopy cover over Eucalyptus loxophleba trees, mature, 4-9 m tall, 10-30% canopy cover (but patchily distributed) over Lomandra effusa herbs, mature, 0.5 m tall, 2-10% canopy cover. Other plant species recorded were: Acacia acuminata, A. colletioides, A. graffiana, A. merrallii, Borya nitida, Dianella revoluta, Melaleuca eleutherostachya, Podolepis capillaris, Santalum acuminatum. Soil pink, light sandy clay loam. Poorly drained.

Jam woodland

Acacia acuminata trees, mature, stratum 4-7 m tall, 10-30% canopy cover (but patchily distributed). No understory present except scattered plants of: Lepidosperma gracile, Lomandra effusa, Santalum spicatum, Stipa elegantissima. Soil light red, light clay. Poorly drained.

York Gum Tree Mallee

Eucalyptus loxophleba tree mallee, mature to senescent, stratum 4-9 m tall, 30-70% canopy cover. Understory absent except for scattered plants of: Acacia acuminata, Borya nitida, Casuarina campestris, Santalum acuminatum, Spartochloa scirpoidea and Stipa elegantissima. Soil light brownish grey, sandy clay. Poorly drained.

Casuarina corniculata heath.

Casuarina corniculata shrubs, mature, stratum 1.5-2 m tall, 30-70% canopy cover over Ecdeiocolea monostachya sedge, mature, stratum 0.5 m tall, 2-10% canopy cover. Scattered Eucalyptus drummondii and Hakea multilineata shrubs emergent to 5 m tall. Also recorded were: Astroloma serratifolium, Baeckea crispiflora, B. sp., Bertya cunninghami, Cassytha glabella, Chamaexeros serra, Cyperaceae gen. 1., Grevillea ?didymobotrya, G. paradoxa, Hakea falcata, Lepidosperma drummondii, Melaleuca oldfieldii, Phebalium tuberculatum, Platysace effusa, ?Schoenus sp. Soil yellowish brown, fine sandy loam with ca 10% gravel. Moderately drained.

Ecdeiocolea sedgeland.

Ecdeiocolea monostachya sedge and some shrubs, mature, stratum 0.5 m tall, 70-100% canopy cover. Other plant species recorded were: Acacia dielsii, A. filifolia, Baeckea crispiflora, Borya nitida, Casuarina campestris, Cryptandra myriantha, C. sp. 11, Grevillea didymobotrya, G. paradoxa, Hakea subsulcata, Leucopogon hamulosus, Melaleuca oldfieldii, M. pungens, M. uncinata, Platysace effusa, Schoenus sp. Soil yellowish brown, fine sandy loam with ca 60% gravel. Poorly drained.

Granite outcrop.

The granite outcrop on Reserve 9754 has a great diversity of altitudinal variation, drainage characteristics and depth of soil. This has resulted in a great variety of herb, shrub and tree stands. The variation is so great over short distances that the only classification possible was the broad categories of: bare rock surface; cracks, boulder heaps and shallow soils; and deep soil pockets. Bare rock surface: the areas of bare rock had abundant growth of lichens and mosses. The commonest species were Parmelia spp. lichens and Grimmea sp. moss.

Cracks, boulder heaps and shallow soils: scattered shrubs growing opportunistically. Species included Acacia acuminata, A. saligna, Alyxia buxifolia, Cheilanthes tenuifolia, Dodonaea attenuata var. linearis, Kennedia prostrata, Kunzea pulchella, Lepidosperma scabrum, Leptospermum erubescens, Muhlenbeckia adpressa, Pittosporum phylliraeoides, Pleurosorus rutifolius, Santalum spicatum, Spartochloa scirpoidea, Stackhousia viminea, Verticordia drummondii.

Deep soil pockets: three types were most common.

1. Thryptomene australis shrubs, 1-1.5 m tall, 70-100% canopy cover. Other species recorded were: Acacia acuminata, A. dentifera, A. saligna, Cheilanthes tenuifolia, Dodonaea attenuata var. linearis, Lepidosperma scabrum, Leptospermum erubescens, Melaleuca macronycha, Muhlenbeckia adpressa, Prostanthera sp. 1, Spartochloa scirpoidea, Stypandra imbricata.

2. Leptospermum erubescens shrubs, 1-4 m tall, varying from 2-30% canopy cover. Species as for type 1 above.

3. Casuarina huegeliana trees, 3-9 m tall 10-30% canopy cover. Often occurs as a stand with type 2 (Leptospermum erubescens) as an understory.

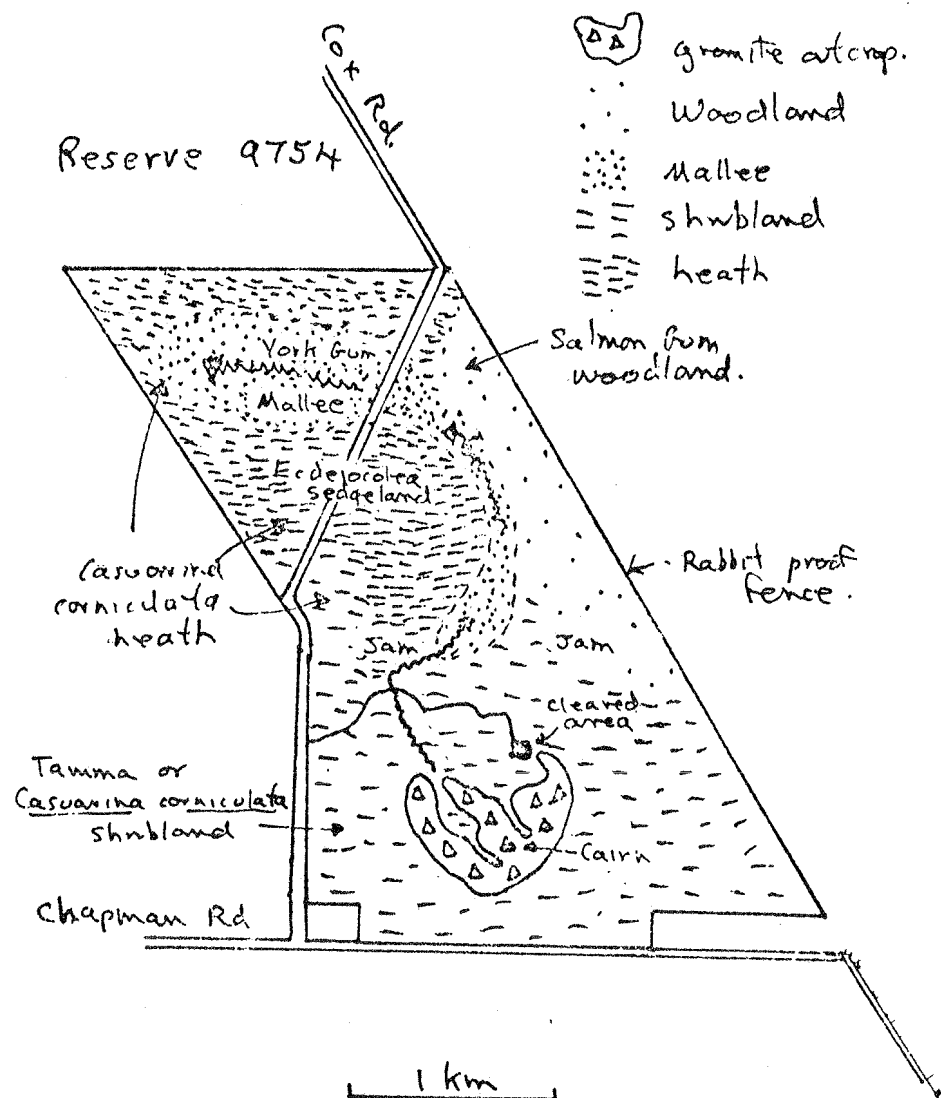




Plate 1. Reserve 9754. View W into Casuarina corniculata heath with emergent Eucalyptus drummondii.

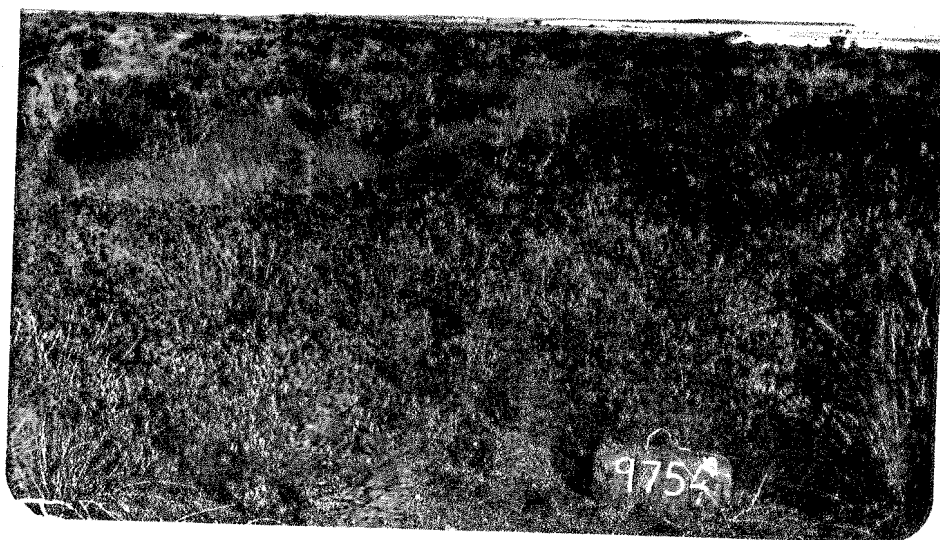


Plate 2. View NW into Ecdeiocolea monostachya sedgeland with scattered shrubs.



Plate 3. View S into Salmon Gum woodland on Reserve 9754. Note abundant clumps of Lomandra effusa in foreground and clumps of understory shrubs.



Plate 4. Reserve 9754 showing Jam woodland of the type on slightly deeper soils near the granite outcrops.



Plate 5. Reserve 9754. Smooth granite pavement with numerous pools and clumps of shrubs. The N end of the Reserve with Casuarina and Ecdeiocolea heaths is visible in the distance.

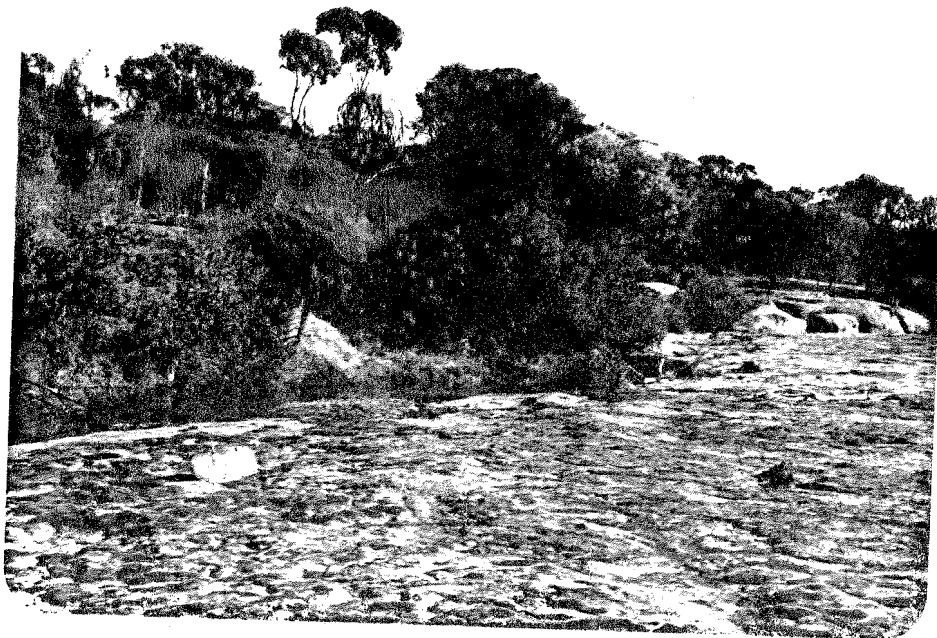


Plate 6. View NW along part of watercourse showing pools in creek and dense clumps of Melaleuca macrorycha. Jam woodland in the background.



Plate 7. Artificial pool on Reserve 9754. Five species of frogs were collected at this site. View W showing Jam woodland over Spartochloa scirpoidea. Inula graveolens (stinkwort) in foreground is taking advantage of water table.

Reserve 13565

Located ca 56 km ENE Narembreen townsite and shown on lithograph 6/80, B3.

Background

Originally gazetted 4 June 1911 as "Water (Rabbit Dept.)". The area at this time was ca 344 ha. The Reserve was increased in size to 365.6410 ha on 11 March 1927 and changed to "Preservation of Timber and Flora" on 21 February 1964.

Physical characteristics

The Reserve is irregular in shape, has an area of 365.6401 ha and a total perimeter of 8.2 km. No contour map is available for the area but there is a spot altitude of 380 m above sea level for the NE corner of the Reserve. There is estimated to be a difference of ca 20 m in altitude between the highest and lowest parts of the Reserve, the highest being on the W side.

Vegetation

Five associations representing 4 formations are present on the Reserve.
Yorrell-Salmon Gum woodland: Eucalyptus gracilis (Yorrell) and E. salmonophloia (Salmon Gum) Open Low Woodland A with no understory.

Mallee type 1. Eucalyptus calycogona (Square-Fruited Mallee) and E. sp. 19
Open Shrub Mallee over Phebalium tuberosum Low Heath C. Scattered
Gimlet and Salmon Gum trees present. Areas where canopy is more open have
Melaleuca cymbifolia Open Low Woodland B.

Mallee type 2. Eucalyptus calycogona (Square-Fruited Mallee), E. eremophila and
E. sp. 3 Shrub Mallee with no understory.

Wattle-Casuarina shrubland. Acacia signata and Casuarina corniculata Dense Thicket
over Calothamnus gilesii Open Low Scrub B.

Thryptomene heath. Thryptomene urceolaris Dense Low Heath C. Patches of Melaleuca hamulosa Dense Low Heath C are present.

Plant species

Forty-two species of plants were recorded, 16 of which are exploited by the wildflower seed trade.

Weeds

None recorded except a dense stand of Heliotropium europeum on a cleared area at the N end of the Reserve.

Fire history

Although there is no evidence of fire in the Thryptomene heath it may be the result of an old fire which penetrated a short way into the Reserve. The rest of the vegetation has not been burnt for at least 20 years.

Fauna

Echidna (Tachyglossus aculeata): droppings seen in woodland.

Grey Kangaroo (Macropus fuliginosus): droppings throughout Reserve.

Port Lincoln Parrot (Platycercus zonarius): common.

Galah (Cacatua roseicapilla): common.

Crested Bellbird (Oreoica gutturalis): heard calling.

White-browed Babbler (Pomatostomus superciliosus):

Weebill (Smicrornis brevirostris): common.

Red Wattlebird (Anthochaera carunculata): in mallee type 2.

Magpie-lark (Grallina cyanoleuca): calling in Yorrell-Salmon Gum woodland.

Western Magpie (Cracticus tibicen dorsalis): common.

Pseudophryne occidentalis: in watercourse

Neobatrachus ?centralis: in watercourse.

Exotic fauna

Rabbit scats are present in the heath area.

Firebreaks and fences

Boundaries adjacent to farmland have both fences and narrow firebreaks. The E boundary is adjacent to the Rabbit Proof Fence.

Human usage

Very minor damage. A few trees have been cut for timber and there are 2 or 3 clumps of rubbish present.

Adjacent uncleared land

Extensive tracts of uncleared land (mostly woodland) adjoin the N and NW sides of the Reserve.

Opinion and recommendations.

Reserve 13565 is in excellent condition and very diverse in its vegetation. Woodlands, mallee and shrubland are all represented by fairly large areas and have quite a high number of plant species.

The vegetation is typical of the Avon Botanical District ("typical wheatbelt") although it lies well within the Coolgardie Botanical District according to Grieve's (1975) modification of Diels and Pritzel, Gardner and Bennetts and Specks maps of the South-western Botanical Districts. The woodland area has some indications of Eremaen species and structure. Reserve 13565 therefore appears to be very close to the transition from the Avon to Coolgardie Districts and is of interest botanically for this reason.

I recommend that Reserve 13565 be vested in the Western Australian Wildlife Authority.

APPENDIX 2.

VEGETATION DETAILS RESERVE 13565

Yorrell-Salmon Gum woodland

Eucalyptus gracilis trees, mature to senescent, 6-10 m tall and E. salmonophloia, mature, to 20 m tall, together having a canopy cover of 2-10%. Other plant species recorded were: Acacia graffiana, A. merrallii, Eucalyptus affin. ovularis, Exocarpus aphyllus, Hakea multilineata, Melaleuca acuminata, M. cymbifolia, Olearia muelleri, Persoonia coriacea, Phebalium tuberosum, Santalum acuminatum, Wilsonia humilis. Soil is pinkish grey, sandy clay. Poorly drained.

Mallee type 1.

Eucalyptus calycogona and E. sp. 19 shrub mallee, mature, 4-7 m tall, 10-30% canopy cover over Phebalium tuberosum shrubs, mature, 1 m tall, 30-70% canopy cover. Scattered E. salubris trees, mature, to 12 m tall and E. salmonophloia trees, mature, to 18 m tall. In some areas the canopy is more open and Melaleuca cymbifolia is present, 4-5 m tall, 2-10% canopy cover. Other plant species recorded were: Acacia merrallii, A. multispicata, Eucalyptus ovularis, Exocarpus aphyllus, Gastolobium crassifolium, Grevillea affin. acuarina, Melaleuca adnata, M. hamulosa, M. affin. scabra, Phebalium sp. 1, Santalum acuminatum, Templetonia sulcata. Soil is red, heavy clay. Poorly drained.

Mallee type 2.

Eucalyptus calycogona, E. eremophila and E. sp. 3 shrub mallee, mature, 6-12 m tall, 30-70% canopy cover. No understory present. Other plants recorded were: Acacia erinacea, A. merrallii, Beyeria leschenaultii, Callitris roei, Exocarpus aphyllus, Gastolobium crassifolium, Grevillea huegellii, Hakea multilineata, Melaleuca pauperiflora, Olearia revoluta. Soil is grey, sandy clay loam. Poorly drained.

Wattle-Casuarina shrubland

Acacia signata and Casuarina corniculata shrubs, mature, 2-3 m tall, 70-100% canopy cover over Calothamnus gilesii shrubs, mature, 0.5-1.5 m tall, 2-10% canopy cover. The only other species recorded were Baeckea heteranthera and Eucalyptus redunca. Soil was 90% laterite pebbles.

Thryptomene heath.

Thryptomene urceolaris shrubs, immature, 1 m tall, 70-100% canopy cover. So areas of Melaleuca hamulosa shrubs, immature, 1 m tall, 70-100% canopy cover. Also recorded were: Acacia multispicata, Lepidosperma drummondii, Melaleuca adnata, M. oldfieldii, M. scabra and Verticordia ?drummondii. Soil was pinkish grey, sandy loam with ca 30% laterite pebbles. Moderately drained.

Reserve 13565

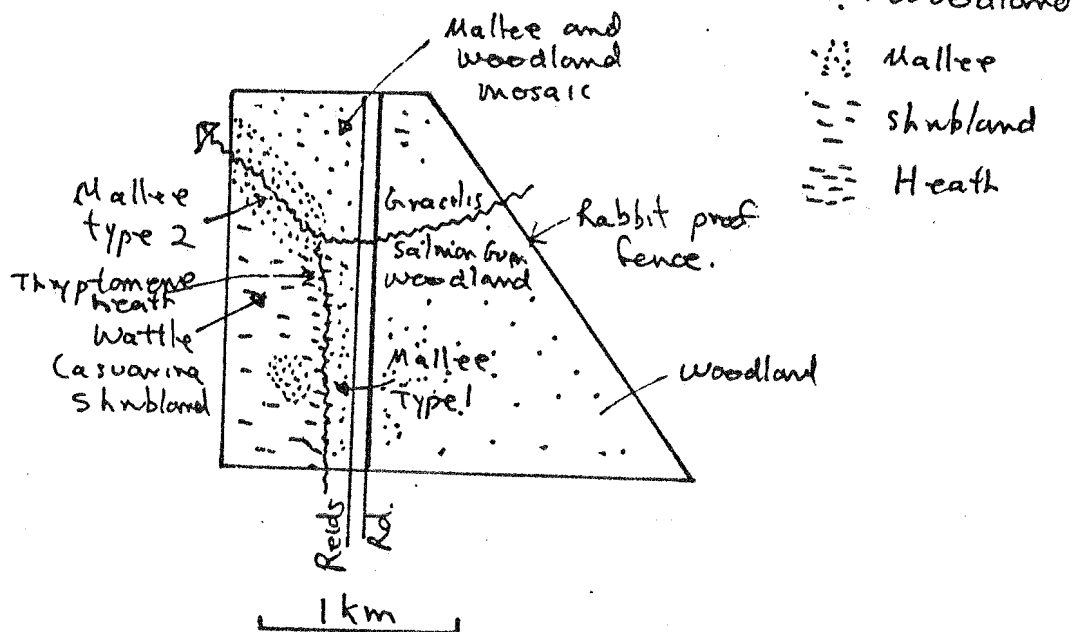




Plate 8. View E into Yorrell-Salmon Gum woodland on Reserve 13565.



Plate 9. Mallee type 1 association. View SW. Note dense understory of Phebalium.



Plate 10. View SW into Mallee type 2 showing abundant Eucalyptus spp. Most of this association has the understory absent.



Plate 11. Narrow, shallow watercourse with wet mud pockets and cracked soil harbouring abundant frogs. Vegetation is Melaleuca cymbifolia with scattered York Gum.



Plate 12. Reserve 13565 showing Wattle-Casuarina scrub on laterite. View S.

Reserve A25039
Emu Hill Reserve

Located ca 5.5 km SW Narembeen Townsite and shown on lithograph 2533-1, B2.

Background

Originally gazetted "Class A" Reserve for "Conservation of Flora" on 11 July 1958.

Physical characteristics.

Reserve A25039 is irregular in shape, 89.0308 ha in area and ca 3.7 km in perimeter. Its highest point is ca 300 m above sea level (ASL) on the SE corner and the lowest ca 278 m ASL on the NW side. There is thus an altitudinal range of ca 32 m.

Vegetation

Only three associations are present, together with patchy clumps of shrubland and cleared grassy areas. The main associations were as follows: York Gum Tree Mallee with no understory; granite areas with exposed rock pavements and scattered Acacia acuminata (Jam) Open Low Woodland B; Acacia acanthoclada Open Dwarf Scrub C over Very Open Low Sedges over Very Open Herbs.

The areas around the railway line had been cleared and have regrown heavily in grasses, particularly Avena fatua sativa, and weeds.

Plant species

Forty-seven plant species were recorded. Fifteen species are exploited by the wildflower seed trade.

Weeds

Scarce except in wetter parts of gravel pit and in cleared areas. Amongst the dense grass swards were the weeds Arctotheca calendula (Capeweed), Amaranthus albus (Tumbleweed), Boerhavia diffusa (Tarvine), Chenopodium pumilio (Wild Mint), Ptilotus polystachys, Salsola kali (Prickly Saltwort) and Trifolium sp. (Clover). The gravel pit had some of these species and Portulaca oleracea (Common Purslane).

Fire history

Heath may be regrowth following fire. There is no evidence of fire on the rest of the Reserve.

Fauna

- Grey Kangaroo (Macropus fuliginosus): scats common.
 Common Bronzewing (Phaps chalcoptera): paddock margins.
 Crested Pigeon (Ocyphaps lophotes): mainly paddock margins.
 Tawny Frogmouth (Podargus strigoides): 2 in mallee.
 Willy Wagtail (Rhipidura leucophrys): common.
 White-fronted Chat (Epthianura albifrons): in heaths.
 Zebra Finch (Peophila guttata): 6 flying over Reserve.
 Dusky Wood Swallow (Artamus cyanopterus): on power lines.

Exotic fauna

Rabbit scats and diggings were noted.

Firebreaks and fences

Only marginal firebreaks and fences exist.

Human usage

Some rubbish has been dumped in the disturbed grassy areas and some debris remains from the railway siding. The siding and accompanying roads have disturbed or removed about 10% of vegetation on the Reserve. The gravel pit has also caused some disturbance.

Adjacent uncleared land

The Reserve is completely isolated.

Opinion

The Reserve is worth retaining for its heath and York Gum components and harbours quite a few species of birds. The bushland is of importance to nomadic species e.g. Zebra Finch, as a temporary resting and feeding site. I recommend that Reserve A25039 be vested in the Western Australian Wildlife Authority.

APPENDIX 3.
VEGETATION DETAILS RESERVE A25039

York Gum tree mallee

Eucalyptus loxophleba tree mallee, mature to senescent, stratum 4-12 m tall, 30-70% canopy cover. Other species recorded were: Acacia acuaria, A. ?desertorum, A. affin. resinomarginea, Bassia sp., Dianella revoluta, Enchylaena tomentosa, Lomandra effusa, Melaleuca acuminata, M. adnata, M. hamulosa, Rhagodia preissii, Zygophyllum aurantiaceum. Soil was greyish brown, silty clay loam. Poorly drained. Granite areas.

Acacia acuminata trees, mature, 3-5 m tall, 2-10% canopy cover (cover is patchily distributed). Other plant species recorded were: Acacia lasiocalyx, Calycopeplus helmsii, Casuarina huegeliana, Dianella revoluta, Grevillea paniculata, Lepidosperma drummondii, Leptospermum erubescens.

Acacia heath

Acacia acanthoclada shrubs, mature, 1 m tall, 2-10% canopy cover over Harperia lateriflora sedges, 20 cm tall, 2-10% canopy cover over Borya nitida 5 cm tall, 2-10% canopy cover. Also recorded were: Acacia dielsii, Casuarina acutivalvis, C. campestris, Cryptandra myriantha, Daviesia brevifolia, D. sp. 2, Grevillea acerosa, C. acuaria, G. disjuncta, Halgania sp. 2, Lepidosperma gracile, L. tenue, Platysace effusa, P. juncea, Scholtzia sp., Verticordia brownii, V. chrysanthera. Soil is yellow, sandy loam. Well drained.

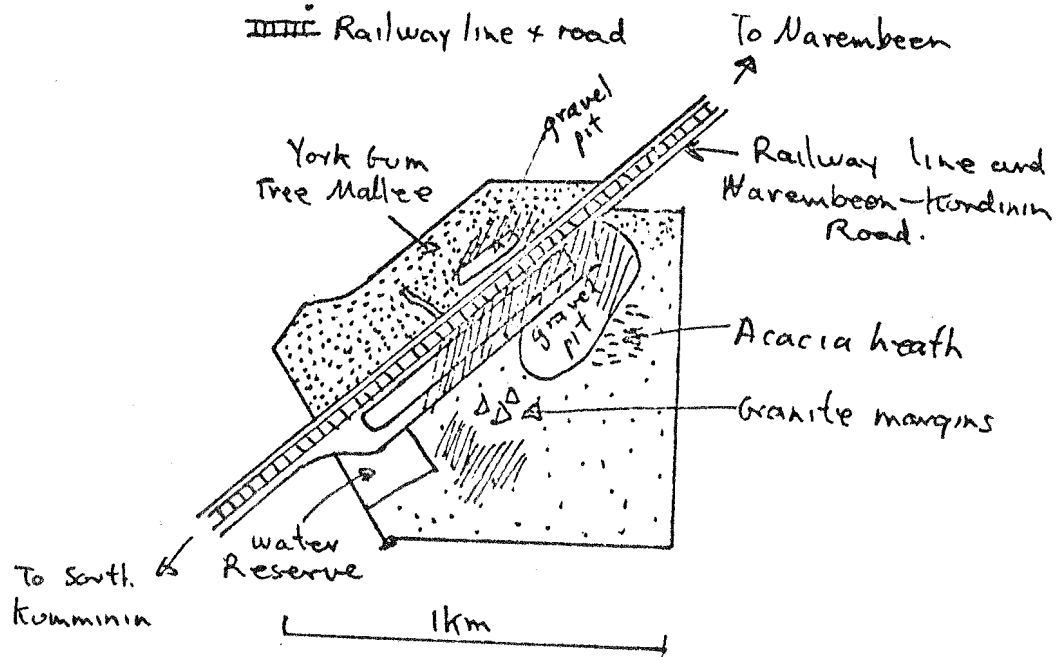
Gravel pit regrowth

Only present as scattered plants, no distinct stratum was developed. Species recorded were: Acacia acanthoclada, Atriplex affin. exilifolia, A. sp. 3, Dampiera spicigera, Glischrocaryon flavescens, Grevillea hookerana, Leptospermum erubescens, Platysace juncea, Portulaca oleracea, Ptilotus polystachys.

Reserve A25039

- ∴ Woodland
- ∴ Mallee
- ∴ Heath
- △△ Lithic complex
- /// Rubbish dumped

==== Railway line + road



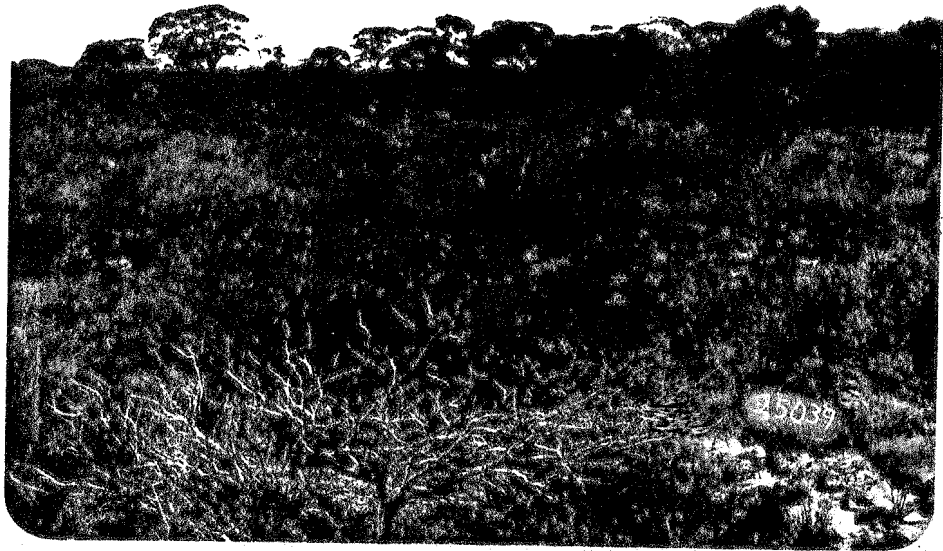


Plate 13. Reserve A25039 looking across Acacia heath towards York Gum Mallee.



Plate 14. View SW into York Gum Mallee association on Reserve A25039.

Reserve 27521

Mt. Cramphorne Reserve

Located ca 15 km due E of Cramphorne Siding and ca 41 km NE of Narembreen Townsite. It is shown on lithograph 5/80, E1.

Background

Originally gazetted 7 May 1965 as Reserve for "Water and Preservation of Flora and Fauna".

Physical characteristics

Reserve 27521 is 333.4610 ha in area and of very irregular shape. It has a total perimeter length of ca 8.2 km. No contour maps or spot altitudes are available. The Reserve boundary follows approximately the base of the granite outcrop which is dome shaped and estimated to have a difference of 30-50 m in altitude between its highest and lowest points.

Vegetation

Only 3 major associations exist on the Reserve. These are listed below.
Wandoo woodland: Eucalyptus wandoo (Wandoo) Woodland with a sparse scattered understory.
Tamma heath: Casuarina campestris (Tamma) Heath B without understory.
Lithic complex: scattered or clumped shrubs, particularly in runoff areas on deep soil profiles. Some species become locally dominant and form dense clumps e.g. Grevillea paniculata, Leptospermum erubescens and Casuarina huegeliana. The resultant areas form woodlands or shrublands but are of limited distribution. R.D. Royce (State Herbarium) and H. Shugg (Fisheries and Wildlife) inspected the Reserve on 28 July 1963. They recorded abundant ferns, sundews, lilies and orchids on the moss beds at that time of year.

Plant species

Forty-five plant species were collected on this survey, 14 of which are exploited by the wildflower seed trade.

Weeds

None recorded except small numbers along watercourses.

Fire history

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

Fauna

Galah (Cacatua roseicapilla): common.

Willy Wagtail (Rhipidura leucophrys): common.

Australian Raven (Corvus coronoides): common.

Pseudophryne guentheri: along watercourse in sedge clumps.

P. occidentalis: along watercourse in sedge clumps (see remarks section).

Ranidella pseudinsignifera: under stones along watercourse.

Gehyra variegata (Tree Dtella): under log.

An inspection of the site by R.D. Royce (State Herbarium) and H. Shugg (Fisherie and Wildlife) in July 1963 also found the following fauna.

Euro (Macropus robustus): possible sighting.

Echidna (Tachyglossus aculeatus): possible record.

Emu (Dromaius novaehollandiae)

Western Shrike-thrush (Colluricincla harmonica rufiventris)

White-browed Babbler (Pomatostomus superciliosus)

Western Warbler (Gerygone fusca)

Brown Thornbill (Acanthiza pusilla)

Western Silvereye (Zosteraps lateralis gouldii)

Singing Honeyeater (Meliphaga virescens)

Tawny-crowned Honeyeater (Phylidonyris melanops)

The inspection also hoped to find evidence of the now scarce Rock Wallaby (Petrogale penicillata) but was unsuccessful.

Exotic fauna

Diggings and scats of rabbits were present. Dog and cat footprints were noted. Cattle droppings were seen near the dam. In 1963 Royce and Shugg recorded fox scats on the Reserve.

Firebreaks and fences

Fences and narrow firebreaks are only present on the perimeter of the Reserve adjacent to farmland. The rest is bordered by roadways.

Human usage

A large water catchment dam is present on the SW side and has stopped water flow into the woodland in that direction. A sign indicating that shooting, fishing, swimming, and camping is prohibited is present near the dam. Some timber has been removed from the Wandoo woodland. The Reserve is often used as a picnic site.

Adjacent uncleared land

Virtually none except small patches on adjacent farmland.

Remarks

Storr (pers. comm.) states that this is the first record he has which proves the sympatry (co-habitation) of the two species of frog, Pseudophryne guentheri and P. occidentalis. Previously any one species has been recorded at any one locality and they were not thought to occur together.

Opinion and recommendations

Reserve 27521 is one of a series of Reserves in this area which are separated by quite large expanses of cleared wheatland. Because of their isolation they form a critically important series of "stepping-stone" blocks of vegetation which can be used as resting and feeding sites for migratory birds. Additionally, the variable runoff and soil depth on this Reserve has produced quite a high diversity of small areas of bushland with various dominants. The Reserve is also of scientific interest as a place of sympatry for two species of frogs normally considered to live separately. It may prove in the future to be an important place to study frog genetics, evolution and ecology. I recommend that Reserve 27521 be vested in the Western Australian Wildlife Authority.

APPENDIX 4

VEGETATION DETAILS RESERVE 27521

Wandoo woodland

Eucalyptus wandoo and some E. salmonophloia trees, mature to senescent, stratum 16-20 m tall, 10-30% canopy cover. Other plant species recorded were: Acacia erinacea, A. graffiana, A. microbotrya, A. saligna, Bassia ?forrestiana, Beyeria leschenaultii, Cassia nemophylla, Darwinia sp., Enneapogon caerulescens, Gastrolobium parvifolium, Grevillea paniculata, Hakea preissii, Lepidosperma drummondii, Lomandra effusa, Melaleuca eleutherostachya, M. hamulosa, M. laxiflora, M. uncinata, Olearia revoluta, Rhagodia preissii, Santalum acuminatum,? Triodia scariosa. Soil light brownish grey, clay loam. Poorly drained.

Tamma heath

Casuarina campestris shrubs, mature, 0.5-1.5 m tall, 30-70% canopy cover. Also recorded were: Acacia lasiocalyx, Borya nitida, Calothamnus asper, C. gilesii, Dianella revoluta, Lepidosperma drummondii, Spartochloa scirpoidea, Stypandra imbricata. Soil light reddish brown, clayey sand over granite. Well drained.

Lithic complex

Scattered shrubs or clumps of variable density along watercourses or on deep soil pockets. Species recorded are listed below. Those marked * may become locally dominant. Acacia lasiocalyx, Calothamnus asper*, Casuarina campestris*, C. huegeliana*, Cheilanthes tenuifolia*, Corynotheca micrantha, Dodonaea attenuata, Glischrocaryon flavescens, Grevillea paniculata*, Lepidosperma drummondii, L. affin. resinosum, L. scabra, L. affin. tuberculatum, Leptospermum erubescens*, Melaleuca macronycha*, Schoenus sp. 4*, Spartochloa scirpoidea, Stypandra imbricata*, Thryptomene australis*, Xanthorrhoea nana.

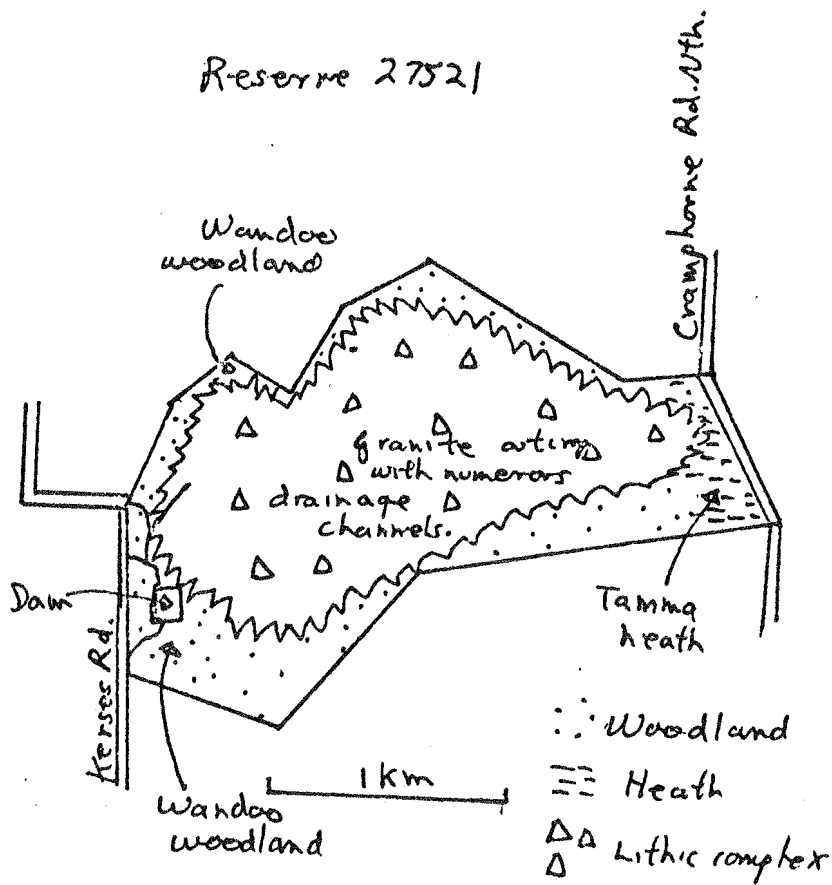




Plate 15. View N on Reserve 27521 across granite outcrop towards Casuarina huegeliana stand on watershed area.



Plate 16. View N through Wandoo woodland to small stand of mallee near dam site.

Reserve 31091

Located ca 23 km due E of Narembreen Townsite and shown on lithograph 5/80, DE4.

Background

Originally gazetted 26 November 1971 for "Conservation of Flora".

Physical characteristics

Reserve 31091 is rectangular, ca 1 km long (E-W axis) by ca 0.4 km broad (N-S axis) and has a total perimeter of ca 2.8 km. The area of the Reserve is 40.4610 ha. There are no contour maps or spot altitudes available but the Reserve is relatively flat, the W end being ca 3-4 m above the level of the salt flat at the E end.

Vegetation

Three associations are present and these are listed below.

Jam woodland: Acacia acuminata Open Low Woodland B with no understory. Numerous outcrops or pavements of granite present.

Melaleuca thicket: Melaleuca hamulosa Dense Thicket with no understory.

Samphire flat: Arthrocnemum spp. (Samphire) Dense Low Heath D on salt marsh.

Plant species

Only 13 plant species were recorded, 5 of which are found on the salt flat and M. hamulosa thicket. Five species are exploited by the wildflower seed trade.

Weeds

As well as grasses, the weeds Chenopodium pumilio (Wild Mint), Cucumis myriocarpus (Paddy Melon) and Salsola kali (Prickly Saltwort) were common.

Fire history

No evidence of fire for more than 20 years.

Fauna

The only native fauna recorded were:

Crested Pigeon (Ocyphaps lophotes) and Western Magpie (Cracticus tibicen dorsalis) and a lizard Amphibolurus salinarum which occupied a burrow on the edge of the woodland.

Exotic fauna

Rabbits very common, with numerous warrens and scratchings. Cattle have been in the Reserve for many years and at the time of survey about 40 head were feeding within its limits.

Firebreaks and fences

Entirely absent. Reserve is completely enclosed within farmland. There are no access roads.

Human usage

Abundant rubbish (mostly scrap metal and tin cans) throughout the Reserve, but particularly on the N side. Some Jam timber has been removed. Stock have been in the Reserve for many years.

Adjacent uncleared land

A few hectares of Salmon Gum woodland are present at the W end of the Reserve but the understory has been heavily grazed. Extensive salt pans are continuous within the N and S boundaries of the Reserve.

Remarks

Townsend Soak is a small spring arising from the granite outcrop and used extensively as a watering point for the cattle.

Fisheries and Wildlife files indicate that R and M. Dobra and Sons, the owners of Avon Loc. 22850 have requested that the Reserve be released for purchase "because it was involved in flooding to the south". Inspection by a representative from the Department of Agriculture indicated this was not so and the land was not released.

APPENDIX 5.

VEGETATION DETAILS RESERVE 31091

Jam woodland

Acacia acuminata trees, mature, 3-5 m tall, 2-10% canopy cover. No understory present but an abundant cover of grasses in winter. Other species recorded were: Bassia affin. diacantha, Borya nitida, Eucalyptus loxophleba, Leptospermum erubescens, Santalum spicatum, Spartochloa scirpoidea, Stylidium repens. Soil is reddish yellow, sandy clay loam, moderately drained.

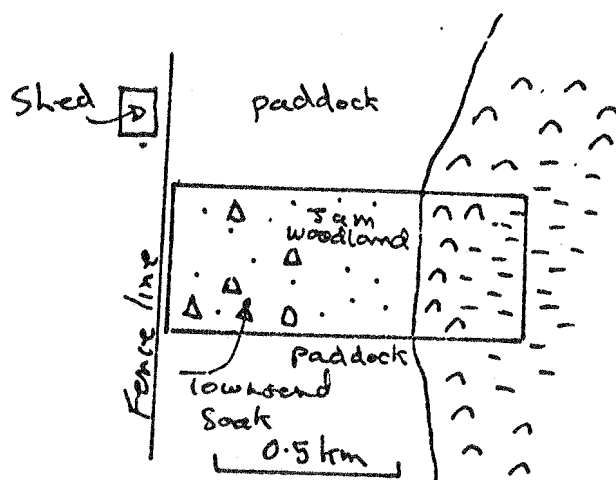
Melaleuca thicket

Melaleuca hamulosa shrubs, mature to senescent, 2-3 m tall, 70-100% canopy cover. Most of the plants were dead or dying. No other species were recorded. Soil is light brownish grey, silty clay. Poorly drained.

Samphire flat

Arthrocnemum halocnemoides and A. bidens (on slightly raised areas), 30 cm tall, 70-100% canopy cover. Other species recorded were Disphyma blackii and Maeriana brevifolia.

Reserve 31091



- ∴ Sam woodland
- Melaleuca thicket
- ^^ Saxiphine flat.
- △△ Lithic exposures



Plate 17. View SE across Samphire flat towards Melaleuca hamulosa thicket on Reserve 31091.



Plate 18. View S into Jam woodland.