SOME NATURE RESERVES OF THE WESTERN AUSTRALIAN WHEATBELT

PART 8: DALWALLINU SHIRE

B.G. MUIR

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SOME NATURE RESERVES OF THE WESTERN AUSTRALIAN WHEATBELT
PART 8 : DALWALLINU SHIRE

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Introduction

Dalwallinu Shire lies in the central wheatbelt and has an area of about 7186 square km. There are 15 Nature Reserves within the Shire totalling about 91 sq. km or 1.3% of the area of the Shire. Although 7 of the Reserves are less than ca 80 ha in area, 4 of the remainder exceed 1000 ha and thus greatly increase the total area of reserved land.

Four of the Nature Reserves within the Shire have "A" classifications: A16379 (part of Buntine Reserve) which is vested in the Minister for Water Supply; A26837 (also part of Buntine Reserve) which is vested in the Western Australian Wildlife Authority (W.A.W.A.); A20372 (East Nugadong Reserve) vested in W.A.W.A.; and A26259 (Carlyarn Rocks) also vested in W.A.W.A. Five of the remaining Reserves enjoy no particular protection and have the following vestings:

9935	(Jibberding Reserve)	vested in W.A.W.A.
12614	(Nugadong Reserve)	vested in Dalwallinu Shire
17539	(unnamed)	" " " "
18245	(Wubin Reserve)	" " " "
28184	(unnamed)	" " " "

The other 6 Reserves are unvested.

Five reserves have been studied extensively prior to this survey, A16379, A26837, 10351, 12614 and A20372. Vegetation maps, floristic lists, and detailed inventories of vertebrate fauna are available from Kitchener et al. (in press).

The current survey took place in June 1978 and consisted of brief examinations of 5 Reserves, 18381, 19650, 24828, 27283 and 29326. Reports on the 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, and on foot. Local knowledge and air-photographs were consulted to find areas of particular interest. Only a very short time could be spent on each Reserve, the smaller ones being examined in 1 or 2 hours, the larger ones in a full day.

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

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

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

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

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

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 18381 - ca 16 ha; mostly York Gum/Jam woodland with clay pan; understory heavily grazed; important waterfowl refuge in winter but could be improved by excluding sheep.

Reserve 19650 - ca 62 ha; Salmon Gum woodland; senescent trees and dense thickets provide important nest sites and rest areas for transient birds.

Reserve 24828 - ca 2 ha; Dodonaea shrubland with scattered Gimlet; suggest development into recreation area.

Reserve 27283 - ca 1347 ha; complex mosaiced vegetation of 10 discernibly different types, mostly shrub dominated; excellent representative of vegetation in area; important for fauna.

TABLE 1: VEGETATION CLASSIFICATION AS USED IN WHEATBELT SURVEY

LIFE FORM/HEIGHT CLASS	CANOPY COVER			
	DENSE 70-100% d	MID-DENSE 30-70% c	SPARSE 10-30% i	VERY SPARSE 2-10% r
T Trees >30m	Dense Tall Forest	Tall Forest	Tall Woodland	Open Tall Woodland
M Trees 15-30m	Dense Forest	Forest	Woodland	Open Woodland
LA Trees 5-15m	Dense Low Forest A	Low Forest A	Low Woodland A	Open Low Woodland A
LB Trees <5m	Dense Low Forest B	Low Forest B	Low Woodland B	Open Low Woodland B
KT Mallee tree form	Dense Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree Mallee
KS Mallee shrub form	Dense Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub Mallee
S Shrubs >2m	Dense Thicket	Thicket	Scrub	Open Scrub
SA Shrubs 1.5-2.0m	Dense Heath A	Heath A	Low Scrub A	Open Low Scrub A
SB Shrubs 1 0-1.5m	Dense Heath B	Heath B	Low Scrub B	Open Low Scrub B
SC Shrubs 0.5-1.0m	Dense Low Heath C	Low Heath C	Dwarf Scrub C	Open Dwarf Scrub C
SD Shrubs 0.0-0.5m	Dense Low Heath D	Low Heath D	Dwarf Scrub D	Open Dwarf Scrub D
P Mat plants	Dense Mat Plants	Mat Plants	Open Mat Plants	Very Open Mat Plants
H Hummock Grass	Dense Hummock Grass	Mid-Dense Hummock Grass	Hummock Grass	Open Hummock Grass
GT Bunch grass >0.5m	Dense Tall Grass	Tall Grass	Open Tall Grass	Very Open Tall Grass
GL Bunch grass <0.5m	Dense Low Grass	Low Grass	Open Low Grass	Very Open Low Grass
J Herbaceous spp.	Dense Herbs	Herbs	Open Herbs	Very Open Herbs
VT Sedges >0.5m	Dense Tall Sedges	Tall Sedges	Open Tall Sedges	Very Open Tall Sedges
VL Sedges <0.5m	Dense Low Sedges	Low Sedges	Open Low Sedges	Very Open Low Sedges
X Ferns	Dense Ferns	Ferns	Open Ferns	Very Open Ferns
Mosses, liverwort	Dense Mosses	Mosses	Open Mosses	Very Open Mosses

Reserve 29326 - ca 8 ha; Acacia shrubland and Casuarina-Hakea heath; limited value at present but may provide seed source or other advantages in the future.

Of the 5 Reserves examined, 2 were mostly woodland and the rest shrubland. Reserves 19650 and 27283 are relatively undisturbed but the remainder are damaged by grazing or excessive human usage. Reserve 27283 is large and in excellent condition and is a particular asset to conservation in the region.

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J.H. Muir and I. Simpson assisted in the field. The Western Australian Herbarium provided access to collections and assistance in identifying plants. The Department of Fisheries and Wildlife have allowed me to use some of this data as part requirement of an Honours Thesis.

Sawyers N.R. {Map 6 - Kalannie}

Reserve 18381

Located ca 5 km NW Kalannie Townsite and shown on lithograph 65/80, A1.

Background

Originally set aside 7 September 1923 for "Water and Camping". Changed to "Conservation of Flora" on 15 March 1963.

Physical characteristics

Reserve 18381 is square, ca 1.5 km in perimeter and with an area of 16.1975 ha. No contour maps are available but there is a spot altitude of ca 304 m above sea level ca 3 km SE of the Reserve. The country near the Reserve is relatively flat. The Reserve itself has an overall topographic variation of ca 3 m.

Vegetation

The majority of the Reserve is covered with Eucalyptus loxophleba (York Gum) Open Low Woodland A with Melaleuca Open Scrub around the clay pan and Acacia acuminata (Jam) Open Low Woodland A on the S side. The NE corner has an area of A. resinomarginea Dense Thicket.

Plant species

Most understory species on the Reserve have been grazed or trampled. Only 12 species were recorded, 2 of which are annual herbs and another 6 which are tall enough to avoid total grazing by sheep. The remaining 4 species are unpalatable to sheep. Examination of the ungrazed road verge found 5 species which may have previously existed within the Reserve boundary.

Nest hollows

Some in senescent branches of York Gums. There is no York Gum regeneration.

Weeds

Only small annual species were present.

Fire history

Has not been burnt for at least 30 years.

Fauna

Black-throated Grebe ("Australian Little Grebe") (Podiceps novaehollandiae): 20 flushed from lake in clay pan.

Pacific Heron (Ardea pacifica): 1 on lake edge.

White-faced Heron (A. novaehollandiae): 2 on lake edge and one perched in tree.

Black Swan (Cygnus atratus): 2 on lake.

Black Duck (Anas superciliosa): 3 on lake.

Grey Teal (A. gibberifrons): 10 on lake and ca 200 in flooded paddocks just E of Reserve.

Black-tailed Native Hen (Gallinula ventralis): ca 5 in flooded paddock just E of Reserve.

White-backed Swallow (Cheramoeca leucosterna): numerous, flying over Reserve and along roadway.

Grey Fantail (Rhipidura fuliginosa): 2 in Jam areas.

Willie Wagtail (R. leucophrys): 1 in Acacia thicket.

Singing Honeyeater (Meliphaga virescens): several in flowering York Gums.

Australian Raven (Corvus coronoides): 2 flying over Reserve.

Exotic fauna

Heavily grazed by sheep.

Firebreaks and fences

Fenced all sides. Firebreaks in adjacent paddocks.

Human usage

Sheep have been grazed extensively on the Reserve, although not recently, as testified by the annuals Helichrysum and Centipeda. There is also a gravel pit, a farm track and some rubbish has been dumped. Some timber has been removed.

Adjacent uncleared land

About 1 ha of grazed Jam woodland is contiguous with the SE corner of the Reserve.

Opinion and recommendations

Although fairly small and of only two associations, Reserve 18381 is important to many birds. This is mostly because of the fresh water filled claypan in winter and the mature to senescent York Gums providing nesting hollows. The long term usefulness of the Reserve is limited by the sheep

grazing however, as understory is prohibited from developing, and seedlings of York Gum cannot become established. As the trees die they will not be replaced unless grazing is eliminated. I recommend that action be taken to prohibit further grazing on the Reserve and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 1

Reserve 18381

York Gum woodland

Clay pan area: Eucalyptus loxophleba trees and tree mallee, mature, 6-11 m tall, ca 2% cover over scattered clumps Melaleuca hamulosa and M. acuminata shrubs, mature, 3 m tall, ca 2% cover. Soil reddish brown, clayey sand, saturated.

South end: E. loxophleba as above over Acacia acuminata trees, mature, 6 m tall, 2-10% cover. Also recorded were: Acacia tetragonophylla, Centipeda minima, Dianella revoluta, Helipterum roseum, Lepidosperma drummondii, Lomandra effusa and Ptilotus obovatus. Soil reddish brown, clayey sand, poorly drained.

Acacia thicket

Acacia resinomarginea shrubs, mature to senescent, stratum 3-4 m tall, 70-100% cover with no understory. Soil weak red, fine sandy loam, poorly drained.

On the road verge adjacent to the Reserve but outside the fence were: Amphipogon debilis, Bassia diacantha, Enchylaena tomentosa, Mirbelia affin. depressa and Stipa elegantissima.

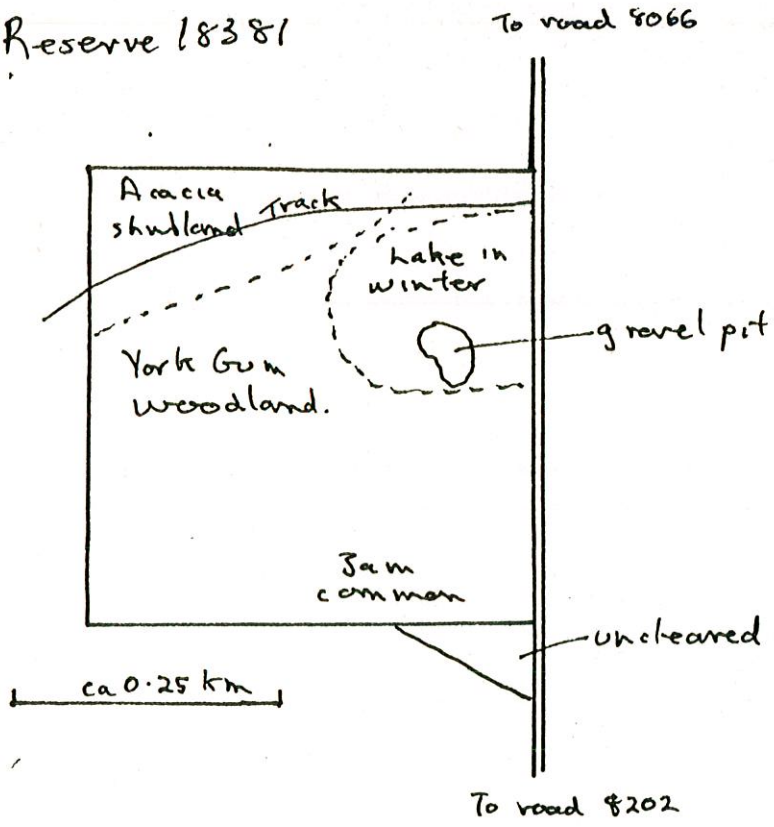

Reserve 18381
To road 8066
Acacia shrubland
Track
Lake in winter
gravel pit
York Gum woodland.
Jam common
uncleared
ca 0·25 km
To road 8202

Plate 1. Reserve 18381 showing clumps of Melaleuca in fresh water clay pan.

Old Store NR

Reserve 19650

Located ca 5 km SE Kalannie Townsite and shown on lithograph 65/80, B1.

Background

Originally set aside as a Reserve for "Water" on 4 November 1927 and vested in the Minister for Water Supply. The Reserve was changed to the control of the Dalwallinu Shire on 25 November 1927 then changed to "Protection of Native Flora" on 8 October 1965, whereupon the vesting lapsed.

Physical characteristics

Reserve 19650 is angular ovoid in shape, with a total perimeter of ca 3.1 km and an area of 62.3191. No contour maps are available but there are spot altitudes of ca 330 m above sea level (ASL) at Kalannie Siding, 5 km NW of the Reserve, and ca 306 m ASL at Bunketch Siding ca 5 km SSW of the Reserve. The region of the Reserve and the Reserve itself are very flat.

Vegetation

The Reserve is covered with a single formation of Eucalyptus salmonophloia (Salmon Gum) Open Woodland over mixed Open Scrub over mixed Open Dwarf Scrub D. There are scattered individuals or clumps of E. transcontinentalis (Redwood), E. salubris (Gimlet), E. longicornis (Morrel) or Casuarina acutivalvis.

Plant species

Twenty-seven plant species were recorded on the Reserve, of which 8 are exploited by the wildflower seed trade. One species, Myoporum deserti has not been recorded in the wheatbelt by me prior to this survey (80 Reserves previously examined).

Nest hollows

Abundant hollows in standing, living trees, and some dead trees. Large fallen logs common. Some young trees present.

Weeds

Scattered small annuals in wetter areas. Arctotheca calendula, Hypochaeris glabra, Ptilotus polystachys, Raphanus raphanistrum and Ursinia anthemoides common around, and in, old dam.

Fire history

No evidence of fire within last 30 years.

Fauna

Mountain Duck (Tadorna tadornoides): pair in woodland.

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

Galah (Cacatua roseicapilla): several in woodland.

Weebill (Smicrornis brevirostris): in eucalypts.

Yellow-rumped Thornbill (Acanthiza chrysorrhoa): several in Melaleuca clumps.

Mistletoe Bird (Dicaeum hirundinaceum): tops of eucalypts, particularly Morrel.

Singing Honeyeater (Meliphaga virescens): calling from dense clump of Casuarina acutivalvis.

Australian Raven (Corvus coronoides): 2 flying over Reserve.

Exotic fauna

Rabbit scats common.

Firebreaks and fences

Marginal firebreaks and fences only.

Human usage

Damsite with sloping concrete sides and collapsed roof timbers. Drains run through Reserve and lead into dam. Some timber cutting, scattered rubbish, old fence near dam.

Adjacent uncleared land

About 50+ ha, mostly on the SW side of the Reserve.

Remarks

The damsite presents little hazard to fauna as the sides are partly collapsed and fallen timbers and shrubbery provide ample means of climbing out. The dam may hold water for a short time and could be useful to granivorous species late in the breeding season and in early summer.

Opinion and recommendations

Reserve 19650 is isolated from other areas of bushland and provides abundant nest hollows for birds. It also provides dense thickets of undergrowth for small secretive bird species and abundant litter and logs. The dam may provide water in the early summer. Woodland is poorly represented on reserves in the region and is probably important for transient bird species. I recommend Reserve 19650 be vested in the Western Australian Wildlife Authority.

APPENDIX 2

Reserve 19650

Salmon Gum woodland

Eucalyptus salmonophloia trees, mature to senescent, stratum 12-22 m tall, 2-10% cover over mixed shrubs, mature, 2-3.5 m tall, locally up to 30% cover but overall cover ca 1%. Understory of Grevillea acuaria and mixed shrubs 0.5 m tall, 2-10% cover. Some areas have scattered E. transcontinentalis trees and tree mallee or E. salubris with Casuarina acutivalvis in the second stratum. There are some E. longicornis on the SE side of the Reserve. Other plant species recorded were Acacia dentifera, A. erinacea, A. graffiana, A. ligustrina, A. sclerophylla, A. tetragonophylla, Alyxia buxifolia, Atriplex paludosa graciliflora, Bassia forrestiana, Dianella revoluta, Eremophila drummondii, E. oppositifolia, Exocarpus sparteus, Grevillea huegellii, Melaleuca cymbifolia, Myoporum deserti, Olearia muelleri, Santalum acuminatum, Scaevola spinescens, Templetonia sulcata, Vitidinia sp. Soil reddish brown, clay loam. Poorly drained.

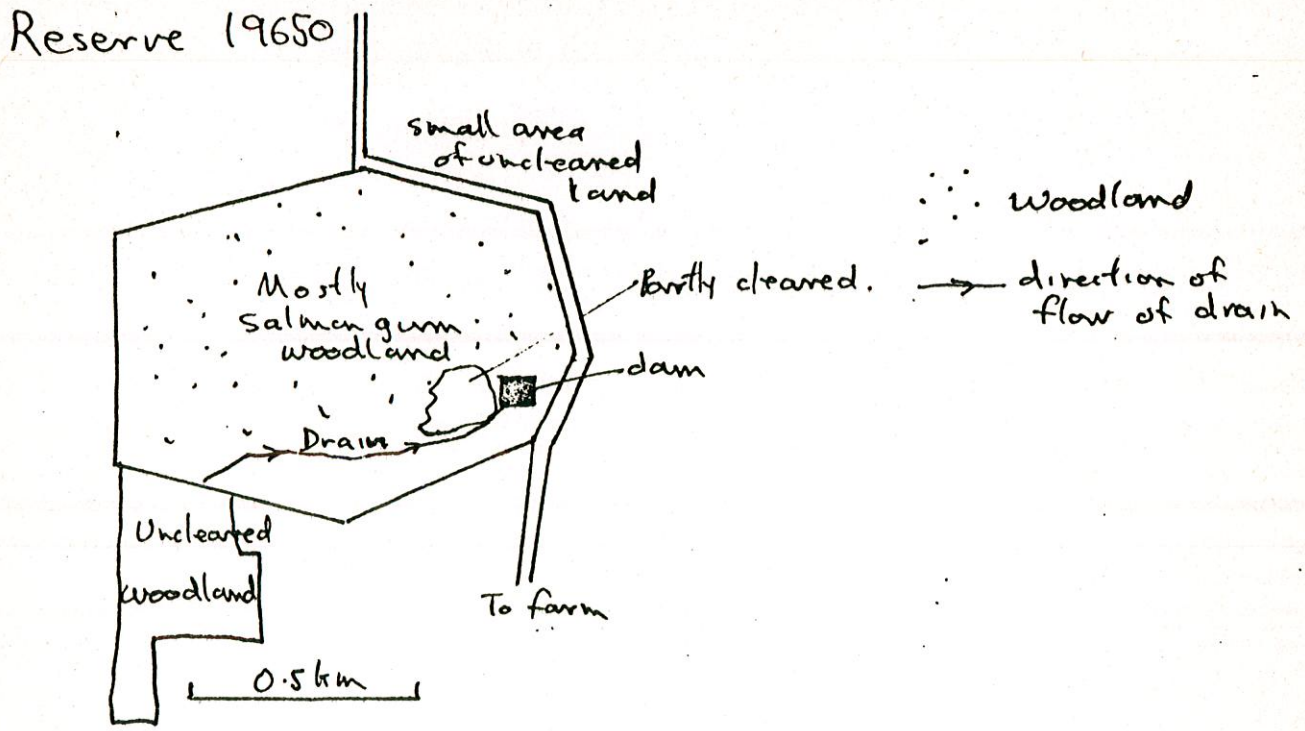

Reserve 19650
small area of uncleared land
Mostly Salmon gum woodland
Partly cleared.
dam
Drain
Uncleared woodland
To farm
0.5 km
Woodland
direction of flow of drain

Plate 2. Reserve 19650 showing open portion of Gimlet woodland where understory is well developed. View S.

Reserve 24828

Pithara Reserve

Located on the N border of the Pithara Townsite, which is shown on lithograph 64/80, C-D2.

Background

Originally set aside for "Conservation of Flora" on 25/10/1957.

Physical characteristics

Reserve 24828 is triangular, with a total perimeter of ca 1 km and an area of 2.6304 ha. No contour maps of the area are available but Pithara Siding has an altitude of ca 326 m above sea level.

Vegetation

Much of the Reserve is cleared and has no regrowth but scattered clumps of Dodonaea inequifolia shrubs form an overall structural type of Scrub over mixed Open Dwarf Scrub C. There are scattered E. salubris (Gimlet) and and E. loxophleba (York Gum) trees.

Plant species

Twenty-two plant species were recorded, 7 of which are exploited by the wildflower seed trade.

Nest hollows

None present.

Weeds

Abundant, mostly grasses and small annual species. Commonest weeds recorded were: Arctotheca calendula, Anagallis arvensis, Cucumis myriocarpus, Erodium cygnorum, Hypochaeris glabra, and Ursinia anthemoides and the commonest grasses Aira caryophylla, Avena barbata, A. sativa fatua, Digitaria sanguinalis, Ehrahta longiflora and Puccinellia stricta.

Fire history

No evidence of fire within last 30 years.

Fauna

Singing Honeyeater (Meliphaga virescens) and New Holland Honeyeater (Phylidonyris novaehollandiae): although frequenting the Reserve, both were observed to fly repeatedly into the back-yards of nearby houses and feed on Hibiscus blossoms.

Magpie-lark (Grallina cyanoleuca): 1 calling on Reserve.

Western Magpie (Cracticus tibicen dorsalis).

Australian Raven (Corvus coronoides).

Exotic fauna

Dogs and cats probably frequent in the Reserve.

Firebreaks and fences

None.

Human usage

Rubbish in small quantities is scattered throughout the Reserve. It consists mostly of corrugated iron and old food cans. The understory is partly cleared.

Adjacent uncleared land

None

Opinion and recommendations

Reserve 24828, as it presently exists, is of little purpose to fauna and may present some fire danger to nearby houses. The long grass and sheets of iron may also encourage snakes, a serious consideration with a bowling green and houses nearby. School children also walk through the Reserve on occasions.

About 2 days work by 1 or 2 men would clean the area of rubbish and then a heavy mower could remove all grass, retaining only the trees and 1 or 2 clumps of Dodonaea inequifolia, an attractive plant when fruiting. Thus, with minimal maintenance the Reserve could be retained as a useful playground yet still retain the tree canopy for transient birds.

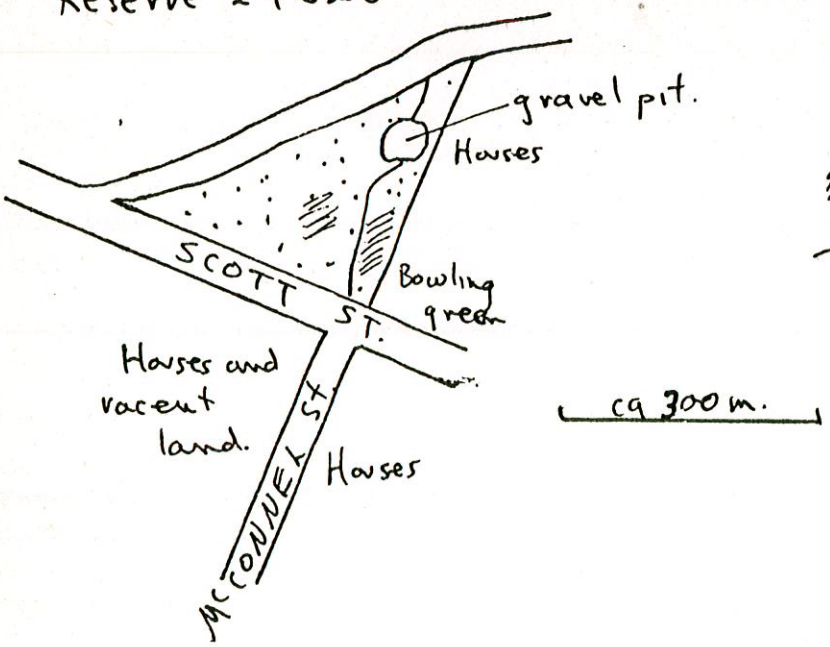
The Reserve could be vested in the Shire or perhaps in the Western Australian Wildlife Authority with an arrangement whereby the Shire or Pithara townsfolk maintain it for recreation.

APPENDIX 3

Reserve 24828

Dodonaea inequifolia shrubs, mature to senescent, clumped but 2-3.5 m tall, 2-10% cover over Acacia erinacea and mixed shrubs, mature, 1 m tall, 2-10% cover. Scattered trees present. Other species recorded were: Acacia acuaria, A. acuminata, A. graffiana, A. saligna, Atriplex nummularium, Bassia diacantha, Cassia nemophylla, Daviesia nematophylla, Eremophila clarkii, Eucalyptus loxophleba, E. ovularis, E. salubris, Glischrocaryon flavescens, Melaleuca adnata, Ptilotus obovatus, Rhagodia preissii, Santalum acuminatum, Templetonia sulcata and Wilsonia humilis. Soil is red, silty clay. Poorly drained.

Reserve 24828



woodland.

rubbish dumped

track.

Plate 3. View W into Reserve 24828 showing Dodonaea clump and scattered trees. Note grassy understory development and scattered rubbish.

Goodlands NR

Reserve 27283

Located ca 48 km NE of Kalannie and shown on lithograph 88/80, Dl.

Background

Declared Reserve for "Flora and Fauna" on 4 June 1965 but not vested. Amended on 2 August 1974 by a decrease of ca 2 ha after the development of road 14857.

Physical characteristics

Reserve 27283 is approximately rectangular with an irregular S boundary (see map). It is about 5 km long (E-W axis) by ca 2.5 km broad (N-S axis) and has a total perimeter of ca 18 km and an area of 1347.4242 ha. No contour maps are available but there are spot altitudes ranging from ca 300 m to 340 m above sea level, about 13 km S of the Reserve. The Reserve itself would be of higher altitude, probably ca 400 m above sea level.

Vegetation

Ten different associations are discernible on the Reserve 2 of which are fire regrowth. Much of the vegetation is a mosaic of 2 or more associations. Their distribution is shown on the vegetation map by numbers.

TYPE 1: Melaleuca uncinata (Broombush) Thicket over Eremophila scoparia (Emu bush) with clumps of Borya nitida. Shallow granitic soil.

TYPE 2: Eucalyptus ovularis (Small-fruited Mallee) Very Open Shrub Mallee over Acacia and Eremophila Low Scrub B.

TYPE 3: Eucalyptus transcontinentalis (Redwood) and E. ovularis (Small-fruited Mallee) Very Open Tree Mallee over Acacia and Olearia Open Dwarf Scrub C.

TYPE 4B: Regrowth of Casuarina acutivalvis Dense Low Heath C resulting from a fierce fire 14 years before this survey. Probably very similar to TYPE 8 before the fire.

TYPE 5B: Acacia Dense Heath B over mixed Open Swarf Scrub D. Regrowth following fierce fire 14 years before this survey. Probably similar to TYPE 7 before the fire.

TYPE 6: Acacia Dense Thicket over Hibbertia Open Swarf Scrub D, with no understory but scattered clumps of Thryptomene 2 m tall.

TYPE 7: Acacia Scrub with scattered Eucalyptus leptopoda (Tammin Mallee) and Melaleuca uncinata (Broombush). Understory of Melaleuca Low Heath C. Some areas have denser understory or Casuarina acutivalvis clumps.

TYPE 8: Casuarina acutivalvis Dense Thicket over Baeckea and Melaleuca Open Open Low Scrub A.

TYPE 9: Acacia Dense Thicket over Phebalium tuberculosum Open Dwarf Scrub C.
GRANITE AREAS: Complex mosaics of bare granite with thickets and scattered shrubs of numerous species.

Plant species

Eighty-six plant species were recorded, of which 19 are exploited by the wildflower seed trade. The majority of the plant species are typical of the wheatbelt although some eastern ("goldfields") influences are apparent.

Nest hollows

Most of the Reserve is shrubland or shrub mallee and trees are scarce. The areas of York Gum-Salmon Gum woodland are mature and have some nest hollows. Young trees are scarce.

Weeds

Absent except for small annual species in runoff areas of granite.

Fire history

Probably about 50% of the Reserve was burnt in a fierce fire in February 1964. The remainder is probably at least 30 years old.

Fauna

Echidna (Tachyglossus aculeatus): common, particularly around granite outcrops.

Grey Kangaroo (Macropus fuliginosus): scats seen, 1 sighted on NW corner Reserve, probably scarce (nearby farmer, pers. comm.).

Wedge-tailed Eagle (Aquila audax): 3 flying above Reserve.

Mallee Fowl (Leipoa ocellata): old nest mound in Casuarina thicket, E side of Reserve.

Common Bronzewing (Phaps chalcoptera): 1 in mallee E side.

Crested Pigeon (Ocyphaps lophotes): common in burnt areas.

Mulga Parrot (Platycercus varius): possible sighting on NE corner.

Galah (Cacatua roseicapilla): 2 in mallee W side Reserve.

Pallid Cuckoo (Cuculus pallidus): 2 heard calling on E side and 1 on SW side near granite outcrop.

Tawny Frogmouth (Podargus strigoides): 1 flushed from Acacia thicket.

Pipit (Anthus novaeseelandiae): common along fencelines.

Rufous Whistler (Pachycephala rufiventris): calling from thickets on granite outcrop.

Western Shrike-thrush (Colluricincla harmonica rufiventris): several calling from thickets.

Crested Bell-bird (Oreoica gutturalis): calling, SE corner of Reserve.

Chiming Wedgebill (Psophodes cristatus occidentalis): calling continuously, SW corner.

Willie Wagtail (Rhipidura leucophrys): mostly in burnt areas.

Weebill (Smicrornis brevirostris): common in mallee areas.

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

Blue Wren (Maluris sp.): could be M. splendens or M. pulcherrimus, male seen in Casuarina acutivalvis thicket.

Mistletoe-bird (Dicaeum hirundinaceum): 1 seen in mallee area, N side.

Brown honeyeater (Lichmera indistincta): in thickets.

White-fronted Chat (Epthianura albifrons): in burnt areas.

Grey Butcherbird (Cracticus torquatus): moderately common, mostly sighted on E side Reserve.

Western Magpie (Cracticus tibicen dorsalis): several seen near homestead on S side Reserve.

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

Exotic fauna

Occasional rabbit scats seen.

Firebreaks and fences

Firebreaks on E side, roads on S and W sides and dividing the E portion of the Reserve. No firebreaks on N boundary. Farms with fences adjacent to all sides.

Human usage

Almost none: gravel pit, small amount of rubbish dumped.

Adjacentuncleared land

A reserve for "Water Supply" (32060) is contiguous with the S boundary of Reserve 27283 and is ca 53 ha in area. Another area shown on lithograph 88/80 as being Government land is situated on the NE corner of Reserve 27283 and is shown as Ninghan Location 3288. It is designated as "Granite Rocks (Gnamma holes)" and isca 85 ha in area but is unsurveyed and unvested Crown Land. Ninghan Locations 3284 and 3285 to the N of the Reserve are uncleared. Most of the land now cleared on the W, S and E boundaries has been cleared within the last 10 years.

Remarks

Thanks are extended to Mr. G.H. Scholz of Euro Springs, via Kalannie, who provided informatiom on the Reserve.

Opinion and recommendation

Reserve 27283 is an excellent representative of the vegetation found in this portion of the wheatbelt, with the exception of woodland. The Reserve is quite rich in both flora and fauna and many parts of it are aesthetically attractive. Although only recently isolated from most surrounding bushland, current development of drought resistant wheat strains and repositioning of the Emu Proof Fence will see the region opened up to agriculture to a much greater extent, probably within the next 10 years. The real value of this Reserve will then become apparent. At present it has considerable value to fauna and should be maintained in its present condition. I recommend it be vested in the Western Australian Wildlife Authority.

APPENDIX 4

Reserve 27283

The complex nature of the vegetation on this Reserve has made it necessary to show the distribution on the map as numbers representing vegetation types. Nearly all areas are highly mosaiced, the numbers designating the major types and coupled numbers indicating the two main types in order of abundance.

TYPE 1

Melaleucauncinata shrubs, mature, stratum 4-5.5 m tall, 30-70% cover over M. radula and Eremophila scoparia shrubs, immature, stratum 1 m tall, 10-30% cover but patchily distributed. Clumps of Borya nitida and Amphipogon debilis present. Also recorded were: Acacia acuminata, Astroloma serratifolium, Baeckea floribunda, Casuarina acutivalvis, Dodonaea inequifolia, Eremophila decipiens, Hibbertia aurea, Phebalium tuberculosum. Soil pink, gritty, fine sandy loam; poorly drained. Shallow pavements and scattered boulders of granite and quartz present.

TYPE 2

Eucalyptus ovularis shrub mallee, mature, stratum 4-6 m tall, ca 10% cover over Acacia graffiana and Eremophila drummondii shrubs, 1.5 m tall, 10-30% cover. Other species present were: Acacia colletioides, Amphipogon debilis, Borya nitida, Casuarina acutivalvis, Dianella revoluta, Melaleuca eleutherostachya, Olearia revoluta, Santalum acuminatum. Soil red, fine sandy loam; poorly drained.

TYPE 3

Eucalyptus transcontinentalis and E. ov^ularis tree mallee and trees, stratum 4-8 m tall, 2-10% cover over Acacia graffiana and Olearia revoluta shrubs, mature, stratum 1 m tall, ca 3% cover. Scattered A. colletioides are present between the strata. Also recorded were: Acacia acuminata, A. erinacea, A. mackayana, Callitris roei, Eremophila decipiens, E. drummondii, E. oppositifolia, E. scoparia, Grevillea huegellii, Hakea francisiana, Olearia muelleri, Ptilotus obovatus, Rhagodia spinescens, Sclerostegia disarticulata and Stipa elegantissima. Soil pinkish grey, sandy clay. Moderate to poorly drained.

TYPE 4B FIRE REGROWTH

Casuarina acutivalvis shrubs, immature, stratum 1 m tall, 70-100% cover. Other species recorded were: Grevillea paradoxa, Hibbertia uncinata, Melaleuca cordata, and Thryptomene affin. kochii. Soil yellow, sandy clay

with ca 60% laterite pebbles. Well drained.

TYPE 5B FIRE REGROWTH

Acacia chrysella shrubs, immature, stratum 1.5 m tall, 70-100% cover over mixed shrubs, immature, 30 cm tall, 2-10% cover. Scattered emergent Grevillea excelsior shrubs to 2.5 m. Other species recorded were: Acacia fragilis, Baeckea heteranthera, Casuarina acutivalvis, Choretrum pritzellii, Dictrastylis parviflora, Eriostemon deserti, Eucleptopoda, Grevillea acerosa, Hakea falcata, Melaleuca oldfieldii, M. scabra. Soil yellow, loamy sand. Well drained.

TYPE 6

Acacia affin. resinomarginea shrubs, mature, stratum 2-3.5 m tall, 70-100% cover over Hibbertia aurea, stratum 0.5 m tall, ca 2% canopy cover. Clumps of Thryptomene tuberculata to 2 m tall are present. Also recorded were: Acacia heteroclita, Amphipogon debilis, Baeckea heteranthera, Calothamnus gilesii, Eriostemon deserti, Eucalyptus leptopoda and Micromyrtus affin. rosea. Soil yellowish brown, gritty, clayey sand. Well drained.

TYPE 7

This vegetation type is probably similar to type 5 in its pre-burn condition.

Acacia multispicata, shrubs, mature, 3-4 m tall, 10-30% cover together with scattered Eucalyptus leptopoda and Melaleuca uncinata. Understory of M. spathulata, M. oldfieldii and Thryptomene australis shrubs, 1 m tall, 30-70% cover. In some areas the understory may become denser and the association more heathy. Other areas have Casuarina acutivalvis shrubs in clumps. Also present were Acacia affin. fragilis, Baeckea heteranthera, Boronia ternata var. ternata, Grevillea paradoxa, Hakea francisiana, Melaleuca cordata, Persoonia saundersiana, Phebalium tuberculosum, Pimelia sylvestris, Scholtzia parviflora. Soil yellow, loamy sand. Well drained.

TYPE 8

Casuarina acutivalvis shrubs, mature, stratum 3-5 m tall, 70-100% cover over Baeckea floribunda and Melaleuca nematophylla shrubs, mature, 2 m tall, 2-10% cover. Also recorded were: Acacia sp., Dianella revoluta, Hakea affin. minyma, H. subsulcata, Hibbertia aurea, Keraudrenia integrifolia, Phebalium tuberculosum. Soil yellow, sandy clay loam with ca 30% gravel. Well drained.

TYPE 9

Acacia affin. resinomarginea shrubs, mature, 4-7 m tall, 70-100% canopy cover over Phebalium tuberculosum shrubs, mature, 1 m tall, 2-10% canopy cover. Also recorded were: Amphipogon debilis, Glischrocaryon flavescens, Melaleuca uncinata and Santalum acuminatum. Soil brownish yellow, gritty, fine sandy loam. Well drained.

GRANITE AREAS

Complex mosaics of bare granite exposures or areas of Borya nitida with dense thickets. Kunzea pulchella, Acacia acuminata and Santalum spicatum are scattered over the granite. Where deeper soils have formed are dense areas of low shrubs and sedges, e.g. Grevillea paniculata, Lepidosperma tenue, Melaleuca radula, Solanum lasiophyllum and Spartochloa scirpoidea. Where soil was deep and runoff provided wet situations there were dense thickets to 4 m tall of Calycopeplus helmsii, Dodonaea inequifolia, Gastrolobium laytonii, Melaleuca acuminata, M. pauciflora, M. radula, or Thryptomene tuberculata. Other species scattered over the area were Acacia phyllodinaea, Alyxia buxifolia, Dianella revoluta, Drosera stolonifera rupicola, Eucalyptus stowardii, Hibbertia aurea, Muhlenbeckia adpressa and Ptilotus obovatus.

Reserve 27283.

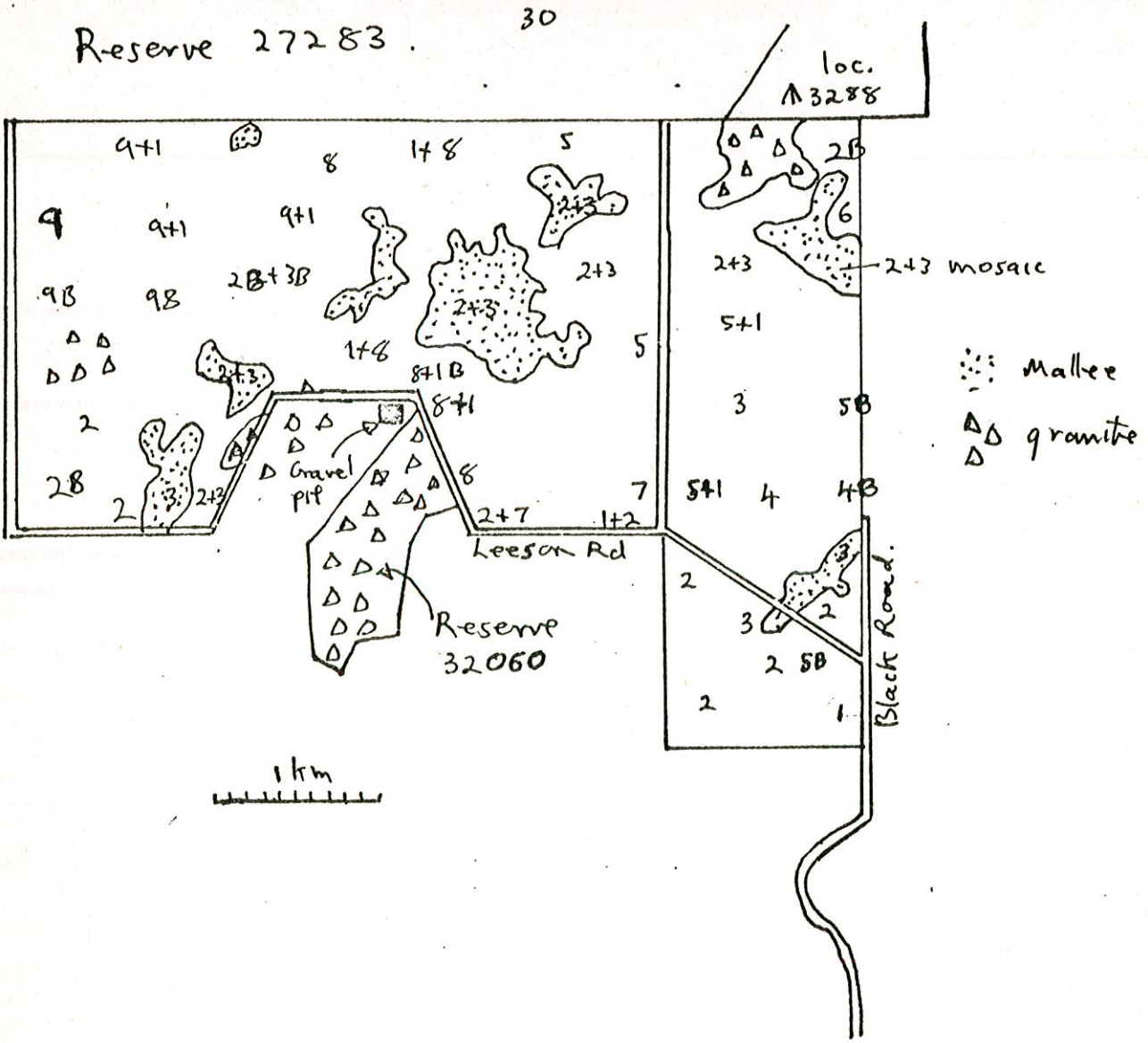


Plate 4. Reserve 27283. View W into Type 1 vegetation showing stony soil and open areas with Borya nitida clumps.

Plate 5. View W into Type 2 vegetation.

Plate 6. Reserve 27283 showing vegetation Type 3.

Plate 7. View W into post-fire regrowth of Casuarina acutivalvis in vegetation Type 4B.

Plate 8. Reserve 27283 showing Acacia resinomarginea shrubland Type 6.

Plate 9. Reserve 27283 showing shrubland of Type 7 with heathy understory.

Plate 10. View E into Acacia resinomarginea shrubland (Type 9).

Plate11. View S of Reserve 27283 showing granite complex with patches of dense shrubs.

Nugadong NR

Reserve 29326

(due N Dawalling)

Located at Nugadong Siding, ca 12 km SSE Wubin Townsite and shown on lithograph 89/80, C-D, 4.

Background

Originally set aside for "Conservation of Flora and Fauna" on 27 September 1968 with an area of ca 9.3 ha. Decreased on 21 July 1972 to its present area of 8.4984 ha.

Physical characteristics

Reserve 29326 is elongate triangular, with an area of 8.4984 ha and a total perimeter of ca 2.1 km. No contour maps are available but a spot altitude of 324 m above sea level is given for Nugadong Siding. The Reserve is flat.

Vegetation

The Reserve is dominated by only two associations although there is a small thicket of Melaleuca uncinata (Broombush) at the N end and a gravel pit with regrowth heath on the E side.

Acacia shrubland

Acacia resinomarginea Dense Thicket over A. graffiana Open Dwarf Scrub D.

Casuarina-Hakea heath

Casuarina campestris (Tamma) and Hakea falcata Open Low Scrub B over Melaleuca and sedges Low Heath D.

Plant species

Thirty-three plant species were recorded, of which 5 are exploited by the wildflower seed trade.

Nest hollows

Absent.

Weeds

Common in disturbed areas. Mostly ephemeral small species eg. Ursinia anthemoides or Arctotheca calendula.

Fire history

No evidence of having been burnt for at least 20 years.

Fauna

Mallee Fowl (Leipoa ocellata): Reserve was reported to contain 5 nests in various stages of use in 1967. I could find no evidence of any nests during this survey.

Galah (Cacatua roseicapilla): several at siding.

Willie Wagtail (Rhipidura leucophrys): 1 seen in gravel pit regrowth.

Australian Raven (Corvus coronoides): flying over Reserve.

Exotic fauna

Rabbit scats common; dogs seen at Nugadong Railway Siding; cat footprints noted in mud.

Firebreaks and fences

None.

Human usage

Nugadong Siding is adjacent to the Reserve. There are roads on all sides and a gravel pit. Some rubbish has been dumped on the S end.

Adjacent uncleared land

There is uncleared land to the W of the Reserve totalling more than 100 ha.

Opinion and recommendations

Reserve 29326 is of small area and low in numbers of both plant species and associations. I cannot see the Reserve as having great value for conservation in the future, or as a "stepping-stone" for transient species. It may however have future value as a seed source or for other purposes. I recommend that the Reserve be left as it is, that no particular effort be made to manage it, and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 5

Reserve 29326

Acacia shrubland

Acacia resinomarginea shrubs, mature, 2-3.5 m tall, 70-100% cover over A. graffiana shrubs mature, 0.5 m tall, 2-10% cover. Other species present were Baeckea heteranthera, B. muricata, Casuarina acutivalvis, Choretrum preissii, Eucalyptus redunca, Hakea falcata, H. scoparia, Melaleuca uncinata, Petrophile conifera, Platysace effusa. Soil is reddish brown, fine sandy clay loam, well drained.

Casuarina-Hakea heath

Casuarina campestris and Hakea falcata shrubs, mature, stratum 1.5 m tall, 2-10% cover over Melaleuca oldfieldii shrubs and Ecdeiocolea monostachya sedge, 0.5 m tall, 30-70% cover. Also present were: Acacia chrysella, A. resinomarginea, A. stereophylla, Casuarina acutivalvis, Dryandra fraseri, Eucalyptus albida, Gahnia polyphylla, Isopogon scariusculus, Melaleuca seriata, M. spathulata, Petrophila conifera, P. shuttleworthiana, Platysace effusa. Soil reddish brown, fine sandy loam with ca 30% laterite, moderately drained.

In addition to the associations described above the extreme N corner has a small stand of Melaleuca uncinata and M.hamulosa shrubs, mature, 2-3.5 m tall, 70-100% cover. Soil is grey, sandy clay. Poorly drained. A gravel pit on the E side has a heathy regrowth of Acacia daviesioides, A. resinomarginea, Astroloma serratifolium, Gahnia polyphylla, Grevillea paniculata, G. paradoxa, Hakea scoparia, Melaleuca adnata, M. cordata, M. uncinata, and Persoonia coriacea.

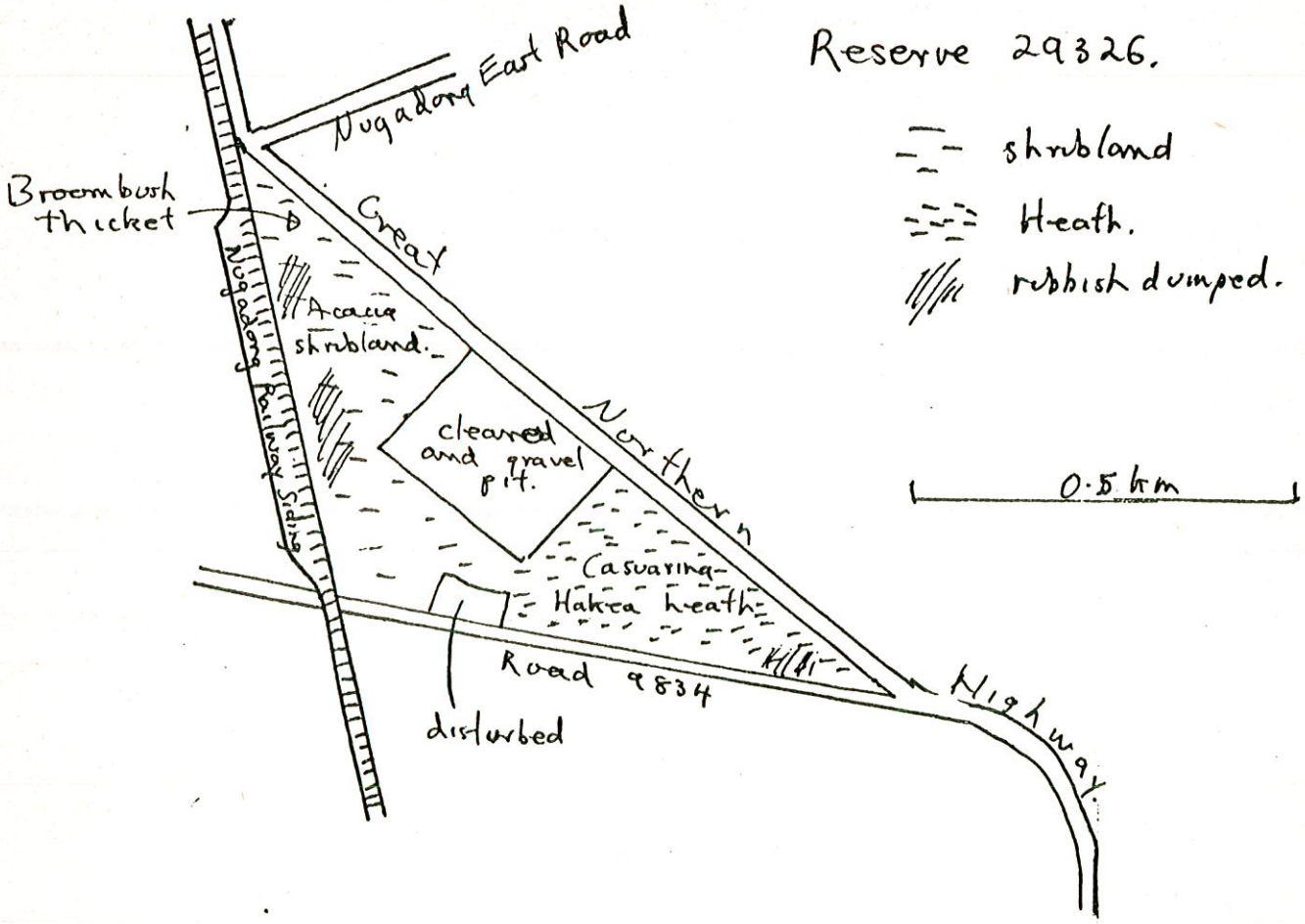

Reserve 29326.
shrubland
Heath.
rubbish dumped.
0.5 km
Nugadong East Road
Broombush thicket
Nugadong Railway Siding
Great Northern Highway
Acacia shrubland.
cleared and gravel pit.
Casuarina-Hakea heath
Road 9834
disturbed

Plate 12. View SW onto Reserve 29326 showing heathy regrowth in gravel pit and Acacia shrubland behind.

Plate 13. View W into Casuarina-Hakea heath.