II VEGETATION OF WILROY NATURE RESERVE

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General

Wilroy Nature Reserve lies on the border between the Irwin district of the South Western Botanical Province and the Austin District of the Eremaean Province (refer Grieve and Blackall [1975] for modification of Gardner and Bennetts [1956] map). The vegetation of the Reserve, however, most resembles that of the Avon district, but has some components of the Irwin district.

Abbreviated vegetation descriptions are presented in **Appendix 1** and sample locations are illustrated on **Map 1.** 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. Species found at some locations are listed in **Appendix 2** and family distribution of plant species in **Appendix 3.**

Methodology

The vegetation of Wilroy Nature 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 within each major association was described in detail using the classification shown in **Table 1** and discussed in detail in Muir (1977a); and a soil profile was described for each major association.

Level 1 associations 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

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

DISCUSSION

Formations and Distribution

Woodlands, mallee, shrubland and heath are the only formations represented on Wilroy Reserve. Distribution of these formations is a result of geology and physiography. The south-western corner of the Reserve has deep sandy soils with

TABLE 1

Vegetation Classification to be 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

Banksia shrubland; then with decrease in altitude, laterites (which probably also underlie the sand) are exposed and give rise to *Acacia* or *Casuarina* dominated shrublands. With further decrease in altitude the pallid zone clays are exposed (they may be *in situ* or partly transported) and provide suitable soil types for mallee and woodlands.

TABLE 2

Formation areas and their proportion of the Reserve

Formation	Area of Formation	% of Reserve
Woodland	17 ha	5
Mallee	53	16
Shrubland	239	72
Heath	23	7

The majority of the Reserve is shrubland and there is some mallee. Woodland and heath are poorly represented.

Associations

'Associations' as used here includes associations, associes and consociations according to the definitions of Beadle and Costin (1952) and Polunin (1960).

WOODLAND

Eucalyptus loxophleba

MALLEE

Eucalyptus dongarraensis
E. drummondii
E. ebbanoensis
E. redunca

SHRUBLAND

Acacia acuminata - Melaleuca eleutherostachya
A. lineolata - mixed (no particular dominant)
A. resinomarginea
A. signata
A. stereophylla
Banksia benthamiana - A. resinomarginea - Casuarina corniculata
B. benthamiana - A. stereophylla - Hakea scoparia
C. acutivalvis - M. uncinata
C. campestris
H. scoparia - A. resinomarginea
H. scoparia - B. benthamiana

M. uncinata
M. uncinata - M. eleutherostachya
M. uncinata - M. eleutherostachya - A. acuminata
Mixed (no particular dominant)

HEATH
Acacia resinomarginea - Casuarina campestris
Melaleuca uncinata - A. acuminata - A. resinomarginea

Formation	Number of associations
Woodland	1
Mallee	4
Shrubland	15
Heath	2
Total	22

Compared with other reserves in the wheatbelt Wilroy Reserve has an average number of associations, the lowest previously recorded being 8 on Yornaning Nature Reserve (Muir, 1978b) and the highest 45 on Bendering Nature Reserve (Muir 1977a). Expressed as number of associations in relation to area of Reserve, the vegetation is the most diverse recorded in the wheatbelt so far, being 6.63/km^2. Average number of associations per area on the 8 reserves examined to date to 2.3/km^2 and the highest previously recorded is 5.88/km^2 on Kodj Kodjin Nature Reserve (Muir, 1978).

Senescent trees

The artificially contrived index of abundance of senescent trees discussed in Muir (1977b) can be calculated for Wilroy Reserve. The Reserve has about 17 ha of woodland averaging about 8% canopy cover and thus having about 1.4 ha of actual canopy. About 30% of all the trees on the Reserve are senescent and thus the senescence index for the Reserve is 0.4. The index is low compared to most other Reserves examined, and in consequence one can speculate that avifauna utilizing hollow limbs and trunks will be uncommon on Wilroy Reserve.

Floristics

Although the vegetation of Wilroy Reserve is complex and mosaic, the associations tend to be fairly well defined. Additionally, access is fairly good and probably most of the larger perennial species were collected. The number of plant species recorded was 110; from previous experience the total number of common perennials and larger ephemerals is probably about 180 species. In terms of number of plant species recorded per area, Wilroy has about 33 spp/km^2. This is comparable to figures obtained from other reserves of similar size (Muir, 1978, 1979).

Twenty-nine families were recorded, dominated by Myrtaceae, Mimosaceae and Proteaceae amongst the dicotyledons, and Poaceae amongst the monocotyledons **(Appendix 3).**

TABLE 3

The table below compares floristic diversity between formations and number of restricted species (those found only in a single formation).

	Total species		Restricted species	
Formation	**No. species**	**spp/ha.**	**No. species**	**spp/ha**
Woodland	25	1.5	8	0.5
Mallee	34	0.6	4	0.08
Shrubland	95	0.4	53	0.2
Heath	16	0.7	1	0.04

Figures indicate that although about half the species collected were found in shrubland this formation tended to be fairly uniform over its area. By far the most diverse formation in relation to area was woodland, with about twice as many species per hectare than any of the other formations.

Although the majority of restricted species were found in shrubland, the most in terms of area were in woodland. Sixty-six species, or 60% of those recorded were restricted to a single formation type.

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

APPENDIX 1
VEGETATION DESCRIPTIONS — WILROY RESERVE

WOODLAND FORMATIONS

Loc. 1.1

Stratum 1: *Eucalyptus loxophleba* trees and *E. redunca* and *E. dongarraensis* tree mallee, senescent, stratum 4-9 m tall, 2-10% canopy cover. Stratum 2: *Acacia colletioides* and *Alyxia buxifolia* shrubs, senescent, 0-2 m tall, 2-10% canopy cover. All species regenerating from seed. Scattered *Stipa elegantissima* present. No evidence of fire. Western edge of loc. has *E. loxophleba* and *Melaleuca uncinata* abundant. Vegetation older than 20 years. Litter: abundant. Soil: friable soil, deeper than 0.5 m, red sandy clay.

Loc. 1.2 (Trapline 11)

As for loc. 1.3.

Loc. 1.3

Unstratified *Eucalyptus loxophleba* trees and *E. redunca* tree mallee, mature, stratum 4-8 m tall, 2-10% canopy cover. Scattered *E. loxophleba* emergent to 12 m. Seedlings and young plants of all species

noted. Has been used as a cattle holding area and as a campsite; rusty cans in heaps. No evidence of fire. Vegetation older than 20 years. Litter: moderately abundant. Soil: yellowish red light sandy clay loam.

MALLEE FORMATION

Loc. 2.1

Stratum 1: *Eucalyptus redunca* shrub mallees, mature, stratum 4-6 m tall, 10-30% canopy cover. Stratum 2: *Plectrachne danthonioides* hummock grass, mature, stratum 0-0.3 m tall, 10-30% canopy cover. Seedlings and young plants of all species present. No evidence of fire. Vegetation older than 20 years. Litter: abundant. Soil: red sandy clay.

Loc. 2.2

Stratum 1: *Eucalyptus ebbanoensis* shrub mallee and some *Acacia* affin. *filifolia, A. signata* and *A. acuminata* shrubs, stratum 3-4.5 m tall, 2-10% canopy cover. Stratum 2: *Isopogon divergens, Melaleuca cordata* and several other species of shrubs, mature, stratum 0.5-1.5 m tall, 2-10% canopy cover. Stratum 3: Mixed shrubs, no particular dominant, mature, stratum 0.4 m tall, 2-10% canopy cover. No evidence of fire. Vegetation older than 20 years. Litter: moderately abundant. Soil: strong brown fine sandy loam.

Loc. 2.3

Eucalyptus dongarraensis shrub and tree mallees, mature, stratum 7-8 m tall, 2-10% canopy cover over *Plectrachne danthonioides, Ecdeiocolea monostachya* and *Schoenus* sp. 3. hummock grass and sedges, mature, 0.3 m tall, 10-30% canopy cover. *Melaleuca uncinata* common as large solitary shrubs. Soil is moderately pedal, sandy, coherent, unbleached, non-calcareous, pH 4.2, yellow, 10 YR 7/6, fine sandy loam with *ca* 10% laterite pebbles. Well drained with some pooling.

Loc. 2.4 (Trapline 8)

Mosaic of mallee associations similar to locs 2.1, 2.2 and 2.3 with abundant *Alyxia buxifolia* in the lower stratum. Clumps of *Acacia stereophylla, A. acuminata,* and *Melaleuca acuminata* were present, the clumps being 1-1.5 m tall, 30-70% canopy cover. Litter and soil as for loc. 2.2.

Loc. 2.5

As for loc. 2.3.

Loc. 2.6

As for loc. 2.1 with scattered *Eucalyptus transcontinentalis.*

Loc. 2.7 (Trapline 5)

Stratum 1: *Eucalyptus drummondii* and some *E. ebbanoensis* shrub mallee, mature, stratum 5-7 m tall, 2-10% canopy cover. Stratum 2: mixed shrubs, no particular dominant, mature, stratum 1.5-3 m tall, 2-10% canopy cover. Stratum 3: *Plectrachne danthonioides* hummock grass, mature, stratum 0.5 m tall, 30-70% canopy cover. No evidence of fire. Vegetation older than 20 years. Litter: very abundant. Soil: yellowish red light sandy clay loam.

Loc. 2.8 (Trapline 3)

Stratum 1: *Eucalyptus redunca* shrub and tree mallee and some *E. loxophleba* tree mallee, mature to senescent, 4-9 m tall, 2-10% canopy cover. Stratum 2: mixed shrubs, mature to senescent, stratum 0.5-1.5 m tall, 2-10% canopy cover. Scattered *Acacia acuminata* present. Evidence of very old fire scars. Also refer loc. 2.9. Vegetation older than 20 years. Litter: moderately abundant. Soil: red sandy clay.

Loc. 2.9

As for loc. 2.8 but scattered *Eucalyptus dongarraensis* and *E. loxophleba* more abundant. *Alyxia buxifolia* common in understory.

Loc. 2.10

Stratum 1: *Eucalyptus dongarraensis* and scattered *E. ebbanoensis* shrub mallee, mature, stratum 5-7 m tall, 2-10% canopy cover. Stratum 2: *Acacia resinomarginea* shrubs, mature, stratum 1.5-2.5 m tall, 10-30% canopy cover. Stratum 3: *Plectrachne danthonioides* hummock grass and several species of shrubs, mature, stratum 0.3 m tall, 2-10% canopy cover. Young plants of all species present. No evidence of fire. Vegetation older than 20 years. Litter: moderate to abundant. Soil: light brown fine sandy loam with *ca* 30% laterite pebbles.

SHRUBLAND FORMATIONS

Loc. 3.1

As for loc. 3.3.

Loc. 3.2

Stratum 1: *Acacia acuminata* and *Melaleuca eleutherostachya* shrubs, senescent, stratum 3-5 m tall, 10-30% canopy cover. Stratum 2: *Stipa elegantissima* bunch grass and mixed shrubs, senescent, stratum 1.0 m tall, 2-10% canopy cover. Young plants of all species present. Scattered *Eucalyptus redunca* emergent to 10 m tall. Weeds common, evidence of cattle grazing. No evidence of fire. Vegetation older than 20 years. Litter: abundant. Soil: yellowish red sandy clay with *ca* 5% laterite pebbles.

Loc. 3.3

Melaleuca uncinata, M. eleutherostachya and *Acacia acuminata* shrubs, mature to senescent, stratum 2-5 m tall, 10-30% canopy cover. No understory. Litter mostly large debris, moderately abundant, in clumps 30 cm deep, clumps 3-7 m apart. Friable soil 30 cm deep over heavy clay. Sample at 20 cm is highly pedal, sandy, strongly coherent, pH 5.2, yellowish red, 5 YR 5/6, sandy clay loam. Poorly drained.

Loc. 3.4

Stratum 1: *Acacia resinomarginea* shrubs, mature, stratum 1-2.5 m tall, 30-70% canopy cover. Stratum 2: *Ecdeiocolea monostachya* sedge, mature, stratum 0.5 m tall, 10-30% canopy cover. Area variable due to variations in gravel content of soil. Where 60-70% laterite, association as described above; where greater than 80% the association is taller (to 3.5 m) and both strata 1 and 2 become denser. No evidence of fire. Vegetation older than 20 years. Litter: moderately abundant. Soil: brownish yellow silty loam, *ca* 90% laterite pebbles.

Loc. 3.5

As for loc. 3.4 but 2-4 m tall and 70-100% canopy cover. Understory absent. Litter as for loc. 3.4. Scattered *Eucalyptus albida* present and *Melaleuca uncinata* more common. Soil is highly pedal, sandy, coherent, unbleached, non-calcareous, pH 4.5, brownish yellow, 10 YR 6/8, light sandy clay loam with *ca* 10% laterite pebbles. Poorly drained.

Loc. 3.6

As for loc. 3.4.

Loc. 3.7

As for loc. 3.4 with scattered mallees.

Loc. 3.8

Acacia affin. *lineolata* and several other species of shrubs, mature, stratum 2-4 m tall, 10-30% canopy cover over mixed shrubs and some *Plectrachne danthonioides* hummock grass, senescent, stratum 0-1 m tall, 10-30% canopy cover. No evidence of fire. Soil 0.5-1.0 m deep, slightly pedal, sandy, poorly coherent, pH 4.9, brownish yellow, 10 YR 6/8, fine sandy loam, *ca* 10-20% laterite pebbles. Well drained.

Loc. 3.9

Mosaic similar to locs 3.8 and 3.19 with stratum 1 being 1.5-3 m tall, 2-10% canopy cover, stratum 2 being 1.0 m tall, 10-30% canopy cover. Soil as for loc. 3.19.

Loc. 3.10

As for loc. 3.18.

Loc. 3.11

Mosaic similar to locs 3.4 and 3.5.

Loc. 3.12

Melaleuca uncinata shrubs, mature, stratum 3-4.5 m tall, 30-70% canopy cover over mixed shrubs, 1.0 m tall, 2-10% canopy cover. Scattered *Acacia acuminata* and *Eucalyptus redunca* present. Litter moderately abundant, twigs, large debris and terete leaves to 2 cm deep, clumps *ca* 2 m apart. Soil as for loc. 4.1.

Loc. 3.13

As for loc. 3.3 with patches similar to loc. 3.12.

Loc. 3.14

As for loc. 4.1 but 3-4.5 m tall.

Loc. 3.15

Narrow band of shrubland between loc. 2.2 and 1.3. Similar to loc. 3.18.

Loc. 3.16

As for loc. 3.17 with some *Eucalyptus ebbanoensis* shrub mallee present.

Loc. 3.17

Stratum 1: *Hakea scoparia* and *Banksia benthamiana* shrubs, mature, stratum 1-3 m tall, 2-10% (locally up to 30%) canopy cover. Stratum 2: *Melaleuca cordata, Petrophile conifera* and several other species of shrubs, mature, stratum 0.5 m tall, 2-10% canopy cover. All species present as seedlings or young plants. Association contains open areas with *Melaleuca cordata* shrubs 1-1.5 m tall. 2-10% canopy cover and the upper stratum less than 2% canopy cover. Soil is shallower in these areas. There are also patches similar to loc. 3.26. Vegetation older than 20 years. Litter: moderately abundant. Soil: brownish yellow silty loam with *ca* 80% laterite pebbles.

Loc. 3.18

Hakea scoparia, Acacia resinomarginea and scattered *Eucalyptus leptopoda* and *E. ebbanoensis* shrub mallee, mature, stratum 2-4 m tall. 30-70% canopy cover. Understory is *Melaleuca cordata* and several other species of shrubs, mature to senescent, stratum 0-1.5 m tall, 10-30% canopy cover. Litter, soil etc. similar to loc. 3.17.

Loc. 3.19 (Trapline 10)

As for loc. 3.18 with *Acacia resinomarginea* prominent in stratum 1 and *Ecdeiocdea monostachya* in stratum 2. Litter as for loc. 3.17. Soil is moderately pedal, sandy, coherent, unbleached, non-calcareous, pH 3.8, yellow, 10 YR 7/6, fine sandy loam. Well drained.

Loc. 3.20

As for loc. 3.17, 3.18 mosaic.

Loc. 3.21

Unstratified *Casuarina campestris* shrubs, mature to senescent, stratum 0-2.5 m tall. 30-70% canopy cover. *Baeckea* sp. 7 shrubs 0.4 m tall may reach 4% canopy cover in small areas. Litter: moderately abundant. Soil: brownish yellow, 10 YR 6/8, silt loam with *ca* 90% laterite pebbles.

Loc. 3.22

As for loc. 4.1 but 2-2.5 m tall.

Loc. 3.23

Mosaic of associations similar to locs 3.12 and 3.18.

Loc. 3.24

As for loc. 3.14.

Loc. 3.25

As for locs 3.8, 3.18, 3.19 mosaic with patches of *Eucalyptus drummondii.*

Loc. 3.26

As for loc. 3.17, mostly *Banksia benthamiana, Acacia resinomarginea* and *Casuarina corniculata* shrubs, 2-4 m tall. 30-70% cover over *Melaleuca cordata* and several other species 1.0 m tall, 2-10% cover.

Loc. 3.27

As for loc. 3.43.

Loc. 3.28

As for loc. 3.45 with areas similar to loc. 3.17.

Loc. 3.29

Acacia signata and mosaics similar to locs 3.4, 4.2 and 4.3.

Loc. 3.30

Mixed shrubs, no particular dominants, 2-3 m tall, 30-70% canopy cover over mixed shrubs, 0-1.0 m

tall, 2-10% canopy cover. Soil is highly pedal, earthy, coherent, pH 4.6, reddish yellow, 2.5 YR 6/6, clay loam with *ca* 80% laterite pebbles.

Loc. 3.31

Mosaic of shrublands similar to locs 3.2, 3.3 and 3.30 with some *Acacia stereophylla.*

Loc. 3.32

As for loc. 3.2 but 2-10% canopy cover in stratum 1. Vegetation older than 25 years.

Loc. 3.33

As for loc. 3.2.

Loc. 3.34

Casuarina acutivalvis and *Melaleuca uncinata* shrubs 0.5-1.5 m in some areas, 1.0-2.5 m in others. Understory of mixed shrubs, 0.5-1.0 m tall, 2-10% canopy cover. Soil 20 cm deep over compact laterite. Soil is moderately pedal, earthy, coherent, pH 5.0, light brown, 7.5 YR 6/4, loam with *ca* 30% laterite pebbles. The ecotone to loc. 3.36 has a narrow belt of *Thryptomene* affin. *kochii* 1-2.0 m tall, 10-30% canopy cover. Vegetation older than 25 years.

Loc. 3.35 (Trapline 2)

Stratum 1: *Melaleuca uncinata* and *M. eleutherostachya* shrubs, mature to senescent, stratum 3-4.5 m tall, 10-30% canopy cover. Stratum 2: *Thryptomene* affin. *kochii,* senescent, in thickets 0.5-1.5 m tall, 2-10% canopy cover overall, 30-70% within thickets. No evidence of fire. Vegetation older than 20 years. Litter: moderately abundant. Soil: as for loc. 3.2.

Loc. 3.36

As for loc. 3.2.

Loc. 3.37 (Trapline 6)

Stratum 1: *Acacia resinomarginea* and some *Melaleuca uncinata* shrubs, immature, stratum 1.5-2.5 m tall. 30-70% canopy cover. Stratum 2: *Ecdeiocolea monostachya* sedge, immature, stratum 0.4 m tall, 10-30% canopy cover. Abundant seedlings and young plants of *A. resinomarginea* and scattered *Plectrachne danthonioides* present. Evidence of recent fire. Scattered patches similar to loc. 3.12 are areas missed by the fire. Vegetation about 6 years old. Litter: moderate. Soil: yellow fine sandy loam with *ca* 30% gravel pebbles.

Loc. 3.38

As for loc. 3.37.

Loc. 3.39

Mosaic similar to locs 3.37 and 3.45. Area heavily disturbed, possibly scrub rolled. Area with abundant weeds, mostly *Ursinia anthemoides* and *Arctotheca calendula.*

Loc. 3.40

As for loc. 3.12 with scattered *Santalum acuminatum* and *Casuarina acutivalvis* and small areas similar to loc. 3.2.

Loc. 3.41

Mostly as for loc. 3.39.

Loc. 3.42

Mostly as for loc. 3.45 with patches similar to loc. 3.2.

Loc. 3.43

As for loc. 3.41.

Loc. 3.44

As for loc. 3.53 in wetter areas, becoming more like loc. 3.17 where soil is better drained.

Loc. 3.45 (Trapline 4)

Stratum 1: *Acacia resinomarginea* shrubs, mature, stratum 1.5-2.5 m tall. 2-10% canopy cover. Stratum 2: *Ecdeiocolea monostachya* sedge and several species of shrubs, mature, stratum 0.4 m tall, 10-30% canopy cover. Evidence of very old fire scars. Vegetation older than 20 years. Litter: moderately abundant. Soil: brownish yellow sandy loam with *ca* 30% laterite pebbles.

Loc. 3.46

As for loc. 3.17 but *Banksia benthamiana* less common and *Eucalyptus drummondii* present.

Loc. 3.47

Patches of shrubland dominated by either *Acacia stereophylla, Casuarina campestris, Thryptomene* affin. *kochii* or *Acacia resinomarginea.*

Loc. 3.48

Mosaic of *Casuarina campestris* or *Thryptomene* affin. *kochii* shrubs passing into *Acacia stereophylla* shrubland to the north and west. The *A. sterophylla* stands are mostly 1.5-3 m tall, 30-70% canopy cover over *Melaleuca cordata* and several other species of shrubs, 0-1 m tall, 2-10% canopy cover.

Loc. 3.49

Small area of *Thryptomene* affin. *kochii,* 1-3 m tall, 10-30% canopy cover with scattered *Melaleuca eleutherostachya* and *M. nematophylla* as emergents.

Loc. 3.50 (Trapline 1)

Unstratified, *Acacia signata* shrubs, immature, 1.5-2.5 m tall, 70-100% canopy cover. Old fire scars visible. Vegetation older than 20 years. Litter: moderate to abundant. Soil: yellow silt loam with *ca* 20% laterite pebbles.

Loc. 3.51

Mosaic similar to locs 3.30, 3.50 and 3.53.

Loc. 3.52

As for loc. 3.53 but *Hakea coriacea* abundant and stratum 2 has *Melaleuca cordata* prominent. Stratum 2 is also 10-30% canopy cover compared to 2-10% at loc. 3.53. *Ricinocarpus velutinus* is abundant on disturbed areas adjacent to farmland.

Loc. 3.53 (Trapline 9)

Stratum 1: *Banksia benthamiana, Acacia stereophylla* and *Hakea scoparia* shrubs, mature, stratum 2-5 m tall. 30-70% canopy cover. Stratum 2: mixed shrubs, no particular dominant, mature, stratum 1-5 m tall, 2-10% canopy cover. Scattered *Eucalyptus drummondii* present. Fertilizer from adjacent paddock has increased growth on the boundary of this association. Patches similar to loc. 3.18 on boundary between loc. 3.34. Vegetation older than 20 years. Litter: abundant. Soil: yellow fine sandy loam with *ca* 20% laterite pebbles.

HEATH FORMATIONS

Loc. 4.1 (Trapline 7)

Equal proportions of *Melaleuca uncinata, Acacia acuminata* and *Acacia resinomarginea,* all immature, stratum 0.5-1.5 m tall, 70-100% canopy cover. No understory present. Litter: twigs and large debris only, other characteristics as for loc. 3.12. Soil is slightly pedal, earthy, coherent, unbleached, non-calcareous, pH 4.7, light brown, 7.5 YR 6/4, fine sandy loam with *ca* 10% laterite pebbles. Friable soil *ca* 0.5 m deep over laterite. Well drained. Vegetation *ca* 6 years old.

Loc. 4.2

As for loc. 4.3 but both upper and lower strata 30-70% canopy cover.

Loc. 4.3

Stratum 1: *Acacia resinomarginea* and *Casuarina campestris* shrubs, mature, stratum 1-2 m tall. 2-10% canopy cover. Stratum 2: *Ecdeiocolea monostachya* sedge and scattered shrubs, mature, stratum 0.5 m tall, 10-30% canopy cover. Strata indistinct; there are scattered members of each stratum present throughout the vertical profile. *Acacia longispinea* with scattered emergents to 2.5 m tall. Seedlings or young plants of all species present. Evidence of very old fire scars. Vegetation is older than 20 years. Litter: sparse. Soil: brownish yellow light sandy clay loam with *ca* 40% laterite pebbles.

Loc. 4.4

Area cleared and regrown. Species composition similar to loc. 3.18 but 1.0-1.5 m tall, 30-70% canopy cover.

APPENDIX 2
PLANT SPECIES RECORDED AT SELECTED LOCATIONS

(SC) denotes specimens lodged in the Western Australian Museum Survey Collection.

Loc. 1.1

Acacia acuaria
A. acuminata
A. colletioides
A. graffiana
A. linophylla
Acanthocarpus preissii
Alyxia buxifolia
Dianella revoluta
Enchylaena tomentosa
Eucalyptus dongarraensis

E. loxophleba
E. redunca
Hakea recurva
Melaleuca uncinata
Olearia revoluta
Santalum acuminatum
Spyridium complicatum
Stipa elegantissima

Loc. 1.3

Acacia acuaria
A. acuminata
A. heteroneura
Alyxia buxifolia
Cheilanthes tenuifolia
Enchylaena tomentosa
Enneapogon caerulescens
Eucalyptus loxophleba
E. redunca
Melaleuca eleutherostachya
M. uncinata
Olearia revoluta
Ptilotus obovatus
Rhagodia nutans
R. sp. 1 (SC)
Stipa elegantissima

Loc. 2.1

Acacia acuaria
A. resinomarginea
Alyxia buxifolia
Acanthocarpus sp. 1 (SC)
Baeckea sp. 7
Daviesia acanthoclona
D. brevifolia
Dianella revoluta
Eucalyptus redunca
Grevillea affin. *candicans*
Hakea minyma
Melaleuca eleutherostachya
Platysace effusa
Plectrachne danthonioides
Rhagodia preissii

Loc. 2.7

Acacia acuaria
A. acuminata
A. dielsii
A. resinomarginea
A. stereophylla
Daviesia acanthoclona
Eucalyptus drummondii
E. ebbanoensis
E. redunca
Hakea scoparia
Melaleuca uncinata
Platysace effusa
Plectrachne danthonioides

Loc. 2.8

Acacia acuminata
A. graffiana
A. resinomarginea
Alyxia buxifolia
Eucalyptus dongarraensis
E. loxophleba
E. redunca
Olearia revoluta

Loc. 3.2

Acacia acuaria
A. acuminata
A. resinomarginea
Baeckea sp. 7
Cheilanthes tenuifolia
Dianella revoluta
Eucalyptus redunca
Hakea minyma
Melaleuca eleutherostachya
Rhagodia spinescens
Spyridium complicatum
Stipa elegantissima

Loc. 3.17

Acacia dielsii
A. neurophylla
Alyxia buxifolia
Baeckea sp. 7 (SC)
Balaustion microphyllum
Banksia benthamiana
Casuarina corniculata
Dianella revoluta
Ecdeiocolea monostachya
Eriostemon thryptomenoides
Grevillea juncifolia
Hakea scoparia
Isopogon divergens
Melaleuca cordata
Micromyrtus drummondii
Petrophile conifera
P. divaricata
Platysace effusa
Thryptomene sp. 4 (SC)

Loc. 3.19

Acacia desertorum
A. resinomarginea
Baeckea sp. 7 (SC)
Cassytha micrantha
Casuarina corniculata
Ecdiocolea monostachya
Eucalyptus drummondii
Grevillea excelsior
G. affin. *filifolia*
Hakea scoparia
Melaleuca cordata
Petrophile conifera
Schoenus affin. *compressus*
S. sp. 3 (SC)
Spyridium complicatum
Thryptomene affin. *racemulosa*

Loc. 3.35

Borya nitida
Melaleuca eleutherostachya
M. uncinata
Thryptomene affin. *kochii*

Loc. 3.37

Acacia resinomarginea
Ecdeiocolea monostachya
Melaleuca uncinata
Plectrachne danthonioides

Loc. 3.45

Acacia dielsii
A. resinomarginea
A. stereophylla
Baeckea sp. 7 (SC)
Banksia benthamiana
Ecdeiocolea monostachya
Grevillea paradoxa
Hakea scoparia
Melaleuca cordata

Loc. 3.50

Acacia neurophylla
A. signata
A. stereophylla
Baeckea sp. 7 (SC)
Balaustion microphyllum
Choretrum pritzellii
Grevillea affin. *candicans*
G. paradoxa
Hibbertia uncinata
Melaleuca nematophylla
M. oldfieldii
Micromyrtus drummondii

Loc. 3.53

Acacia dielsii
A. stereophylla
Balaustion microphyllum
Banksia benthamiana

Cassytha micrantha
Casuarina acutivalvis
C. corniculata
Choretrum pritzellii
Eucalyptus drummondii
Grevillea juncifolia
Hakea coriacea
H. scoparia
Hibbertia affin. *glomerosa*
H. stricta
Melaleuca conothamnoides
M. cordata
Petrophile conifera
Ricinocarpus velutinus
Thryptomene sp. 4
Westringia cephalantha

Loc. 4.1

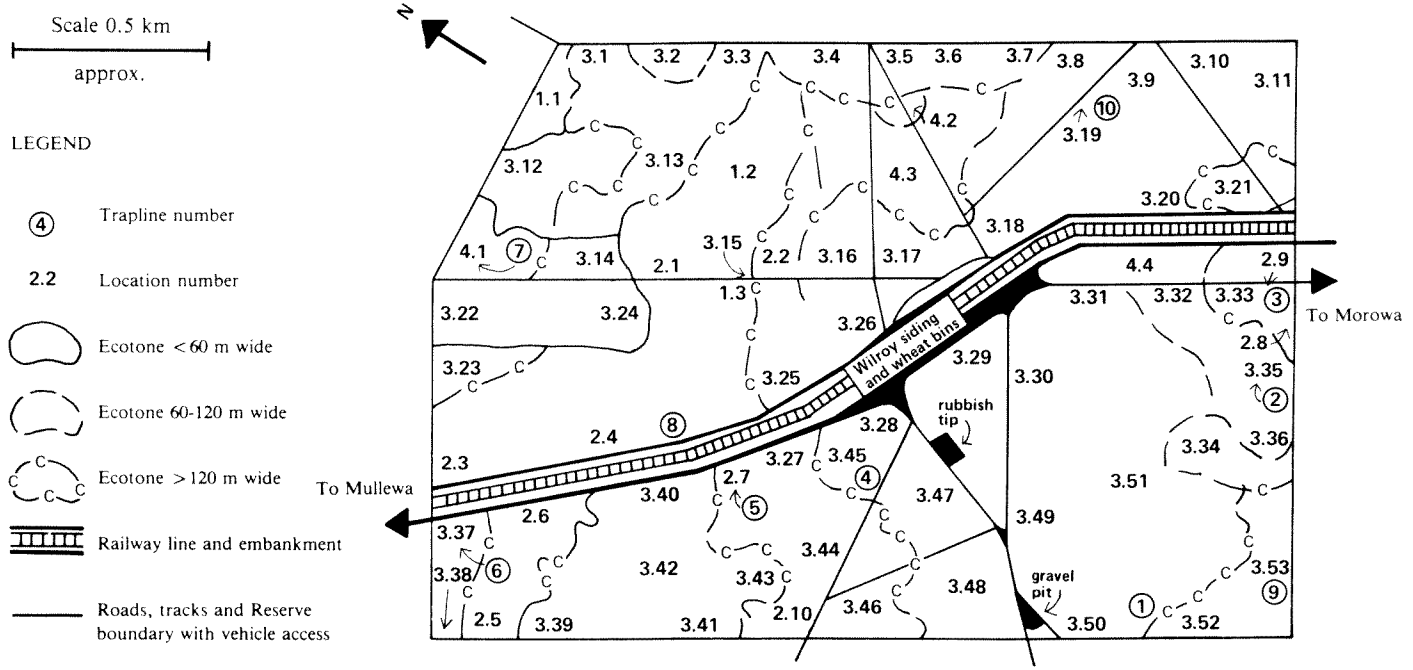
Acacia acuminata
A. resinomarginea
Amphipogon debilis
Dianella revoluta
Melaleuca uncinata

Loc. 4.3

Acacia dielsii
A. linophylla
A. longispinea
A. resinomarginea
A. stereophylla
Baeckea sp. 7 (SC)
Borya nitida
Casuarina campestris
Ecdeiocolea monostachya
Petrophile conifera
P. seminuda
Platysace effusa
Thryptomene affin. *racemulosa*

APPENDIX 3
PLANT FAMILIES REPRESENTED ON WILROY RESERVE

Family	No. species
Amarantaceae	1
Apiaceae	1
Apocynaceae	1
Asteraceae	2
Casuarinaceae	3
Chenopodiaceae	5
Cyperaceae	2
Dilleniaceae	3
Epacridaceae	2
Euphorbiaceae	2
Fabaceae	3
Goodeniaceae	1
Lamiaceae	1
Lauraceae	2
Liliaceae	2
Mimosaceae	17
Myoporaceae	2
Myrtaceae	26
Pittosporaceae	1
Poaceae	5
Proteaceae	15
Restionaceae	1
Rhamnaceae	2
Rutaceae	3
Santalaceae	2
Sapindaceae	1
Solanaceae	2
Sterculiaceae	1
Xanthorrhoeaceae	2



Map 1: Wilroy Nature Reserve showing vegetation boundaries, sample locations and tracks (1977).