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SOME NATURE RESERVES OF THE WESTERN AUSTRALIAN WHEATBELT

PART 28 NARROGIN SHIRE

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Some nature reserves of the Western
Australian wheatbelt. Part 28, Narrogin Shire

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

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SOME NATURE RESERVES OF THE WESTERN

AUSTRALIAN WHEATBELT

PART 28 : NARROGIN SHIRE

COMO RESOURCE CENTRE
DEPARTMENT OF CONSERVATION
& LAND MANAGEMENT
WESTERN AUSTRALIA

B.G. MUIR

WESTERN AUSTRALIAN MUSEUM

1979

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SOME NATURE RESERVES OF THE
NARROGIN SHIRE

B.G. MUIR

INTRODUCTION

Narrogin Shire lies in the south-western corner of the central wheatbelt and has an area of ca 1618 square km. There are 28 Nature Reserves within the Shire, totalling ca 62 square km or ca 3.8% of the Shire. The largest Nature Reserve in the Shire is Reserve 26789 (Arthur River Flats) with an area of ca 1069 ha. Of the remaining 27 reserves 19 are less than 200 ha in area. With the exception of 6 reserves (1864, 15855, 20878, 20985, 26668 and 26669) all are vested in the Western Australian Wildlife Authority.

This survey was carried out in July 1979 and consisted of brief examinations of Reserves 1864, 15855, 20878, 26668 and 26669. Reports are attached.

METHODOLOGY

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

Reserves were examined by vehicle where tracks were available, and on foot. Local knowledge and air-photographs were consulted to find areas of particular interest. Only a very short time could be spent on each reserve, the smaller ones being examined in 1 or 2 hours, the large ones in a full day.

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

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

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

TABLE 1: VEGETATION CLASSIFICATION AS USED IN WHEATBELT SURVEY

LIFE FORM/HEIGHT CLASS		CANOPY COVER			
		DENSE 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

RESULTS AND DISCUSSION

The features of each Reserve can be summarised as follows:

Reserve 1864 - ca 54 ha; Wandoo and Marri woodlands, Sheoak woodland;

many nest sites for birds; forest-wheatbelt transition.

Reserve 15855 - ca 40 ha; 8 associations, many rich in plant species;

several species of scarce distribution or uncertain affinities;

rich in fauna; woodlands heavily grazed; adjacent farmers antagonistic

to Reserve; requires immediate protection.

Reserve 20878 - ca 25 ha; Marri woodland and some Mallet woodland; under-

storey fairly rich in plant species; very little disturbance.

Reserve 26668 - ca 81 ha; Wandoo woodland with some areas of other forest

types; rich in both flora and fauna; valuable windbreak for townsite;

susceptible to fire damage.

Reserve 26669 - ca 54 ha; Wandoo woodland; valuable windbreak for townsite;

very little disturbance; good nesting site.

All the reserves examined support valuable stands of vegetation, particularly woodlands. Additionally, being in an area long cleared for agriculture, very little uncleared vegetation remains and all the reserves provide valuable nesting and roosting sites for birds.

The outstanding Reserve is 15855 which, although of small size, supports a very rich flora at both structural and floristic levels. The richness of some of the heaths is comparable only to Tattanning and some other, larger, wheatbelt reserves. This reserve requires immediate attention with regards management.

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ACKNOWLEDGEMENTS

Jennifer Muir and Ian Simpson assisted in the field. Staff of the
W.A. Herbarium provided valuable assistance with plant identifications.

Reserve 1864

Located ca 14 km NW of Narrogin Townsite and ca 13 km SW of Cuballing Townsite. Shown on lithograph 385/80, A-B1 and 1:50,000 Narrogin sheet (232-III).

Background

Originally set aside (40 ha) on 12 August 1891 as a Reserve for "Camping". Its purpose was changed to "Travellers and Stock" on 27 May 1910 then to "Conservation of Flora" on 26 April 1968. It was increased to its present area of ca 55 ha on 21 August 1970.

Physical characteristics

Reserve 1864 is approximately rectangular, ca 1 km long (E-W axis) by ca 0.4 km broad (N-S axis). It has a total perimeter of ca 3.8 km and an area of 54.3974 ha. The lowest point on the Reserve is ca 360 m above sea level and there is a topographic range of ca 10 m.

Vegetation

Wandoo and Marri Forest over Narrow-leaved Poison Dense Heath A passing into Open Low Scrub A over mixed Dwarf Scrub to the south.

Some Sheoak Dense Low Forest A also present.

Plant species

Twenty-five species of plants were recorded, of which 8 are exploited by the wildflower seed trade. A Baeckea and Hemigenia of uncertain affinities were collected.

Nest hollows

Abundant nest hollows, mostly in Wandoo. Scattered young trees present.

Weeds

Abundant ephemerals in wet areas.

Fire history

No evidence of fire within the last 20 years.

Fauna

Mulga Parrot (Platycercus varius): 2 ~~W~~end.

Pallid Cuckoo (Cuculus pallidus): heard calling.

Tree Martin (Hirundo nigricans): common over Reserve.

?Western Yellow Robin (Eopsaltria australis griseogularis): a single bird believed to be this species was observed in the Casuarina clump on the N side.

Western Warbler (Gerygone fusca): heard calling.

Weebill (Smicrornis brevirostris): common.

Yellow-rumped Thornbill (Acanthiza chrysorrhoa): common.

Rufous Tree-creeper (Climacteris rufa): 1 seen in Marri woodland.

White-eared honeyeater (Meliphaga leucotis): 2 in Dryandra sessilis.

Black-faced Wood Swallow (Artamus cinereus): 3 on dead tree.

Exotic fauna

Fox scats and rabbit scats and diggings seen.

Firebreaks and fences

No firebreaks except in adjacent paddocks. A track and disused railway line form some fire protection between the ^{N and S portions of the reserve. Fenced on the} N side only, roadways on E, W and S sides.

Human usage

Old railway line and tracks. Some rubbish dumped. Timber has been removed. A disused gravel pit is present.

Adjacent uncleared land

Several hectares of uncleared land are contiguous with the E boundary of the Reserve.

Opinion and recommendations

Reserve 1864 is in good condition and the northern part particularly is little disturbed. The woodlands are valuable nest sites and resting areas for transient species. Many understorey plants reflect a transitional character between Forest Block and Wheatbelt and are of biogeographical interest. Reserve 1864 is of considerable conservation value and I recommend it be retained in its present form and be vested in the Western Australian Wildlife Authority.

APPENDIX 1

Reserve 1864

Wandoo-Marri woodland

Eucalyptus wandoo and E. calophylla trees. Where E. wandoo dominates the stratum is 6-18 m tall, 30-70% cover over Gastrolobium crassifolium shrubs 2 m tall, 70-100% cover. Where E. calophylla dominates the stratum is 10-18 m tall, 10-30% cover over Hakea prostrata, Dryandra sessilis and Gastrolobium spinosum shrubs 2 m tall, 2-10% cover over mixed shrubs 0.5 m tall, 10-30% cover.

Other plant species recorded were: Baeckea camphorosmae, Bossiaea eriocarpa, Daviesia acanthoclona, Dryandra nivea, Gastrolobium plicatum, Hakea lissocarpa, Hemiandra sp. 1, Lechenaultia biloba, Lepidosperma gracile, L. tenue, Loxocarya fasciculata, Stypandra imbricata, Xanthorrhoea reflexa. Soil is grey, loamy sand. Well drained.

Sheoak woodland

Casuarina huegeliana trees, 1.5 - 6 m tall, 70-100% cover. Scattered E. wandoo and E. calophylla trees. Other species recorded were: Acacia acuminata, A. stenoptera, Amphipogon debilis, Baeckea sp., Borya nitida, Dryandra sessilis, Hibbertia affin. montana, Stypandra imbricata. Soil pinkish grey, loamy sand. Well drained.

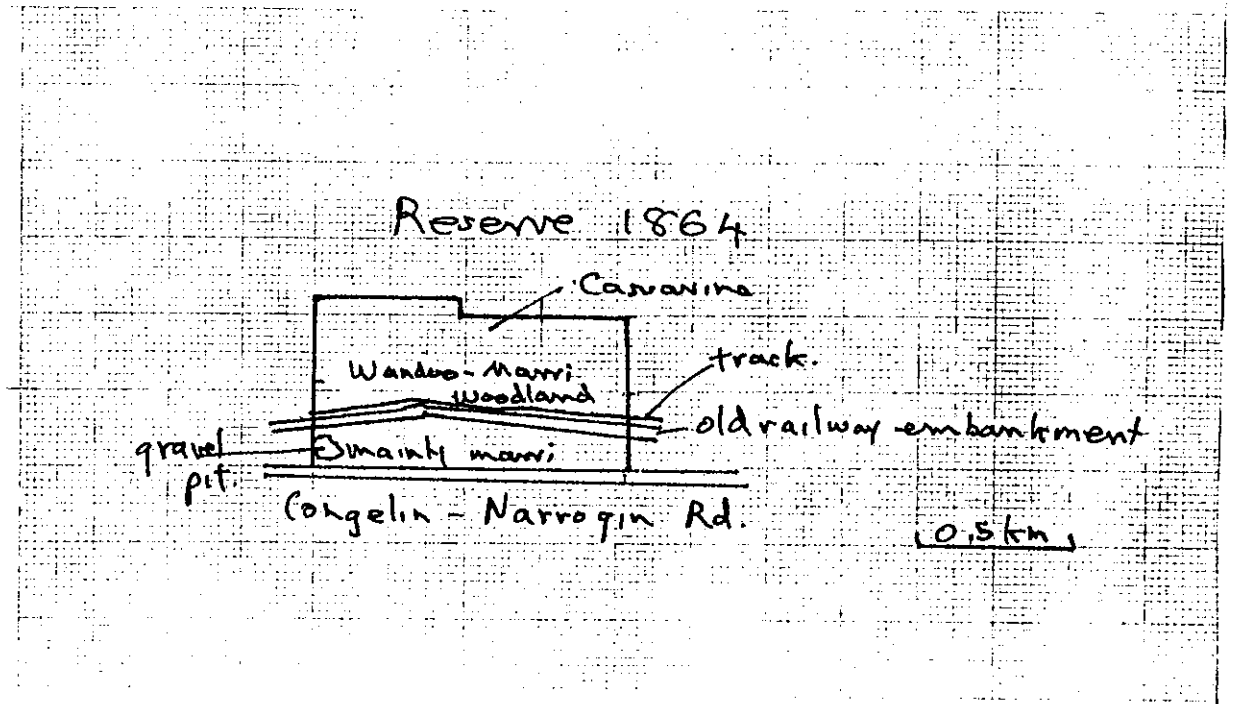




Plate 1. Reserve 1864. Wandoo-Marri woodland with Gastrolobium understorey.



Plate 2. Marri area with abundant understorey development.



Plate 3. Sheoak woodland on Reserve 1864.

Reserve 15855

Located ca 12 km SE of Highbury Townsite and shown on lithograph 385/80, D-E4. Also shown as 10 km NE of Piesseville on 1:50,000 Piesseville sheet (2331-1).

Background

Originally set aside on 22 January 1915 for "Timber (Mallet)". Purpose changed to "Protection of Native Flora" on 21 February 1930.

Physical characteristics

Reserve 15855 is square, with a total perimeter of ca 2.6 km and an area of 40.4686 ha. The lowest point on the Reserve is ca 320 m above sea level and there is a topographic range of ca 30 m.

Vegetation

- (1) Morrel Low Forest A.
- (2) Wandoo Low Woodland A.
- (3) Eucalyptus eremophila and Redwood Shrub Mallee.
- (4) Black Marlock and Redwood Shrub Mallee.
- (5) Heath type 1: Ti-tree Low Heath C.
- (6) Heath type 2: Dryandra Dense Heath B.
- (7) Heath type 2/3 transition: Dryandra Low Scrub B over mixed Dwarf Scrub D.
- (8) Heath type 3: mixed Heath B.

Plant species

Ninety-three plant species were recorded of which 28 are exploited by the wildflower seed trade. A Gastrolobium, Petrophile, Thryptomerne and Westringia of uncertain affinities were collected: Hakea baxteri is considered an endangered species (Specht et. al. 1974) as is Calothomnus planifolius (T. Hawkswood, W.A. Herbarium, pers. comm.).

Nest hollows

Scattered in Wandoo trees. Occasional young trees present.

Weeds

Some small ephemerals, mainly Ursinia anthemoides and Hypochaeris glabra on rabbit warrens.

Fire history

Patchy, small; burnt area on NE corner. Remainder unburnt for at least 20-30 years.

Fauna

Wedgetail Eagle (Aquila audax): 1 over Reserve.

Brown Falcon (Falco berigora): 1 over Reserve.

Port Lincoln Parrot (Platycercus zonarius): common.

Mulga Parrot (P. varius): 2 pairs seen.

Richards' Pipit (Anthus novaeseelandiae): common on fencelines.

Red-capped Robin (Petroica goodenovii): pair seen.

Golden Whistler (Pachycephala caledonica): 1 male seen.

Western Shrike-thrush (Colluricincla harmonica rufiventris): 1 heard calling.

Crested Bellbird (Oreoica gutturalis): 1 heard calling.

Grey Fantail (Rhipidura fuliginosa): common.

Southern Scrub-robin (Drymodes brunneopygius): in dense scrub along creek.

Singing Honeyeater (Meliphaga virescens): common.

White-eared Honeyeater (M. leucotis): 2 near creek.

Yellow-throated Miner (Manorina flavigula): common.

White-fronted Chat (Epthianura albifrons): 4 on creek.

Black-faced Wood-swallow (Artamus cinereus): 4 on dead tree.

Australian Raven (Corvus coronoides): common.

Exotic fauna

Sheep and cattle and possibly goats have been in the Reserve. Some of the open areas are heavily grazed. Rabbit scats and diggings were noted, particularly in sandy areas. Dog footprints were seen. Foxes are reported by adjacent farmers but no evidence was found on the Reserve.

Firebreaks and fences

No firebreaks. Fenced only on W, N and E sides. S side is open to stock and is frequently used by them. In some areas the ground is covered by sheep scats to several centimetres deep.

Human usage

Sheep have been deliberately grazed on the reserve for many years. Timber has been removed.

Adjacent uncleared land

None present. There are scattered trees and mallee along a breakaway adjacent to the Reserve.

Remarks

The two farmers adjacent to the Reserve, Messrs Carbin and Pollock(?) are both vying for purchase of the Reserve and painted a grim picture of its content of foxes, rabbits and other agricultural pests. None of these comments were founded on evidence which I could detect during my survey. Nonetheless a visit to the area by a representative of the Agricultural Protection Board may be of value. There has been an unsuccessful attempt to burn the Reserve within the last 12 months and there is^a possibility that one or other of the farmers would not hesitate to burn it entirely, if it resulted in the land being released for purchase.

Opinion and recommendations

Undoubtedly this small reserve is one of the more valuable Nature Reserves in the region. The extremely rich heaths and wide variety of habitats in such a small area are rivalled only by such outstanding reserves as Tutanning. The habitat richness is reflected in the number of bird species sighted during this short visit. Numerous plant species of disjunct distribution, poorly conserved or of scientific interest are present. Although understorey damage by grazing sheep is considerable the sheep have not penetrated into the heaths, so these remain intact. The attitude of adjacent farmers does not indicate a secure future for the Reserve. Their readiness to burn the Reserve is apparent, but installation of firebreaks etc. will damage more vegetation than it saves, and will not prevent fire anyway. Perhaps the best move is to require the S boundary to be fenced and prevent further grazing. If this results in excessive weed establishment and increased fire hazard grazing may have to be re-introduced. Detailed surveys and collections of the flora to glean as much value from the Reserve as possible would be of assistance. Following this, probably little can be done, except to frequently inspect the area and to rely on converting the farmers to realise the value of this unique Reserve. Being only 40 ha it may be too small to be worthy of "A" classification, but maximum protection should be offered. I recommend Reserve 15855 be vested in the Western Australian Wildlife Authority.

REFERENCE

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Suppl. 7.

APPENDIX 2

Reserve 15855

Morrel woodland

Eucalyptus longicornis and scattered E. wandoo trees, 8-12 m tall, 30-70% cover. No understorey but scattered plants of Acacia bidentata, Eucalyptus redunca, Gastrolobium spinosum, Hakea lissocarpha. Soil mostly laterite pebbles. Well drained.

Wandoo woodland

Eucalyptus wandoo trees, 8-14 m tall, 10-30% cover over Dryandra cirsioides shrubs, 1.5 m tall, 30-70% cover. Other species recorded were: Acacia pulchella, Eucalyptus gardneri, Gastrolobium spinosum, Hakea lissocarpha, Lepidosperma gracile, Lomandra effusa, and Melaleuca uncinata. Soil pinkish grey sandy clay loam. Poorly drained.

Mallee area 1

Eucalyptus eremophila and E. transcontinentalis, shrub mallee, 7-9 m tall, 30-70% cover. Occupies upper slope of breakaway. Some E. gardneri on lower slopes. Other plant species recorded were: Acacia pulchella, Calytrix brachyphylla, Daviesia preissii, Eucalyptus albida, E. incrassata, Gastrolobium ? bennetsianum, G. spinosum, Hibbertia pungens, Melaleuca affin. cuticularis, M. uncinata. Soil grey, sandy clay with ca 80% laterite pebbles. Poorly drained.

Mallee area 2

Eucalyptus redunca and E. transcontinentalis shrub mallee, 8-10 m tall, 30-70% cover. Scattered E. wandoo to 12 m tall and E. salmonophloia to 24 m tall. Only species recorded in the understorey were Dodonaea bursarii-folia and Melaleuca uncinata. Soil reddish brown, sandy clay with ca 50% laterite pebbles. Poorly drained.

Heath type 1

Leptospermum erubescens shrubs 1 m tall, 30-70% cover. Also recorded were: Adenanthos cygnorum, Beaufortia incana, Dryandra cirsioides, and Hakea gilberti. Soil compact laterite.

Heath type 2

Dryandra cirsioides shrubs 1.5 m tall, 70-100% cover. Other species recorded were: Baeckea crispiflora, B. grandibracteata, Calothamnus quadrifidus, Cryptandra myriantha, Dryandra vestita, Gastrolobium sp., Grevillea bipinnatifida, Hakea gilberti, Hibbertia pungens, Leptospermum erubescens, Leucopogon hamulosus, Lysinema ciliatum, Melaleuca subtrigona, Verticordia chrysantha, Xanthorrhoea reflexa. Soil yellowish brown sandy clay, 30% laterite pebbles. Well drained.

Heath type 2 to 3 transition

Dryandra cirsioides shrubs 1.5 m tall, 10-30% cover over mixed shrubs 0.5 m tall, 10-30% cover. Other species recorded were: Banksia sphaerocarpa, Billardiera variifolia, Calytrix fraseri, Casuarina humilis, C. microstachya, Conospermum stoechadis, Daviesia cardiophylla, Dryandra carduacea, D. cirsioides, D. nivea, Hakea gilberti, Hibbertia racemosa, Isopogon teretifolius, Jacksonia racemosa, Lepidosperma gracile, Leptospermum erubescens, Leucopogon blepharolepis, L. ozothamnoides, Melaleuca spathulata, Mesomelaena uncinata, Schoenus curvifolius, Synaphaea polymorpha, Thryptomene sp., Verticordia brownii, Xanthorrhoea reflexa. Closer to heath type 3 Adenanthos cygnorum, Eremaea pauciflora, Hakea baxteri, Hakea ferruginea, H. lissocarpa, Hibbertia enervia, H.? glomerosa, Isopogon teretifolius, Leptospermum erubescens, Lyginea barbata, Melaleuca subtrigona, Mesomelaena uncinata, Petrophile stricta, P. trifida, P. sp. 1, Schoenus globifer, Westringia sp. Soil grey loamy sand. Well to excessively well drained.

Heath type 3

Mixed shrubs 1.5 m tall, 30-70% cover. Species recorded were:

Acacia chrysocephala, A. stenoptera, Amphipogon debilis, Banksia attenuata,
B. sphaerocarpa, Baeckea camphorosmae, Calytrix empetrioides, Calothamnus
planifolius, Casuarina humilis, Caustis dioica, Daviesia brevifolia, Dryandra
cirsoioides, D. nivea, D. affin. quircifolia, D. sessilis, Eremaea pauciflora,
Grevillea pilulifera, Hakea baxteri, H. ferruginea, H. lissocarpa, Hibbertia
enervia, H.? glomerosa, Isopogon teretifolius, Leptospermum erubescens,
Lyginea barbata, Melaleuca subtrigona, Mesomelaena uncinata, Petrophile stricta,
P. trifida, P. sp. 1, Schoenus globifer, Westringia sp. Soil grey loamy
sand. Well to excessively well drained.

Heath type 4

This association is on the E side of the Reserve, and has the same
structure and floristics as heath type 2 except that Casuarina huegeliana
and Eucalyptus incrassata are present and Beaufortia ilcana, Dryandra nobilis
and D. polycephalus are conspicuous.

Reserve 15855

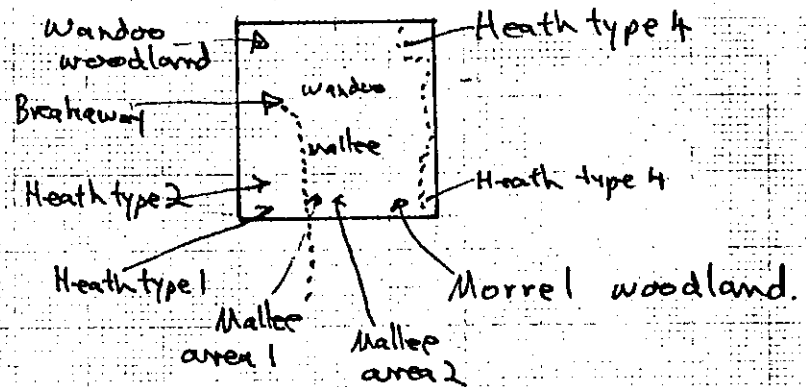




Plate 4. Morrel woodland on Reserve 15855. The reference number shown is incorrect.



Plate 5. Wandoo woodland with Eucalyptus gardneri shrub mallee in the right background. The reference number shown is incorrect.



Plate 6. Reserve 15855 showing Mallee area 2. The reference number shown is incorrect.



Plate 7. Heath type 2. The reference number shown is incorrect.

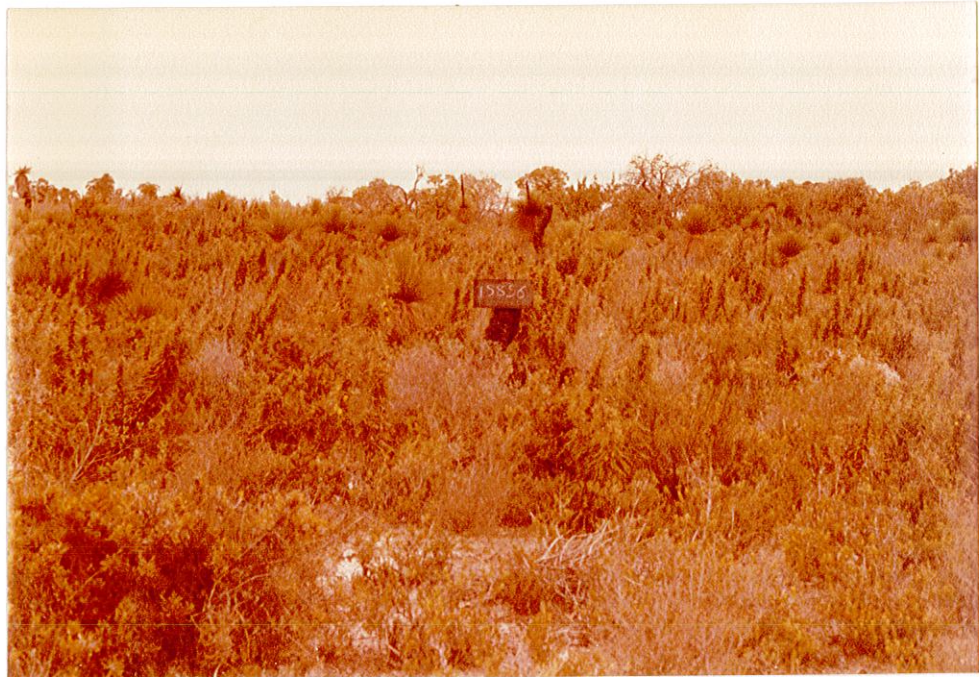


Plate 8. Heath type 2 to 3 transition on Reserve 15855. Reference number shown is incorrect.



Plate 9. Area of Banksia attenuata trees emergent from heath type 3. Reference number shown is incorrect.

Reserve 20878

Located ca 13 km WSW of Narrogin Townsite and shown on lithograph 385/80, AB2 and 1:50,000 Narrogin sheet 2332-111.

Background

Purpose changed from "Timber (Mallet)" to "Conservation of Flora" on 20 May 1977. No other data available.

Physical characteristics

Reserve 20878 is "____]" shaped, ca 0.9 km long (E-W axis) by ca 0.3 km broad (N-S axis). The total perimeter is ca 2.6 km and the area 24.8327 ha. The lowest point on the Reserve is ca 340 m above sea level and there is a topographic range of ca 35 m.

Vegetation

- (1) Marri Woodland over Dryandra Thicket over mixed Open Dwarf Scrub D.
- (2) Marri Open Woodland over Dryandra Open Scrub over Ti-tree Low Heath D.
- (3) Mallet Dense Forest.

Plant species

Thirty-three species of plants were collected, of which 9 are exploited by the wildflower seed trade. A Lepyrodia of uncertain affinities was collected.

Nest hollows

Abundant nest hollows. Scattered young trees present.

Weeds

None except a few scattered ephemerals.

Fire history

No evidence of fire for at least 30 years.

Fauna

Weebill (Smicroornis brevirostris): common.

Yellow-rumped Thornbill (Acanthiza chrysorrhoa): common.

Australian Raven (Corvus coronoides): common.

Exotic fauna

None recorded.

Firebreaks and fences

Marginal firebreaks, fenced on NW, N and E sides. S side has a roadway.

Human usage

Timber has been removed. There is a gravel pit present and sheep carcasses have been dumped on the Reserve.

Adjacent uncleared land

Reserve 20879, ca 18 acres, and a small area of uncleared woodland on the NE corner are contiguous with the Reserve.

Opinion and recommendations

Reserve 20878 is in good condition and is little disturbed. Valuable areas of woodland are present and the understorey is fairly rich. The Reserve is a valuable stopping place for transient fauna and provides some nest hollows. I recommend Reserve 20878 be retained in its present form and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 3

Reserve 20878

Marri woodland (type 1)

Eucalyptus calophylla trees, 8-18 m tall, 10-30% cover over Dryandra nobilis and D. cardvacea shrubs 2.5 m tall, 30-70% cover over mixed shrubs 0.5 m tall, 2-10% cover. Some areas with the E. calophylla canopy down to 2-10% cover. In these areas the D. nobilis increases to 70-100% cover and no stratum 3 present. Other plant species recorded were: Adenanthos cygnorum, Billardiera variifolia, Bossiaea eriocarpa, Conostylis setigera, Dryandra sessilis, Grevillea pulchella, Jacksonia floribunda, Lepidosperma tenue, Leptospermum erubescens, Lepyrodia sp. 1., Leucopogon conostephioides, Neurachne sp. 1. and Pimelia affin. microcephala. Soil reddish yellow, sandy clay with ca 90% laterite pebbles. Poorly drained.

Marri woodland (type 2)

Eucalyptus calophylla trees 8-20 m tall, 2-10% cover over Dryandra sessilis shrubs 2-6 m tall, 2-10% cover over Leptospermum erubescens shrubs 0.5 m tall, 30-70% cover. Other species recorded were: Acacia stenoptera, A. varia, Astroloma pallidum, Baeckea affin. crispiflora, Bossiaea eriocarpa, Conostylis setigera, Dianella revoluta, Hakea lissocarpha, H. ruscifolia, Hemiandra pungens, Hovea pungens, Jacksonia furcellata, Lechenaultia biloba, Lepidosperma gracile, L. tenue, Leucopogon conostephioides, Petrophile serruriae, Ptilotus patersoni. Soil reddish yellow, sandy clay loam with ca 40% laterite pebbles. Moderately drained.

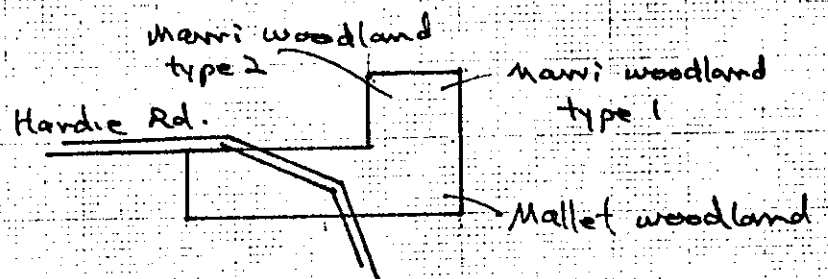
Mallet woodland

Eucalyptus astringens trees, 16-22 m tall, 70-100% cover. No understorey but scattered plants of Astroloma pallidum, Hovea chrizemifolia and Santalum murrayanum. Soil light brown, sandy clay. Poorly drained.

Wandoo woodland

A small area of Eucalyptus wandoo trees 16-20 m tall, 30-70% cover is on adjacent uncleared land contiguous with the NE corner of the Reserve.

Reserve 20878



0.5km



Plate 10. Marri woodland (type 1) over Dryandra shrubs. Reserve 20878.



Plate 11. Marri woodland (type 2) with heathy understorey development.



Plate 12. Reserve 20878 showing transition area between Mallet and Wandoo woodlands on edge of breakaway. Santalum murrayanum tree in foreground.



Plate 13. Wandoo woodland on uncleared land adjacent Reserve. Santalum murrayanum tree in foreground.



Plate 14. Mixture of Wandoo and Mallet trees on edge of Reserve 20878.

Reserve 26668

Located at Highbury Townsite, ca 14 km due S of Narrogin Townsite, on the Narrogin to Wagin Road. Shown on lithograph 385/80, CD 3 and 1:50,000 Highbury Sheet (2331-IV).

Background

Originally set aside for "Conservation of Flora and Stopping Place" on 15 March 1963. The area at this time was ca 86 ha.

Decreased to ca 83 ha on 8 July 1966 by removal of Lot 30 then to ca 81 ha by a further reduction on 5 December 1975.

Physical characteristics

Reserve 26668 is almost square, ca 1.2 km by 1.2 km. Many roads and excised sections are present. The perimeter of the Reserve is ca 4.9 km and the area 81.0241 ha. Lowest point on the Reserve is ca 305 m above sea level and the topographic range ca 35 m.

Vegetation

- (1) Brown Mallet Forest with no understorey.
- (2) Wandoo Forest over Berry Poison Low Heath D and some Wandoo Open Woodland over mixed Low Heath C.
- (3) Small areas of other woodland types and heath are also present.

Plant species

Forty-seven plant species were recorded, of which 7 are exploited by the wildflower seed trade. A Dampiera and Lepyrodia of uncertain affinities were collected.

Nest hollows

Abundant in Wandoo and some in Red Morrell area. Very few in Brown Mallet. Very few young trees present.

Weeds

Abundant in rubbish dumps and a few in gravel pits. Commonest species were Arctotheca calendula, Anagallis arvensis, Avena sativa fatua, Brassica tournfortii, Cucumis myriocarpus, Hypochoeris glabra, Portulaca oleracea and Ptilotus polystachys.

Fire history

All of S portion burnt October 1978; regrowth 10 months old. No regrowth in Brown Mallet area on NW corner. Fire probably started from rubbish dump.

Fauna

Crested Bellbird (Oreoica gutturalis): heard calling.

Western Warbler (Gerygone fusca): heard calling.

Weebill (Smicrornis brevirostris): common.

Red Wattlebird (Anthochaera carunculata): 2 seen NE corner.

Grey Butcherbird (Cracticus torquatus): 1 seen near rubbish tip.

Exotic fauna

Dogs and cats from adjacent houses enter the Reserve. Rabbit scats and diggings were noted.

Firebreaks and fences

There are many firebreaks in the form of roads. Some of these are not effective during severe fires. There are marginal fences on adjacent farmland.

Human usage

There are rubbish dumps, gravel pits and a pipeline on the Reserve. Timber has been removed and there are numerous tracks present.

Adjacent uncleared land

Reserve 26669 is contiguous with the E boundary of Reserve 26668, but separated from it by a roadway.

Opinion and recommendations

Reserve 26668 is in very good condition considering its proximity to a townsite and its many signs of disturbance. The Reserve is quite rich in both flora and fauna, and being isolated, is a valuable rest site for transient bird species. The woodland provides an aesthetically pleasing background for the town and is a valuable windbreak, both from storms and from easterlies. The main dangers to the Reserve are further exploitation for gravel, or by roads; and fire. The rubbish dump in particular is apparently a source of fires but careful management of dump sites and fires should not be difficult. If burning is too frequent weeds and grass growth will be encouraged, and the fire hazard to nearby houses and buildings greatly increased. I recommend that the local authority be approached to impose stricter controls on the rubbish dump and a further clearing for gravel pits or roads. I also recommend that the Reserve be inspected frequently by Officers from Fisheries and Wildlife. With careful control there is no reason the current Shire requirements and the need for conservation cannot be satisfied. I recommend that Reserve 26668 be vested in the Western Australian Wildlife Authority.

APPENDIX 4

Reserve 26668

Mallet woodland

Eucalyptus astringens trees 16-24 m tall, 30-70% canopy cover. No understorey. Only other species recorded were: Choretrum glomeratum, Gastrolobium crassifolium and Lepidosperma tenue. Soil was reddish brown, sandy clay. Poorly drained.

Wandoo woodland

Eucalyptus wandoo trees, 8-20 m tall, 30-70% cover over Gastrolobium parvifolium, shrubs 0.5 m tall 30-70% cover. Also recorded were: Amphipogon debilis*, Astroloma microcalyx, Borya nitida*, Bossiaea eriocarpa, Dianella revoluta*, Dryandra cirsioides*, D. nivea*, Gastrolobium crassifolium, Hakea lissocarpha*, Lepidosperma gracile, Santalum acuminatum. Soil pinkish grey, sandy clay with ca 30% laterite pebbles. Poorly drained. On the SW corner of the Reserve the E. wandoo becomes 6-18 m tall and thins out to 2-10% cover. In this area a heathy understorey of mixed shrubs 1 m tall and 30-70% cover is developed. Other species present in this area are those marked* above and Acacia stenoptera, Astroloma microcalyx, A. pallidum, Billardiera variifolia, Casuarina huegeliana, C. humilis, Chamaexeros serra, Comesperma scoparia, Gastrolobium parvifolium, Lomandra effusa, Mirbelia spinosa, Olearia revoluta and Persoonia striata. Soil is pink, sandy clay loam. Poorly drained.

Other woodlands

There are several other small areas of woodland including Eucalyptus calophylla on a lateritic slope on the W side of the Reserve, some Casuarina huegeliana woodland on the SW corner and an area of Eucalyptus longicornis trees 22 m tall, 30-70% cover with occasional Santalum acuminatum and S. murrayanum in the understorey.

Heath on breakaway

A small area of heath remains on a lateritic plateau on the W side of the Reserve. Most of the plateau has been cleared by adjacent farmland. Species found were: Adenanthos affin. cygnorum, Dampiera sp., Daviesia brevifolia, D. rhombifolia , Dryandra nobilis, Eucalyptus eremophila, E. gardneri, Hakea gilberti, Hypocalymma angustifolium, Jacksonia eremodendron, Lepyrodia sp. 1, Leucopogon blepharolepis, Petrophile divaricata, P. squamata.

Reserves 26668, 26669

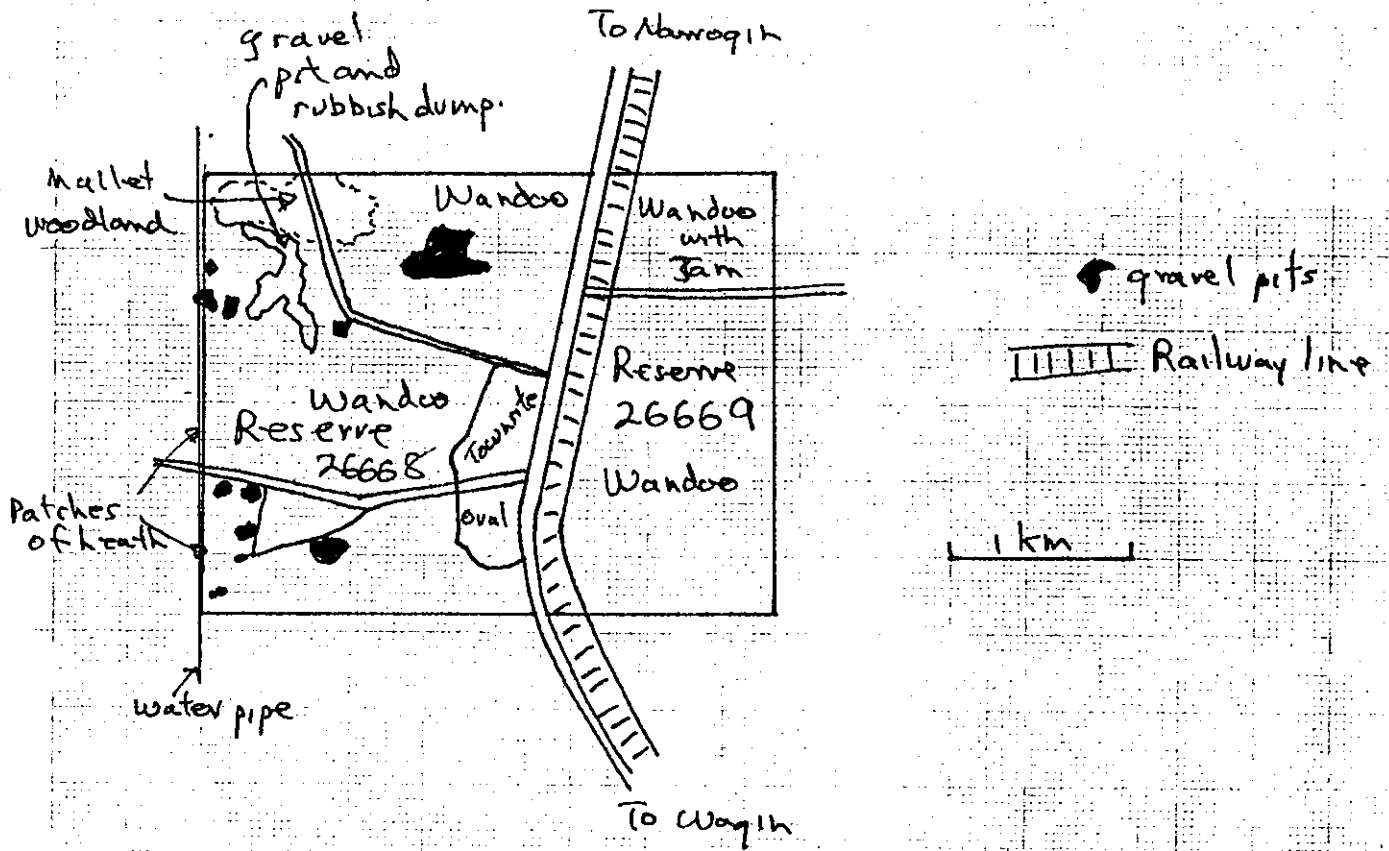




Plate 15. Mallet woodland on Reserve 26668. Note lack of understorey development.



Plate 16. Wandoo woodland over heathy understorey dominated by Berry Poison.

Reserve 26669

Located at Highbury Townsite ca 14 km due S of Narrogin Townsite, on the Narrogin to Wagin Road. Shown on lithograph 385/80, CD3 and 1:50,000 Highbury sheet (2331-IV).

Background

Originally set aside for "Conservation of Flora" on 15 March 1963, and with an area of ca 56 ha. Decreased to 55 ha on 22 November 1963, to 54.6112 ha on 25 July 1975 and to its present size on 13 February 1976.

Physical characteristics

Reserve 26669 is rectangular, ca 1.2 km long (N-S axis) by ca 0.8 km broad (E-W axis). The total perimeter is ca 3.9 km and the area 54.0580 ha. The lowest point on the Reserve is ca 295 m above sea level and there is a topographic range of ca 5 m.

Vegetation

Wandoo Forest and Open Woodland with abundant Jam in some areas.

Plant species

Most of the species found on Reserve 26668 are probably present.

Nest hollows

Abundant in Wandoo trees. Some young trees present.

Weeds

Ephemerals common in woodland.

Fire history

Probably unburnt for at least 30 years.

Fauna

Probably as for Reserve 26668.

Exotic fauna

Rabbit, cat and dog scats were noted.

Firebreaks and fences

A track on the N end and a roadway on the W side are effective firebreaks. Fences only on adjacent farmland.

Human usage

Scattered rubbish dumps of small size. Some timber removed.

Adjacent uncleared land

Reserve 26668 is adjacent to Reserve 26669 and separated from it by a roadway.

Opinion and recommendations

The comments recorded under Reserve 26668 are applicable to this Reserve. I recommend that Reserves 26669 be retained in its present form and that it be vested in the Western Australian Wildlife Authority.

APPENDIX 5

Reserve 26669

Vegetation descriptions of the Wandoo woodland on Reserve 26668 are applicable to this Reserve. The only differences of note were the lack of Gastrolobium parvifolium and the abundance of Dryandra hewardiana, Santalum acuminatum, S. murrayanum and Acacia acuminata in some parts of Reserve.



Plate 17. Reserve 26669 showing Wandoo woodland on S end of Reserve. A heathy understorey is developed.



Plate 18. Northern end of Reserve 26669 where heathy understorey is poorly developed but Jam is frequent.