

## II VEGETATION OF DONGOLOCKING NATURE RESERVE

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### General

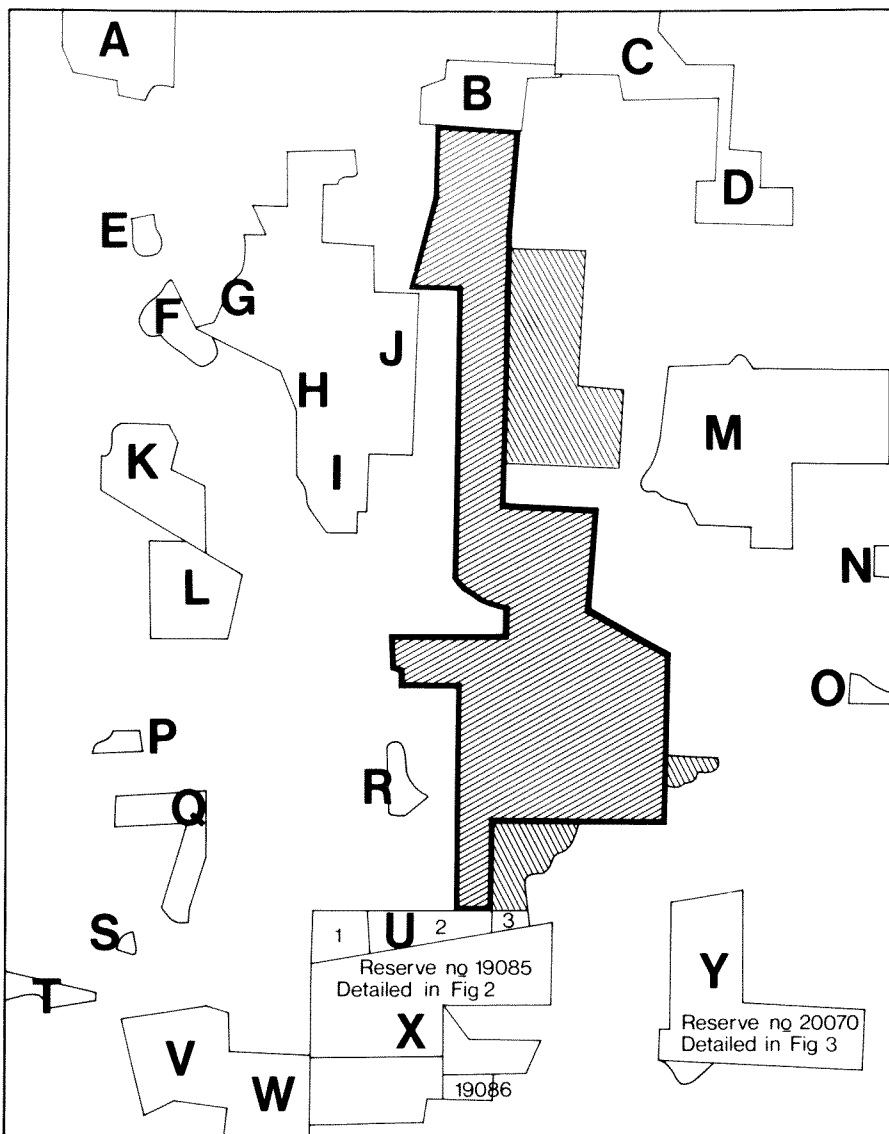
Dongolocking Nature Reserve lies within the Avon district of the South-western Botanical Province of Gardner and Bennetts (1956), and most of the vegetation is thought to conform to that generally found throughout this region.




No documented plant collections have been made on the Reserve prior to this survey. The only information on vegetation apart from comments on fires and mallet stripping (see introduction this report) is from Kitchener, Dell and Chapman (pers. comm.) made during the October 1974 faunal survey by the Western Australian Museum. During the faunal survey, three plant species not subsequently collected during the vegetation survey were found: *Oxylobium cuneatum* at loc. 2.7, and *Oxylobium parviflorum* and *Hibbertia rupicola* at loc. 1.54. These plants were identified by the Western Australian Herbarium.

The vegetation of Dongolocking Reserve is described briefly in **Appendix 1** and illustrated on **Map 1**. Uncleared land adjacent to the Reserve and mapped in detail is described in **Appendix 1** and illustrated as hatched areas on **Fig. 3** and in detail on **Map 1**. Uncleared land described in less detail is described in **Appendix 4** and shown on **Fig. 1**, with the exception of blocks X and Y which are illustrated in **Figs 2** and **3**.

### Methodology

The vegetation of Dongolocking Reserve was mapped at Level 1 of the reliability scale set out in Muir (1977a). Each vegetation formation discernible on the air photographs was examined on the ground; at least one location was described in detail within each major association using the classification shown in **Table 1** and discussed in detail in Muir (1977a); and a soil profile was described for each major association. Most uncleared land contiguous to the Reserve but not included within it was mapped directly from air photographs at Level 3.



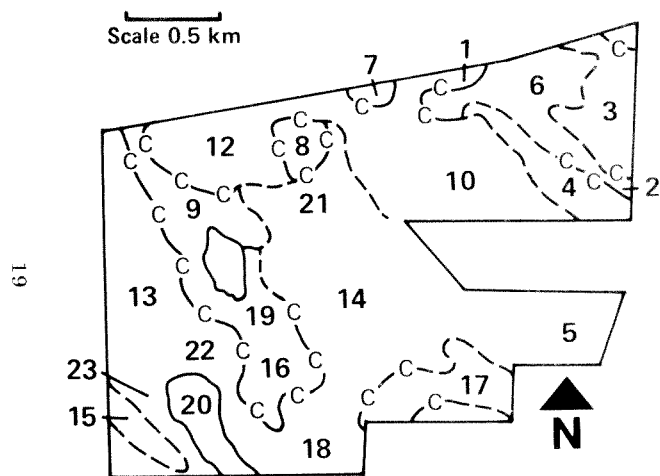
-  Dongolocking Reserve mapped in detail
-  Uncleared privately owned land contiguous with the reserve and mapped in detail
-  Uncleared or regrowing bushland examined briefly

1 km  
Scale

**Fig. 1:** Uncleared land in vicinity of Dongolocking Nature Reserve described in Appendix 4.

Fig. 2 Block X

Interpreted from Forest Dept. maps.



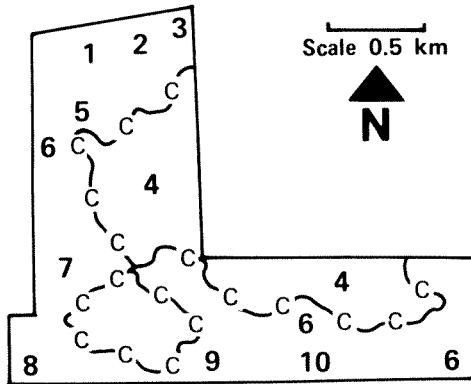
- 1,2 *Eucalyptus longicornis* woodland
- 3-5 *Casuarina huegeliana* and *E. wandoo* woodland
- 6-9 'Mallet'\* woodland – species unspecified
- 10 Heath with *Banksia*, *Nuytsia* or *Xanthorrhoea*
- 11-13 Mallee country
- 14-15 *E. longicornis*, *E. wandoo* woodland with scattered *E. salmonophloia*.
- 16-17 *E. wandoo* woodland with some *Dryandra* spp.
- 18 *E. longicornis*, *E. wandoo*, *Casuarina huegeliana* woodland.
- 19-20 Heath
- 21-23 *E. wandoo* woodland

\*Mallet is *Eucalyptus astringens*,  
*E. falcata* or *E. gardneri*

Fig. 2: Vegetation of Reserve No. 19085.

Fig. 3 Block Y

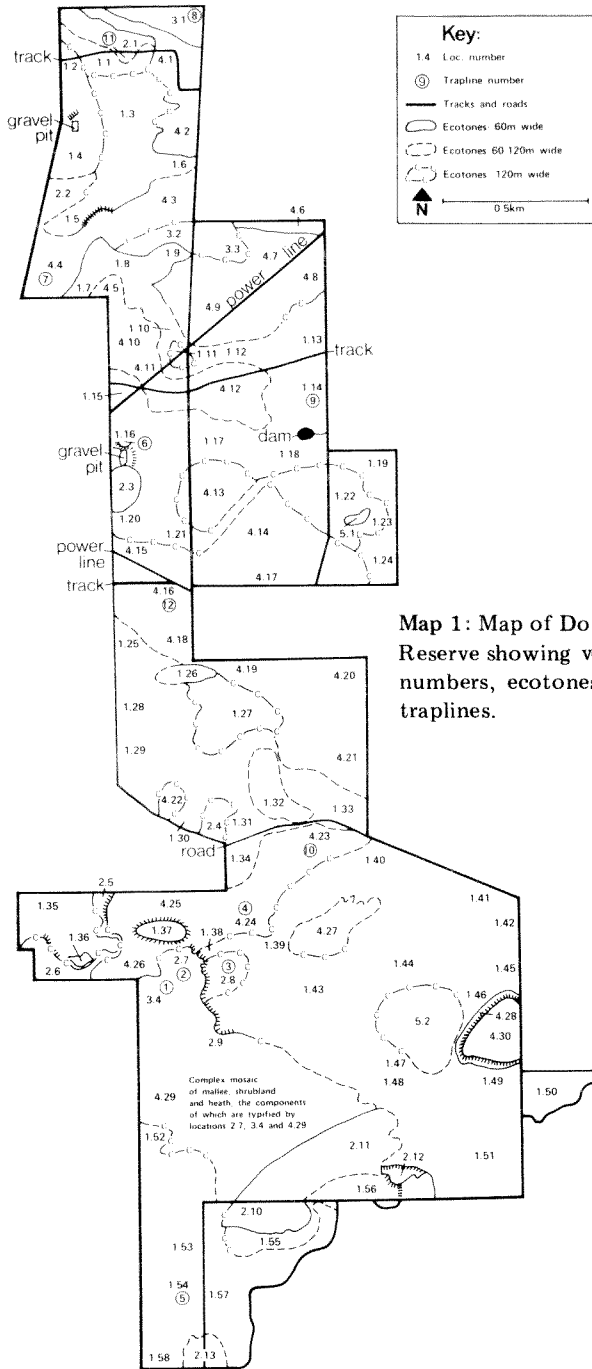
Interpreted from Forest Dept. maps



1. *Eucalyptus longicornis*, *Acacia acuminata* and *E. salmonophloia* woodland.
2. *E. wandoo* woodland
3. *E. longicornis*, *E. salmonophloia* woodland
4. Heath with *Xanthorrhoea*, *Nuytsia*, *Banksia* spp
5. 'Mallet'\* species unspecified
6. *Casuarina huegeliana*, *E. wandoo* woodland
7. *E. longicornis*, *E. salmonophloia*, *Casuarina huegeliana*, *E. wandoo* woodland
8. *Acacia acuminata*, *E. loxophleba*, *Casuarina huegeliana*, *E. wandoo* woodland
9. Mallee country
10. *E. longicornis*, *E. salmonophloia*, *Acacia acuminata*, *Casuarina huegeliana* woodland

\*Mallet is *Eucalyptus astringens*,  
*E. falcata* or *E. gardneri*

Fig. 3: Vegetation of Reserve No. 20070.



Level 1 locations shown on **Map 1** represent 'sample areas' where the vegetation was examined in detail. The following prefix numbers of the locations represent basic formation types.

- 1 = woodland formations
- 2 = mallee formations
- 3 = shrubland formations
- 4 = heath formations
- 5 = lithic complexes
- 6 = breakaway complexes

The methods used in classifying formations, coding vegetation, preparing plant lists, classifying litter and describing soils are those of Muir (1977a).

### **Vegetation Formations and Soils**

Except salt complex, all major wheatbelt formations are represented on Dongolocking Reserve. Woodlands are widespread, but do not appear to be obviously correlated with topography (cf. West Bending Reserve, Muir 1977b). The A horizon soils of the Dongolocking Reserve woodlands are of variable texture, but the sandy loam texture group predominates. The soils are often gravelly, of acid or neutral soil reaction trend, mostly well drained, and yellowish (mostly 10YR hue).

Mallees, shrublands and heaths tend to occur on sand or sandy loam texture groups, again usually with gravel present, but with acid soil reaction trend much more common than neutral. The soils are well drained, particularly in heaths, and are mostly yellowish.

Stratification and canopy cover characteristics generally conform to those of Bending (Muir 1977a) and West Bending Reserves (Muir 1977b). Formation area and proportion of the Reserve occupied by each formation are set out in **Table 2**.

TABLE 1

Vegetation classification to be used in wheatbelt survey.

LIFE FORM / HEIGHT CLASS		DENSITY CLASS (CANOPY COVER)			
		DENSE 70-100% d	MID-DENSE 30-70% c	SPARSE 10-30% i	VERY SPARSE 2-10% r
T	Trees > 30 m	Dense Tall Forest	Tall Forest	Tall Woodland	Open Tall Woodland
M	Trees 15-30 m	Dense Forest	Forest	Woodland	Open Woodland
LA	Trees 5-15 m	Dense Low Forest A	Low Forest A	Low Woodland A	Open Low Woodland A
LB	Trees < 5 m	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 > 2 m	Dense Thicket	Thicket	Scrub	Open Scrub
SA	Shrubs 1.5-2.0 m	Dense Heath A	Heath A	Low Scrub A	Open Low Scrub A
SB	Shrubs 1.0-1.5 m	Dense Heath B	Heath B	Low Scrub B	Open Low Scrub B
SC	Shrubs 0.5-1.0 m	Dense Low Heath C	Low Heath C	Dwarf Scrub C	Open Dwarf Scrub C
SD	Shrubs 0.0-0.5 m	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 > 0.5 m	Dense Tall Grass	Tall Grass	Open Tall Grass	Very Open Tall Grass
GL	Bunch grass < 0.5 m	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 > 0.5 m	Dense Tall Sedges	Tall Sedges	Open Tall Sedges	Very Open Tall Sedges
VL	Sedges < 0.5 m	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

TABLE 2

Area of each formation on Dongolocking Reserve and contiguous uncleared land and the percentage of each formation on Dongolocking Reserve.

Formation	Dongolocking Reserve		Contiguous uncleared land (ha)
	Area (ha)	% of Reserve	
Woodland	640	60	40
Mallee	65	6	30
Shrubland	28	2.6	30
Heath	318	30	190
Lithic complex	6	0.9	10
Breakaway complex	4	0.5	-

Table 2 shows that woodland and heath dominate the Reserve and surrounding land and that woodland covers 60% of the Reserve. The extent of woodland is in marked contrast to the other wheatbelt reserves examined so far (Muir 1976, 1977a,b): cf. Tarin Rock Reserve (3%), North Tarin Rock Reserve (1%), Bending Reserve (3%), West Bending Reserve (20%).

Mallee, shrublands, lithics and breakaway are all poorly represented on Dongolocking Reserve and tend to be widely dispersed over its area. Uncleared land contiguous to the Reserve has a high proportion of heaths, and a poor representation of those formations which are sparse on Dongolocking Reserve.

### Associations

Associations as used here include associations, associates and consociations according to the definitions of Beadle and Costin (1952) and Polunin (1960). Associations found on Dongolocking Reserve and the uncleared land shown hatched in Fig. 1, are listed below.

### WOODLAND

*Casuarina huegeliana*

*C. huegeliana* — *Eucalyptus wandoo*

*E. astringens*

*E. astringens* — *E. falcata* — *E. gardneri*

*E. astringens* — *E. gardneri*

*E. falcata* — *E. gardneri*

*E. gardneri*



*E. longicornis*  
*E. longicornis* — *E. wandoo*  
*E. loxophleba*  
*E. wandoo*

#### MALLEE

*Eucalyptus albida* — *E. eremophila* — *E. foecunda*  
*E. eremophila*  
*E. eremophila* — *E. gardneri*  
*E. eremophila* — *E. redunca*  
*E. falcata*  
*E. foecunda* — *E. incrassata*  
*E. redunca*  
*E. transcontinentalis*

#### SHRUBLAND

*Lambertia inermis* — *Dryandra cuneata*  
*L. inermis* — *D. sessilis*

#### HEATH

*Andersonia caerulea* — *Borya nitida*  
*Banksia sphaerocarpa* — *Dryandra cirsioides*  
*B. sphaerocarpa* — *D. cirsioides* — *Petrophila squamata*  
*Calothamnus quadrifidus* — *Hakea falcata* — *Xanthorrhoea reflexa*  
*Casuarina humilis* — *D. cirsioides* — *Leptospermum erubescens*  
*C. humilis* — *L. erubescens*  
*C. microstachya* — mixed  
*D. cirsioides*  
*D. cirsioides* — *Melaleuca pungens*  
*Hakea prostrata* — *Gastrolobium trilobum* — *Xanthorrhoea reflexa*  
Mixed (no dominants)

The total number of associations in each formation are:

Woodland	11
Mallee	8
Shrubland	2
Heath	<u>11</u>
Total	32

There are eleven associations within the woodlands and this probably provides relatively high diversity in habitats as well as large areas of this formation. Mallees, although only 65 ha in extent and 6% of the Reserve, are very variable; the eight or nine separate stands being represented by eight different associations. Shrublands, of even smaller area than mallee (28 ha and 2.6% of Reserve), has three main areas and two associations. The overall view of the Reserve is thus one of remarkably high diversity at association level, considering the majority of the vegetation is of only two formations.

### Abundance of Senescent Trees

Muir (1977b) proposed an index of relative abundance of senescent trees calculated from available data. This index was calculated for Dongolocking Reserve, and gave a figure of 173 ha of actual canopy, and an index of 13.8. The index indicates that although Dongolocking has a larger area of actual canopy than West Bendering Reserve (35 ha) there are fewer senescent trees (Dongolocking 8%, West Bendering 30%) and consequently the indices are similar (West Bendering index 10.6).

Dell (this report) states that the number of birds that nest in hollow limbs and trunks on the two Reserves are similar but adds that there are a few additional species on Dongolocking, and that the species present differ between the two Reserves. These differences will be dealt with in a synthesis of all wheatbelt data to be presented at a later date.

### Floristics

Most of the stands of vegetation in Dongolocking Reserve are fairly well defined and accessible, and probably the majority of larger plant species were collected. Total number of species recorded in the Reserve was 230, and the actual number of large perennials and annuals probably totals about 300. In terms of number of plant species recorded per area of reserve, Dongolocking Reserve has about 28 species per square kilometre. This indicates a higher diversity than other reserves examined (Muir 1976, 1977a,b), the highest figure previously recorded during the Wheatbelt Survey being 21 spp/km<sup>2</sup> at North Tarin Rock Reserve.

Thirty-five families were recorded (**Appendix 3**) dominated by Myrtaceae and Proteaceae amongst the dicotyledons and Cyperaceae amongst the monocotyledons. Total number of species recorded in each formation, number per formation area, number of restricted species, percentage of restricted species and restricted species per area are set out in **Table 3** below.

TABLE 3

Formation	Number of species recorded	spp/ha formation	Number of restricted species	% of restricted species	Restricted spp/ha
Woodland	69	0.11	32	46.4	0.05
Mallee	83	1.28	23	27.7	0.35
Shrubland	67	2.39	16	23.9	0.57
Heath	118	0.37	51	43.2	0.16
Lithic complex	10	1.67	7	70.0	1.17

Heath has the greatest number of species and lithic complex the least. The latter is however of very small area and is thus unlikely to contain many species. The highest diversity per area was in shrubland, with almost twice as many species per hectare as the next most diverse, mallee. This is of particular interest as shrubland and mallee are by far the smallest areas of major formations on the Reserve (excluding lithic and breakaway complex). Also of interest is the distribution of 'restricted' species, those found only in a single formation type. Heath and woodland have the highest numbers of restricted species, but again shrubland has the most in terms of area. The total number of restricted species recorded on the Reserve was 129, and thus *ca* 56% of the total number of species recorded were of restricted distribution.

A detailed synthesis of all ecological and floristic data for the Reserve will be included in the final wheatbelt study to be presented at a later date.

## APPENDIX 1

### ABBREVIATED VEGETATION DESCRIPTIONS\*

#### WOODLAND FORMATIONS

##### Loc. 1.1

Stratum 1: *Eucalyptus wandoo* trees, immature with some mature. Stratum 10-18 m tall, 10-30% canopy cover. Stratum 2: *Melaleuca uncinata*, *Leptospermum erubescens* shrubs, mature, stratum 2-4 m tall, 2-10% canopy cover. Stratum 3: *Borya nitida* herbs and some *Lepidosperma brunonianum* low sedges, mature, stratum 0-0.2 m tall, 2-10%

\* Full descriptions of the vegetation following the format presented in Muir (1977a) have been lodged in the archives of the Western Australian Museum; details are available on request from the librarian.

canopy cover. Some *E. wandoo* emergent to 22 m tall. Scattered grasses present, some timber removed from area. No evidence of fire. Stumps of old trees up to 1 m diameter are present. Age of understory 40-50 years, trees older. Litter: Abundant. Soil: White, fine sandy loam.

**Loc. 1.2**

*Eucalyptus longicornis* trees and scattered *E. salmonophloia* trees, all immature approaching maturity, stratum 14-20 m tall, 30-70% canopy cover. An understory of scattered shrubs and grasses is present, but constitutes much less than 2%. Timber has been removed from the area. The understory is probably 40-50 years old, the trees older. Litter: Abundant. Soil: Surface soil is yellowish red, sandy clay.

**Loc. 1.3**

Structurally similar to either locs 1.2 or 1.5 according to changes in soil depth and drainage. Dominant species are *Eucalyptus astringens*, *E. falcata* and *E. gardneri* trees with scattered *E. longicornis* or *E. wandoo* in some areas. Understory is scattered shrubs in most parts, with no particular species dominant.

**Loc. 1.4**

Basically similar to loc. 1.1 but with scattered *E. longicornis* trees.

**Loc. 1.5**

*Eucalyptus gardneri* trees, all mature, stratum 14-17 m tall, 30-70% cover. Timber removed from area. Series of cleared lines have been cut through the area in a north-south direction. These appear to have been graded or bulldozed as small ridges of soil occur along the sides of the cuts. No trees are regrown on them, but small shrubs are present. The cuts were made between 1960 and 1972. The age of the understory is probably 40-50 years, the trees probably older. Litter: Abundant. Soil: ca 30 cm friable soil overlying laterite mixed with pallid zone clays. Friable soil is light yellowish brown, sandy loam.

**Loc. 1.6**

Basically as loc. 1.1 but scattered *Dryandra cirsioides* present.

**Loc. 1.7**

Scattered *Eucalyptus wandoo* trees near Reserve boundary with increasing proportions of *E. astringens* to the north.

**Loc. 1.8**

*Eucalyptus astringens* and *E. gardneri* trees with scattered *E. wandoo*.

**Loc. 1.9**

Similar to loc. 1.1.

**Loc. 1.10**

Similar to loc. 1.1 but slightly more open canopy. Understory variable in composition and density.

#### Loc. 1.11

Small stand of *Eucalyptus gardneri* trees 8-10 m tall, 10-30% canopy cover, with scattered *E. astringens* emergent from main canopy to a height of 14 m.

Very little understory is present but there are some scattered *Gastrolobium crassifolium* shrubs to 1 m tall.

This group of trees occupies the area between two breakaways, and is situated where the pallid zone clays are exposed and the gravel content declines. The area obtains runoff from both breakaways. Soil characteristics are very pale brown, 10YR 7/3, fine sandy loam, pH 6.7, gravel exceeds 80%. Poor drainage.

#### Loc. 1.12

*Eucalyptus wandoo* woodland similar to loc. 1.1.

#### Loc. 1.13

Stratum 1: *Eucalyptus loxophleba* trees, mature, stratum 8-10 m tall, 2-10% canopy cover. Stratum 2: *Acacia acuminata*, *Casuarina huegeliana* trees, immature, stratum 4-8 m tall, 10-30% canopy cover. Stratum 3: *Borya nitida* herbs and *Loxocarya* sp. 1 sedge, mature, stratum 0-0.3 m tall, 30-70% canopy cover. Strata 1 and 2 fall within the same height class. Scattered *E. wandoo* present, emergent to 14-20 m tall; *A. acuminata* regrowing from seed; scattered grasses present; some timber has been removed from the area. Stand is probably 40-50 years old. Litter: Abundant. Soil: Pale brown, sandy loam.

#### Loc. 1.14 (Trapline 9)

Stratum 1: *Eucalyptus wandoo*, *E. longicornis* trees; *E. wandoo* senescent, *E. longicornis* mature, stratum 6-15 m tall, 30-70% canopy cover. Stratum 2: *Casuarina huegeliana* and scattered *Acacia acuminata* trees, all immature, stratum 2-4 m tall, 10-30% canopy cover. Stratum 3: *Borya nitida* herbs, and *Loxocarya* sp. 1 (SC) sedge; all immature, stratum 0-0.3 m tall, 30-70% canopy cover. Occasional *E. wandoo* emergent from stratum 1, abundant grasses present, seedlings of *A. acuminata*, annual species, *Borya* and Restionaceae present. Understory probably 40-50 years old, trees older. Some large timber has been removed. Litter: Abundant. Soil: Light brownish grey, loamy sand.

#### Loc. 1.15

Scattered *Eucalyptus wandoo* trees with proportion of *E. astringens* and *E. gardneri* increasing to the south. Scattered and clumped *E. longicornis* present.

#### Loc. 1.16

Stratum 1: *Eucalyptus gardneri*, *E. astringens* with scattered *E. falcata* var. *ecostata* and *E. longicornis* trees, all mature, stratum 10-13 m tall, 30-70% canopy cover. Lower strata absent, but scattered bushes present. *Lepidosperma gracile* and *Lepidosperma tenue* seedlings present. No evidence of fire. Understory probably 40-50 years old, trees older. Scattered grasses present. Some large timber has been removed. Litter: Abundant. Soil: Brown, sandy loam

#### Loc. 1.17

As for loc. 1.14 but *Casuarina huegeliana* less prominent in stratum 2.

**Loc. 1.18**

As for loc. 1.13 but *Eucalyptus wandoo* prominent and scattered clumps of *Casuarina huegeliana* and occasional *E. loxophleba* present.

**Loc. 1.19**

As for loc. 1.1 but with scattered *Eucalyptus loxophleba* and some *Casuarina huegeliana*.

**Loc. 1.20**

As for loc. 1.5.

**Loc. 1.21**

As for loc. 1.1 but patches of *Dryandra cirsiooides* prominent in understory. Narrow belt which passes NW to loc. 1.18 is largely *Eucalyptus wandoo* trees, 15-18 m tall, 10-30% canopy cover over *Calothamnus quadrifidus* and *Melaleuca uncinata* dominated heath 1-1.5 m tall, < 10% canopy cover. In some areas *Loxocarya* sp. 1 and *Angianthus pusillus* forms a ground layer of varying density. Scattered *Casuarina huegeliana* and *Acacia acuminata* are present.

**Loc. 1.22**

Varies from open areas similar to loc. 1.13 to dense stands of *Casuarina huegeliana* with scattered *Eucalyptus loxophleba*. The *C. huegeliana* stands are similar to that described in loc. 1.14 but reach 30-70% canopy cover.

**Loc. 1.23**

As for loc. 1.22.

**Loc. 1.24**

As for loc. 1.1 but with scattered *Eucalyptus longicornis*.

**Loc. 1.25**

Stratum 1: *Eucalyptus wandoo* trees, senescent, stratum 10-15 m tall, 2-10% canopy cover. Stratum 2: *Gastrobolum crassifolium* shrubs, mature, stratum 0-1 m tall, 2-10% canopy cover. Stratum 3: *Borya nitida* herbs, *Loxocarya*-sp. 1 sedges and some *Lomandra effusa* sedge-like plants; mature, stratum 0-0.3 m tall, 30-70% canopy cover. Some *E. wandoo* regenerating from seed; scattered *E. longicornis* present, mostly emergent to 18 m tall; scattered grasses present; some timber removed from area; understory is probably about 20 years old, but trees are much older. Litter: Moderately abundant to sparse. Soil: Very pale brown, fine sandy loam.

**Loc. 1.26**

Area of *Eucalyptus astringens* and some *E. gardneri* trees, 4-6 m tall, 30-70% canopy cover. Stand is immature, probably about 20 years old. Soil is reddish brown, 5YR 5/4, light medium clay, pH 5.6. Situated on edges of degraded breakaway. Edge of stand has narrow belt of *E. eremophila* and *E. falcata* mallee. *Melaleuca undulata* present in mallee belt.

**Loc. 1.27**

*Eucalyptus astringens* and *E. gardneri* woodland with scattered *E. salmonophloia*. Height and canopy cover variable according to subtle changes in soil depth and drainage.

**Loc. 1.28**

As for loc. 1.25 with prominent *Casuarina huegeliana* and some *Eucalyptus loxophleba* trees. Slightly lower lying ground associated with watercourse has abundant *C. huegeliana* and approaches loc. 1.14 in structure and species composition.

**Loc. 1.29**

As for loc. 1.28.

**Loc. 1.30**

As for loc. 1.25.

**Loc. 1.31**

As for loc. 1.25 with scattered clumps of regrowing *Eucalyptus wandoo*. Regrowth is from seed and tends to occur in shallow depressions where water pools.

**Loc. 1.32**

As for loc. 1.5 but with scattered *Eucalyptus wandoo* on edge of stand.

**Loc. 1.33**

As for loc. 1.25 with patches similar to loc. 1.1 and some scattered *Eucalyptus astringens*.

**Loc. 1.34**

As for loc. 1.25.

**Loc. 1.35**

As for loc. 1.25 but with scattered *Eucalyptus longicornis* towards western boundary.

**Loc. 1.36**

As for loc. 1.5 with narrow belt of *Eucalyptus wandoo* similar to loc. 1.1 along the southern edge of the *E. gardneri* stand. Some *E. falcata* present.

**Loc. 1.37**

*Eucalyptus gardneri* and *E. falcata* var. *costata* trees, immature, stratum 14-20 m tall, 30-70% canopy cover. No understory present. Litter is abundant, mostly broad leaves and large debris, 3 cm deep, evenly distributed. Soil is strong brown, 7.5YR 5/6, loam, pH 7.0. Topsoil contains ca 60% gravel. Well drained. Stand is situated on a lateritic plateau-like rise with degraded breakaway on all sides. Trees are replaced by mallee zone where laterite content of pallid clays drops below about 60% in the A horizon. Surrounding mallees are *E. eremophila* 2-8 m tall, 10-30% canopy cover with an understory of *Melaleuca uncinata* 1-1.5 m tall, 10-30% canopy cover. Surrounding area ca 20 years old, but stand of trees is older, probably 40-50 years old.

**Loc. 1.38**

*Eucalyptus astringens* trees, 6-9 m tall, 70-100% canopy cover. No understory present. Litter and soil characters as for loc. 1.7.

**Loc. 1.39**

As for loc. 1.1.

**Loc. 1.40**

As for loc. 1.25 with areas similar to loc. 1.1 and clumps of *Casuarina huegeliana* and *Acacia acuminata* similar to loc. 1.13.

**Loc. 1.41**

As for loc. 1.40 with *Casuarina huegeliana* prominent where degraded granitic boulders outcrop or approach the surface.

**Loc. 1.42**

As for loc. 1.13 but with scattered *Eucalyptus loxophleba*.

**Loc. 1.43**

Basically similar to locs 1.25 and 1.1 with occasional gravelly breakaways supporting scattered *Eucalyptus gardneri* and *E. astringens*.

**Loc. 1.44**

As for loc. 1.13 but with *Casuarina huegeliana* slightly less prominent and some *Eucalyptus loxophleba* present.

**Loc. 1.45**

As for loc. 1.25 but with small stands of *Casuarina huegeliana* trees or *Eucalyptus loxophleba* trees and *E. congolobata* mallee. Soil is pH 6.5 10YR 8/3, fine sandy loam.

**Loc. 1.46**

As for loc. 1.25 with abundant *Casuarina huegeliana*.

**Loc. 1.47**

As for loc. 1.46 with scattered *Eucalyptus astringens*.

**Loc. 1.48**

As for loc. 1.25 with areas like loc. 1.1 and scattered patches similar to loc. 1.13.

**Loc. 1.49**

As for loc. 1.25 with areas of dense *Casuarina huegeliana* trees.

**Loc. 1.50**

Dense *Casuarina huegeliana* stand growing in soil pockets amongst boulders and outcrops of granite. The area of uncleared land penetrating adjacent farmland is a granitic ridge 1-3 m higher than the surrounding land.



Loc. 1.51

As for loc. 1.25 but with areas of *Casuarina huegeliana*.

Loc. 1.52

As for loc. 1.25. Scattered *Eucalyptus longicornis* trees present. Abundant *Amyema miquellii* mistletoe growing on *E. wandoo*.

Loc. 1.53

As for loc. 1.54.

Loc. 1.54 (Trapline 5)

Stratum 1: *Eucalyptus wandoo* and *Casuarina huegeliana* trees, all senescent, stratum 13-17 m tall, 30-70% canopy cover. Stratum 2: *Gastrolobium crassifolium* and *Hypocalymma puniceum* shrubs, mature to senescent, stratum 0.5-2 m tall, 3-10% canopy cover. Stratum 3: *Borya nitida* herbs and *Lepidosperma tenue* and *Lepidosperma scabrum* sedges and Restionaceae spp. 1 and 3 sedges. All mature to senescent, stratum 0-0.2 m tall, 70-100% canopy cover. Some *E. wandoo* trees reach 3 m circumference at breast height. Scattered grasses present. No evidence of fire. Large timber has been removed. Understory probably 30-40 years old, trees probably older. Litter: Abundant. Soil: Grey sand.

Loc. 1.55

As for loc. 1.1 but with varying proportions of *Eucalyptus gardneri* trees. Some *E. astringens* and *E. longicornis* present.

Loc. 1.56

As for loc. 1.5 in structure, litter and soil. Species are *Eucalyptus astringens*, *E. gardneri* and *E. falcata*.

Loc. 1.57

As for loc. 1.54 but with abundant *Casuarina huegeliana* in small stands.

Loc. 1.58

As for loc. 1.54 but with scattered *Eucalyptus longicornis* trees.

## MALLEE FORMATIONS

Loc. 2.1 (Trapline 11)

Stratum 1: *Eucalyptus foecunda*, *E. incrassata* shrub mallee, mature, stratum 3-6 m tall, 10-30% canopy cover. Stratum 2: *Leptospermum erubescens*, *Dryandra cirsioides* and *Calothamnus quadrifidus* shrubs. Several other species present, all mature, stratum 0.5-2.5 m tall, 10-30% canopy cover. Stratum 3: Many species present, no obvious dominants, all mature, stratum 0-0.5 m tall, ca 30% canopy cover. Some *L. erubescens* emergent into stratum 1. No evidence of fire. Stand probably 40-50 years old. Litter: Moderately abundant. Soil: White, sandy loam.

#### Loc. 2.2

*Eucalyptus eremophila* and *E. redunca* shrub mallee with some *Melaleuca uncinata* and scattered *Hakea nitida* structurally similar to loc. 2.1.

#### Loc. 2.3

*Eucalyptus transcidentalis* shrub and some tree mallee, mature, stratum 4-10 m tall, 30-70% canopy cover. Virtually no understory present. Soil is reddish brown, 7.5YR 6/6 sandy clay loam, pH 6.5, gravel 70%, passing at ca 20 cm into reddish yellow, 7.5 YR 7/6, clay loam, pH 7.5, gravel 80-90%. Drainage moderate to poor.

#### Loc. 2.4

Stratum 1: *Eucalyptus eremophila* shrub mallee, immature, stratum 2-4 m tall, 30-70% canopy cover. Stratum 2: Mixed species, mature, stratum 0-0.5 m tall, 30-70% canopy cover. Comments: Stand probably about 20 years old. Litter: Moderately abundant. Soil: White, clayey sand.

#### Loc. 2.5

Stratum 1: *Eucalyptus eremophila*, *E. foecunda* and *E. albida* shrub mallee, immature, stratum 3-6 m tall, 10-30% canopy cover. Stratum 2: *Leptospermum erubescens*, *Hakea prostrata*, *Dryandra cirsioides* and numerous other species present, all shrubs, mature, stratum 1-1.5 m tall, 2-10% canopy cover. Stratum 3: *Beaufortia bracteosa*, *Banksia sphaerocarpa* shrubs and *Loxocarya fasciculata* sedges, mature, stratum 0-0.5 m tall, 30-70% canopy cover. Height, density and species present dependent on distance from breakaway and soil drainage. Age of stand probably about 20 years. Litter: Variable, mostly sparse. Soil: As described for loc. 2.4.

#### Loc. 2.6

Basically similar to loc. 2.5.

#### Loc. 2.7 (Trapline 2)

Stratum 1: *Eucalyptus falcata* var. *ecostata* mallee and scattered *E. incrassata* mallee both species mature, stratum 2-3 m tall, 10-30% canopy cover. Stratum 2: *Dryandra cirsioides*, *Melaleuca pungens* and *Gastrolobium spinosum* shrubs all mature approaching senescence, stratum 0.5-2 m tall, 30-70% canopy cover. Stratum 3: *Adenanthos flavidiflora*, *Melaleuca seriata* shrubs and *Lepidosperma gracile* sedges, all mature to senescent, stratum 0-0.5 m tall, 10-30% canopy cover. No evidence of fire in recent times. Litter: Sparse. Soil: Light yellowish brown, sandy loam.

#### Loc. 2.8 (Trapline 3)

Stratum 1: *Eucalyptus redunca* shrub mallee, and scattered *E. astringens* trees, both species mature, approaching senescence, strata 5-6 m tall, 30-70% canopy cover. Stratum 2: *Dryandra* affin. *cirsioides*, *Gastrolobium crassifolium*, *Melaleuca uncinata* shrubs, all senescent, stratum 0.5-2 m tall, 10-30% canopy cover. Stratum 3: *Thomasia rugosa* shrubs, senescent, stratum 0-0.5 m tall, 2-10% canopy cover. No evidence of fire. Occasional grasses present. North of, and contiguous with this formation is a stand of *E. astringens* trees, with 70-100% canopy cover, and no understory. Stand is 30-40 years old. Litter: Abundant. Soil: Dark brown, sandy loam.

**Loc. 2.9**

As for loc. 2.7.

**Loc. 2.10**

Stratum 1: *Eucalyptus eremophila* and *E. gardneri* shrub mallees, immature, stratum 1-2 m tall, 2-10% canopy cover. Stratum 2: *Melaleuca uncinata*, *Dryandra cirsioides* and several other species of shrubs, immature, stratum 0-0.5 m tall, 30-70% canopy cover. Scattered *E. wandoo* trees to 10 m and *E. eremophila* shrub mallee to 8 m are present. These were probably not burnt in the fire. Stand is probably less than 10 years old. Litter: Moderately abundant. Soil: Light yellowish brown, sandy clay.

**Loc. 2.11**

As for loc. 2.10 but with unburnt *E. wandoo* and *E. astringens* more frequent than found in loc. 2.10.

**Loc. 2.12**

As for loc. 2.1. Area is a tongue of mallee with narrow connection to loc. 2.11. Bounded on north side by breakaway and on south by *Eucalyptus astringens* area.

**Loc. 2.13**

As for loc. 2.1 but mallees of variable density.

**SHRUBLAND FORMATIONS**

**Loc. 3.1 (Trapline 8)**

Stratum 1: *Lambertia inermis*, *Dryandra sessilis* shrubs, the former senescent, the latter mature, stratum 2-4 m tall, 2-10% canopy cover. Stratum 2: *Melaleuca pungens*, *Casuarina humilis* and *Gastrolobium spinosum* shrubs all mature, stratum 1-1.5 m tall, 30-70% canopy cover. Stratum 3: Numerous mixed shrubs and some sedges, all mature, stratum 0-0.5 m tall, 10-30% canopy cover. Occasional mature *Eucalyptus foecunda* and some scattered seedlings present. Evidence of old fire scars. Where *Lambertia* stratum is less dense, the formation becomes more heathlike and *Banksia attenuata* may occur. *Banksia baueri* may also occur in understory, and *Dryandra sessilis* may become more frequent. In open areas, there may be only two strata present. Stand may be up to 40-50 years old. Litter: Moderate. Soil: Light grey sand.

**Loc. 3.2**

As for loc. 3.1 with scattered *Eucalyptus gardneri* shrub mallee 5-7 m tall. Soil as for loc. 3.1.

**Loc. 3.3**

As for loc. 3.2 with occasional *Banksia attenuata* 2-6 m tall. Soil is white, 10YR 8/1, sand, pH 6.5.

#### Loc. 3.4 (Trapline 1)

Stratum 1: *Lambertia inermis*, *Dryandra cuneata* shrubs, both mature, stratum 2-4 m tall, 2-10% canopy cover. Stratum 2: Mixed species, no obvious dominants, all mature, stratum 0.5-1.5 m tall, 20-70% canopy cover. Stratum 3: Mixed species, no obvious dominants, all mature, stratum 0-0.5 m tall, ca 30% canopy cover. No evidence of fire. Stand is probably 30-40 years old. Litter: Fairly sparse. Soil: Light grey sand.

### HEATH FORMATIONS

#### Loc. 4.1

Similar to 4.29 with patches of mallee similar to loc. 2.1 or 2.7.

#### Loc. 4.2

As for loc. 4.1.

#### Loc. 4.3

As for loc. 4.6.

#### Loc. 4.4 (Trapline 7)

Stratum 1: *Dryandra cirsioides* and *Banksia sphaerocarpa* shrubs, mature, some senescent, stratum 0-1.0 m tall, ca 10% canopy cover. Stratum 2: Several species of shrubs, *Casuarina microstachya* and *Hakea falcata* being dominant, but not obviously so, all mature, some senescent, stratum 0-0.5 m tall, 30-70% canopy cover. Occasional *Leptospermum erubescens* and *Xanthorrhoea reflexa* scattered throughout. Grasses present, but not common; no evidence of fire. Area has probably not been burnt for ca 40 years but has been scrub rolled sometime between 4 and 16 years before this survey. Litter: Moderately abundant. Soil: Light grey, sandy loam.

#### Loc. 4.5

As for loc. 4.4 but scattered *E. foecunda*.

#### Loc. 4.6

Stratum 1: *Hakea prostrata*, *Xanthorrhoea reflexa* and *Gastrolobium trilobum* shrubs, several other species present, mature, stratum 0.5-1 m tall, 10-30% canopy cover. Stratum 2: *Casuarina microstachya* shrubs, several other species present, mature, stratum 0-0.5 m tall, 30-70% canopy cover. All species present both as mature plants and seedlings or newly coppiced individuals *Xanthorrhoea reflexa* occur as emergents to 2.5 m tall. The area was burnt about ten years ago. Litter: Abundant. Soil: Virtually no deep soil. Area is mostly hard compact laterite with vegetation growing in numerous cracks and shallow depressions where soil can accumulate. Soil is virtually powdered gravel except in shallow pockets which contain pale brown, 10YR 6/3 loamy sand pH 5.7, with gravel to 70-80%. Plant roots abundant, some large.

#### Loc. 4.7

As for loc. 4.4 but some *Casuarina huegeliana* scattered through association.

#### Loc. 4.8

Unstratified *Casuarina microstachya* and numerous other species of shrubs, virtually all plants senescent, stratum 0.5 m tall, 30-70% canopy cover at sample point. Scattered *Casuarina huegeliana* trees to 4 m tall and some *Xanthorrhoea reflexa* to 2 m tall. No weeds or grasses present. No evidence of fire, and stand is probably 40-50 years old. On the eastern boundary near the adjacent farmland the vegetation is disturbed and appears to have been scrub rolled. Traces of this disturbance are visible on 1960 air photographs. The extreme senescence of the association is probably an indication of fire age rather than age since disturbance. Litter: Moderately abundant. Soil: Light grey, sandy loam containing about 70% gravel pebbles.

#### Loc. 4.9

As for loc. 4.6 but association age is probably 40-50 years.

#### Loc. 4.10

As for loc. 4.4 but *Dryandra cirsioides* a little more abundant. Scattered *Eucalyptus astringens* shrub mallee and *E. wandoo* trees.

#### Loc. 4.11

As for loc. 4.4 but *Dryandra cirsioides* prominent in clumps depending on laterite content of soil. Scattered *Eucalyptus astringens* and *E. foecunda* shrub mallee present.

#### Loc. 4.12

Stratum 1: *Casuarina humilis*, *Leptospermum erubescens* shrubs and numerous other species present, all senescent, stratum 0.5-1.5 m tall, 2-10% canopy cover. Stratum 2: Numerous species, none obviously dominant, all senescent, stratum 0-0.5 m tall, 70-100% canopy cover. Seedlings present of almost all species recorded. Weeds and grasses absent. No evidence of fire, association is probably 40-50 years old. Litter: Abundant. Soil: White sand.

#### Loc. 4.13

As for loc. 4.19.

#### Loc. 4.14

As for loc. 4.16 but *Leptospermum erubescens*, *Petrophile ericifolia*, *Casuarina humilis* and *Dryandra cirsioides* prominent in some areas. Heath is 1-1.5 m tall, 10-70% canopy cover, depending on laterite content of soil and drainage characters.

#### Loc. 4.15

As for loc. 4.19 but scattered *Eucalyptus eremophila* and *E. incrassata* shrub mallee. Soil as for loc. 4.19. Area on platform of degraded breakaway. This association gives way abruptly to loc. 4.16 heath on the eastern side where the breakaway laterites pass into pallid zone derived soils.

**Loc. 4.16 (Trapline 12)**

Stratum 1: Many species of shrubs, no obvious dominants, all mature, stratum 0.5-1.25 m tall, 30-70% canopy cover. Stratum 2: Many species of shrubs, no obvious dominants, all mature, stratum 0-0.5 m tall, 30-70% canopy cover. Occasional emergent *Leptospermum erubescens* to 2 m, *Banksia attenuata* to 4 m, *Nuytsia floribunda* to 3 m, and *Hakea prostrata* to 2.5 m. Scattered grasses present. Stand probably about 20 years old. Litter: Moderately abundant. Soil: Very pale brown sand.

**Loc. 4.17**

As for loc. 4.16.

**Loc. 4.18**

As for loc. 4.16.

**Loc. 4.19**

Stratum 1: *Dryandra cirsioides* shrubs, immature, stratum 0-1 m tall, 10-30% canopy cover. Stratum 2: Several species of shrubs, none obviously dominant, all mature, stratum 0-0.5 m tall, 30-70% canopy cover. Association is about 20 years old. Litter: Sparse. Soil is almost entirely hard packed laterite with virtually no friable soil except in cracks, fissures and shallow pockets. 'Soil' where it occurs can be considered powdered laterite.

**Loc. 4.20**

As for loc. 4.21 but with some components of loc. 4.19.

**Loc. 4.21**

Stratum 1: *Dryandra cirsioides*, *Banksia sphaerocarpa*, *Petrophile squamata* and *Leptospermum erubescens* shrubs. Many other species present, all mature, stratum 0.5-1.5 m tall, 30-70% canopy cover. Stratum 2: *Melaleuca seriata* shrubs. *Conostylis* affin. *breviscapa* herbs, all mature, stratum 0-40 cm tall, 10-30% canopy cover. *Xanthorrhoea reflexa* emergent to 2-5 m. Scattered *Eucalyptus wandoo* trees of varying sizes present on ecotone adjacent to woodland. Small clumps of *E. astringens* present in heath. No evidence of recent fire. Stand is probably about 20 years old. Litter: Moderately abundant. Soil: Very pale brown, sandy loam.

**Loc. 4.22**

Similar to loc. 4.19 but with scattered *Eucalyptus gardneri* shrub mallee present.

**Loc. 4.23 (Trapline 10)**

Stratum 1: *Calothamnus quadrifidus*, *Hakea falcata* and *Xanthorrhoea reflexa* shrubs, all mature, stratum 0.5-1 m tall, ca 30% canopy cover. Stratum 2: *Melaleuca seriata*, *Casuarina microstachya* shrubs and *Mesomelaena uncinata* sedge all mature, stratum 0-0.5 m tall, ca 30% canopy cover. Some emergent *Xanthorrhoea reflexa* to 2 m tall; occasional grasses present. No evidence of recent fire. *Xanthorrhoea reflexa* show about 12 distinct growth increments. Stand is about 20 years old. Litter: Moderately abundant. Soil: Light grey sand.

#### Loc. 4.24 (Trapline 4)

Stratum 1: *Dryandra cirsioides*, *Casuarina humilis*, *Leptospermum erubescens* and *Hakea prostrata* shrubs, all mature to senescent, stratum 0-0.8 m tall, ca 30% canopy cover. No evidence of fire. Stand is probably about 20 years old. Litter: Moderately abundant. Soil: White sand.

#### Loc. 4.25

As for loc. 4.24 but with scattered *Eucalyptus eremophila* and *E. foecunda* shrub mallee.

#### Loc. 4.26

As for loc. 4.25.

#### Loc. 4.27

As for loc. 4.23.

#### Loc. 4.28

Small area of heath associated with granite boulder outcrops and pallid zone clays with colluvial laterite. Vegetation ca 0.3 m tall, dominated by *Andersonia caerulea* and *Borya nitida*. Scattered mallee in deeper soil pockets.

#### Loc. 4.29

Stratum 1: Several species of shrubs, commonly dominated by *Melaleuca pungens* and *Dryandra cirsioides*, senescent, stratum 0.5-1 m tall, 30-70% canopy cover. Stratum 2: Several species of shrubs, usually no obvious dominant, senescent, stratum 0-0.5 m tall, 10-30% canopy cover. Some weeds and grasses where heath approaches paddocks on western side of Reserve. Association is probably 30-40 years old. Litter: Sparse. Soil: Friable soil is highly pedal, earthy, very coherent, unbleached, non-calcareous, pH 5.7, yellow 10YR 7/6, sandy clay loam with gravel pebbles constituting about 10% of the soil volume near the surface, and increasing with depth to greater than 90% at about 40 cm.

#### Loc. 4.30

*Dryandra cirsioides* shrubs, mature to senescent, stratum 1-1.5 m tall, 70-100% canopy cover. Virtually no other species present except along fence of adjacent paddock. Scattered *Eucalyptus gardneri* trees and *E. incrassata* mallee present. Narrow firebreak along fence has *Hypocalymma angustifolium* and *Olex benthamiana* shrubs, 0.5 to 1.0 m tall. These species are found almost nowhere else on the Reserve. Their presence is thought to be due to the highly lateritic soil coupled with disturbance because of the firebreak. The soil is hard compact laterite with cracks and shallow depressions containing laterite dust. The area code is n<sub>1</sub>SBd/K. n<sub>1</sub> = *D. cirsioides*. Drainage is probably good but localised pooling would occur on the rock after rain.

### LITHIC COMPLEX

#### Loc. 5.1

Area of bare granite rock raised to a maximum of about 2 m above the surrounding

country. Crusted on surface with lichens of *Parmelia* spp. and *Rhizocarpon* sp. and with clumps of moss, *Grimmea* sp.

Very few exfoliated slabs. Pools up to 3 m across and 15 cm deep occur after rain. Where soil has accumulated *Borya nitida* is prominent. On deeper soil there are scattered *Acacia acuminata* and *Casuarina huegeliana* passing into loc. 1.22 and 1.23 *Casuarina huegeliana* stands, up to 70-100% canopy cover.

#### Loc. 5.2

Area of bare granite rock raised to a maximum of about 8-9 m above the surrounding country. Crusted on surface with lichens of *Parmelia* spp. and *Rhizocarpon* sp. and clumps of *Grimmea* sp. moss. Very few exfoliated slabs or raised boulders. A small cairn of rock is on the highest point. Very few pools present, mostly less than 1 m in diameter and 10 cm deep. Where soil has accumulated, *Borya nitida*, *Stypandra imbricata*, *Lepidosperma angustatum* and *L. drummondii* are prominent. Deeper soil carries abundant *Thryptomene australis* shrubs 1.5-2 m tall and *Spartochloa scirpoidea* clumps 1.0 m tall. Surrounding the outcrop on deeper soil are *Casuarina huegeliana* trees and *C. campestris* shrubs to 5 m tall, 70-100% canopy cover.

### BREAKAWAY COMPLEX

Numerous areas of degraded laterite breakaway occur on the Reserve. They range in form from areas with a discrete platform and a more or less developed visor and scree to lateritic humps surrounded by pallid zone soil types.

The best developed breakaway occurs at loc. 4.30 with slightly more degraded ones being near locs 1.4, 1.5, 1.16, 2.5, 2.7, 2.12 and 1.56.

Very degraded but obvious breakaways occur near locs 1.11, 4.13, 4.15, 1.26, 1.27, 4.22, 1.37, 2.6 and 1.52.

Gravel pits cut into the top of breakaways occur near locs 1.4 and 1.16. Both these pits were made in about 1966-67 with small amounts of gravel being removed up to 1969. Plant growth in the pits is thus 7-10 years old.

## APPENDIX 2

### LIST OF PLANT SPECIES RECORDED AT VARIOUS LOCATIONS DONGOLOCKING RESERVE

Only locations with detailed ecological data are listed. (SC) indicates specimens held in Western Australian Museum Survey Collection.

#### Loc. 1.1

*Borya nitida*

*Leptospermum erubescens*



*Eucalyptus wandoo*  
*Lepidosperma brunonianum*  
*L. gracile*

*Lomandra effusa*  
*Melaleuca uncinata*

Loc. 1.2

*Acacia erinacea*  
*A. microbotrya*  
*Dodonaea affin. attenuata*  
*Eucalyptus longicornis*

*E. salmonophloia*  
*Lomandra effusa*  
Poaceae sp. indet. 6 (SC)  
*Rhagodia preissii*

Loc. 1.5

*Beaufortia bracteosa*  
*Dodonaea bursariifolia*  
*Eucalyptus gardneri*  
*Gastrolobium crassifolium*

*Hakea nitida*  
*Lepidosperma gracile*  
*Spyridium denticuliferum*

Loc. 1.11

*Eucalyptus astringens*  
*E. gardneri*  
*Gastrolobium crassifolium*

Loc. 1.13

*Acacia acuminata*  
*Borya nitida*  
*Casuarina huegeliana*  
*Eucalyptus loxophleba*

*E. wandoo*  
*Lomandra effusa*  
*Loxocarya* sp. 1 (SC)

Loc. 1.14

*Acacia acuminata*  
*A. microbotrya*  
*Astroloma serratifolium*  
*Borya nitida*  
*Casuarina huegeliana*  
*Daviesia brevifolia*  
*Dryandra fraseri*

*Eucalyptus longicornis*  
*E. wandoo*  
*Hibbertia enervia*  
*Lepidosperma gracile*  
*Loxocarya* sp. 1 (SC)  
*Romula rosea* (exotic sp.)  
*Waitzia acuminata*

Loc. 1.16

*Aira caryophylla*  
*Astroloma prostratum*  
*Daviesia colletioides*  
*Dryandra ferruginea*  
*Eucalyptus astringens*  
*E. falcata* var. *costata*  
*E. gardneri*

*H. nitida*  
*Lepidosperma angustatum*  
*L. gracile*  
*L. tenue*  
*Melaleuca uncinata*  
*Persoonia teretifolia*  
*Platysace maxwellii*

*E. longicornis*  
*Gastrolobium crassifolium*  
*Hakea multilinea*

*Santalum acuminatum*  
*Stipa hemipogon*  
*Westringia cephalantha*

**Loc. 1.25**

*Acacia acuminata*  
*A. lasiocarpa* var. *sedifolia*  
*Astroloma* sp. indet. 1 (SC)  
*Borya nitida*  
*Casuarina huegeliana*  
*Eucalyptus longicornis*  
*E. wandoo*

*Gastrolobium crassifolium*  
*Hakea lissocarpa*  
*Hibbertia enervia*  
*Lomandra effusa*  
*Loxocarya* sp. 1 (SC)  
*Melaleuca* affin. *subtrigona*

**Loc. 1.26**

*Eucalyptus astringens*  
*E. gardneri*

**Loc. 1.37**

*Beaufortia bracteosa*  
*Dryandra cirsioides*  
*D. drummondii*  
*D.* sp. indet. B (SC)  
*Eucalyptus falcata*  
*E. gardneri*

*Hakea multilinea*  
*H. nitida*  
*Hibbertia recurvifolia*  
*Lepidosperma drummondii*  
*Platysace maxwellii*  
*Spyridium denticuliferum*

**Loc. 1.54**

*Acacia pulchella*  
*Angianthus pusillus*  
*Astroloma compactum*  
*A. pallidum*  
*Billardiera variifolia*  
*Borya nitida*  
*Casuarina huegeliana*  
*Dampiera* affin. *spicigera*  
*Dryandra nivea*  
*D. sessilis*  
*Eucalyptus wandoo*  
*Gastrolobium crassifolium*

*Hakea lissocarpa*  
*Hibbertia enervia*  
*Hypocalymma puniceum*  
*Laxmannia* sp. 1 (SC)  
*Lepidosperma scabrum*  
*L. tenue*  
*L. tuberculatum*  
*Loxocarya* sp. 1 (SC)  
*Poaceae* sp. 3 (SC)  
*Stipa hemipogon*  
*Waitzia acuminata*

**Loc. 2.1**

*Acacia pulchella*  
*Baeckea grandibracteata*  
*Banksia sphaerocarpa*  
*Calothamnus quadrifidus*

*Isopogon drummondii*  
*Lepidosperma gracile*  
*L. tenue*  
*Leptospermum erubescens*

*Casuarina humilis*  
*C. microstachya*  
*Comesperma scoparia*  
*Dryandra cirsioides*  
*D. drummondii*  
*D. nivea*  
*Eucalyptus foecunda*  
*E. incrassata*  
Fam. indet. 9 (SC)  
*Hakea falcata*  
*H. prostrata*

Loc. 2.4

*Acacia acanthoclada*  
*Andersonia caerulea*  
*Astroloma pallidum*  
*Beaufortia bracteosa*  
*Dampiera* sp. 3 (SC)  
*Darwinia* affin. *polycephala*  
*Dryandra cirsioides*  
*Dryandra* sp. indet. B (SC)  
*Eucalyptus eremophila*  
*Gastrolobium crassifolium*

Loc. 2.5

*Banksia sphaerocarpa*  
*Beaufortia bracteosa*  
*Dryandra cirsioides*  
*D. nivea*  
*Eucalyptus albida*  
*E. eremophila*  
*E. foecunda*

Loc. 2.7

*Acacia stenoptera*  
*Adenanthos flavidiflora*  
*Astroloma serratifolium*  
*Banksia sphaerocarpa*  
*Beaufortia bracteosa*  
*Beaufortia incana*  
*Borya nitida*  
*Brachyloma concolor*  
*Calothamnus quadrifidus*  
*Calycopeplus helmsii*

*Melaleuca seriata*  
*M. subtrigona*  
*Mesomelaena uncinata*  
*Neurachne* sp. 1 (SC)  
*Patersonia juncea*  
*Petrophile ericifolia*  
Restionaceae sp. indet. 3 (SC)  
Restionaceae sp. indet. 8 (SC)  
*Schoenus compressus*  
*Stipa hemipogon*  
*Xanthorrhoea reflexa*

*G. trilobum*  
*Hibbertia enervia*  
*Lepidosperma tenue*  
*L. tuberculatum*  
*Leucopogon minutifolius*  
*Loxocarya fasciculata*  
*Melaleuca cuticularis*  
*Petrophile shuttleworthiana*  
*Platysace effusa*

*Hakea prostrata*  
*Lepidosperma drummondii*  
*Leptospermum erubescens*  
*Loxocarya fasciculata*  
*Lysinema ciliatum*  
*Petrophile seminuda*  
*Xanthorrhoea reflexa*

*G. tricuspidata*  
*Hakea incrassata*  
*H. lehmanniana*  
*Hibbertia enervia*  
*H. teretifolia*  
*Hybanthus floribundus*  
*Lepidosperma gracile*  
*Loxocarya fasciculata*  
*Melaleuca pungens*  
*M. seriata*

*Casuarina humilis*  
*Dampiera* affin. *spicigera*  
*Dryandra cirsioides*  
*Eucalyptus falcata* var. *ecostata*  
*E. incrassata*  
*Gastrolobium spinosum*

Myrtaceae sp. 2 (SC)  
*Phlebocarya ciliata*  
*Pityrodia bartlingii*  
*Pomaderris* sp. 1 (SC)  
*Schoenus compressus*

Loc. 2.8

*Acacia subglaucia*  
*Astroloma pallidum*  
*Dampiera* affin. *spicigera*  
*Dodonaea amblyophylla*  
*Dryandra cirsioides*  
*Eucalyptus astringens*  
*E. redunca*  
*Gastrolobium crassifolium*  
*Hibbertia teretifolia*

*Lepidosperma angustatum*  
*L. brunonianum*  
*Melaleuca uncinata*  
*Opercularia* sp. 1 (SC)  
*Petrophile seminuda*  
*Pimelea* affin. *sylvestris*  
*Stipa hemipogon*  
*Thomasia rugosa*

Loc. 2.10

*Acacia lasiocarpa* var. *sedifolia*  
*Beaufortia bracteosa*  
*Billardiera variifolia*  
*Choretrum glomeratum*  
*Dryandra cirsioides* sp. indet. B (SC)  
*Eucalyptus eremophila*  
*E. gardneri*  
*E. incrassata*  
*E. wandoo*

*Gastrolobium crassifolium*  
*G. hookeri*  
*Hakea lehmanniana*  
*H. lissocarpha*  
*Hibbertia enervia*  
*Lepidosperma tuberculatum*  
*Melaleuca uncinata*  
*Xanthorrhoea reflexa*

Loc. 3.1

*Acacia pulchella* (D)  
*A. varia*  
*Adenanthos* affin. *cygnorum*  
*Banksia attenuata*  
*B. sphaerocarpa*  
*Beaufortia incana*  
*Billardiera variifolia* (D)  
*Calothamnus quadrifidus* (+D)  
*Calythrix cephalantha*  
*C. fraseri*  
*Cassytha* sp. B (SC)  
*Casuarina humilis*  
*Daviesia brevifolia*  
*D. pachyphylla*

*Gastrolobium spinosum* (+D)  
*Hakea baxteri*  
*H. ferruginea* (D)  
*H. lehmanniana*  
*Isopogon teretifolius*  
*Lambertia ilicifolia*  
*L. inermis* (+D)  
*Lepidosperma tenue*  
*Leptospermum erubescens*  
*Loxocarya fasciculata*  
*Loxocarya* sp. 1 (SC)  
*Melaleuca lateritia*  
*M. pungens*  
*M. affin. seriata*

*Dodonaea amblyophylla*  
*Dryandra cirsioides*  
*D. cuneata*  
*D. nivea*  
*D. sessilis*  
*Eremaea pauciflora*  
*Eucalyptus foecunda*

Loc. 3.4

*Acacia stenoptera*  
*Andersonia caerulea*  
*Banksia baueri*  
*B. sphaerocarpa*  
*Calothamnus quadrifidus*  
*Casuarina humilis*  
*Conostylis* affin. *setigera*  
*Dampiera* sp. 2 (SC)  
*Dryandra cirsioides*  
*D. cuneata*  
*D. nivea*  
*Eremaea pauciflora*  
*Gastrolobium tricuspidata*  
*Hakea baxteri*  
*H. prostrata*  
*H. ruscifolia*  
*H. trifurcata*  
*Hibbertia verrucosa*  
*Isopogon drummondii*

Loc. 4.4

*Astroloma serratifolium*  
*Banksia sphaerocarpa*  
*Beaufortia bracteosa*  
*Borya nitida*  
*Calythrix stipulosa*  
*Casuarina microstachya*  
*Chamelaucium ciliatum*  
*Dampiera* sp. 3 (SC)  
*Daviesia* affin. *acanthoclona*  
*D. variophylla*  
*Dodonaea divaricata*  
*Dryandra cirsioides*  
Fam. indet. 8 (SC)

*Petrophile ericifolia*  
*P. squamata*  
*P. stricta*  
Restionaceae sp. 3 (SC)  
*Stipa hemipogon*  
*Stirlingia latifolia*

*I. teretifolius*  
*Lambertia ilicifolia*  
*L. inermis*  
*Leptospermum erubescens*  
*Leucopogon* affin. *ozothamnoides*  
*Loxocarya fasciculata*  
*Melaleuca lateritia*  
*M. seriata*  
*Neurachne* sp. 1 (SC)  
*Persoonia striata*  
*Petrophile ericifolia*  
*P. squamata*  
*P. stricta*  
Restionaceae sp. 3 (SC)  
Restionaceae sp. 8 (SC)  
*Restio sphacelatus*  
*Schoenus compressus*  
*Verticordia brownii*

*Hakea baxteri*  
*H. crassifolia*  
*H. falcata*  
*Isopogon teretifolius*  
*Leptospermum erubescens*  
*Melaleuca seriata*  
*Persoonia striata*  
*Petrophile seminuda*  
Poaceae sp. 4 (SC)  
*Synaphaea polymorpha*  
*Waitzia paniculata*  
*Xanthorrhoea reflexa*

Loc. 4.6

*Acacia cuneata*  
*Calothamnus planifolius*  
*C. affin. villosus*  
*Calythrix brachyphylla*  
*Casuarina humilis*  
*C. microstachya*  
*Cryptandra miliaris*  
*Dampiera affin. juncea*  
*Daviesia brevifoli*  
*D. affin. preissii*  
*Dryandra cirsioides*  
*D. sp. A (SC)*  
*Eremaea pauciflora*

*Gastrolobium trilobum*  
*Grevillea affin. uncinulata*  
*Hakea incrassata*  
*H. lehmanniana*  
*H. prostrata*  
*Isopogon teretifolius*  
*Loxocarya fasciculata*  
*Lysinema ciliatum*  
*Melaleuca pungens*  
*M. affin. subtrigona*  
*Mesomelaena uncinata*  
*Petrophile squamata*  
*Xanthorrhoea reflexa*

Loc. 4.8

*Calythrix fraseri*  
*Casuarina huegeliana*  
*C. microstachya*  
*Choretrum glomeratum*  
*Gastrolobium hookeri*  
*Hakea incrassata*  
*Harperia lateriflora*

*Leptospermum erubescens*  
*Melaleuca affin. subtrigona*  
*Mesomelaena uncinata*  
*Petrophile seminuda*  
*Verticordia brownii*  
*Xanthorrhoea reflexa*

Loc. 4.12

*Acacia cuneata*  
*Andersonia caerulea*  
*Banksia attenuata*  
*B. sphaerocarpa*  
*Calothamnus preissii*  
*Calythrix fraseri*  
*Casuarina huegeliana*  
*C. humilis*  
*Daviesia brevifolia*  
*Dryandra nivea*  
*D. sp. B (SC)*  
*Eremaea pauciflora*  
*Goodenia pinifolia*

*Hakea baxteri*  
*H. corymbosa*  
*Lambertia ilicifolia*  
*Lepidosperma gracile*  
*Leptospermum erubescens*  
*Loxocarya fasciculata*  
*Melaleuca affin. subtrigona*  
*Petrophile conifera*  
*P. ericifolia*  
*P. stricta*  
*Schoenus affin. globifer*  
*Schoenus sp. 2 (SC)*  
*Xanthorrhoea reflexa*

Loc. 4.16

*Adenanthos cygnorum*  
*Banksia attenuata*  
*B. sphaerocarpa*  
*Casuarina humilis*

*I. teretifolius*  
*Lambertia ilicifolia*  
*Leptospermum erubescens*  
*Lyginea tenax*

*Dampiera* sp. 2 (SC)  
*Dryandra cirsioides*  
*D. sessilis*  
*Eremaea pauciflora*  
Fam. indet. 10 (SC)  
*Hakea falcata*  
*H. prostrata*  
*H. trifurcata*  
*Harperia lateriflora*  
*Isopogon drummondii*

Loc. 4.19

*Adenanthos flavidiflora*  
*Banksia sphaerocarpa*  
*Beaufortia bracteosa*  
*B. incana*  
*Calothamnus planifolius*  
*Casuarina humilis*  
*Chamelaucium megalopetalum*  
*Dampiera spicigera*  
*Daviesia rhombifolia*  
*Dryandra cirsioides*  
*D. nivea*  
*D. nobilis*  
*D. sp. A* (SC)

Loc. 4.21

*Adenanthos flavidiflora*  
*Baeckea grandibracteata*  
*Banksia sphaerocarpa*  
*Beaufortia bracteosa*  
*Calothamnus planifolius*  
*Casuarina humilis*  
*C. microstachya*  
*Conostylis* affin. *breviscapa*  
*Daviesia cardiophylla*  
*D. rhombifolia*  
*Dryandra cirsioides*  
*D. sp. B* (SC)  
*Eucalyptus astringens*  
*E. wandoo*  
*Gastrolobium hookeri*  
*Hakea baxteri*

*Melaleuca seriata*  
*Microcorys lenticularis*  
*Neurachne* sp. 1 (SC)  
*Nuytsia floribunda*  
*Persoonia striata*  
*Petrophile ericifolia*  
*Schoenus brevifolius*  
*Spyridium complicatum*  
*Stipa hemipogon*  
*Stirlingia latifolia*

*D. sp. B* (SC)  
*Gastrolobium laytonii*  
*G. tricuspidata*  
*Hakea ferruginea*  
*H. incrassata*  
*H. lehmanniana*  
*Isopogon teretifolius*  
*Lysinema ciliatum*  
*Melaleuca* affin. *seriata*  
*Mesomelaena uncinata*  
*Petrophile squamata*  
*Xanthorrhoea reflexa*

*Isopogon drummondii*  
*I. teretifolius*  
*Lepidosperma gracile*  
*Leptospermum erubescens*  
*Leucopogon phyllostachys*  
*Loxocarya* sp. 1 (SC)  
*Lysinema ciliatum*  
*Melaleuca pungens*  
*M. seriata*  
*Persoonia striata*  
*Petrophile ericifolia*  
*P. seminuda*  
*P. squamata*  
Restionaceae sp. 3 (SC)  
*Schoenus compressus*  
*Stylidium repens*

*H. gilberti*  
*H. incrassata*  
*Harperia lateriflora*

*Synaphaea petiolaris*  
*Xanthorrhoea reflexa*

Loc. 4.23

*Acacia pulchella*  
*Astroloma serratifolium*  
*Banksia sphaerocarpa*  
*Beaufortia micrantha*  
*Borya nitida*  
*Calothamnus quadrifidus*  
*Casuarina microstachya*  
*Dampiera* sp. 3 (SC)  
*Dryandra cirsioides*  
*Hakea adnata*  
*H. falcata*  
*Isopogon drummondii*  
*I. teretifolius*

*Lepidosperma pubisquameum*  
*Leucopogon minutifolius*  
*Melaleuca seriata*  
*Mesomelaena uncinata*  
*Micromyrtus imbricata*  
*Neurachne* sp. 1 (SC)  
*Petrophile squamata*  
*Poaceae* sp. 1 (SC)  
*Restionaceae* sp. 3 (SC)  
*Stipa hemipogon*  
*Stylidium repens*  
*Synaphaea petiolaris*  
*Xanthorrhoea reflexa*

Loc. 2.24

*Andersonia caerulea*  
*Astartea heteranthera*  
*Astroloma compactum*  
*Beaufortia bracteosa*  
*Calothamnus planifolius*  
*C. quadrifidus*  
*Casuarina humilis*  
*C. microstachya*  
*Conostylis breviscapa*  
*Dampiera* sp. 3 (SC)  
*Dryandra cirsioides*  
*D.* sp. B (SC)  
*Hakea incrassata*  
*H. prostrata*  
*Harperia lateriflora*  
*Isopogon drummondii*

*I. teretifolius*  
*Leptospermum erubescens*  
*Leucopogon dielsianus*  
*L. minutifolius*  
*Loxocarya fasciculata*  
*Melaleuca seriata*  
*Mesomelaena uncinata*  
*Neurachne* sp. 1 (SC)  
*Persoonia striata*  
*Petrophile seminuda*  
*P. squamata*  
*Poaceae* sp. 1 (SC)  
*Poaceae* sp. 4 (SC)  
*Schoenus curvifolius*  
*Synaphaea petiolaris*

Loc. 4.29

*Adenanthos argyraea*  
*Banksia sphaerocarpa*  
*Calothamnus planifolius*  
*Conostylis* affin. *setigera*  
*Dampiera* affin. *juncea*  
*Dryandra cirsioides*

*H. lehmanniana*  
*Hibbertia enervia*  
*Isopogon teretifolius*  
*Leucopogon hamulosus*  
*Lysinema ciliatum*  
*Melaleuca conferta*



*D. sp. A (SC)*  
*D. sp. B (SC)*  
*Hakea ambigua*

*M. pungens*  
*Schoenus compressus*  
*Xanthorrhoea reflexa*

Loc. 4.30

*Dryandra cirsioides*  
*Eucalyptus gardneri*  
*E. incrassata*

*Gastrolobium tricuspidata*  
*Hypocalymma angustifolium*  
*Olax benthamiana*

APPENDIX 3  
 PLANT FAMILY AND GENUS NUMBERS  
 OF DONGOLOCKING RESERVE FLORA

Apiaceae	...	...	...	...	...	...	2
Asteraceae	...	...	...	...	...	...	3
Casuarinaceae	...	...	...	...	...	...	4
Chenopodiaceae	...	...	...	...	...	...	1
Cyperaceae	...	...	...	...	...	...	13
Dicrastylidaceae	...	...	...	...	...	...	1
Dilleniaceae	...	...	...	...	...	...	4
Epacridaceae	...	...	...	...	...	...	12
Euphorbiaceae	...	...	...	...	...	...	1
Fabaceae	...	...	...	...	...	...	14
Goodeniaceae	...	...	...	...	...	...	5
Haemodoraceae	...	...	...	...	...	...	4
Haloragaceae	...	...	...	...	...	...	1
Iridaceae	...	...	...	...	...	...	2
Lamiaceae	...	...	...	...	...	...	11
Lauraceae	...	...	...	...	...	...	1
Liliaceae	...	...	...	...	...	...	3
Loranthaceae	...	...	...	...	...	...	1
Mimosaceae	...	...	...	...	...	...	10
Myrtaceae	...	...	...	...	...	...	46
Olacaceae	...	...	...	...	...	...	1
Pittosporaceae	...	...	...	...	...	...	1
Poaceae	...	...	...	...	...	...	7
Polygalaceae	...	...	...	...	...	...	1
Proteaceae	...	...	...	...	...	...	52
Restionaceae	...	...	...	...	...	...	8

Rhamnaceae	...	...	...	...	...	...	4
Rubiaceae	...	...	...	...	...	...	1
Santalaceae	...	...	...	...	...	...	3
Sapindaceae	...	...	...	...	...	...	4
Sterculiaceae	...	...	...	...	...	...	1
Stylidiaceae	...	...	...	...	...	...	1
Thymelaeaceae	...	...	...	...	...	...	1
Violaceae	...	...	...	...	...	...	1
Xanthorrhoeaceae	...	...	...	...	...	...	2
Fam. indet.	...	...	...	...	...	...	3

#### APPENDIX 4

##### Description of uncleared or regrowing bushland illustrated on Fig. 3.

- A *Acacia acuminata*, *Eucalyptus loxophleba* and *E. salmonophloia* woodland.
- B Area of shrubland similar to loc. 3.1, mallee similar to loc. 2.1 and small patches of woodland. Scrub rolled and burnt about 6-12 years before faunal survey. Regrowth at this time (1975-76) was up to 1 m tall and 30-70% canopy cover. Mature, but not senescent. Most prominent species were *Acacia pulchella*, *Billardiera variifolia*, *Calothamnus quadrifidus*, *Dodonaea amblyophylla*, *Gastrolobium spinosum*, *Hakea ferruginea* and *Lambertia inermis*. Soil is as described for loc. 3.1. Mallee areas are dominated by the above species with *Eucalyptus foecunda* and *E. incrassata* regrowth to 1.5 m tall, mostly less than 10%. Soil in denser mallee areas as described for loc. 2.1.
- C *Eucalyptus longicornis* and *E. wandoo* woodland.
- D *Dryandra cirsioides* heath in northern portion and *Eucalyptus wandoo* woodland in southern portion.
- E *Casuarina huegeliana* and *Eucalyptus wandoo* woodland with some granite exposures.
- F *Casuarina huegeliana* and some *Eucalyptus wandoo* woodland with two areas of granite exposure. About one-third of the whole area is bare granite.
- G *Casuarina huegeliana* and *Eucalyptus wandoo* woodland.
- H *Mesomelaena uncinata* sedgeland with scattered *Xanthorrhoea reflexa*. Surrounded by *Acacia acuminata*, *Casuarina huegeliana* and *Eucalyptus wandoo* woodland.
- I *Eucalyptus longicornis* and *E. wandoo* woodland.
- J *Acacia acuminata*, *Casuarina huegeliana*, *Eucalyptus longicornis*, *E. loxophleba* and

- E. wandoo* woodland.
- K *Eucalyptus wandoo* woodland with some *Acacia acuminata*, *Casuarina huegeliana* and *E. longicornis* present.
- L *Eucalyptus wandoo* woodland with scattered patches of *Casuarina huegeliana*.
- M Predominantly heath with patches of *Eucalyptus wandoo* woodland.
- N *Eucalyptus wandoo* woodland with some *E. astringens* present.
- O Western end is regrowth to 1 m tall. Present structure is a heath. Eastern end is *Casuarina huegeliana* woodland with scattered *Eucalyptus wandoo* trees.
- P *Eucalyptus longicornis* and *E. wandoo* woodland.
- Q Northern end is *Eucalyptus wandoo*, *Casuarina huegeliana* woodland. Southern end is *E. wandoo* woodland. Several small patches of *Xanthorrhoea reflexa* heath are present.
- R *Eucalyptus wandoo* woodland.
- S Mallee over heath.
- T *Eucalyptus wandoo* woodland.
- U Comprises three portions described below.
- 1 Uncleared in 1972 — mostly *Eucalyptus wandoo* woodland; cleared between 1972 and 1976, no regrowth in 1976.
  - 2 Cleared but with sparse regrowth in 1960; under crop in 1972; under crop but with sparse regrowth in 1976.
  - 3 Cleared but with sparse regrowth in 1960; described by A. Chapman and J. Dell (pers. comm.) as being mallee regrowth (possibly *E. incrassata*) to 3 m tall, 10-20% canopy cover over *Gastrolobium crassifolium* shrubs 2 m tall, less than 10% canopy cover over shrubs (*Verticordia* sp. prominent) 0.5-1 m tall, less than 10% canopy cover but up to 30% on spoil heaps, over introduced grasses to 0.2 m tall, 30-70% canopy cover. This was in October 1974. Chapman and Dell felt that the area had been under crop or pasture and that the grass represented remains of this pasture. During clearing the spoil had probably been heaped in the middle of the paddock, and on subsequent burning produced very high temperatures. This appeared to have killed the mallee lignotubers as they are absent from the central area but occur all around the margins of the paddock. The heathy and shrubby areas tended to occur in the open spaces between the mallee clumps; by April 1975 this area was again cleared and under crop; in 1976 the area was covered with poor pasture and had no regrowth.
- V *Eucalyptus wandoo* woodland with small patch of *Dryandra cirsioides* dominated heath on the north boundary.
- W Heath and mallee.
- X See Fig. 4. This block contains Forests Reserves 19085 and 19086 and some privately owned land. Vegetation maps are adapted from Forests Department records.
- Y See Fig. 5. As for block X but comprised almost entirely of Forests Reserve 20070.