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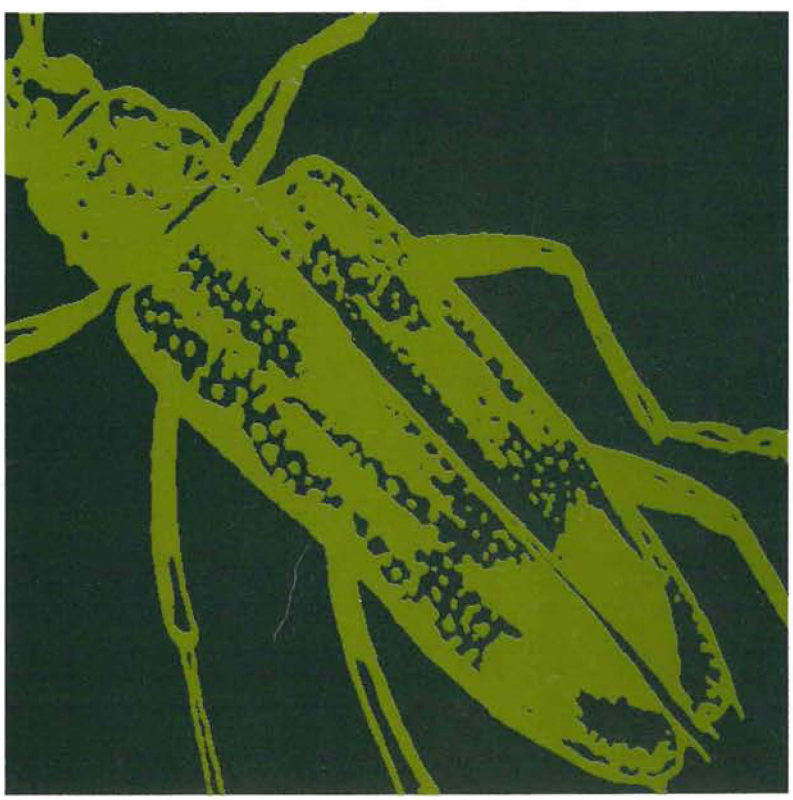
VOLUME ONE NUMBER FOUR JUNE 1995



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AUTHOR INDEX

VOLUME 1 NUMBERS 1-4

IN THIS ISSUE

CALM science

VOLUME ONE NUMBER FOUR JUNE 1995

C A L M
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AND LAND MANAGEMENT

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Prodromus of the occurrence and distribution of insect species in the forested part of south-west Western Australia

IAN ABBOTT

Science and Information Division, Department of Conservation and Land Management, Australia II Drive, Crawley 6007, Western Australia.

SUMMARY

Nearly 1800 insect and closely allied species of the Superclass Hexapoda, belonging to 235 families in 24 orders, are known to occur in the forested part of south-west Western Australia. Each species is listed in systematic order along with the localities within forest from which it has been recorded.

Eighteen families are most speciose: Blattidae, Termitidae, Lygaeidae, Carabidae, Dytiscidae, Staphylinidae, Scarabaeidae, Buprestidae, Tenebrionidae, Cerambycidae, Chrysomelidae, Curculionidae, Chironomidae, Oecophoridae, Geometridae, Formicidae, Sphecidae and Colletidae.

Evidence is presented which indicates that the total number of insect species present in the forested part of south-west Western Australia should be 15 000 to 20 000; i.e. only *ca* 10 per cent of species have so far been named scientifically.

The major biogeographical implication of the list is that one-quarter of all species so far recorded occur in both the northern and southern forests, one-third occur only in the northern forest and one-half occur only in the southern forest. Approximately 23 per cent of insect species are known only from the karri forest component of the southern forest. From this preliminary list the areas of forest can be delineated that have not been well sampled for insect species, and those taxa identified for which species records are scant. It should serve as a framework for future studies of the biogeography and ecology of insects in the forests of south-west Western Australia.

INTRODUCTION

This paper is the final one in a series of three intended to summarize current knowledge of forest entomology in south-west Western Australia (WA). The first paper (Abbott 1985) reviewed, up to and including 1983, all relevant facts and theories about the ecology of forest insects in WA. The second paper (Abbott *et al.* 1986) provided abstracts of all papers dealing with ecological aspects of forest entomology in WA up to and including 1985. The present paper addresses taxonomic aspects by providing a preliminary list of named insect and closely allied species definitely known to occur within the forested part of south-west WA. The objective in compiling this list is to collate the vast amount of scattered taxonomic literature making reference (often in passing) to insect species recorded in WA forests. The list is also intended to facilitate, through the provision of references, the future identification of insects collected in these forests.

METHODS

All relevant journals and books available in institutional libraries in Perth were searched (see Acknowledgements). A full listing of journals examined is given in Table 1. Most of the many books that were examined did not contain localized records.

Insect species are included only if they occur within the forested area of south-west WA, i.e. the jarrah (*Eucalyptus marginata*) and karri (*E. diversicolor*) forests (Fig. 1). However, the eastern boundary of the jarrah forest is poorly delineated because it grades into jarrah woodland and then wandoo (*E. wandoo*) woodland (Smith 1972 a, b, 1974; Beard 1979 a, b, c, 1980). Vegetation on these maps classified as jarrah-marri (*E. calophylla*) - wandoo forest or woodland (in the north only) is included but vegetation classified as wandoo woodland or marri-wandoo woodland has been excluded. The Swan Coastal Plain is excluded. The many records found from Waroona and Yallingup, although close to forest, have also been excluded.

Much of the older literature is not cited because it refers vaguely to 'Western Australia', 'south-west Western Australia', 'Swan River' or 'King George Sound'. Doubtless many of the species listed under such localities do occur in forest but at present there is no prospect of separating them from the species truly restricted to the coast or the inland wheatbelt and mallee regions.

Considerable difficulty was experienced in expunging synonyms from the checklist. This matter has been checked as thoroughly as possible given the library

TABLE 1

List of journals searched

Australian Journals

1. Journal of the Australian Entomological Society (NSW) vol. 1 (1964) - vol. 10 (1978)
succeeded by
General and Applied Entomology vol. 11 (1979) - vol. 20 (1988).
2. Journal of the Entomological Society of Queensland vol. 1 (1962) - vol. 5 (1966)
succeeded by
Journal of the Australian Entomological Society vol. 6 (1967) - vol. 29 (1990).
3. Australian Entomological Magazine vol. 1 (1972) - vol. 17 (1990).
4. Australian Journal of Zoology vol. 1 (1953) - vol. 38 (1990).
5. Australian Journal of Zoology, Supplementary Series No. 1 (1971) - No. 125 (1986)
succeeded by
Invertebrate Taxonomy vol.1 (1987) - vol. 4 (1990).
6. Records of the Western Australian Museum vol.1 (1910) - vol.14 (1990).
7. Supplement to the Records of the Western Australian Museum No.1 (1975) - No. 35 (1991).
8. Special Publications of the Western Australian Museum No.1 (1948) - No. 11 (1980).
9. Records of the South Australian Museum vol. 1 (1918) - vol. 24 (1990).
10. Memoirs of the Museum of Victoria (including its predecessors) No. 1 (1906) - No. 50 (1990).
11. Proceedings of the Royal Society of Victoria (including its predecessors) vol. 1 (1855) - vol. 102 (1990).
12. Proceedings of the Royal Society of Queensland (including its predecessors) vol. 1 (1859) - vol. 100 (1989).
13. Memoirs of the Australian Museum vol. 1 (1851) - vol. 18 (1983).
14. Records of the Australian Museum vol. 1 (1890) - vol. 42 (1990), and Supplement No. 1 (1983) - No. 12 (1990).
15. Memoirs of the Queensland Museum vol. 1 (1912) - vol. 29 (1990).
16. Western Australian Naturalist vol. 1 (1947) - vol. 18 (1990).
17. Australian Zoologist vol. 1 (1914) - vol. 25 (1988).
18. Proceedings of the Royal Zoological Society of NSW 1933-1969.
19. Journal of the Bureau of Agriculture, Western Australia vol. 1 (1894) - vol. 4(1897).
succeeded by
Producers' Gazette and Settler's Record of Western Australia vol. 5 (1898).
succeeded by
Journal of Agriculture, Western Australia ser. 1, vol. 1 (1899) - ser. 4, vol. 30 (1989).
20. Proceedings of the Linnean Society of NSW vol. 1 (1875) - vol. 111 (1989).
21. Transactions of the Royal Society of South Australia (including its predecessor) vol. 1 (1877) - vol. 114 (1990).
22. Journal and Proceedings of the Mueller Botanical Society of Western Australia vol. 1 (1899-1903),
succeeded by
Journal of the Natural History and Science Society of Western Australia vol. 3 (1910) - vol. 5 (1914),
succeeded by
Journal of the Royal Society of Western Australia vol. 1 (1914) - vol. 72 (1990).
23. Journal and Proceedings of the Royal Society of NSW vol. 1 (1867) - vol. 50 (1916).
24. Papers and Proceedings of the Royal Society of Tasmania (including its predecessors) vol. 1 (1842) - vol. 123 (1989).
25. Australian Journal of Ecology vol. 1 (1976) - vol. 15 (1990).
26. CSIRO Bulletin (including its predecessor) No. 1 (1917) - No. 288 (1975).
27. CSIR Pamphlet No. 1 (1918) - No. 115 (1942).
28. Journal of the CSIR vol. 1 (1927) - vol. 21 (1948).
29. Australian Journal of Science vol. 1 (1938) - vol. 32 (1970),
succeeded by
Search vol. 1 (1970) - vol. 21 (1990).
30. University of Queensland Papers, Department of Entomology vol. 1 (1955) - vol. 2 (1968).
31. Australian Journal of Scientific Research, Ser. B vol. 1 (1948) - vol. 6 (1953).
32. CSIRO Entomology Division Technical Report No. 1 (1957) - No. 24 (1986).
33. Report of meeting of ANZAAS (and its predecessor) No. 1 (1888) - No. 30 (1954).

Foreign Journals

1. Annals and Magazine of Natural History (including its predecessor) ser. 1, vol. 1 (1838) - ser. 13, vol. 9 (1966)
succeeded by
Journal of Natural History vol. 1 (1967) - vol. 24 (1990).
2. Proceedings of the Zoological Society of London vol. 1 (1830) - vol. 145 (1964),
succeeded by
Journal of Zoology vol. 146 (1965) - vol. 219 (1989) and Journal of Zoology ser. B (1985-87).
3. Transactions of the Zoological Society of London vol. 1 (1935) - vol. 22 (1929).
4. Transactions of the Royal Entomological Society of London (including its predecessor) vol. 1 (1834) - vol. 127 (1975),
succeeded by
Physiological Entomology vol. 1 (1976) - vol. 14 (1989),
Ecological Entomology vol. 1 (1976) - vol. 15 (1990),
Systematic Entomology vol. 1 (1976) - vol. 15 (1990).
5. Proceedings of the Entomological Society of London ser. A, vol. 12 (1937) - vol. 45 (1970) and ser. B, vol. 5 (1936) - vol. 39 (1970),
succeeded by
Journal of Entomology, ser. A, vol. 46 (1972) - vol. 50 (1975) and ser. B, vol. 40 (1971) - vol. 44 (1975).
6. Transactions of the Linnean Society of London ser. 1, vol. 16 (1833) - vol. 30 (1874) and ser. 2, vol. 1 (1875)- vol. 19 (1936).
7. Journal of the Linnean Society of London (Zoology) (including its predecessor) vol. 1 (1857) - vol. 47 (1968),
succeeded by
Zoological Journal of the Linnean Society vol. 48 (1968) - vol. 97 (1989).
8. Annals of Applied Biology vol. 1 (1914) - vol. 117 (1990).
9. Arkiv för Zoologi ser. 1, vol.2 (1905) - vol. 42 (1950) and ser. 2, vol. 1 (1951) - vol. 25 (1974),
succeeded by
Zoologica Scripta vol. 1 (1971) - vol. 19 (1990).
10. Bulletin of the British Museum (Natural History), Entomology vol.1 (1950) - vol. 47 (1983).

TABLE 1 (continued)

11. Supplement to the Bulletin of the British Museum (Natural History), Entomology vol. 1 (1965) - vol. 26 (1976).

12. Annual Review of Entomology vol. 1 (1956) - vol. 35 (1990).

13. Annual Review of Ecology and Systematics vol. 1 (1970) - vol. 21 (1990).

14. Pacific Insects vol. 1 (1959) - vol. 24 (1982), succeeded by International Journal of Entomology vol. 25 (1983) - vol. 27 (1985).

15. Insectes Sociaux vol. 1 (1954) - vol. 34 (1987).

16. Union of South Africa, Department of Agriculture, Entomology Memoirs vol. 1 (1923) - vol. 76 (1989).

17. Entomologia Experimentalis et Applicata vol. 1 (1958) - vol. 53 (1989).

18. Environmental Entomology vol. 1 (1972) - vol. 19 (1990).

resources available in Perth. I have also circulated drafts of parts of the list to Australian taxonomists in order to avoid producing a checklist over-inflated with synonyms. Junk (1926) and the recently published volumes 2, 4, 6 and 22 of the Zoological Catalogue of Australia were also used to remove synonyms.

Records extracted from the literature have been supplemented with those from the three important insect collections in Perth, held by the Western Australian Museum (WAM), the Western Australian Department of Agriculture (WADA) and the Department of Conservation and Land Management (CALM). In 1987 I visited the Australian National Insect Collection (Canberra) and the South Australian Museum (Adelaide) and in the brief time available I was able to extract locality records for various species in the orders Hemiptera, Coleoptera, Lepidoptera and Hymenoptera. These records are denoted by ANIC and SAM respectively in the list.

The orders of insects are listed in the sequence used in CSIRO (1991) as are families within each order. Order and family names follow those used in CSIRO (1991), except in a few cases where the conventions of the forest and timber entomology literature have been followed. Species are listed alphabetically within families. For the larger families, species are listed alphabetically within subfamilies.

All references found to each species are given chronologically in the list. Synonyms have not been listed. Insects parasitic on vertebrates (fleas [Siphonaptera] and lice [Phthiraptera]) and kelpflies (Coelopidae) are omitted. Authorities for Latin binomials used have generally been taken from the literature cited, but the authorities for 12 species in the list could not be found. Localities are quoted as given in each reference. Distances given in the imperial system have not been metricated. Misspellings of locality names have been emended where there is no doubt what was intended. The obsolete names Lion Mill, Smiths Mill and National Park have been replaced by their modern names, Mt. Helena, Glen Forrest and John Forrest National Park respectively.

RESULTS AND DISCUSSION

The list includes 1747 named species occurring in 235 families in 24 orders (Table 2). It is supported by more than 600 publications. The first reference with a usable record (i.e. Latin binomial and the locality within the forested part of WA) was published in the decade 1881-90 (Fig. 2), some 50 years after WA was settled by Europeans. There was then a rapid increase in publications up to and including the 1920s, followed by a decline into the 1940s. More than one-third of all publications cited have appeared since 1971. The number of authors of these publications was more or less constant from 1901-10 until 1941-50. About half of the authors have published since 1971.

Some 30 species are introduced (Table 3); all but eight of these are presumed to result from being transported inadvertently by humans to WA. One is probably self-introduced.

Estimates of the Size of the Insect Fauna in the Forests of south-west Western Australia

To establish how many species of insects can be expected to occur in the forests of south-west WA, several approaches are possible. The first three depend on collating lists of insects from well-defined localities in the world.

The method of the first three approaches is to establish numerical relationships between the number of insect species, bird species and mammal species. The numbers of bird and mammal species present in WA forests are accurately known. The fourth approach is to establish a relationship between number of insect species and area, and then estimate the number of insect species in WA forests from the area of forested land in south-west WA. A search of the literature did not reveal any lists of insect species for other forests. The data used are set out in Table 4.

In the first approach, data were transformed logarithmically. Regressions were then calculated (Figs 3-5) for log no. insect species (log I) versus log no. bird species +1 (log B +1), log I versus log no. mammal species +1 (log M +1), and log I versus log no. plant species (log P). The values for log (B+1), log (M+1) and log P pertaining to the forested area of south-west WA were then interpolated. The number of species of insects in forests of WA was calculated to be 18 000, 12 000 and 14 000 respectively.

The second approach involved regressing log I against log area (Fig. 6). This yielded an estimate of 15 000 insect species in forest of WA.

The third approach focuses on the most completely studied insect fauna in the world - that of Great Britain. Ratios of numbers of species of insects to numbers of species of land birds, mammals and vascular plants in Great Britain are 174, 444 and 10 respectively (Table 4). Applied to the bird, mammal and plant species data for the forested part of WA, the predicted number of insect species is 20 000, 20 000 and 25 000 respectively.

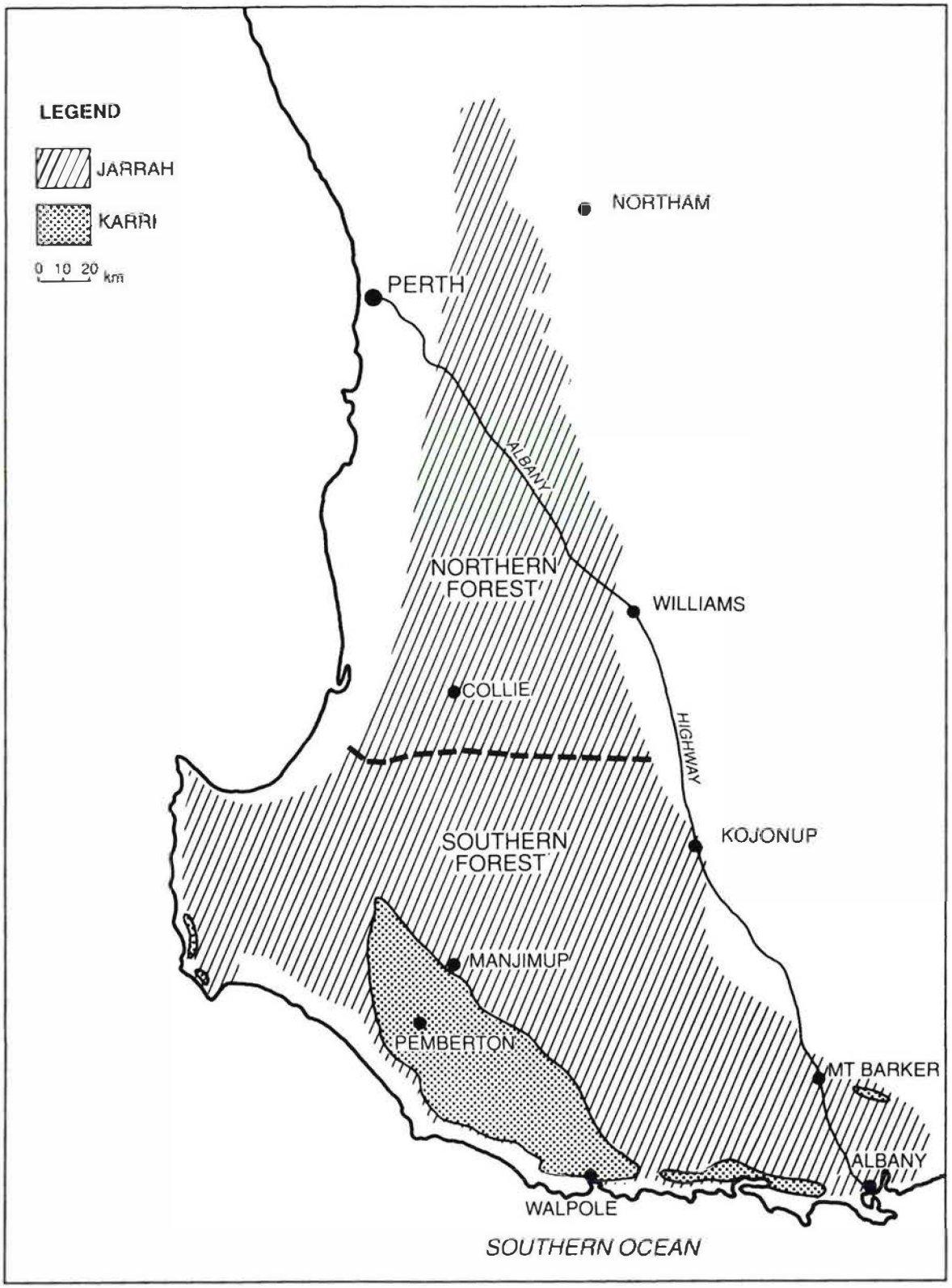

*Figure 1. Map of south-west Western Australia showing the forested part. The forest dominated by karri (*Eucalyptus diversicolor*) is indicated. The boundary between Northern Forest and Southern Forest is the Preston River in the west and the same latitude to the east. Note that certain localities often mentioned in taxonomic literature are outside the area considered for this paper: e.g. Chittering, Red Hill (presumably Bindoon), Bullsbrook, Spencers Brook, St Ronans Well, Muresk, Williams, Narrogin, Dryandra, Cranbrook, Waroona, Boyanup, Dardanup, Yallingup.*

TABLE 2
Numbers of species in the list.

Orders Collembola and Protura belong to Class Ellipura, and Order Diplura is the sole member of Class Diplura. All other Orders belong to Class Insecta (CSIRO 1991).

ORDER	FAMILY	SUBFAMILY	No. OF SPECIES LISTED
Collembola	Neanuridae		3
	Odontellidae		1
	Brachystomellidae		3
	Hypogastruridae		3
	Onychiuridae		3
	Isotomidae		11
	Entomobryidae		11
	Paronellidae		1
	Cyphoderidae		1
	Neelidae		1
	Sminthuridae		16
Protura	Eosentomidae		1
	Acerentomidae		1
Diplura	Campodeidae		2
	Japygidae		6
Thysanura	Nicoletiidae		4
	Lepismatidae		2
Ephemeroptera	Baetidae		1
	Leptophlebiidae		3
	Caenidae		1
Odonata	Coenagrionidae		3
	Lestidae		4
	Megapodagrionidae		4
	Aeshnidae		3
	Gomphidae		3
	Petaluridae		1
	Cordulidae		8
	Libellulidae		6
Plecoptera	Gripopterygidae		3
Blattodea	Blattidae		20
	Blattellidae		8
Isoptera	Kalotermitidae		4
	Rhinotermitidae		5
	Termitidae		24
Mantodea	Amorphoscelidae		1
Dermaptera	Pygidicranidae		1
	Anisolabididae		3
	Labiduridae		1
Orthoptera	Gryllacrididae		1
	Tettigoniidae		4
	Gryllidae		6
	Eumastacidae		1
	Pyrgomorphidae		4
	Acrididae		4
	Tetrigidae		3
Psocoptera	Philotarsidae		2
	Myopsocidae		1
Hemiptera	Psyllidae		6
	Triozidae		1
	Aleyrodidae		1
	Aphididae		3
	Adelgidae		1
	Margarodidae		1
	Pseudococcidae		6
	Eriococcidae		6
	Diaspididae		2
	Incertae sedis		1
	Cicadidae		9
	Cicadellidae		9
	Eurymelidae		7
	Membracidae		2
	Nepidae		2
	Ochteridae		1
	Gelastocoridae		3
	Corixidae		2
	Miridae		1
	Reduviidae		1
	Aradidae		2
	Piesmatidae		1
	Lygaeidae		21
	Coreidae		2
	Alydidae		1
	Scutelleridae		1
	Pentatomidae		15
Thysanoptera	Aeolothripidae		9
	Thripidae		16
	Phlaeothripidae		7
Megaloptera	Corydalidae		1
Neuroptera	Ithonidae		1
	Mantispidae		76
	Hemerobiidae		1
	Myrmeleontidae		5
	Chrysopidae		7
	Ascalaphidae		2
Coleoptera	Cupedidae		1
	Carabidae		
		Carabinae	63
	Haliplidae		1
	Dytiscidae		23
	Gyrinidae		2
	Hydrophilidae		12
	Histeridae		7
	Ptiliidae		1
	Leiodidae		3
	Scydmaenidae		2
	Staphylinidae		35
	Pselaphidae		11
	Clambidae		1
	Trogidae		7
	Geotrupidae		12
	Scarabaeidae		
		Aphodiinae	5
		Scarabaeinae	19
		Melolonthinae	53
		Rutelinae	2
		Dynastinae	12
		Cetoniinae	2
	Buprestidae		
		Agrilinae	4
		Buprestinae	29
		Chalcophorinae	3
		Chrysobothrinae	1
		Polycestinae	5
	Eucnemidae		1
	Elateridae		9
	Lycidae		3
	Cantharidae		2
	Dermestidae		1
	Bostrichidae		2

TABLE 2 (continued)

ORDER	FAMILY	SUBFAMILY	No. OF SPECIES LISTED
	Lyctidae		1
	Lymexylidae		2
	Anobiidae		7
	Trogossitidae		2
	Cleridae		2
	Melyridae		7
	Cucujidae		1
	Phalacridae		7
	Languriidae		1
	Erotylidae		1
	Biphyllidae		3
	Bothrideridae		2
	Cerylonidae		1
	Coccinellidae		11
	Tenebrionidae		20
	Melandryidae		1
	Mordellidae		3
	Rhipiphoridae		3
	Colydiidae		2
	Zopheridae		1
	Oedemeridae		1
	Anthicidae		2
	Aderidae		1
	Cerambycidae		
		Prioninae	2
		Cerambycinae	29
		Lamiinae	5
	Chrysomelidae		
		Chrysomelinae	24
		Cryptocephalinae	22
		Sagrinae	1
		Eumolpinae	23
		Galerucinae	4
	Belidae		1
	Brentidae		1
	Curculionidae		
		Amycterinae	52
		Leptopiinae	18
		Gonipterinae	7
		Diabathrarlinae	1
		Rhynchitinae	1
		Curculioninae	1
		Erirhininae	1
		Baridinae	24
		Laemosaccinae	1
		Otiorhynchinae	2
		Amalactinae	6
		Aterpinae	2
		Cryptorhynchinae	5
		Rhynchaeninae	17
		Cossoninae	1
		Haplonychinae	1
		Tychiinae	2
		Cylindorhininae	2
	Scolytidae		6
Strepsiptera	Stylopidae		1
Mecoptera	Bittacidae		2
	Meropeidae		1
Diptera	Tipulidae		12
	Tanyderidae		1
	Culicidae		17
	Chironomidae		21
	Ceratopogonidae		8
	Simuliidae		7
	Psychodidae		6
	Bibionidae		5
	Pelecorhynchidae		1
	Rhagionidae		4
	Tabanidae		19
	Nemestrinidae		2
	Acroceridae		2
	Therevidae		1
	Asilidae		7
	Apioceridae		4
	Mydaidae		1
	Bombyliidae		18
	Dolichopodidae		1
	Syrphidae		2
	Sepsidae		2
	Lauxaniidae		3
	Platystomatidae		7
	Pyrgotidae		1
	Micropezidae		1
	Heleomyzidae		4
	Agromyzidae		11
	Ephydridae		5
	Drosophilidae		6
	Chloropidae		6
	Muscidae		7
	Calliphoridae		6
	Tachinidae		15
Trichoptera	Hydrobiosidae		2
	Hydroptilidae		8
	Philopotamidae		2
	Hydropsychidae		2
	Polycentropodidae		2
	Ecnomidae		8
	Plectrotarsidae		1
	Philorheithridae		1
	Leptoceridae		17
Lepidoptera	Hepialidae		18
	Incurvariidae		1
	Psychidae		2
	Tineidae		1
	Glyphipterigidae		1
	Oecophoridae		36
	Cossidae		6
	Tortricidae		13
	Castniidae		1
	Zygaenidae		2
	Limacodidae		3
	Carposinidae		1
	Pyralidae		14
	Geometridae		30
	Hesperiidae		10
	Papilionidae		1
	Pieridae		3
	Nymphalidae		8
	Lycaenidae		14
	Lasiocampidae		1
	Anthelidae		2
	Carthaeidae		1
	Saturniidae		1
	Notodontidae		4
	Lymantriidae		2
	Arctiidae		2
	Noctuidae		7
Hymenoptera	Pergidae		12
	Megalyridae		3
	Evaniidae		1
	Aulacidae		1
	Gasteruptiidae		3
	Ichneumonidae		11
	Braconidae		4

TABLE 2 (continued)

ORDER	FAMILY	SUBFAMILY	No. OF SPECIES LISTED
	Monomachidae		1
	Diapriidae		3
	Platygasteridae		1
	Scelionidae		2
	Chalcididae		1
	Pteromalidae		4
	Encyrtidae		2
	Eulophidae		1
	Pompilidae		10
	Mutillidae		1
	Tiphiidae		5
	Scoliidae		1
	Vespidae		5
	Formicidae		
		Myrmeclinae	18
		Ponerinae	31
		Myrmicinae	14
		Dolichoderinae	17
		Formicinae	17
	Sphecidae		31
	Colletidae		33
	Stenotritidae		1
	Halictidae		9
	Megachilidae		7
	Anthophoridae		3
	Apidae		1
Suspense list [a]			4

[a] containing species of doubtful occurrence in forests of WA.

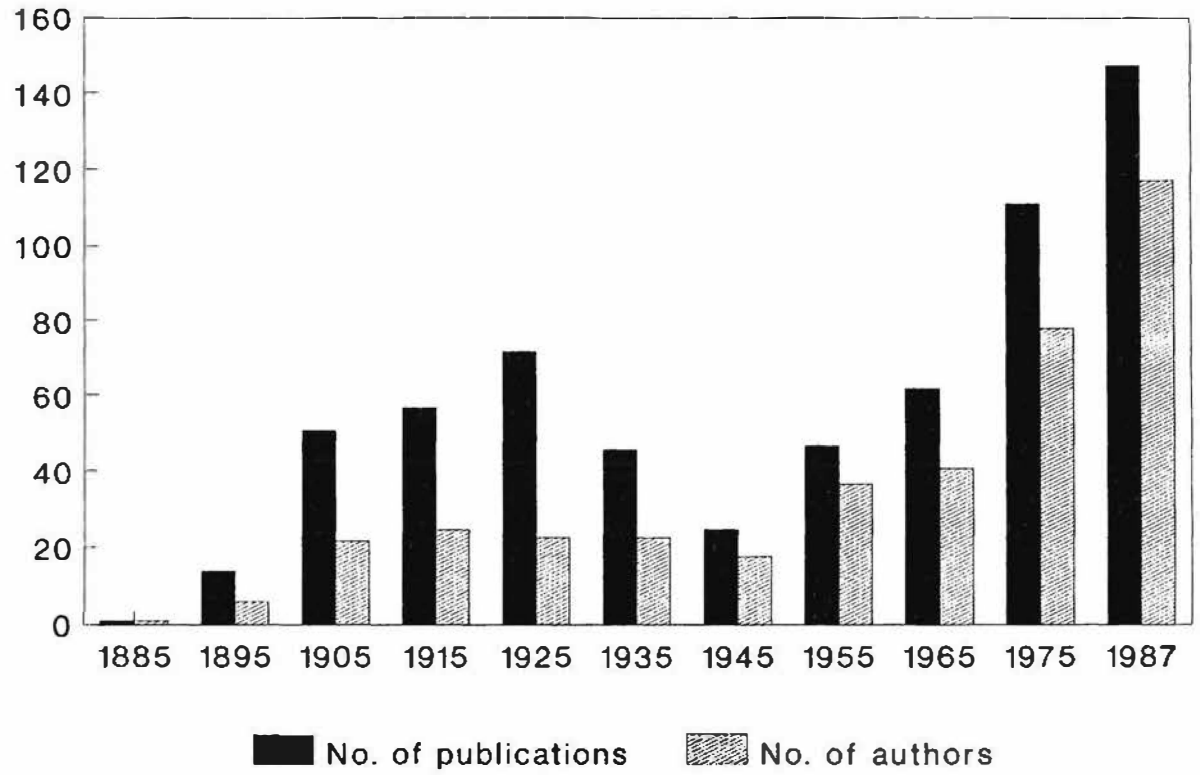

Figure 2. Decade of publication of references containing at least one usable record, together with the number of authors of these publications. Mid-points of decades are shown on the X-axis (e.g. 1925 represents the decade 1921-1930).

TABLE 3
Introduced species of Ellipura and Insecta present in the forested part of south-west Western Australia.

ORDER	FAMILY	SPECIES	COMMENT
Collembola	Odontellidae	*Odontella lamellifera*	Accidental
	Hypogastruridae	*Hypogastrura denticulata*	"
	Onychiuridae	*Mesaphorura krausbaueri*	
		Stenaphorura quadrispina	"
	Isotomidae	*Cryptopygus thermophilus*	"
		Proisotoma minuta	"
	Entomobryidae	*Entomobrya atrocincta*	"
		E. unostrigata	"
		Sinella coeca	"
Hemiptera	Adelgidae	*Pineus pini*	"
	Pentatomidae	*Nezara viridula*	"
Coleoptera	Scarabaeidae	*Aphodius pseudolividus*	"
		Euoniticellus intermedius	Deliberate (1972)
		E. fulvus	"
		E. pallipes	"
		Onitis alexis	"
		O. aygulus	"
		Onthophagus binodis	"
		O. taurus	"
	Lyctidae	*Lyctus brunneus*	Accidental
	Anobiidae	*Ernobius mollis*	"
	Curculionodae	*Otiorrhynchos cribricollis*	"
	Scolytidae	*Hylastes ater*	"
		Hylurgus ligniperda	"
		Ips grandicollis	"
Lepidoptera	Pieridae	*Pieris rapae*	"
	Nymphalidae	*Danaus plexippus*	"
Hymenoptera	Pergidae	*Phylacteophaga froggatti*	"
	Formicidae	*Linepithema humile*	"
	Apidae	*Apis mellifera*	Deliberate

The fourth approach is based on evidence of recent taxonomic revisions which enable a comparison of how many species within a taxon were previously known with the total number now known to exist. I compared the number of species known to occur in the forested part of south-west WA before 1950 and since 1950 for several families or subfamilies that have been better collected and taxonomically revised since 1950. The comparative numbers of species are as follows; Blattellidae (1,8); Cicadidae (1,9); Geotrupidae (1,12); Melolonthinae (6,53); Bombyliidae (2,18); Agromyzidae (1,11); Pompilidae (1,10). There has been a tenfold increase in the number of species described, suggesting that the final size of the fauna should not exceed 18 000 species.

These four estimates vary rather widely for too much confidence to be placed in them. However, they suggest that only about 10 per cent of the insect fauna of the forested part of south-west WA has been taxonomically described. Part of the problem may involve uncertainty about how many insect species occur in Australia and in the world. For example, Erwin (1982) estimates, on what I regard as dubious grounds, that there are 30 million arthropod species in the tropics alone. After due consideration, I have used an estimate provided by Hodkinson and Casson (1991).

Biogeographical Implications of the List

The following results and discussion must be regarded as tentative given that only a small fraction of the insect fauna has so far been collected and described. However, the biogeographical implications of the list provide a framework for development of hypotheses about the distribution of insect species in the forests of south-west WA.

The most remarkable feature of the list is that about half of the species are known from only one locality in the forest (Table 5). Part of this is an artefact of collecting effort - but how much? In an attempt to answer this question I have gone through the list and considered only those species or genera revised since 1950. This presumes that recently revised genera are better collected than those not recently revised. I also confined my attention to species recorded in State Forest *sensu stricto*. A re-examination of original references allowed me to determine whether species recorded only once in State Forest had also been recorded outside State Forest (as, for example, on the Swan Coastal Plain, south coast, wheatbelt, or goldfields). The clear result of this analysis is that 72% of species recorded only once in State Forest have also been recorded outside State Forest. In these cases, the single record in State Forest is most likely to be an artefact of collecting.

TABLE 4
Fauna and floristic data for various localities.

LOCALITY	No. INSECT SPECIES	No. LAND BIRD SPECIES[a]	No. MAMMAL SPECIES[b]	No. VASCULAR PLANT SPECIES[c]	AREA (ha)	REFERENCE
World	2.2×10^6	7 900	4 400	275 000	1.5×10^{10}	Hodkinson and Casson 1991; Howard and Moore 1980; Nowak and Paradiso 1983.
Australia	110 000	480	240	15 000	7.6×10^8	Simpson and Day 1984; Strahan 1983; Waterhouse 1971; Taylor 1979.
British Isles	20 000	115	45	2 000	3.1×10^7	Bruun 1970; Kloet and Hincks 1945; Matheson 1961; Perring 1968; Perring and Walters 1962; Southern 1964.
One-Tree Island	93	2	0	24	4.9	Heatwole *et al.* 1981.
Campbell Island	229	0	0	109	1.1×10^4	Abbott 1974.
Forested part of south-west WA	?	113	38[d]	*ca* 2 500[d]	4.4×10^6	N. Marchant[e], pers. comm. 1991; Strahan 1983; Storr 1991.

[a] Excludes all seabirds and freshwater birds in Gaviiformes, Podicipediformes, Pelecaniformes, Ciconiiformes, Anseriformes and Charadriformes.
[b] Excludes Cetacea, Pinnipedia and Sirenia.
[c] Pteridophyta and Spermatophyta.
[d] Introduced species excluded.
[e] Principal Research Scientist, Western Australian Herbarium, CALM.

Detailed studies of the insect fauna in crowns of individual jarrah treees have, however, shown that spatial distribution of species is highly patchy (Abbott *et al.* 1992). Thus some of the single locality records noted in Table 5 may be a result of patchiness of species distribution at a grosser scale.

Based on the total number of species recorded (Table 5), about one-quarter have been collected in both the northern and southern forests, nearly one-third in the northern forest alone, and nearly one-half in the southern forest alone. The southern forest includes both jarrah forest and karri forest. About half of the species present only in the southern forest have been recorded in karri forest.

What is particularly surprising are differences shown by various orders in the pattern of known distribution of species. For example, Odonata, Coleoptera, Diptera and Trichoptera show a clear trend of increasing species richness in the southern forest, whereas Collembola, Isoptera and Hymenoptera have more species present in the northern forest (Table 5). Other orders, including Blattodea, Orthoptera, Hemiptera, Thysanoptera, Neuroptera and Lepidoptera, are fairly evenly distributed in species between the northern and southern forests.

Examination of the most speciose families shows similar differences (Table 6). Lygaeidae, Carabidae, Dytiscidae, Staphylinidae, Scarabaeidae, Tenebrionidae, Cerambycidae, Chrysomelidae, Curculionidae and Geometridae have most species recorded from the southern forest. Blattidae, Termitidae, Buprestidae, Oecophoridae, Formicidae, Sphecidae and Colletidae have most of their species recorded from the northern forest. The species of the remaining family, Chironomidae, are fairly evenly distributed between the northern and southern forests.

The karri forest, covering about 170 000 ha, represents the only wet sclerophyll forest type of south-west WA. For nearly 20 years wood has been extracted by clear-felling stands, and ultimately it is intended that nearly half of the karri forest will be treated in this way, with the remainder held for nature conservation purposes. The information on insects currently available suggests that some 23 per cent of species are known only from the karri forest (Table 7) component of the southern forest. Hence there is a need for more detailed investigation of insect biogeography within the karri forest.

FUTURE RESEARCH

I welcome correspondence pointing out errors of omission or fact, orthography, overlooked foreign literature, undetected synonyms, etc. The intention is that a second edition will be prepared for publication in 10-15 years. By then, many new forest records of insect species should have accumulated. However, revision may prove difficult as rising costs have forced Perth libraries to cancel subscriptions to many journals containing taxonomic data relevant to WA. Extraction of names and locality data obviously necessitates careful perusal of published literature. Obtaining papers through interlibrary loan (without knowing beforehand whether relevant information is contained therein) will be expensive and may be difficult to justify if research budgets continue to diminish.

TABLE 5

Distribution of indigenous species in the forested part of south-west Western Australia

ORDER	No. SPECIES[a]	No. SPECIES RECORDED AT ONE LOCALITY ONLY	NORTHERN AND SOUTHERN FOREST	No. SPECIES RECORDED IN[b] NORTHERN FOREST ALONE	SOUTHERN FOREST ALONE	KARRI FOREST
Collembola	45	24	6	30	9	1
Protura	2	2	0	0	2	1
Diplura	8	5	0	4	4	1
Thysanura	6	2	1	5	0	0
Ephemeroptera	5	3	1	4	0	1
Odonata	25	8	9	5	11	3
Plecoptera	3	1	2	1	0	2
Blattodea	28	9	11	10	7	10
Isoptera	29	7	13	13	3	8
Mantodea	1	1	0	1	0	0
Dermaptera	5	3	2	2	1	1
Orthoptera	21	7	7	5	9	7
Psocoptera	3	2	0	0	3	2
Hemiptera	91	52	25	34	32	29
Thysanoptera	32	21	7	10	15	1
Megaloptera	1	1	0	0	1	1
Neuroptera	23	7	9	7	7	10
Coleoptera	604	370	111	92	401	126
Strepsiptera	1	1	0	0	1	0
Mecoptera	3	0	3	0	0	0
Diptera	205	92	45	60	100	78
Trichoptera	43	8	28	4	11	28
Lepidoptera	154	99	31	60	63	26
Hymenoptera	249	158	63	135	51	27
Total	1587	883 (55.6%)	374 (23.6%)	482 (30.4%)	731 (46.1%)	363 (49.7%)[c]

[a] Tallies in this column are sometimes lower than given in Table 2, as species whose distribution is recorded in the literature only on a map have been excluded from the analysis.

[b] Refer to Figure 1.

[c] As a percentage of species occurring in the southern forest alone.

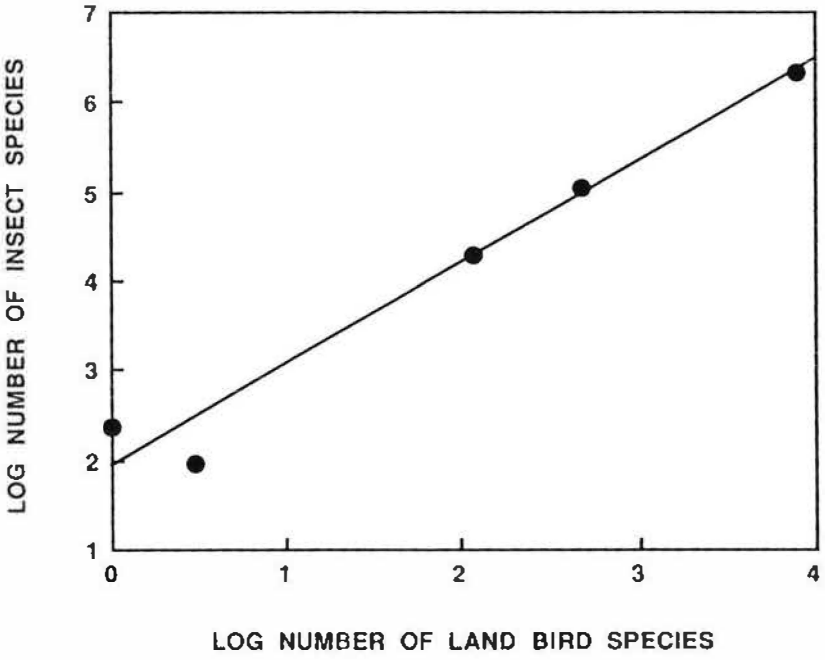

Figure 3. Relationship between number of insect species and number of land bird species for various localities. Least-squares best-fit equation is log Y = 1.94 + 1.13 log (X + 1), with r^2 = 0.97.

TABLE 6
Distribution of indigenous species of the most species families in the forested part[b] of south-west Western Australia.

ORDER	No. SPECIES[a]	No. SPECIES RECORDED AT ONE LOCALITY ONLY	NORTHERN AND SOUTHERN FOREST	No. SPECIES RECORDED IN[b] NORTHERN FOREST ALONE	SOUTHERN FOREST ALONE	KARRI FOREST
Blattidae	20	8	8	8	4	5
Termitidae	21	6	10	10	1	4
Lygaeidae	20	12	6	5	9	13
Carabidae	57	46	0	1	56	1
Dytiscidae	12	7	1	1	10	3
Staphylinidae	32	24	5	7	20	3
Scarabaeidae	83	34	30	10	43	23
Buprestidae	42	20	8	22	12	2
Tenebrionidae	20	16	2	4	14	1
Cerambycidae	36	14	13	8	15	11
Chrysomelidae	58	32	12	7	39	19
Curculionidae	138	88	19	5	104	27
Chironomidae	21	8	2	9	10	5
Oecophoridae	36	32	1	30	5	2
Geometridae	29	22	6	9	14	3
Formicidae	97	51	29	56	12	4
Sphecidae	31	28	1	26	4	2
Colletidae	33	21	10	18	5	3

[a] Tallies in this column are sometimes lower than given in Table 2, as species whose distribution is recorded in the literature on a map have been excluded from the analysis.
[b] Refer to Figure 1.

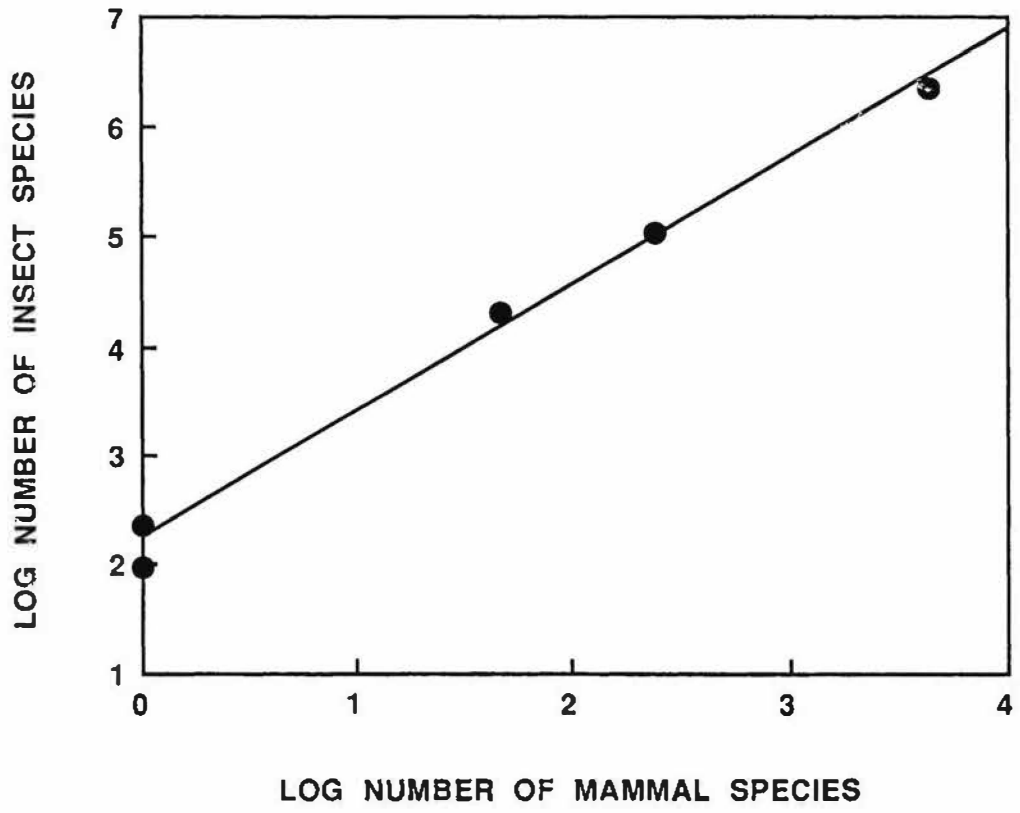

Figure 4. Relationship between number of insect species and number of mammal species for various localities. Least-squares best-fit equation is log Y = 2.22 + 1.16 log (X + 1), with r^2 = 0.99.

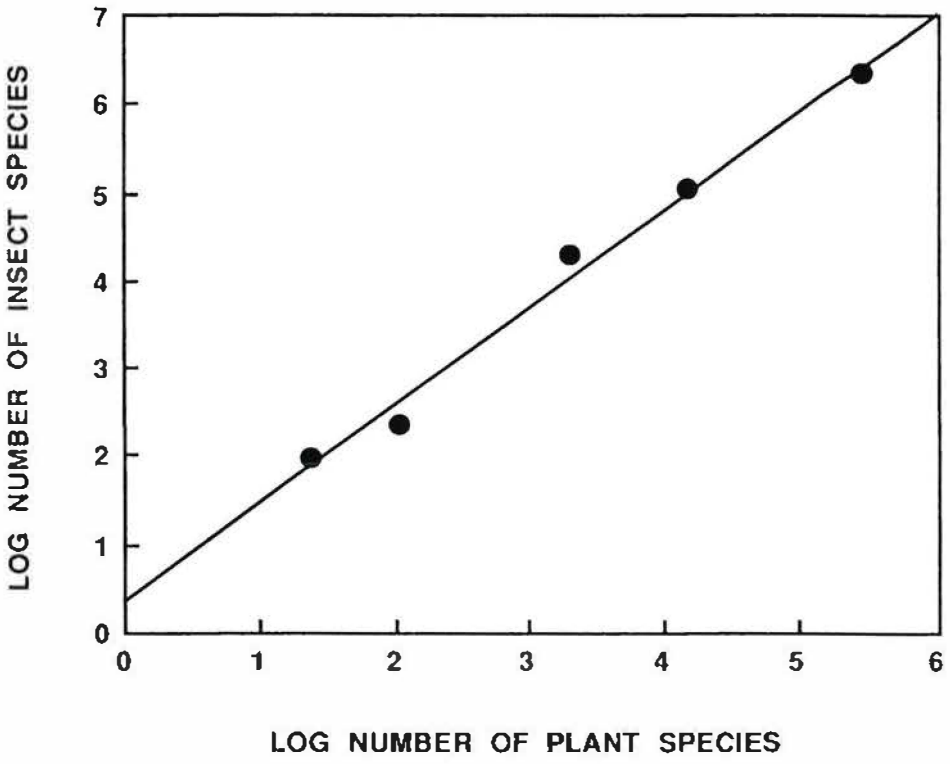

Figure 5. Relationship between number of insect species and number of vascular plant species for various localities. Least-squares best-fit equation is log Y = 0.34 + 1.12 log X with r^2 = 0.99.

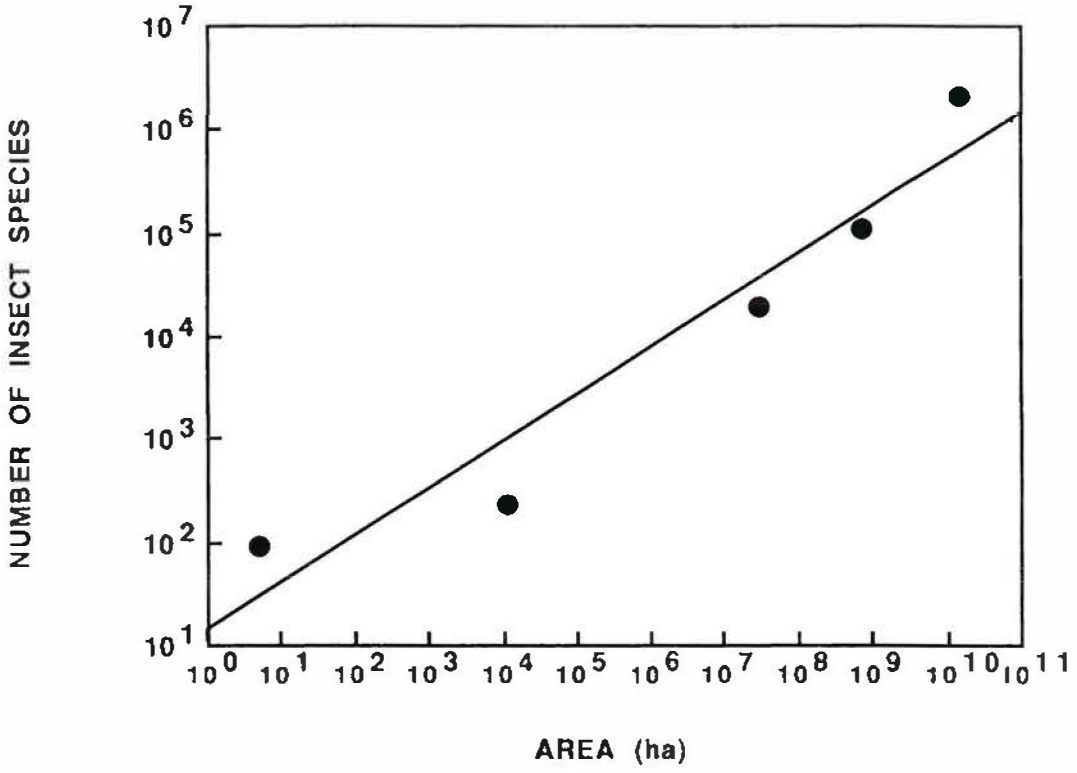

Figure 6. Relationships between number of insect species and area for various localities. Least-squares best-fit equation is log Y = 1.15 + 0.46 log X, with r^2 = 0.92.

TABLE 7
Distribution elsewhere in the forested part of south-west Western Australia of indigenous species present in karri forest[a]

ORDER	No. SPECIES WHOSE ONLY KNOWN PRESENCE IN THE SOUTHERN FOREST IS IN KARRI FOREST	No. SPECIES PRESENT IN KARRI FOREST AND ELSEWHERE IN FOREST OF SOUTH-WEST WESTERN AUSRALIA
Collembola	0	1
Protura	1	0
Diplura	0	1
Thysanura	0	0
Ephemeroptera	0	1
Odonata	0	3
Plecoptera	0	2
Blattodea	1	9
Isoptera	1	7
Mantodea	0	0
Dermaptera	0	1
Orthoptera	3	4
Psocoptera	1	1
Hemiptera	11	18
Thysanoptera	0	1
Megaloptera	1	0
Neuroptera	1	9
Coleoptera	39	88
Strepsiptera	0	0
Mecoptera	0	1
Diptera	20	58
Trichoptera	4	24
Lepidoptera	1	25
Hymenoptera	6	21
Total	90	294

[a]Few specimen labels or published records specifically mention occurrence in karri forest. All southern forest records were checked against localities on 1:50 000 scale maps published by CALM. These also show the extent of karri forest.

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Most of the literature search was done in the four longest established libraries in Perth: the Department of Zoology, University of Western Australia; the Western Australian Department of Agriculture; the Western Australian Museum; and the Alexander Library. I thank the staff of these libraries for help in locating obscure journals. The curators of the insect collections held by the WA Museum and the WA Department of Agriculture kindly allowed me to extract data from specimen labels. The library of CALM arranged interlibrary loans of books unavailable in WA.

In 1987 I circulated parts of a draft checklist to taxonomic experts, most of whom offered constructive help in rooting out errors. I thank these scientists for their efforts: A.D. Austin, I.C. Campbell, D.H. Colless, E.D. Edwards, P. Greenslade, G.F. Gross, P.J. Gullan, T.F. Houston, J.D. Majer, E.G. Matthews, L.A. Mound, A. Neboiss, T.R. New, D.H. Perry, M. Peterson, D.C.F. Rentz, F.H. Uther Baker, J.A.L. Watson, T.A. Weir and E.C. Zimmerman. However, I accept responsibility for any errors remaining, as I have subsequently brought the list up to date and added authorities for species names and also all relevant locality records. I also thank J. Nicholson and M. Schifferli for word processing, T. Burbidge and P. Van Heurck for other assistance, N. Marchant for advice about the size of the flora of the forest of south-west WA, and W. Searle for preparing the index.

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THE LIST OF SPECIES KNOWN TO OCCUR IN THE FORESTED PART OF SOUTH-WEST WESTERN AUSTRALIA, AS AT END OF 1991

* Signifies introduced species

COLLEMBOLA

NEANURIDAE

Paleonura rosacea Schött
Margaret R
Womersley 1939

Phradmon floccosus Greeenslade & Deharveng
Dwellingup
Greenslade 1994

Pseudochorutes rhaeticus (Carl)
Parkerville, Gooseberry Hill
Womersley 1933,1939

ODONTELLIDAE

* *Odontella lamellifera* (Axelson)
Gooseberry Hill
Womersley 1939

BRACHYSTOMELLIDAE

Brachystomella acantha Womersley
Mahogany Creek
Womersley 1939

Brachystomella parvula (Schäffer)
John Forrest NP, Queenwood
Womersley 1933

Massoudella geniculata (Womersley)
Darlington
Womersley 1939, Greenslade 1994

HYPOGASTRURIDAE

* *Hypogastrura denticulata* Nicolet
Bridgetown, Porongurups
Womersley 1939, Greenside 1994

Hypogastrura purpurescens (Lubbock)
Bridgetown
Womersley 1933,1939, Greenslade 1994

Xenylla occidentalis Womersley
Kalamunda
Womersley 1933,1939, Da Gama 1981

ONYCHIURIDAE

* *Mesaphorura krausbaueri* Börner
Darlington, Jarrahdale, Del Park
Womersley 1939, Greenslade and Majer 1980, Greenslade 1994

**Stenaphorura quadrispina* Börner
Gooseberry Hill
Womersley 1939, Greenslade 1994

Tullbergia australica Womersley
Kalamunda
Womersley 1939

ISOTOMIDAE

Acanthomurus plumbeus Womersley
Parkerville, Gooseberry Hill, Dwellingup, Manjimup, Mt Barker
Womersley 1934b, 1939, Majer and Koch 1982, Greenslade 1994

Cryptopygus antarcticus Willem
Jarrahdale, Del Park, Dwellingup
Greenslade and Majer 1980, Majer and Koch 1982

Cryptopygus dubius Deharveng
Gooseberry Hill, Jarrahdale, Del Park
Womersley 1934b, 1939, Greenslade and Majer 1980, Greenslade, pers. comm.

* *Cryptopygus thermophilus* (Axelson)
Jarrahdale, Gooseberry Hill, Del Park, Preston Valley, Bridgetown
Womersley 1934b, 1939, Greenslade and Majer 1980

Folsomides parvulus Stach
Jarrahdale, Del Park
Greenslade and Majer 1980, Greenslade 1994

Folsomides sexophthalma (Womersley)
John Forrest NP
Womersley 1934b, 1939, Greenslade 1994

Isotoma swani Womersley
John Forrest NP
Womersley 1934b, 1939

Isotoma termitophila Womersley
Parkerville
Womersley 1934b, 1939

Isotoma tridentifera Schött
Pickering Brook
Womersley 1939

Isotomurus chiltoni (Carpenter)
John Forrest NP, Gooseberry Hill, Porongurups
Womersley 1934b

* *Proisotoma minuta* (Tullberg)
Jarrahdale, Del Park
Greenslade and Majer 1980

ENTOMOBRYIDAE

Drepanura cinquilineata Womersley
Jarrahdale, Del Park, Bridgetown, Mt Barker
Womersley 1934b, 1939 Greenslade and Majer 1980

* *Entomobrya atrocincta* Schött
Jarrahdale, Del Park
Greenslade and Majer 1980

Entomobrya lamingtonensis Schött
Mundaring, Gooseberry Hill, Dwellingup
Womersley 1934b, 1939, Majer and Koch 1982

* *Entomobrya unostrigata* Stach
Jarrahdale, Del Park
Greenslade and Majer 1980

Entomobrya varia Schött
Denmark
Womersley 1934b, 1939

Lepidobrya mitchelli (Womersley)
Mt Barker
Womersley 1934b, 1939, Greenslade 1994

Lepidocyrtoides flavocinctus (Womersley)
Mundaring, Lesmurdie, Parkerville
Womersley 1934b, 1939, Greenslade 1994

Lepidosira australica (Schött)
Jarrahdale
Greenslade and Majer 1980, Greenslade 1994

Lepidosira terraereginae (Ellis & Bellinger)
Gooseberry Hill, Jarrahdale, Del Park, Dwellingup
Womersley 1934b, 1939, Greenslade and Majer 1980, Majer and Koch 1982, Greenslade 1994

* *Sinella coeca* (Schött)
Bridgetown
Womersley 1934b, 1939

Sinella termitum Schött
Mundaring
Womersley 1934b, 1939

PARONELLIDAE

Pseudoparonella appendiculata (Schött)
Lesmurdie
Womersley 1934b, 1939

CYPHODERIDAE

Cyphodera nichollsi (Womersley)
Kalamunda
Womersley 1934b, 1939, Greenslade 1994

NEELIDAE

Megalothorax incertus Börner
Denmark
Womersley 1939, Greenslade 1994

SMINTHURIDAE

Aneuempodialis cinereus (Womersley)
Jarrahdale, Del Park
Greenslade and Majer 1980

Arrhopalites caecus (Tullberg)
Greenbushes
Womersley 1932, Greenslade 1994

Bourletiella hortensis (Fitch)
Ferguson, Yabbarup, Upper Preston
Womersley 1932, Greenslade, pers. comm.

Corynephoria cassida Womersley
Mundaring Weir, Jarrahdale, Del Park
Womersley 1932, 1939 Greenslade and Majer 1980

Nasosminthurus dimorphus (Womersley)
Yabbarup
Womersley 1932, 1939, Greenslade 1994

Nasosminthurus nigridorsalis (Womersley)
Kalamunda, Ferguson, Donnybrook
Womersley 1932, 1939, Grenslade 1994

Parakatianna spinata Womersley
Kalamunda, Upper Preston
Womersley 1932, 1939

Polykatianna aurea (Womersley)
Kalamunda, Ferguson
Womersley 1932, 1939, Greenslade 1994

Polykatianna pulchella (Womersley)
Bridgetown
Womersley 1939, Greenslade 1994

Pygicornides stagnalis (Womersley)
Denmark
Womersley 1939, Greenslade 1994

Rastriopes dromedarius (Womersley)
Mundaring, Kalamunda
Womersley 1932, Greenslade 1994

Rastriopes handschini (Womersley)
Bridgetown
Womersley 1932, 1939, Greenslade 1994

Sminthurinus aureus (Krausbauer)
Gooseberry Hill, Pickering Brook
Womersley 1939, Greenslade 1994

Smithurinus splendida (Womersley)
Kalamunda
Womersley 1939, Greenslade 1994

Sphaeridia pumilis (Krausbauer)
Wooroloo, Gooseberry Hill
Womersley 1939, Greenslade 1994

Temeritas denisii (Womersley)
Parkerville, Lesmurdie
Womersley 1932, 1939, Greenslade 1994

PROTURA

EOSENTOMIDAE

Eosentomon swani Womersley
Greenbushes
Womersley 1939

ACERENTOMIDAE

Acerentulus sexspinatus Womersley
Bolganup
Womersley 1939

DIPLURA

CAMPODEIDAE

Campodea tillyardii Silvestri
Kalamunda, Lesmurdie
Womersley 1937b

Metriocampa spinigera Womersley
Porongurups, Denmark
Womersley 1937b, 1939

JAPYGIDAE

Japyx glauerti Womersley
Serpentine Falls
Womersley 1934a

Japyx longiseta Silvestri
Lunenberg, Mt Helena
Silvestri 1908

Japyx michaelseni Silvestri
Mt Helena
Houston 1994

Japyx nichollsi Womersley
Frankland R
Womersley 1934a

Japyx womersleyi Pagés
Walpole Inlet
Womersley 1934a, Houston 1994

Notojapyx tillyardi (Silvestri)
Frankland R (Walpole Inlet)
Womersley 1934a, Houston 1994

THYSANURA

NICOLETIIDAE

Atopatelura hartmeyeri Silvestri
Kalamunda, Gooseberry Hill
Silvestri 1908, Womersley 1937a, 1939

Atopatelura michaelseni Silvestri
Gooseberry Hill
Silvestri 1908, Womersley 1937a, 1939

Gastrotheus disjunctus (Silvestri)
Gooseberry Hill, Parkerville
Silvestri 1908, Womersley 1937a, 1939 CSIRO 1970

Trinemura novaehollandiae Silvestri
Gooseberry Hill
Silvestri 1908, Womersley 1937a, 1939

LEPISMATIDAE

Heterolepisma michaelseni Silvestri
Mt Helena
Silvestri 1908

Heterolepisma stilivarians Silvestri
Wooroloo, Donnybrook
Silvestri 1908

EPHEMEROPTERA

BAETIDAE

Baetis soror Ulmer
Serpentine Falls
Ulmer 1908

LEPTOPHLEBIIDAE

Deleatidium furciferum (Eaton)
Serpentine Falls
Ulmer 1908, Campbell 1988

Nousia inconspicua (Eaton)
Mt Helena
Ulmer 1908, Campbell 1988

Neboissophlebia occidentalis Dean
Seldom Seen Brook, Waterfall Gully (Jarrahdale), Foster Brook (N Dandalup R), Harvey R (15 km E Harvey), Warren R (Warren R NP), Beedelup Falls (16 km W Pemberton), Carey Brook (20 km W Pemberton), Deep R (10 km W Walpole), Ellen Brook Falls (10 km NW Margaret R)
Dean 1988

CAENIDAE

Tasmanocoenis tillyardi (Lestage)
Wungong Brook, N Dandalup R
Bunn *et al.* 1986

ODONATA

COENAGRIONIDAE

Austroagrion cyane (Selys)
Bridgetown, Wilgarrup
Tillyard 1907, Houston and Watson 1988

Ischnura aurora (Brauer)
Bridgetown, Wilgarrup
Tillyard 1907, Ris 1910, Houston and Watson 1988

Xanthagrion erythroneurum (Selys)
No localities given
Watson, pers. comm.

LESTIDAE

Austrolestes aleison Watson & Moulds
Lesmurdie, Karragullen, 61 km E Harvey
Watson and Moulds 1979

Austrolestes analis (Rambur)
Serpentine
Ris 1910

Austrolestes annulosus (Selys)
Bridgetown
Tillyard 1907

Austrolestes io (Selys)
No localities given
Watson, pers. comm.

MEGAPODAGRIONIDAE

Argiolestes minimus Tillyard
Bridgetown, Wilgarrup
Tillyard 1907, Bunn *et al.* 1986

Argiolestes parvulus Watson
No localities given
Watson, pers. comm.

Argiolestes pusillissimus (Kennedy)
Map
Watson 1977

Argiolestes pusillus Tillyard
Map
Watson 1977, Bunn *et al.* 1986

AESHNIDAE

Aeshna brevistyla (Rambur)
Bridgetown, Wilgarrup
Tillyard 1916

Austroaeschna anacantha Tillyard
Kalamunda, Glen Forrest, Crystal Brook (Lesmurdie), Roleystone, Wungong Brook, N Dandalup R, Waroona Dam, Bridgetown, Barlee Brook, Wilgarrup, Frankland R
Tillyard 1907, 1916, Ris 1910, Theischinger 1982, Bunn *et al.* 1986

Hemianax papuenais (Burmeister)
Mundaring Weir, Bridgetown
Tillyard 1916, Watson 1956

GOMPHIDAE

Armagomphus armiger (Tillyard)
Churchman Brook, Jarrahdale, S Dandalup R, Samson Brook, Clarke Brook, (S Logue Dam), W Walpole (SW Highway)
Watson 1991

Austrogomphus collaris Hagen
Walyunga Pool (Avon R), Hovea, Lesmurdie, Crystal Brook, Karragullen, Canning R (Roleystone and between Roleystone and Canning Dam), Serpentine Falls, S Dandalup R, Murray R 10 ml W Williams, Hillman R 6 ml E Darkan, Beaufort R (Moodiarrup), Boyup Brook, Bridgetown, Darradup (SW Nannup) Sues Bridge, Uannup Creek 2 ml W Gordon R townsite (N of Frankland)
Watson 1991

Austrogomphus lateralis (Selys)
Kalamunda, Crystal Brook (Lesmurdie), Roleystone, Samson Brook, Tone R Mill, 4 ml N Pemberton, Margaret R, Deepdene
Watson 1991

PETALURIDAE

Petalura hesperia Watson
Lesmurdie, Karragullen
Watson 1957, 1958, Bunn *et al.* 1986

CORDULIIDAE

Hemicordulia australiae (Rambur)
Blackwood R
Tillyard 1907

Hemicordulia tau (Selys)
No localities given
Watson, pers. comm.

Hesperocordulia berthoudi Tillyard
Helena R (Helena Valley),
Canning R (between Roleystone and Canning Dam), Churchman Brook (below dam), Serpentine Falls, Davies Brook (3 ml E Dwellingup), Blackwood R (Sue's Bridge), Tone R (Mt Barker-Manjimup Rd)
Theischinger and Watson 1978, 1984, Bunn *et al.* 1986

Lathrocordulia metallica Tillyard
1.75 ml SW Karragullen, Churchman Brook, 5 ml E Tallanalla, 7 ml E Nannup, 4 ml N Pemberton, 7 ml W Denmark, Kronkup
Theischinger and Watson 1978, 1984, Bunn *et al.* 1986

Procordulia affinis (Selys)
Serpentine, Wilgarrup
Tillyard 1907, Ris 1910

Synthemis cyanitincta Tillyard
Wungong Brook
Tillyard 1910, Bunn *et al.* 1986

Synthemis leachii Selys
Darlington, Lesmurdie, 1.75 ml SW Karragullen, Dwellingup, Bridgetown, Karridale
Tillyard 1907, 1910, Ris 1910, Watson 1967a, Bunn *et al.* 1986, Houston and Watson 1988

Synthemis macrostigma Hagen
Bridgetown, Wilgarrup
Tillyard 1910

LIBELLULIDAE

Austrothemis nigrescens (Martin)
Wilgarrup
Tillyard 1907

Diplacodes bipunctata (Brauer)
Bridgetown
Tillyard 1907

Diplacodes haematodes (Burmeister)
No localities given
Watson, pers. comm.

Nannophya dalei Tillyard
Wilgarrup
Tillyard 1908, Ris 1910

Nannophya occidentalis (Tillyard)
Bridgetown
Tillyard 1908, Houston and Watson 1988

Orthetrum caledonicum (Brauer)
No specific locality given
Bunn *et al.* 1986

Trapezostigma stenoloba Watson
Darlington
Watson 1967b

BLATTODEA

BLATTIDAE

Allacta similis (Saussure)
Torbay
Shelford 1909

Drymaplaneta heydeniana (Saussure)
Pemberton, Karridale
Mackerras 1968b

Drymaplaneta semivitta (Walker)
Darlington, Kalamunda, Pickering Brook, Greenbushes, Bridgetown Shelford 1909, Mackerras 1968b

Eppertia punctata Princis
Warren R
Mackerras 1965c, Rentz and Cameron 1983

Euzosteria femoralis (Walker)
Darlington, Kalamunda
Mackerras 1965b

Loboptera circumcincta Tepper
Mt Helena, Gooseberry Hill
Shelford 1909

Loboptera duodecimsignata Tepper
Mt Helena,
Shelford 1909

Melanozosteria conjuncta Shelford
Collie
Shelford 1909, Mackerras 1968a, Rentz and Cameron 1983

Melanozosteria fulva Princis
Darlington
Rentz and Cameron 1983

Melanozosteria morosa Shelford
Mundaring, Mundaring Weir, Mt Helena, Lesmurdie, Jarrahdale, Gleneagle, Collie, Walpole, Mt Barker, Karridale
Shelford 1909, Mackerras 1968a, Rentz and Cameron 1983

Platyzosteria fallax (Walker)
Mt Helena, Pemberton
Mackerras 1967, CALM

Platyzosteria fulva Princis
Darlington, Mundaring, Mt Cooke, Serpentine Falls, Bridgetown
Mackerras 1968a, Koch 1980

Platyzosteria inclusa (Walker)
Wooroloo, Mt Helena, Serpentine, Collie, Donnybrook
Shelford 1909

Platyzosteria jungii (Tepper)
8 ml NNW Kojonup
Mackerras 1968a

Platyzosteria obscura (Tepper)
Wooroloo, Mt Helena, Pickering Brook, Bickley, Donnybrook, Bridgetown
Shelford 1909, Mackerras 1968a

Platyzosteria occidentalis Mackerras
Lesmurdie
Mackerras 1968a

Polyzosteria cuprea Saussure
Mundaring, Manjimup, Pemberton, Big Brook, Nornalup, Bow R, S Karridale
Mackerras 1965a

Polyzosteria fulgens Mackerras
Darlington
Mackerras 1965a

Zonioploca bicolor Shaw
Hovea, Kalamunda, 6 ml E Kalamunda, Lesmurdie
Mackerras 1965c

Zonioploca pallida Shelford
Mt Helena, Pickering Brook, Lesmurdie, Collie, Donnybrook
Shelford 1909, Mackerras 1965c

BLATELLIDAE

Ceratinoptera ensifera Shelford
Jarrahdale, Lunenberg, Bridgetown
Shelford 1909, Rentz and Cameron 1983

Hensaussurea halmaturina (Tepper)
Manjimup, Pemberton
Roth 1991

Hensaussurea pedestris Princis
Gleneagle
Roth 1991

Hensaussurea sheardi Princis
Pemberton, Margaret R, 5 km W Lake Cave
Roth 1991

Johnrehnia hodgkini Princis
Pemberton, Beedelup
Rentz and Cameron 1983

Neotemnopteryx fulva (Saussure)
Kalamunda, Manjimup, Pemberton, Nornalup, Margaret R, Mammoth Cave near Devil's Lair Cave, 5 km W Lake Cave, S Karridale
Roth 1990

Robshelfordia hartmani Roth
3 km SW Donnybrook, Denmark, Devil's Lair Cave (near Karridale), Deepdene
Roth 1991

Robshelfordia simplex Princis
Walyunga NP, Gooseberry Hill
Roth 1991

ISOPTERA

KALOTERMITIDAE

Bifiditermes improbus (Hagen)
No specific localities listed
Perry *et al.* 1985

Cryptotermes austrinus Gay & Watson
Pemberton
Heather 1971, Gay and Watson 1982, Perry *et al.* 1985

Kalotermes aemulus Sewell & Gay
Mt Gungin, 80 km SSE Perth (Albany Highway), Wagerup-Willowdale, Rudgyard (Denmark), Mt Barker
Sewell and Gay 1978, Perry *et al.* 1985, Bunn 1983

Kalotermes hilli Emerson
Hester, Manjimup, Pemberton, Donnelly R, 11 km SW Pemberton, Big Brook, Nornalup, 6.5 km W Denmark, 6.5 km E Denmark
Sewell and Gay 1978, Perry *et al.* 1985

RHINOTERMITIDAE

Coptotermes acinaciformis (Froggatt)
Mundaring, Mt Helena, Hovea, 6 ml SW Bakers Hill, 13 ml SE Armadale, 30 ml ESE Karragullen, 6 ml W Dale Bridge, 19 ml W Brookton, Jarrahdale, Dwellingup, Holyoake, Serpentine, Huntly, Wagerup-Willowdale, Collie, 10 ml SE Darkan, 2 ml NW Bowelling, 6 ml W Bowelling, 6 ml ESE Collie, 20, 31, 34 ml NW Williams, 9 ml WSW Moodiarrup, 3 ml S Boyanup, 8 ml NE Donnybrook, 4 ml SSW Boyup Brook, Noggerup, Muradup, Greenbushes, Bridgetown, 3 ml NW Greenbushes, Manjimup, 16 ml SSE Manjimup, Pemberton, Nornalup, 1, 15 ml W Denmark, Mt Barker, Porongurup, 3 ml N Kojonup
Hill 1921a, 1926, 1942, Calaby 1956a, Calaby and Gay 1956, Jenkins and Curry 1971, Bunn 1983, Perry *et al.* 1985

Coptotermes michaelseni Silvestri
Pickering Brook, 2 ml E Sawyers Valley, 70 ml SE Perth (Albany Highway), Collie
Silvestri 1909, Hill 1926, 1942, Calaby and Gay 1956, Perry *et al.* 1985

Heterotermes occiduus (Hill)
Mundaring, Mt Helena, Jarrahdale, Dwellingup, Wagerup-Willowdale Silvestri 1909, Mjöberg 1920, Hill 1927, 1942, Bunn 1983, Perry *et al.* 1985

Heterotermes platycephalus Froggatt
Mt Helena, Mundaring, Jarrahdale, Dwellingup, Wuraming, Marrinup, Inglehope, Collie, Wagerup-Willowdale, Noggerup, Kirup, Greenbushes, Bridgetown, Manjimup, Pemberton, Nornalup, Mt Barker, Porongurup
Hill 1927, 1932, 1942, Bunn 1983, Perry *et al.* 1985

Schedorhinotermes reticulatus (Froggatt)
Hovea, John Forrest NP
Hill 1933, 1942, Perry *et al.* 1985

TERMITIDAE

Ahamitermes hillii (Nicholls)
20 ml NW Williams, Greenbushes, Mt Barker, 16 ml SSE Manjimup, 3 ml N Kojonup
Hill 1942, Calaby 1956a, Perry *et al.* 1985

Amitermes conformis Gay
Wagerup-Willowdale
Gay 1968, Bunn 1983, Perry *et al.* 1985

Amitermes heterognathus Silvestri
Mt Gungin, Bakers Hill
Gay 1968, Perry *et al.* 1985

Amitermes modicus Hill
6 ml W Dale Bridge, 10 ml SE Darkan, 2 ml NNE Kojonup
Calaby 1956b, Gay 1968, Perry *et al.* 1985

Amitermes obeuntis (Silvestri)
Mundaring Weir, Kalamunda, Hovea, Mt Helena, Serpentine, Jarrahdale, Dwellingup, Inglehope, 9 ml E Wagerup, 18 ml E Benger, Collie, Wagerup-Willowdale, Noggerup, Kirup, Mullalyup, Greenbushes, Bridgetown, Manjimup, Pemberton, Mt Barker, Muradup
Silvestri 1909, Hill 1932, 1935, 1942, Bunn 1983

Amitermes obtusidens (Mjöberg)
Mt Helena
Hill 1942

Amitermes pallidiceps Gay
Julimar
Gay 1968,1969

Amitermes procerus Gay
3 ml NNE Kojonup, 3 ml N Kojonup
Gay 1968

Apsenterotermes iridipennis (Gay)
Map
Gay 1971, Miller 1991

Drepanotermes rubriceps (Froggatt)
Chidlow
Hill 1942

Ephelotermes argutus (Hill)
Map
Gay 1971, Perry *et al.* 1985

Eutermes peracutus Hill
Chidlow
Hill 1925, 1942

Hesperotermes infrequens (Hill)
Map
Hill 1942, Gay 1971, Perry *et al.* 1985, Miller 1991

Microcerotermes distinctus Silvestri
Mundaring, Hovea, Wagerup-Willowdale
Hill 1942, Bunn 1983, Perry *et al.* 1985

Microcerotermes newmani Hill Mundaring, Hovea, Wagerup-Willowdale, Hester
Hill 1927, 1942, Bunn 1983, Perry *et al.* 1985

Nasutitermes coalescens (Mjöberg)
Mundaring
Mjöberg 1920, Hill 1942

Nasutitermes exitiosus (Hill)
Lyall Mill, Wagerup-Willowdale, Donnybrook
Silvestri 1909, Hill 1925, 1942, Bunn 1983, Perry *et al.* 1985

Occasitermes occasus (Silvestri)
Wooroloo, Mt Helena, John Forrest NP, Mundaring, Mundaring Weir, Mt Gungin, 3 km E Sawyers Valley, 80 km SSE Perth, 9.5 km ESE Karragullen, 5 km E Karagullen, 21 and 35 km SE Armadale (Albany Highway), Jarrahdale, 13 km ENE Jarrahdale, 30.5 km NE Pinjarra, Dwellingup, Wagerup-Willowdale, Collie, 9.5 km ESE Collie, 6.5 km NNE Mumballup, 9.5 km W Bowelling, 13 km NE Donnybrook, 5 km NW Greenbushes, 6.5 km WSW Boyup Brook, Bridgetown, Balingup, Palgarrup, L Muir, L Cave (Margaret R), 1.5 km W Augusta, 9.5 km W Jingalup, 16 km N Mt Barker, 8 km S Mt Barker Silvestri 1909, Hill 1942, Gay 1974, Koch 1980, Bunn 1983, Perry *et al.* 1985.

Paracapritermes hesperus Gay
11 ml NNE Bindoon, 6 ml ESE Karagullen, 2 ml E Sawyers Valley, 14 ml SE Armadale, 35 ml SSE Armadale, 8 ml ENE Jarrahdale, 20 ml NW Williams, Hester, 4 ml WSW Boyup Brook, 2 ml S Yornup, 2 ml NE Pemberton, 4 ml NE Kojonup
Gay 1955

Peracapritermes kraepelinii (Silvestri)
Map Julimar, Mt Gungin,
Mundaring Weir, Hovea, Mt Helena, Kalamunda, 2 ml E Sawyers Valley, 13,14 and 35 ml SE Armadale (Albany Highway), 6 ml ESE Karragullen, 18 ml NE Jarrahdale, Dwellingup, Marrinup, Inglehope, 9 ml NW N Bannister, 20 ml NW Williams, Wagerup-Willowdale, Collie, Noggerup, Hester, Greenbushes, Kirup, Bridgetown, 4 ml W Boyup Brook, 2 ml S Yornup, Manjimup, Pemberton, 4 ml NE Kojonup
Silvestri 1909, Hill 1942, Gay 1955, 1971, Koch 1980, Bunn 1983, Perry *et al.* 1985, Miller 1991

Tumulitermes apiocephalus (Silvestri)
Mundaring, Hovea, Kalamunda, Ridge Hill, Jarrahdale, Wagerup-Willowdale, Noggerup
Silvestri 1909, Mjöberg 1920, Hill 1925, 1942, Bunn 1983, Perry *et al.* 1985

Tumulitermes westraliensis (Hill)
Ridge Hill, Mundaring, Kalamunda, Wagerup-Willowdale, Bowelling, Noggerup
Hill 1921b, 1925, 1942, Bunn 1983, Perry *et al.* 1985

Xylochomitermes occidualis (Gay)
map
Wagerup-Willowsdale, Rudgyard
Bunn 1983, Perry *et al.* 1985

Xylochomitermes reductus (Gay)
10 ml SE Darkan, 2-3 ml NNE Kojonup
Gay 1971, Miller 1991

MANTODEA

AMORPHOSCELIDAE

Paroxypilus tasmaniensis Sauss.
Mt Helena
Werner 1912

DERMAPTERA

PYGIDICRANIDAE

Dacnodes shortridgei (Burr)
Mundaring, Pemberton, Porongurups
Hincks 1959

ANISOLABIDIDAE

Anisolabis westralica Burr
Bridgetown
Burr 1908, Steinmann 1989

Carcinophora occidentalis (Kirby)
Collie
Burr 1908, Koch 1980, Steinmann 1989

Gnolabis woodwardi Burr
Wooroloo, Mundaring, Mundaring Weir, Mt Helena, Gooseberry Hill, Collie, Donnybrook, Bridgetown
Burr 1908, Mjöberg 1924, Koch 1980

LABIDURIDAE

Labidura riparia (Pallas)
Mundaring Weir
Burr 1908

PLECOPTERA

GRIPOPTERYGIDAE

Leptoperla australica (Enderlein)
John Forrest NP, Seldom Seen Brook, Foster Brook, Wungong Brook, North Dandalup R, Finlay Brook, Dillon Brook, Serpentine, Lunenberg, Carey Brook, Bolganup
Enderlein 1912, Kimmins 1951, McLellan 1971, Hynes and Bunn 1984, Bunn *et al.* 1986

Newmanaperla thoreyi (Banks)
John Forrest NP, Darlington, Seldom Seen Brook, Mundaring, Chidlow, Wungong Brook, Serpentine Falls, North Dandalup, Harvey Falls, Waterfall Gully, Foster Brook, Finlay Brook, Pemberton, Shannon R (30 km W Northcliffe), Bolganup,
Kimmins 1951, McLellan 1971, Hynes 1982, Hynes and Bunn 1984, Bunn *et al.* 1986

Riekoperla occidentalis Hynes & Bunn
Foster Brook
Hynes and Bunn 1984, Bunn *et al.* 1986

ORTHOPTERA

GRYLLACRIDIDAE

Eremus hartmeyeri Griffini
Mundaring Weir
Griffini 1913

TETTIGONIIDAE

Mygalopsis pauperculus (Walker)
Beedelup Falls, 30 km E Margaret R, Augusta, Broke Inlet
Bailey 1979

Mygalopsis sandowi Bailey
Mundaring, head of Margaret R, Forest Grove
Bailey 1979

Tympanophora pellucida White
Crystal Springs (11 km W Walpole)
Map
Riek 1976

Tympanophora similis Riek
John Forrest NP, Darlington, Kalamunda
Riek 1976, Rentz and Balderson 1979

GRYLLIDAE

Balamara albovittata (Chopard)
Beedelup Falls (Pemberton)
Otte and Alexander 1983

Bobilla bivittata (Walker)
Pemberton, Warren R, Nornalup
Chopard 1951, Otte and Alexander 1983

Endacusta pindana Otte & Alexander
Mundaring, 28 ml SW Margaret R
Otte and Alexander 1983

Lepidogryllus parvulus (Walker)
'Darling Ranges'
Chopard 1951

Malua mammarris Otte & Alexander
Mundaring Weir, Darlington 50 ml E Perth
Otte and Alexander 1983

Nambungia balyarta Otte & Alexander
12 ml W Pemberton, 19 km N Augusta
Otte and Alexander 1983

EUMASTACIDAE

Swanea carbolineata (Rehn)
'Darling Range'
Key 1976

PYRGOMORPHIDAE

Monistria discrepans (Walker)
Kalamunda, Darlington, Lesmurdie, 26 ml W Denmark
Key 1985

Monistria maculicornis Sjöstedt
John Forrest NP, 5 km WSW Mundaring, 3 ml NNW Crossman, Bannister, 2 ml SSE Yornup, 26 km W Denmark
Key 1985

Psedna nana (Rehn)
Mundaring Weir, 16 ml SE Karragullen, 20 ml ESE Karragullen, 1 ml NE Kelmscott, Jarrahdale, 1 ml SE Harvey, 2 ml ENE Bowelling, L Muir, 11 ml E Nornalup, 12 ml NW Williams, 14 ml NW Kojunup, Porongurups
Key 1972

Scutillya verrucosa Sjöstedt
Glen Forrest, Jarrahdale
Key 1985

ACRIDIDAE

Chortoicetes terminifera (Walker)
Donnybrook, Bridgetown, Mt Barker
Key 1954

Gastrimargus musicus (Fabricius)
Map
Mundaring Weir, Manjimup
Ritchie 1982, CALM

Monistria latevittata Sjöstedt
Serpentine
Rehn 1953

Phaulacridium vittatum (Sjöstedt)
Dwellingup, Manjimup
Major and Koch 1982, McFadden 1986

TETRIGIDAE

Cyphotettix camelus Rehn
Bridgetown
Rehn 1952

Paratettix australis (Walker)
Pemberton
Rehn 1952

Peronotettix cyclopyga Rehn
Pemberton
Rehn 1952

PSOCOPTERA

PHILOTARSIDAE

Austropsocus occidentalis Thornton & New 5 ml SW Karridale
Thornton and New 1977

Haplophallus guttatus (Tillyard)
Nornalup, Porongurup NP
Thornton and New 1977

MYOPSOCIDAE

Phlotodes australis (Brauer)
2.4 km E Pemberton
Smithers 1975

HEMIPTERA

PSYLLIDAE

Anoeconeossa vespertina Taylor
13 km NW Pemberton, 4 km W Deep R
Taylor 1987

Creiis periculosa (Olliff)
Noble Falls, Bakers Hill, Jarrahdale, Mt Barker
Taylor 1964, Wallace 1966, Jenkins and Curry 1971, Curry 1981b,c, Abbott 1985

Cryptoneossa occidentalis Taylor
Wooroloo, 43.5 km SE Nannup, 12.9 km NW Pemberton, 27.4 km NW Deep R, Valley of Giants, Bow R
Taylor, K.L. 1990

Glyscaspis confinis Moore
12 and 21 ml W Bakers Hill
Moore 1970, 1971

Glycaspis deirada Moore
2.5 ml NW Deep R
Moore 1970

Glycaspis icterica Moore
25 ml SE Nannup, 17 ml NW Deep R, 15 ml NW Walpole
Moore 1970

TRIOZIDAE

Schedotrioza occidentalis Taylor
17 ml N Albany
Taylor, G.S. 1990

ALEYRODIDAE

Xenaleyrodes eucalypti Dumbleton
Mersea block
CALM

APHIDIDAE

Anomalaphis comperei Pergande
S Nannup, S Pemberton, E Margaret R
WADA

Ceriferella dossuaria Carver & Martyn
S Donnybrook, S Nannup, Manjimup, Darradup, Mt Barker
Carver and Martyn 1965, WADA

Tinocallis ulmiparvifoliae Matsumara
Alexander Bridge
WADA

ADELGIDAE

* *Pineus pini* (Macquart)
Widespread in pine plantations
Jenkins and Curry 1971, Abbott 1985

MARGARODIDAE

Callipappus farinosus Fuller
Mt Helena
Lindinger 1913

PSEUDOCOCCIDAE

Australicoccus grevilleae (Fuller)
Darlington
Williams 1985

Dysmicoccus mundaringae Williams
Mundaring
Williams 1985

Dysmicoccus waustensis Qin & Gullan
John Forrest NP, 3 km N Canning Reservoir
Qin and Gullan 1990

Epicoccus acaciae (Maskell)
Gooseberry Hill
Williams 1985

Eucalyptococcus gisleni (Ossiannilsson)
Pemberton, Northcliffe, Walpole, Denmark, Porongurups
Williams 1985

Maconellicoccus lanigerus (Fuller)
Torbay
Lindinger 1913, Williams 1985

ERIOCOCCIDAE

Apiomorpha helmsii Fuller
Serpentine Reservoir, 44 km NW Williams, 90 km NNW Albany
Gullan 1984

Apiomorpha maliformis Fuller
Jarrahdale, Dwellingup, Manjimup
Froggatt 1931, Gullan 1984

Apiomorpha ovicoloides (Tepper)
90 km NNW Albany
Gullan 1984

Apiomorpha regularis (Tepper)
90 km NNW Albany
Gullan 1984

Apiomorpha strombylosa (Tepper)
90 km NNW Albany
Gullan 1984

Apiomorpha subconica (Tepper)
2.4 km N Shannon R
Gullan 1984

DIASPIDIDAE

Aspidiotus nerii Bouché
Jarrahdale
Lindinger 1913, CSIRO 1970

Ceronema dryandrae Fuller
'Darling Ranges'
Fuller 1899

INCERTAE SEDIS

Bunduica rubrovenosa Jacobi
Torbay
Jacobi 1909

CICADIDAE

Arenopsaltria fullo (Walker)
Map
Moulds 1990

Cicadetta convergens (Walker)
Map
Moulds 1990

Cicadetta melete (Walker)
Map
Moulds 1990

Cicadetta quadricincta (Walker)
Map
Moulds 1990

Froggattoides pallida (Ashton)
Map
Moulds 1990

Kobonga umbrimargo (Walker)
Map
Moulds 1990

Macrotristria occidentalis Distant
Map
Moulds 1990

Pauropsalta bellatrix Ashton
Warren R
Ashton 1914, Moulds 1990

Pauropsalta encaustica (Germar)
Map
Moulds 1990

CICADELLIDAE

Idiocerus lesmurdiensis Evans
Lesmurdie
Evans 1935

Neotartessus fumus (Evans)
Mundaring Weir
Evans 1942, 1966, 1981

Neotartessus mundarensis (Evans)
Mundaring Weir
Evans 1942, 1966, 1981,

Pascoepus neboissi Webb
Karagullen
Webb 1983

Rosopaella kirkaldyi (Evans)
16 ml N Collie
Webb 1983

Rosopaella nigropicta Webb
Mt William, Manjimup
Webb 1983

Rospaella rubrofascia Webb
6 ml N Collie
Webb 1983

Zaletta lesmurdiensis (Evans)
Lesmurdie
Evans 1935, Webb 1983

Zaletta nereias (Kirkaldy)
Mundaring Weir
Webb 1983

EURYMELIDAE

Eurymeloides punctata (Signoret)
Map
Dwellingup, Nannup
Stevens 1985, WADA

Eurymelops rubrovittata (Amyot & Serville)
Dwellingup, Collie, Wilga, Kirup, Nannup, Manjimup, Pemberton, Dombakup, Walpole, Mt Barker, Karridale
Evans 1966, CALM, WADA

Lasioscopus acmaeops (Jacobi)
Mundaring Weir
Jacobi 1909, China 1926, Evans 1966

Pogonoscopus clarkei China
Mundaring
China 1926

Pogonoscopus fuscus China
Mundaring
China 1926

Pogonoscopus lenis (Jacobi)
Mundaring
Jacobi 1909, China 1926, Evans 1966, Koch 1980

Pogonoscopus myrmex China
Mundaring, Lesmurdie
China 1926, Evans 1966

MEMBRACIDAE

Sertorius brebicornis Goding
Mt Barker
Goding 1903

Sextius depressus Goding
Bridgetown
Goding 1903

NEPIDAE

Laccotrephes tristis (Stal)
Glen Forrest, Mahogany Creek, Mundaring Weir, Kojonup
WAM, WADA

Ranatra dispar Montandon
Araluen
WAM

OCHTERIDAE

Megochterus occidentalis Baehr
Walpole-Nornalup NP
Baehr 1990

GELASTOCORIDAE

Nerthra femoralis (Montandon)
Mundaring Weir, Hovea, Bridgetown, Pemberton, Warren R, Wallcliffe
Hale 1925, Todd 1960

Nerthra stali (Montandon)
Dwellingup, Manjimup, Pemberton
Todd 1960, Majer and Koch 1982

Nerthra tuberculata (Montandon)
Mundaring, Befordale, Pemberton, Warren R
Todd 1960, WADA

CORIXIDAE

Diaprepocoris personata Hale
Mundaring
Hale 1924

Sigara mullaka Lansbury
'Darling Ranges'
Lansbury 1970

MIRIDAE

Chaetedus longiceps Eyles
The Knoll (Walpole-Nornalup NP)
Carvalho and Gross 1980

REDUVIIDAE

Ptilocnemus lemur (Westwood)
Julimar, Bakers Hill, Greenmount, Darlington, Kalamunda, Mundaring Weir, Araluen, Bedfordale, Mt Cooke, Mt Solus, Grimwade
Malipatil 1985, WADA

ARADIDAE

Aspisocoris termitophilus Kormilev
Mundaring
Kormilev 1967

Neuroctenus majusculus Bergroth
Warren R
Kormilev 1967

PIESMATIDAE

Mcateella gibber Drake
Mundaring Weir
Drake 1958

LYGAEIDAE

Austronysius sericus Ashlock
16 km S Margaret R
Slater 1976b

Austroxetes westraliensis Woodward
Pemberton (Brockman NP), 4 ml N Walpole
Woodward 1979

Botocudo aff. *ornatulus* (Bergroth)
Pemberton
Slater 1976b

Coleocoris ocellatus Gross
Serpentine Dam
Slater 1976b

Crompus opacus Scudder
Mundaring Weir, Serpentine Dam, 13-16 km S Margaret R
Scudder 1957, Slater 1976b

Cryptorhamphus orbus Stål,
Julimar, Warren R, 16 km S Margaret R
Hamid 1971, Slater 1976b

Cymus novaezelandiae Woodward
Serpentine Dam
Slater 1976b

Dieuches notatus (Dallas)
Warren R
Gross and Scudder 1963

Euander lacertosus (Erichson)
Collie, Pemberton
Gross 1962, Slater 1976a,b

Euander multicoloratus (Distant)
Pemberton
Slater 1976b

Ischnodemus sordidus Slater
S Pemberton
Slater 1968

Isopeltus australis (Bergroth)
Mundaring Weir, Serpentine Dam, Pemberton
Slater 1976b

Lepionysius grossi Ashlock
Pemberton
Slater 1976b

Melanerythrus mactans (Stål)
Map
Mundaring
Slater 1985, WADA

Nysius vinitor Bergroth
Denmark
WADA

Ontiscus obscurus Scudder
Julimar, Serpentine Dam
Slater 1976a,b

Porander scudderi Gross
Pemberton
Slater 1976a,b

Spilostethus decoratus (Stål)
Map
Slater 1985

Spilostethus pacificus (Boisduval)
6 ml E Kalamunda, Helena R, Mundaring Weir, Bedfordale, Manjimup, Denmark
WAM, WADA

Udeocoris nigroaeneus (Erichson)
Julimar, Mundaring Weir, Boyup Brook, Warren R
Gross 1962, Slater 1976b

Udeocoris scudderi Gross
Julimar
Slater 1976b

COREIDAE

Amorbus bispinus (Westwood)
Inglehope, Kirup, Nannup, Shannon
CALM

Mictis profana Fabricius
Bakers Hill, Carmel, Roleystone
WAM, WADA

ALYDIDAE

Melanocanthus margineguttatus Distant
Kalamunda, Forest Grove
WAM

SCUTELLERIDAE

Choerocoris paganus (Fabricius)
Kalamunda, Araluen, Collie, Torbay, Mt Barker
WAM, WADA

PENTATOMIDAE

Chaetoceris variegatus
Walpole
CALM

Cuspicona cygniterrrae Gross
Kalamunda, Serpentine Dam, Mt William
Gross 1975, Koch 1980

Cuspicona procallosa Gross
Mt William, Deepdene
Gross 1975

Kapunda troughtoni Distant
Mundaring
CALM

**Nezara viridula* (Linnaeus)
Shannon R
WAM

●*cirrhoe inconspicua* (Dallas)
Darlington, Mundaring Weir
Gross 1975

Ocirrhoe lutescens Distant
Map
Gross 1975

Ocirrhoe unimaculata (Westwood)
Map
Gross 1975

Omyta spinosa (Van Duzee)
Denmark
WAM

Poecilometis apicalis (Westwood)
Map
Gross 1972

Poecilometis lineatus (Westwood)
Kalamunda, Mundaring, Helena R, Lesmurdie, Bickley, Serpentine Dam, Bridgetown, Warren R, Yelverton, E Mt Barker
Gross 1972

Poecilometis patruelis Stål
Map
Gross 1972

Poecilometis punctiventris (Stål)
Mundaring, Bickley, Jarrahdale, Mt William, Deepdene
Gross 1972

Pseudapines geminata (Van Duzee)
Dwellingup, Nannup, Manjimup, Pemberton
CALM

Theseus modestus (Stål)
Kalamunda, Mundaring catchment
WAM

THYSANOPTERA

AEOLOTHRIPIDAE

Andrewarthaia kellyana
Bakers Hill, Mundaring
Newman 1935, Mound, pers. comm.

Cranothrips kartus Mound
Lesmurdie
Mound 1972b

Cranothrips poultoni Bagnall
Wooroloo
Mound 1972b

Desmothrips australis (Bagnall)
Mundaring
Newman 1935, Vevers Steele 1935, Mound 1967

Desmothrips mendozai Girault
Mundaring
Newman 1935, Mound 1967

Desmothrips steeleae Mound
Pemberton
Mound 1972b

Dorythrips wallacei Mound
Kalamunda, Mundaring
Mound 1972b

Haplothrips victoriensis (Bagnall)
Bakers Hill, Bridgetown
Newman 1935

Phaulothrips fuscus (Moulton)
Bridgetown
Newman 1935

THRIPIDAE

Anaphothrips varii Moulton
Mt Barker
Pitkin 1978

Australothrips bicolor (Bagnall)
Bakers Hill, Mundaring, Mt Barker
Newman 1955

Ceratothrips frici Uzel
Mt Barker
Houston *et al.* 1991

Chirothrips manicatus Haliday
Manjimup
Mound and Palmer 1972

Hercinothrips bicinctus (Bagnall)
Bakers Hill
Houston *et al.* 1991

Odontothripiella australis (Bagnall)
Mundaring, Mundaring Weir, Bedfordale, Mt Barker
Bagnall 1918, Newman 1935, Vevers Steele 1935, Mound 1968, Pitkin 1972

Odontothripiella bispinosa (Bagnall)
Mundaring Weir
Mould 1968, Pitkin 1972

Odontothripiella hopei Pitkin
2 ml S Mt Barker
Pitkin 1972

Odontothripiella passalaina Pitkin
13 ml S Manjimup, 19 ml E Manjimup
Pitkin 1972

Pseudanaphothrips achaetus
Mundaring, Mt Barker
Newman 1935

Scolothrips sexmaculatus (Pergande)
Bridgetown
Newman 1935

Taeniothrips breviocornis (Bagnall)
Bridgetown
Newman 1935

Thrips australis Bagnall
Wooroloo, Bakers Hill, Mundaring, Mundaring Weir, Bridgetown, Mt Barker
Bagnall 1915, Newman 1935, Vevers Steele 1935, Sakimura 1967a, Mound 1968

Thrips imaginis (Bagnall)
Wooroloo, Bakers Hill, Kalamunda, Mundaring, Lesmurdie, Karagullen, Bedfordale, Bridgetown, Mt Barker
Newman 1935

Thrips seticollis Bagnall
Mundaring Weir
Bagnall 1915, Newman 1935, Sakimura 1967a,b, Mound 1968

Thrips tabaci (Lind.)
Kalamunda, Mundaring, Bedfordale, Serpentine, Bridgetown, Mt Barker
Newman 1935

PHILAEOTHRIPIDAE

Apterygothrips australis Pitkin
Manjimup
Pitkin 1973

Baenothrips moundi (Stannard)
Manjimup
Mound 1972a

Carientothrips badius (Hood)
Manjimup
Mound 1974a, pers. comm.

Carientothrips vesper Mound
Manjimup
Mound 1974a, b

Haplothrips angustus Hood
Manjimup, 13 ml S Manjimup
Pitkin 1973

Liothrips atratus (Moulton)
Mundaring
Newman 1935

Nesothrips propinquus (Bagnall)
Manjimup
Mound 1974a

MEGALOPTERA

CORYDALIDAE

Archichauliodes cervulus Theischinger
Beedelup Falls
Bunn *et al.* 1986, Theischinger and Houston 1988

NEUROPTERA

ITHONIDAE

Ithone westraliensis Riek
Warren R (6 ml SE Pemberton), 2 ml NW Margaret R
Riek 1974

MANTISPIDAE

Campion australasiae (Guérin)
Darlington, Jarrahdale, Forest Grove
Lambkin 1986b

Campion callosus Lambkin
John Forrest NP
Lambkin 1986b

Campion rubellus Navás
Collie
Lambkin 1986b

Campion tenuistriga (Gerstaecker)
John Forrest NP, Parkerville, Pipehead Dam, Margaret R
Lambkin 1986b

Theristria basalis Banks
Nornalup
Lambkin 1986a

Theristria commoni Lambkin
Bannister
Lambkin 1986a

Theristria rieki Lambkin
John Forrest NP, Serpentine Falls, Pipehead Dam 15 ml SSE Armadale, Bannister
Lambkin 1986a

HEMEROBIIDAE

Zachobiella lobata New
Beedelup Falls
New 1988

MYRMELEONTIDAE

Glenoleon osmyloides (Gerstaecker)
Gooseberry Hill, Serpentine Falls
New 1985b

Heoclisis fundata (Walker)
Darlington, Wilga
New 1985c

Myrmeleon acer Walker
Pemberton
New 1985a

Periclystus aureolatus Tillyard
Bridgetown
New 1985b

Stilbopteryx napoleo (Lefebvre)
Walyunga NP, John Forrest NP
Smithers 1989

CHRYSOPIDAE

Calochrysa extranea (Esben-Petersen)
John Forrest NP, Kalamunda, Warren R, (6 ml SE Pemberton), 2 ml N Margaret R, Forest Grove
New 1980

Chrysopa edwardsi Banks
Nornalup
New 1980

Chrysopa ramburi Schneider
Glen Forrest, Mundaring Weir, Warren R, 6 ml SE Pemberton
New 1980

Chrysopa signata Schneider
John Forrest NP, Glen Forrest, Nornalup, Porongurups
New 1980

Chrysopa tripunctata McLachlan
John Forrest NP, Mundaring Weir, Nornalup
Kimmins 1952, New 1980

Dictyochrysa peterseni Kimmins
7 ml S Pemberton, 12 ml W Pemberton
New 1980

Nothancyla verreauxi Navás
N Dandalup NP, Pemberton, Karridale (Deepdene)
New 1980

ASCALAPHIDAE

Acmonotus incusifer McLachlan
Kalamunda, 10 km E Kalamunda, Mundaring Weir, Chidlow, Araluen, Jarrahdale
New 1984

Megacmonotus magnus (McLachlan)
Kalamunda, Bannister, Forest Grove, Deepdene
New 1984

COLEOPTERA

CUPEDIDAE

Adinolepis apodema Neboiss
Canning R (4 km E Gleneagle)
Neboiss 1987

CARABIDAE

CARABINAE

Adelotopus occidentalis Castelnau
Mt Barker
Sloane 1898

Agonocheila chaudoiri Sloane
Mt Barker
Sloane 1898, Moore *et al.* 1987

Agonocheila fasciata Sloane
Mt Barker
Sloane 1898, Moore *et al.* 1987

Agonocheila fenestrata Blackburn
Bridgetown, Mt Barker
Sloane 1898, Moore *et al.* 1987

Agonocheila ruficollis Sloane
Mt Barker
Sloane 1898, Britton and Stanbury 1981, Moore *et al.* 1987

Amblystomus anthracinus (Sloane)
Mt Barker
Sloane 1898, Moore *et al.* 1987

Amblystomus gracilis (Blackburn)
'Darling Ranges'
Sloane 1898, Moore *et al.* 1987

Amblytelus brevis Blackburn
Mt Barker
Sloane 1898

Amblytelus leai Sloane
Mt Barker
Sloane 1898

Carenum laevipenne Macleay
Mt Barker
Sloane 1898

Carenum violaceum Macleay
'Darling Ranges', Mt Barker
Sloane 1898

Cerotalis substriata Castelnau
Bridgetown, Mt Barker
Sloane 1898

Clivina augustipes Putzeys
Donnybrook
Sloane, 1896a, 1898

Clivina coronata Putzeys
Mt Barker
Sloane 1898

Conopterum bifurcum (Sloane)
Mundaring
Sloane 1916

Coptocarpus australis (Dejean)
Mt Barker
Sloane 1898, 1910, Moore *et al.* 1987

Coptocarpus gibbus Chaudoir
Mt Barker
Sloane 1898, 1910

Coptocarpus thoracicus (Castelnau)
14 ml S Manjimup
Sloane 1915

Demetrida constricticeps (Sloane)
Bridgetown
Sloane 1898, Moore *et al.* 1987

Dicrochile goryi (Boisduval)
Mt Barker
Sloane 1898

Euthenarus comes (Sloane)
'Darling Ranges', Donnybrook
Moore *et al.* 1987, Britton and Stanbury 1981, Sloane 1898

Gnathaphanus melbournensis (Castelnau)
Mt Barker
Sloane 1989, Moore *et al.* 1987

Gnathoxys insignitus Macleay
Mt Barker
Sloane 1898

Harpalus fulvicornis (Thunberg)
Manjimup
Moore 1977

Homethes sericeus (Erichson)
Donnybrook, Mt Barker
Sloane 1898, Britton and Stanbury 1981, Moore *et al.* 1987

Hormacrus latus Sloane
Mt Barker
Sloan 1898

Hypharpax aereus (Dejean)
Darling Ranges
Sloane 1898

Hypharpax kingii (Castelnau)
Mt Barker
Sloane 1898, Moore *et al.* 1987

Hypharpax ranula (Castelnau)
Donnybrook
Sloane 1898

Hypharpax sculpturalis (Castelnau)
'Darling Ranges', Mt Barker
Sloane 1898

Lecanomerus verticalis (Erichson)
'Darling Ranges', Donnybrook, Mt Barker
Sloane 1898, Moore *et al.* 1987

Mecyclothorax ambiguus (Erichson)
Donnybrook
Sloane 1898, Moore *et al.* 1982

Mecyclothorax ovalis Sloane
Manjimup
Sloane 1915

Mecyclothorax punctatus (Sloane)
Map
Moore 1984

Microferonia adelaidae Blackburn
Bridgetown
Sloane 1898

Microferonia cinctipennis Sloane
Bridgetown
Sloane 1898

Neonomius australis (Sloane)
14 ml S Manjimup
Sloane 1915, Moore *et al.* 1987

Notiobia inaequalipennis (Castelnau)
'Darling Ranges', Mt Barker
Sloane 1898, Moore *et al.* 1987

Notonomus mediosulcatus (Chaudoir)
Donnybrook, Bridgetown
Sloane 1898, 1902

Pentagonica vittipennis Chaudoir
Bridgetown
Sloane 1898

Pericompsus australis (Schaum)
'Darling Ranges'
Sloane 1896b, 1898, Moore *et al.* 1987

Pericompsus habitans (Sloane)
'Darling Ranges', Bridgetown
Sloane 1896b, 1898, Moore *et al.* 1987

Philophloeus ornatus Blackburn
Mt Barker
Sloane 1898, Britton and Stanbury 1981, Moore *et al.* 1987

Platycoelus prolixus (Erichson)
Mt Barker
Sloane 1898, Moore *et al.* 1987

Platylytron amplipenne Macleay
Mt Barker
Sloane 1898

Promecoderus albaniensis Castelnau
Donnybrook, Bridgetown
Sloane 1898

Promecoderus intermedius Sloane
Mt Barker
Sloane 1898

Pseudoceneus sollicitus (Erichson)
Bridgetown
Sloane 1898, Moore *et al.* 1987

Sarothrocrepis benefica (Newman)
Mt Barker
Sloane 1898, Moore *et al.* 1987

Sarticus elegantulus (Castelnau)
Brigetown, Mt Barker
Sloane 1898, Moore *et al.* 1987

Sarticus iriditinctus (Chaudoir)
'Darling Ranges'
Sloane 1898

Scaraphites silenus (Westwood)
Donnybrook
Sloane 1898

Scopodes boops Erichson
Bridgetown
Sloane 1898

Simodontus australis (Dejean)
Bridgetown
Sloane 1898

Simodontus occultus Sloane
Bridgetown
Sloane 1898

Simodontus sexfoveatus Chaudoir)
Donnybrook, Bridgetown
Sloane 1898

Stenolophus piceus (Guérin-Méneville)
'Darling Ranges' Donnybrook, Mt Barker
Sloane 1898, Moore *et al.* 1987

Tachys ectromioides Sloane
Donnybrook
Sloane 1896b, 1921, Britton and Stanbury 1981

Tachys lindi Blackburn
'Darling Ranges'
Sloane 1898

Techimorphus westraliensis Moore
Margaret R
Moore 1972

Trechobembix baldiensis (Blackburn)
Darlington, Pemberton
Moore 1972

Trigonothops occidentalis Blackburn
Mt Barker
Sloane 1898

Trigonothops pescotti (Oke)
Pimelia
Oke 1951, Moore *et al.* 1987

HALIPILIDAE

Haliplus gibbus Clark
Map
Watts 1988a

DYTISCIDAE

Allomatus nannup Watts
Bridgetown, Balingup Road (Blackwood R-Nannup)
Watts 1978

Antiporus femoralis (Boheman)
No localities given
Watts 1978, Bunn *et al.* 1986

Antiporus gilberti (Clark)
No localities given
Watts 1978

Copelatus ater Sharp
Pemberton
Watts 1978

Copelatus ferrugineus Sharp
No localities given
Watts 1978

Eretes australis (Erichson)
No localities given
Watts 1978

Homoeodytes scutellaris (Germar)
No localities given
Watts 1978

Lancetes lanceolatus (Clark)
No localities given
Watts 1978

Liodessus dispar (Sharp)
Mundaring, Bridgetown
Watts 1978

Liodessus inornatus (Sharp)
Bridgetown
Watts 1978

Liodessus shuckhardi (Clark)
No localities given
Régimbart 1908, Watts 1978

Megaporus hamatus (Clark)
Donnybrook
Lea 1898b, Watts 1978

Megaporus solidus (Sharp)
No localities given
Watts 1978

Necterosoma darwini (Babington)
Bridgetown
Watts 1978, Bunn *et al.* 1986

Necterosoma penicillatus (Clark)
No localities given
Watts 1978

Paroster niger Watts
40 mi peg Albany Highway
Watts 1978

Platynectes aenescens Sharp
Bridgetown, Pemberton
Lea 1898b, Watts 1978, Bunn *et al.* 1986

Platynectes decempunctatus (Fabricius)
Donnybrook
Lea 1895, Watts 1978

Rhantus simulans Régimbart
No localities given
Watts 1978

Rhantus suturalis (W S Macleay)
No localities given
Watts 1978

Sternopriscus browni Sharp
Donnybrook
Lea 1898b, Watts 1978, Bunn *et al.* 1986

Sternopriscus marginatus Watts
Bridgetown, Pemberton, Margaret R
Watts 1978

Sternopriscus minimus Lea
Donnybrook
Lea 1898b, Watts 1978

GRYRINIDAE

Aulonogyrus strigosus (Fabricius)
Bridgetown
Ochs 1949

Macrogyrus angustatus Régimbart
Darlington, Mundaring Weir, Jarrahdale, Serpentine R, Bridgetown, Pemberton
Regimbart 1908, Ochs 1949

HYDROPHILIDAE

Berosus approximans Fairmaire
Map
Watts 1987

Berosus australiae Mulsant
Map
Watts 1987

Berosus discolor Blackburn
Map
Watts 1987

Berosus majusculus Blackburn
Map
Watts 1987

Chledocyon intermedius Hansen
35 km WSW Manjimup, Margaret R (Mammoth Cave Reservoir)
Hansen 1990

Chledocyon marmoratus Hansen
Pemberton, 40 km ESE Manjimup, Canebrake Rd, Nannup (Sues Bridge), Yallingup NP, Leeuwin NP (Augusta)
Hansen 1990

Chledocyon semiopacus Hansen
54 km SE Manjimup, 40 km ESE Manjimup, Quininup, Pemberton, (Brockman NP, Cascades, Warren NP), Sues Bridge (50 km SW Nannup), 34 km SE Northcliffe, Walpole NP (Collier Road, Valley of Giants, Hilltop Road, Shedley Drive, Zigzag Road), Leeuwin NP (Augusta), Porongurup NP (Bolganup Ck)
Hansen 1990

Chledocyon venustus Hansen
Pemberton (Warren NP), Walpole NP (Tingle Tree Rd, Zigzag Rd, Collier Rd).
Hansen 1990

Hydrobius hartmeyeri Régimbart
Gooseberry Hill
Régimbart 1908

Hydrophilus albipes Castelnau
'Darling Ranges', Wilga
Watts 1988b

Hydrophilus latipalpus Castelnau
Wilga
Watts 1988b

Paracymus nitidiusculus Broun
Gooseberry Hill
Régimbart 1908

HISTERIDAE

Acritus australasiae Gomy
Serpentine Dam, Donnybrook
Gomy 1984

Acritus blighi Gomy
Warren NP
Gomy 1984

Acritus occidentalis Lea
Donnybrook, Bridgetown
Lea 1924b, Gomy 1984

Acritus tropicus Lea
Karridale
Gomy 1984

Bacanius suturalis (Lea)
Bridgetown
Lea 1924b, Gomy 1984

Chlamydopsis mormolyce Lea
Mundaring
Lea 1924b

Platysoma strangulatum Mars.
Karridale
Lea 1924b

PTILIIDAE

Ptilium brevipenne Deane
'Darling Ranges'
Deane 1932

LEIODIDAE

Austronargus semota (Szymczakowski)
Warren R
Zwick 1979

Myrmecholeva lata Lea
Bridgetown
Lea 1910c

Myrmecholeva punctata Lea
Karridale
Lea 1910c

SCYDMAENIDAE

Phagonophana latipennis Lea
Bridgetown
Lea 1910c, Britton and Stanbury 1981

Scydmaenus optatus Sharp
Donnybrook
Lea 1910c

STAPHYLINIDAE

Aleochara insignis Blackburn
Bridgetown
Lea 1904b

Astenus australicus Bernhauer
Wooroloo
Bernhauer 1908

Calodera alternans Lea
Bridgetown
Lea 1909e

Calodera marginicollis Lea
Bridgetown
Lea 1909e

Conosoma barycephalum Lea
Bridgetown
Lea 1909e

Conosoma limnorioides Lea
Bridgetown
Lea 1898b

Conosoma nonum Lea
Donnybrook, Mt Barker
Lea 1898b, 1909e

Conosoma orthodoxum Lea
Karridale
Lea 1909e

Conosoma triangulum Fvl.
Mt Barker
Lea 1898b

Coptotermoecia flava Kistner & Pasteels
Kalamunda
Kistner and Pasteels 1970

Coptotermoecia robusta Kistner & Pasteels
Kalamunda
Kistner and Pasteels 1970

Dicax ventralis Lea
Donnybrook
Lea 1904b

Hetairotermes occidentalis Kistner
Kalamunda
Kistner 1970

Hetairotermes punctiventris (Lea)
Bridgetown
Lea 1910c, Kistner 1970

Heterothops pictus Lea
Donnybrook
Lea 1925a

Homalium xanthorrhoeae Lea
'Darling Ranges'
Lea 1906a

Homalota australasiae Lea
Bridetown, Karridale
Lea 1910c

Hyperomma nigrum Lea
Bridgetown
Lea 1906a

Ischnoderus australicus Cameron
Mundaring
Cameron 1943

Ischnopoda gentilis (Fauv.)
Serpentine
Bernhauer 1908

Lathrobium michaelseni Bernhauer
Gooseberry Hill
Bernhaeur 1908

Leptacinus bisulciceps Lea
Bridgetown
Lea 1925a

Oedichirus andersoni Blackburn
Pimelia
Oke 1951

Oxytelus apicalis Fvl.
Mt Barker
Lea 1906a

Oxytelus cribriceps Fauv.
Serpentine, Donnybrook, Torbay
Bernhauer 1908

Paederus meyricki Blackburn
Wooroloo, Mundaring Weir, Gooseberry Hill, Collie, Walpole
Bernhaeur 1908, Oke 1951, Weir, pers. comm.

Pseudophloecharis occidentalis Steel
'Darling Ranges'
Steel 1950

Quedius diversipennis Fauv.
Wooroloo, Mt Helena, Donnybrook
Bernhauer 1908

Scaphisoma instabile Lea
Bridgetown, Mt Barker
Lea 1926a

Scopaeus moerens Lea
'Darling Ranges'
Lea 1923a

Scopaeus ooderes Lea
Donnybrook
Lea 1923a

Scymbalium micropterum Lea
Mt Barker
Lea 1923a

Stenus bifenestratus L. Benick
Darlington, Bridgetown, Dingup
Puthz 1970

Stenus guttulifer Waterhouse
Darlington, Mundaring, Donnybrook, Bridgetown, Pemberton
Lea 1898b, Puthz 1970, 1972

Suniopsis politus Lea
Donnybrook
Lea 1904b

Tachyporus rarus Lea
'Darling Ranges'
Lea 1898b

PSELAPHIDAE

Articerus cultripes Raffray
Bridgetown
Raffray 1900

Ctenisopus impressus Sharp
'Darling Ranges'
Lea 1910c

Eupines flavoapicalis Lea
Donnybrook, Bridgetown
Lea 1910c

Euplectops discopallidus Lea
Karridale
Lea 1910d

Narcodes termitophilus Wilson
Mundaring
Wilson 1926

Palimbolus dimidiatus (Raffray)
Bridgetown
Raffray 1900, Lea 1910d

Plectostenus gracilicornis Lea
Bridgetown
Lea 1910c

Pselaphus pilosus Raffray
Bridgetown
Raffray 1900

Pselaphus tuberculifrons Raffray
Bridgetown
Raffray 1900, Lea 1910c

Tmesiphorus formicicola Wilson
Mundaring
Wilson 1926

Tmesiphorus ponerae Lea
Donnybrook, Bridgetown
Lea 1910c

CLAMBIDAE

Clambus simsoni Blackburn
Walpole (Collier Rd), Nornalup
Endrödy-Younga 1990

TROGIDAE

Trox alternans Macleay
Bakers Hill, Serpentine Falls, Tallanalla, Wilga, 12 ml W Kojonup, Moodiarrup, Warren R, 10 km S Nannup, Mt Barker, Porongurup NP (Bolganup Dam)
Scholtz 1986

Trox australasiae Erichson
Bakers Hill, Tallanalla, Wilga
Scholtz 1986

Trox costatus Wiedemann
John Forrest NP, Warren R (6 ml SE Pemberton), 2 ml NW Margaret R
Scholtz 1986

Trox dohrni Harold
Mt Barker
Scholtz 1986

Trox euclensis Blackburn
Kojonup
Scholtz 1986

Trox perhispidus Blackburn
John Forrest NP, Kojonup
Scholtz 1986

Trox suberosus Fabricius
John Forrest NP, Boyup Brook
Scholtz 1986

GEOTRUPIDAE

Blackbolbus frontalis (Guérin)
Moodiarrup, Wilga
Howden 1985

Blackbolbus quadricornis (Klug)
Kalamunda
Howden 1985

Blackbolbus taurus (Westwood)
12 km N Wilga, Wilga, Walpole, Karridale
Howden 1985

Blackburnium reichei (Guérin)
Bakers Hill, Bickley, Sawyers Valley, Wilga
Howden 1979

Bolborhacium bainbridgei (Westwood)
Wilga, Bridgetown, Manjimup, Warren R, Karridale, 3-5 km NW Karridale, Deepdene, 4 km S Balgarup
Lea 1916, Howden 1985, WADA

Bolborhacium coronatum (Klug)
Moodiarrup, 12 km N Wilga, Wilga
Howden 1985

*Bolborhacium holloway*i Howden
12 km N Wilga, 14 km E Pemberton, 30 km W Pemberton, Northcliffe, 3km W Walpole, 45 km E Walpole, Cuthbert Karridale, 4 km S Balgarup
Howden 1985

Bolborhacium nanum Howden
28 ml E Perth, 44 km E Perth
Howden 1985

Bolborhacium recticorne (Guérin)
Julimar, Bakers Hill, Kalamunda, Mundaring, Dwellingup, Mayanup, Bridgetown, Gardner R, Kojonup
Howden 1985, WADA

Bolborhacium trituberculatum (Bainbridge)
Julimar, Kalamunda, 6 ml E Kalamunda, Mundaring, Gleneagle, Whittaker's Mill, Kojonup
Howden 1985, WADA

Bolborhacium triunum (Lea)
Donnybrook, Mayanup, Moodiarrup, Wilga, 12 km N Wilga, Manjimup, 30 ml SW Nannup, 56 km E Augusta
Howden 1985, WADA

Stenaspidius nigricornis Westwood
Mundaring, Bedfordale, Pemberton, Warren R, Deepdene
Howden 1974, WADA

SCARABAEIDAE

APHODIINAE

Aphodius bicrenulatus Lea
Mt Barker
Lea 1924e

Aphodius frenchi Blackburn
Narrikup
Ridsdill-Smith and Hall 1984, Weir, pers. comm.

Aphodius granarius L.
Pimelia
Oke 1951

* *Aphodius pseudolividus*
Balthazar
Map Narrikup
Ridsdill-Smith and Hall 1984, Ridsdill-Smith *et al.* 1989

Atanenius duplopunctatus Lea
Parkerville
Lea 1924e

SCARABAEINAE

* *Euoniticellus fulvus* (Goeze)
Map
Ridsdill-Smith *et al.* 1989

* *Euoniticellus intermedius* (Reiche)
Map
Ridsdill-Smith *et al.* 1989

* *Euoniticellus pallipes* (Fabricius)
Map
Ridsdill-Smith *et al.* 1989

Labroma horrens Sharp
Mt Barker, Porongurups
Matthews 1974

Labroma umbratilis Matthews
Stirling Dam (West of Tallanalla), Walpole
Matthews 1974

Lepanus occidentalis Matthews
Hilltop Road (Walpole), 14.5 km E Walpole
Matthews 1974

* *Onitis alexis* Klug
Map
Ridsdill-Smith *et al.* 1989

* *Onitis aygulus* Fabricius
Map
Ridsdill-Smith *et al.* 1989

* *Onthophagus binodis* Thunberg
Map
Ridsdill-Smith *et al.* 1989

Onthophagus duboulayi Waterhouse
Mt Barker
Lea 1923b, Matthews 1972

Onthophagus evanidus Frey
4 ml E Jarrahdale, Whittaker's Mill (Dwellingup), Donnybrook, Tallanalla, 30 ml SW Nannup, Pemberton, 12 ml N Walpole, Porongurups
Blackburn 1903, Matthews 1972

Onthophagus ferox Harold
Map
Julimar, Spencers Brook, Mundaring, Sawyers Valley, Chidlow, Westdale, 4 ml E Jarrahdale, Dwellingup, Lowden, Donnybrook, Manjimup, Pemberton, Warren R, Northcliffe, Deepdene, Broke Inlet, Denmark, Mt Barker, Narrikup
Matthews 1972, Ridsdill-Smith and Hall 1984, Ridsdill-Smith *et al.* 1989, CALM, WADA

Onthophagus haagi Harold
Map
3 ml W Mundaring Weir, Bedfordale, 4 ml E Jarrahdale, Tallanalla, Bridgetown, 30 ml SW Nannup, 4 ml S Northcliffe, 14 ml N Denmark, Deepdene, Mt Barker, Narrikup
Matthews 1972, Ridsdill-Smith and Hall 1984, Ridsdill-Smith *et al.* 1989

Onthophagus rupricapra Waterhouse
Augusta, Mt Barker
Lea 1924c, Matthews 1972

* *Onthophagus taurus* (Schreber)
Map
Ridsdill-Smith *et al.* 1989

Onthophagus vermiculatus Frey
Map
4 ml E Jarrahdale, Whittaker's Mill (Dwellingup), Bridgetown, Donnybrook, Pemberton, Warren NP, 6 ml W, 9 ml E, 12 ml NW Walpole, Arumvale (Augusta), Porongurups, Narrikup
Matthews 1972, Ridsdill-Smith and Hall 1984, Ridsdill-Smith *et al.* 1989

Proctophanes sculptus Hope
Narrikup
Ridsdill-Smith and Hall 1984

Saprosites mansuetus Blackburn
Donnybrook
Blackburn 1904

Sauvagesinella becki (Paulian)
Tallanalla, 48 km SW Nannup, 6.4 km S Northcliffe, Mt Chudalup, 14.5 km and 19 km N Walpole
Matthews 1974

MELOLONTHINAE

Ateromonocheila longipes Blackburn
Pimelia
Oke 1951

Automolus immitis (Blackburn)
Pemberton
Britton 1957

Biphyllocera kirbyana White
Wilga, Manjimup
Majer and Koch 1982, Britton 1990

Byrrhomorpha ponderosa Blackburn
Dwellingup, Manjimup, Warren R
Lea 1919a, Majer and Koch 1982, Britton 1987

Colpochila amabilis (Blackburn)
Bridgetown, Mt Barker
Britton 1986, WADA

Colpochila antennalis (Blackburn)
Kojonup
Britton 1986

Colpochila efficax Britton
11 km WSW Busselton, 10 km S Margaret R, 3 km W Augusta
Britton 1986

Colpochila nitida Britton
Wilga
Britton 1986

Colpochila nobilis (Blackburn)
Big Brook, Margaret R, Deepdene, Arumvale (Augusta), 3 km W Augusta
Britton 1986

Colpochila pagana Britton
Kojonup
Britton 1986

Colpochilodes peregrina Britton
Bakers Hill, Marradong, Kulikup, Mayanup, Wilga, Bridgetown, Pemberton, Kojonup, Mt Barker, Frankland, Walpole
Britton 1987, WADA

Colpochilodes raucipennis Blackburn
Wilga, Manjimup (Pine Creek), Walpole-Nornalup NP
Britton 1987, WADA

Colymbomorpha lineata Blanchard
Kalamunda, Roleystone, Serpentine, Collie, Bridgetown, Pemberton, Margaret R, Forest Grove
Britton 1957

Diphucephala edwardsi Waterhouse
Bridgetown, Yanmah
CALM, WADA

Enamillus rectus Allsopp
Deepdene (Karridale)
Allsopp 1989

Glossocheilifer labialis Blackburn
Mt Barker
Blackburn 1898, Britton 1990

Haplopsis ablata Britton
Donnybrook
Britton 1957

Haplopsis darlingtoni Britton
'Darling Ranges'
Britton 1957

Haplopsis grisea (Burmeister)
'Darling Ranges'
Britton 1957

Haplopsis longipes (Blackburn)
Chidlow
Britton 1957

Haplopsis polita Britton
Warren R
Britton 1957

Haplopsis punctulata (Blackburn)
Chidlow
Britton 1957

Haplopsis rutila Britton
Chidlow
Britton 1957, Koch 1980

Heteronyx agrestus Burmeister
Manjimup
WADA

Heteronyx amoenus Blackburn
Mt Barker
Blackburn 1910

Heteronyx costulatus Blackburn
Mt Barker
Blackburn 1910

Heteronyx disjectus Blackburn
Wilga
ANIC

Heteronyx imitator Blackburn
Mt Barker
Blackburn 1909

Heteronyx nudus Blackburn
Bridgetown
Blackburn 1910

*Heteronyx nigri*cans Burmeister
Walpole (6 ml W Tinglewood Lodge)
ANIC

Heteronyx obesus Burmeister
Bakers Hill, Glen Lossie (Kojonup)
ANIC

Liparetrus cinctipennis Blackburn
Wilga
Britton 1980

Liparetrus collessi Britton
Kalamunda, Jarrahdale, Bridgetown, Warren R, 12 km W Denmark, Porongurup NP
Britton 1980

Liparetrus gravidus Blackburn
Karridale (Deepdene), Big Brook
Britton 1980

Liparetrus jenkinsi Britton
Hovea, Chidlow, Jarrahdale, Collie, Donnybrook, Greenbushes, Manjimup, Nornalup, Denmark, Deepdene, Mt Barker
Britton 1980, ANIC, WADA

Liparetrus laetus Blackburn
Mundaring, Canning Dam, Collie
Britton 1980, ANIC

Liparetrus luridipennis Macleay
Wilga
Britton 1980, ANIC

Liparetrus mulurus Britton
Mt Barker, Porongurup NP
Britton 1980

Liparetrus picipennis Germar
Mt Barker
Britton 1980

Liparetrus tristis Blanchard
Mundaring, Serpentine Falls
Britton 1980

Liparetrus validus Britton
Wooroloo
Britton 1980

Maechidius major Blackburn
Dwellingup, Bridgetown, Pimelia, Pemberton, Karridale, Margaret R, Denmark, Porongurups
Oke 1951, Britton 1957, WADA

Neophyllotocus legnotus Britton
John Forrest NP, Margaret R, Northcliffe,
Britton 1957

Neophyllotocus rostratus (Macleay)
8miles NW N Bannister
Britton 1957

Pachytricha tecta Sharp
Glen Forrest
Allsopp 1990

Phyllococerus purpurascens Waterhouse
Karridale
Britton 1957

Phyllotocus ustulatus Blanchard
Jarrahdale, Noggerup, Manjimup, Warren R
Britton 1957

Prochelyna heterodoxa Burmeister
Mundaring, Manjimup
Allsopp 1989

Scitala volux Britton
Wilga
Britton 1987

Sericesthis fovea Britton
Wilga, 11 km S Margaret R, Deepdene
Britton 1987

Sericesthis rufescens Britton
Drakesbrook, Boyup Brook
Britton 1987

Sphaeroscelis pectoralis Burmeister
Mundaring, Margaret R
Britton 1957

Synchilus gisleni Britton
Warren R (9 km SE Pemberton), 11 km S Margaret R, Deepdene, 5 ml W Augusta
Britton 1987

RUTELINAE

Anoplostethus opalinus Brullé
Jarrahdale, Dwellingup, Worsley, Karridale
Carne 1958

Epichrysus lamprimoides White
Nornalup
Carne 1958

DYNASTINAE

Cryptodus costulipennis Fairmaire
Parkerville, Manjimup (Pine Creek), Pemberton, Walpole, Deepdene
Carne 1957, WADA

Cryptodus goerlingi Carne
Darlington, Lesmurdie, Manjimup, Mt Barker
Carne 1957, WADA

Cryptodus passaloides Germar
Lake Muir
Carne 1957

Cryptodus variolosus White
Mt Barker, Walpole
Carne 1957

Heteronychus arator Fabricius
Walliston, Araluen, Marradong, Manjimup, Walpole, Kronkup, Youngs Siding
Carne 1957, CSIRO 1970, Abbott 1985, WADA

Novapus crassus Sharp
Darlington, Kalamunda, Mundaring, Bridgetown, Mt Barker
Carne 1957, Carne and Allsopp 1987

Semanopterus angustatus Blackburn
Darlington, Mundaring, Dwellingup, Mt Barker, Warren
Carne 1957, WADA

Semanopterus leai Blackburn
Mundaring, Dwellingup, Bridgetown, Donnybrook, Manjimup, Mt Barker
Carne 1957, Majer and Koch 1982, WADA

Trissodon curtus (Burmeister)
Mundaring, Bridgetown
Carne 1957

Trissodon glaber Arrow
Mundaring
Carne 1957

Trissodon laticollis (Burmeister)
Drakesbrook
Carne 1957

Trissodon subopacus Arrow
N Bannister
Carne 1957

CETONIINAE

Micropoecila breweri (Janson)
Gleneagle, Bannister, E Manjimup, Deepdene
CALM, WADA

Trichaulax philipsii (Schreibers)
Parkerville, Denmark, Kojonup
Hiller 1990, WADA

BUPRESTIDAE

AGRILINAE

Cisseis maculata (Gory & Laporte)
Parkerville, John Forrest NP
WAM

Cisseis subcarenifrons Thomson
John Forrest NP
WAM

Cisseis tyrrhena Carter
Kalamunda
Carter 1923

Paracephala hesperia Bellamy
Blackwood R
Bellamy 1988

BUPRESTINAE

Castiarina amabilis (Gory & Laporte)
Darlington, Glen Forrest, Roleystone, Wellington Mills, Brookhampton, Porongurups
WAM

Castiarina anchoralis (Gory & Laporte)
Noble Falls, Mundaring Weir, Jarrahdale
WAM

Castiarina aquila (Barker)
'Darling Ranges', Gleneagle
Barker 1980, WADA

Castiarina castelnaudi (Saunders)
Kojonup
WAM

Castiarina cincta (Blackburn)
Kalamunda
WAM

Castiarina crocicolor (Gory & Laporte)
Darlington, Greenmount
WAM

Castiarina cyanipes (Saunders)
Kojonup
WAM

Castiarina decemguttata (Gory)
Julimar, 15 ml NW Wundowie, Kalamunda, 5 km NE and 5 km N Kalamunda, Boulder Rock (Brookton Highway), Deepdene
WAM, WADA

Castiarina discolorata (Barker)
Warren R (10 km S Pemberton)
Barker 1986

Castiarina flavopicta (Boisduval)
Deepdene
WAM

Castiarina occidentalis (Barker)
Kalamunda, Jarrahdale
Barker 1979

Castiarina parallela (White)
Kalamunda, Canning Dam
WAM

Castiarina picta (Gory & Laporte)
Gidgiegannup, John Forrest NP, Kalamunda, Greenmount, Bickley
WAM

Castiarina robusta (Saunders)
Glen Forrest, Kojonup
WAM

Castiarina rufipennis (Kirby)
Parkerville, Jarrahdale, Nanga Brook, Deepdene
WAM

Castiarina sanguinolenta (Gory & Laporte)
Noble Falls, Gleneagle, N Bannister
WAM, WADA

Castiarina simulata (Gory & Laporte)
Mundaring Weir, Gleneagle, Serpentine R (Albany Highway)
WAM, WADA

Castiarina subtestacea (Barker)
Kojonup
Barker 1983

Castiarina subtrifasciata (Gory & Laporte)
Mundaring Weir
WAM

Castiarina vittata (Saunders)
Darlington, Glen Forrest, Greenmount, Kalamunda
WAM

Melobasis cuprifera Gory & Laporte
Chidlow, Nornalup
WAM, WADA

Melobasis propinqua Gory & Laporte
Mundaring
Carter 1921

Melobasis uniformis Carter
Kojonup
WAM

Melobasis wanneria Carter
Deepdene
WAM

Stigmodera gratiosa Chevrolat
John Forrest NP, Kalamunda, Lesmurdie, Bickley, Darlington, Boya, Gleneagle
McMillan 1952, Douglas 1953, WAM, WADA

Temognatha flavocincta (Gory & Laporte)
Glen Forrest, Kojonup
WAM

Temognatha lessoni (Gory)
Mundaring, Carinyah, Dinninup
WAM, WADA

Temognatha secularis (Thomson)
Glen Forrest, Parkerville, Gleneagle, N Bannister
WAM, WADA

Temognatha westwoodi (Saunders)
Hovea
WAM

CHALCOPHORINAE

Castiarina discolorata (Barker)
Warren R (10 km S Pemberton)
Barker 1986

Castiarina flavopicta (Boisduval)
Deepdene
WAM

Castiarina occidentalis (Barker)
Kalamunda, Jarrahdale
Barker 1979

Castiarina parallela (White)
Kalamunda, Canning Dam
WAM

Castiarina picta (Gory & Laporte)
Gidgiegannup, John Forrest NP, Kalamunda, Greenmount, Bickley
WAM

Castiarina robusta (Saunders)
Glen Forrest, Kojonup
WAM

Castiarina rufipennis (Kirby)
Parkerville, Jarrahdale, Nanga Brook, Deepdene
WAM

Castiarina sanguinolenta (Gory & Laporte)
Noble Falls, Gleneagle, N Bannister
WAM, WADA

Castiarina simulata (Gory & Laporte)
Mundaring Weir, Gleneagle, Serpentine R (Albany Highway)
WAM, WADA

Castiarina subtestacea (Barker)
Kojonup
Barker 1983

Castiarina subtrifasciata (Gory & Laporte)
Mundaring Weir
WAM

Cyria vittigera (Laporte & Gory)
Wilga
Carnaby 1987

Diadoxus erythrurus (White)
Lesmurdie, Manjimup
Abbott 1985

Diadoxus regius Peterson
Boscabel
WAM, Peterson 1991

CHRYSOBOTHRINAE

Merimna atrata (Gory & Laporte)
Darlington, Chidlow, Jarrahdale
WAM

POLYCESTINAE

Astraeus flavopictus LaPorte & Gory
Porongurups
Barker 1975

Astraeus fraterculus Van de Poll
Wilga
Carnaby 1987

Astraeus irregularis Van de Poll
3 km E Gosnells
Barker 1975

Astraeus macmillani Barker
6 km E N Bannister
Barker 1975

Astraeus oberthuri van de Poll
7-13 km E N Bannister,
135 km along Albany Highway (from Perth)
Barker 1975

EUCNEMIDAE

Fornax niger Lea
Mt Barker
Lea 1919b

ELATERIDAE

Anilicus loricatus Candèze
Darlington, Glen Forrest, Mundaring, Mt Barker
Gullan 1977

Anilicus xanthomus (W.S. Macleay)
Map
Gullan 1977

Crepidomenus dysmikos Calder
Churchman Brook, Bridgetown, Karridale, 14 ml NE Augusta
Calder 1986

Crepidomenus occidualis Calder
Manjimup (Pine Creek Rd), Pemberton, Deepdene, Margaret R
Calder 1986

Lacon caliginosus Guer.
Pimelia, Pemberton
Oke 1951

Lingana dombarta Neboiss
Warren R
Neboiss 1960

Orodina burrelli Calder
Churchman Brook
Calder 1986

Paracardiophorus occidentalis Carter
Warren R
Carter 1939

Pseudaeolus australis Cand.
Mundaring
Elston 1931

LYCIDAE

Calochromus basalis Waterhouse
'Darling Ranges', Mt Barker
Lea 1898b, 1909a

Metriorrhynchus constricticollis Lea
Mt Barker
Lea 1909a

Metriorrhynchus togatus Wat.
Mt Barker
Lea 1909a

CANTHARIDAE

Heteromastix flavipennis Lea
Karridale
Lea 1909a

Heteromastix pusillus Boh.
Bridgetown, Karridale
Lea 1909a

DERMESTIDAE

Orphinus occidentalis Armstrong
'Darling Ranges'
Armstrong 1943

Dorcatoma irrasa Lea
Donnybrook
Lea 1924a

Dryophilodes interstitialis Lea
Mt Barker
Lea 1924a

Dryophilodes latipennis Lea
'Darling Ranges', Bridgetown
Lea 1924a

* *Ernobius mollis* Linnaeus
Tallanalla
CALM

Hadrobregmus australiansis Pic
Deepdene
ANIC

Secretipes xanthorrhoeae Lea
Donnybrook
Lea 1924a

BOSTRICHIDAE

Bostrychopsis jesuita (Fabricius)
Mundaring
Abbott 1985

Xylopsocus rubidus Lesne
Dwellingup, Margaret R, Denmark, 21 ml W Kojonup, Mt Barker
Abbott 1985, ANIC

LYCTIDAE

* *Lyctus brunneus* (Stephens)
Wilga
Abbott 1985, ANIC

ANOBIIDAE

Methemus granipennis Lea
Donnybrook
Lea 1924a, Weir, pers. comm.

LYMEXYLIDAE

Atractocerus crassicornis Clark
Kalamunda, Nannup, Pemberton, Walpole
Abbott 1985

Atractocerus kreuslerae Pascoe
Mundaring, Jarrahdale, Dwellingup, Collie, Yornup, Manjimup, Perup, Pemberton, Nannup, Wheatley, Margaret R
Clark 1925a, Jenkins and Curry 1971, Curry 1972, Abbott 1985

TROGOSSITIDAE

Ancyrona lewisi Reitt.
Pemberton
Oke 1951

Leperina lacera Pascoe
Julimar, Mundaring
Abbott 1985

CLERIDAE

Opilo congruus Newman
Dwellingup, Margaret R
CALM

Trogodendron fasciculatum Schreibers
Mundaring, Jarrahdale, Dwellingup, Whittaker's Mill, Nannup
CALM

MELYRIDAE

Carphurus cyanopterus Boh.
Mt Barker
Lea 1901, 1909a

Dasytes corticarioides Lea
'Darling Ranges'
Lea 1909a

Dasytes fuscipennis Hope
Mt Barker
Lea 1909a

Dicranolaius intermedius Lea
Warren R
Lea 1917, Matthews, pers. comm.

Dicranolaius orcicornis Lea
Mt Barker
Lea 1898b 1909a, Matthews, pers. comm.

Helcogaster ater Lea
Donnybrook
Lea 1909a

Helcogaster parallelus Lea
Karridale
Lea 1909a

CUCUJIDAE

Laemophlaeus testaceo-rufus Lea
Mt Barker
Lea 1904b

PHALACRIDAE

Litochrus maculatus Blackburn
Mt Barker
Lea 1932

Litochrus sydneyensis Blackburn
'Darling Ranges', Bridgetown, Mt Barker
Lea 1932

Parasemus australiae Lea
Bridgetown
Lea 1932

Parasemus haploderus Lea
'Darling Ranges'
Lea 1932

Parasemus suturellus Blackburn
Mt Barker
Lea 1932

Phalacrus corruscus Panz
Mt Barker
Lea 1932

Phalacrus halacrinus Blackburn
Karridale, Mt Barker
Lea 1932

LANGURIIDAE

Xenocryptus tenebrioides Arrow
Kalamunda, Mundaring
Arrow 1929

EROTYLIDAE

Hoplepiscapha longicornis Lea
Mt Barker
Lea 1922a, Matthews, pers. comm.

BIPHYLLIDAE

Diplocoelus apicicollis Lea
Donnybrook
Lea 1921

Diplocoelus latus Lea
Donnybrook, Pimelia, Pemberton
Lea 1895, Oke 1951

Diplocoelus xanthorrhoeae Lea
'Darling Ranges'
Lea 1921

BOTHRIDERIDAE

Deretaphrus piceus Germ.
Bridgetown
Lea 1898b

Deretaphrus xanthorrhoeae Lea
Chidlow
Lea 1898b

CERYLONIDAE

Euxestus medioniger Lea
Manjimup
Lea 1922a

COCCINELLIDAE

Bucolellus ornatus Blackburn
Karridale, Mt Barker
Lea 1901

Bucolus nuytsiae Lea
Donnybrook
Lea 1901

Cleobora mellyi (Mulsant)
Mundaring, 8 km W Manjimup, 3 km S Margaret R, Karridale, Deepdene, Boranup, Mt Barker, Porongurups
Pope 1988

Coccinella transversalis Fabricius
John Forrest NP, Jarrahdale, Serpentine Dam, Bannister, Collie, Donnybrook, Wilga, Pemberton, Walpole, Kojonup, Mt Barker, Denmark
Pope 1988

Harmonia conformis (Boisduval)
Bedfordale, Jarrahdale, Donnybrook, Wilga, Pemberton, Mt Barker
Lea 1901, Pope 1988

Rhyzobiellus alphabeticus Lea
Pimelia
Oke 1951, Weir, pers. comm.

Rhyzobius hirtellus Crotch.
'Darling Ranges', Mt Barker
Lea 1901, Weir, pers. comm.

Rhyzobius nitidus Blackburn
Mt Barker
Lea 1901, Weir, pers. comm.

Stethorus histrio Chazeau
Donnybrook
Houston 1980

Stethorus nigripes Kapur
Stoneville, Donnybrook
Houston 1980

Stethorus vagans (Blackburn)
Pemberton
Houston 1980

TENEBRIONIDAE

Adelium forticorne Gebien
Torbay
Gebien 1908

Adelium irregulare Carter
Bridgetown-Manjimup
Carter 1914

Adelium lindense Blackburn
Mt Barker
Carter 1908

Adelium vicarium Pascoe
Darlington, Bridgetown, Mt Barker
Champion 1894, Lea 1898b

Anaxo cylindricollis Carter
Bridgetown
Carter 1927

Dimorphochilus apicalis Borchmann
Torbay
Borchmann 1908

Dimorphochilus gouldi Hope
Pimelia
Oke 1951

Ecnolagria aeneoviolacea Champ.
Mundaring, Jarrahdale, Northcliffe, Boranup
Borchmann 1933, Abbott 1985

Ectyche sculpturata Bates
Mt Helena
Gebien 1908

Helaeus perforatus
Manjimup
Majer and Koch 1982

Helaeus rugosipennis Carter
Bridgetown
Carter 1910

Isopteron brevis (Champion)
Darlington
Champion 1894, Matthews, pers. comm.

Leptogastrus occidentalis Carter
Parkerville
Carter 1920

Melaps pilosus Carter
Bridgetown
Carter 1915

Metistete ebeninus Carter
Mt Barker
Carter 1915

Omolipus grimwadei Oke
Denmark
Oke 1951

Ophrythyreocis vigilans Lea
Manjimup, Pemberton
Lea 1930

Platydema abdominale Gebien
Torbay
Gebien 1908

Platydema tetraspilotum Hope
Mundaring
CALM

Pterohelaeus tristis Lea
Mt Barker
Lea 1896

MELANDRYIDAE

Dircaea lignivora Lea
Donnybrook
Lea 1895

MORDELLIDAE

Austromordella verticordiae Lea
Mt Barker
Lea 1902, Matthews, pers. comm.

Mordella brevis Lea
Bridgetown, Mt Barker
Lea 1902

Mordella simillima Lea
Mt Barker
Lea 1902

RHIPIPHORIDAE

Evaniocera meyricki Blackburn
Karridale
Lea 1917

Evaniocera perthensis Blackburn
'Darling Ranges'
Lea 1904b

Macrosiagon diversiceps (Blackburn)
'Darling Ranges'
Lea 1917, Weir, pers. comm.

COLYDIIDAE

Bitoma occidentalis Carter
Mt Barker
Carter 1937

Todima fusca Grouv.
Mt Barker
Carter 1937

ZOPHERIDAE

Latometus lunatus Pascoe
Pimelia, Pemberton
Oke 1951

OEDEMERIDAE

Copidita puncta W.S. Macleay
Mangemup (= ? Manjimup)
Lea 1917

ANTHICIDAE

Anthicus geminatus Lea
'Darling Ranges', Bridgetown
Lea 1895, 1922b

Anthicus simulator Lea
Bridgetown
Lea 1895

ADERIDAE

Syzetoninus parallelus Lea
Bridgetown
Lea 1895

CERAMBYCIDAE

PRIONINAE

Dioclides prionoides Thomson
Jarrahdale, Del Park, Dwellingup
Benjamin 1984

Scelecantha pilosicollis (Hope)
Dwellingup, Pemberton, Deepdene
Abbott 1985, WADA

CERAMBYCINAE

Adrium artifex (Newman)
Mundaring, Dwellingup, Kirup
Abbott 1985

Amphirhoe decora (Newman)
Deepdene
WADA

Aphanasium australe (Boisduval)
Darlington, Jarrahdale, Dwellingup, Del Park, Deepdene
McKeown 1948, Benjamin 1984, WADA

Bardistus cibarius Newman
Mundaring, Boyup Brook, Deepdene
Abbott 1985, ANIC, WADA

Bethelium cleroides (White)
Mornington, Pemberton
WADA

Bethelium ruidum Pascoe
Warren R
Lea 1918

Bimia bicolor White
Jarrahdale, Deepdene
McKeown 1948, WADA

Coleocoptus senio (Newman)
Mundaring
Abbott 1985

Coptocercus rubripes (Boisduval)
Dwellingup, Donnybrook, Manjimup
ANIC, WADA

Coptocercus undulata (Hope)
Greystones (Mundaring), Dwellingup, Deepdene
WADA

Earinis purpureipes Lea
Darlington
McKeown 1948

Hesthesis angulatus Pascoe
Bannister
WADA

Homaemota basalis (Pascoe)
Deepdene
WADA

Maltheba flexilis Pascoe
Datlington
McKeown 1948

Ochyra variabilis Lea
Warren R, Karridale
Lea 1918

Roderes uniformis Blackburn
Greenmount, Darlington
Webb 1988

Phoracantha impavida Newman
Dwellingup, Shannon R, Karridale
CALM, WADA

Phoracantha lata (Hope)
Jarrahdale, Dwellingup, Shannon R
Galloway 1985, CALM

Phoracantha punctata (Donovan)
Darlington
McKeown 1948

Phoracantha semipunctata (Fabricius)
Julimar, John Forrest NP, Mundaring, Chidlow, Wundowie, Beraking, Dwellingup, Del Park, Manjimup, Pemberton, Karridale
Curry 1972, 1981c, Jenkins and Curry 1971, Benjamin 1984, Abbott 1985, Galloway 1985, WADA

Pseudocephalus mirus (Pascoe)
Manjimup
WADA

Scolecobrotus westwoodi Hope
Kojonup
WADA

Stenocentrus suturalis (Olivier)
Manjimup, Nornalup, Margaret R, Boranup, Deepdene
Abbott 1985, ANIC, WADA

Syllitus gramnicus (Newman)
Beraking, Manjimup
Abbott 1985

Tryphocaria acanthocera (Macleay)
Mundaring Weir, Kalamunda, Jarrahdale, Del Park, Karridale, Mt Barker
Clark 1925b, Curry 1972, 1976, Duffy 1963, Brown 1983, Abbott 1985, Galloway 1985, WADA

Tryphocaria princeps Blackburn
Dingup
McKeown 1948

Tryphocaria punctipennis Blackburn
Wheatley
CALM

Tryphocaria solida Blackburn
Jarrahdale, Del Park
Brown 1983, Abbott 1985, Galloway 1985

Uracanthus triangularis Hope
Karridale
WADA

LAMIINAE

Ancita didyma Blackburn
Donnybrook, Bridgetown
WADA

Ancita lineola Newman
Donnybrook
McKeown 1948

Ancita marginicollis (Boisduval)
Bridgetown, Manjimup
WADA

Ancita sparsa (Pascoe)
Donnybrook, Manjimup, Nornalup
WADA

Disternopsis pentheodes (Pascoe)
Deepdene
WADA

CHRYSOMELIDAE

CHRYSOMELINAE

Calomela maculicollis Boisduval
Mundaring, Pimelia
Weise 1916, Oke 1951

Chalcolampra arthritica Lea
'Darling Ranges', Bridgetown, Karridale
Lea 1903

Chalcolampra consimilis Lea
Mundaring, Bridgetown
Lea 1903, Weise 1916

Chalcolampra impar Lea
'Darling Ranges'
Lea 1903

Chalcolampra simillima Baly
Mt Barker
Lea 1903

Chalcolampra soror Lea
'Darling Ranges', Donnybrook
Lea 1903

Chrysophtharta amoena Chapuis
Jarrahdale, Collie, 4 km E Ferguson, Donnybrook, Manjimup, W Manjimup, Pemberton, Quininup, Boranup, Walpole, Denmark
Abbott 1985, ANIC, CALM

Chrysophtharta debilis (Chapuis)
Wellington Mill, 4 km E Ferguson
CALM

Chrysophtharta decolorata (Chapuis)
Quinninup block
CALM

Chrysophtharta fastidiosa (Chapuis)
Mt Barker
ANIC

Chrysophtharta variicollis (Chapuis)
Wellington Mill
CALM

Cyclonoda pilula Clark
'Darling Ranges', Bridgetown
Lea 1903

Cyclonoda subpunctata Clark
Mt Barker
Lea 1903

Paropsis advena
Pemberton, Boranup
Abbott 1985

Paropsis elliptica
Pemberton, Walpole, Boranup
Abbott 1985

Paropsis elytrura Blackburn
Mundaring, 4 km E Ferguson, Pemberton, Walpole
Weise 1916, Abbott 1985, CALM

Paropsis excisipennis Blackburn
Donnybrook
Lea 1924d

Paropsis festiva Chp.
Pimelia
Oke 1951

Paropsis geographica Baly
4 km E Ferguson
CALM

Paropsis mentitrex Blackburn
Pimelia, Quinninup block
Oke 1951, CALM

Paropsis yilgarnensis Blackburn
Araluen, Brockman block, 15 ml N Denmark
ANIC, CALM

Paropsisterna aff. *obliterata* (Erichson)
Brockman block
CALM

Paropsisterna variabilis Chap.
16 ml N Collie
ANIC

Strumatophyma verrucosa Clark
Deepdene, Denmark
ANIC

CRYPOCEPHALINAE

Cadmus crucicollis (Boisduval)
Mt Barker
WADA

Cadmus nothus Lea
Karridale
Lea 1904a

Cryptocephalus blandus Lea
'Darling Ranges'
Lea 1904a

Cryptocephalus castus (Suff.)
'Darling Ranges'
WADA

Ditropidus brunneipennis Lea
Karridale
Lea 1920a

Ditropidus concolor (Sand)
Mundaring
WADA

Ditropidus cornutus Baly
Warren R, Karridale
Lea 1920a

Ditropidus flavoapicalis Lea
Warren R
Lea 1920b

Ditropidus fugitivus Chap.
Mundaring, Pickering Brook, Bedfordale, Dwellingup, Donnybrook, Wilga, Bridgetown, Barlee Bk
ANIC, WADA

Ditropidus impuncticollis Lea
Karridale
Lea 1920a

Ditropidus jacobyi Baly
'Darling Ranges', Mt Barker
Lea 1920a

Ditropidus laevicollis Lea
'Darling Ranges'
Lea 1903

Ditropidus pulicosus Lea
Bridgetown
Lea 1903

Ditropidus aff. *semicrudus* Lea
Kentdale (Rocky Gully Rd)
ANIC

Ditropidus striato-punctatus Lea
'Darling Ranges'
Lea 1903

Ditropidus xanthurus Lea
Karridale
Lea 1903

Elaphodes halticoides Lea
Bridgetown
Lea 1920a

Leasia australis Jacoby
Nannup, Pemberton, Walpole, Denmark, Margaret R
ANIC

Loxopleurus atramentarius Chapuis
Mt Barker
Lea 1904a

Loxopleurus continguus Lea
'Darling Ranges'
Lea 1904a

Loxopleurus lateriflavus Lea
Karridale
Lea 1904a

Loxopleurus mixtus Lea
Karridale
Lea 1904a

SAGRINAE

Diaphanops westermanni (Boheman)
Boya, Gleneagle, Nornalup, Mt Barker
WADA

EUMOLPINAE

Agetinella minuta Jacoby
Glen Forrest, Nannup, Karridale
ANIC

Agetinus corinthius Boisduval
Mundaring
Weise 1916

Cleptor minutus Lea
Karridale
Lea 1915a

Edusella blackburni Lea
Donnybrook, Bridgetown, Mt Barker
Lea 1915a, Weir, pers. comm.

Edusella dispar Lea
'Darling Ranges', Warren R, Karridale
Lea 1915a, ANIC, Weir, pers. comm.

Edusella griffithi Lea
'Darling Ranges'
Lea 1915a, Weir, pers. comm.

Edusella sericea Lea
'Darling Ranges'
Lea 1915a, Weir pers. comm.

Geloptera geniculata Baly
No localities listed by Lea. Stated to be abundant and widespread in SW Australia.
Karragullen, Donnybrook, Bridgetown, Nornalup, Denmark, Karridale, Kojonup, Mt Barker
Lea 1915a, WADA

Geloptera nodosa Clark
No localities listed. Stated to occur throughout SW Australia
Lea 1915a

Geloptera soror Lea
Denmark, 6 ml NNE Denmark, Karridale, 11 ml E Alexander Bridge
ANIC

Geloptera tuberculata Baly
Mundaring, 40 ml peg Brookton Highway, Bridgetown, Wilga
Lea 1915a, Weise 1916, ANIC, WADA

Tomyris aurea Lea
Mt Barker
Lea 1915a

Tomyris compacta Lea
'Darling Ranges'
Lea 1915a

Tomyris femoralis Lea
'Darling Ranges', Mt Barker
Lea 1915a

Tomyris incisa Lea
'Darling Ranges', Mt Barker
Lea 1915a

Tomyris inconspicua Lea
'Darling Ranges'
Lea 1915a

Tomyris picticornis Lea
Mt Barker, Warren R
Lea 1915a

Tomyris pusilla Lef.
Bridgetown
Lea 1915a

Tomyris tantilla Lea
'Darling Ranges', Donnybrook
Lea 1915a

GALERUCINAE

Arsipoda acuminata Waterhouse
Pimelia
Oke 1951

Epitrix australis Bryant
Lesmurdie
Bryant 1953

Monolepta hypomela Lea
Donnybrook, Bridgetown
Lea 1923c

Monolepta stenocera Lea
Mt Barker
Lea 1923c

BELIDAE

Belus acicularis Pascoe
Mt Barker
Lea 1898b

BRENTIDAE

Apion foveicolle Lea
Donnybrook
Lea 1898b

CURCULIONIDAE

AMYCTERINAE

Acantholophus amycteroides Macleay
Parkerville, Collie, Porongurups
Lea 1909d, Ferguson 1921b, WADA

Acantholophus aureolus Boheman
Mt Cooke, Buckingham, Karridale, Porongurups
Uther Baker Coll., WADA

Acantholophus bivittatus Boheman
Denmark
Uther Baker Coll.

Acantholophus cupreomicans Ferguson
Gleneagle, Mt Cooke
Uther Baker Coll.

Acantholophus dumosus Boheman
Chidlow, Mundaring Weir, Gleneagle, Mt Cooke, Denmark, Porongurups,
Ferguson 1921b, Uther Baker Coll, WADA

Acantholophus hypoleucus Boheman
Donnybrook, Denmark
Uther Baker Coll., WADA

Acantholophus lateralis Boheman
Mt Cooke, Dwellingup, Bridgetown, Manjimup, Quilergup, Nannup, Denmark, Hay R
Majer and Koch 1982, Uther Baker Coll., WADA

Acantholophus maximus Macleay
Mundaring, Gooseberry Hill, Victoria Reservoir
Ferguson 1921b, Uther Baker Coll., WADA

Acantholophus mucronatus Macleay
Denmark
Uther Baker Coll.

Acantholophus rugiceps Macleay
Torbay
Lea 1909d

Acantholophus scaphirostris Ferguson
Bridgetown, Warren R, Denmark, Karridale
Ferguson 1915a, 1921b, Uther Baker Coll.

Acantholophus spinosus Macleay
Warren R
Ferguson 1915a

Acantholophus suturalis Boheman
Mt Helena, Dwellingup, Collie, Porongurups
Lea 1909d, Ferguson 1915a, WADA

Achorostoma hystricosum (Boheman)
Mundaring, Buckingham
Uther Baker and Thompson 1980

Aedriodes crawshawi Ferguson
Karridale
Uther Baker Coll.

Aedriodes fastigiatus Pascoe
Mt Cooke, Mt Barker
Uther Baker Coll.

Aedriodes humeralis Lea
Denmark, Mt Barker
Lea 1904c, Ferguson 1923, Uther Baker Coll.

Aedriodes inuus Pascoe
Manjimup, Warren R, Denmark
Ferguson 1915a, 1923, Majer and Koch 1982, Uther Baker Coll.

Aedriodes mendosus Pascoe
Denmark
Uther Baker Coll.

Aedriodes mucronatus Ferguson
Mundaring, Denmark
Ferguson 1923, Uther Baker Coll.

Amorphorhinus muriceus Ferguson
Mundaring
Ferguson 1915a

Amorphorhinus polyancanthus Pascoe
'Darling Ranges', Dwellingup
Ferguson 1923, Majer and Koch 1982

Anascoptes fasciatus Ferguson
Mt Barker
Ferguson 1921c, Britton and Stanbury 1981

Cubicorhynchus maximus Macleay
Gooseberry Hill
Lea 1909d

Cubicorhynchus sparsus Ferguson
'Darling Ranges'
Ferguson 1916

Cubicorhynchus spinicollis Macleay
Gooseberry Hill
Lea 1909d

Cucullothorax horridus Ferguson
Mt Barker, Warren R, Denmark
Ferguson 1915a 1923, Uther Baker Coll.

Dialeptopus collaris Boheman
Manjimup
Majer and Koch 1982

Dialeptopus ferreus Pascoe
Denmark
Uther Baker Coll.

Dialeptopus longipes Lea
Mt Barker
Lea 1896, 1910b, Ferguson 1915a

Dialeptopus macilentus Pascoe
Rocky Gully, Mt Barker
Ferguson 1923, Uther Baker Coll.

Dicherotropis dameli Macleay
Denmark
Uther Baker Coll.

Euomus insculptus Boheman
Margaret R
WADA

Euomus scorpio Boisduval
Mundaring, Serpentine R, Nornalup, Denmark, Porongurups
Ferguson 1923, Uther Baker Coll., WADA

Euomus stephensi Gyll.
Donnybrook, Warren R, Denmark, Mt Barker, Porongurups
Ferguson 1915a, Uther Baker Coll., WADA

Hyborrhynchus coenosus Boheman
Denmark
Uther Baker Coll.

Hyborrhynchus maculatus Macleay
Denmark
Uther Baker Coll.

Macramycterus boisduvali Boisduval
Circular Pool, Denmark, Mt Barker
Uther Baker Coll., WADA

Melanegis stygius Pascoe
Denmark
Uther Baker Coll.

Mythitis basalis Boisduval
Denmark
Uther Baker Coll.

Neohyborrhynchus rugosus Macleay
Denmark
Uther Baker Coll.

Oditesus indutus Pascoe
Mt Barker
Ferguson 1923

Oditesus sulcirostris Pascoe
Denmark
Uther Baker Coll.

Oditesus tibialis Lea
Mt Barker
Lea 1904c

Parahyborrhynchus convexiusculus Macleay
Manjimup, Big Brook, Karridale
Uther Baker Coll., WADA

Paroditesus tibialis Lea
Mt Barker
Ferguson 1923

Sclerorinus carteri Ferguson
Bridgetown
Ferguson 1915b, Britton and Stanbury 1981

Talaurinus amycteroides Macleay
Mt Talbot, Mt Cooke
Uther Baker Coll.

Talaurinus angustatus Macleay
Denmark
Uther Baker Coll.

Talaurinus leai Ferguson
'Darling Ranges', Mt Cooke
Ferguson 1915c, Uther Baker Coll.

Talaurinus semispinosus Boheman
Denmark
Uther Baker Coll.

Talaurinus validus Ferguson
Donnybrook
WADA

LEPTOPIINAE

Catasarcus aerosus Thompson
Ashendon block, Pemberton, Poorginup block, Boranup
CALM

Catasarcus bilineatus Fahraeus
Jarrahdale, Manjimup
Thompson 1968

Catasarcus coruscus Thompson
Yelverton, E Witchcliffe, Forest Grove, Karridale, Kudardup
Thompson 1968

Catasarcus cygnensis Thompson
'Darling Ranges', Quinninup block, Boranup
Thompson 1968, CALM

Catasarcus frontalis Thompson
Dalgarup
CALM

Catasarcus hopei Fahraeus
Buckingham, Boscabel, Nannup, Mt Barker
Lea 1909c, Thompson 1968

Catasarcus impressipennis (Boisduval)
Shannon R, Walpole, Nornalup, Mt Barker
Lea 1909c, Thompson 1968, Jenkins and Curry 1971, Britton and Stanbury 1981, CALM

Catasarcus laevior Thompson
Manjimup
Thompson 1978, Koch 1980

Catasarcus murex Thompson
Hester, Bridgetown
Thompson 1968, Koch 1980

Catasarcus spinipennis Fahraeus
Darlington, Jarrahdale, Buckland Hill (near Collie), Pemberton
Thompson 1968

Cherrus aureolus Pascoe
Mt Helena, Collie
Lea 1909d

Cherrus mastersi Pascoe
Manjimup, Mt Barker
Lea 1904c, Majer and Koch 1982

Cherrus punctipennis Pascoe
Donnybrook
Lea 1904c, 1909d

Essolithna echimys Pascoe
Mundaring, Lunenberg, Bridgetown
Lea 1909d, 1915b

Essolithna maculata Lea
Mt Barker
Lea 1904c

Essolithna militaris Lea
'Darling Ranges'
Lea 1904c

Leptopius spinosus Lea
Torbay
Lea 1909d

Polyphrades aesalon Pascoe
Pimelia, Pemberton
Oke 1951, Zimmerman, pers. comm.

GONIPTERINAE

Gonipterus citriphagus Lea
Mt Barker
WADA

Oxyops aberrans Lea
Mt Barker
Lea 1897

Oxyops aulica Pascoe
Cardac Block
CALM

Oxyops farinosa Pascoe
Bridgetown
NMV, WADA

Oxyops fasciata Boisduval
Dwalgan block, Poorginup block, Mt Barker
CALM, WADA

Oxyops hopei Boheman
Long block
CALM

Oxyops pictipennis Blackburn
Ashendon block, Bridgetown, Yanmah block, Mersea block, Quillben block, Karridale
CALM, ANIC, WADA

DIABATHRARIINAE

Strongylorhinus clarki Marshall
Denmark
ANIC

RHYNCHITINAE

Auletes pallipes Lea
Bridgetown
Lea 1898b

RHADINOSOMINAE

Rhadinosomus lacordairei Pascoe
Boranup, Pemberton
Abbott 1985

CURCULIONINAE

Orthorhinus cylindrirostris Fabricius
Carmel, Pickering Brook, Kalamunda
SAM, CALM

ERIRHININAE

Cydmaea brevicornis Lea
'Darling Ranges'
Lea 1899b

Cydmaea dorsalis Lea
Mt Barker
Lea 1899b

Cydmaea eucalypti Lea
Bridgetown
Lea 1899b

Cydmaea fasciata Lea
'Darling Ranges'
Lea 1899b

Cydmaea moerens Lea
'Darling Ranges', Bridgetown
Lea 1899b

Cydmaea rostralis Lea
Mundaring
Lea 1915b

Cydmaea uniformis Lea
Bridgetown
Lea 1899b

Cydmaea viridula Pascoe
Donnybrook
Lea 1899b

Cyttalia impura Lea
Mt Barker
Lea 1899b

Cyttalia inornata Lea
Mt Barker
Lea 1899b

Cyttalia maculata Lea
Karridale
Lea 1906b

Cyttalia sydneyensis Blackburn
Karridale
Lea 1906b

Desiantha malevolens Lea
Mundaring
Lea 1915b

Desiantha trivitticollis Lea
Denmark
Oke 1951

Dicrocis leucomelas Lea
Karridale
Lea 1926b

Encosmia albifascia Lea
Mt Barker
Lea 1926b

Encosmia minor Lea
Mt Barker
Lea 1926b

Encosmia nigriclava Lea
Mt Barker
Lea 1926b

Encosmia ruficornis Lea
Mt Barker
Lea 1926b

Eristus pallidicornis Lea
Mt Barker
Britton and Stanbury 1981

Omorophius nigrovarius Lea
Bridgetown
Lea 1909d

Storeus bellulus Lea
Mt Barker
Lea 1899b

Storeus macrostylus Lea
Bridgetown
Lea 1899b

Storeus variabilis Lea
'Darling Ranges', Mt Barker
Lea 1899b

BARIDINAE

Baris australiae Lea
Donnybrook
Lea 1906b

LAEMOSACCINAE

Laemosaccus brevis Lea
Mt Barker
Lea 1898b

Laemosaccus cryptonyx Pascoe
Bridgetown
Lea 1896

OTIORHYNCHINAE

Evas elliptica Lea
'Darling Ranges'
Lea 1904c

Evas latipennis Lea
'Darling Ranges'
Lea 1904c

**Otiorrynchus cribricollis* Gyll.
Parkerville, Bedfordale, Roleystone, Dwellingup, Wellington Mill, Donnybrook, Kirup, Balingup, Bridgetown, Manjimup, Nannup, Pemberton
Abbott 1985, WADA

Pascoellus umbratus Blackburn
Pimelia
Oke 1951

Timareta nodipennis Lea
Mt Barker
Lea 1909c

Timareta xanthorrhoeae Lea
'Darling Ranges'
Lea 1909c

AMALACTINAE

Tranes roei Boheman
Mundaring, Manjimup, Mt Barker
Lea 1898b, 1915b, Majer and Koch 1982

Tranes xanthorrhoeae Lea
'Darling Ranges', Bridgetown, Mt Barker
Lea 1898b, Zimmerman, pers. comm.

ATERPINAE

Iphisaxus aethiops Pascoe
Mt Barker
Lea 1904c, Zimmerman, pers. comm.

Iphisaxus asper Pascoe
Mt Barker
Lea 1904c

Pelorhinus amplipennis Lea
Mt Barker
Lea 1904c

Rhinaria aberrans Lea
Mt Barker
Lea 1904c

Rhinaria sulcirostris Lea
Mt Barker
Lea 1904c

CRYPTORHYNCHINAE

Achopera lachrymosa Pascoe
Torbay
Lea 1909d

Chaetectetorus bifasciatus Boheman
SW Australia, widely distributed
Lea 1908a, Abbott 1985

Chaetectetorus setosus Boheman
SW Australia, widely distributed
Lea 1908a

Decilaus distans Pascoe
Pemberton
Oke 1951

Decilaus foraminosus (Pascoe)
Bridgetown
Lea 1898a

Decilaus foveiventris Lea
Donnybrook
Lea 1898a

Decilaus memnonius (Pascoe)
Donnybrook, Bridgetown
Lea 1898a

Decilaus moluris Lea
Pimelia, Torbay
Lea 1909d, Oke 1951

Lybaeba oestuans Pascoe
Karridale
Lea 1899a

Melanterius cinnamomeus Pascoe
Donnybrook
Lea 1899a

Menios nebulosus Lea
Bridgetown, Mt Barker
Lea 1909b

Metacymia marmorea Pascoe
Mundaring
Lea 1915c

Microcryptorhynchus cylindricollis Lea
Mt Barker
Lea 1912

Ophrythyreocis vigilans Lea
Pimelia
Lea 1930, Oke 1951

Paratituacia dorsosignata Lea
Chidlow
Lea 1907

Poropterus rhyticephalus Lea
'Mayemup' (=? Mayanup)
Lea 1928

Tetengia solenopa Lea
Bridgetown
Lea 1912

RHYNCHAENINAE

Rhamphus microscopicus Lea
Donnybrook, Bridgetown
Lea 1925b

COSSONINAE

Pentaminus rhyncholiformis Wollaston
Donnybrook
Lea 1896

HAPLONYCHINAE

Haplonyx rubiginosus Pascoe
'Darling Ranges', Mt Barker
Lea 1897

Haplonyx tibialis
'Denmark District' = Nornalup
Newman and Clark 1924, Jenkins and Curry 1971, Abbott 1985

TYCHIINAE

Elleschodes inconstans Lea
Bridgetown
Lea 1909d

Elleschodes placidus Lea
Karridale
Lea 1908b

CYLINDORRHININAE

Listroderes obliquus
Darkan, Dinninup, Mt Barker
WADA

SCOLYTIDAE

**Hylastes ater* (Paykull)
Map
Jenkins and Curry 1971, Abbott 1985

**Hylurgus ligniperda* (Fabricius)
Map
Jenkins and Curry 1971, Abbott 1985

* *Ips grandicollis* (Eichhoff)
Map
Rimes 1959, Jenkins and Curry 1971, Curry 1976, 1977, Abbott 1985

Xyleborus banksiae Schedl
Map
Schedl 1964, Abbott 1985

Xyleborus pseudoangustatus Schedl
Dwellingup
ANIC

Xyleborus saxeseni (Ratzeburg)
Map
Curry 1976, 1981c, Majer and Koch 1982, Abbott 1985

STREPSIPTERA

STYLOPIDAE

Austrostylops gracilipes Lea
Bridgetown
Lea 1910a

MECOPTERA

BITTACIDAE

Harpobittacus phaeoscius Riek
Glen Forrest, Bridgetown, Donnelly R, Pemberton, W Pemberton, Treen Brook (5 ml W Pemberton), Warren R (6 ml SE Pemberton) 3 km NW, Margaret R, 11 km S Margaret R
Riek 1954, Smithers 1973, 1987

Harpobittacus similis Esben-Petersen
Hovea, Mundaring, Kalamunda, Mt Helena, Lesmurdie, Serpentine, Wilga, Crystal Springs (7 ml W Walpole), 10 km W Walpole
Russell 1953, Riek 1954, Smithers 1973, 1987

MEROPEIDAE

Austromerope poultoni Killington
Darlington, Dwellingup, Boddington, Worsley, Manjimup
Faithfull *et al.* 1985, Smithers 1987

DIPTERA

TIPULIDAE

Amphineurus fergusoni Alexander
Boddington, Donnybrook
Alexander 1931

Helius invenustipes (Alexander)
Donnybrook, Pemberton
Alexander 1930, Evenhuis 1989

Horistomyia occidentalis Alexander
Donnybrook, Bridgetown
Alexander 1929b

Leptotarsus kalamundaensis Dobrotworsky
Kalamunda, Roleystone
Dobrotworsky 1972, Koch 1980

Leptotarsus mathewsi (Alexander)
Darlington, N Bannister, Kojonup, Porongurup Range
Dobrotworsky 1974

Leptotarsus walpoleiensis Dobrotworsky
24 ml NW Walpole
Dobrotworsky 1974

Limonia clarki Alexander
Mundaring, Donnybrook, Balingup, Pemberton
Alexander 1930

Limonia punctipennis (Skuse)
Warren R
Alexander 1922, Evenhuis 1989

Molophilus inimicus Alexander
Pemberton
Alexander 1929a

Paralimnophila indecora (Alexander)
Warren R
Alexander 1922, Evenhuis 1989

Ptilogyna lineata (Skuse)
Northcliffe, Porongurups
Dobrotworsky 1971

Ptilogyna westralis Dobrotworsky
Denmark
Dobrotworsky 1971

TANYDERIDAE

Radinoderus occidentalis (Alexander)
Beedelup Falls, Pemberton
Colless 1962

CULICIDAE

Aedes alboannulatus (Macquart)
Jarrahdale, Collie, Balingup, Greenbushes, Bridgetown, Manjimup, Nannup
Britten 1958

Aedes calabyi Marks
10 ml SE Darkan, Kojonup
Marks 1962

Aedes camptorhynchus (Thomson)
Manjimup, Nornalup
Britten 1958

Aedes clelandi (Taylor)
Karragullen, Jarrahdale, Collie, Manjimup, Nornalup
Britten 1958

Aedes notoscriptus (Skuse)
Donnybrook, Manjimup, Nornalup
Britten 1958

Aedes occidentalis (Skuse)
Karragullen, Bridgetown
Britten 1958

Aedes ratcliffei Marks
7 ml SSE Gleneagle, 7 ml E Jarrahdale, Manjimup, Porongurups
Marks 1959

Aedes stricklandi (Edwards)
Serpentine
Marks 1963

Anopheles annulipes Walker
(map) Jarrahdale, Balingup, Manjimup, Perup
Lee & Woodhill 1944, Britten 1958, Bunn *et al.* 1986

Anopheles atratipes Skuse
Collie, Drakesbrook, Balingup, Nannup, Manjimup, Pemberton, Walpole, Nornalup
Britten 1958

Culex annulirostris Skuse
Manjimup, L Muir
Britten 1958

Culex fatigans Wiedemann
Collie, Manjimup
Britten 1958

Culex aff. *fergusoni* (Taylor)
Jarrahdale, Manjimup, Mt Barker
Britten 1958

Culex latus Dobrotworsky
Drakes Brook Weir, Donnybrook
Dobrotworsky 1956

Culex pipiens Linnaeus
Jarrahdale, Balingup, Boyup Brook, Manjimup
Britten 1958

Culiseta atra (Lee)
Jarrahdale, Darkan, 10 ml NE Donnybrook, Balingup, Manjimup, Nannup, Nornalup, Porongurups
Britten 1958, Dobrotworsky 1968, Marks 1968

Tripteroides atripes (Skuse)
Collie
Britten 1958

CHIRONOMIDAE

Ablabesmyia notabilis (Skuse)
Pemberton
Freeman 1961

Allotrissocladius amphibius Freeman
40 ml ESE Perth (Albany Highway)
Edward 1964

Aphroteniella filicornis Brundin
Northern jarrah forest streams
Bunn *et al.* 1986

Chironomus aff. *alternans* Walker
Serpentine Falls, Hay R, Lefroy Brook
Edward 1964, Bunn *et al.* 1986

Chironomus australiensis Freeman
Araluen (Canning R)
Edward 1964

Cladotanytarsus australomancus Glover
Wilgarrup R, Perup R
Freeman 1961, Glover 1973, Evenhuis 1989

Cricotopus annuliventris (Skuse)
Wungong Brook, N Dandalup R
Bunn *et al.* 1986

Cryptochironomus griseodorsum (Kieffer)
Northern jarrah forest streams
Bunn *et al.* 1986, Evenhuis 1989

Kiefferulus intertinctus (Skuse)
Perup R, Frankland
Edward 1964, Freeman 1961, Evenhuis 1989

Kiefferulus martini (Freeman)
Porongurup NP (Bolganup dam)
Edward 1964, Evenhuis 1989

Paraborniella tonnoiri Freeman
64 ml ESE Perth (Albany Highway)
Edward 1964

Paramerina levidensis (Skuse)
Northern jarrah forest streams, Lefroy Brook (Pemberton), Perup R, Porongurup NP (Bolganup dam)
Edward 1964 , Bunn *et al.* 1986

Polypedilum nubiferum (Skuse)
Kent R, Wilgarrup R
Edward 1964, Freeman 1961

Procladius paludicola Skuse
Hay R, Kent R, Frankland R
Edward 1964

Riethia stictoptera Kieffer
Wungong Brook, N Dandalup R
Bunn *et al.* 1986

Riethia zeylandica Freeman
Wungong and N Dandalup catchments
Bunn *et al.* 1986

Stictocladius uniserialis Freeman
Wungong Brook
Bunn *et al.* 1986, Evenhuis 1989

Tanytarsus collessi Glover
Channybearup
Glover 1973

Tanytarsus edwardi Glover
3 ml SW Karridale, Jewel Cave (Augusta), Valley of Giants (Nornalup), Porongurup NP
Glover 1973

Tanytarsus fuscithorax Skuse
3 ml S Karridale, Perup R
Glover 1973

Tanytarsus inextentus Skuse
Nornalup
Glover 1973

CERATOPOGONIDAE

Austroconops mcmillani Wirth & Lee
John Forrest NP, 10 ml SE Darkan
Wirth and Lee 1958, Debenham 1979

Culicoides marksi Lee & Reye
Map
Kojonup
Murray 1975, Debenham 1979

Culicoides victoriae Macfie
Map
Murray 1975

Forcipomyia albopunctata (Skuse)
Kojonup
Debenham 1987b

Forcipomyia insignis (Skuse)
Kojonup
Debenham 1987a

Leptoconops longicornis Carter
Karragullen, Denmark
Smee 1966, Debenham 1979

Mixohelea lemur Debenham
6 ml SW Manjimup, 7 ml W Pemberton, Pimelia, 6 ml N Walpole, Nornalup
Debenham 1974

Mixohela versicolor Debenham
Nornalup
Debenham 1974

SIMULIIDAE

Austrosimulium bancrofti (Taylor)
Mundaring, Serpentine, Bridgetown
Mackerras and Mackerras 1948

Austrosimulium aff. *cornutum* Tonnoir
Pemberton
Mackerras and Mackerras 1948

Austrosimulium furiosum (Skuse)
Northern jarrah forest streams, Kirup, Wilgarrup Brook, Pemberton,
Mackerras and Mackerras 1948, Bunn *et al.* 1986

Cnephia(?) fergusoni (Tonnoir)
Bridgetown
Mackerras and Mackerras 1948, Evenhuis 1989

Cnephia(?) aff. *terebrans* (Tonnoir)
Bridgetown, Pemberton
Mackerras and Mackerras 1948, Evenhuis 1989

Cnephia(?) tonnoiri (Drummond)
Lesmurdie, Wungong Brook, N Dandalup R
Mackerras and Mackerras 1948, Bunn *et al.* 1986, Evenhuis 1989

Simulium ornatipes Skuse
Northern jarrah forest streams, 'Darling Ranges', Dalgarup Brook
Mackerras and Mackerras 1948, Bunn *et al.* 1986

PSYCHODIDAE

Brunettia subalternata (Satchell)
Pemberton
Satchell 1953, Duckhouse 1991

Psychoda squamipleuris Satchell
Pemberton
Satchell 1953

Sergentomyia englishae (Tonnoir)
Bakers Hill, Serpentine Falls
Lewis and Dyce 1988

Sergentomyia queenslandi (Hill)
Bakers Hill, Serpentine Falls
Lewis and Dyce 1988

Peripsychoda crassepalpis (Satchell)
Pemberton
Satchell 1953, Evenhuis 1989

Telmatoscopus norrisi Satchell
Pemberton
Satchell 1953

BIBIONIDAE

Dilophus cantrelli Hardy
Yarragil (Dwellingup)
Hardy 1982

Dilophus collessi Hardy
6 ml SW Manjimup, Cascades (Pemberton), Rest Point (Walpole), Circular Pool (Walpole-Nornalup NP), Valley of Giants
Hardy 1982

Dilophus longipilosus Hardy
Kojonup
Hardy 1982

Dilophus skusei Hardy
Kojonup
Hardy 1982

Dilophus tricuspidatus Hardy
Donnybrook, 6 ml SW Manjimup, Mt Chudalup, 24 ml NW Walpole, Circular Pool (Walpole-Nornalup NP), Nornalup, Kojonup, Porongurup NP
Hardy 1982

PELECORHYNCHIDAE

Pelecorhynchus mackerrasi Daniels
Warren R (6 ml SE Pemberton)
Daniels 1977a

RHAGIONIDAE

Atherimorpha commoni Paramonov
10 ml S Bridgetown
Paramonov 1962

Chrysopilus tasmaniensis White
Boyup Brook
Paramonov 1962

Dasyomma norrisi Paramonov
Pemberton
Paramonov 1962

Spania rieki Paramonov
15 ml NW Walpole
Paramonov 1962

TABANIDAE

Ectenopsis fusca Mackerras
Kalamunda
Mackerras 1956

Mesomyia fuliginosa Taylor
Kalamunda, Mt Helena, Bowelling
Ricardo 1915, Ferguson and Hill 1920, Mackerras 1961, Evenhuis 1989

Mesomyia norrisi Mackerras
Mt Helena, L Muir, Pemberton, Nornalup
Mackerras 1961

Mesomyia sulcifrons (Ferguson)
John Forrest NP, Darlington, Mundaring
Mackerras 1961

Scaptia auranticula Mackerras
Karragullen
Mackerras 1960

Scaptia bicolorata (Taylor)
Karragullen, 15 ml E Pemberton
Mackerras 1960

Scaptia calabyi Mackerras
Boyup Brook, Greenbushes, 2 ml SSE Yornup, Manjimup, Pemberton
Mackerras 1960

Scaptia cinerea (Ricardo)
Bowelling, Mt Barker
Mackerras 1960

Scaptia divisa (Walker)
Mundaring
Mackerras 1960

Scaptia gemina (Walker)
Hovea, Glen Forrest, Mundaring, Darlington, Statham's, 13 ml SE Armadale, Collie, Jingalup, Pemberton, Warren R, Nornalup
Ricardo 1917, Mackerras 1960, Evenhuis 1989

Scaptia georgii (Taylor)
Manjimup, 17 ml SSE Manjimup, Pemberton, Warren R, Walpole, Nornalup, Bow R, Denmark
Mackerras 1960

Scaptia gibbula (Walker)
Warren R
Ricardo 1917, Ferguson 1921a, MacKerras 1960, Evenhuis 1989

Scaptia guttipennis (Ferguson)
Mundaring
Mackerras 1960

Scaptia lasiophthalma (Macquart)
Darlington
Taylor 1919, Evenhuis 1989

Scaptia minuscula Mackerras
John Forrest NP
Mackerras 1960

Scaptia neotricolor (Taylor)
Darlington, Denmark, Bornholm
Mackerras 1960

Scaptia regis-georgii (Taylor)
Mundaring
Mackerras 1960

Scaptia singularis (Macquart)
Hovea, Mundaring, John Forrest NP, Karragullen, Bowelling, Nannup, Pemberton, Nornalup, Bow R, Denmark
Mackerras 1960

Scaptia tricolor (Walker)
Hovea, Glen Forrest, Chidlow, Jarrahdale, Greenbushes, Kojonup
Mackerras 1960

NEMESTRINIDAE

Trichophthalma costalis Westwood
Mundaring
Mackerras 1925

Trichophthalma fortei Paramonov
Nornalup
Paramonov 1953a

ACROCERIDAE

Oncodes basalis (Walker)
Donnybrook
Paramonov 1957b

Panops conspicuus (Brunetti)
Kalamunda
Paramonov 1957b, Neboiss 1971

THEREVIDAE

Eupsilocephala singula (Walker)
Mundaring
Mann 1933, Evenhuis 1989

ASILIDAE

Amphisbetetus primus Paramonov
Lesmurdie
Paramonov 1966

Asiola blasio (Walker)
Darlington, Glen Forrest, Mundaring, Mundaring Weir
Daniels 1977b

Bathypogon chionthrix Hull
Kalamunda
Hull 1958

Chrysopogon rufulus White
'Darling Range'
Clements 1985

Hullia commoni Paramonov
Nornalup, 7 ml W Albany
Paramonov 1964

Mauropteron pelago (Walker)
Kalamunda, 13 ml SE Armadale (Albany Highway), Banksiadale, 24 ml E Pinjarra, Margaret R, Deepdene
Daniels 1987

Neoitamus maculatus White
Darlington
Hardy 1920

APICERIDAE

Apiocera minor Norris
Kojonup
Paramonov 1953b

Apiocera oblonga Paramonov
Lesmurdie
Paramonov 1953b

Apiocera pulchra Paramonov
Mundaring
Paramonov 1953b

Neorhaphiomydas hardyi Norris
John Forrest NP
Paramonov 1953b

MYDIDAE

Diochlistus mitis Gerstaecker
Kalamunda
Paramonov 1950

BOMBYLIIDAE

Aleucosia affinis Yeates
Holyoake, Dwellingup (Yarragil 4P), 2 ml ENE Bowelling, Pemberton (Crowea), 10 ml S Margaret R, Bolganup dam (Porongurups)
Yeates 1991

Aleucosia arguta Yeates
Kalamunda NP, Darlington, Hovea, Mundaring Weir, Glen Forrest, L Leschenault, 13 ml SE Armadale, Mt Cooke, Yarragil 4L, 3 ml WNW Crossman, Boddington, 12 ml NW Williams, Greenbushes, Bridgetown, Kojonup
Yeates 1991

Aleucosia cincta (Edwards)
Donnybrook, Deepdene
Yeates 1991

Aleucosia coreulum (Newman)
Kalamunda, Donnybrook, 16 ml S Nannup, Nornalup, Mt Barker
Yeates 1991

Aleucosia cuneata (Edwards)
Darlington, 30 ml NW Williams
Yeates 1991

Aleucosia dorsalis (Walker)
25 ml S Nannup, 10 ml S Margaret R
Yeates 1991

Aleucosia hyalina Yeates
Kalamunda, Mundaring, Collie
Yeates 1991

Aleucosia maculosa (Newman)
Mohogany Creek, Darlington, Kalamunda, L Leschenault, 12 ml NW Williams, Bridgetown
Yeates 1991

Aleucosia norrisi (Hull)
Darlington, Kojonup
Yeates 1991

Aleucosia plena (Walker)
1 ml E Jewel Cave (Augusta)
Yeates 1991

Aleucosia saltuaria Yeates
Pemberton (Crowea)
Yeates 1991

Aleucosia sugillata Yates
Darlington, 3 ml ESE Armadale, 2 km WNW Crossman
Yeates 1991

Aleucosia tridentata Yeates
John Forrest NP, Darlington, Kalamunda, Hovea, L Leschenault, E edge Dale forest, Jarrahdale, Tallanalla, Forest Grove, 1 ml E Jewel Cave (Augusta)
Yeates 1991

Australiphthiria hilaris (Walker)
Mundaring
Roberts 1928b, Evenhuis 1989

Geron karakara Evenhuis
Serpentine Falls, 16 km N Augusta
Evenhuis 1979

Oncodasia patula (Walker)
Kalamunda, Margaret R, Karridale
Yeates 1988

Oncodosia plana (Walker)
Araluen, 37 ml SE Perth (Brookton Highway)
Yeates 1988

Villa alterna (Walker)
Mundaring
Roberts 1928a

DOLICHOPODIDAE

Medetera nigrohalterata Parent
John Forrest NP
Bickel 1987

SYRPHIDAE

Microdon dimorphon Ferguson
Mundaring
Ferguson 1926

Microdon occidentalis Ferguson
Warren R
Ferguson 1926

SEPSIDAE

Australosepsis niveipennis (Becker)
Map
Colless 1980

Parapalaeosepsis plebeia de Meijere
Map
Colless 1980

LAUXANIIDAE

Poecilohetaerus albolineatus Hendel
Beedelup Falls, Warren R NP
Schneider 1991

Poecilohetaerus aquilus Schneider
Beedelup NP, Pemberton, Warren NP, Warren R, Walpole, Kentdale, Mt Barker, Margaret R
Schneider 1991

Sapromyza hieroglyphica Malloch
Donnybrook
Malloch 1927

PLATYSTOMATIDAE

Duomyia capnodes McAlpine
5 ml N Nannup, 4 ml W Margaret R, 5 ml NW Augusta
McAlpine 1972

Duomyia dete McAlpine
5 ml N Nannup
McAlpine 1972

Duomyia lonchaeina McAlpine
Frankland R, Walpole
McAlpine 1972

Duomyia longicauda McAlpine
Deepdene (Karridale)
McAlpine 1972

Duomyia lutea McAlpine
Nannup
McAlpine 1972

Duomyia ustulata McAlpine
5 ml N Nannup, 4 ml W Margaret R
McAlpine 1972

Lenophila nila McAlpine & Kim
John Forrest NP, Hovea, Crystal Springs (7 ml W Walpole), 10 ml Margaret R, Deepdene (Karridale)
McAlpine and Kim 1977

PYRGOTIDAE

Frontalia genalis Malloch
Glen Forrest
Paramonov 1958

MICROPEZIDAE

Badisis ambulans McAlpine
Near Warren R (10 km S Pemberton)
McAlpine 1990

HELEOMYZIDAE

Diplogeomyza maculipennis (Malloch)
Beedelup Falls
McAlpine 1967

Tapeigaster fulva Malloch
Pemberton
Paramonov 1955

Tapeigaster nigricornis (Macquart)
Darlington, E Jewel Cave, Porongurup NP
McAlpine and Kent 1982

Tapeigaster paramonovi McAlpine & Kent
Darlington, 18 km SW Collie, 24 km S Mumballup, Warren R. (10 km SE Pemberton), Pemberton, Channybearup, Pimelia, 14 km W Pemberton, Mt Chudalup, Rest Point (Walpole), Walpole-Nornalup NP, Porongurup NP
McAlpine and Kent 1982

AGROMYZIDAE

Cerodontha poemyzina (Spencer)
Porongurup NP
Spencer 1977

Cerodontha milleri Spencer
Nannup, 24 km SW Nannup, Rainbow Trail (Pemberton), Rest Point (Walpole)
Spencer 1977

Fergusonina lockharti Tonnoir
Mundaring
Currie 1937, Tonnoir 1937

Melanagromyza seneciophila Spencer
Bridgetown, Porongurups
Spencer 1977

Melanagromyza variegata Spencer
Mt Chudalup, Porongurup NP, Augusta (1.6 km E Jewel Cave)
Spencer 1977

Ophiomyia fera Spencer
Mt Chudalup, Rest Point (Walpole), Circular Pool (Walpole-Nornalup NP)
Spencer 1977

Phytoliriomyza nigricans Spencer
Augusta (1.6 km E Jewel Cave)
Spencer 1977

Phytomyza anthoceridis Spencer
Mt Chudalup
Spencer 1977

Phytomyza clematidicolla Spencer
Pimelia, Mt Frankland, Porongurup NP, 5 ml SW Karridale
Spencer 1977

Phytomyza ranunculicaulis Spencer
Mt Chudalup, Porongurups
Spencer 1977, Koch 1980

Phytomyza vitalbae Kaltenbach
Channybearup (14 km N Pemberton), Pimelia, 17 km N Augusta
Spencer 1977

EPHYDRIDAE

Ephydrella acrostichalis (Malloch)
2 ml NW Margaret R, Margaret R, Crystal Springs (7 ml W Walpole), Porongurup NP (Bolganup dam)
Bock 1987

Hydrellia perplexa Bock
Circular Pool (Walpole-Nornalup NP)
Bock 1990

Hydrellia tritici Coquillet
Pemberton (9 ml W Beedelup Falls, Beedelup NP, 1.5 ml E), Crowea forest block, Warren NP, Warren R (6 ml SE Pemberton) Crystal Springs (7 ml N Walpole), 1 ml E Jewel Cave (Augusta)
Bock 1990

Hydrellia victoria Cresson
Walyunga NP, Serpentine Falls, Pemberton (9 ml E, 3 ml NE, 6 km SE), Treen Brook, Beedelup NP, Warren R (6 ml SE Pemberton), Warren NP, Margaret R, 8 ml S Margaret R
Bock 1990

Paralimna millepuncta Malloch
Walyunga NP
Bock 1988

DROSOPHOLIDAE

Drosophila collessi Bock
Map
Parsons and Bock 1978

Drosophila fuscithorax Malloch
Map
1 ml E Jewel Cave (Augusta), Boranup, 2 ml W Karridale, 3 ml SW Karridale, Pemberton, 9 ml W Pemberton, 6 ml SW Manjimup, 6 ml NW Walpole, 24 ml NW Walpole, Rest Point (Walpole), Nornalup, 5 ml E Nornalup, Valley of Giants, Mt Barker, Porongurup NP
Bock 1976, Parsons and Bock 1978

Drosophila grossfieldi Bock
Map
Channybearup, 7 ml NE Pemberton, Pimelia, 9 ml W Pemberton, Nornalup, Walpole, Nornalup NP, 6 ml N Walpole, Porongurup NP
Bock 1976, Parsons and Bock 1978

Drosophila nicholsoni Malloch
Map
Bridgetown, Pemberton, 3 ml NE Pimelia, Channybearup, Kojonup, Porongurup NP, 10 ml N Albany
Bock 1976, Parsons and Bock 1978

Scaptomyza australis Malloch
Pemberton, 7 ml S Pemberton
Bock 1977

Scaptomyza pallida (Zetterstedt)
Pemberton, 9 ml W Pemberton
Bock 1977

CHLOROPIDAE

Cadrema atriventris Malloch
Donnybrook
Malloch 1940

Chloromerus maculifemur Malloch
Margaret R, Warren R (9.7 km SE Pemberton), Porongurups
Spencer 1986

Chloromerus purus Becker
Porongurup NP
Spencer 1986

Collessimyia nigricornis Spencer
Mundaring
Spencer 1986

Diplotoxa sexta Spencer
Treen Brook (8 km W Pemberton)
Spencer 1986

Tricimba selachopina Thomson
Bridgetown
Malloch 1927, Evenhuis 1989

MUSCIDAE

Atherigona tibiseta Malloch
Pemberton, Margaret R
Pont 1986

Australophyra rostrata Robineau-Desvoidy
Bridgetown, Pemberton, 16 ml S Nannup, 5 ml NW Augusta
Pont 1973

Fannia australis Malloch
16 ml S Nannup, 5 ml W Pemberton (Treen Brook)
Pont 1977a

Gymnodia obliterata (Malloch)
Warren R (6 ml SE Pemberton)
Pont 1977b

Musca vetustissima Walker
Gleneagle, Bridgetown, Pemberton
Pont 1973, Matthiessen 1983

Prohardyia carinata (Stein)
Mt William, Deepdene
Pont 1969

Prohardyia pollinosa (Malloch)
7 ml S Pemberton
Pont 1969

CALLIPHORIDAE

Calliphora albifrontalis Malloch
Mundaring
Malloch 1932

Calliphora varifrons Malloch
Mundaring, East Brook (Pemberton)
Malloch 1932, Kurahashi 1971, Evenhuis 1989

Lucilia cuprina (Wiedemann)
Map
Waterhouse and Paramonov 1950

Lucilia sericata (Meigen)
Map
Waterhouse and Paramonov 1950

Metallea incisuralis (Macquart)
Kalamunda
Dear 1977

Stomorhina subapicalis Macquart
Kalamunda, Serpentine Falls, Collie
Dear 1977

TACHINIDAE

Carcelia aff. *vicinalis* Cantrell
Darlington
Cantrell 1985c

Chaetophthalmus collessi Cantrell
Yarragil 4P catchment (Dwellingup)
Cantrell 1985a

Chaetophthalmus dorsalis (Malloch)
Porongurups
Cantrell 1985a

Chaetophthalmus similis (Walker)
Darlington
Cantrell 1985a

Chrysopasta elegans (Macquart)
Darlington, Mundaring, Mundaring Weir, 16 ml NW Walpole, Denmark, 8 ml NNW Kojonup
Malloch 1930, Paramonov 1968

Cylindromyia bimacula (Walker)
Deepdene
Cantrell 1984

Cylindromyia brunnea Malloch
Porongurups
Cantrell 1984

Exorista flaviceps Macquart
Darlington
Cantrell 1985b

Formosiomima nigromaculata (Malloch)
Bridgetown
Paramonov 1957a, Evenhuis 1989

Prodiaphania cygnus (Malloch)
Hovea
Paramonov 1968

Prodiaphania funebris Paramonov
Kalamunda, Karragullen
Paramonov 1968

Prodiaphania georgei Malloch
Mundaring
Malloch 1936, Crosskey 1973

Quadra ornata Malloch
Quilergup
Cantrell 1988

Senostoma punctipenne (Macquart)
Mundaring
Malloch 1930, Crosskey 1973

Winthemia lateralis (Macquart)
Karridale
Cantrell 1989

TRICHOPTERA

HYDROBIOSIDAE

Apsilochorema urdalum Neboiss
Kalamunda, Harvey R (15 km E Harvey), Beedelup Falls, 15 ml W Pemberton, Carey Brook (20 km W Pemberton), 10 km W Walpole, Canterbury Brook (16 km E Northcliffe), Ellen Brook Falls (10 km Margaret R)
Neboiss 1962, 1982, Bunn *et al.* 1986

Taschorema pallescens (Banks)
12 ml E Harvey, Collie (21 km WSW, 25 km N), Pemberton, 15 ml W Pemberton, 11 km S Pemberton, Warren R (7 km S Pemberton), Carey Brook, Beedelup Falls, 8 ml S Margaret R, Deepdene, Nornalup, 15 ml NW Walpole, Frankland R (6 km NE Walpole), Deep R (10 km W Walpole),
Mosely and Kimmins 1953, Neboiss 1962, 1982, Bunn *et al.* 1986

HYDROPTILIDAE

Acritoptila globosa Wells
Wungong Brook, Harvey Falls
Wells 1982, 1985, Bunn *et al.* 1986

Acritoptila margaretae Wells
Wungong Brook, N Dandalup R, Harvey Falls
Wells 1982, 1985, Bunn *et al.* 1986

Hellyethira litua Wells
Walyunga NP, John Forrest NP, Kalamunda, Serpentine Falls, Harvey R, Blackwood R (Rocky Isle Falls), Beedelup Falls, Warren R (7 km S Pemberton), Warren NP, Frankland R (6 km NE Walpole), Deep R (10 km W Walpole), Margaret R (25 km S Busselton at Rapids crossing), Ellen Brook Falls
Neboiss 1982, Wells 1985

Hellyethira malleoforma Wells
Walyunga NP, John Forrest NP, Kalamunda, Harvey R, Margaret R (25 km S Busselton at Rapids crossing)
Neboiss 1982, Wells 1985

Hydroptila losida Mosely
John Forrest NP, Walyunga NP, Kalamunda, Serpentine Falls, Harvey R, Blackwood R (Rocky Isle Falls), Beedelup Falls, Warren R (7 km S Pemberton), Warren NP, Frankland R (6 km NE Walpole), Margaret R (25 km S Busselton at Rapids crossing)
Neboiss 1982, Wells 1985

Maydenoptila baynesi Wells
Marrinup Brook (Pinjarra-Dwellingup Road)
Wells 1983, 1985

Oxyethira brevis Wells
Beedelup Falls
Neboiss 1982

Oxyethira retracta Wells
John Forrest NP, Chidlow, Kalamunda, Wungong Brook, Serpentine Falls, N Dandalup R, Harvey R (15 km E Harvey), 25 km S Busselton, Margaret R (Rapids crossing).
Neboiss 1982, Wells 1981, 1985, Bunn *et al.* 1986

PHILOPOTAMIDAE

Hydrobiosella amblyopia Neboiss
Beedelup Falls, 24 km W Pemberton, 11 km S Pemberton
Neboiss 1982

Hydrobiosella michaelseni (Ulmer)
Wungong Brook, N Dandalup R, Harvey R, Beedelup Falls, Margaret R (16 km S Busselton)
Neboiss 1982, Bunn *et al.* 1986

HYDROPSYCHIDAE

Cheumatopsyche modica (McLachlan)
John Forrest NP, Serpentine Falls, Beedelup Falls, Blackwood R (Rocky Isle Falls), Margaret R (25 km S Busselton)
Neboiss 1982, Bunn *et al.* 1986

Smicrophylax australis (Ulmer)
John Forrest NP, Wungong Brook, Jarrahdale, N Dandalup R, Harvey Falls, Cascades (Pemberton), Pemberton, Beedelup Falls, Warren R (7 km S Pemberton), Canterbury Brook, Warren NP, Ellen Brook Falls, Deepdene, Blackwood R (Rocky Isle Falls)
Ulmer 1908, Mosely and Kimmins 1953, Neboiss 1982, Bunn *et al.* 1986

POLYCENTROPODIDAE

Adectophylax volutus Neboiss
Harvey Falls, 24 km NW Walpole
Neboiss 1982

Plectrocnemia eximia Neboiss
Harvey Falls, 10 km W Walpole, 6 km NE Walpole
Neboiss 1982

ECNOMIDAE

Ecnomina merga Neboiss
Warren NP, Pemberton, 6 km NE Walpole, Blackwood R (Sues Bridge)
Neboiss 1982

Ecnomina mesembria Neboiss
Harvey R, Canterbury Brook (16 km E Northcliffe), Ellen Brook Falls (10 km NW Margaret R)
Neboiss 1982

Ecnomina scindens Neboiss
Harvey Falls, Beedelup
Falls, 24 km NW Walpole, 6 km NE Walpole
Neboiss 1982

Ecnomina sentosa Neboiss
Harvey R, Canterbury Brook (16 km NE Walpole), 10 km W Walpole, Blackwood R (Sues Bridge)
Neboiss 1982

Ecnomina trulla Neboiss
Napier Ck (22 km NE Albany)
Neboiss 1982

Ecnomina viatica Neboiss
25 km NW Walpole, Margaret R (25 km S Busselton)
Neboiss 1982

Ecnomus pansus Neboiss
Walyunga NP, John Forrest NP, Kalamunda, Serpentine Falls, Blackwood R, Warren R (7 km S Pemberton), Beedelup Falls, Frankland R (6 km NE Walpole)
Neboiss 1982, Cartwright 1990

Ecnomus turgidus Neboiss
Map
Walyunga NP, John Forrest NP, Serpentine Falls, Harvey R, Warren R (7 km S Pemberton), Warren NP, Frankland R (6 km NE Walpole), Margaret (25 km S Busselton)
Neboiss 1982, Cartwright 1990

PLECTROTARSIDAE

Plectrotarsus minor Mosely
16 km E Nornalup
Neboiss 1982

PHILORHEITHRIDAE

Kosrheithrus boorarus Neboiss
Canterbury Brook
Neboiss 1982

LEPTOCERIDAE

Condocerus aptus Neboiss
Kalamunda, Harvey Falls (15 km E Harvey), 19 km E Harvey, 25 km S Nannup, Beedelup Falls, Warren R (7 km S Pemberton), Carey Brook, Canterbury Brook, 24 km NW Walpole
Neboiss 1982, Bunn *et al.* 1986

Lectrides parilis Neboiss
Kalamunda, Serpentine Falls, Harvey R (19 km E Harvey), Collie, 11 km S Pemberton, 19 and 24 km W Pemberton, Beedelup Falls, Warren R (7 km S Pemberton), Warren NP, Carey Brook, Canterbury Brook, Walpole, 16 km E Nornalup, Margaret R, 6 km W Margaret R, Ellen Brook Falls, Deepdene
Neboiss 1982, Bunn *et al.* 1986

Notalina delicatula Ulmer
Mt Helena, Serpentine Falls, Harvey R, Carey Brook, Beedelup Falls, Canterbury Brook, 24 km NW Walpole, 6 km NE Walpole, 10 km W Walpole
Ulmer 1908, Mosely 1936, Mosely and Kimmins 1953, Neboiss 1982

Notalina dwellinga Neboiss
Marrinup Brook (7 km W Dwellingup)
Neboiss 1982

Notalina flava (Ulmer)
Wooroloo, Serpentine Falls, Harvey R (15 km E Harvey), Deep R (10 km W Walpole)
Ulmer 1908, Mosely and Kimmins 1953, Koch 1980, Neboiss 1982

Notalina fulva Kimmins
Walyunga NP, John Forrest NP, Wooroloo, Serpentine Falls, Harvey R (15 km E Harvey), 24 km W Pemberton, 24 km NW Walpole, Frankland R (16 km NE Walpole, 16 km E Nornalup, Margaret R (25 km S Busselton)
Neboiss 1982, Bunn *et al.* 1986

Notalina pseudodelicata Neboiss
Warren NP, Frankland R (6 km NE Walpole), Margaret R (25 km S Busselton), Blackwood R (Alexander Bridge)
Neboiss 1982

Notoperata tenax Neboiss
Canterbury Brook
Nebois 1982, Bunn *et al.* 1986

Oecetis cymula Neboiss
Harvey R Falls, Beedelup Falls (16 km W Pemberton), Frankland R (6 km NE Walpole), 24 km NW Walpole, Margaret R (25 km S Busselton)
Neboiss 1982

Oecetis inscripta Kimmins
Blackwood R (Rocky Isles Falls)
Neboiss 1982

Oecetis laustra Mosely
Walyunga NP, John Forrest NP, Frankland R (6 km NE Walpole), Nornalup
Neboiss 1982

Oecetis pechana Mosely
Walyunga NP, John Forrest NP, Wooroloo, Kalamunda, Stoneville, Serpentine Falls, Harvey R Falls, Beedelup Falls, Canterbury Brook, Frankland R (6 km NE Walpole), Margaret R (25 km S Busselton), Ellen Brook Falls, Deepdene, Napier Creek
Neboiss 1982

Oecetis walpolica Neboiss
Walyunga NP, John Forrest NP, Serpentine Falls, Warren NP, Warren R (7 km S Pemberton, Beedelup Falls, Deep R (10 km W Walpole), Frankland R (6 km NE Walpole), Blackwood R, (Rocky Isle Falls), Margaret R (25 km S Busselton)
Neboiss 1982

Symphitoneuria wheeleri Banks
Harvey R (19 km E Harvey), 24 km NW Walpole, 16 km E Nornalup
Neboiss 1982

Triaenodus jubatus Neboiss
Serpentine Falls, Blackwood R (Rocky Isle Falls)
Neboiss 1982

Triplectides australis Navás
Walyunga NP, John Forrest NP, Serpentine Falls, Harvey R, 25 km N Collie, 6 km NE Walpole, Margaret R (24 km S Busselton)
Neboiss 1982

Triplectides enthesis Neboiss
Beedelup Falls
Neboiss 1982

LEPIDOPTERA

HEPIALIDAE

Abantiades albofasciatus (Swinhoe)
Kojonup
ANIC

Abantiades hydrographus (Felder)
13 ml WSW and 16 ml N Collie, 16 ml SE Donnybrook, Bridgetown, 5 ml N Nannup, 5 ml NW Augusta.
ANIC

Abantiades ocellatus (Tindale)
13 ml WSW Collie, Pemberton, Carey Brook, 7 ml S Pemberton, Denmark, 4 ml W Margaret R, 5 ml NW and 19 ml N Augusta.
Tindale 1932, Edwards, pers. comm., ANIC

Aenetus dulcis (Swinhoe)
14 km SW/W Donnybrook, Pemberton, Manjimup, 2 km WSW Bow R Bridge, Denmark, Deepdene, Karridale, Alexander Bridge
ANIC, CALM

Aenetus scriptus (Scott)
16 ml N Collie, 7 ml S Pemberton, Denmark
ANIC

Fraus basicornis Nielsen & Kristensen
Bakers Hill
Nielsen and Kristensen 1989

Fraus distispina Nielsen & Kristensen
4 km NE Gracetown, 2 km WSW Bow R Bridge
Nielsen and Kristensen 1989

Fraus furcata Nielsen & Kristensen
26 km N Collie, 38 km NE Karridale, 28 km NE Karridale (Gomm Spring)
Nielsen and Kristensen 1989

Fraus mediaspina Nielsen & Kristensen
Donnybrook, Bridgetown, 11 km S Pemberton
Nielsen and Kristensen 1989

Fraus pilosa Nielsen & Kristensen
12 km SW Donnybrook, Blackwood R, Alexander Bridge, 24 km S Nannup, Deepdene (Karridale)
Nielsen and Kristensen 1989

Fraus pteromela (Lower)
3 km SW Donnybrook, 38 km NE Karridale, 28 km NE Karridale (Gomm Spring), 4 km NE Gracetown
Nielsen and Kristensen 1989

Fraus quadrangula Nielsen & Kristensen
Darlington, 26 km N Collie, 14 km SW/W Donnybrook, Mt Barker
Nielsen and Kristensen 1989, ANIC

Fraus serrata Nielsen & Kristensen
28 km NE Karridale (Gomm Spring), 2 km WSW Bow R Bridge, 7 km N Kent R Bridge
Nielsen and Kristensen 1989

Oxycanus kochi Tindale
near Bow R Bridge
ANIC

Oxycanus occidentalis Tindale
Mundaring, Kalamunda, 23 km N Collie, Collie, 14 km SW/W Donnybrook, 10 km SW Pemberton, near Bow R Bridge, near Kent R Bridge
Tindale 1935, ANIC

Oxycanus perditus Tindale
Bakers Hill, Kojonup
ANIC

Oxycanus poeticus Tindale
10 km SW Pemberton, near Bow R Bridge
ANIC

Oxycanus promiscuus Tindale
near Bow R Bridge, Porongurup Range
ANIC

INCURVARIIDAE

Perthida glyphopa Common
Map
Common 1969, Jenkins and Curry 1971, Curry 1972, n.d., Mazanec 1974, 1978, 1980, 1985, Abbott 1985

PSYCHIDAE

Lomera pantosemna (Turner)
Grimwade, 2 ml W Barlee Brook, 15 km NW Walpole, 10 ml NE Albany
Jenkins and Curry 1971, Edwards, pers. comm., CALM, ANIC

Lomera xanthochrysa (Meyrick & Lower)
Pipe Head dam, 19 ml ENE Perth, 12 km SW Donnybrook, Tallanalla, 15 ml S Nannup, 15 ml NW Walpole, Walpole, 10 ml NE Albany, Margaret R, Deepdene
Jenkins and Curry 1971, Edwards, pers. comm, ANIC

TINEIDAE

Scieropepla monoides Turner
Bridgetown
Turner 1906

GLYPHIPTERIGIDAE

Sagalassa conspersa Turner
Mt Dale
Turner 1941b

OECOPHORIDAE

Baryzancla dysclyta Turner
Kalamunda
Turner 1933

Baryzancla ithygramma Turner
Mt Dale
Turner 1933

Blacophanes pallida Turner
10 ml S Bridgetown, Nannup
Common 1964

Borkhausenia basileuca Turner
Mt Dale
Turner 1933

Borkhausenia butyrea Turner
Kalamunda
Turner 1935a

Borkhausenia glypsodes Turner
Kalamunda
Turner 1933

Celeophracta hyperphana Turner
Mundaring
Turner 1935a

Coesyra chrysoptera Turner
Kalamunda
Turner 1940

Coesyra leucanepsia Turner
Kalamunda
Turner 1940

Cormotypa dolopis Turner
Kalamunda
Turner 1941a

Cormotypa tetrasticha Turner
Kalamunda
Turner 1944b

Cryptolechia irobela Turner
Kalamunda
Turner 1947

Elaeonoma citritis Turner
Mundaring
Turner 1935b

Elaeonoma phaulostola Turner
Kalamunda
Turner 1935b

Enchocrates phaedryntis Meyrick
Collie
Turner 1947

Eulechria amolgaea Turner
Kalamunda
Turner 1938b

Eulechria epichrista Turner
Kalamunda
Turner 1937

Eulechria ichneuta Meyrick
Mt Dale
Turner 1938b

Eulechria scioides Turner
Mundaring
Turner 1937

Leptocera clepsiphanes Turner
Mundaring
Turner 1933

Machimia nephospila Turner
Kalamunda
Turner 1945

Machimia oncospila Turner
Kalamunda
Turner 1945

Macronemata analoptera Turner
Mundaring
Turner 1935c

Myrascia cremantis (Meyrick)
Kalamunda
Common 1977

Myrascia interlineatella (Walker)
Nornalup, Karridale
Common 1977

Myrascia subductella (Walker)
Karridale
Common 1977

Ocystola cyphomochla Turner
Kalamunda
Turner 1941a

Ocystola homoxantha Turner
Kalamunda
Turner 1944b

Ocystola leucostemma Turner
Kalamunda
Turner 1941a

Oecophora hilaropa Meyrick
Greenmount
Meyrick 1888

Philetes megalospila Turner
Tallanalla, 15 ml S Nannup
Common 1964

Tanyzancla argutella Zel.
Mt Barker
Turner 1941a

Tanyzancla baeotypa Turner
Kalamunda
Turner 1944b

Thalamarchella alveola (Felder & Rogenhofer)
Tallanalla
Common 1964

Thalamarchella robinsoni Common
Kalamunda
Common 1964

Thudaca campylota Meyrick
Bridgetown, Nornalup
Turner 1947

COSSIDAE

Archaeoses polygrapha Lower
Deepdene
ANIC

Culama australis
Dwellingup
CALM

Xyleutes cinereus Turner
Manjimup
CALM, Edwards, pers. comm.

Xyleutes coscinopa Lower
Kalamunda
ANIC

Xyleutes lichenaea Roths
Quilergup, Manjimup, Pemberton
CALM, Edwards, pers. comm.

Xyleutes vittata Walker
Bridgetown
Turner 1944a

TORTRICIDAE

Acroclita commatica Turner
Collie
Turner 1946b

Arotrophora anemarcha (Lower)
30 ml SE Perth, Tallanalla, 10 ml S Bridgetown, 15 ml S Nannup, 15 ml NW Walpole
Common 1963

Arotrophora arcuatalis (Walker)
Bridgetown, Porongurups
Meyrick 1910, Common 1963

Arotrophora diadela Common
8 ml NW Nornalup
Common 1963

Eucosma anisospila Turner
Kalamunda
Turner 1946b

Palaeotoma styphelana Meyrick
8 ml NW Nornalup
Common 1965

Paraphyas callixena Turner
Denmark
Common 1963

Parastranga macrogona Meyrick
8 ml SW Pemberton, 15 ml NW Walpole, Denmark, Porongurups, 10 ml NE Porongurups
Common 1963

Peraglyphis atherista Common
Kalamunda
Common 1963

Spilonota brachytycha Turner
Mt Dale
Turner 1946b

Spilonota tornosema Turner
Mt Dale
Turner 1946b

Tortrix divulsana Walker
Bridgetown
Meyrick 1910

Tortrix haplophanes Turner
Mundaring
Turner 1925

CASTNIIDAE

Synemon directa Westwood
'Darling Ranges'
Lower 1905, Edwards, pers. comm.

ZYGAENIDAE

Hestiochora tricolor Meyrick
Mt Dale
Turner 1926b

Pollaniscus amethystinus (Meyrick)
Mt Dale
Turner 1926b

LIMACODIDAE

Doratifera oxleyi (Newman)
Bakers Hill, 14 km SW/W Donnybrook, Gomm Spring (28 km EN Karridale), 7 km N Kent R Bridge, Kojonup, Porongurup NP, 4 km NE/E Gracetown, 2 km WN Jewel Cave (Deepdene)
ANIC

Doratifera quadriguttata Walker
15 km N Manjimup, Netic block, Yornup block, Mersea block, Wheatley block, Graphite block, Coonan block, Corbal block, Cardac block, Yeticup block, Dwalgan block, Palgarrup block, Yendicup block, Dingup block, Meribup block, Poole block, Poorginup block, Thomson block, Boyicup block, Kin Kin block, Yackelup block, Brockman block, Talling block
CALM

Doratifera vulnerans (Lewin)
Dwellingup, Manjimup
CALM

CARPOSINIDAE

Carposina chaetolopha Turner
Mundaring
Turner 1926a

PYRALIDAE

Hednota ancylosticha Koch
Roleystone, Kojonup
Koch 1966

Hednota crypsichroa Lower
Roleystone, Donnybrook, Kojonup
Koch 1966

Hednota dichospila (Turner)
Kojonup
Koch 1966

Hednota hoplitella (Meyrick)
Kojonup
Koch 1966

Hednota icelomorpha Turner
Bridgetown
Turner 1907, Koch 1966

Hednota koojanensis Koch
Kojonup
Koch 1966

Hednota longipalpella (Meyrick)
Darlington, Roleystone, Kojonup
Koch 1966

Hednota panteucha (Meyrick)
Kojonup
Koch 1966

Hednota pedionoma (Meyrick)
Bridgetown, Kojonup
Turner 1907, Koch 1966

Hednota peripeuces (Turner)
Kojonup
Koch 1966

Hednota recurvella (Walker)
15 ml NW Walpole
Koch 1966

Hednota relatalis (Walker)
Kojonup
Koch 1966

Hednota tenuilineata Koch
Kojonup
Koch 1966

Hednota vittella (Suederus)
Mt Barker
Koch 1966

GEOMETRIDAE

Acidalia hypochra Meyrick
Mundaring
Turner 1922a

Acidalia rubraria Dbld
Bridgetown
Turner 1922a

Adeixis inostentata (Walker)
Bridgetown
Turner 1930a

Amelora anthracica Lower
'Darling Range'
Lower 1905

Arcina fulgorigera Walker
Mundaring
Turner 1929b

Boarmia leucanthes Turner
Nornalup
Turner 1946a

Cathaemacta thermistis (Lower)
Collie
Turner 1929b

Chlenias basichorda Turner
7 ml S, 12 ml W and 2 km WN Pemberton, 2 km WSW Bow R Bridge, Porongurup NP, 2 km WN Jewel Cave (Deepdene), 4 km NE/E Gracetown
ANIC

Chlenias macrochorda Turner
23 km N Collie, 14 km SW/W Donnybrook, 7 km N Kent R Bridge
ANIC

Chlorocoma rhodocrossa (Turner)
Bridgetown
Turner 1910

Crypsiphona eremnopis Turner
Mt Barker
Turner 1922a, Goldfinch 1929

Dichromodes berthoudi Prout
Collie
Turner 1930a

Dichromodes leptozona Turner
Kalamunda
Turner 1930a

Dichromodes obtusata (Walker)
Bridgetown
Turner 1930a

Dichromodes peronalis (Feld.)
Mt Barker
Turner 1930a

Ecphyas holopsara Turner
Mt Dale
Turner 1929b

Euchloris rhodocrossa Turner
Bridgetown
Turner 1906

Idiodes apicata Guenée
Pimelia
Pescott 1951

Mnesampela arida McQuillan
Bakers Hill, 23 km N Collie, Donnybrook, 28 km EN Karridale
ANIC

Mnesampela privata (Guenée)
Darlington, Jarrahdale, 14 km SW/W Donnybrook, Bridgetown, Nannup, Manjimup, 10 km SW Pemberton, Deepdene
Turner 1919, CALM, WADA, ANIC

Nearcha staurotis Meyrick
Bridgetown
Turner 1929b

Nycterephes coracopa Turner
Bridgetown
Turner 1906, 1919

Plesanemma fucata (Felder & Rogenhofer)
Gooseberry Hill
McQuillan 1984

Poecilasthena oceanias Meyrick
Collie, Denmark
Turner 1941b

Prasinocyma semicrocea Walker
Pimelia
Pescott 1951

Taxeotis blechra Turner
Kalamunda
Turner 1929b

Taxeotis exsectaria (Walker)
Collie
Turner 1929b

Taxeotis thegalea Turner
Collie, Denmark, Mt Barker
Turner 1938a

Thalaina angulosa Walker
26 km N Collie, 21 km WSW Collie, 11 km S Pemberton, Kojonup
McQuillan 1981

Thalaina tetraclada (Lower)
Kojonup
McQuillan 1981

HESPERIIDAE

Anisynta sphenosema (Meyrick & Lower)
Map
Common and Waterhouse 1981

Antipodia atralba (Tepper)
John Forrest NP, Lesmurdie
Map
Common and Waterhouse 1981, Atkins 1984

Exometoeca nycteris Meyrick
Map
Common and Waterhouse 1981

Hesperilla chrysotricha (Meyrick & Lower)
Map
Common and Waterhouse 1981

Hesperilla donnysa Hewitson
Map
Common and Waterhouse 1981

Mesodina halyzia (Hewitson)
Map
Common and Waterhouse 1981

Motasingha dirphia (Hewitson)
Map
Lesmurdie, John Forrest NP, Mundaring, Bedfordale, Kojonup
Common and Waterhouse 1981, Moulds and Atkins 1986

Motasingha trimaculata (Tepper)
Lesmurdie, Mundaring, Bedfordale, Kojonup
Moulds and Atkins 1986

Taractrocera papyria (Boisduval)
Map
Common and Waterhouse 1981

Trapezites sciron Waterhouse & Lyell
Map
Common and Waterhouse 1981

PAPILIONIDAE

Papilio demoleus W S Macleay
Map
Kalamunda
Dell 1977, Common and Waterhouse 1981

PIERIDAE

Delias aganippe (Donovan)
Map
Common and Waterhouse 1981

Eurema smilax (Donovan)
Map
Common and Waterhouse 1981

**Pieris rapae* (L.)
Map
Kalamunda
Jenkins 1946, Common and Waterhouse 1981

NYMPHALIDAE

Danaus chrysippus (Stoll)
Map
Common and Waterhouse 1981

**Danaus plexippus* (Linnaeus)
Kalamunda, Darlington, Glen Forrest, Helena Valley, Wellington Mill, Donnybrook, Argyle
Koch 1971, 1973, Koch *et al.* 1977

Geitoneura klugii (Guérin-Méneville)
Map
Burns 1947, Common and Waterhouse 1981

Geitoneura minyas (Waterhouse & Lyell)
Map
Common and Waterhouse 1981

Heteronympha merope (Fab.)
Map
Common and Waterhouse 1981

Junonia villida (Godart)
Map
Common and Waterhouse 1981

Vanessa itea (Fab)
Map
Common and Waterhouse 1981

Vanessa kershawi (McCoy)
Map
Mundaring Weir, Wellington Dam
Watson 1956, Smithers 1974, Common and Waterhouse 1981, Edwards, pers. comm.

LYCAENIDAE

Candalides acastus (Cox)
Map
Common and Waterhouse 1981

Candalides cyprotus (Oliff)
Map
Common and Waterhouse 1981

Candalides heathi (Cox)
Map
Burns 1947

Candalides hyacinthinus (Semper)
Map
Glen Forrest, Manjimup, Warren R (4 ml SE Pemberton), Karridale, Jewel Cave (Augusta), Porongurups
Edwards and Kerr 1978, Common and Waterhouse 1981

Hypochrysops ignitus (Leach)
Map
Common and Waterhouse 1981

Jalmenus icilius Hewitson
Map
Common and Waterhouse 1981

Jalmenus inous Hewitson
Map
Common and Waterhouse 1981

Lampides boeticus (L.)
Map
Common and Waterhouse 1981

Nacaduba biocellata (C & R Felder)
Map
Common and Waterhouse 1981

Neolucia agricola (Westwood)
Map
Common and Waterhouse 1981

Ogyris amaryllis Hewitson
Map
Burns 1947, Common and Waterhouse 1981

Ogyris idmo Hewitson
Map
Common and Waterhous 1981

Theclinesthes miskini (T P Lucas)
Map
Common and Waterhouse 1981

Theclinesthes serpentata (Herrich-Schäffer)
Map
Common and Waterhouse 1981

LASIOCAMPIDAE

Digglesia rufescens Walker
Pimelia
Pescott 1951

ANTHELIDAE

Munychryia periclyta Common & McFarland
7 ml S Pemberton, 12 ml W Pemberton, Kojonup
Common and McFarland 1970

Pterolocera amplicornis Walker
Nannup
Turner 1921

CARTHAEIDAE

Carthaea saturnioides Walker
Collie
Turner 1930b

SATURNIDAE

Opodiphthera helena (White)
Mt Helena, Karragullen, Roleystone, Dwellingup, Preston R District, Donnybrook, 12 km SW Donnybrook, Bridgetown, Nannup, Manjimup, Pemberton, Crowea, Cardac block, Poole block, Poorginup block, Walpole, Nornalup, Denmark, Youngs, Margaret R, MacGregor block (Baudin), Deepdene
CALM, WADA, ANIC

NOTODONTIDAE

Antimima corystes Turner
Collie
Turner 1931

Discophlebia lipauges Turner
Nannup
Turner 1917, 1922b, Koch 1980

Ochrogaster lunifer Herrich-Schaffer
Bakers Hill, Kalamunda, Tallanalla, Collie, Bridgetown, 15 ml S Nannup, Walpole, 15 ml NW Walpole, 8 ml NW Nornalup, Nornalup, Glen Lossie (Kojonup), Margaret R, Deepdene
Turner 1922b, Jenkins and Curry 1971, Abbott 1985, Van Schagen 1989, WADA, ANIC

Oenosandra boisduvalii Newman
Donnybrook, Bridgetown
Turner 1922b

LYMANTRIIDAE

Acyphas semiochrea (H.-Sch.)
Nannup, 15 ml S Nannup, Margaret R, Deepdene
ANIC

Teia athlophora (Turner)
23 km N Collie, 14 km SW/W Donnybrook, Nannup, Pemberton, 10 km SW Pemberton, 1 km S Denmark, 7 km N Kent R Bridge, Porongurup Range, 4 km NE/E Gracetown, Deepdene
Jenkins and Curry 1971, Riotte 1979, Abbott 1985, ANIC

ARCTIIDAE

Stenarcha stenopa (Meyrick)
Mundaring
Turner 1939

Termessa anorpha Turner
Mundaring
Turner 1939

NOCTUIDAE

Crypsiprora oostigma Turner
Donnybrook
Turner 1929a

Donuca spectabilis
Jarrahdale, Dwellingup, Del Park
Benjamin 1984

Heliothis punctigera Wallengren
Map
Darlington, Karragullen, Bridgetown, 10 ml S Bridgetown, Deepdene
Common 1953, Abbott 1985, Zalucki *et al.* 1986, WADA, ANIC

Spathoptila cyclophora Turner
Margaret R, Nornalup, Denmark
Turner 1943

Thoracolopha pissonephra Turner
Margaret R
Turner 1938a

Uraba lugens Walker
Map
Parkerville, 10 km N Williams, Williams - Collie Rd (S of Stockyard block), Shannon R, Denmark, Margaret R, Deepdene
Turner 1943, Curry n.d., Jenkins and Curry 1971, Abbott 1985

Zia tactalis Walker
Bridgetown
Turner 1943

HYMENOPTERA

PERGIDAE

Antiperga antiopa Morice
Kalamunda, Hovea, 7 ml W Albany, Margaret R
Morice 1918, ANIC, Austin, pers. comm.

Lophyrotoma analis (Costa)
Margaret R, Deepdene
ANIC

Perga brevitarsis (Morice)
Boscabel
WADA

Perga brullei Westwood
Deepdene
ANIC

Perga christii (Westwood)
Donnybrook, Bridgetown
WADA

Perga klugii Westwood
Deepdene
ANIC

Perga konowi (Benson)
Bridgetown, Big Brook
WADA

Perga mayri Westwood
2 ml NE Denmark
ANIC

Perga schiodtei Westwood
Bakers Hill, Manjimup, Warren R
Forsius 1927, ANIC, WADA

Pergula turneri
2 km NNW Crossman
ANIC

**Phylacteophaga froggatti* Riek
Mundaring, Donnybrook, Kirup, Manjimup
Curry 1981a, CALM

Pseudoperga lucida Rohw
Boyup Brook
ANIC

MEGALYRIDAE

Megalyra fasciipennis Westwood
Darlington, Manjimup (Pine Creek), Pemberton
Shaw 1990, WADA

Megalyra globula Shaw
Mt Barker
Shaw 1990

Megalyra shuckardi Westwood
Darlington, Donnybrook
Shaw 1990

EVANIIDAE

Evania sericans Westwood
Kalamunda
Turner 1918c

AULACIDAE

Aulacostethus cingulatus (Westwood)
Dwellingup, Nannup, Nyamup
CALM

GASTERUPTIIDAE

Gasteruption autumnale (Turner)
Kalamunda
Turner 1918c, Houston, pers. comm.

Gasteruption cylindricum (Turner)
Kalamunda
Turner 1918c, Houston, pers. comm.

Hyptiogaster floricola Turner
Kalamunda
Turner 1918b, Crosskey 1953

ICHNEUMONIDAE

Allocamptus bituberculatus Szépligeti
Serpentine
Szépligeti 1908

Casinaria hesperiophaga Jerman & Gauld
John Forrest NP
Jerman and Gauld 1988

Enicospilus amplipennis (Morley)
24 km W Pemberton, Nornalup
Gauld 1977

Enicospilus gardei (Morley)
24 km W Pemberton
Gauld 1977

Enicospilus pseudantennatus Gauld
24 km W Pemberton
Gauld 1977

Enicospilus pulkus Gauld
19 km W Pemberton, 8 km NW Augusta
Gauld 1977

Enicospilus skeltonii (Kirby)
Kojonup
Gauld 1977

Labium associatum Turner & Waterston
Mundaring Weir
Turner and Waterston 1920

Leptophion antennatus (Morley)
24 km NW Walpole
Gauld 1977

Megaceria opheltes Szépligeti
Donnybrook
Szépligeti 1908

Philogalleria hazelae Fitton
Hovea
Fitton 1987

BRACONIDAE

Ascogaster antennalis Szépligeti
Serpentine
Szépligeti 1908

Microdus rufithorax Turner
Kalamunda
Turner 1918a

Miropotes thuraris Austin
Crowea, Margaret R
Austin 1990b

Syngaster rubricepsis (Shenefelt)
Mundaring, Gooseberry Hill, Beraking, Jarrahdale, Dwellingup, Collie, Quininup
CALM, Quicke 1991

DIAPRIIDAE

Diphoropria collessi Naumann
Pimelia, 3 ml NE Pimelia, Channybearup, Walpole (Rest Point), Walpole-Nornalup NP, 3 ml SW Karridale
Naumann 1982

Diphoropria nigricans (Dodd)
3 ml NE Pimelia, Channybearup, Mt Frankland
Naumann 1982

Diphoropria tricarinata Naumann
9 ml W Pemberton, Channybearup
Naumann 1982

MONOMACHIDAE

Monomachus hesperius Naumann
Darlington, 14 km SW/S Donnybrook, 7 km N Kent R bridge
Naumann 1985

PLATYGASTRIDAE

Parabaeus abyssus Austin
Walpole-Nornalup NP
Austin 1990a

SCELIONIDAE

Trissolcus eetion (Dodd)
Map
Johnson 1991

Trissolcus egeria (Dodd)
Map
Johnson 1991

CHALCIDIDAE

Brachymeria schuberti (Girault)
Darlington
Boucek 1988

PTEROMALIDAE

Anepistenia vexans Boucek
16 km SE Pemberton
Boucek 1988

Enoggera nassaui (Girault)
John Forrest NP, Walpole-Nornalup NP, Porongurup NP
Naumann 1991

Enoggera reticulata Naumann 1991
Walpole-Nornalup NP, Porongurup NP
Naumann 1991

Enoggera sulcata Naumann
Walpole-Nornalup NP, 20 km N Denmark, Porongurup NP, Napier Creek (21 km NNE Albany)
Naumann 1991

ENCYRTIDAE

Psyllaephagus attenuatus Riek
Wandering
Riek 1962

Psyllaephagus westralis Riek
Bakers Hill
Riek 1962

EULOPHIDAE

Gattonia nigra Boucek
'Darlington Range'
Boucek 1988

POMPILIDAE

Apoclavelia aganippeae Evans
Hoffman's Mill
Evans 1972

Cteniziphontes protervus (Turner)
Kalamunda, Araluen
Turner 1915a, Evans 1972

Ctenostegus cinctus Evans
Kalamunda, Bannister
Evans 1976

Ctenostegus ouyen Evans
Mundaring Weir
Evans 1976

Ctenostegus spilotus Evans
Kalamunda
Evans 1976

Psoropempula erythrostethus (Smith)
Deepdene (Karridale)
Evans 1974

Turneromyia bassiana (Turner)
Glen Forrest
Evans 1984

Turneromyia melancholica (Smith)
Darlington, Bridgetown, Karridale
Evans 1984

Turneromyia vessei (Turner)
Kalamunda, Karridale
Evans 1984

Turneromyia venator Evans
Deepdene
Evans 1984

MUTILLIDAE

Ephutomorpha caeruleiceps Turner
Kalamunda
Turner 1914b

TIPHIIDAE

Asthenothynnus pleuralis Turner
Kalamunda
Turner 1915a

Doratithynnus bidentatus (Smith)
Collie, Beelerup, Donnybrook, Wilga
Brown 1989a

Eirone ferrugineicornis Turner
Kalamunda
Turner 1915a

Encopothynnus spinulosus Turner
Kalamunda, Collie
Turner 1915a, Brown 1989b

Gymnothynnus carissimus Turner
Kalamunda
Turner 1915a

SCOLIIDAE

Anthobosca clypeata Smith
Warren R
Turner 1915a

VESPIDAE

Australozethus occidentalis Giordani Soika
Mundaring
Cardale 1985

Bidentodynerus bicolor (Saussure)
Kalamunda
Cardale 1985

Paragia tricolor Smith
Noble Falls (Wooroloo Brook)
Houston 1984

Paralastor ignotus Perkins
Kalamunda
Cardale 1985

Stenodynerielius yanchepensis Giordani Soika
Kalamunda
Cardale 1985

FORMICIDAE

MYRMECIINAE

Myrmecia analis Mayr
Walpole
Clark 1951

Myrmecia chasei Forel
Mundaring, Mt Dale, Bridgetown
Clark 1943, 1951, Majer 1980b

Myrmecia clarki Crawley
Mundaring Weir, Yanmah, Perup
Crawley 1922a, Clark 1943, 1951

Myrmecia elegans (Clark)
Hovea, Mundaring, Mt Dale
Clark 1943, 1951, Taylor and Brown 1985

Myrmecia infima Forel
Denmark
Clark 1951, Taylor and Brown 1985

Myrmecia mandibularis Smith
Mundaring, Collie, Pemberton
Clark 1943, 1951, Taylor and Brown 1985

Myrmecia michaelseni Forel
Mundaring, Bridgetown, Perup, Nornalup
Clark 1943, 1951

Myrmecia nigra Forel
Darlington, Strathams, Manjimup, Pemberton, Northcliffe
Clark 1943, 1951

Myrmecia nigriceps Mayr
Mundaring, Mt Barker, Gooseberry Hill, Jarrahdale, Serpentine, Bridgetown, Torbay
Forel 1907, Clark 1951

Myrmecia pavida Clark
Mt Barker
Clark 1951

Myrmecia picta (F. Smith)
John Forrest NP, Mundaring
Clark 1934a, 1951

Myrmecia pilosula F Smith
Mundaring
Clark 1943, 1951

Myrmecia regularis Crawley
Manjimup, Pemberton, Nornalup
Clark 1951

Myrmecia rugosa Wheeler
Mundaring, Yanmah, Witchcliffe
Clark 1951, Taylor and Brown 1985

Myrmecia swalei Crawley
Mundaring, Serpentine R
Clark 1943, 1951

Myrmecia tepperi Emery
Mundaring
Clark 1943, 1951

Myrmecia vindex Smith
'Widely distributed from Perth to Albany'
Clarke 1951

Myrmecia urens Lowne
30 km W/SW Kojonup
Majer 1980b

PONERINAE

Amblyopone australis Erichson
Mt William area, Worsley, Bridgetown
Forel 1907, Majer 1980a, 1985

Amblyopone michaelseni Forel
Jarrahdale
Forel 1907, Clark 1928

Brachyponera lutea (Mayr)
Mt Helena, Mundaring Weir, Canning Dam, Jarrahdale, Del Park, Holyoak, Mt William area, Worsley, Donnybrook, 30 km W/SW Kojonup
Forel 1907, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Rossbach and Majer 1983, Woodroff and Majer 1981

Cerapachys angustatus (Clark)
John Forrest NP
Clark 1924, Taylor and Brown 1985

Cerapachys clarki (Crawley)
Darlington
Crawley 1922a, Taylor and Brown 1985

Cerapachys fervidus (Wheeler)
Mundaring
Clark 1923, Taylor and Brown 1985

Cerapachys flammeus (Clark)
Lesmurdie Falls
Clark 1931, Taylor and Brown 1985

Cerapachys gilesi (Clark)
Mundaring
Clark 1923, Taylor and Brown 1985

Cerapachys incontentus Brown
John Forrest NP
Clark 1924, Taylor and Brown 1985

Cerapachys latus Brown
John Forrest NP
Clark 1926, Taylor and Brown 1985

Cerapachys nigriventris (Clark)
John Forrest NP
Clark 1924, Taylor and Brown 1985

Cerapachys princeps (Clark)
John Forrest NP, Kalamunda, Mundaring
Clark 1931, Taylor and Brown 1985

Cerapachys punctatissimus (Clark)
Mundaring
Clark 1923, Taylor and Brown 1985

Cerapachys ruficornis (Clark)
Mundaring
Clark 1923, Taylor and Brown 1985

Cerapachys simmonsae (Clark)
Mundaring
Clark 1923, Taylor and Brown 1985

Cerapachys varians (Clark)
Mt Helena
Clark 1924, Taylor and Brown 1985

Discothyrea crassicornis Clark
Manjimup
Clark 1926

Heteroponera imbellis (Emery)
John Forrest NP, Amphion, Worsley, 30 km W/SW Kojonup
Majer 1977, 1980b, 1985, Taylor and Brown 1985

Leptogenys neutralis Forel
Mundaring Weir, Pickering Bk
Forel 1907, Crawley 1922a

Platythyrea micans (Clark)
Mundaring
Clark 1931, Taylor and Brown 1985

Rhytidoponera convexa Mayr
'Widely distributed from Geraldton to Bunbury and eastward to Northam' Wooroloo, Mt Helena, Mundaring Weir, Jarrahdale
Forel 1907, Clark 1936

Rhytidoponera foveolata Crawley
Mundaring
Clark 1936

Rhytidoponera inornata Crawley
Canning Dam, Jarrahdale, Del Park, Amphion, Plavins, Holyoak, Mt William area, Worsley, 30 km W/SW Kojonup
Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Rossbach and Majer 1983, Woodroff and Majer 1981

Rhytidoponera metallica (Smith)
Wooroloo, Darlington, Mt Helena, Mundaring, Serpentine, Bridgetown, Manjimup
Forel 1907, Crawley 1922a, 1925

Rhytidoponera punctata (Smith)
Jarrahdale
Forel 1907

Rhytidoponera punctigera Crawley
Manjimup
Crawley 1925,

Rhytidoponera rufonigra Clark
Mundaring
Clark 1934b, 1936

Rhytidoponera violacea (Forel)
Mundaring, Canning Dam, Jarrahdale, Del Park, Plavins, Holyoak, Mt William area, Worsley, 30 km W/SW Kojonup
Forel 1907, 1915, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Rossbach and Majer 1983, Woodroff and Majer 1981

Sphinctomyrmex imbecilis Clark
Mundaring, Mt Helena, Collie
Forel 1907, Clark 1923, 1931, Taylor and Brown 1985

Sphinctomyrmex occidentalis (Clark)
Mundaring, Mt William area
Clark 1923, Majer 1980a, Taylor and Brown 1985

Trachymesopus rufonigra (Clark)
Jarrahdale, Del Park, Plavins, Mt William area, Worsley
Clark 1934b, Majer 1977, 1980a, 1985, Majer *et al.* 1984

MYRMICINAE

Adlerzia froggatti (Forel)
Mt William area, Worsley
Majer 1980a, 1985

Anisopheidole antipodum (F. Smith)
Gooseberry Hill, Mt Helena, Plavins, Mt William area, Worsley, Torbay
Forel 1907, Majer 1977, 1980a, 1985, Taylor and Brown 1985

Aphaenogaster barbigula Wheeler
Gooseberry Hill, 95 km peg for 26 km heading N (Albany Hwy)
Wheeler 1916, McMillan 1977

Aphaenogaster longiceps (Smith)
Gooseberry Hill
Forel 1907, Taylor and Brown 1985

Cardiocondyla nuda (Mayr)
Canning Dam, Jarrahdale, Del Park, Holyoak
Majer 1977, Majer *et al.* 1984, Woodroff and Majer 1981

Chelaner bicornis (Forel)
Gooseberry Hill
Forel 1907, Taylor and Brown 1985

Meranoplus ferrugineus Crawley
Serpentine R
Crawley 1922a

Meranoplus hirsutus Crawley
Parkerville
Crawley 1922a

Orectognathus clarki Brown
Porongurup Range
Taylor 1979

Pheidole ampla Forel
Gooseberry Hill
Forel 1907

Pheidole variabilis Forel
Jarrahdale, Del Park, Amphion, Holyoak, Mt William area, Worsley, 30 km W/SW Kojonup
Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Rossbach and Majer 1983, Taylor and Brown 1985

Strumigenys perplexa (Smith)
Mt William area
Majer 1980a

Strumigenys quinquedentata Crawley
Manjimup
Brown and Taylor 1985

Tetramorium bicarinatum (Nylander)
Mt William area
Majer 1980a, Rossbach and Majer 1983

DOLICHODERINAE

Bothriomyrmex flavus Crawley
Mundaring Weir
Crawley 1922b

Dolichoderus formosus Clark
Mundaring, Mt Dale
Clark 1930

Dolichoderus ypsilon Forel
'Widely distributed in the SW corner'
Gooseberry Hill, Mt Helena, Mundaring
Forel 1907, Clark 1930

Iridomyrmex agilis Forel
Jarrahdale, Del Park, Mt William area
Majer 1980a, Majer *et al.* 1984, Rossbach and Majer 1983

Iridomyrmex bicknelli Emery
Mundaring Weir, Mt Helena, Jarrahdale, Donnybrook
Forel 1907, Scott 1974

Iridomyrmex conifer Forel
Canning dam, Mt Helena, Jarrahdale, Del Park, Amphion, Plavins, Holyoak, Mt William area, Worsley
Forel 1907, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Woodroff and Majer 1981

Iridomyrmex darwinianus (Forel)
Pickering Bk, Jarrahdale, Del Park, Amphion, Plavins, Mt William area, Worsley, Collie, Donnybrook, Bridgetown, 30 km W/SW Kojonup
Forel 1907, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Taylor and Brown 1985

Iridomyrmex discors Forel
Jarrahdale
Scott 1974

Iridomyrmex glaber (Mayr)
Jarrahdale, Del Park, Amphion, Plavins, Mt William area, Worsley, 30 km W/SW Kojonup
Majer 1977, 1980a,b, 1985, Majer *et al.* 1984

Iridomyrmex innocens Forel
Mt Helena
Forel 1907

Iridomymex itinerans (Lowne)
Torbay
Forel 1907

Iridomyrmex mattiroloi Emery
Donnybrook
Forel 1907

Iridomyrmex nitidus Mayr
Worsley
Majer 1985

Iridomyrmex punctatissimus Emery
Mt Helena
Forel 1907

Iridomyrmex purpureus (F. Smith)
Map
Canning Dam, Jarrahdale, Del Park, Holyoak, Mt William area, Worsley, 30 km W/SW Kojonup
Forel 1915, Greaves 1971, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984, Woodroff and Majer 1981

Iridomyrmex rufoniger (Lowne)
Wooroloo
Forel 1907

**Linepithema humile* (Mayr)
Karridale
P. Davis, pers. comm.

Tapinoma minutum Mayr
Donnybrook
Forel 1907

FORMICINAE

Camponotus chalceus Crawley
Jarrahdale, Del Park, Mt William area
Majer 1980a, Majer *et al.* 1984

Camponotus cinereus Mayr
Gooseberry Hill
Forel 1907

Camponotus claripes Mayr
Mundaring Weir, Bridgetown
Forel 1907, Crawley 1922b

Camponotus maculatus Forel
Wooroloo, Mundaring Weir, Torbay
Forel 1907

Camponotus michaelseni Forel
Mundaring Weir, Gooseberry Hill, Pickering Brook, Jarrahdale, Del Park, Amphion, Plavins, Mt William area, Worsley, 30 km W/SW Kojonup
Forel 1907, Majer 1977, 1980a,b, 1985, Majer *et al.* 1984

Camponotus molossus Forel
Serpentine
Forel 1907

Camponotus nigriceps (Smith)
Gooseberry Hill, Mundaring Hill, Mt Helena, Pickering Brook, Jarrahdale, Lunenberg, Torbay
Forel 1907

Camponotus testaceipes (Smith)
Gooseberry Hill, Mt Helena, Collie, Margaret R
Forel 1907, Taylor and Brown 1985

Notoncus gilberti Forel
Mt William area, Worsley, 30 km W/SW Kojonup
Majer 1980a,b, 1985

Notoncus hickmani Clark
Worsley, 30 km W/SW Kojonup
Majer 1980b, 1985

Notostigma sanguinea Clark
Worsley
Majer 1980b, 1985

Prolasius reticulata McAreavey
Mundaring
McAreavy 1947

Stigmacros aemula (Forel)
Jarrahdale, Del Park, Mt William area, 30 km W/SW Kojonup
Majer 1980a,b, Majer *et al.* 1984

Stigmacros brooksi McAreavey
Manjimup
McAreavey 1957

Stigmacros flava McAreavey
Mundaring
McAreavey 1957

Stigmacros glauerti McAreavey
Darlington
McAreavy 1957

Stigmacros rectangularis McAreavey
Mundaring
McAreavey 1957

SPHECIDAE

Arpactophilus glabrellus (Turner)
Kalamunda
Turner 1916b, Cardale 1985

Austrogorytes cygnorum (Turner)
John Forrest NP
Bohart 1984

Austrogorytes tarsatus (F Smith)
6 miles E Darkan
Bohart 1984

Bembix flaviventris Smith
Map
Evans and Matthews 1973

Bembix furcata Erichson
Map
Evans and Matthews 1973

Bembix littoralis Turner
Map
Evans and Matthews 1973

Bembix marsupiata Handlirsch
Map
Evans and Matthews 1973

Bembix variabilis Smith
Map
Evans and Matthews 1973

Bembix vespiformis Smith
Map
Kalamunda
Turner 1915c, Evans and Matthews 1973

Cerceris armigera Turner
Mundaring Weir
Turner 1936

Liris festinans (Smith)
Kalamunda
Turner 1916e, Cardale 1985

Pison erythrogastrum Rohwer
Kalamunda
Turner 1916a

Pison inconspicuum Turner
Mundaring Weir
Turner 1916a

Pison lutescens Turner
Mundaring Weir
Turner 1916a

Pison rufipes Shuckard
Kalamunda
Turner 1916a

Pison tibiale Smith
Kalamunda
Turner 1916a, Cardale 1985

Pison westwoodii Shuckard
Kalamunda
Turner 1916a, Cardale 1985

Podagritus imbelle (Turner)
near Nannup
Cardale 1985

Podagritus leptospermi (Turner)
Warren R
Turner 1915b, Cardale 1985

Sericophorus chalybaeus Smith
Kalamunda
Turner 1914a

Tachysphex depressiventris Turner
Mundaring Weir
Turner 1916c, Pulawski 1977

Tachysphex mackayensis Turner
Kalamunda, Mundaring Weir, Warren R (6 ml SE Pemberton)
Pulawski 1977

Tachyspex pacificus Turner
Kalamunda
Pulawski 1977

Tachysphex paucispina Pulawski
17 ml SE Nannup
Pulawski 1977

Tachysphex pilosulus Turner
Hovea, Kalamunda, Mundaring Weir, 27 ml SE Perth (Brookton Highway)
Pulaswki 1977

Tachysphex puncticeps Cameron
Kalamunda, Serpentine Falls
Pulawski 1977

Tachysphex stimulator Turner
Kalamunda
Pulawski 1977

Tachysphex tenuis Turner
Kalamunda
Pulawski 1977

Tachysphex vardyi Pulawski
Kalamunda
Pulawski 1977

Tachytes mitis Turner
Kalamunda
Turner 1916d

Williamsita manifestata (Turner)
Kalamunda
Turner 1915b, Cardale 1985

COLLETIDAE

Brachyhesma perlutea (Cockerell)
Greenmount, Kalamunda
Exley 1968a, 1977

Brachyhesma sulphurella (Cockerell)
Kalamunda
Cockerell 1916, Hacker 1921, Houston pers. comm.

Euryglossa calaina Exley
John Forrest NP
Exley 1976

Euryglossa calliopsiformis Cockerell
Donnybrook - C Leeuwin
Exley 1974

Euryglossa cupreochalybea Smith
12 ml N Margaret R on Yallingup Road
Exley 1976

Euryglossa flavopicta Smith
Kalamunda
Exley 1974

Euryglossa halictiformis Smith
Serpentine
Alftken 1907

Euryglossa perpulchra Cockerell
Kalamunda
Hacker 1921, Exley 1969b

Euryglossa rubricata Smith
Greenmount, Kalamunda, Darlington, Glen Forrest, Collie, Beelerup
Exley 1976

Euryglossina argocephala Exley
Greenmount
Exley 1968c

Euryglossina hypochroma Cockerell
Greenmount, Kalamunda, Donnybrook, Donnelly R crossing (Pemberton - Nannup Road), Heyde's Perup, Dingup, 4 ml S Northcliffe, 12 ml N Walpole (SW Highway), 3 miles N Bow Bridge, 6 ml E Yallingup
Exley 1968c

Euryglossina lynettae (Rayment)
Donnelly R crossing (Pemberton - Nannup Road)
Exley 1968c

Euryglossina melanocephala Exley
Greenmount
Exley 1968c

Euryglossina perpusilla (Cockerell)
Greenmount, Kalamunda, Donnybrook, Donnelly R crossing (Pemberton - Nannup Road), Dingup, 6 ml E Yallingup
Hacker 1921, Exley 1968c

Euryglossina philoxantha Cockerell
Kalamunda
Exley 1968c

Euryglossina pseudoatomaria Exley
Greenmount, Donnybrook, 6 miles E Yallingup
Exley 1968c

Euryglossula fultoni (Cockerell)
Greenmount
Exley 1968b

Hylaeus alcyoneus (Erichson)
Bannister, Deepdene
Houston 1981

Hylaeus amiculus (Smith)
12 ml N Margaret R on Yallingup Road
Houston 1981

Hylaeus euxanthus (Cockerell)
Donnybrook
Houston 1981

Hylaeus ruficeps (Smith)
Greenmount, Glen Forrest, Kalamunda, Collie, Beelerup, Donnybrook
Cockerell 1915, 1916, Hacker 1921, Houston 1981

Hylaeus violaceus (Smith)
Glen Forrest, Collie, Beelerup, Donnelly R crossing (Pemberton - Nannup Road), 4 and 8 ml S Northcliffe, 12 ml N Margaret R on Yallingup Road
Houston 1981

Hyleoides zonalis Smith
Mundaring, Mullalyup, Donnelly R crossing (Pemberton-Nannup Road), Balbarrup, Dingup, 4 ml S Northcliffe, 3 ml E Nornalup, 6 ml E Yallingup, 12 ml N Margaret R on Yallingup Road
Houston 1975

Hyphesma atromicans (Cockerell)
Great Eastern Highway (Greenmount), Kalamunda, Mundaring Weir, Donnelly R crossing (Pemberton - Nannup Road), 6 ml E Yallingup
Exley 1975

Leioproctus advena (Smith)
Serpentine
Alftken 1907, Houston pers. comm.

Leioproctus bimaculatus (Smith)
Glen Forrest
Rayment 1931, Houston pers. comm.

Leioproctus incomptus (Cockerell)
Mundaring
Cockerell 1921, Hacker 1921, Houston pers. comm.

Pachyprosopis eucyrta Exley
Greenmount
Exley 1972

Pachyprosopis haematostoma Cockerell
Kalamunda, Great Eastern Highway (Greenmount)
Cockerell 1915, Exley 1972

Pachyprosopis purnongensis (Rayment)
Greenmount
Exley 1972

Pachyprosopis xanthodonta (Cockerell)
Greenmount, Donnybrook
Exley 1972

Paracolletes plumata (Smith)
Serpentine
Alftken 1907, Houston, pers. comm.

Prosopis elongata Smith
Kalamunda
Cockerell 1916

STENOTRITIDAE

Ctenocolletes smaragdinus (Smith)
Gleneagle
Houston 1983

HALICTIDAE

Homalictus bremerensis (Rayment)
Donnelly R crossing on Pemberton-Nannup Road, Margaret R (Yallingup Road), Alexander Bridge (Brockman Highway), Pemberton, Walpole, Nornalup
Walker 1986

Homalictus dotatus (Cockerell)
Greenmount
Walker 1986

Homalictus megastigmus (Cockerell)
Warren NP, Northcliffe, Walpole, Porongurups
Walker 1986

Homalictus sphecodoides (Smith)
Karridale
Walker 1986

Homalictus urbanus (Smith)
Margaret R (Yallingup Road)
Walker 1986

Lasioglossum brazieri (Cockerell)
Kalamunda
Rayment 1930, Houston pers. comm.

Lasioglossum mundulum Cockerell
Kalamunda
Hacker 1921, Houston pers. comm.

Lasioglossum oblitum (Smith)
Serpentine
Alftken 1907, Houston pers. comm.

Lasioglossum supralucens (Cockerell)
Kalamunda
Hacker 1921, Houston pers. comm.

MEGACHILIDAE

Chalicodoma erythropyga (Smith)
Kalamunda
Meade-Waldo 1915, Rayment 1931, Houston pers. comm.

Chalicodoma revicta (Cockerell)
Sawyers Gully
Rayment 1931, Houston pers. comm.

Chalicodoma trichognatha (Cockerell)
Kalamunda
Meade-Waldo 1915, Hacker 1921, Houston pers. comm.

Megachile chrysopyga Smith
Kalamunda
Meade-Waldo 1915

Megachile fabricator Smith
Kalamunda
Meade-Waldo 1915, Hacker 1921

Megachile gilbertiella Cockerell
40 ml S[E] Perth on Albany Highway
Erickson and Rayment 1951

Megachile quinquelineata Cockerell
Kalamunda
Meade-Waldo 1915, Hacker 1921

ANTHOPHORIDAE

Exoneura albopilosa Erickson & Rayment
40 ml S[E] Perth on Albany Highway
Erickson and Rayment 1951

Exoneura angophorae Cockerell
Glen Forrest, Kalamunda
Rayment 1930, 1931

Exoneura illustris Erickson & Rayment
40 ml S[E] Perth on Albany Highway
Erickson and Rayment 1951

APIDAE

**Apis mellifera* L.
Widespread throughout SW Australia
Hacker 1921

SUSPENSE LIST

Buprestis novemmaculata
Abbott 1985

Kalotermes obscurus (Walker)
Bridgetown, Manjimup, Pemberton, Nornalup
Hill 1925, 1942

Liparetrus similis
Abbott 1985

Paropsis regularis
Abbott 1985

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INDEX

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A vertebrate fauna survey and some notes on the vegetation of the Ravensthorpe Range, Western Australia

ANDREW CHAPMAN[1] AND KEN R. NEWBEY[2]

[1]Department of Conservation and Land Management, PO Box 10173, Kalgoorlie 6430, Western Australia

[2]Deceased July 1988

ABSTRACT

The vertebrate fauna of the Ravensthorpe Range comprises 14 species of native mammal, 89 bird species, 27 reptile species, 7 frog species and 2 species of inland fish. Accordingly, with the exception of reptiles, which for a semi-arid area are impoverished, owing partly to its southerly location, it has a rich and abundant fauna. The Range habitats have not been degraded by the effects of excessive fire, dieback disease, clearing or grazing to any significant extent. Of particular interest to wildlife conservation are the presence of Tammar (*Macropus eugenii*), Short-nosed Bandicoot (*Isoodon obesulus*), Heath Rat (*Pseudomys shortridgei*), Western Whipbird (*Psophodes nigrogularis*), Carnaby's Cockatoo (*Calyptorhynchus latirostris*), Red-eared Firetail (*Emblema oculatum*), Mallee Fowl (*Leipoa ocellata*) and Carpet Python (*Morelia spilota imbricata*). These are all gazetted declared rare or specially protected fauna. One species, a small skink, *Lerista viduata*, is endemic to the Ravensthorpe Range.

Fauna is compared with that of two local reserves, Fitzgerald River National Park and Lake Magenta Nature Reserve, as well as two 'greenstone' outliers: the Wongan Hills and Kangaroo Hills Timber Reserve.

Vegetation and flora were recorded mainly at fauna sites, with some opportunistic recording between sites. Fifteen vegetation types were identified, based on the Muir classification. The recorded flora consists of four species of fern, and 532 species of flowering plants including 10 subspecies, and 12 varieties. A total of 35 taxa are introduced. Ten species appear to be confined to the range with an additional 10 almost confined. Three species are gazetted declared rare flora: *Eucalyptus bennettiae*, *Billardiera mollis* and *Daviesia megacalyx* ms.

INTRODUCTION

The Ravensthorpe Range (referred to hereafter as 'the RANGE') consists mainly of a ridge rising up to 150 m above the surrounding undulating plain. It forms a crescent nearly 30 km long around the wheatbelt township of Ravensthorpe (Fig. 1). Mount Short is the most north-westerly feature, while the southern end grades into a marine plain.

The area surveyed consists of the ridge and a few associated foothills. Width of the ridge is mainly 2-4 km but reaches 7 km wide east-south-east of Kundip. In most places, the boundary between ridge and surrounding plain is relatively distinct, in other places poorly defined. Tenure is largely vacant Crown land, reserves for water and 'common'. Mining tenements cover much of the proposed reserve.

Survey

Phase 1

Prior to this survey, the vegetation and flora had received limited study, while the vertebrate fauna was completely unknown. The primary aim of this survey was to document the vertebrate fauna as a basis for conservation management of the RANGE. The survey (by AC) consisted originally of intermittent recording on the northern half of the RANGE, i.e. north of Ravensthorpe-Esperance Road during 1982-83 and the southern half in 1983-84. Site descriptions were brief. This trapping period is referred to as 'Phase 1'. Also included in this report are relevant data recorded at Bandalup Hill, an outlier of similar geological structure to that of much of the RANGE, about 32 km east-south-east of Ravensthorpe. A wildfire burnt the hill in November 1980 and AC assessed the effects in July 1983.

Phase 2

In 1987 the Heath Mouse (*Pseudomys shortridgei*) was rediscovered in Western Australia (WA) from material collected as part of Phase 1 and mis-identified as *Rattus fuscipes* (Baynes *et al.* 1987). This discovery led the Department of Conservation and Land Mananagement to offer AC a consultancy to reassess the distribution and abundance of *Pseudomys shortridgei* in the RANGE. KRN was also contracted to provide detailed data on landform,

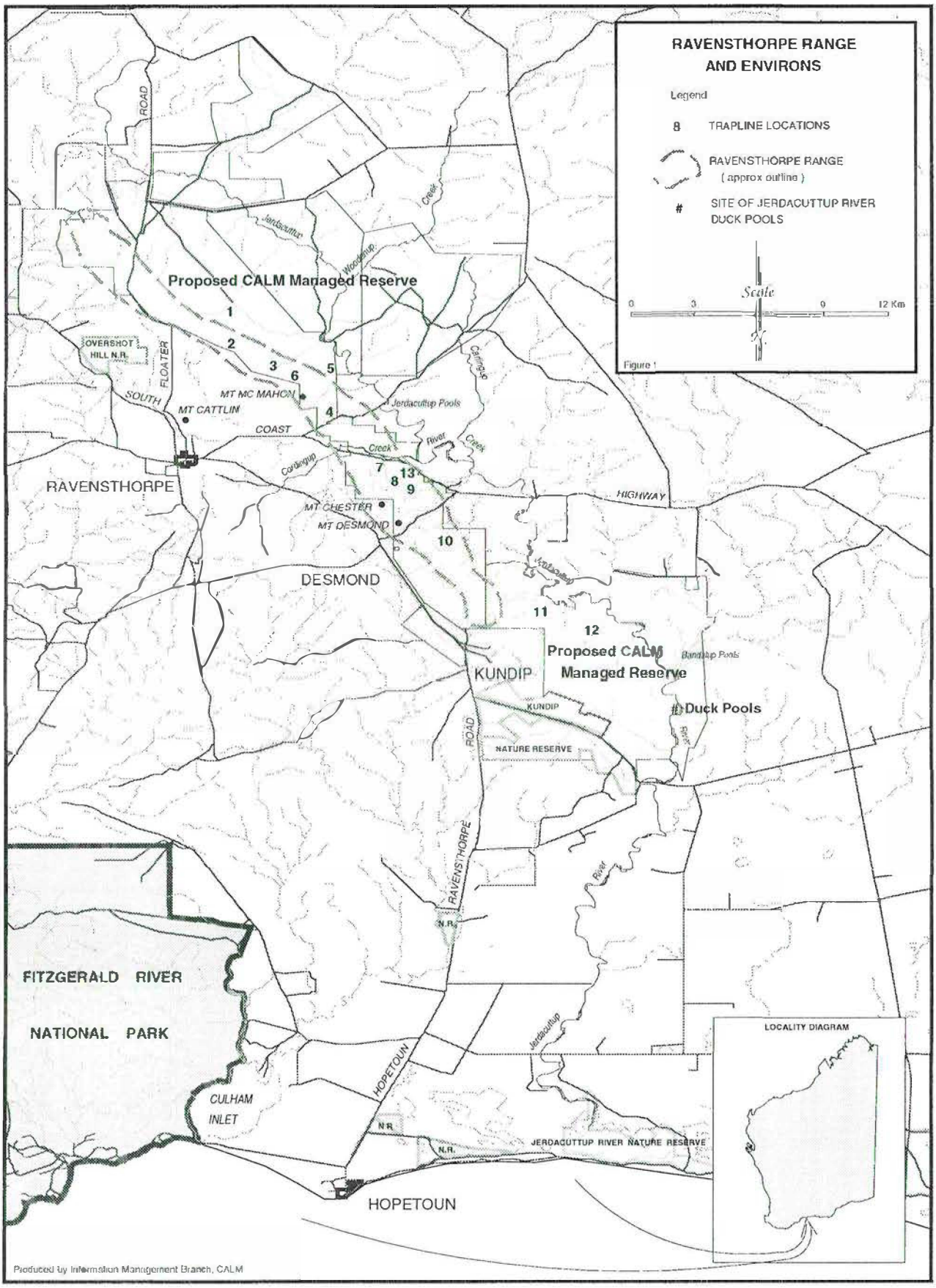


Figure 1. Ravensthorpe Range and environs.

soil, vegetation and floristics at all trapping sites on the RANGE. Some vegetation and floristic data were also recorded opportunistically between sites. AC ran trap lines between 30 November and 19 December 1987. KRN recorded site and opportunistic data between 26 and 29 October 1987.

Gravel Pit Survey

During the general period of Phase 2, AC and Keith Bradby were contracted by the Main Roads Department of WA to sample vertebrate fauna, vegetation and flora of five areas proposed as borrow pits (Bradby and Chapman[1]). Relevant data are incorporated into this report, e.g. mammal weights and breeding conditions, plant taxa.

Levels of Sampling

As a result of both Phases 1 and 2, the vertebrate fauna of the RANGE has been sampled in detail. However, the overall level of sampling of vegetation and flora is not as extensive, because only 3.5 days were spent in the RANGE, supplemented by some earlier opportunistic plant collecting. The differences in levels of sampling are important to consider when reading this report.

History

John Septimus Roe named the Ravensthorpe Range and its highest peak (Mount Short) in 1848 (Sofoulis 1958). In 1868 John Dunn leased 'Cocanarup', a property 15 km south-west of the present town of Ravensthorpe. Gold was found on the lease by the Dunn brothers in 1898, leading to the establishment of the town of Ravensthorpe and several small mines. Gold and silver were also extracted in small quantities and the RANGE has experienced two periods of major copper production. The first was approximately 1902-1910, and the second during the late 1950s and the 1960s. Until the mid-1970s about half of the copper produced in WA had been mined in the lower slopes of the RANGE (Thom *et al.* 1977).

Most of the RANGE has never been considered suitable for agriculture because of steep slopes, bedrock outcrops and skeletal soils. However, most of the RANGE's colluvial lower slopes are being farmed. Mining operations have been mainly centred on Mount Cattlin (north of Ravensthorpe), Elverdton and Kundip. However, exploratory grid lines have been cut over extensive areas of the RANGE on more than one occasion. While the grid lines provide access through dense vegetation covering most of the RANGE, many have suffered extensive water erosion. At present, a number of small 'weekend' mines are in occasional operation. One open-cut mine near Kundip commenced in 1988 but closed the following year.

Apart from areas disturbed for mining, most of the vegetation is in good condition. Almost all of the RANGE has remained unburnt for a long period: except for the cases described below large fires have not occurred in the RANGE for at least 45 years (R. Daw, personal communication). The size of many trees and mallees suggests no fire for at least 75 years. Since field-work for this survey took place several wildfires have burnt small portions of the RANGE. A fire on 17 September 1987 burnt the northern lower slopes from near Floater Road eastward to the Jerdacuttup River. Another fire burnt between 29 December 1987 and 6 January 1988 through the RANGE between Kundip and the Jerdacuttup River. A larger fire in December 1990 burnt northern slopes of the RANGE in the vicinity of Woodenup Creek. Access within the RANGE is moderate owing to the presence of mining exploration grids and fire control tracks. The high clay content of many soils makes most tracks impassable following a minimum of 10 mm of rain.

Reserve Proposal

The first proposal for a reserve over the Ravensthorpe Range and surrounds was made in 1974 by the Conservation Through Reserves Committee (CTRC 1974). This recommendation was accepted by State Cabinet in 1976. Implementation of the proposed reserve lapsed owing to the highly prospective nature of the RANGE for mining purposes. A change in government policy in 1990, allowing mining under certain conditions in nature reserves, and the South Coast Regional Plan (CALM 1992) now make it more likely that implementation will proceed. The current proposal (CALM 1992) is for a 31 500 ha 'C' class nature reserve vested in the National Parks and Nature Conservation Authority, which differs only very slightly from the original recommendation (see Fig. 1).

METHODS

Phase 1

Sites were subjectively selected to record the main vegetation types present on the RANGE. Initially, three vegetation types were recognized on the northern section, and four on the southern section. A total of thirteen sites were selected so that most vegetation types were sampled more than once. Sampling for small mammals was by trapping for a seven-day period at each site during each of the four seasons.

The trapping efforts at most sites were:

(a) a line of nine 23 x 9 x 7.5 cm Shermann box traps and nine breakback traps about 10 m apart, in alternative sequence; bait was 'universal';

(b) a 50 m drift-fence 20 cm high of flywire, with five PVC cylinders 13 cm in diameter and 60 cm long. Pitfall traps could only be set after blasting the massive lateritic cap-rock with gelignite;

(c) at least one cage trap associated with (a) and (b).

In a few places, the total area of a particular vegetation type was too small to include both (a) and (b). At these places, two suitable patches were selected as close as

[1] K.Bradby and A.Chapman, unpublished report, 'Biological data and recommendations for proposed gravel extraction in the Ravensthorpe Range, Western Australia.' An assessment for the Main Roads Department.

possible to each other. Trap lines 4 and 8 did not have pitfall traps. Trapping effort in trap nights was Shermann trap (3024), breakback (3024), pitfall trap (1680) and cage trap (420): total 9148. Note that 420 trap nights for cage traps included some opportunistic trap nights. Only kill-trap animals were taken; others were identified and released. Reptiles were pitfall-trapped as well as recorded opportunistically. All bird data were recorded opportunistically. Additional fauna survey techniques included nocturnal searching for geckoes and frogs using a head torch, mist-netting for birds, and bat-trapping for bats.

Phase 2

Recording during this phase had two main aims:

(a) to re-trap sites where both *Pseudomys shortridgei* and *Rattus fuscipes* had been trapped during Phase 1 (nine sites). At each site, twenty 32.5 x 8 x 10 cm Elliott traps were set at 10 m intervals, baited with 'universal' bait, and run for five consecutive nights. Mammals captured were identified, sexed, weighed, marked to identify recaptures, and then released;

(b) detailed data on geology, landforms, soils, vegetation and flora were recorded at all sites.

Site descriptions used for (b) were similar to those of the biological survey of the Fitzgerald River National Park (Chapman and Newbey 1995). Data were recorded for geology, landform, soil profile, vegetation structure and floristics. Data from the Fitzgerald survey and the present one are compatible, even though site sizes are different. Recording for vegetation structure followed Muir (1977), and flora nomenclature followed Green (1985).

CLIMATE

The RANGE experiences cool and damp winters, and warm to hot summers with variable and unreliable rainfall. Vegetation of the RANGE does not indicate any climatic pattern in relation to either height above the surrounding plain, or aspect. According to the climatic classification of Koppen, the RANGE is within Low latitude steppe (Dick 1975). There are no stations on the RANGE recording climatic data. Data listed are from the nearest town (Ravensthorpe).

Rainfall

Most rainfall tends to fall during the period May to October (Table 1). Annual average is 423 mm with lowest of 240 mm and highest of 738 mm. Winter rainfall is largely from cold fronts and occasional depressions. Summer rainfall is mainly from thunderstorms associated with 'troughs', cyclones that have degenerated into rain-bearing depressions, or coastal rain associated with some on-shore winds. Monthly rainfall for the four years preceding the survey and including its duration are shown in Table 2.

Temperature

Summer temperatures are generally only warm (Table 3) owing to the arrival of a sea breeze about 1530 hours most days. Snow and frost are very rare on the RANGE.

Winds

Winds are an important climatic factor, usually present with moderate velocity. Many small falls of rain are evaporated by wind before soaking to the plant root zone. Evidence of structural damage to vegetation by wind is both rare and minor.

TABLE 1
Mean rainfall and rain days at Ravensthorpe
(85 years of recording at Ravensthorpe to 1986)

	J	F	M	A	M	J	J	A	S	O	N	D	Av.	Low	High
A	21	25	30	33	43	44	46	45	41	40	30	21	419	240	736
B	5	6	7	8	11	12	13	12	11	10	7	6	107	-	-

A = Rainfall (mm) B = No. of Rain Days

TABLE 2
Rainfall (mm) recorded at Ravensthorpe (1979-1987)

	J	F	M	A	M	J	J	A	S	O	N	D	Total
1979	12	64	19	11	34	44	37	78	57	12	16	3	387
1980	23	54	5	34	23	51	22	23	3	40	36	76	390
1981	42	37	10	6	64	41	47	27	11	10	27	3	325
1982	82	8	31	6	26	28	19	67	17	46	21	15	366
1983	28	64	25	17	49	71	49	14	28	34	83	57	519
1984	10	10	11	23	24	14	80	95	42	22	41	1	373
1985	10	2	36	16	16	27	32	69	69	56	43	10	381
1986	15	58	12	5	81	49	75	82	42	22	16	10	467
1987	52	2	1	24	102	20	35	29	51	12	48	77	425

TABLE 3
Temperature data for Ravensthorpe (°C 24 years data to 1986)

		J	F	M	A	M	J	J	A	S	O	N	D
Ave.	Max.	29	28	27	24	20	17	16	17	19	22	25	28
Ave.	Min.	14	15	13	12	9	8	7	7	7	9	11	13
Max.	rec.	44	43	41	38	34	26	26	28	32	38	40	43
Min.	rec.	-	-	-	-	-	-	-	0.1	-	-	-	-

GEOLOGY

Geology of the general Ravensthorpe district has been described and mapped at the scale of 1:250 000 by Thom *et al.* (1977). Detailed mapping of some sections of the RANGE has been presented by Sofoulis (1958).

Briefly, the RANGE consists of a succession of sediments laid down during the Archaean. These sediments were largely igneous in origin and consisted of basalt and volcanic ash (tuff). In this report they are collectively referred to as 'greenstone'. Intermixed through the greenstone were smaller amounts of Banded Ironstone Formation (layered sandstone and iron hydroxides). Greenstones are either mafic or ultra-mafic with pH greater than 8.0. Banded Ironstone Formation is slightly acidic with pH about 6.5 and often more resistant to weathering than greenstone.

The ridge forming the RANGE consists of tilted greenstone and Banded Ironstone Formation. Overlaying some sections of the southern quarter of the RANGE are thin beds of Proterozoic quartzite.

In more recent geological times, much of the RANGE's upper surface has experienced laterization. Much of the lateritic cap remains as massive laterite. Material eroded off the laterite forms colluvial deposits of 'gravel' on some middle and lower slopes. Tectonically, the RANGE has been stable for a great period of geological time.

LANDFORMS

The RANGE is within Swanland of Jutson (1950), or the South Coast System of the South-West Drainage System of WA (Mulcahy and Bettenay 1972). The RANGE rises to 150 m above the surrounding plain with most lower slopes of 5-10 degrees, increasing upslope to 20-30 degrees. Some small areas have steeper slopes. Generally, slopes are steeper in the northern section. Slope tends to decrease in the southern section from north-west to south. Bedrock outcrops are not uncommon and tend to increase with slope. Drainage is usually uni-directional on the RANGE, becoming dendritic into the Jerdacuttup River which is the main drainage line. One tributary, Cordingup Creek, passes through the RANGE; another tributary passes along its north-west face.

SOILS

Soils of the RANGE have not been documented. They are described briefly below but require more detailed study. On the northern section all soils on the ridge crest, upper and middle slopes are skeletal to shallow with moderate amounts of bedrock in their profile. Profile development is rarely more than the accumulation of some organic matter in the upper 8-15 cm. Weathering zones at the profile base are shallow and rarely obvious when augering. Soils are well- or excessively-drained. Deeper soil profiles have developed on some lower slopes with a depth of 1 m, occasionally to 2 m. Profile development is moderate with a sandy A21 horizon over gravelly sand A22 horizon. Occasionally, a shallow combined B and C horizon of sandy clay is present.

On the southern section, where slopes are more moderate, deep soil profiles to at least 1 m have developed. Their A horizon varies from loamy sand to clayey sand, about 10 cm deep, over sandy clay B horizon. East of Kundip, where the crest of the ridge is a few hundred metres wide, at least one colluvial sand sheet up to 1 m deep is present over massive laterite.

Narrow deposits of saline and sub-saline alluviums are associated with the major drainage lines. The alluviums are water-logged during most of the winter. For the purpose of this survey, 11 soil types have been identified (Table 4).

VEGETATION

Beard (1973) has described and mapped the RANGE vegetation at the scale of 1:250 000. Two vegetation types were identified. Barren Range thicket covers most of the RANGE; however, only a few small areas can actually be identified as this vegetation type. The other vegetation type is Mallee on greenstone, which covers much of the area mapped.

During Phase 2, 15 distinct vegetation types were identifed. Table 5 lists both their position(s) on the RANGE and soil types. However, the RANGE has not been traversed in detail and other types may be present. One type, *Eucalyptus astringens* Low Woodland, includes two other types occurring in small patches and often intermixed with it: *E. gardneri* ssp. *ravensthorpensis* and *E. nutans* Low Woodlands.

The names of two vegetation types have, for the sake of simplicity, been used incorrectly: *Banksia lemanniana* shrubland (variable density) and *Dryandra foliosissima* Low Scrub A. Both should be named *Eucalyptus tetragona* Very Open Shrub Mallee. However, if correctly named, then three distinctive vegetation types, with different structure and occurring on different soil groups, would be named the same. *Dryandra foliosissima* Low Scrub A is unique to the RANGE. All the other types have been recorded in the Ravensthorpe Shire.

Distribution of Vegetation (Fig. 2)

The boundary between vegetation types is not always clearly defined. Some patches of vegetation are fine-grained mosaics. Much of the crest, and some upper slopes, of the northern section of the RANGE supports *Dryandra foliosissima* Low Scrub A on Skeletal Gravelly Sand over a lateritic caprock. Where the crest consists of greenstone, *Eucalyptus astringens* Low Woodland is present on Shallow Sandy Loam. Middle and lower slopes are mainly over greenstone with colluvial Clayey Sand supporting *E. flocktoniae* Shrub Mallee. *Eucalyptus astringens* Low Woodland is present as sinuous patches along some minor drainage lines on sandy alluvium.

Less greenstone is present in the southern section of the RANGE, which has *E. annulata* Low Woodland on Red

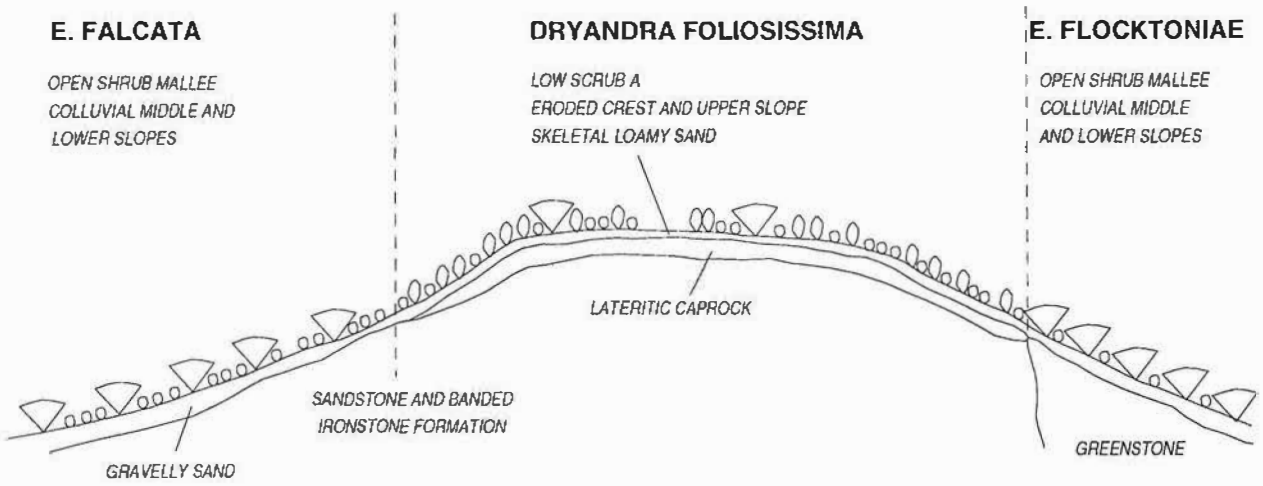
TABLE 4
Main characteristics of soil groups of the Ravensthorpe range.

SOIL GROUP	A HORIZON	B HORIZON	BEDROCK
SKELETAL SOILS			
Quartzite Sand	15-25 cm deep, pH 6.75	Absent	Quartzite
Shallow Sandy Loam	20-30 cm deep, pH 6.25	Absent	Greenstone
Skeletal Gravelly Sand	10-20 cm deep, pH 6.5	Absent	Lateritic caprock
SHALLOW SOILS			
Clayey Sands	12-15 cm deep, pH 6.75-7.25	Sandy light clay, 12-15 cm deep, pH 7.5-8.5	Greenstone
Colluvial Sand	30-70 cm deep, pH 6.25-6.5	Absent	Lateritic caprock
Shallow Loamy Sand	10-15 cm deep, pH 6.25-6.5	Sandy light clay, 0-70 cm deep, pH 6.25	Banded Ironstone Formation
DEEP SOILS			
Gravelly Sand	15-25 cm deep, pH 6.5	Sandy light clay, 10-30 cm deep, pH 6.0-6.5	Various
Light Brown Sandy Loam	7-15 cm deep, pH 6.5	Sandy clay loam, 20-80 cm deep, pH 7.5-8.0	Various
Red Clay	5-10 cm deep, pH ?	45-60 cm deep, pH ?	Greenstone
Saline Soils	5-30 cm deep, pH ?	Variable, 0-80 cm deep, pH 6.0-7.5	Various
Sandy Alluvium	70-100 cm deep, pH 6.25	?	Greenstone

TABLE 5
Relationships between geology, landforms, soils and vegetation types.

Geol. refers to geological surface of Ravensthorpe 1:250,000 sheet. BIF = Banded Ironstone Formation
B. = Banksia, E. = Eucalyptus, M. = Melaleuca. * Intermixed and grading into E. astringens Low Woodland.
+ Small patches intermixed within Eucalyptus flocktoniae Shrub Mallee
# Small " " " Eucalyptus falcata Open Shrub Mallee
Trapline: D = Drift Fence, M = Metal traps; otherwise both.

GEOLOGY	LANDFORM UNIT/ELEMENT	SOIL	VEGETATION TYPES	TRAP LINE
NORTHERN SECTION				
Ak	Ridge and upper slope	Shallow Sandy Loam	E. astringens Low Woodland E. gardneri Low Woodland* E. nutans Low Woodland*	6
Au	Middle and lower slope	Clayey Sand	E. flocktoniae Shrub Mallee E. flocktoniae Open Shrub Mallee +	4, 5(M)
Czl over BIF	Laterized crest	Skeletal Gravelly Sand	Dryandra foliosissima Low Scrub A	1, 2, 3
Qa in Au	Minor alluvial deposits	Sandy Alluvium	E. astringens Low Woodland5(D)	
SOUTHERN SECTION				
??	Breakaways	??	E. astringens Low Woodland	
Ak	Middle slope	Red Clay	E. annulata Low Woodland	13
Ak, Au	Middle slope	Clayey Sand	E. flocktoniae Open Shrub Mallee	9, 10
Czl	Laterized narrow crest	Skeletal Gravelly Sand	E. preissiana Shrub Mallee	
Czl	Laterized narrow outcrops	Skeletal Gravelly Sand	B. lehmanniana Scrub (variable)	7, 8(M)
Czl over BIF	Broad crest	Shallow Loamy Sand	Open Shrub Mallee Ecotone E. redunca Very Open Shrub Mallee	11(D)
Pbq in Czl	Narrow crest	Quartzite Sand	E. falcata Very Open Shrub Mallee	11(M)
Czs in Czl	Colluvial sand sheet on	Colluvial Sand	E. tetragona Very Open Shrub Mallee	12
COMMON TO BOTH SECTIONS				
Qpv	Alluvial-colluvial flat Colluvial flat	Light Brown Sandy Loam Light Brown Sandy Loam	E. occidentalis Low Woodland E. salmonophloia Woodland	
Qpv	Saline Alluvium	Saline Soils	M. cuticularis Scrub	
Czl in Au	Colluvial middle slope	Gravelly Sand	E. falcata Open Shrub Mallee E. falcata Low Woodland #	



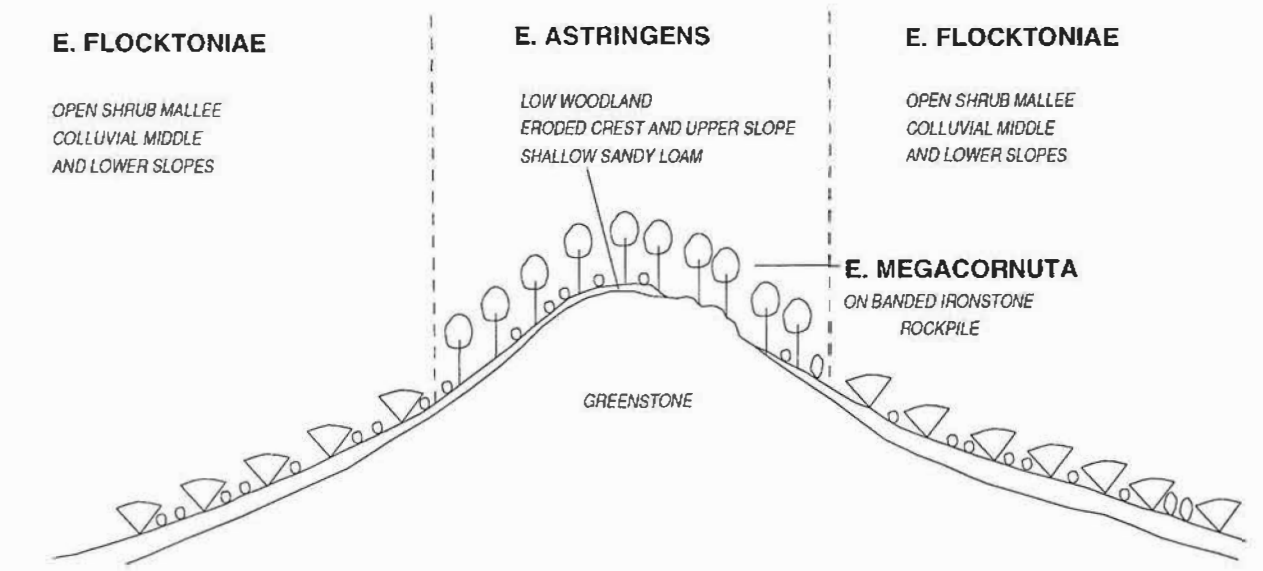


Figure 2a. Northern section of the Range. Diagram showing simple relationships between geology, landforms, soils and vegetation types. Not to scale.

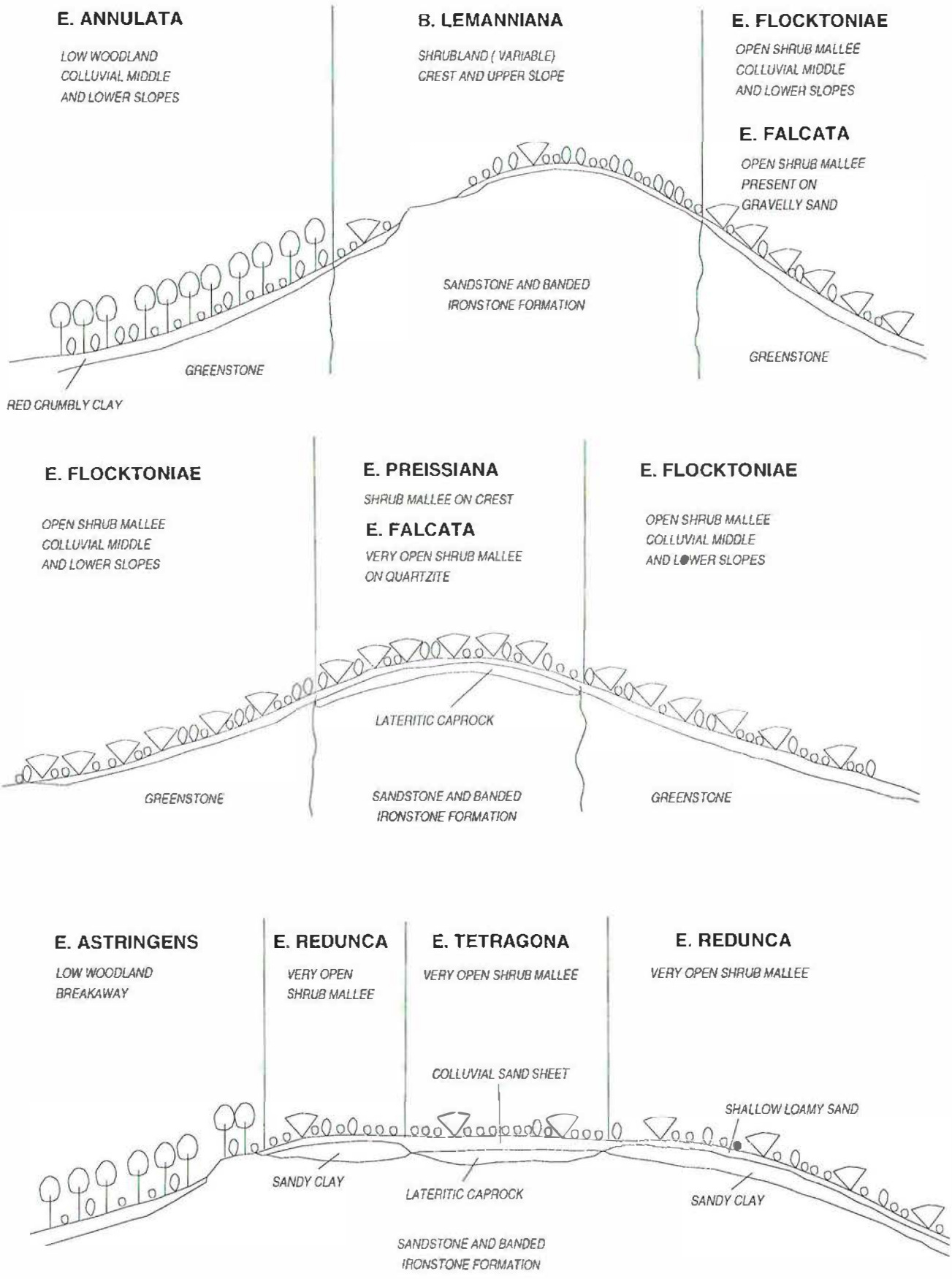


Figure 2b. Southern section of the Range. Diagram showing simple relationships between geology, landforms, soils and vegetation types. Not to scale.

Clay in a few small patches. Where the range crest is narrow, vegetation is variable on Skeletal Gravelly Sand over lateritic caprock. *Banksia lemanniana* shrubland (variable density) is common with a few small patches of *Dryandra foliosissima* Low Scrub A near Elverdton. Dense stands of *E. preissiana* Shrub Mallee are common with *E. falcata* Very Open Shrub Mallee on Quartzite Sand in a few small patches. Broader sections of the crest support mainly *E. redunca* Very Open Shrub Mallee on Shallow Loamy Sand. There is at least one small patch of *E. tetragona* Very Open Shrub Mallee on Colluvial Sand over lateritic caprock.

Eucalyptus flocktoniae Open Shrub Mallee is common on the slopes. Scattered breakaways, which are moderately developed, support *E. redacta* and *E. clivicola* Low Woodland on an unsampled soil type.

Common to both sections are four vegetation types. Scattered colluvial deposits derived from the lateritic crest support *E. falcata* Open Shrub Mallee on Gravelly Sand. Some colluvial flats associated with more prominent drainage lines support either *E. occidentalis* Low Woodland or *E. salmonophloia* Woodland on Light Brown Sandy Loam. Saline drainage lines grow *Melaleuca cuticularis* Scrub, over samphire, on Saline Soils.

Micro-habitats

Some micro-habitats occur within vegetation types. Rockpiles of laterized Banded Ironstone Formation (25-35 m x 10-20 m) support scattered *Eucalyptus megacornuta*, a few shrubs and annuals. Sometimes small dense patches of the tall shrub *Melaleuca cucullata* are present in *E. flocktoniae* Shrub Mallee. A few exploratory mining shafts and holes, dug by hand, provide small and specialized habitats. Also included are the rubbish and debris associated with mining. Small breakaways in the RANGE are poorly developed. Apart from three small patches (see Introduction) the RANGE does not appear to have experienced a major fire for at least 75 years.

It is important to note that of the vegetation types identified in the field, four have not been surveyed in detail (Table 5), while another lacks a typical site description (*E. falcata* Very Open Shrub Mallee). Those not sampled are *E. salmonophloia* Woodland, *E. occidentalis* Low Woodland, *E. preissiana* Shrub Mallee and *Melaleuca cuticularis* Scrub.

FLORA

While botanists have been collecting oportunistically in the RANGE since the last century (George Maxwell, in the 1880s, was probably the earliest collector) the first flora list has only recently been published (Bennett 1987). The study by Bennett consisted mainly of transects of sites across the RANGE to study correlations between soils, vegetation and floristics. Bennett recorded 31 families, consisting of 197 species and two varieties of flowering plants.

Data recorded from both Phase 2 and the independent gravel pit study are presented in Appendix II. The number of families has been increased to 65, including two families of ferns. Appendix II lists four species of ferns, and 532 species of flowering plants including 12 subspecies and 10 varieties. A total of 35 taxa are introduced, dominated by Asteraceae (13) and Poaceae (10).

Conservation Values

Ten taxa appear to be endemic to the RANGE, and another 10 almost confined to the RANGE. Three species are Declared Rare Flora (Government Gazette 12 November 1993): *Eucalyptus bennettiae, Billardiera mollis* and *Daviesia megacalyx* ms. Thirty-four taxa are considered rare and require special attention. No outlier populations were recorded, i.e. more than 150 km from known populations.

Most of the taxa listed in Appendix II were sighted during only about 3.5 days of field work. Some vegetation types were surveyed only very briefly, e.g. *Eucalyptus redunca* Very Open Shrub Mallee and *E. occidentalis* Open Low Woodland. Others had only minimal survey time, e.g. *E. tetragona* Very Open Shrub Mallee on Colluvial Sand. This vegetation type is the closest to sandplain vegetation on deep white sand on both gently undulating plain over granite, and on the Eocene marine plain as in the Fitzgerald area.

MAMMALS

The 14 mammal species recorded during both phases of the survey are listed systematically, below. Vegetation types of each trap line are listed in Table 5. Trap line sites are described in detail in Appendix I. SD refers to standard deviation.

MACROPODIDAE

MACROPUS EUGENII Tammar Wallaby
One record, November 1982, in *Eucalyptus flocktoniae* Shrub Mallee over clumped tall shrubs of *Melaleuca cucullata* with no understorey, near trap line 4.

MACROPUS FULIGINOSUS Western Grey Kangaroo
Twenty-four records (all months), present in pairs and in small groups of three in all habitats except *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland on lateritic crest. Relatively scarce compared with surrounding farmland.

MACROPUS IRMA Brush Wallaby
Four records (January, March and April), all single animals in open shrub mallee on crest and lower slopes. Relatively scarce compared with elsewhere in Ravensthorpe Shire.

PHLANGERIDAE

TRICHOSURUS VULPECULA Brush-tailed Possum
One record, a dessicated partial skeleton in mine adit near

Mount Chester. We are unable to decide whether the possum lived and died in the adit or whether it was killed elsewhere by a predator and deposited in the shaft. The surrounding habitat is presumed 'atypical' being 'upper slope' open shrub mallee and not woodland.
Trichosurus do currently live in *Eucalyptus salmonophloia* and *Eucalyptus occidentalis* woodlands around Ravensthorpe and elsewhere in the Shire. Formerly, they did occupy mine shafts and adits (S. Daniels personal communication).

BURRAMYIDAE

CERCARTETUS CONCINNUS Pygmy Possum
Six records, pitfall-trapped at lines 1(1) and 7(5). Most abundant in *Banksia lemanniana* shrubland and very open shrub mallee with *Dryandra quercifolia*. One female (11.0 g), trapped in October, had pouch young. Seasonal abundance is indicated in Figure 3.

TARSIPEDIDAE

TARSIPES ROSTRATUS Honey Possum
Forty-six records, pitfall-trapped at lines 1(2), 2(1), 3(1), 7(7), 10(5), 12(29) and 13(1). *Tarsipes* are widespread and locally abundant in the RANGE, being present in all vegetation types that were trapped except *Eucalyptus astringens* Low Woodland. One was even trapped in *E. annulata* Low Woodland which would generally be considered 'atypical' habitat. Most abundant in a small, isolated patch of sandplain (*E. tetragona* Very Open Shrub Mallee on Colluvial Sand) within the RANGE (line 12); here on one occasion 13 male *Tarsipes* were released from one trap from a single night. Pouch young were present in July, August, October and February, supporting the observations of Scarlett and Woolley (1980) that *Tarsipes* are non-seasonal breeders. Having released a large number of *Tarsipes* we suggest that torpidity is independent of temperature because different animals released from the same place at the same time can be either very active or completely torpid. Males weighed 6.0-9.0 g (N=3), females 3.0-10.5 g (N=3). Seasonal abundance is presented in Figure 3.

PERAMELIDAE

ISOODON OBESULUS Short-nosed Bandicoot
One record, a fresh road-kill in August 1979 in open shrub mallee (*Eucalyptus tetraptera* and *E. leptocalyx)* on fine sandy loam on Ravensthorpe-Hopetoun Road.

DASYURIDAE

SMINTHOPSIS GRISEOVENTER Grey-bellied Dunnart
Twenty records (pitfall traps 19, breakback trap 1), at lines 2(1), 7(2), 9(5), 11(1) and 13(11). Most abundant in *Eucalyptus annulata* Low Woodland, but present on crest in *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland, and ecotone Open Shrub Mallee; seasonal abundance is presented in Figure 3.

MURIDAE

RATTUS FUSCIPES Southern Bush Rat
Fifty-four records, trapped (Shermann 22, breakback 26, pit 6) at lines 2(2), 3(2), 5(5), 6(1), 7(7), 8(7), 9(16), 10(13) and 11(1). *Rattus fuscipes* were widespread and locally abundant in the RANGE and present in most vegetation types; one was even in Low Woodland of both *Eucalyptus gardneri* and *E. nutans* on breakaway ridge. Most abundant in shrub mallees and open shrub mallees on clay loam on 'lower slope'. Sub-adults (35-40 g) were trapped in February.
In Phase 2 *Rattus fuscipes* were trapped at five of the nine sites where they were present in Phase 1. These were lines 5(5), 6(2), 9(4), 10(9) and 11(2): these data exclude recaptures. Recapture rate was 40 per cent; this high rate of recapture probably indicates a relatively low population level. Weights were: males - 32.0-110.0 g, average 71.09, SD 30.05 g (N=16); females - 42.0-114.0 g, average 86.65, SD 22.19 g (N=10).

PSEUDOMYS OCCIDENTALIS Western Mouse
Twenty-four records, trapped (Shermann 3, breakback 15, pitfall 6) at lines 1(4), 2(14), 8(1), 9(3) and 10(2). Present in *Dryandra foliosissima* Low Scrub A on crest and upper slopes, *Banksia lemanniana* shrubland and *Eucalyptus transcontinentalis* Open Shrub Mallee on lower slopes; most abundant in *Dryandra foliosissima* Low Scrub A. Not as widespread as other small mammals in the RANGE but locally abundant. In October one female (51.0 g) gave birth to three young (4.0 g each) in an Elliott trap. Males weighed 18.5-35.0 g (N=3); females 24.5-51.0 g (N=4).

PSEUDOMYS SHORTRIDGEI Heath Rat
In Phase 1 at least one '*Rattus fuscipes*' from each of trap lines 7, 8 and 9 was a *Pseudomys shortridgei* (Baynes *et al.* 1987). The Phase 2 reassessment recorded only one animal, a male weighing 63.5 g at trap line 9.
In the RANGE and elswhere *Pseudomys shortridgei* seems only to occur with *Rattus fuscipes*, where it is always less frequently trapped.

MUS MUSCULUS House Mouse
Thirty-five records, trapped (Shermann 21, breakback 10, pitfall 4) at lines 1(2), 2(1), 7(1), 8(7), 9(3), 10(2), 11(17) and 12(1). Present throughout the RANGE in most vegetation types, but relatively scarce compared with native mammals in other areas studied in south-west WA. Most abundant in open shrub mallee on loamy fine sand on crest; here only one other mammal, a *Rattus fuscipes*, was trapped. Seasonal abundance is indicated in Figure 3.

MOLOSSIDAE

TADARIDA AUSTRALIS White-striped Mastiff Bat
This bat with a distinctive call can be readily heard at night in the RANGE.

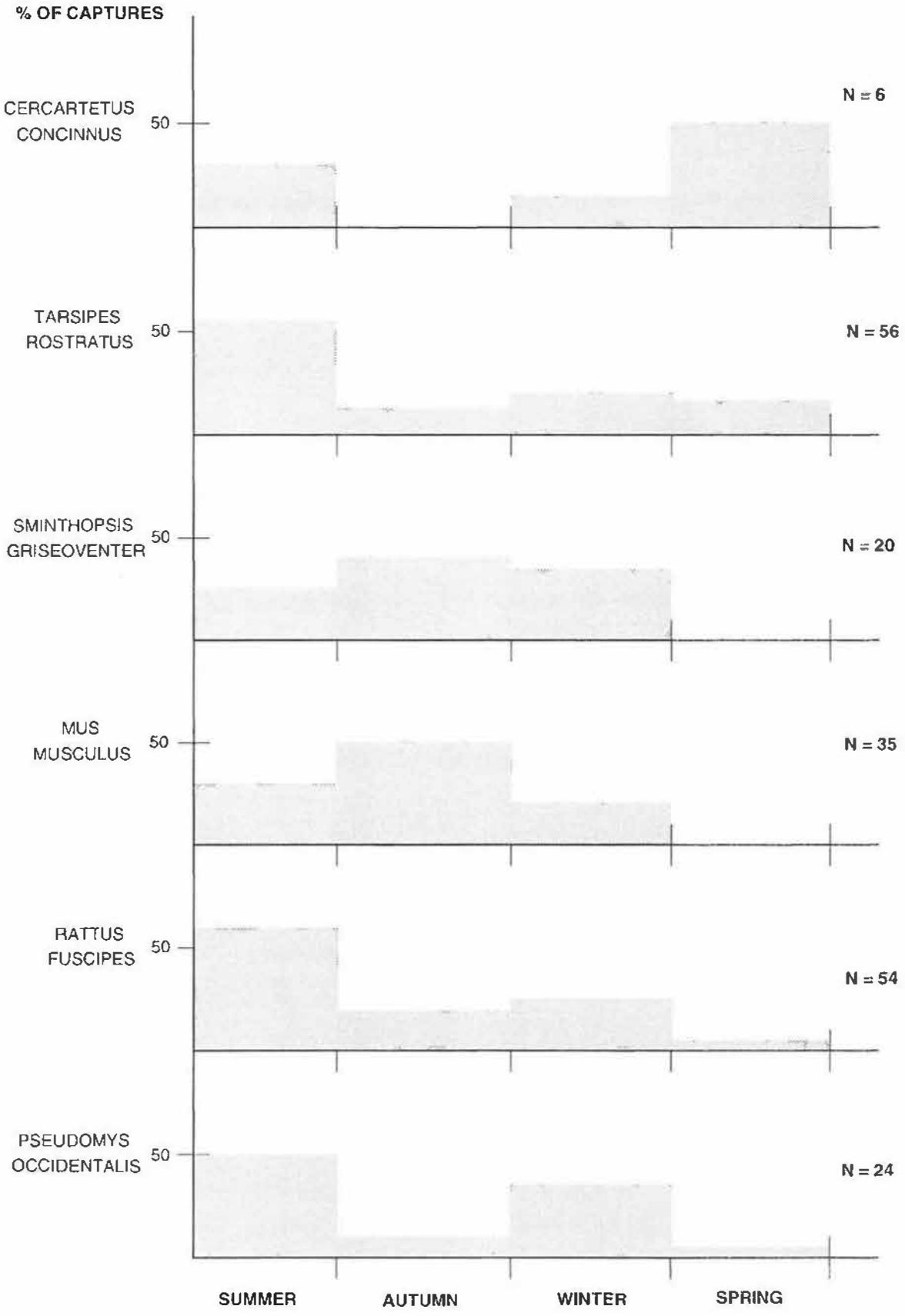


Figure 3. Seasonal abundance of mammal species trapped in the Range (Phase 1 data only).

VESPERTILIONIDAE

CHALINOLOBUS MORIO Chocolate Bat
A colony is sometimes present in a mine adit near Mount Chester. In October 1979 a maternity colony was present there.

TACHYGLOSSIDAE

TACHYGLOSSUS ACULEATUS Echidna
One record, observed at 2.00 p.m. in *Eucalyptus nutans* Low Woodland on crest in April. Present throughout the RANGE, characteristic scratchings and scats frequently seen.

CANIDAE

VULPES VULPES Fox
One record, a dead animal in 1979; tracks and scats occasionally seen during survey. Apparently uncommon, compared with elsewhere in the district.

ORYCTOLAGIDAE

ORYCTOLAGUS CUNICULUS Rabbit
Two records, one in *Eucalyptus flocktoniae* Open Shrub Mallee close to adjoining farmland and one at Kundip. Scarce in the RANGE compared with adjoining farmland.

BIRDS

Listed below are the 89 species of birds known to occur in the RANGE. Most were recorded during both phases of the survey. 'Duck pools' located at 120° 17.20'E, 33° 42.40'S on Jerdacuttup River are marginal to the RANGE as a landform but are contained in the proposed reserve. Detailed descriptions of most vegetation types are given in Appendix 1. Nomenclature follows Storr and Johnstone (1979).

DROMAIUS NOVAEHOLLANDIAE Emu
Four records (April, July and November) on lower slope and crest vegetation, usually Open Mallee *Eucalyptus tetragona* or *E. falcata*. Small groups to 3, adults with chicks (8 and 2) in November. Scarce in RANGE compared with adjoining farmland.

PODICEPS POLIOCEPHALUS Hoary-headed Grebe
Two records (March and April) on Jerdacuttup River 'duck pools', an individual and a pair. This is the common grebe in saline river pools in the district, whereas *P. novaehollandiae* is found on freshwater, particularly farm dams.

PHALACROCORAX VARIUS Pied Cormorant
Two records (March and April) on Jerdacuttup River 'duck pools', seen individually. *Phalacrocorax melanoleucos* may also be present.

ARDEA NOVAEHOLLANDIAE White-faced Heron
Six records (January, February, March and April) singly and in pairs along Cordingup Creek and Jerdacuttup River.

ANAS SUPERCILIOSA Black Duck
One record, a solitary bird on Jerdacuttup River 'duck pools'

ANAS GIBBERIFRONS Grey Teal
Three records (March, April and September), small groups to 7 on Cordingup Creek and Jerdacuttup River 'duck pools'.

ANAS CASTANEA Chestnut Teal
Six records (January, February, March and April) in pairs (male and female) and small groups of 5-6 each with one male on Cordingup Creek and Jerdacuttup River 'duck pools'.

ANAS RHYNCHOTIS Blue-winged Shoveller
One record (April), a group of 12-15 birds on Jerdacuttup River 'duck pools'.

MALACORHYNCHUS MEMBRANACEUS Pink-eared Duck
One record (April), a pair on Jerdacuttup River 'duck pools'.

AYTHA AUSTRALIS Hardhead
One record (April), two separate birds on Jerdacuttup River 'duck pools'.

CHENONETTA JUBATA Wood Duck
One record (April), two groups of 5-6 birds on Jerdacuttup River 'duck pools'.

HALIASTUR SPHENURUS Square-tailed Kite
Four records (August,September, October and December), flying along the RANGE crest or low over vegetation.

AQUILA AUDAX Wedge-tailed Eagle
Ten records (February, March, April, May and July), solitary birds flying along the RANGE crest and in *Eucalyptus salmonophloia* Woodland.

FALCO LONGIPENNIS Australian Hobby
One record (January), flying over the RANGE.

FALCO BERIGORA Brown Falcon
Five records (April, May, July and August), flying over the RANGE, perching in mallee and on telegraph pole.

FALCO CENCHROIDES Australian Kestrel
Five records (January, April, June and August), on ground on firebreak, over Jerdacuttup River and dams, and flying over the RANGE. Nesting in October in vertical mine shaft at Kundip; clutch 4.

LEIPOA OCELLATA Mallee Fowl
Five records (February, March and August). Usually seen in pairs at Kundip townsite dam in mixed low woodland (*Eucalyptus gardneri* ssp. *ravensthorpensis* and *E. nutans*). Seen singly in dense vegetation on the RANGE crest, *Banksia lemmaniana* shrubland and *E. preissiana* Shrub Mallee. Active nest in October.

TURNIX VARIA Painted Button-quail
Two records (February), adult in breakback trap (line 9) and juvenile in pitfall trap (line 7).

FULICA ATRA Coot
One record (April), two pairs and a group of 12 on Jerdacuttup River 'duck pools'. Pair with two chicks on Cordingup Creek in December 1959 (G.M. Storr *personal communication).*

VANELLUS TRICOLOR Banded Lapwing
One record (September), flying over Kundip at night.

CHARADRIUS MELANOPS Black-fronted Plover
Two records (April), a pair and a single bird on Jerdacuttup River 'duck pools'.

TRINGA NEBULARIA Greenshank
Two records (March and October), single birds on rocks in river pools on Jerdacuttup River.

PHAPS CHALCOPTERA Common Bronzewing
Four records (January, April and August), perching in *Eucalyptus gardneri* ssp. *ravenshorpensis* Low Woodland, flying over and drinking at pools on firebreak.

PHAPS ELEGANS Brush Bronzewing
Four records (February, March and June), in *Dryandra foliosissima* Low Scrub A on the RANGE crest, and at trap line 10. Generally in denser vegetation than *P. chalcoptera.*

OCYPHAPS LOPHOTES Crested Pigeon
Two records (February and September), in *Eucalyptus annulata* Low Woodland (trap line 13) opposite road and adjacent to farmland. Not observed within the RANGE until power poles were erected past Mount Desmond in January 1984, thereafter perched thereon. Scarce in the RANGE compared with adjacent farmland.

GLOSSOPSITTA PORPHRYOCEPHALA Purple-crowned Lorikeet
Thirty-two records during all months with a tendency to become scarce over summer and early autumn. Usually flying over in groups to 15. A large group of several hundred feeding in flowering *Eucalyptus astringens* in June, smaller groups feeding in flowering *E. salmonophloia* in February.

PLATYCERCUS ZONARIUS Ring-necked Parrot
Ten records (February, April, June and October), small groups to 4 in *Eucalyptus transcontinentalis* Open Shrub Mallee on lower slopes, *E. falcata* Low Woodland on upper slopes, and *E. salmonophloia* Woodland.

PLATYCERCUS SPURIUS Red-capped Parrot
Ten records (January, February, July, August, October and December), singly and in pairs in *Eucalyptus transcontinentalis* Open Shrub Mallee on lower slope, *E. preissiana* Shrub Mallee on crest, and *E. annulata* Low Woodland.

PLATYCERUS ICTEROTIS Western Rosella
One record (April), a pair recorded by J.R. Ford in *Eucalyptus nutans* Low Woodland.

NEOPHEMA ELEGANS Elegant Parrot
One record (December), a group of 4 in grass by farmland on the edge of the RANGE.

CALYPTORHYNCHUS LATIROSTRIS Carnaby's Cockatoo
Three records (June), 2 in *Eucalyptus falcata* Low Woodland on upper slope, and 3 birds flying over Kundip mining dam in *E. flocktoniae* Open Shrub Mallee on lower slope. We suspect *C. latirostris* does considerable damage to *Dryandra quercifolia* shrubs while feeding on the immature fruit.

POLYTELIS ANTHOPEPLUS Regent Parrot
Two records (June and July), groups of 10 and 15 birds feeding on spilt grain on the roadside in Cordingup Pass.

CUCULUS PALLIDUS Pallid Cuckoo
Two records, calling in September, in April a bird in *Eucalyptus annulata* Low Woodland.

CUCULUS FLABELLIFORMIS Fan-tailed Cuckoo
Fifteen records, all months, except apparently absent in summer; heard calling between June and October, most often heard in open shrub mallee on middle slope, also in *Eucalyptus salmonophloia* Woodland on Jerdacuttup River. Seen in *E. tetragona* shrub mallee on the RANGE crest.

CHRYSOCOCCYX BASALIS Horsfield's Bronze Cuckoo
Six records (September and October), in open shrub mallees on middle slope.

CHRYSOCOCCYX LUCIDUS Shining Bronze Cuckoo
Six records (September, October and December), in *Dryandra foliosissima* Low Scrub A on the crest, and *Eucalyptus flocktoniae* Open Shrub Mallee on lower slope.

NINOX NOVAESEELANDIAE Boobook Owl
Three records (February and March), calling by day in March in *Eucalyptus salmonophloia* Woodland.

PODARGUS STRIGOIDES Tawny Frogmouth
One record (February), perching in *Eucalyptus salmonophloia* Woodland.

AEGOTHELES CRISTATUS Australian Owlet-nightjar
Two records (February), flushed from hollow spout and calling at night in *Eucalyptus salmonophloia* Woodland.

EUROSTOPODUS GUTTATUS Spotted Nightjar
Two records (October), in *Eucalyptus gardneri* ssp. *raventhorpensis* Low Woodland and *E. flocktoniae* Open Shrub Mallee on lower slope.

DACELO GIGAS Laughing Kookaburra
Three records (February and September), in *Eucalyptus salmonophloia* Woodland.

MEROPS ORNATUS Rainbow Bee-eater
Three records (January and March), small groups of 3-4, over open shrub mallees on lower and middle slopes, and in *Eucalyptus salmonophloia* Woodland.

CHERAMOECA LEUCOSTERNA White-backed Swallow
One record (April), one group of 10-15 birds flying over lower slope vegetation at Kundip.

HIRUNDO NEOXENA Welcome Swallow
Ten records (all months), in small groups to 6 birds flying over all main vegetation types. Perching in shrub mallees and on power lines. Nesting in mine shaft in November.

HIRUNDO NIGRICANS Tree Martin
Seven records (January, February, March and April), small groups to 10 flying over the RANGE crest and *Eucalyptus salmonophloia* woodland.

CORACINA NOVAEHOLLANDIAE Black-faced Cuckoo shrike
Eight records (all months), singly and in pairs over most vegetation types. Nesting in *Eucalyptus tetragona* at Kundip in February.

EOPSALTRIA AUSTRALIS Yellow Robin
Twelve records (all months), singly and in pairs (male and female) in shrub mallees, *Eucalyptus astringens* ssp. *raventhorpensis* Low Woodland and in *Dryandra foliosissima* Low Scrub A on the RANGE crest.

PACHYCEPHALA PECTORALIS Golden Whistler
Twenty-eight records (all months), in open shrub mallees on middle and lower slopes, and in *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland, and in *Eucalyptus annulata* Low Woodland.

PACHYCEPHALA RUFIVENTRIS Rufous Whistler
Two records (March and November), heard only in open shrub mallees on middle slopes.

COLLURICINCLA HARMONICA Grey Shrike Thrush
Twenty-two records (all months), in all vegetation types.

OREOICA GUTTURALIS Crested Bellbird
Eighteen records (all months), in *Eucalyptus flocktoniae* Open Shrub Mallee and *Banksia lemanniana* shrubland on middle and lower slopes. Like *Psophodes nigrogularis*, *O. guttaralis* is largely, if not entirely, restricted to the RANGE south of the Ravensthorpe-Esperance Road (see Discussion).

PSOPHODES NIGROGULARIS Western Whipbird
Thirty records (all months), most often heard rather than seen. In denser shrub mallees and shrublands on the RANGE crest, middle and lower slopes, quite abundant between Mount Chester and Kundip. Like *Oreoica gutturalis*, this species is uncommon or absent in the Range north of Ravensthorpe-Esperance Road (see Discussion).

MYIAGRA INQUIETA Restless Flycatcher
Two records (February), in *Eucalyptus salmonophloia* Woodland.

RHIPIDURA FULIGINOSA Grey Fantail
One record (April), recorded by J.R. Ford in *Eucalyptus salmonophloia* Woodland.

RHIPIDURA LEUCOPHRYS Willie Wagtail
Two records (February), in *Eucalyptus salmonophloia* Woodland.

DRYMODES BRUNNEOPYGIUS Southern Scrub-robin
Fifty-four records (all months), seen and heard in all the RANGE vegetation types except open woodlands. Nest with one egg in October.

POMATOSTOMUS SUPERCILIOSUS White-browed Babbler
Nine records (January, April, July, August and November), in *Eucalyptus flocktoniae* Shrub Mallee (with *Melaleuca cuculiata* thickets), *Dryandra foliosissima* Low Scrub A on crest, and *E. flocktoniae* Open Shrub Mallee on lower slopes. Usually small groups of 3-4 birds.

SMICRORNIS BREVIROSTRIS Weebill
Seventy-three records (all months), in all shrub mallees, low woodlands and woodlands; present once in *Dryandra foliosissima* Low Scrub A on the RANGE crest in feeding congress with *Zosterops lateralis* and *Sericornis frontalis*.

ACANTHIZA APICALIS Broad-tailed Thornbill
Five records (March, May, July and August), in lower shrubs in *Eucalyptus astringens* Low Woodland on crest, in *Exocarpos aphyllus* in *Eucalyptus salmonophloia* Woodland and in *Dryandra foliosissima* Low Scrub A and open shrub mallees on the RANGE crest. Small groups of 2-3 birds.

ACANTHIZA CHRYSORRHOA Yellow-rumped Thornbill
Two records (February), in lower shrubs in open woodlands, usually 4-5 birds. Generally in more open country than *A. apicalis*.

SERICORNIS FRONTALIS White-browed Scrub-wren
Nine records (January, February, March, June and November), in *Dryandra foliosissima* Low Scrub A on the RANGE crest, *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes, samphire along Cordingup Creek, lower shrubs in *E. annulata* Low Woodland, and dense small patches of *Melaleuca cucullata*. Singly and in pairs.

SERICORNIS CAUTUS Shy Hylacola
Five records (February, March, April and December), in *Dryandra foliosissima* Low Scrub A on crest, *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes, and in low shrubs in *E. annulata* Low Woodland. Singly and groups of 3.

MALURUS SPLENDENS Splendid Fairy-wren
One record (March 1980), by B. Newbey in dense shrubland along Cordingup Creek, 4-5 birds. Also present was *M. pulcherrimus*.

MALURUS PULCHERRIMUS Blue-breasted Fairy-Wren
Four records (January, February [nuptial male] and April [eclipse male]). In mallee over *Melaleuca uncinata*, dense shrubs along Jerdacuttup River, low shrubs on Banded Ironstone Formation breakaway. Groups to 5-6 with males and females.

STIPITURUS MALACHURUS Southern Emu Wren
One record, in April in dense low mallee on mid-slope of RANGE.

DAPHOENOSITTA CHRYSOPTERA Australian Sittella
Three records (February, June and September), in *Eucalyptus salmonophloia* and *E. occidentalis* Woodlands; small groups to 5-6 birds.

PARDALOTUS PUNCTATUS Spotted Pardalote
Recorded by J.R. Ford in *Eucalyptus salmonophloia* canopies with *P. xanthopygus*, in April 1984.

PARDALOTUS XANTHOPYGUS Yellow-rumped Pardalote
Twenty-seven records (all months), in *Dryandra foliosissima* Low Scrub A on crest, *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes, shrublands, *E. salmonophloia* Woodland and *E. annulata* Low Woodland. Nesting in burrows in the RANGE crest in February.

PARDALOTUS STRIATUS Striated Pardalote
Twenty-three records (all months), occasionally in shrub mallee with a tendency to be more of a woodland inhabitant than other pardalotes. Recorded together with *P. xanthopygus*.

ZOSTEROPS LATERALIS Grey-breasted White-eye
Two records (September and November): a small group of 4-5 in *Dryandra foliosissima* Low Scrub A on crest in feeding congress with *Smicrornis brevirostris*, and a single bird in *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes.

LICHMERA INDISTINCTA Brown Honeyeater
Twenty-seven records (all months), present throughout the RANGE. Feeding in flowering *Eucalyptus flocktoniae* in November and February.

MELIPHAGA ORNATA Yellow-plumed Honeyeater
Three records (February, April and June), in *Eucalyptus gardneri* ssp. *raventhorpensis* Low Woodland and *E. salmonophloia* Woodland.

MELIPHAGA CRATITIA Purple-gaped Honeyeater
Fifty-three records (all months), present throughout the RANGE except in *Eucalyptus salmonophloia* Woodland. Feeding in flowering *Hakea verrucosa* in March and *E. flocktoniae* in November and February.

MELIPHAGA LEUCOTIS White-eared Honeyeater
Twenty-one records (all months), in *Dryandra foliosissima* Low Scrub A on the crest, *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes, and *E. salmonophloia* Woodland.

MELITHREPTUS LUNATUS White-naped Honeyeater
Three records (February and April), in *Eucalyptus gardneri* ssp. *ravensthorpensis* and *E. megacornuta* Low Woodlands on upper slopes. Small groups to 6 birds.

MELITHREPTUS BREVIROSTRIS Brown-headed Honeyeater
Six records (February, May, July, August and December), only recorded on eucalypts in mallee (*Eucalyptus falcata* and *E. tetragona)* and low woodland (*E. megacornuta* and *E. annulata)* on upper and lower slopes, and *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland. In groups to 15 birds.

PHYLIDONYRIS NOVAEHOLLANDIAE New Holland Honeyeater
Seventy-one records (all months), present throughout the RANGE in all vegetation types, occasionally in *Eucalyptus salmonophloia* canopies. Feeding on flowering *E. nutans* (February), *E. flocktoniae* (April), *Hakea crassifolia* (August) and *Grevillea coccinea* (October).

PHYLIDONYRIS NIGRA White-cheeked Honeyeater
Two records, June and September, recorded by R. Hart in *Dryandra foliosissima* Low Scrub A, also a pair in *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes.

PHYLIDONYRIS MELANOPS Tawny-crowned Honeyeater
Fifty-two records (all months), present throughout the RANGE in all vegetation types.
There is an apparent shift of birds into woodlands in late summer-early autumn, apparently coinciding with eucalypt flowering, particularly *Eucalyptus occidentalis*.

A similar phenomenon has been recorded elsewhere in the district (see Newbey and Chapman 1995). Juveniles were present in December. Feeding on flowering *Eucalyptus flocktoniae* in February.

ACANTHORHYNCHUS SUPERCILIOSUS Western Spinebill
One record (June), a pair (male and female) in *Dryandra quercifolia* in *Eucalyptus tetragona* Very Open Shrub Mallee on colluvial sandsheet on crest.

ANTHOCHAERA CHRYSOPTERA Little Wattlebird
Forty-seven records (all months), throughout southern section of the RANGE in 1983-84 but not recorded in northern section in 1982-83, though subsequently recorded here by R. Hart. Apparently nomadic. Feeding on flowering *Eucalyptus incrassata* in August.

ANTHOCHAERA CARUNCULATA Red Wattlebird
Forty-nine records (all months), throughout the RANGE. Feeding in flowering *Hakea laurina* in April.

MANORINA FLAVIGULA Yellow-throated Miner
One record (September), in *Eucalyptus annulata* Low Woodland by roadside with farmland adjacent. A common townsite and farmland bird in the Ravensthorpe Shire.

ARTAMUS CYANOPTERUS Dusky Woodswallow
Four records (February), generally peripheral to the RANGE in roadside woodlands; penetrating the RANGE after power lines were constructed near Mount Desmond in 1984. See also *Ocyphaps lophotes*.

EMBLEMA OCULATUM Red-eared Firetail
One record, in dense creek-line vegetation where Carlingup Creek crosses Carlingup Road.

GRALLINA CYANOLEUCA Magpie lark
One record (March), single bird flying through *Eucalyptus salmonophloia* Woodland.

CRACTICUS TORQUATUS Grey Butcherbird
Twenty-nine records (all months), throughout the RANGE, juveniles present in April.

CRACTICUS TIBICEN Magpie
Five records (January, February, March and September), usually seen as pairs flying over. More common in farmland.

STREPERA VERSICOLOR Grey Currawong
Forty-seven records (all months), present throughout the RANGE.

CORVUS CORONOIDES Australian Raven
Twenty-four records (all months), usually flying overhead or calling in the distance.

AMPHIBIANS AND REPTILES

Amphibians and reptiles were recorded using a number of techniques (see Methods). Detailed descriptions of trap line sites are presented in Appendix I.

HYLIDAE

LITORIA CYCLORHYNCHUS Spotted-thighed Tree Frog
One record (April), in Banded Ironstone Formation rockpile.

LEPTODACTYLIDAE

HELEIOPORUS ALBOPUNCTATUS Spotted Burrowing Frog
Two records (October), pitfall-trapped in *Eucalyptus flocktoniae* Open Shrub Mallees on middle and lower slopes on gravelly clayey sand.

HELEIOPORUS EYREI Moaning Frog
One record (June), collected in drain near mining dam at Kundip. On clay loam soil with mixed shrub mallee adjacent.

PSEUDOPHRYNE GUENTHERI
Two records (May and October), under moist leaf litter in creek at Kundip townsite. Pitfall-trapped in *Eucalyptus flocktoniae* Open Shrub Mallee on lower slope.

LIMNODYNASTES DORSALIS Banjo Frog
Three records (July and October), in pitfall-trap in *Eucalyptus falcata* Very Open Shrub Mallee on crest, and *E. flocktoniae* Open Shrub Mallee on lower slope.

NEOBATRACHUS sp. Trilling Frog
One record (August) in pitfall trap in *Eucalyptus annulata* Low Woodland on Red Clay. This frog was initially identified as *Neobatrachus centralis*; as this taxa has now been revised, it is likely that this frog was either *Neobatrachus kunapalari* or *N.albipes* (see Roberts *et al.* 1991).

RANIDELLA PSEUDINSIGNIFERA
Three records (April and June), collected under mat of decaying vegetation in identical circumstances to *Heleioporus eyrei*. Calling in April and June.

GEKKONIDAE

CRENADACTYLUS OCELLATUS
Four records, cryptozoic, only found in and under stony rubble and rubbish. Present as a fire survivor, as opposed to a post-fire immigrant, on Bandalup Hill (see Introduction).

DIPLODACTYLUS GRANARIENSIS
Eight records, pitfall-trapped at lines 1(1), 2(1), 3(2), 4(1) and 10(1), and seen at night in the light of a headtorch in

Eucalyptus gardneri ssp. *raventhorpensis* Low Woodland, found under mining debris at Kundip.

Occurs in a wide variety of vegetation types from *Dryandra foliosissima* Low Scrub A on crest on lateritic capstone, to woodlands on lower slopes with clay loams. One female in December had one egg in each oviduct.

DIPLODACTYLUS SPINIGERUS
Four records, pitfall-trapped at lines 2(1) and 3(1), and seen at night in the light of a headtorch in shrub mallee on dead timber on ground and on stem of *Melaleuca uncinata* in *Dryandra foliosissima* Low Scrub A on the crest.

PHYLLURUS MILII Barking Gekko
Fourteen records, pitfall-trapped at lines 6(2), 7(5), 10(8), 11(1) and 13(3), also seen at night in the light of a headtorch in *Eucalyptus gardneri* ssp. *raventhorpensis* Low Woodland on breakaway slope, under lateritic boulders and mining debris. Usually in vegetation types on loose, stony ground irrespective of vegetation type.

PHYLLODACTYLUS MARMORATUS Marbled Gekko
Six records, pitfall-trapped only once (line 12). A cryptozoic species, in and under rubbish, dead fallen timber and old sleepers. Three females in October had one egg in each oviduct.

PYGOPODIDAE

DELMA FRASERI
One record (October) at Elverdton mine site by G. Barron and others.

PYGOPUS LEPIDOPODUS Scale Foot
One record (April), active in shrub mallee, on rocky sandy clay loam on the RANGE crest.

AGAMIDAE

CTENOPHORUS MACULATUS GRISEUS Spotted Dragon
Nine records (active January, February, October and December), in *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland on crest, and *Eucalyptus flocktoniae* Open Shrub Mallee on middle slopes. Juveniles (snout-vent length *ca.* 32 mm) pitfall-trapped in February in *E. tetragona* Very Open Shrub Mallee on colluvial sandsheet (line 12).

POGONA MINOR
One record (October), pitfall-trapped in *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes. Apparently uncommon in the RANGE; perhaps because soil types are unsuitable for burrowing.

SCINCIDAE

CRYPTOBLEPHARUS VIRGATUS
Thirteen records (all months) in vegetation types of upper slopes, *Eucalyptus salmonophloia* Woodland and Banded Ironstone Formation rockpiles. Active entire year on rocks, active in spring and summer in upper branches of *E. megacornuta,* and *E. gardneri* ssp. *raventhorpensis* leaf litter. Also in and on mining debris and old sleepers.

CTENOTUS IMPAR
One record (September), pitfall-trapped at line 12, *Eucalyptus tetragona* Very Open Shrub Mallee on colluvial sandsheet.

CTENOTUS LABILLARDIERI
Five records (February, March and August), recorded only at line 8. Restricted to *Dryandra foliosissima* Low Scrub A and *Banksia lemanniana* shrubland with large lateritic boulders on crest. Apparently a saxicoline species.

EGERNIA MULTISCUTATA
One record (April), dug from a burrow in sandy clay loam in open shrub mallee. This specimen was almost patternless, as are specimens from the vicinity of Cocklebiddy (Storr 1978).

EGERNIA KINGII King's Skink
Two records (February and September), an individual (probably the same one on both occasions) cage-trapped in Banded Ironstone Formation rockpile, adjacent to *Eucalyptus salmonophloia* Woodland.

HEMIERGIS INITIALIS INITIALIS
Four records (February, May, July and November), pitfall-trapped at lines 1(1) and 6(1) in *Dryandra foliosissima* Low Scrub A and *Eucalyptus astringens* ssp. *raventhorpensis* Low Woodland on crest, and *E. flocktoniae* Open Shrub Mallee on lower slopes. Also in mining debris at Kundip and as a fire survivor as opposed to a post-fire immigrant on Bandalup Hill (see Introduction).

HEMIERGIS PERONII PERONII
Eight records (all months) pitfall-trapped at lines 1(1), 5(2), 7(1) and 12(1), under dead vegetation on laterite and in mining rubble and debris. These include most RANGE habitats excluding woodlands.

LERISTA DISTINGUENDA
Five records (February, July and November), pitfall-trapped at lines 5(1) and 6(4). These were *Eucalyptus flocktoniae* Shrub Mallee on lower slope, and *E. astringens* ssp. *raventhorpensis* Low Woodland on upper slope and crest respectively.

LERISTA VIDUATA
One record (October), in woodland with leaf litter south of Mount McMahon. This specimen was originally thought to be an aberrant *Lerista microtis*; it has been subsequently described as a new species by Storr (1991). On present knowledge this is the only vertebrate endemic in the RANGE.

MORETHIA OBSCURA
Fourteen records (active all months), pitfall-trapped at lines 1(1), 3(1), 6(1), 9(1) and 11(1). Also in rubbish and rubble and leaf litter in *Eucalyptus gardneri* ssp. *ravensthorpensis* Low Woodland and *E. flocktoniae* Shrub Mallee. Widespread in most vegetation types in the RANGE; probably the most abundant skink.

TILIQUA OCCIPITALIS Western Blue-tongue
Three records (October and December) in the RANGE crest mallee and woodland in Cordingup Pass.

TILIQUA RUGOSA Bobtail
Twenty-three records (active all months), in all vegetation types, recorded at each trap line, usually cage-trapped.

VARANIDAE

VARANUS ROSENBERGI Southern Monitor
Ten records (January, February, September, November and December), pitfall-trapped at line 7, also in *Dryandra foliosissima* Low Scrub A on crest, Banded Ironstone Formation rockpiles and breakaways.

BOIDAE

MORELIA SPILOTA IMBRICATA Carpet Python
One record, observed in *Dryandra foliosissima* Low Scrub A on the crest near Shire lookout. Gazetted a 'specially protected' species (CALM 1992).

TYPHLOPIDAE

RAMPHOTYPHLOPS AUSTRALIS
One record (April), in *Dryandra foliosissima* Low Scrub A on crest, a 'nest' of 3 juveniles under laterite boulder.

ELAPIDAE

RHINOPLOCEPHALUS GOULDII Gould's Snake
Two records (July and December), pitfall-trapped in *Eucalyptus flocktoniae* Open Shrub Mallee on lower slopes, and under stone in *E. annulata* Low Woodland.

NOTECHIS SCUTATUS OCCIDENTALIS Tiger Snake
Four records (March, April, May and October), in *Dryandra foliosissima* Low Scrub A on crest at line 2, in Banded Ironstone Formation rockpile, and cage-trapped at line 9 in *Eucalyptus flocktoniae* Open shrub Mallee.

PSEUDONAJA AFFINIS Dugite
Three records (October and November), in *Dryandra foliosissima* Low Scrub A on crest at line 3, and *Eucalyptus flocktoniae* Open Shrub Mallee on middle and lower slopes.

INLAND FISH

Two species, *Galaxias maculatus* and *Pseudogobius olorum* were collected using rotenone in a permanent saline pool in Cordingup Creek in 1986. An accompanying water sample had 15 500 mg L^{-1} TSS.

DISCUSSION

With fourteen native species recorded, the RANGE has a relatively rich and abundant mammal fauna, compared with that of other areas in the south-eastern agricultural region.

For example, nine species have been recorded from Lake Magenta Nature Reserve (Steve Toole *personal communication*), five from Stokes National Park (Newbey and Bradby[1]) and twenty-two from Fitzgerald River National Park (Chapman 1995). Further bat collecting in the RANGE will extend the mammal richness of the area.

All mammals recorded in the RANGE are known from elsewhere in the wheatbelt and south coast of WA. However, in most places this number of species rarely exists together in a relatively small area. The presence of *Isoodon obesulus* and *Rattus fuscipes* was unexpected as they are usually found in more mesic habitats in higher rainfall areas, although *Isoodon* once occurred at Lake Grace (e.g. M4521 in WA Museum).

The RANGE is at present the driest area from which *Rattus fuscipes* has been recorded in WA. *Macropus irma, Tarsipes rostratus and Pseudomys occidentalis* are endemic in south-west WA; the latter has a small distribution. It occurs only in a triangle based on Tambellup, Bendering and Ravensthorpe. The presence of *Macropus eugenii* is significant as this species is rare and endangered on the mainland and only known from a few localities. It is obviously uncommon within the RANGE and its survival may be dependent upon future management strategies, particularly with respect to controlled burning and control of feral predators.

Few fauna surveys in WA have extended throughout the year and progressed into a second year. Therefore, the trapping results have been analysed for the six most commonly trapped mammals.

During phase 1 trapping effort was identical for summer, autumn, winter and spring. Results are presented as histogram percentages in Figure 3. With the exception of *Sminthopsis griseoventer* fewer native species were caught in autumn than at other times of the year.

In the case of nectar and pollen feeders, i.e. *Cercartetus* and *Tarsipes*, this is understandable as there is extensive flowering in autumn in the RANGE (see below). For these

[1] B.Newbey and K.Bradby, unpublished manuscript. Biological Survey Report, Stokes National Park. Heritage Committee of Western Australia.

species summer and winter might be times of maximum nutritional stress. For *Tarsipes rostratus, Rattus fuscipes* and *Pseudomys occidentalis* these data indicate they are caught more frequently in summer and winter. The higher numbers of *Rattus fuscipes* and *Pseudomys occidentalis* during summer is the result of post-breeding population increase, as these species breed in spring in south-west WA (Kitchener and Chapman 1977; Chapman and Kitchener 1977).

Table 6 summarizes trapping data for mammals. It shows that each species is most abundant in different trap lines. The situation with respect to *Mus domesticus* is particularly interesting; these data suggest that in situations of high native mammal richness *Mus* is only abundant at times and in habitats with low native mammal numbers.

The 89 bird species recorded during the survey is comparable to the figure of 75 being the average per wheatbelt reserve for the WA Museum survey of 22 reserves (J. Dell personal communication) in de Rebeira and de Rebeira (1977). The species composition of the avifauna is similar to that for comparable areas; for example, the RANGE has all species in common with the Fitzgerald River National Park (Newbey and Chapman 1995) and 73 in common with Lake Magenta Nature Reserve (Dell 1976). Most of the differences between the RANGE avifauna and that of these two areas (except seabirds for FRNP) are attributable to a characteristic suite of open country birds not present in the RANGE, but are present close by in suitable habitat. These include Pipit, White-fronted Chat, Red-capped Robin and Brown Songlark.

The RANGE avifauna includes 13 species of honeyeater (family Meliphagidae). Not recorded is Singing Honeyeater which in the Ravensthorpe Shire is largely an inhabitant of coastal vegetation, road verges and shelter belts. Most honeyeater species were present in the RANGE throughout the year; elsewhere in the wheatbelt Brown Honeyeater, Purple-gaped Honeyeater, New Holland Honeyeater, Red Wattlebird and Brown-headed Honeyeater are considered non-residents (Kitchener *et al.* 1982). Here, at least for the duration of this survey, these species were present throughout the year. This is almost certainly explained by the extended flowering season in the RANGE.

In addition to the usual flowering in Spring some mallees and other eucalypts flower over summer, including *Eucalyptus nutans* and *E. flocktoniae*. In autumn there is an additional flowering with *Dryandra quercifolia, Eucalyptus preissiana, E. occidentalis* and *Hakea laurina* which are all abundant within and around the RANGE. Purple-crowned Lorikeet is present throughout the year, presumably for similar reasons.

Most bird species found in the RANGE have relatively wide distributions; an exception is Western Whipbird, known between Two Peoples Bay and Ravensthorpe and inland to Nyabing (McNee 1986). It is common in *Banksia lemanniana* shrubland on crest and *Eucalyptus flocktoniae* Open Shrub Mallee on lower slope in the southern RANGE but rare north of the Raventhorpe-Esperance road.

The reptile assemblage of the RANGE is an impoverished semi-arid fauna with some additional southern species. There is a marked attenuation in number of reptile species in southern WA, particularly geckoes, agamids and varanids (Chapman and Dell 1985). This, we believe, is owing to climatic and not edaphic factors.

Southern species usually associated with more mesic habitats are *Notechis scutatus, Cryptoblepharus virgatus, Egernia kingii* and the frog *Litoria cyclorhynchus*.

The amphibian fauna, with seven species, is quite rich for a semi-arid area with little or no surface water. *Limnodynastes dorsalis* and *Litoria cyclorhynchus* were both collected high in the RANGE, some kilometres from water. *Neobatrachus* sp. is an arid and semi-arid frog near the southern limit of its range at Ravensthorpe.

The abundance and richness of mammals and birds in the RANGE is probably owing to the lack of any large-scale environmental degradation and the abundance of flowering plants. Habitat diversity, which has been implicated for the survival of vertebrates on wheatbelt reserves (Kitchener *et al.* 1980b), is comparatively low in the RANGE. The situation of having, for example, woodlands, mallee and sandplains in close proximity does not pertain here. Our estimates of vegetation formation proportions are: shrub mallee to very open shrub mallee 85 per cent, low woodlands 10 per cent, *Eucalyptus salmonophloia* woodland 4 per cent, the remaining 1 per cent includes creeks, samphire, roads and disturbed areas.

TABLE 6

Capture data for mammals in Ravensthorpe range

	NORTHERN TRAPLINE						SOUTHERN TRAPLINE						
SPECIES	1	2	3	4	5	6	7	8	9	10	11	12	13
Cercartetus concinnus	1						5						
Tarsipes rostratus	2		1		1		7		5	5	5	29	1
Sminthopsis griseoventer		1					2		5		1		11
Rattus fuscipes		2	2		5	1	7*	7*	16*		13	1	
Pseudomys occidentalis	4	14						1	3	2			
Mus musculus	2	1					1	7	3	2	17	1	

* At least one of this total is a *Pseudomys shortridgei*

Conservation Importance and Comparison with other 'Greenstone' Areas.

'Greenstone' as a landform attracts considerable attention for nature conservation because of its poor representation in conservation reserves and its potential for rare flora. Two similar areas that have been studied in some detail are Kangaroo Hills Timber Reserve in the Goldfields at

121°05'E, 31°03'S, (Bamford, Davies and Ladd[1]) and Wongan Hills in the Wheatbelt at 116°38'E, 30°50'S, (Kenneally 1977; and Coates[2]). All three areas are relatively small topographic isolates comprising dissected Archaen 'greenstones' which have been extensively prospected for minerals.

Neither area has been cleared but there has been extensive timber removal and grazing on Kangaroo Hills.

There has been loss of bird species from Wongan Hills owing to increasing isolation and fragmentation of habitat with agricultural clearing (see de Rebeira and de Rebeira 1977). Thus, although dieback presents a real future threat to the biota of the Ravensthorpe Range, at present it remains the least disturbed of these three 'greenstone' isolates. A general comparison is made in Table 7.

TABLE 7

General comparison between Ravensthorpe Range (RR), Wongan Hills (WH) and Kangaroo Hills (KH)

	RR	WH	KH
AREA (ha)	10 000	1 750	9 721
BEARD BOTANICAL DISTRICT	Eyre	Avon	Coolgardie
ANNUAL RAINFALL (mm)	423	387	256
No. MAMMAL SPECIES	14	9	9
No. BIRD SPECIES	89	125	70
No. REPTILE SPECIES	27	22	32
No. AMPHIBIAN SPECIES	7	4	2
No. VASCULAR PLANT SPP.	554	403	250
No. FERN SPECIES	4	3	1
No. DRF* SPECIES	3	9	NIL

*DECLARED RARE FLORA

The high numbers of vascular plants, mammals, birds and amphibians reflect the relatively undisturbed nature of the Ravensthorpe Range biota. The higher numbers of reptiles from Kangaroo Hills are indicative of its location on the edge of the arid zone.

A further important aspect of the RANGE is its position traversing a major wildlife corridor between Fitzgerald River National Park and extensive areas of natural vegetation north-east of Ravensthorpe, extending into the Goldfields. Rising to only 150 m above the surrounding plain the RANGE is not a physical barrier to faunal movement.

The RANGE obviously has too many biological values to be managed without significant conservation input. The future possible spread of dieback disease represents the greatest single threat to the biological integrity of the Ravensthorpe Range.

[1] M.J. Bamford, S.J.J.F. Davies and P.G. Ladd, unpublished manuscript 'Biological survey of Kangaroo Hills and Calooli Timber Reserves, Western Australia'. Department of Conservation and Land Management

[2] A. Coates, unpublished manuscript, 'Vegetation survey of the Wongan Hills'. Department of Conservation and Land Management.

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APPENDIX I

Description of vegetation types

Listed below are the plant associations identified during field work. They have been based on the structural classification of Muir (1977) and listed in trap line sequence. Some sites have vegetation that varies widely over a few metres in both structure and species composition. They are named according to some dominant physical character, e.g. Granitoid Complex.

Each typical site has a brief description of geology, landform and soils. Location was calculated from R712 series topographical maps at the scale of 1:50 000. 'Miscellaneous plants' includes annuals, aquatics, climbers (non-parasitic), ferns, geophytes (including small perennial rosette plants such as some *Drosera* and *Stylidium* species), parasitic climbers, perennial grasses, sedges (Cyperaceae, Restionaceae, perennial *Juncus* spp.) and sedge-like (e.g. *Lomandra*, *Patersonia*, *Xanthorrhoea* spp.). Numbers in parentheses following plant names represent canopy cover (CC). 'Clumping' is a visual assessment into broad categories: none, slight, moderate and strong. A number of plant taxa are unnamed and they are referenced as 'aff.', 'cf.' to a named taxa; or as 'sp.' All are referenced by the 'KRN' number of the voucher specimen housed in PERTH (Appendix II).

Soil surface data of rock (bedrock), stone, pavement and litter are visual estimates. At each site a hole (62 mm diameter) was augered to 1 m wherever possible. For each soil horizon, the following were recorded: texture (Northcote 1971), colour (Munsel or PCCS colours in Munsell not available), inclusions (visual estimate of main type and size range), pH (Inoculo Soil pH Testing Kit) and calcareousness (by Northcote, 1971, if pH was 8.0 or greater). Unless stated in 'COMMENTS', the vegetation was considered mature when recorded. The geological surface classifications used here and in Table 5 are from Thom *et al.* (1977).

SITE No: RA001
LOCATION: Ravensthorpe Range, 7.2 km N of Ravensthorpe
Lat. 33 31'06" Long. 120 03'51" AMG: 227300E 6287300N
Surveyed 27 October 1987

SITE AREA: *ca* 240 m x 40 m ASPECT: NNE
LAST BURNT: Greater than 50 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Lateritic caprock SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Crest
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 50-150 m INCLINATION: To gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent
ACTIVITY: Eroded FREQUENCY: Barely active
MICRO-RELIEF: None SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm DURATION:Less than 1 hour

RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: Rocky STONE: Very few, subrounded cobbles
PAVEMENT: Scattered, medium pebbles

LOGS: Absent BRANCHES: Absent
LEAVES: Broad, deposits 2-5 cm thick, 3-15 m apart; narrow, 1-2 cm thick, 1-5 m apart

SOIL PROFILE
OBSERVATION: No other THICKNESS: Skeletal, 2-20 cm
MAIN ORIGIN: *In situ* weathering MINOR: None evident
ATTRIBUTE: Skeletal DRAINAGE: Excessive
SRT: Neutral SALINITY: None
NORTHCOTE: Uc1.23-1/0/13/1 SOIL GROUP: Lithosol
NAME: Not named

A 0-13 cm 'Greyish brown' (7.5 YR 4/3) loamy sand; humus content low; roots fine, few; inclusions 10-20% rounded gravel 2-10 mm diameter; pH 6.5; slightly water repellent; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSi.SAr.SBi.SCi.SDr.VLr No. of TAXA: 87

STRATUM 1: Mallees 3-5 m, CC = 15, clumping none *Eucalyptus tetragona* (12), *E. falcata* (3).
STRATUM 2: Shrubs 2.1-3.2 m, CC = 1.2, clumping none *Banksia lemanniana* (0.5), *Isopogon polycephalus* (0.5), *Hakea obtusa* (0.1), *Exocarpos sparteus* (+), *H. laurina* (+), *Melaleuca uncinata* (+).
STRATUM 3: Shrubs 1.6-2.0 m, CC = 3.3, clumping none *Acacia fragilis* (1), *Dryandra foliosissima* (1), *D.* aff. *cirsioides* (1), *Jacksonia lehmannii* (0.2), *Kunzea preissiana* (0.1).
STRATUM 4: Shrubs 1.1-1.5 m, CC = 14, clumping none *Dryandra foliosissima* (7), *Allocasuarina humilis* (2), *Hakea trifurcata* (2), *Grevillea coccinea* (1), *H. lissocarpha* (1), *Acacia* sp. (KRN 938) (0.5), *Daviesia* sp. (KRN 569) (0.5), *Agonis spathulata* (0.2), *Choretrum glomeratum* var. *glomeratum* (+), *D. pachyphylla* (+).
STRATUM 5: Shrubs 0.6-1.0 m, CC = 14, clumping none *Dryandra cirsioides* (6), *Petrophile trifida* (3), *Leptospermum spinescens* (2), *Goodenia pinifolia* (1), *Melaleuca scabra* (1), *Leucopogon cuneifolius* (0.5), *Beaufortia schaueri* (0.2), *Micromyrtus racemosa* (0.1), *Grevillea acuaria* (+), *Lasiopetalum rosmarinifolium* (+), *Logonia buxifolia* (+), *Lysinema ciliatum* (+), *Phebalium rude* ssp. *amblyocarpum* (+).
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 3.5, clumping none *Boronia crassifolia* (1), *Hibbertia gracilipes* (1), *Beaufortia micrantha* var. *micrantha* (0.5), *D. sacculata* (0.2), *Leucopogon* aff. *conostephioides* (0.2), *Adenanthos argyreus* (0.1), *Astroloma serratifolium* (0.1), *Leucopogon concinnus* (0.1), *Petrophile seminuda* (0.1), *Platysace maxwellii* (0.1), *Spyridium cordatum* (0.1), *Boronia tenuis* (+), *Calytrix leschenaultii* (+), *Comesperma confertum* (+), *Dampiera lavandulacea* (+), *D. oligophylla* ssp. *juncea* (+), *Darwinia vestita* (+), *Glischrocaryon aureum* var. *angustifolium* (+), *Gompholobium knightianum* (+), *Goodenia scapigera* (+), *Hovea trisperma* (+), *Olax benthamiana* (+), *Persoonia tortifolia* (+), *Stackhousia scoporia* (+), *Tripterococcus brunonis* (+), *Verticordia endlicheriana* (+).
STRATUM 6b: Misc. plants, CC = 4.8, clumping none
CLIMBERS: *Billardiera sericea* (+).
GEOPHYTES: *Drosera scorpioides* (0.1), *Stylidium albomontis* (0.1), *S. piliferum* ssp. *minor* (0.1), *Caladenia saccharata* (+), *Haemodorum paniculatum* (+), *Thelymitra conaliculata* (+), *Thysanotus patersonii* ssp. *patersonii* (+).
PARASITIC CLIMBERS: *Cassytha glabella* (+), *C. micrantha* (+).
PERENNIAL GRASSES: *Neurachne alopecuroidea* (0.5), *Amphipogon turbinatus* (0.1).
SEDGES: *Mesomelaena stygia* ssp. *stygia* (2), *Lepidosperma viscidum* var. *viscidum* (0.5), *Schoenus subflavus* (0.2), *Gahnia ancistrophylla* (0.1), *L. carpholdes* (0.1), *L.* aff. *resinosum* (0.1), *S. sublaxus* (0.1), *Lepidobolus chaetocephalus* (+), *Lepidosperma leptostachyum* (+), *S. subbarbatus* (+), *Tetraria capillaris* (+).
SEDGE-LIKE: *Conostylis androstemma* ssp. *argentea* (0.4), *Lomandra collina* (0.2), *L. micrantha* ssp. *teretifolia* (0.1),

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Drift fence 50 m long; metal trap line. INVERTEBRATES: No

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SITE No: RA002
LOCATION: Ravensthorpe Range, 6.5 km NNE of Raventhorpe
Lat. 33 31'37" Long. 120 04'13" AMG: 227950E 6286350N
Surveyed 27 October 1987

SITE AREA: *ca* 150 m x 40 m ASPECT: Crest
LAST BURNT: Greater than 60 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Lateritic caprock SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Crest
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 40-90 m INCLINATION: To gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent
MASS MOVEMENT: Absent ACTIVITY: Eroded
FREQUENCY: Barely active MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATIONFREQUENCY: 1-10 years
DEPTH: Less than 5 cm DURATION: Less than 1hour
RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: Rocky STONE: Very few, subrounded cobbles
PAVEMENT: Scattered, medium pebbles
LOGS: Absent BRANCHES: Absent
LEAVES: Broad, deposits 1-2 cm thick, 15-20 m apart; narrow, 1-2 cm thick, almost continuous

SOIL PROFILE
OBSERVATION: No other THICKNESS: Skeletal, 2-20 cm
MAIN ORIGIN: *In situ* weathering MINOR: None evident
ATTRIBUTE: Skeletal DRAINAGE: Excessive
SRT: Neutral SALINITY: None
NORTHCOTE: Uc1.23-1/0/12/1 SOIL GROUP: Lithosol
NAME: Not named

A 0-12 cm Reddish brown (5 YR 4/4) loamy sand; humus content low; roots fine, frequent; inclusions 15-20% subrounded gravel 4-20 mm diameter; consistence weak; pH 6.25; highly water repellent;boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSr.SAr.SBc.SCi.SDr.VLr.GLr
No. of TAXA: 70

STRATUM 1a: Mallees 2.2-3.0 m, CC = 8, clumping none
Eucalyptus tetragona (5), *E. falcata* (3).
STRATUM 1b: Shrubs 2.1-3.0 m, CC = 0.1, clumping none
Banksia lemanniana (0.1), *Exocarpos sparteus* (+).
STRATUM 2: Shrubs 1.6-2.0 m, CC = 7, clumping none
Allocasuarina humilis (2), *Grevillea coccinea* (2), *Dryandra foliosissima* (1), *Hakea obtusa* (1), *Isopogon polycephalus* (1).
STRATUM 3: Shrubs 1.1-1.5 m, CC = 43, clumping none
Dryandra foliosissima (25), *D. aff. cirsioides* (7), *Jacksonia lehmannii* (5), *Agonis spathulata* (3), *Acacia fragilis* (2), *Agonis spathulata* (2), *Daviesia unifolia* (2), *D. obtusifolia* (+).
STRATUM 4: Shrubs 0.6-1.0 m, CC = 10, clumping none
Petrophile trifida (4), *Goodenia pinifolia* (2), *Leucopogon cuneifolius* (2), *Beaufortia schaueri* (1), *Phebalium rudes* ssp. *amblyocarpum* (1), *Acacia* sp. (KRN 938) (0.1), *Lysinema ciliatum* (0.1), *Choretrum glomeratum* var. *glomeratum* (+), *Grevillea fulgens* (+), *Logania buxifolia* (+), *Siegfredia darwinioides* (+).
STRATUM 5a: Shrubs 0.0-0.5 m, CC = 9.2, clumping none
Guichenotia apetala (2), *Beaufortia micrantha* var. *micrantha* (1), *Boronia crassifolia* (1), *Dampiera oligophylla* ssp. *juncea* (1), *Hibbertia gracilipes* (1), *Leptospermum spinescens* (1), *Spyridium cordatum* (1), *Melaleuca scabra* (0.5), *Acrotriche cordata* (0.1), *Adenanthos argyreus* (0.1), *Dryandra ferruginea* (0.1), *Hibbertia* aff. *pungens* (0.1), *Leucopogon* aff. *conostephioides A* (0.1), *Acrotriche ramiflora* (+), *Astroloma prostratum* (+), *A. serratifolium* (+), *Boronia tenuis* (+), *Calytrix leschenaultii* (+), *Glischrocaryon aureum* var. *angustifolium* (+), *Goodenia scapigera* (+), *Persoonia striata* (+), *Petrophile seminuda* (+), *Stackhousia scoparia* (+), *Stylidium breviscapum* (+).
STRATUM 5b: Misc. plants, CC = 12, clumping none
CLIMBERS: *Billardiera sericea* (0.1), *B. coriacea* (+).
GEOPHYTES: *Stylidium albomontis* (0.3), *Drosera scorpioides* (+), *Pterostylis vittata* var. *vittata* (+), *P.* sp. (KRN 11340) (+).
PARASITIC CLIMBERS: *Cassytha glabella* (0.1).
PERENNIAL GRASSES: *Amphipogon turbinatus* (1), *Neurachne alopecuroidea* (1).
SEDGES: *Lepidosperma viscidum* var. *viscidum* (4), *Mesomelaena stygia* ssp. *stygia* (1), *Schoenus subtaxus* (1), *L.* aff. *resinosum* (0.2), *Tricostularia neesii* var. *neesii* (0.1), *L. corphoides* (+), *L. leptostachyum* (+).
SEDGE-LIKE:*Conostylis androstemma* ssp. *argentea* (2), *Lomandra collina* (1), *L. micrantha* ssp. *teretifolia* (+).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line; drift fence 50 m long INVERTEBRATES: No

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SITE No: RA003
LOCATION: Ravensthorpe Range, 6.2 km NE of Raventhorpe
Lat. 33 32'07" Long. 120 05'05" AMG: 229300E 6285500N
Surveyed 27 October 87

SITE AREA: *ca* 150 m x 40 m ASPECT: Crest
LAST BURNT: Greater than 60 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Lateritic caprock SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Crest
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 40-90 m INCLINATION: To gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent
MASS MOVEMENT: Absent ACTIVITY: Eroded
FREQUENCY: Barely active MICRO-RELIEF: None
SOIL: Hardsetting

Appendix I (continued)

INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm — DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low — INFILTRATION: ?
ROCK: Rocky — STONE: Very few, subrounded cobbles
PAVEMENT: Scattered, medium pebbles
LOGS: Absent — BRANCHES: Absent
LEAVES: Broad, deposits 1-2 cm thick, 15-20 m apart; narrow, 1-2 cm thick, almost continuous

SOIL PROFILE
OBSERVATION: No other — THICKNESS: Skeletal, 2-27 cm
MAIN ORIGIN: *In situ* weathering — MINOR: None evident
ATTRIBUTE: Skeletal — DRAINAGE: Excessive
SRT: Neutral — SALINITY: None
NORTHCOTE: Uc1.23-1/0/18/1 — SOIL GROUP: Lithosol
NAME: Not named

A 0-18 cm Dark reddish brown (5 YR 3/3) loamy sand; humus content low; roots fine, frequent; inclusions 15-20% rounded gravel 4-10 mm diameter; consistence moderately weak; pH 6.25; not water repellent; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west — DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSr.Sr.SAc.SBr.SDc — No. of TAXA: 51

STRATUM 1: Mallees 4-5 m, CC = 5.1, clumping none *Eucalyptus falcata* (3), *E. tetragona* (1), *E. uncinata* (1), *E. incrassata* (0.1).
STRATUM 2: Shrubs 2.1-2.7 m, CC = 6.3, clumping none *Banksia lemanniana* (5), *Grevillea coccinea* (1), *Persoonia teretifolia* (0.2), *G. platypoda* (0.1).
STRATUM 3: Shrubs 1.6-2.0 m, CC = 49, clumping none *Beaufortia orbifolia* (45), *Jacksonia lehmannii* (2), *Hakea obtusa* (1), *Isopogon polycephalus* (1).
STRATUM 4: Shrubs 1.1-1.5 m, CC = 5.7, clumping none *Beaufortia schaueri* (3), *Leucopogon cuneifolius* (2), *Acacia fraglis* (1), *Phebalium rude* ssp. *amblyocarpum* (0.5), *Kunzea affinis* (0.1), *Beyeria* sp. (KRN 11401) (+), *Hakea lissocarpha* (+).
STRATUM 5: Shrubs 0.6-1.0 m, CC = 0.5, clumping none *Oxylobium parviflorum* var. *parviflorum* (0.2), *Goodenia pinifolia* (0.1), *Acacia* sp. (KRN 938) (+), *Acrotriche ramiflora* (+), *Boronia ternata* var. *elongata* (+), *Lysinema ciliatum* (+).
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 1.3, clumping none *Daviesia anceps* (0.3), *Boronia crenulata* var. *gracilis* (0.2), *B. crassifolia* (0.1), *Hibbertia* aff. *pungens* (0.1), *Lasiopetalum compactum* (0.1), *Leptospermum spinescens* (0.1), *Spyridium cordatum* (0.1), *B. inconspicua* (+), *Brachyloma concolor* (+), *Dampiera oligophylla* ssp. *juncea* (+), *H. acerosa* (+), *Hovea trisperma* (+), *Leucopogon* aff. *conostephioides A* (+), *Logania buxifolia* (+), *Melaleuca scabra* (+), *Persoonia tortifolia* (+).
STRATUM 6b: Misc. plants, CC = 2.0, clumping none
CLIMBERS: *Billardiera sericea* (+).
GEOPHYTES: *Stylidium albomontis* (1), *Pterostylis vittata* var. *vittata* (+).
PARASITIC CLIMBERS: *Cassytha melantha* (0.1), *C. racemosa* (+).
SEDGES: *Lepidosperma* aff. *resinosum* (0.5), *L. viscidum* var. nov. (0.2), *L. leptostachyum* (0.1), *Schoenus subtaxus* (+).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trapline; drift fence 50 m long. — INVERTEBRATES: No

SITE No: RA004
LOCATION: Ravensthorpe Range, 7.5 km NE of Ravensthorpe
Lat. 33 32'55" Long. 120 05'15" AMG: 232650E 6283750N
Surveyed 28 October 1987
SITE AREA: *ca* 40 m x 150 m — ASPECT: NE
LAST BURNT: More than 75 years
DISTURBANCE: None evident or known

LAND REGION: Southern — PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond — SYSTEM: Ravensthorpe

GEOL. REGION: Block — LOCAL: Shield
BEDROCK: Greenstone — SURFACE: Au

LANDFORM
PATTERN TYPE: Rolling Hills — PATTERN: Residual hills
UNIT: Ridge — ELEMENT: Middle and lower slope
DRAINAGE PATTERN: Uni-directional
SPACING: Close
SLOPE LENGTH: 150-350 m — INCLINATION: Gentle to Moderate A
EXPOSURE: Inland, moderate — AGENT: Sheet wash

LAND SURFACE
EROSION: Absent — WIND: Absent
SHEET: Absent — RILL: Absent
GULLY: Absent — GULLY DEPTH: Absent
STREAM BANK: Absent — TUNNEL: Absent
WAVE: Absent
MASS MOVEMENT: Absent — ACTIVITY: Eroded = Aggraded
FREQUENCY: Barely active — MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm — DURATION: Less than 1hour
RUN-OFF VELOCITY: High — INFILTRATION: ?
ROCK: No exposure — STONE: Absent
PAVEMENT: Absent
LOGS: Absent — BRANCHES: Few
LEAVES: Broad, deposits 1-2 cm thick, continuous

SOIL PROFILE
OBSERVATION: No other — THICKNESS: Shallow, 25-35 cm
MAIN ORIGIN: *In situ* weathering — MINOR: Colluvial
ATTRIBUTE: Calcareous — DRAINAGE: Good
SRT: Calcareous — SALINITY: None
NORTHCOTE: Um1.13-2/1/28/1 — SOIL GROUP: Lithosol
NAME: Not named

A 0-28 cm Dark reddish brown (2.5 YR 3/4) sandy clay loam; humus content low; roots fine, frequent, mainly in upper 12 cm; moderately weak to moderately firm with depth; inclusions 5-7% subangular greenstone 4-15 mm long; pH 8.25; slightly calcareous; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west — DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSc.Sr.SAr.SDi — No. of TAXA: 24

STRATUM 1: Mallees 4-5 m, CC = 40, clumping none *Eucalyptus flocktoniae* (25), *E. celastroides* var. *virella* (10), *E. anceps* (5).
STRATUM 2: Shrubs 2.1-3.5 m, CC = 4, clumping strong *Melaleuca cuculiata* (2), *M. eleuterostachya* (2), *Santalum acuminatum* (+).
STRATUM 3: Shrubs 1.6-2.0 m, CC = 2, clumping strong *Melaleuca pauperiflora* (1), *M. undulata* (1), *Daviesia* aff. *nematophylla* (+).
STRATUM 4: Shrubs 1.1-1.5 m, CC = 0.1, clumping none *Exocarpos aphyllus* (+), *Oxylobium parviflorum* var. *parviflorum* (+), *Persoonia teretifolia* (+).

STRATUM 5: Shrubs 0.6-1.0 m, CC = 0.1, clumping none *Hakea commutata* (+), *Olearia muelleri* (+).
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 16, clumping none *Pultenaea conferta* (15), *Acacia* aff. *cometes* (0.5), *A. ingrata* (0.2), *Lasiopetalum compactum* (0.1), *Boroniainconspicua* (+), *B. inornata* ssp. *inornata* (+), *Goodenia laevis* (+), *Grevillea huegelii* (+), *Westringia rigida* (+).
STRATUM 6b: Misc. plants, CC = +, clumping none
SEDGE-LIKE: *Dianella revoluta* (+).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trapline, drift fence 50 m long INVERTEBRATES: No

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SITE No: RA005(M)
LOCATION: Ravensthorpe Range, 7.0 km NE of Ravensthorpe
Lat. 33 32'10" Long. 120 05'45" AMG: 230600E 6285850N
Surveyed 26 October 1987

SITE AREA: *ca* 40 m x 150 m ASPECT: NE
LAST BURNT: More than 75 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Greenstone SURFACE: Au

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Middle and lower slope
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 200-700 m INCLINATION: Gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent
ACTIVITY: Eroded = Aggraded
FREQUENCY: Barely active MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: No exposure STONE: Very few, angular, large pebbles
PAVEMENT: Frequent, medium pebbles
LOGS: Absent BRANCHES: Few
LEAVES: Broad, deposits 1-2 cm thick, almost continuous

SOIL PROFILE
OBSERVATION: No other THICKNESS: Shallow, 25-35 cm
MAIN ORIGIN: *In situ* weathering MINOR: Colluvial
ATTRIBUTE: Shallow DRAINAGE: Good
SRT: Alkaline SALINITY: None
NORTHCOTE: Um2.21-2/1/14/1 SOIL GROUP: Not identified
NAME: Not named

A 0-14 cm Dark reddish brown (5 YR 3/3) sandy clay loam; humus content low; roots fine, few; inclusions 5-15% subangular greenstone 5-20 mm long; consistence moderately firm; pH 7.25; not water repellent; boundary clear, wavy. B and C 14-27 cm Dark reddish brown (5 YR 3/4) sandy clay loam; inclusions as above, 10-20%; consistence very firm; pH 8.5; highly calcareous; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSi.Sr.SAr.SBr.SCl.SDr No. of TAXA: 24

STRATUM 1: Mallee 5-6 m, CC = 26, clumping none *Eucalyptus flocktoniae* (20), *E. onceps* (3), *E. celastroides* var. *virella* (2), *E. spathulata* ssp. *grandiflora* (1).
STRATUM 2: Shrubs 2.1-2.8 m, CC = 2.3, clumping moderate *Melaleuca eleuterostachya* (1), *M. uncinata* (1), *Hakea commutata* (0.1), *H. laurina* (0.1), *M. acuminata* (0.1).
STRATUM 3: Shrubs 1.6-2.0 m, CC = 5.1, clumping moderate *Melaleuca undulata* (5), *M. lateriflora* var. *lateriflora* (0.1), *Hakea verrucosa* (+).
STRATUM 4: Shrubs 1.1-1.5 m, CC = 2, clumping none *Melaleuca undulata* (2), *Exocarpos aphyllus* (+).
STRATUM 5: Shrubs 0.6-1.0 m, CC = 25, clumping moderate *Melaleuca undulata* (25), *Acacia sulcata* var. *platyphylla* (+), *Eriostemon gardneri* (+), *Grevillea huegelii* (+).
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 2.3, clumping none *Pultenaea conferta* (2), *Acacia* aff. *cometes* (0.1), *Oxylobium microphyllum* (0.1), *Boronia inornata* ssp. *inornata* (+), *Cassia nemophila* var. *nemophila* (+), *Phebalium microphyllum* (+).
STRATUM 6b: Misc. plants, CC = 0.1, clumping none
PARASITIC CLIMBERS: *Cassytha melantha* (+).
PERENNIAL GRASSES: *Stipa elegantissima* (+).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line
INVERTEBRATES: No

SITE No: RA005(P)
LOCATION: Ravensthorpe Range, 7.0 km NE of Ravensthorpe
Lat. 33 32'10" Long. 120 05'45" AMG: 230600E 6285850N
Surveyed 26 October 87

SITE AREA: *ca* 70 m x 40 m ASPECT: NE
LAST BURNT: More than 60 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Greenstone SURFACE: Qa in Au

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Minor drainage line
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 10-30 m INCLINATION: Gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent
ACTIVITY: Eroded = Aggraded
FREQUENCY: Occasional MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATION FREQUENCY: >1 per year
DEPTH: 10-30 cm DURATION: Less than 1 day
RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: No exposure STONE: Absent
PAVEMENT: Absent
LOGS: Absent BRANCHES: Few
LEAVES: Broad, deposits 2-5 cm thick, almost continuous

SOIL PROFILE
OBSERVATION: No other THICKNESS: Deep, 50-120 cm

Appendix I (continued)

MAIN ORIGIN: Colluvial
MINOR: Alluvial
ATTRIBUTE: None
DRAINAGE: Poor
SRT: Neutral
SALINITY: None
NORTHCOTE: Uc1.21-1/0/85+/1
SOIL GROUP: Alluvial Soil
NAME: Stream Alluvium

A 0-85 cm Dark brown (7.5YR 3/2) fine sandy loam; humus content low; roots fine, frequent; inclusions 5-10% angular greenstone 1-5 mm long; consistence moderately weak; pH 6.25; not water repellent; too dry to auger deeper.

VEGETATION
PROVINCE: South-west
DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: LAI.KSr.SBr
No. of TAXA: 40

STRATUM 1: Trees 6-8 m, CC = 17, clumping none *Eucalyptus astringens (15), E. nutans (2).*
STRATUM 2: Mallees 4-7 m, CC = 6, clumping none *Eucalyptus anceps (4), E. celastroides* var. *virella (1), E. flocktoniae (1).*
STRATUM 3: Shrubs 2.1-4.0 m, CC = 0.5, clumping none *Melaleuca acuminata (0.4), M. uncinata (0.1), Hakea laurina (+).*
STRATUM 4: Shrubs 1.6-2.0 m, CC = +, clumping none *Hakea verrucosa (+).*
STRATUM 5: Shrubs 1.1-1.5 m, CC = 2.1 clumping none *Acacia suicata* var. *platyphylla (1), Exocarpos aphyllus (0.5), Oxylobium parviflorum* var. *parviflorum (0.5), Choretrum glomeratum* var. *glomeratum (+), Santalum acuminatum (+), Trymalium* sp. (KRN 11539) (+).
STRATUM 6: Shrubs 0.6-1.0 m, CC = 0.1, clumping none *Acrotriche ramiflora (+), Hakea commutata (+).*
STRATUM 7a: Shrubs 0.0-0.5 m, CC = 0.7, clumping none *Acacia erinacea (0.4), A. aff. cometes (0.1), Cassia nemophila* var. *nemophila (0.1), Dodonaea pinifolia (0.1), Hibbertia rupicola (+), Microcorys glabra (+), Olearia muelleri (+), Oxylobium microphyllum (+), Pimelea* sp. (KRN 70) (+), *Vittadinia gracilis* (+).
STRATUM 7b: Misc. plants, CC = 0.4, clumping none
ANNUALS: **Anagallis arvensis (+), Bulbine semibarbata (+), Daucus glochidiatus (+), Millotia tenuifolia* var. *tenuifolia (+), Poranthera microphylla (+), *Vulpia myuros (+).*
GEOPHYTES: *Oxalis corniculata (+), Pterostylis* sp. (KRN 11340) (+), *Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha (+).*
PERENNIAL GRASSES: *Stipa puberula* (0.1), *Danthonia setacea* var. *breviseta* (+).
SEDGE-LIKE: *Dianella revoluta* (+).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Drift fence 50 m long
INVERTEBRATES: No

SITE No: RA006
LOCATION: Ravensthorpe Range, 6.5 km NE of Ravensthorpe
Lat. 33 32'20" Long. 120 05'35" AMG: 230100E 6285250N
Surveyed 26 October 1987

SITE AREA: *ca* 50 m x 150 m
ASPECT: Crest
LAST BURNT: More than 50 years
DISTURBANCE: None evident or known

LAND REGION: Southern
PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond
SYSTEM: Ravensthorpe

GEOL. REGION: Block
LOCAL: Shield
BEDROCK: Greenstone
SURFACE: Ak

LANDFORM
PATTERN TYPE: Rolling Hills
PATTERN: Residual hills
UNIT: Ridge
ELEMENT: Upper slope and crest
DRAINAGE PATTERN: Dendritic
SPACING: Close
SLOPE LENGTH: 50-80 m
INCLINATION: To Moderate B
EXPOSURE: Inland, moderate
AGENT: Sheet wash

LAND SURFACE
EROSION: Absent
WIND: Absent
SHEET: Absent
RILL: Absent
GULLY: Absent
GULLY DEPTH: Absent
STREAM BANK: Absent
TUNNEL: Absent
WAVE: Absent
MASS MOVEMENT: Absent
ACTIVITY: Eroded
FREQUENCY: Barely active
MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
DURATION: Less than 1hour
RUN-OFF VELOCITY: Low to high
INFILTRATION: ?
ROCK: Rocky
STONE: Very few, irregular, to stones
PAVEMENT: Absent
LOGS: Absent
BRANCHES: Few
LEAVES: Broad, deposits 1-2 cm thick, continuous

SOIL PROFILE
OBSERVATION: No other
THICKNESS: Shallow, 20-30 cm
MAIN ORIGIN: *In situ* weathering
MINOR: Colluvial on lower slope
ATTRIBUTE: Shallow
DRAINAGE: Good
SRT: Neutral
SALINITY: None
NORTHCOTE: Uc1.21-1/0/23/1
SOIL GROUP: Lithosol
NAME: Not named

A 0-23 cm 'Dark reddish brown' (7.5 YR 2/2) sandy loam; humus content low; roots fine, frequent; inclusions 5-15% angular greenstone 1-5 cm long; consistence moderately weak; pH 6.25; highly water repellent; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west
DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: LAc.SBr.SDr
No. of TAXA: 35

STRATUM 1: Trees 5-8 m, CC = 30, clumping none *Eucalyptus astringens (28), E. nutans (10), E. megacornuta (2).*
STRATUM 2: Shrubs 2.1-3.0 m, CC = 0.1, clumping none *Hakea laurina (0.1), Melaleuca uncinata* (+).
STRATUM 3: Shrubs 1.6-2.0 m, CC = 0.2, clumping none *Calothamnus quadrifidus (0.1), Persoonia teretifolia (0.1).*
STRATUM 4: Shrubs 1.1-1.5 m, CC = 2.8, clumping none *Exocarpos aphyllus (2), Hovea acanthoclada (0.5), Grevillea platypoda (0.1), Melaleuca undulata (0.1), Oxylobium parviflorum* var. *parviflorum (0.1).*
STRATUM 5: Shrubs 0.6-1.0 m, CC = 0.4, clumping none *Beyeria lechenaultii (0.2), Dodonaea amblyophylla (0.1), Hovea acanthoclada (0.1).*
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 2.2, clumping none *Acacia erinacea (1), Boronia oxyantha* var. *brevicalyx (1), Cassia nemophila* var. *nemophila (0.1), Acacia subcaerulea (+), Acrotriche ramiflora (+), Boronia inconspicua (+), Lasiopetalum compactum (+), Olearia muelleri (+), Vittadinia gracilis (+).*
Stratum 6b: Misc. plants, CC = 0.4, clumping none
ANNUALS: *Calandrinia calyptrata (+), Millotia tenuifolia* var. *tenuifolia (+), *Pentaschistis airoides (+), Poranthera microphylla (+).*
CLIMBERS: *Billardiera coriacea (+).*
GEOPHYTES: *Stylidium albomontis (+), Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha (0.1).*
PERENNIAL GRASSES: *Stipa puberula B* (0.1), *Danthonia setacea* var. *breviseta (+), S. pycnostachya (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trapline, drift fence 50 m long
INVERTEBRATES: No

COMMENTS
Includes a rockpile of laterized Banded Ironstone Formation growing *Eucalyptus megacornuta*.

SITE No: RA007
LOCATION: Ravensthorpe Range, 10 km E of Ravensthorpe
Lat. 33 35'25" Long. 120 09'05" AMG: 225600E 6279650N
Surveyed 28 October 1987

SITE AREA: *ca* 40 m x 200 m
ASPECT: Crest
1:250,000 SHEET: Ravensthorpe
ZONE: 50
LAST BURNT: Greater than 45 years
DISTURBANCE: None known or evident

LAND REGION: Southern
PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond
SYSTEM: Ravensthorpe

GEOL. REGION: Block
LOCAL: Shield
BEDROCK: Laterized BIF
SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills
PATTERN: Residual hills
UNIT: Ridge
ELEMENT: Crest
DRAINAGE PATTERN: Dendritic
SPACING: Close
SLOPE LENGTH: 20-35 m
INCLINATION: To very gentle
EXPOSURE: Inland, moderate
AGENT: Sheet wash

LAND SURFACE
EROSION: Absent
WIND: Absent
SHEET: Absent
RILL: Absent
GULLY: Absent
GULLY DEPTH: Absent
STREAM BANK: Absent
TUNNEL: Absent
WAVE: Absent
MASS MOVEMENT: Absent
ACTIVITY: Eroded
FREQUENCY: Barely active
MICRO-RELIEF: None
SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low
INFILTRATION: ?
ROCK: Rocky
STONE: Few, subangular quartz coated with iron hydroxides, 2-10 cm long
PAVEMENT: Frequent, medium pebbles
LOGS: Absent
BRANCHES: Absent
LEAVES: Broad, deposits 2-5 cm thick, almost continuous

SOIL PROFILE
OBSERVATION: No other
THICKNESS: Skeletal, 6-15 cm
MAIN ORIGIN: *In situ* weathering
MINOR: None evident
ATTRIBUTE: Skeletal
DRAINAGE: Excessive
SRT: Neutral
SALINITY: None
NORTHCOTE: Uc1.21-1/0/12/1
SOIL GROUP: Lithosol
NAME: Not named

A 0-12 cm Dark brown (7.5 YR 3/2) loamy sand; humus content low; roots fine, frequent; inclusions 15-20% subangular quartz 1-5cm long and subrounded gravel 5-12 mm diameter; consistence moderately weak, pH 6.75; highly water repellent; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west
DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSr.Si.SAi.SBr.SCi.SDr.VLi.
No. of TAXA: 69

STRATUM 1: Mallees 4-5 m, CC = 8, clumping slight *Eucalyptus tetragona (5), E. uncinata (2), E. falcata (1).*
STRATUM 2: Shrubs 2.1-3.5 m, CC = 19, clumping slight *Banksia lemanniana (12), Melaleuca uncinata (3), Calothamnus quadrifidus (2), Adenanthos oreophilus (0.5), Grevillea platypoda (0.5), B. laevigata* ssp. *laevigata (0.1), Persoonia teretifolia (+).*
STRATUM 3: Shrubs 1.6-2.0 m, CC = 11, clumping slight *Dryandra quercifolia (6), Calothamnus quadrifidus (4), Grevillea coccinea (1), Leptospermum maxwellii (0.1), Goodenia pinifolia (+).*
STRATUM 4: Shrubs 1.1-1.5 m, CC = 8, clumping slight *Allocasuarina campestris* ssp. *campestris (5), Agonis spathulata (2), Hakea verrucosa (1), Isopogon polycephalus (0.2), Acacia fragilis (0.1), H. lissocarpha (0.1), Petrophile fastigiata (0.1), Santalum acuminatum (0.1), Choretrum glomeratum* var. *glomeratum (+).*
STRATUM 5: Shrubs 0.6-1.0 m, CC = 13, clumping slight *Lasiopetalum compactum (8), Oxylobium parviflorum* var. *parviflorum (2), Agonis spathulata (1), Beaufortia schaueri (1), Eriostemon gardneri (1), Leucopogon cuneifolius (1), Micromyrtus racemosa (1), Acacia* sp. *(KRN 938) (0.2), Hakea obtusa (0.2), Brachyloma concolor (0.1), Beyeria* sp. *(KRN 11020) (+), Goodenia scapigera (+), Leptospermum spinescens (+), Logania buxifolia (+).*
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 9, clumping slight *Spyridium cordatum (5), Daviesia anceps (2), Platysace maxwellii (1), Boronia crenulata* var. *gracilis (0.1), Dampiera lavandulacea (0.1), Rinzia fumana (0.1), Acrotriche ramiflora (+), Astroloma serratifolium (+), Boronia inconspicua (+), D. aff. trigona (+), Eutaxia cuneata (+), Gompholobium marginatum (+), Halgania preissiana (+), Lysinema ciliatum (+), Petrophile seminuda (+), Stackhousia scoparia (+), Stylidium breviscapum (+), Thysanotus dichotomus (+).*
STRATUM 6b: Misc. plants, CC = 15, clumping slight
CLIMBERS: *Billardiera coriacea (+).*
GEOPHYTES: *Stylidium albomontis (0.1), Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha (0.1).*
PERENNIAL GRASSES: *Neurachne alopecuroidea (0.2).*
SEDGES: *Lepidosperma viscidum* var. *viscidum (10), L.* sp. *(KRN 4091) (2), Schoenus subiaxus (1), Tricostularia neesii* var. *neesii (1), L. leptostachyum (0.4), Gahnia ancistrophylla (0.1), Loxocarya fasciculata (0.1).*
SEDGE-LIKE: *Lomandra collina* (0.1).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line, drift fence 50 m long
INVERTEBRATES: No

SITE No: RA008
LOCATION: Ravensthorpe Range, 10.1 km E of Ravensthorpe
Lat. 33 35'25" Long. 120 09'15" AMG: 225700E 6279650N
Surveyed 28 October 1987

SITE AREA: Plotless, 0.5 ha
ASPECT: NE
LAST BURNT: More than 50 years
DISTURBANCE: None known or evident

LAND REGION: Southern
PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond
SYSTEM: Ravensthorpe

GEOL. REGION: Block
LOCAL: Shield
BEDROCK: Banded Ironstone Formation
SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills
PATTERN: Residual hills
UNIT: Ridge
ELEMENT: Crest and upper slope
DRAINAGE PATTERN: Dendritic
SPACING: Close
SLOPE LENGTH: 30-60 m
INCLINATION: Moderate A to B
EXPOSURE: Inland, moderate
AGENT: Sheet wash

Appendix I (continued)

LAND SURFACE
EROSION: Absent
SHEET: Absent
GULLY: Absent
STREAM BANK: Absent
WAVE: Absent
MASS MOVEMENT: Absent
FREQUENCY: Barely active
SOIL: Hardsetting
WIND: Absent
RILL: Absent
GULLY DEPTH: Absent
TUNNEL: Absent
ACTIVITY: Eroded
MICRO-RELIEF: None
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
RUN-OFF VELOCITY: To high
ROCK: Rocky
DURATION: Less than 1 hour
INFILTRATION: ?
STONE: Scattered, subrounded large pebbles to stone
PAVEMENT: Scattered, medium pebbles
LOGS: Absent
LEAVES: Broad, deposits 1-2 cm thick, 5-35 m apart
BRANCHES: Absent

SOIL PROFILE
OBSERVATION: No other
MAIN ORIGIN: *In situ* weathering
ATTRIBUTE: Skeletal
SRT: Neutral
NORTHCOTE: Uc1.21-
THICKNESS: Skeletal, 2-25 cm
MINOR: Colluvial
DRAINAGE: Excessive
SALINITY: None
SOIL GROUP: Lithosol

Soil Sample missing

VEGETATION
PROVINCE: South-west
SYSTEM: Ravensthorpe
MUIR: KSr.Sr.SAr.SBi.VLr.GLr
DISTRICT: Eyre
No. of TAXA: 56

STRATUM 1: Mallees 3-6 m, CC = 3.1, clumping none *Eucalyptus tetragona (3), E. falcata (0.1).*
STRATUM 2: Shrubs 2.1-3.4 m, CC = 2.5, clumping slight *Banksia lemanniana (1), Leptospermum maxwellii (1), Santalum acuminatum (0.5).*
STRATUM 3: Shrubs 1.6-2.0 m, CC = 4.1, clumping moderate *Allocasuarina campestris* ssp. *campestris (2), Hakea verrucosa (1), Melaleuca uncinata (1), Adenanthos oreophilus (0.1), H. obtusa (+).*
STRATUM 4: Shrubs 1.1-1.5 m, CC = 13, clumping moderate *Allocasuarina campestris* ssp. *campestris (10), Calothamnus quadrifidus (2), Oxylobium parviflorum* var. *parviflorum (1), Jacksonia lehmannii (0.2), Leucopogon cuneifolius (0.1), Exocarpos aphyllus (+), Grevillea fulgens (+), Hovea acanthoclada (+).*
STRATUM 5: Shrubs 0.6-1.0 m, CC = 1.9, clumping moderate *Leucopogon* sp. *(KRN 11795) (1), Eriostemon gardneri (0.2), Hibbertia pungens (0.2), Hybanthus floribundus* ssp. *adpressus (0.2), Dodonaea ceratocarpa (0.1), Labichea lanceolata* ssp. *brevifolia (0.1), Acacia sulcata* var. *platyphylla (+), Goodenia pinifolia (+), Lasiopetalum compactum (+), Micromyrtus racemosa (+).*
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 0.4, clumping none *Platysace maxwellii (0.1), Spyridium cordatum (0.1), Astroloma serratifolium (+), Daviesia anceps (+), Halgania preissiana (+), Pelargonium australe (+) Thomasia angustifolia (+).*
STRATUM 6b: Misc. plants, CC = 12, clumping slight
ANNUALS: *Millotia tenuifolia* var. *tenuifolia (0.1), *Arctotheca calendula (+), Calandrinia calyptrata (+), Crassula exserta (+), Daucus glochidiatus (+), *Ehrharta longiflora (+), *Erodium botrys (+), *Pentaschistis airoides (+), Senecio glossanthus (+), *Sonchus oleraceus (+), *Vulpia myuros (+).*
CLIMBERS: *Billardiera coriacea (+).*
FERNS: *Chielanthes distans (+), Pleurosorus rutifolius (+).*
GEOPHYTES: *Pterostylis vittata* var. *vittata (+), Stylidium albomontis (+), Thysanotus patersonii* ssp. *patersonii (+).*
PERENNIAL GRASSES: *Spartochloa scorpoidea (5), Neurachne alopecuroidea (0.2), Stipa puberula B (+).*
SEDGES: *Lepidosperma viscidum* var. *viscidum (6).*
SEDGE-LIKE: *Lomandra collina (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line
INVERTEBRATES: No

COMMENTS
Bedrock too shallow and too difficult to blast for drift fence.

SITE No: RA009(D)
LOCATION: Ravensthorpe Range, 10.0 km E of Ravensthorpe
Lat. 33 35'20" Long. 120 09'15" AMG: 225700E 6279850N
Surveyed 28 October 1987
SITE AREA: *ca* 40 m x 200 m
LAST BURNT: More than 45 years
DISTURBANCE: Old mining exploration grid line
ASPECT: NE

LAND REGION: Southern
SUB-PROVINCE: Desmond
GEOL. REGION: Block
BEDROCK: Greenstone
PROVINCE: Eastern Goldfields
SYSTEM: Ravensthorpe
LOCAL: Shield
SURFACE: Ak

LANDFORM
PATTERN TYPE: Rolling Hills
UNIT: Ridge
DRAINAGE PATTERN: Dendritic
SLOPE LENGTH: 100-200 m
INCLINATION: Moderate A
EXPOSURE: Inland, moderate
PATTERN: Residual hills
ELEMENT: Middle slope
SPACING: Close
AGENT: Sheet wash

LAND SURFACE
EROSION: Absent
SHEET: Absent
GULLY: Absent
STREAM BANK: Absent
WAVE: Absent
ACTIVITY: Eroded = Aggraded
MICRO-RELIEF: None
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
RUN-OFF VELOCITY: High
ROCK: Rocky
STONE: Very few, subangular greenstone cobbles
PAVEMENT: Scattered, medium pebbles
LOGS: Absent
LEAVES: Broad, deposits 1-2 cm thick, 3-8 m apart
WIND: Absent
RILL: Absent
GULLY DEPTH: Absent
TUNNEL: Absent
MASS MOVEMENT: Absent
FREQUENCY: Barely active
SOIL: Hardsetting
DURATION: Less than 1 hour
INFILTRATION: ?
BRANCHES: Few

SOIL PROFILE
OBSERVATION: No other
MAIN ORIGIN: *In situ* weathering
ATTRIBUTE: Skeletal
SRT: Neutral
NORTHCOTE: Uf6.21-6/3/14/1
NAME: Not named
THICKNESS: Skeletal, 3-20 cm
MINOR: None evident
DRAINAGE: Excessive
SALINITY: None
SOIL GROUP: Lithosol

A 0-14 cm Dark reddish brown (5 YR 3/4) sandy medium clay; humus content low; roots fine, frequent; inclusions 10-20% subangular greenstone 1-4 cm long; consistence moderately firm; pH 7.75; not water repellent; boundary sharp,irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west
SYSTEM: Ravensthorpe
MUIR: KSi.SAr.SBr.SCr.SDr.VLl.
DISTRICT: Eyre
No. of TAXA: 35

STRATUM 1: Mallees 2-3 m, CC = 22, clumping slight *Eucalyptus anceps (12), E. flocktoniae (10), E. uncinata (2).*
STRATUM 2: Shrubs 1.6-2.0 m, CC = 1, clumping slight *Melaleuca uncinata (1), Santalum acuminatum (+).*
STRATUM 3: Shrubs 1.1-1.5 m, CC = 9.2, clumping slight *Hakea verrucosa (6), Melaleuca uncinata (3), Acacia* aff. *fragilis (0.1), M. undulata (0.1).*

STRATUM 4: Shrubs 0.6-1.0 m, CC = 6.4, clumping slight *Hybanthus floribundus* ssp. *adpressus (2), Melaleuca cardiophylla* var. *cardiophylla (2), Dodonaea ceratophylla (1), Allocasuarina campestris* ssp. *campestris (0.1), Exocarpos aphyllus (0.1), Hibbertia pungens (0.1), Pomaderris (0.1), Grevillea platypoda (+), Hakea commutata (+), H. lissocarpha (+).*
STRATUM 5a: Shrubs 0.0-0.5 m, CC = 6, clumping slight *Spyridium cordatum (2), Acacia ingrata (1), Daviesia anceps (1), Styphelia pulchella (1), Hibbertia rupicola (0.5), A. aff. cometes (0.1), Coopernookia strophiolata (0.1), Lasiopetalum compactum (0.1), Microcorys glabra (0.1), Acrotriche cordata (+), Daviesia aff. trigonophylla (+).*
STRATUM 5b: Misc. plants, CC = 10, clumping slight
GEOPHYTES: *Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha* (0.1).
PERENNIAL GRASSES: *Neurachne alopecuroidea* (+), *Stipa pycnostachya (+).*
SEDGES: *Lepidosperma* aff. *resinosum (8), L.* sp. *(KRN 5233) (2).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Drift fence 50 m long
INVERTEBRATES: No

SITE No: RA009(M)
LOCATION: Ravensthorpe Range, 10.0 km E of Ravensthorpe
Lat. 33 35'10" Long. 120 09'15" AMG: 225700E 6279900N
Surveyed 28 October 1987

SITE AREA: *ca* 40 m x 150 m ASPECT: NE
1:250 000 SHEET: Ravensthorpe ZONE: 50
LAST BURNT: More than 45 years
DISTURBANCE: Old mining exploration grid line

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Greenstone SURFACE: Ak

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Middle slope
DRAINAGE PATTERN: Dendritic SPACING: Close
SLOPE LENGTH: 300-600 m INCLINATION: Gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent
ACTIVITY: Eroded = Aggraded FREQUENCY: Barely active
MICRO-RELIEF: None SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: No exposure
STONE: Scattered, subangular greenstone cobbles
PAVEMENT: Scattered, medium pebbles
LOGS: Absent BRANCHES: Absent
LEAVES: Broad, deposits 1-2 cm thick, 1-5 m apart

SOIL PROFILE
OBSERVATION: No other THICKNESS: Skeletal, 5-25 cm
MAIN ORIGIN: *In situ* weathering MINOR: Colluvial
ATTRIBUTE: Skeletal DRAINAGE: Good
SRT: Neutral SALINITY: None
NORTHCOTE: Uf6.21-5/3/7/1 SOIL GROUP: Not identified
NAME: Not named

A 0-7 cm 'Dark greysish brown' (2.5 YR 3/3) sandy light clay; humus content low; roots fine, few; inclusions 20-30% subangular greenstone 1-4 cm long; consistence moderately firm; pH 6.75; not water repellent; boundary abrupt, wavy.
B 7-18 cm 'Dark brown' (2.5 YR 2/3) sandy light clay; inclusions as above; consistence very firm to moderately strong; pH 6.75; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSi.SAr.SBr.SCc.SDr.VLr. No. of TAXA: 33

STRATUM 1: Mallees 3-4 m, CC = 20, clumping none *Eucalyptus flocktoniae (19), E. anceps (1).*
STRATUM 2: Shrubs 1.6-2.0 m, CC = 3.2, clumping none Hakea verrucosa (2), *Santalum acuminatum (1).Melaleuca uncinata (0.1), Exocarpos aphyllus (+), Grevillea platypoda (+).*
STRATUM 3: Shrubs 1.1-1.5 m, CC = 4.3, clumping slight *Acacia* sp. *(KRN 11791) (2), Melaleuca undulata (2), Exocarpos aphyllus (0.2), Hakea commutata (+), Persoonia teretifolia (+).*
STRATUM 4: Shrubs 0.6-1.0 m, CC = 47, clumping moderate *Melaleuca undulata (45), Hybanthus floribundus* ssp. *adpressus (1), M. cardiophylla* var. *cardiophylla (1), Dodonaea ceratocarpa (0.1), Eriostemon gardneri (0.1), Hibbertia pungens (+).*
STRATUM 5a: Shrubs 0.0-0.5 m, CC = 5.5, clumping slight *Acacia ingrata (2), A. aff. cometes (2), Pultenaea conferta (1), Daviesia anceps (0.2), Acrotriche cordata (+), Cassia nemophila* var. *nemophila (+), Coopernookia strophiolata (+), Hibbertia rupicola (+), Lasiopetalum compactum (+), Microcorys glabra (+), Styphelia pulchella (+).*
STRATUM 5b: Misc. plants, CC = 9.1, clumping slight
GEOPHYTES: *Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha (1).*
PERENNIAL GRASSES: *Danthonia caespitosa (+), Stipa puberula B (+).* SEDGES: *Lepidosperma* sp. *(KRN 5233) (6), L. brunonianum (1), L. resinosum* (1).

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line
INVERTEBRATES: No

SITE No: RA010
LOCATION: Ravensthorpe Range, 11.7 km SE of Ravensthorpe
Lat. 33 37'35" Long. 120 09'40" AMG: 236600E 6275500N
Surveyed 28 October 1987

SITE AREA: Plotless, *ca* 0.6 ha ASPECT: SW
1:250,000 SHEET: Ravensthorpe ZONE: 50
LAST BURNT: More than 30 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Greenstone SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Middle slope
DRAINAGE PATTERN: Dendritic SPACING: Moderate
SLOPE LENGTH: 300-800 m INCLINATION: Gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent

Appendix I (continued)

ACTIVITY: Eroded — FREQUENCY: Barely active
MICRO-RELIEF: None — SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm — DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low — INFILTRATION: ?
ROCK: No exposure
STONE: Few, subangular laterised greenstone cobbles
PAVEMENT: Frequent, medium pebbles
LOGS: Absent — BRANCHES: Absent
LEAVES: Broad, deposits 2-5 cm thick, 2-8 m apart

SOIL PROFILE
OBSERVATION: No other — THICKNESS: Shallow, 40-60 cm
MAIN ORIGIN: *In situ* weathering — MINOR: None evident
ATTRIBUTE: ??? — DRAINAGE: Good
SRT: Neutral — SALINITY: None
NORTHCOTE: Dr2.22-1/1/2/1 — SOIL GROUP: Not identified
NAME: Not named

A 0-2 cm Reddish brown (2.5 YR 4/4) clayey sand; humus content low; roots fine, few; inclusions 3-5% subangular greenstone and quartz 8-20 mm long; consistence moderately firm; pH 6.75; not water repellent; boundary sharp, smooth.
B 2-24 cm Red (10 R 4/6) light clay; consistence very strong; pH 7.25; boundary clear, wavy.
C 24-47 cm Red (2.5 YR 5/6) loam to clay loam; mottles many, coarse, prominent, very pale red (10 YR 8/4); consistence very firm; pH 6.75; boundary sharp, irregular.

VEGETATION
PROVINCE: South-west — DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSc.Sr.SBr.SCi.SDi.VLr. — No. of TAXA: 68

STRATUM 1a: Mallees 1.8-3.2 m, CC = 30, clumping none *Eucalyptus flocktoniae (15), E. leptocalyx (7), E. spathulata* ssp. *grandiflora (5), E. pileata (2), E. uncinata (1), E. gardneri* ssp *ravensthorpensis (0.1).*
STRATUM 1b: Shrubs 2.1-3.1 m, CC = 2, clumping none *Banksia lemanniana (1), Hakea laurina (1), Exocarpos sparteus (+).*
STRATUM 2: Shrubs 1.6-2.0 m, CC = 0.2, clumping none *Hakea obtusa* (0.2).
STRATUM 3: Shrubs 1.1-1.5 m, CC = 9.1, clumping none *Oxylobium parviflorum* var. *parviflorum (3), Daviesia* aff. *nematophylla (2), Melaleuca uncinata (2), Boeckea corynophylla (1), Hakea lissocarpha (1), Choretrum glomeratum* var. *glomeratum (0.1), Nematolepis phebalioides (+).*
STRATUM 4: Shrubs 0.6-1.0 m, CC = 14, clumping none *Melaleuca* sp. *(KRN 2890) (5), Beaufortia schaueri (3), Daviesia mollis (3), M. lateriflora* var. *lateriflora (2), Dryandra cirsioides (0.5), Agonis spathulata (0.2), Grevillea patentiloba (0.1), Leucopogon cuneifolius (0.1), Petrophile fastigiata (0.1), P. trifida (0.1), Acacia gonophylla (+), Dodonaea ceratocarpa (+), Lysinema ciliatum (+), Melaleuca subfalcata (+).*
STRATUM 5a: Shrubs 0.0-0.5 m, CC = 11, clumping none *Boronia inornata* ssp. *inornata (2), Leucopogon* sp. *(KRN 1813) (2), Melaleuca sclerophylla (2), Hibbertia* aff. *pungens (1), Siegfriedia darwinioides (1), Acacia ingrata (0.5), Boronia oxyantha* var. *brevicalyx (0.5), Spyridium cordatum (0.5), Thomasia microphylla (0.5), Boronia inconspicua (0.1), Melaleuca globerrima (0.1), Acacia laricina (+), Acrotriche ramiflora (+), Burtonia conferta (+), Dampiera* aff. *alata (+), Hovea acanthoclada (+), Microcorys glabra (+).*
STRATUM 5b: Misc. plants, CC = 5.1, clumping none
GEOPHYTES: *Stylidium albomontis (0.1), Thelymitra pauciflora (+), Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha glabella (+), C. melantha (+), C. micrantha (+), C. racemosa (+).*
PERENNIAL GRASSES: *Neurachne alopecuroidea (+), Stipa pycnostachya (+).*
SEDGES: *Lepidosperma viscidum* var. *viscidum (2), L.* aff. *resinosum (2), Gahnia lanigera (0.2), L. brunonianum (0.2), G. ancistrophylla (0.1), L. tuberculatum (0.1), Tetraria capillaris (0.1).*
SEDGE-LIKE: *Dianella revoluta (+), Lomandra micrantha* ssp. *micrantha (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line, drift fence 50 m long — INVERTEBRATES: No

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SITE No: RA011(D)
LOCATION: Ravensthorpe Range, 16 km SE of Ravensthorpe
Lat. 33 39'30" Long. 120 11'40" AMG: 239900E 6272300N
Surveyed 28 October 1987

SITE AREA: *ca* 40 m x 80 m — ASPECT: SW
LAST BURNT: More than 50 years
DISTURBANCE: None known or evident

LAND REGION: Southern — PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond — SYSTEM: Ravensthorpe

GEOL. REGION: Block — LOCAL: Shield
BEDROCK: Greenstone — SURFACE: Czl

LANDFORM
PATTERN TYPE: Rolling Hills — PATTERN: Residual hills
UNIT: Ridge — ELEMENT: Upper slope
DRAINAGE PATTERN: Dendritic — SPACING: Moderate
SLOPE LENGTH: 80-100 m — INCLINATION: Gentle
EXPOSURE: Inland, moderate — AGENT: Sheet wash

LAND SURFACE
EROSION: Absent — WIND: Absent
SHEET: Absent — RILL: Absent
GULLY: Absent — GULLY DEPTH: Absent
STREAM BANK: Absent — TUNNEL: Absent
WAVE: Absent — MASS MOVEMENT: Absent
ACTIVITY: Eroded — FREQUENCY: Barely active
MICRO-RELIEF: None — SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm — DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low — INFILTRATION: ?
ROCK: No exposure
STONE: Scattered subangular quartz cobbles
PAVEMENT: Frequent, medium pebbles
LOGS: Absent — BRANCHES: Absent
LEAVES: Broad, deposits 1-2 cm thick, 2-15 m apart

SOIL PROFILE
OBSERVATION: No other — THICKNESS: Shallow, 30-45 cm
MAIN ORIGIN: *In situ* weathering — MINOR: None evident
ATTRIBUTE: Shallow — DRAINAGE: Good
SRT: Neutral — SALINITY: None
NORTHCOTE: Uc1.21-1/0/18/1 — SOIL GROUP:
NAME:

A 0-18 cm Brown (10 YR 5/3) loamy sand; humus content low; roots fine, frequent; inclusions 10-20% subangular quartz 1-5 cm long; consistence moderately weak; pH 6.25; slightly water repellent; too stony to auger deeper.

VEGETATION
PROVINCE: South-west — DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSi.Sr.SAi.SBr.SCi.SDr.VLi. — No. of TAXA: 52

STRATUM 1a: Mallees 2-4 m, CC = 12, clumping slight *Eucalyptus incrassata (4), E. falcata (3), E. tetragona (3), E. uncinata (2).*
STRATUM 1b: Shrubs 2.1-3.0 m, CC = 2.5, clumping strong *Banksia lemanniana (2), Hakea laurina (0.5), H. crassifolia* (+).

STRATUM 2: Shrubs 1.6-2.0 m, CC = 12, clumping strong *Dryandra quercifolia (10), Jacksonia lehmannii (1), Oxylobium* sp. *(KRN 4035) (1), Acacia subcaerulea (+).*
STRATUM 3: Shrubs 1.1-1.5 m, CC = 2.1, clumping slight *Hakea lissocarpha (1), H. obtusa (1), Melaleuca uncinata (0.1).*
STRATUM 4: Shrubs 0.6-1.0 m, CC = 14, clumping strong *Beaufortia schaueri (8), Agonis spathulata (2), Allocasuarina humilis (1), Baeckea corynophylla (1), Calothamnus pinifolius (1), Melaleuca* sp. *(KRN 2890) (1), Hakea trifurcata (0.1), Hibbertia pungens (0.1), Acacia gonophylla (+), Brachyloma concolor (+), Isopogon buxifolius (+).*
STRATUM 5a: Shrubs 0.0-0.5 m, CC = 9.7, clumping strong *Melaleuca sclerophylla (6), Leucopogon* aff. *conostephioides A (2), Petrophile seminuda (1), P. squamata (0.2), Calytrix leschenaultii (0.1), Hibbertia* aff. *pungens (0.1), Lysinema ciliatum (0.1), Andersonia parvifolia (+), Boronia tenuis (+), Cheiranthera filifolia (+), Chorizema trigonum (+), Lasiopetalum rosmarinifolium (+).*
STRATUM 5b: Misc. plants, CC = 18, clumping slight
CLIMBERS: *Billardiera sericea (+).*
GEOPHYTES: *Diuris setacea (+), Pterostylis nana (+), Stylidium piliferum* ssp. *minor (+).*
PARASITIC CLIMBERS: *Cassytha micrantha (+).*
PERENNIAL GRASSES: *Amphipogon turbinatus (0.1), Neurachne alopecuroidea (0.1).*
SEDGES: *Lepidosperma* sp. *(KRN 6488) (12), L.* sp. *(KRN 4091) (5), Mesomelaena stygia* ssp. *stygia (0.2), Schoenus subflavus (0.2), Gahnia ancistrophylla (0.1), S. subbarbatus (+).*
SEDGE-LIKE: *Lomandra collina (0.2).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Drift fence
INVERTEBRATES: No

COMMENTS
Ecotone between *Eucalyptus falcata* Very Open Shrub Mallee and *Eucalyptus redunca* Very Open Shrub Mallee.

SITE No: RA011(M)
LOCATION: Ravensthorpe Range, 16 km SE of Ravensthorpe
Lat. 33 39'30" Long. 120 11'45" AMG: 239950E 6272300N
Surveyed 28 October 1987

SITE AREA: *ca* 30 m x 200 m ASPECT: Crest
LAST BURNT: More than 40 years
DISTURBANCE: None known or evident

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

GEOL. REGION: Block LOCAL: Shield
BEDROCK: Quartzite SURFACE: Pbq

LANDFORM
PATTERN TYPE: Rolling Hills PATTERN: Residual hills
UNIT: Ridge ELEMENT: Crest
DRAINAGE PATTERN: Dendritic SPACING: Moderate
SLOPE LENGTH: 25-70 m INCLINATION: To very gentle
EXPOSURE: Inland, moderate AGENT: Sheet wash

LAND SURFACE
EROSION: Absent WIND: Absent
SHEET: Absent RILL: Absent
GULLY: Absent GULLY DEPTH: Absent
STREAM BANK: Absent TUNNEL: Absent
WAVE: Absent MASS MOVEMENT: Absent
ACTIVITY: Eroded FREQUENCY: Barely active
MICRO-RELIEF: None SOIL: Hardsetting
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm DURATION: Less than 1 hour
RUN-OFF VELOCITY: Low INFILTRATION: ?
ROCK: Rocky
STONE: Scattered, subangular quartzite cobbles
PAVEMENT: Frequent, medium pebbles
LOGS: Absent BRANCHES: Absent
LEAVES: Broad, deposits 1-2 cm thick, 2-12 m apart

SOIL PROFILE
OBSERVATION: No other THICKNESS: Skeletal, 10-25 cm
MAIN ORIGIN: *In situ* weathering MINOR: None evident
ATTRIBUTE: Skeletal DRAINAGE: Good
SRT: Neutral SALINITY: None
NORTHCOTE: Uc1.21-1/0/18/1 SOIL GROUP: Lithosol
NAME: Not named

A 0-18 cm 'Greyish olive' (7.5 YR 4/2) loamy sand; humus content low; roots fine, frequent; inclusions 25-35% subangular to subrounded laterised quartzite 5-25 mm long; consistence weak; pH 6.75; slightly water repellent; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: KSr.Si.SAi.SBi.SCc.SDr.VLI. No. of TAXA: 39

STRATUM 1: Mallee 3-4 m, CC = 7, clumping none *Eucalyptus falcata (4), E. tetragona (3).*
STRATUM 2: Shrubs 2.1-2.5 m, CC = 12, clumping none *Banksia lemanniana (12).*
STRATUM 3: Shrubs 1.6-2.0 m, CC = 22, clumping none *Dryandra quercifolia (20), Jacksonia lehmannii (2), Hakea victoria (0.1).*
STRATUM 4: Shrubs 1.1-1.5 m, CC = 26, clumping none *Dryandra quercifolia (20), Calothamnus pinifolius (5), Allocasuarina humilis (1), Daviesia obtusifolia (+).*
STRATUM 5: Shrubs 0.6-1.0 m, CC = 31, clumping none *Calothamnus pinifolius (25), Agonis spathulata (5), Acacia gonophylla (1), Lysinema ciliatum (0.2), Petrophile squamata (0.2), A. subcaerulea (0.1), Isopogon buxifolius (+).*
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 2.6, clumping none *Chorizema trigonum (1), Leptospermum spinescens (0.5), Leucopogon* aff. *conostephioides A (0.5), Melaleuca sclerophylla (0.2), Lasiopetalum rosmarinifolium (0.1), Boronia tenuis (+), Dampiera lavandulacea (+), Glischrocaryon aureum* var. *angustifolium (+), Gompholobium knightianum (+), Goodenia scapigera (+), Hovea trisperma (+), Lechenaultia formosa (+), Petrophile seminuda (+), Pimelea brevifolia (+).*
STRATUM 6b: Misc. plants, CC = 13, clumping slight
CLIMBERS: *Billardiera coriacea (+).*
GEOPHYTES: *Pterostylis nana (+).*
PERENNIAL GRASSES: *Amphipogon turbinatus (0.1).*
SEDGES: *Lepidosperma* sp. *(KRN 4091) (12), L.* sp. *(KRN 6488) (0.2), Schoenus subtaxus (0.2), Gahnia ancistrophylla (0.1), Mesomelaena stygia* ssp. *stygia (0.1), S. subbarbatus (0.1).*
SEDGE-LIKE: *Lomandra collina (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line
INVERTEBRATES: No

SITE No: RA012
LOCATION: Ravensthorpe Range, 18.5 km SE of Ravensthorpe
Lat. 33 40'35" Long. 120 13'00" AMG: 242000E 6276350N
Surveyed 28 October 1987

SITE AREA: Plotless, *ca* 1.0 ha ASPECT: Level
LAST BURNT: More than 45 years
DISTURBANCE: None evident or known

LAND REGION: Southern PROVINCE: Eastern Goldfields
SUB-PROVINCE: Desmond SYSTEM: Ravensthorpe

Appendix I (continued)

GEOL. REGION: Block
BEDROCK: Laterite caprock
LOCAL: Shield
SURFACE: Czs In Czl

LANDFORM
PATTERN TYPE: Rolling Hills
UNIT: Ridge
DRAINAGE PATTERN: Dendritic
SLOPE LENGTH: 300-600 m
PATTERN: Residual hills
ELEMENT: Broad crest
SPACING: Moderate
INCLINATION: To Very Gentle
EXPOSURE: Inland, moderate
AGENT: Sheet wash

LAND SURFACE
EROSION: Absent
SHEET: Absent
GULLY: Absent
STREAM BANK: Absent
WAVE: Absent
ACTIVITY: Eroded = Aggraded
MICRO-RELIEF: None
WIND: Absent
RILL: Absent
GULLY DEPTH: Absent
TUNNEL: Absent
MASS MOVEMENT: Absent
FREQUENCY: Barely active
SOIL: Hardsetting to loose
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
RUN-OFF VELOCITY: Absent
ROCK: Absent
PAVEMENT: Absent
DURATION: Less than 1 hour
INFILTRATION: ?
STONE: Absent
LOGS: Absent
LEAVES: Broad, deposits 2-5 cm thick, 5-25 m apart
BRANCHES: Absent

SOIL PROFILE
OBSERVATION: No other
MAIN ORIGIN: Colluvial
ATTRIBUTE: Siliceous
SRT: Neutral
NORTHCOTE: Uc1.21-1/0/31/1
THICKNESS: Shallow, 30-50 cm
MINOR: *In situ* weathering
DRAINAGE: Very good
SALINITY: None
SOIL GROUP: Not identified

NAME: Not named

A21 0-18 cm Light greyish brown (10 YR 6/2) loamy sand; humus content low; roots fine, scattered; consistence very weak; pH 6.25; slightly water repellent; boundary abrupt, wavy.
A22 18-31 cm Light greyish brown (lighter than 10 YR 6/2); inclusions subangular to subrounded quartzite and laterite 5-15 mm long, increasing with depth from 5% to 45%; consistence very weak; pH 6.5; too stony to auger deeper.

VEGETATION
PROVINCE: South-west
SYSTEM: Ravensthorpe
MUIR: KSi.SCr.SDi.VLi.
DISTRICT: Eyre
No. of TAXA: 60

STRATUM 1: Mallees 2.6-4.0 m, CC = 15, clumping slight
Eucalyptus tetragona (6), E. incrassata (3), E. falcata (0.1).
STRATUM 2: Shrubs 2.1-2.4 m, CC = 0.5, clumping none *Hakea crassifolia (0.5).*
STRATUM 3: Shrubs 1.6-2.0 m, CC = 0.2, clumping none *Banksia lemanniana (0.1), Leptospermum oligandrum (0.1).*
STRATUM 4: Shrubs 1.1-1.5 m, CC = 1.7, clumping none *Allocasuarina humilis (1), Dryandra quercifolia (0.5), D. cuneata (0.1), Hakea corymbosa (0.1).*
STRATUM 5: Shrubs 0.6-1.0 m, CC = 8.1, clumping slight *Beaufortia micrantha var. micrantha (5), Calothamnus gracilis (2), Baeckea preissiana (0.5), Agonis spathulata (0.2), Acacia ganophylla (0.1), Banksia violacea (0.1), Jacksonia* aff. *aphylla (0.1), Conospermum floribundum (+), Grevillea patentiloba (+), Lysinema ciliatum (+).*
STRATUM 6a: Shrubs 0.0-0.5 m, CC = 11, clumping slight *Leucopogon* aff. *conostephioides A (3), Calytrix depressa (2), Isopogon attenuatus (1), Leptospermum spinescens (1), Melaleuca pentagona var. pentagona (1), M. scabra (1), Hibbertia gracilipes (0.5), Verticordia densiflora (0.5), Boronia crassifolia (0.2), Darwinia* sp. *(KRN 2426) (0.1), Logania micrantha (0.1), Petrophile seminuda (0.1), Acacia pilosa (+), Allocasuarina thuyoides (+), Astroloma tectum (+), Comesperma virgatum (+), Daviesia teretifolia (+), Glischrocaryon aureum var. angustifolium (+), Hakea varia (+), Helichrysum obtusifolium (+), Persoonia striata (+), Synaphea favosa (+).*
STRATUM 6b: Misc. plants, CC = 23, clumping slight
PARASITIC CLIMBERS: *Cassytha glabella (+).*
CLIMBERS: *Billardiera sericea (+).*
GEOPHYTES: *Paracaladenia nigrita (+).*
PERENNIAL GRASSES: *Amphipogon turbinatus (0.5), Neurachne alopecuroidea (+).*
SEDGES: *Lepidosperma* sp. *(KRN 4091) (10), L.* sp. *(KRN 6488) (5), Mesomelaena stygia* ssp. *stygia (2), Schoenus* aff. *brevisetis (2), Hypolaena fastigiata (1), Caustis dioica (0.1), Lepidobolus preissianus (+), S.* aff. *laevigatus (+).*
SEDGE-LIKE: *Xanthorrhoea platyphylla (2), Lomandra collina (0.1), Dianella revoluta (+), Patersonia lanata (+), P. limbata (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line, drift fence 50 m long
INVERTEBRATES: No

SITE No: RA013
LOCATION: Ravensthorpe Range, 9.9 km E of Ravensthorpe
Lat. 33 35'05" Long. 120 09'00" AMG: 225600E 6279950N
Surveyed 27 October 1987

SITE AREA: *ca* 30 m x 150 m
LAST BURNT: More than 45 years
DISTURBANCE: Mining exploration grid line
ASPECT: NE

LAND REGION: Southern
SUB-PROVINCE: Desmond
PROVINCE: Eastern Goldfields
SYSTEM: Ravensthorpe

GEOL. REGION: Block
BEDROCK: Greenstone
LOCAL: Shield
SURFACE: Ak

LANDFORM
PATTERN TYPE: Rolling Hills
UNIT: Ridge
DRAINAGE PATTERN: Dendritic
SLOPE LENGTH: 100-300 m
INCLINATION: Gentle to Moderate A
EXPOSURE: Inland, moderate
PATTERN: Residual hills
ELEMENT: Middle slope
SPACING: Close
AGENT: Sheet wash

LAND SURFACE
EROSION: Absent
SHEET: Absent
GULLY: Absent
STREAM BANK: Absent
WAVE: Absent
ACTIVITY: Eroded = Aggraded
MICRO-RELIEF: None
WIND: Absent
RILL: Absent
GULLY DEPTH: Absent
TUNNEL: Absent
MASS MOVEMENT: Absent
FREQUENCY: Barely active
SOIL: Self-mulching
INUNDATION FREQUENCY: 1-10 years
DEPTH: Less than 5 cm
RUN-OFF VELOCITY: Low
ROCK: Absent
PAVEMENT: Absent
DURATION: Less than 1 hour
INFILTRATION: ?
STONE: Absent
LOGS: Absent
LEAVES: Broad, deposits 2-5 cm thick, 2-5 m apart
BRANCHES: Few

SOIL PROFILE
OBSERVATION: No other
MAIN ORIGIN: *In situ* weathering
ATTRIBUTE: Calcareous
SRT: Calcareous
NORTHCOTE: Not identified
THICKNESS: Deep, 50-70 cm
MINOR: Colluvial
DRAINAGE: Good
SALINITY: None
SOIL GROUP: Not identified
NAME: Not identified - description not detailed

A 0-6 cm Humus content low; roots fine, few; consistence moderately strong; boundary abrupt, smooth.
B 6-57 cm Consistence moderately firm to very firm; boundary sharp, irregular, no obvious weathering zone.

VEGETATION
PROVINCE: South-west DISTRICT: Eyre
SYSTEM: Ravensthorpe
MUIR: LAI.KSr.Sr.SBl. No. of TAXA: 33

STRATUM 1: Trees 6-7 m, CC = 25, clumping none *Eucalyptus annulata (25).*
STRATUM 2: Mallees 4-5 m, CC = 3, clumping none *Eucalyptus flocktoniae (2), E. celastroides* var. *virella (1).*
STRATUM 3: Shrubs 2.1-2.6 m, CC = 5, clumping strong *Melaleuca cuculiata (4), M. pauperiflora (1).*
STRATUM 4: Shrubs 1.6-2.0 m, CC = 0.1, clumping none *Dodonaea concinna (0.1), Daviesia* aff. *nematophylla (+).*
STRATUM 5: Shrubs 1.1-1.5 m, CC = 21, clumping slight *Melaleuca undulata (15), Acacia binata (5), Hakea commutata (1), Santalum acuminatum (+).*
STRATUM 6: Shrubs 0.6-1.0 m, CC = 0.1, clumping none *Exocarpos aphyllus (0.1), Grevillea acuaria (+).*
STRATUM 7a: Shrubs 0.0-0.5 m, CC = 0.4, clumping none *Acacia glaucoptera (0.1), Cassia nemophila* var. *nemophila (+), Comesperma polygaloides (+), Dodonaea pinifolia (+), Enchylaena tomentosa* var. *tomentosa (+), Goodenia laevis (+), Hibbertia rupicola (+), Pultenaea conferta (+), Rhagodia preissii* ssp. *preissii (+).*
STRATUM 7b: Misc. plants, CC = 0.6, clumping slight
ANNUALS: *Bulbine semibarbata (+).*
CLIMBERS: *Billardiera coriacea (+).*
GEOPHYTES: *Ptilotus holosericeus (+), Thysanotus patersonii* ssp. *patersonii (+).*
PARASITIC CLIMBERS: *Cassytha melantha (0.1).*
PERENNIAL GRASSES: *Danthonia caespitosa (0.1), Stipa mollis (+), S. puberula B (+).*
SEDGES: *Lepidosperma brunonianum (0.2), L.* sp. *(KRN 5233) (+).*
SEDGE-LIKE: *Dianella revoluta (+).*

FAUNA
BIRDS: No
REPTILES, MAMMALS & AMPHIBIANS: Metal trap line, drift fence 50 m long INVERTEBRATES: No

APPENDIX II

Flora List

Plant families are listed systematically (Green 1985), and alphabetically by genera and then species within families. Nomenclature generally follows that of the Western Australian Herbarium (Green 1985). Unnamed species are referenced by a 'KLB' (K.L. Bradby), 'KRN' (K.R. Newbey) or 'NGM' (N.G. Marchant) collection lodged in the WA Herbarium. Asterisk indicates an introduced species. Taxa have been assessed for life form (Newbey 1979), frequency and cover/abundance by vegetation type, and conservation values.

LF = Life Form (Newbey 1979)	Symbol
(A) Phanerophytes	P
(a) Mesophanerophytes (trees 5-50 m high)	MM
1. Small trees 5-15 m	ST
2. Medium trees 15-30 m	MT
3. Large trees >30 m	LT
(b) Microphanerophytes (trees, shrubs 2-5 m)	M
4. Dwarf trees <5 m	DT
5. Tall shrubs >2 m	TS
6. Mallees - tree form	MAT
- shrub form	MAS
(c) Nanophanerophytes	N
7. Dwarf woody shrubs <0.5 m	DS
8. Small woody shrubs 0.5-1.0 m	SS
9. Medium woody shrubs 1.1-1.5 m	MS
10. Large woody shrubs 1.5-2.0 m	LS
11. Herbaceous shrubs	HP
12. Climbers	CL
(B) Chamaephytes	CH
13. Mat plants	MP
(C) Hemicryphytophytes	H
14. Rosette perennials	RP
15. Perennial grasses	PG
16. Colonial sedges	SC
17. Tufted sedges	SI
18. Sedge-like	SL
(D) Geophytes	G
19. Terrestrial geophytes	AB
20. Hydrophytes	HY
(E) Therophytes	T
21. Annual grasses	AG
22. Other annuals	AS
(F) Parasitic climbers	P
23. Parasitic climbers	PC

Vegetation Type

Northern section
- EA = *Eucalyptus astringens* LAi on upper slopes and ridge
- ET = *Eucalyptus flocktoniae* KSi on lower, colluvial slopes
- DF = *Dryandra foliosissima* Li on laterized ridge and upper slopes

Southern section
- EN = *Eucalyptus annulata* LAi on ultramafic greenstone
- EA = *Eucalyptus astringens* LAi on breakaways
- EP = *Eucalyptus preissiana* KSc on massive laterite
- ET = *Eucalyptus flocktoniae* KSl on moderately weathered greenstone
- EE = *Eucalyptus tetragona* KSr on laterized greenstone ridges
- EQ = *Eucalyptus tetragona* KSr on quartzite
- ER = *Eucalyptus redunca* KSr on deeply weathered greenstone
- ES = *Eucalyptus tetragona* KSr on colluvial siliceous sand sheet
- GR = Granite Complex

Common to both sections
- EF = *Eucalyptus falcata* KSi on colluvial sheets of gravel
- DR = Drainage line Complex on saline creeks and narrow alluvial and colluvial deposits (including *Eucalyptus salmonophloia* Woodland)

Frequency and Cover/abundance

Frequency	Cover/abundance
A = 1 or 2 populations	1 = 1 or 2 plants
B = Few populations	2 = Few plants
C = Scattered "	3 = Few plants to 1per cent canopy cover
D = Frequent "	4 = 1-5 per cent canopy cover
E = Common "	5 = 6-30 per cent " "
	6 = 31-70 per cent " "

Cons. = Conservation values

- A = Almost confined to the Ravensthorpe Range (80-99 per cent of known populations)
- E = Endemic to Ravensthorpe Range (99-100 per cent of known populations)
- G = Gazetted Rare Flora of WA (Government Gazette 12 August 1994)
- R = Rare (less than 1000 plants known in conservation reserves, or few populations (K.R. Newbey and K.L. Bradby unpublished data))
- O = Outlier (more than 150 km from known populations)

Appendix II (continued)

		Vegetation type													Cons.				
LF	Taxon	EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
ADIANTACEAE (7)																				
FE	*Cheilanthes austrotenuifolia* H. Quirk & T.C. Chambers	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
FE	*Cheilanthes distans* (R. Br.)Mett.	..	..	..	..	..	..	..	A2	..	..	..	..	..	..	.	.	.	.	.
FE	*Cheilanthes lasiophylla* Pichi-Serm.	..	..	..	..	..	..	..	A2	..	..	..	..	..	..	.	.	.	.	.
ASPLENIACEAE (11E)																				
FE	*Pleurosorus rutifolius* (R. Br.)Fee	B1	..	..	..	..	..	..	A2	..	..	..	..	..	..	.	.	.	.	.
CUPRESSACEAE (18)																				
LS	*Callitris drummondii* (Parl.)F. Muell.	..	..	..	..	..	..	A3	..	..	..	..	..	..	..	.	.	.	.	.
POACEAE (31)																				
AG	**Agrostis plebeia* R. Br.	..	A2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AG	**Aira cupaniana* Guss.	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
PG	*Amphipogon turbinatus* R. Br.	..	..	D3	..	..	..	..	..	D3	..	D3	..	..	..	.	.	.	.	.
AG	**Avena fatua* L.	..	A2	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
AG	*Bromus arenarius* Labill.	B3	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
PG	*Danthonia caespitosa* Gaudich.	B2	..	..	D2	..	..	D2	..	..	..	..	..	..	..	.	.	.	.	.
PG	*Danthonia setacea* R. Br. var. *breviseta* Vick.	B1	B2	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
AG	**Ehrharta longiflora* Smith	..	..	..	..	..	..	..	B2	..	..	..	..	..	C3	.	.	.	.	.
PG	*Eragrostis dielsii* Pilger ex Diels & E. Pritzel	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
AG	**Hordeum leporinum* Link	..	..	..	..	..	..	..	..	..	..	..	..	..	E4	.	.	.	.	.
AG	**Lolium rigidum* Gaudin	..	..	..	..	..	..	..	..	..	..	..	..	A2	B2	.	.	.	.	.
PG	*Neurachne alopecuroidea* R. Br.	..	..	D3	..	..	..	B2	C3	..	..	C2	..	..	..	.	.	.	.	.
AG	**Parapholis incurva* (L.)C.E. Hubb.	..	B3	..	..	..	..	..	..	..	..	..	..	..	D4	.	.	.	.	.
AG	**Pentaschistis airoides* (Nees)Stapf	C2	..	..	..	..	..	..	B2	..	..	..	..	..	C3	.	.	.	.	.
AG	**Polypogon monspeliensis* (L.)Desf.	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AG	**Schismus barbatus* (L.)Thell.	B1	B1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
PG	*Spartochloa scorpoides* (Steudel) C.E. Hubb.	..	..	..	..	..	..	..	B4	..	..	..	..	..	..	.	.	.	.	.
PG	*Stipa elegantissima* Labill.	B1	C1	..	..	..	..	..	..	..	..	..	C1	..	..	.	.	.	.	.
PG	*Stipa mollis* R. Br.	B1	..	..	B1	..	..	..	..	..	..	..	C1	..	..	.	.	.	.	.
PG	*Stipa puberula* Steudel A (KRN 11374)	..	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
PG	*Stipa puberula* Steudel B (KRN 11373)	D2	B2	..	C1	..	..	C1	A1	..	..	..	B1	..	..	.	.	.	.	.
PG	*Stipa pycnostachya* Benth.	B1	..	..	..	..	..	B1	..	..	..	..	B1	..	..	.	.	.	.	.
AS	**Vulpia myuros* (L.)G. Gmelin	B2	B2	..	..	..	..	..	B2	..	..	..	..	..	..	.	.	.	.	.
CYPERACEAE (32)																				
SI	*Caustis dioica* R. Br.	..	..	..	..	..	..	..	..	..	..	D3	..	..	..	.	.	.	.	.
SI	*Gahnia ancistrophylla* Benth.	..	..	E3	..	..	..	C4	B3	B2	..	..	..	B2	..	.	.	.	.	.
SI	*Gahnia decomposita* (R. Br.)Benth.	..	..	..	..	..	..	..	..	..	..	..	..	.	C3	.	.	.	.	.
SI	*Gahnia lanigera* (R. Br.)Benth.	..	..	..	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma brunonianum* Nees	..	..	..	D3	..	..	E4	..	..	..	..	..	B3	..	.	.	.	.	.
SI	*Lepidosperma carphoides* F. Muell. ex Benth.	..	..	C1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma leptostachyum* Benth.	..	..	C2	..	..	..	..	B3	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma resinosum* (Nees)Benth.	..	..	..	..	..	..	C4	..	..	..	..	..	A2	..	.	.	.	.	.
SI	*Lepidosperma tuberculatum* Ness	..	..	..	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma viscidum* R. Br. var. *viscidum* ...	..	B2	..	..	..	..	..	B4	..	..	..	..	A3	..	.	.	.	.	.
SI	*Lepidosperma viscidum* var. nov. (KRN 11379)	..	..	A2	..	..	..	A2	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma* aff. *resinosum* (Nees) Benth. (KRN 5232)	..	..	C3	..	..	..	C3	..	..	..	..	..	B3	..	.	.	.	.	.
SI	*Lepidosperma* sp. (KRN 4091)	..	..	..	..	..	..	..	B4	D5	..	D5	..	..	..	.	.	.	.	.
SI	*Lepidosperma* sp. (KRN 5233)	..	..	..	..	..	..	C3	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Lepidosperma* sp. (KRN 6488)	..	..	..	..	..	..	..	..	B3	..	E4	..	..	..	.	.	.	.	.
SI	*Mesomelaena stygia* (R. Br.)Nees ssp. *stygia*	..	..	E4	..	..	..	..	..	D3	..	E4	..	..	..	.	.	.	.	.
SI	*Schoenus subbarbatus* Kuek.	..	..	B2	..	..	..	..	..	B2	..	..	..	..	..	.	.	.	.	.
SI	*Schoenus subflavus* Kuek.	..	..	E4	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Schoenus sublaxus* Kuek.	..	..	D3	..	..	..	..	C3	E3	..	..	..	..	..	.	.	.	.	.
SI	*Schoenus* aff. *brevisetis* (R. Br.)Benth. (KRN 6493)	..	..	..	..	..	..	..	..	..	..	D4	..	..	..	.	.	.	.	.
SI	*Schoenus* aff. *laevigatus* W. Fitzg. (KRN 3953)	..	..	..	..	..	..	..	..	..	..	B2	..	..	..	.	.	.	.	.
SI	*Tetraria capillaris* (F. Muell.)J. Black	..	..	C3	..	..	..	B3	..	..	..	..	..	..	..	.	.	.	.	.
SI	*Tricostularia neesii* Lehm. var. *neesii*	..	..	B2	..	..	..	..	A3	..	..	..	..	..	..	.	.	.	.	.
RESTIONACEAE (39)																				
SC	*Hypolaena fastigiata* R. Br.	..	..	..	..	..	..	..	..	..	..	D3	..	..	..	.	.	.	.	.
SI	*Lepidobolus chaetocephalus* F. Muell.	..	..	D1	..	..	..	..	..	..	..	B1	..	..	..	.	.	.	.	.
SI	*Loxocarya fasciculata* (R. Br.)Benth.	..	..	..	..	..	..	..	A2	..	..	..	..	..	..	.	.	.	.	.
JUNCACEAE (52)																				
SC	*Juncus krausii* Hochst.	..	..	..	..	..	..	..	..	..	..	..	..	..	D3	.	.	.	.	.
ASPARAGACEAE (54B)																				
HP	**Asparagus asparagoides* (L.)W. Wight	..	..	..	..	..	..	A3	..	..	..	..	..	..	..	.	.	.	.	.

Appendix II (continued)

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EP	DR	A	E	G	R	O
DASYPOGONACEAE (54C)																				
SL	*Lomandra collina* (R. Br.) Ewart	..	..	C2	..	..	..	..	B1	C2	..	D2	..	B2	..	.	.	.	.	.
SL	*Lomandra effusa* (Lindley) Ewart	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
SL	*Lomandra hastilis* (R. Br.) Ewart	..	..	..	..	..	..	..	..	..	..	A2	..	..	..	.	.	.	.	.
SL	*Lomandra micrantha* (Endl.) Ewart ssp. *micrantha*	..	..	D2	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
SL	*Lomandra micrantha* (Endl.) Ewart ssp. *teretifolia* Everett	..	..	A1	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
XANTHORRHOEACEAE (54D)																				
SL	*Xanthorrhoea platypoda* D.J. Bedford	..	..	..	..	..	B1	..	..	..	..	E3	..	..	..	.	.	.	.	.
PHORMIACEAE (54E)																				
SL	*Dianella revoluta* R. Br.	B1	B1	..	D1	..	..	C1	..	..	..	C1	..	..	B1	.	.	.	.	.
ANTHERICACEAE (54F)																				
SL	*Agrostocrinum scabrum* (R. Br.) Baillon	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Borya constricta* D.M. Churchill	..	..	..	..	..	..	..	..	..	..	..	??	..	..	.	.	.	.	.
DS	*Thysanotus dichotomus* (Labill.) R. Br.	..	..	..	..	..	..	..	A2	..	..	..	..	A2	..	.	.	.	.	.
AB	*Thysanotus gageoides* Diels	..	..	..	..	..	..	..	..	..	A1	..	..	..	..	.	.	.	X	.
AB	*Thysanotus patersonii* R. Br. ssp. *patersonii*	C1	C1	B1	C1	..	..	C1	C1	..	..	..	D1	B2	..	.	.	.	.	.
ASPHODELACEAE (54G)																				
AS	*Bulbine semibarbata* (R. Br.) Haw.	C2	B1	..	C2	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
HAEMODORACEAE (55)																				
SL	*Conostylis androstemma* F. Muell. ssp. *argentea* J.W. Green	..	..	D3	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SL	*Haemodorum paniculatum* Lindley	..	..	C1	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
IRIDACEAE (60)																				
SL	*Patersonia lanata* R. Br.	..	..	..	..	..	..	..	..	..	..	A2	..	..	..	.	.	.	.	.
SL	*Patersonia limbata* Endl.	..	..	..	..	..	..	..	..	..	..	A1	..	..	..	.	.	.	.	.
ORCHIDACEAE (66)																				
AB	*Caladenia deformis* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AB	*Caladenia saccharata* H.G. Reichb.	..	..	B1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AB	*Diuris setacea* R. Br.	..	..	..	..	..	..	..	..	A1	..	..	..	..	..	.	.	.	.	.
AB	*Elythranthera brunonis* (Endl.) A.S. George	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
AB	*Paracaleana nigrita* (Lindley) Blaxell	..	..	..	..	..	..	..	..	..	..	A1	..	..	..	.	.	.	.	.
AB	*Pterostylis nana* R. Br.	..	..	..	..	..	..	..	..	A2	..	..	..	..	..	.	.	.	.	.
AB	*Pterostylis vittata* Lindley var. *vittata*	..	..	B1	..	..	..	..	B1	..	..	..	..	..	..	.	.	.	.	.
AB	*Pterostylis* sp. (KRN 11340)	B1	B1	A1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	X	.
AB	*Thelymitra canaliculata* R. Br.	..	A1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AB	*Thelymitra pauciflora* R. Br.	..	..	..	..	..	..	A1	..	..	..	..	..	..	..	.	.	.	.	.
CASUARINACEAE (70)																				
MS	*Allocasuarina acuaria* (F. Muell.) L. Johnson	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
TS	*Allocasuarina acutivalvis* (F. Muell.) L. Johnson	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
MS	*Allocasuarina campestris* (Diels) L. Johnson ssp. *campestris*	..	..	..	..	..	..	B3	D4	..	..	..	..	A4	..	.	.	.	.	.
TS	*Allocasuarina corniculata* (F. Muell.) L. Johnson	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
ST	*Allocasuarina huegeliana* (Miq.) L. Johnson	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SS	*Allocasuarina humilis* (Otto & Dietr.) L. Johnson	..	..	D3	..	..	..	..	..	D2	..	D3	..	D4	..	.	.	.	.	.
DS	*Allocasuarina microstachya* (Miq.) L. Johnson	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Allocasuarina scleroclada* (L. Johnson) L. Johnson	..	..	..	..	..	..	..	..	..	..	A2	..	..	..	.	.	.	.	.
DS	*Allocasuarina thuyoides* (Miq.) L. Johnson	..	..	..	..	..	..	..	..	..	..	C1	..	..	..	.	.	.	.	.
PROTEACEAE (90)																				
SS	*Adenanthos argyreus* Diels	..	..	C3	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
LS	*Adenanthos oreophilus* E.C. Nelson	..	..	..	..	..	..	..	B3	..	..	..	..	B3	..	.	X	.	.	.
LS	*Banksia laevigata* Meissner var. *laevigata*	..	..	..	..	..	..	..	B3	..	..	..	..	B4	..	.	.	.	.	.
TS	*Banksia lemanniana* Meissner	..	..	D3	..	..	..	B4	D4	E5	..	B3	..	D4	..	.	.	.	.	.
TS	*Banksia media* R. Br.	..	..	..	..	..	..	..	..	..	..	B3	..	..	..	.	.	.	.	.
SS	*Banksia violacea* C. Gardner	..	..	..	..	..	..	..	..	..	..	B3	..	..	..	.	.	.	.	.
SS	*Conospermum floribundum* Benth.	..	..	..	..	..	..	..	..	..	..	A3	..	..	..	.	.	.	.	.
MS	*Dryandra cirsioides* Meissner	..	..	C4	..	..	..	C3	..	..	..	..	..	C3	..	.	.	.	.	.
MS	*Dryandra cuneata* R. Br.	..	..	..	..	..	..	..	..	..	..	D3	..	A2	..	.	.	.	.	.
SS	*Dryandra erythrocephala* C. Gardner	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
DS	*Dryandra ferruginea* Kipp. ex Meissner	..	..	B2	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
LS	*Dryandra foliosissima* C. Gardner	..	..	E4	..	..	..	..	..	..	..	..	..	A2	..	.	X	.	.	.
MS	*Dryandra quercifolia* Meissner	..	..	..	..	..	D4	..	D4	E5	..	C3	..	B4	..	.	.	.	.	.
MS	*Dryandra* aff. *cirsioides* Meissner (KRN 768)	..	..	B3	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Dryandra* sp. (KLB 72)	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	X	.	X	.
SS	*Dryandra* sp. (KLB 73)	..	..	..	..	..	..	..	..	..	..	..	..	A1	..		X	.	X	.
DS	*Dryandra* sp. (NGM 87-98)	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
SS	*Grevillea acuaria* F. Muell. ex Benth.	..	..	A1	B1	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
LS	*Grevillea coccinea* Meissner	..	..	D2	..	..	..	..	B2	..	..	..	..	C2	..	.	.	.	.	.
LS	*Grevillea fulgens* C. Gardner	..	..	B2	..	..	..	..	B2	..	..	..	..	A3	..	.	X	.	.	.
DS	*Grevillea haplantha* F. Muell. ex Benth.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Grevillea huegelii* Meissner	..	C2	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
MS	*Grevillea integrifolia* (Endl.)Meissner ssp. *shuttleworthiana* (Meissner) McGillivray	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
MS	*Grevillea paniculata* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SS	*Grevillea patentiloba* F. Muell.	..	..	..	..	..	..	B2	..	..	..	B1	..	B2	..	.	.	.	.	.
MS	*Grevillea pauciflora* R. Br. spp. *pauciflora*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Grevillea pectinata* R. Br.	..	..	..	..	..	..	..	..	..	..	B2	..	A2	..	.	.	.	.	.
LS	*Grevillea platypoda* F. Muell.	D2	..	B2	..	..	..	B1	B1	..	..	..	..	B2	..	.	X	.	.	.
SS	*Grevillea pritzelii* Diels	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Grevillea* sp. (KRN 11789)	..	A1	..	..	..	..	..	..	..	..	..	..	..	..	?	?	?	?	?
MS	*Hakea commutata* F. Muell.	..	B1	..	D3	..	..	D2	..	..	..	..	..	B2	..	.	.	.	.	.
LS	*Hakea corymbosa* R. Br.	..	..	..	..	..	..	..	..	..	..	D4	..	B3	..	.	.	.	.	.
TS	*Hakea crassifolia* Meissner	..	..	A2	..	..	..	..	..	..	D2	..	..	C3	..	.	.	.	.	.
SS	*Hakea incrassata* R. Br.	..	..	A2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Hakea laurina* R. Br.	C2	B1	D1	..	..	..	C1	..	..	..	..	..	E2	..	.	.	.	.	.
DS	*Hakea lehmanniana* Meissner	..	..	A2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Hakea lissocarpha* R. Br.	..	..	C3	..	..	..	C3	C3	..	..	..	..	D3	..	.	.	.	.	.
DS	*Hakea marginata* R. Br.	..	..	..	..	..	..	B3	..	..	..	..	..	A2	..	.	.	.	.	.
TS	*Hakea multilineata* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
LS	*Hakea obtusa* Meissner	..	..	E3	..	..	..	C3	D3	..	..	..	..	D3	..	.	.	.	.	.
TS	*Hakea preissii* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
SS	*Hakea prostrata* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Hakea subsulcata* Meissner	..	..	A2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Hakea trifurcata* (Smith)R. Br.	..	..	D3	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
MS	*Hakea varia* R. Br.	..	..	..	..	..	..	..	A2	..	..	A2	..	A2	..	.	.	.	.	.
LS	*Hakea verrucosa* F. Muell.	..	B1	..	..	..	..	E4	E4	..	..	..	..	C3	..	.	.	.	.	.
MS	*Hakea victoriae* J. Drumm.	..	..	..	..	..	..	..	..	A2	..	..	..	..	..	.	.	.	.	.
DS	*Isopogon attenuatus* R. Br.	..	..	..	..	..	..	..	..	..	..	D4	..	..	..	.	.	.	.	.
SS	*Isopogon buxifolius* R. Br.	..	..	..	..	..	..	..	..	B1	..	..	..	E3	..	.	.	.	.	.
MS	*Isopogon linearis* Meissner	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Isopogon polycephalus* R. Br.	..	..	C3	..	..	..	..	B3	..	..	..	..	..	..	.	.	.	.	.
DS	*Persoonia striata* R. Br.	..	..	D1	..	..	..	..	..	..	..	D1	..	A1	..	.	.	.	.	.
LS	*Persoonia teretifolia* R. Br.	D3	D1	..	..	..	..	D1	B1	..	..	..	..	D2	..	.	.	.	.	.
DS	*Persoonia tortifolia* Meissner	..	..	B2	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SS	*Petrophile fastigiata* R. Br.	..	..	..	..	..	..	B3	C3	..	..	..	..	B3	..	.	.	.	.	.
DS	*Petrophile seminuda* Lindley	..	..	D2	..	..	..	..	C1	C1	..	D3	..	C3	..	.	.	.	.	.
SS	*Petrophile serruriae* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Petrophile squamata* R. Br.	..	..	..	..	..	B3	..	B3	C3	..	..	..	B2	..	.	.	.	.	.
SS	*Petrophile trifida* R. Br.	..	..	D3	..	..	..	B2	..	..	..	..	..	C2	..	.	.	.	.	.
DS	*Synaphaea favosa* R. Br.	..	..	..	..	..	..	..	..	..	..	C1	..	B2	..	.	.	.	.	.
DS	*Synaphaea polymorpha* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
	SANTALACEAE (92)																			
MS	*Choretrum glomeratum* R. Br. var. *glomeratum*	..	B1	A1	..	..	..	B2	A1	..	..	..	..	A2	..	.	.	.	.	.
MS	*Exocarpos aphyllus* R. Br.	E4	C1	..	D3	..	..	D3	A1	..	..	..	..	A3	..	.	.	.	.	.
MS	*Exocarpos cupressiformis* Labill.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Exocarpos sparteus* R. Br.	..	..	D1	..	..	..	B1	..	..	..	..	..	B2	..	.	.	.	.	.
TS	*Santalum acuminatum* (R. Br.)A. DC.	A2	B1	..	B1	..	..	C3	B2	..	..	..	D2	B3	..	.	.	.	.	.
TS	*Santalum murrayanum* (Mitch.)C. Gardner	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
	OLACACEAE (95)																			
DS	*Olax benthamiana* Miq.	..	..	C1	..	..	..	..	..	..	..	..	..	B1	..	.	.	.	.	.
	POLYGONACEAE (103)																			
DS	*Muehlenbeckia adpressa* (Labill.)Meissner	B1	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
	CHENOPODIACEAE (105)																			
MS	*Atriplex cinerea* Poiret	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MP	*Atriplex semibaccata* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
MP	*Chenopodium desertorum* (J. Black) J. Black ssp. *microphyllum* Paul G. Wilson	..	..	..	..	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
DS	*Enchylaena tomentosa* R. Br. var. *tomentosa*	C1	..	..	C1	..	..	..	..	..	..	..	..	..	D2	.	.	.	.	.
SS	*Halosarcia indica* (Willd.)Paul G. Wilson ssp. *bidens* (Nees)Paul G. Wilson	..	..	..	..	..	..	..	..	..	..	..	..	..	D3	.	.	.	.	.
DS	*Halosarcia lepidosperma* Paul G. Wilson	..	..	..	..	..	..	..	..	..	..	..	..	..	E5	.	.	.	.	.
SS	*Maireana brevifolia* (R. Br.) Paul G. Wilson	..	A3	..	..	..	..	..	..	..	..	..	..	A1	D3	.	.	.	.	.

Appendix II (continued)

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
DS	*Rhagodia crassifolia* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
SS	*Rhagodia preissii* Moq. ssp. *preissii*	..	..	..	C1	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Sclerolaena diacantha* (Nees)Benth.	..	A2	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
AMARANTHACEAE (106)																				
RP	*Ptilotus holosericeus* (Moq.)F. Muell.	..	..	..	B1	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
RP	*Ptilotus spathulatus* (R. Br.)Poiret	..	..	..	..	..	..	..	..	..	..	..	A2	..	..	.	.	.	.	.
GYROSTEMONACEAE (108)																				
LS	*Gyrostemon sessilis* A.S. George	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	X	.
MS	*Gyrostemon subnudus* (Nees)Baillon	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AZOACEAE (110)																				
DS	**Carpobrotus edulis* (L.)L. Bolus	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Carpobrotus rossii* (Haw.)Schwantes	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
MP	*Disphyma crassifolium* (L.)L. Bolus	..	B4	..	..	..	..	..	..	..	..	..	..	..	E4	.	.	.	.	.
AS	**Mesembryanthemum nodiflorum* L.	..	B4	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
PORTULACACEAE (111)																				
AS	*Calandrinia calyptrata* J.D. Hook.	C2	..	..	..	..	..	..	B2	..	..	..	..	..	..	.	.	.	.	.
CARYOPHYLLACEAE (113)																				
AS	**Petrorhagia velutina* (Guss.)P. Ball & Heyw.	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
LAURACEAE (131)																				
PC	*Cassytha glabella* R. Br.	..	..	D1	..	..	..	B1	..	..	..	D1	..	..	..	.	.	.	.	.
PC	*Cassytha melantha* R. Br.	B1	C1	A2	D2	..	..	C3	A2	..	..	..	..	E2	..	.	.	.	.	.
PC	*Cassytha micrantha* Meissner	..	..	B1	..	..	..	A1	..	..	..	..	..	B2	..	.	.	.	.	.
PC	*Cassytha racemosa* Nees	..	..	A1	..	..	..	A2	..	..	..	..	..	A1	..	.	.	.	.	.
BRASSICACEAE (138)																				
AS	**Brassica rapa* L.	..	A2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Brassica tournefortii* Gouan	..	B3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DROSERACEAE (143)																				
RP	*Drosera scorpioides* Planchon	..	..	B2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
CRASSULACEAE (149)																				
AS	*Crassula colorata* (Nees)Ostenf. var. *colorata*	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Crassula exserta* (Reader)Ostenf.	..	..	..	..	..	..	..	A2	..	..	..	..	..	..	.	.	.	.	.
PITTOSPORACEAE (152)																				
CL	*Billardiera coriacea* Benth.	B1	..	B1	B1	..	..	..	A1	B1	..	..	..	D1	..	.	.	.	.	.
DS	*Billardiera mollis* E.M. Bennett	..	..	..	..	..	..	..	..	..	..	..	A2	..	..	X	.	X	X	.
CL	*Billardiera sericea* (Turcz.)E.M. Bennett	..	..	D1	..	..	..	..	..	..	..	..	C1	..	B1	..	.	.	.	.
DS	*Billardiera villosus* (Turcz.) E.M. Bennett	..	..	..	..	..	..	A2	..	..	..	..	..	..	A2	..	.	.	X	.
DS	*Cheiranthera filifolia* Turcz.	..	..	..	..	..	..	..	..	..	B1	..	..	..	B2	..	.	.	.	.
CL	*Sollya heterophylla* Lindley	C1	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MIMOSACEAE (163)																				
ST	*Acacia acuminata* Benth.	..	..	..	..	..	..	..	..	..	..	..	..	..	B4	.	.	.	.	.
MS	*Acacia binata* Maslin	..	B3	..	D4	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Acacia chrysocephala* Maslin	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Acacia cyclops* Cunn. ex Don	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
DS	*Acacia erinacea* Benth.	D3	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Acacia ferocoir* Maiden	..	..	..	..	A2	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Acacia fragilis* Maiden & Blakely	..	..	D2	..	..	..	B2	C2	..	..	..	..	B3	..	.	.	.	.	.
DS	*Acacia glaucoptera* Benth.	..	B3	..	D3	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SS	*Acacia gonophylla* Benth.	..	..	..	..	..	..	B2	..	C3	..	D3	..	C3	..	.	.	.	.	.
SS	**Acacia gunnii* Benth.	..	..	..	..	..	..	A1	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Acacia ingrata* Benth.	..	B2	..	..	..	..	B3	..	..	..	..	..	C3	..	.	.	.	.	.
SS	*Acacia ixiophylla* Benth.	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
DS	*Acacia laricina* Meissner	..	..	..	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Acacia lasiocalyx* C.R.P. Andrews	..	..	..	..	..	..	..	..	..	..	..	A3	A1	..	.	.	.	.	.
LS	*Acacia ligulata* Cunn. ex Benth.	..	..	..	..	..	..	..	..	..	..	..	..	..	A2	.	.	.	.	.
MS	*Acacia lineolata* Benth.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Acacia nitidula* Benth.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Acacia pilosa* Benth.	..	..	..	..	..	..	..	..	..	..	A2	..	..	..	.	.	.	.	.
SS	*Acacia redolens* Maslin	..	..	..	..	..	..	..	..	..	..	..	..	..	C4	.	.	.	.	.
TS	*Acacia saligna* (Labill.)H.L. Wendl.	..	..	..	..	..	..	..	..	..	..	..	..	..	C3	.	.	.	.	.
LS	*Acacia subcaerulea* Lindley	B1	..	..	..	..	..	..	..	D3	..	..	..	C3	..	.	.	.	.	.
MS	*Acacia sulcata* R. Br. var. *platyphylla* Maiden & Blakely	..	B2	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
TS	*Acacia triptycha* F. Muell. ex Benth.	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Acacia varia* Maslin var. *parviflora* (Benth.)Maslin	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
LS	*Acacia* aff. *aestivalis* E. Pritzel (KRN ???)	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
SS	*Acacia* aff. *beauverdiana* Ewart & Sharman (KRN 1295)	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Acacia* aff. *cometes* C.R.P. Andrews (KRN 9523)	..	B3	..	..	..	..	B3	..	..	..	..	..	A2	..	.	X	.	X	.
TS	*Acacia* aff. *murrayana* F. Muell. ex Benth.	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
MS	*Acacia* aff. *myrtifolia* (Smith)Willd. (KRN 938)	..	..	B2	..	..	..	..	C3	..	..	..	..	C3	..	X	.	.	X	.
MS	*Acacia* aff. *obovata* Benth. (KRN 2494)	A2	..	..	..	..	..	A2	..	..	..	..	..	B2	..	X	.	.	X	.
MS	*Acacia* aff. *fragilis* Maiden & Blakely (KRN 11791)	..	..	..	..	..	..	C4	..	..	..	..	..	C4	..	X	.	.	.	.
LS	*Acacia* sp. (KLB 73)	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	X	.	.	X	.
DS	*Acacia* sp. (KRN 4287)	..	..	..	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Acacia* sp. (KRN 9524)	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Acacia* sp. (KRN 11793)	..	..	..	..	..	..	A1	..	..	..	..	..	..	..	.	.	.	.	.
	CAESALPINIACEAE (164)																			
DS	*Cassia cardiosperma* F. Muell.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Cassia nemophila* Cunn. ex Vogel var. *nemophila*	D3	B2	..	C2	..	..	B2	..	..	..	..	..	A2	..	.	.	.	.	.
MS	*Labichea lanceolata* Benth. ssp. *brevifolia* (Meissner)J.H. Ross	..	..	..	..	..	..	..	A2	..	..	..	..	B2	..	.	.	.	.	.
	PAPILIONACEAE (165)																			
SS	*Bossiaea preissii* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
DS	*Burtonia conferta* DC.	..	..	..	..	..	..	B2	..	..	..	..	..	C2	..	.	.	.	.	.
DS	*Chorizema nervosum* T. Moore	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Chorizema trigonum* Turcz.	..	..	..	..	..	..	..	..	C3	..	..	..	..	..	.	.	.	.	.
DS	*Chorizema* sp. (KRN 1353)	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	X	.
DS	*Daviesia anceps* Turcz.	..	..	A2	..	..	..	C3	B2	..	..	..	..	B2	..	.	.	.	.	.
SS	*Daviesia benthamii* Meissner ssp. *benthamii*	..	..	..	..	..	..	B3	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Daviesia decurrens* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
SS	*Daviesia megacalyx* ms.	..	..	A2	..	..	..	..	..	..	..	..	..	B2	..	.	X	X	X	.
SS	*Daviesia mollis* Turcz.	..	..	..	..	..	..	C4	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Daviesia obtusifolia* F. Muell.	..	..	C2	..	..	..	..	..	B2	..	..	..	..	..	.	.	.	.	.
SS	*Daviesia pachyphylla* F. Muell.	..	..	C1	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Daviesia teretifolia* R. Br.	..	..	..	..	..	..	..	..	..	..	C2	..	..	..	.	.	.	.	.
SS	*Daviesia unifolia* D.A. Herbert	..	..	B2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Daviesia* aff. *nematophylla* F. Muell. ex Benth. (KRN 566)	..	C2	..	B1	..	..	B3	..	..	..	..	..	B2	..	.	.	.	.	.
MS	*Daviesia* aff. *trigonophylla* Meissner (KRN 312)	..	..	..	..	..	..	A2	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Eutaxia cuneata* Meissner	..	..	..	..	..	..	..	B2	..	..	..	..	C2	..	.	.	.	.	.
DS	*Gastrolobium reticulatum* (Meissner) Benth.	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Gompholobium burtonioides* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
DS	*Gompholobium knightianum* Lindley	..	..	C1	..	..	..	..	..	B1	..	..	..	B2	..	.	.	.	.	.
DS	*Gompholobium marginatum* R. Br.	..	..	A1	..	..	..	..	B1	..	..	..	..	A2	..	.	.	.	.	.
DS	*Gompholobium polymorphum* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Gompholobium venustrum* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Gompholobium viscidulum* Meissner	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Hovea acanthoclada* (Turcz.)F. Muell.	D3	..	..	..	..	..	A2	B2	..	..	..	..	B2	..	.	.	.	.	.
DS	*Hovea trisperma* Benth.	..	..	B1	..	..	..	..	..	B1	..	..	..	..	..	.	.	.	.	.
LS	*Jacksonia lehmannii* Meissner	..	..	D3	..	..	..	..	D3	E4	..	..	..	C3	..	.	.	.	.	.
DS	*Jacksonia alata* Benth.	..	..	..	..	..	A3	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Jacksonia* aff. *aphylla* (Turcz.)Druce (KRN 10952)	..	..	..	..	..	B1	..	..	..	..	B1	..	..	..	.	.	.	.	.
DS	*Mirbelia ovata* Meissner	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Oxylobium microphyllum* Benth.	..	B2	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
MS	*Oxylobium parviflorum* Benth. var. *parviflorum*	D3	C2	A2	..	..	..	C4	C3	..	..	..	..	E3	..	.	.	.	.	.
DS	*Oxylobium rigidum* C. Gardner	..	..	A1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Oxylobium* sp. (KRN 4035)	..	..	..	..	..	A2	..	..	..	..	..	..	..	..	.	.	.	.	.
MP	*Pultenaea conferta* Benth.	..	D4	..	B1	..	..	B3	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Pultenaea verruculosa* Turcz. var. ?	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
LS	*Templetonia retusa* (Vent.)R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
	GERANIACEAE (167)																			
AS	**Erodium botrys* (Cav.)Bertol.	..	..	..	..	..	..	..	A1	..	..	..	..	..	..	.	.	.	.	.
HP	*Pelargonium australe* Willd.	..	..	..	..	..	..	..	A1	..	..	..	..	..	..	.	.	.	.	.
	OXALIDACEAE (168)																			
HP	*Oxalis corniculata* L.	B1	B1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
	RUTACEAE (175)																			
DS	*Boronia crassifolia* Bartling	..	..	E3	..	..	..	..	..	..	..	D3	..	B3	..	.	.	.	.	.
DS	*Boronia crenulata* Smith var. *gracilis* (Benth.)Paul G. Wilson	..	..	..	..	..	..	..	B3	..	..	..	..	C3	..	.	.	.	.	.
DS	*Boronia inconspicua* Benth.	B2	B1	A1	..	..	..	B2	B2	..	..	..	..	B2	..	.	.	.	.	.
DS	*Boronia inornata* Turcz. ssp. *inornata*	..	C2	..	..	..	..	C4	..	..	..	..	..	..	..	.	.	.	.	.

Appendix II (continued)

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
DS	*Boronia octandra* Paul G. Wilson	??																		
DS	*Boronia oxyantha* Turcz. var.*brevicalyx* Paul G. Wilson	B2						B2						B2						
DS	*Boronia ramosa* (Lindley)Benth.													B2						
DS	*Boronia scabra* Lindley	A3																		
DS	*Boronia spathulata* Lindley													A3						
DS	*Boronia tenuis* (Lindley)Benth.			B1						B1										
DS	*Boronia ternata* Endl. var. *elongata* Paul G. Wilson			B2				C2						B3		X			X	
SS	*Eriostemon gardneri* Paul G. Wilson		B1	A2					B2				D2	C2						
MS	*Nematolepis phebalioides* Turcz.							B2												
DS	*Phebalium microphyllum* Turcz.		B2											A2						
SS	*Phelalium rude* Bartling ssp. *amblycarpum* (F. Muell.)Paul G. Wilson			C1										B3						
DS	*Phebalium tuberculosum* (F. Muell.) Benth. ssp. ?	??																		
POLYGALACEAE (183)																				
DS	*Comesperma confertum* Labill.			B2																
DS	*Comesperma drummondii* Steetz													A2						
DS	*Comesperma polygaloides* F. Muell.				C1															
DS	*Comesperma virgatum* Labill.											B1								
CL	*Comesperma volubile* Labill.														A1					
EUPHORBIACEAE (185)																				
DS	*Amperea* sp. (KRN 5147)											A1								
MS	*Beyeria brevifolia* (Muell.Arg.)Benth.	??																		
SS	*Beyeria lechenaultii* (DC.)Baillon	B2												A2						
MS	*Beyeria* sp. (KRN 10966)													A3						
MS	*Beyeria* sp. (KRN 11020)								A2					A3					X	
MS	*Beyeria* sp. (KRN 11401)			A2																
SS	*Beyeria* sp. (KRN 11802)							B2												
DS	*Monotaxis grandiflora* Endl.	??																		
DS	*Monotaxis* sp. (KRN 10868)													A1						
DS	*Phyllanthus scaber* Klotzsch	A2												A2						
AS	*Poranthera microphylla* Brongn.	B2	B2																	
DS	*Pseudanthus virgatus* (Klotzsch) Muell.Arg.											C2		B2						
STACKHOUSIACEAE (202)																				
HP	*Stackhousia monogyna* Labill.	A1												D2						
DS	*Stackhousia scoparia* Benth.			C2					B1					C2						
HP	*Tripterococcus brunonis* Endl.			C1										A2						
SAPINDACEAE (207)																				
MS	*Dodonaea amblyophylla* Diels	C2												B3						
DS	*Dodonaea bursariifolia* F. Muell.	??																		
SS	*Dodonaea ceratocarpa* Endl.							C3	B2				D3	B2						
SS	*Dodonaea concinna* Benth.				C3									A2						
DS	*Dodonaea pinifolia* Miq.		A1		B1															
LS	*Dodonaea ptarmicaefolia* Turcz.								A3											
DS	*Dodonaea trifida* F. Muell.		A3																X	
RHAMNACEAE (215)																				
DS	*Cryptandra arbutiflora* Fenzl	??																		
SS	*Cryptandra leucophracta* Schldl.	??																		
SS	*Cryptandra pungens* Steudel													B2						
SS	*Pomaderris myrtilloides* Fenzl	??																		
MS	*Pomaderris racemosa* Hook.		A1																X	
..	? *Pomaderris*							B2												
DS	*Siegfriedia darwinioides* C. Gardner			B1				B2						C2						
DS	*Spyridium cordatum* (Turcz.)Benth.			D2				C3	B2					C2						
MS	*Spyridium* sp. (KRN 4234)			A2										A2						
MS	*Trymalium myrtillus* S. Moore													A2						
MS	*Trymalium* sp. (KRN 11539)	A1	A1											A2					X	
MALVACEAE (221)																				
HP	*Alyogyne hakeifolia* (Giord.)Alef.							A2												
HP	*Alyogyne huegelii* (Endl.)Fryx.							A2						A2						
STERCULIACEAE (223)																				
DS	*Commersonia crispa* Turcz.													A2						
DS	*Guichenotia apetala* A.S. George			B2										B2			X		X	
DS	*Lasiopetalum compactum* S. Paust	D2	B1	A1				C2	A1					C3						
DS	*Lasiopetalum indutum* Steudel	??																		
DS	*Lasiopetalum monticolum* S. Paust	??																		
DS	*Lasiopetalum rosmarinifolium* (Turcz.) Benth.			D2						B3				C2						
DS	*Thomasia angustifolia* Steudel								A1					A2						
DS	*Thomasia foliosa* Gay	A2																		
DS	*Thomasia grandiflora* (Lindley)F. Muell.	??																		
DS	*Thomasia microphylla* S. Paust							A2						A2					X	

LF	Taxon	Vegetation type												Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
DILLENIACEAE (226)																				
DS	*Hibbertia acerosa* (R. Br. ex DC.)Benth.	..	..	B2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Hibbertia exasperata* (Steudel)Briq.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Hibbertia gracilipes* Benth.	..	..	E3	..	..	..	..	..	..	..	D3	..	C3	..	.	.	.	.	.
SS	*Hibbertia mucronata* (Turcz.)Benth.	..	..	A2	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Hibbertia pungens* Benth.	..	..	..	..	..	..	B1	B1	..	..	..	..	..	..	.	.	.	.	.
DS	*Hibbertia rupicola* (S. Moore)C. Gardner	B2	B2	..	C2	..	..	C1	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Hibbertia* aff. *pungens* Benth. (KRN 11535)	..	..	B1	..	..	..	B3	..	..	..	..	..	A3	..	.	.	.	.	.
VIOLACEAE (243)																				
SS	*Hybanthus floribundus* (Lindley)F. Muell. ssp. *adpressus* E.M. Bennett	..	..	..	..	..	..	C3	B2	..	..	..	..	C2	..	.	.	.	.	.
THYMELAEACEAE (263)																				
DS	*Pimelea angustifolia* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
MS	*Pimelea argentea* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	..	A3	.	.	.	.	.
DS	*Pimelea brevifolia* R. Br.	..	..	..	..	..	..	..	..	C1	..	..	..	..	..	.	.	.	.	.
SS	*Pimelea physodes* Hook.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Pimelea* sp. (KRN 70)	..	B1	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Pimelea* sp. (KRN 11403)	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
MYRTACEAE (273)																				
SS	*Agonis spathulata* Schauer	..	..	D4	..	..	..	B4	C4	E4	..	E3	..	D4	..	.	.	.	.	.
SS	*Baeckea preissiana* (Schauer)Domin	..	..	..	..	..	..	..	..	..	..	E3	..	B3	..	.	.	.	.	.
SS	*Baeckea corynophylla* F. Muell.	..	..	..	..	..	..	B4	..	..	..	..	..	B3	..	.	.	.	.	.
DS	*Beaufortia bracteosa* Diels	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Beaufortia micrantha* Schauer var. *micrantha*	..	..	E4	..	..	..	..	..	..	..	E4	..	D4	..	.	.	.	.	.
TS	*Beaufortia orbifolia* F. Muell.	..	..	C4	..	..	..	..	..	..	..	..	..	D4	..	.	.	.	.	.
SS	*Beaufortia schaueri* Preiss ex Schauer	..	..	D3	..	..	..	D3	C3	..	..	..	..	E4	..	.	.	.	.	.
MS	*Callistemon phoeniceus* Lindley	..	..	..	..	..	..	..	..	..	..	..	..	A1	C3	.	.	.	.	.
DS	*Calothamnus gracilis* R. Br.	..	..	..	..	..	..	..	..	..	..	E4	..	..	..	.	.	.	.	.
SS	*Calothamnus pinifolius* F. Muell.	..	..	..	..	..	E4	..	..	E5	..	..	..	B3	..	.	.	.	.	.
MS	*Calothamnus quadrifidus* R. Br.	D3	..	..	..	..	..	..	D4	..	..	..	..	E4	..	.	.	.	.	.
DS	*Calytrix depressa* (Turcz.)Benth.	..	..	..	..	..	..	..	..	..	..	D4	..	..	..	.	.	.	.	.
DS	*Calytrix leschenaultii* (Schauer)Benth.	..	..	C2	..	..	..	..	..	..	B2	..	..	D3	..	.	.	.	.	.
SS	*Chamelaucium ciliatum* Desf.	..	..	A2	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Darwinia vestita* (Endl.)Benth.	..	..	D1	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Darwinia* sp. (KRN 2426)	..	..	..	..	..	..	..	..	..	..	C3	..	..	..	.	.	.	.	.
ST	*Eucalyptus annulata* Benth.	..	..	..	E6	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
ST	*Eucalyptus astringens* (Maiden)Maiden	E5	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MA	*Eucalyptus bennettiae* D.J. Carr & S.G.M. Carr	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	X	X	X	.
MA	*Eucalyptus calycogona* Turcz.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MA	*Eucalyptus celastroides* Turcz. ssp. *virella* Brooker	..	E5	..	D3	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MA	*Eucalyptus conglobata* (R. Br. ex Benth.) Maiden	..	E5	..	..	..	..	E4	..	..	..	..	..	B4	..	.	.	.	.	.
MA	*Eucalyptus desmondensis* Maiden & Blakely	..	..	..	..	..	..	..	B4	..	..	..	..	..	..	.	.	X	.	.
MA	*Eucalyptus falcata* Turcz.	..	..	D3	..	..	..	..	C3	D3	..	D3	..	E4	..	.	.	.	.	.
MA	*Eucalyptus flocktoniae* (Maiden)Maiden	..	C5	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
MA	*Eucalyptus gardneri* Maiden	..	..	..	..	..	..	C3	..	..	..	..	..	A3	..	.	.	.	.	.
ST	*Eucalyptus gardneri* Maiden	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
MA	*Eucalyptus gracilis* F. Muell.	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
MA	*Eucalyptus incrassata* Labill.	..	..	C3	..	..	..	..	..	..	..	E4	..	C4	..	.	.	.	.	.
MA	*Eucalyptus lehmannii* (Schauer)Benth.	..	..	..	..	..	..	..	..	..	..	..	..	B4	..	.	.	.	.	.
MA	*Eucalyptus leptocalyx* Blakely	..	..	..	..	..	..	D4	..	..	..	..	..	B2	..	.	.	.	.	.
MA	*Eucalyptus leptophylla* F. Muell. ex Miq.	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
ST	*Eucalyptus megacornuta* C. Gardner	B4	..	..	..	..	..	..	..	..	..	..	..	..	..	X	.	.	X	.
MA	*Eucalyptus nutans* F. Muell.	..	..	..	..	..	..	B3	..	..	..	..	..	..	..	.	.	.	.	.
ST	*Eucalyptus nutans* F. Muell.	E5	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MT	*Eucalyptus occidentalis* Endl.	..	..	..	..	..	..	..	..	..	..	..	..	..	B3	.	.	.	.	.
MA	*Eucalyptus pileata* Blakely	..	..	..	..	..	..	B4	..	..	..	..	..	A3	..	.	.	.	.	.
MA	*Eucalyptus preissiana* Schauer	..	..	..	..	..	D4	..	..	..	..	..	..	B4	..	.	.	.	.	.
MA	*Eucalyptus redunca* Schauer	..	..	..	..	..	..	..	..	..	..	E4	..	E5	..	.	.	.	.	.
LT	*Eucalyptus salmonophloia* F. Muell.	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
MA	*Eucalyptus spathulata* Hook. ssp. *grandiflora* (Benth.)L. Johnson & Blaxell	..	B3	..	..	..	..	B4	..	..	..	..	..	B3	..	.	.	.	.	.
MA	*Eucalyptus tetragona* (R. Br.)F. Muell.	..	..	E5	..	..	..	..	E4	E4	..	E4	..	E4	..	.	.	.	.	.
MA	*Eucalyptus uncinata* Turcz.	..	..	C3	..	..	..	C3	D3	..	..	..	..	E4	..	.	.	.	.	.
MA	*Eucalyptus* aff. *occidentalis* Endl. (KRN 10911)	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
MS	*Kunzea affinis* S. Moore	..	..	B2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Kunzea eriocalyx* F. Muell.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Kunzea jucunda* Diels	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Kunzea pauciflora* Schauer	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	X	.
MS	*Kunzea preissiana* Schauer	..	..	C2	..	..	..	..	..	..	..	..	..	D3	..	.	.	.	.	.
MS	*Kunzea* sp. (KRN 11788)	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	X	.
TS	*Leptospermum erubescens* Schauer	..	..	..	..	..	..	..	..	..	..	..	D3	..	..	.	.	.	.	.
TS	*Leptospermum maxwellii* S. Moore	..	..	..	..	..	..	..	A4	..	..	..	..	B2	..	.	.	.	.	.
LS	*Leptospermum oliganrdum* Turcz.	..	..	..	..	..	..	..	..	..	..	B2	..	..	..	.	.	.	.	.
SS	*Leptospermum spinescens* Endl.	..	..	D1	..	..	..	..	..	C1	C2	D2	..	C2	..	.	.	.	.	.

Appendix II (continued)

LF	Taxon	Vegetation type												Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
LS	*Melaleuca acuminata* F. Muell.	..	B2	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
DS	*Melaleuca bracteosa* Turcz.	..	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca cardiophylla* F. Muell.	..	..	..	..	..	..	D3	..	..	..	..	..	B3	..	.	.	.	.	.
TS	*Melaleuca cucullata* Turcz.	..	D3	..	E4	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca cuneata* Turcz. sens. lat.	..	..	..	..	..	..	..	..	..	..	..	..	C3	..	.	.	.	.	.
TS	*Melaleuca cuticularis* Labill.	..	..	..	..	..	..	..	..	..	..	..	..	..	E3	.	.	.	.	.
TS	*Melaleuca eleuterostachya* F. Muell.	..	E3	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
TS	*Melaleuca elliptica* Labill.	..	..	..	..	..	..	..	..	..	..	..	A2	..	B2	.	.	.	.	.
DS	*Melaleuca glaberrima* F. Muell.	..	..	..	..	..	..	B3	..	..	..	..	..	C3	..	.	.	.	.	.
TS	*Melaleuca hamulosa* Turcz.	..	..	..	..	..	..	..	..	..	..	..	..	A2	D3	.	.	.	.	.
MS	*Melaleuca lateralis* Turcz.	..	A1	..	..	..	..	..	..	..	..	..	A1	..	..	.	.	.	.	.
MS	*Melaleuca lateriflora* Benth. var. *lateriflora*	..	C3	..	..	..	..	B4	..	..	..	..	..	A2	..	.	.	.	.	.
LS	*Melaleuca pauperiflora* F. Muell.	..	D4	..	D4	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *pentagona*	..	..	..	..	..	..	..	..	..	..	E4	..	..	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *latifolia* Benth.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *subulifolia* Schauer	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. sens. lat.	..	..	..	..	..	..	..	..	..	..	..	..	C3	..	.	.	.	.	.
DS	*Melaleuca scabra* R. Br.	..	..	E4	..	..	..	..	..	..	..	E4	..	B2	..	.	.	.	.	.
DS	*Melaleuca sclerophylla* Diels	..	..	..	..	..	..	B4	..	C3	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca subfalcata* Turcz.	..	..	..	..	..	..	C2	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca subtrigona* Schauer	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Melaleuca subfalcata* Turcz.	..	..	..	..	..	..	C2	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca subtrigona* Schauer	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *pentagona*	..	..	..	..	..	..	..	..	..	..	E4	..	..	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *latifolia* Benth.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. var. *subulifolia* Schauer	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Melaleuca pentagona* Labill. sens. lat.	..	..	..	..	..	..	..	..	..	..	..	..	C3	..	.	.	.	.	.
DS	*Melaleuca scabra* R. Br.	..	..	E4	..	..	..	..	..	..	..	E4	..	B2	..	.	.	.	.	.
DS	*Melaleuca sclerophylla* Diels	..	..	..	..	..	..	B4	..	C3	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca subfalcata* Turcz.	..	..	..	..	..	..	C2	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Melaleuca subtrigona* Schauer	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
LS	*Melaleuca uncinata* R. Br.	..	A2	D2	..	..	..	D3	C4	..	..	..	..	E4	..	.	.	.	.	.
MS	*Melaleuca undulata* Benth.	D3	D4	..	E6	..	..	E5	..	..	..	..	..	..	..	.	.	.	.	.
TS	*Melaleuca viminea* Lindley	..	..	..	..	..	..	..	..	..	..	..	..	..	D3	.	.	.	.	.
TS	*Melaleuca* sp. (KRN 717)	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
TS	*Melaleuca* sp. (KRN 1789)	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
SS	*Melaleuca* sp. (KRN 2890)	..	..	..	..	..	..	B4	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Melaleuca* sp. (KRN 4913)	..	..	..	..	..	..	A3	..	..	..	..	..	..	..	.	.	.	X	.
SS	*Melaleuca* sp. (KRN 6251)	..	..	..	..	..	..	..	..	..	..	..	..	B3	..	.	.	.	.	.
SS	*Micromyrtus racemosa* Benth.	..	..	C2	..	..	..	..	C2	..	..	..	..	B2	..	.	.	.	.	.
DS	*Rinzia fumana* Schauer	..	..	..	..	..	..	..	B2	..	..	..	..	A2	..	.	.	.	.	.
SS	*Thryptomene australis* Endl.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Verticordia densiflora* Lindley	..	..	..	..	..	..	..	..	..	..	E4	..	..	..	.	.	.	.	.
DS	*Verticordia endlicheriana* Schauer	..	..	C3	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Verticordia insignis* Endl.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
HALORAGACEAE (276)																				
HP	*Glischrocaryon aureum* (Lindley) Orch. var. *angustifolium* (Nees) Orch.	..	..	B1	..	..	..	..	..	B2	..	C2	..	E2	..	.	.	.	.	.
HP	*Glischrocaryon flavescens* (J. Drumm. ex Hook.) Orch.	A2	..	..	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
HP	*Glischrocaryon roei* Endl.	..	..	..	..	..	..	..	A3	..	..	..	..	B2	..	.	.	.	.	.
HP	*Gonocarpus hamata* Orch.	A3	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
APIACEAE (281)																				
AS	*Apium annua* P.S. Short	..	..	..	..	..	..	..	..	..	..	..	..	..	D4	.	.	.	.	.
AS	*Bulpeurum semicompositum* L.	..	..	..	..	..	..	..	..	..	..	..	..	..	A2	.	.	.	.	.
AS	*Daucus glochidiatus* (Labill.) Fischer, C. Meyer & Ave.Lall.	B2	B2	..	..	..	..	..	B2	..	..	..	..	..	B2	.	.	.	.	.
AS	*Hydrocotyle callicarpa* Bunge	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Platysace effusa* (Turcz.) Norman	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Platysace maxwellii* (F. Muell.) Norman	..	..	C2	..	..	..	..	B2	B3	..	..	..	B3	..	.	.	.	.	.
EPACRIDACEAE (288)																				
DS	*Acrotriche cordata* (Labill.) R. Br.	..	..	B1	..	..	..	C2	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Acrotriche ramiflora* R. Br.	C1	B1	B1	..	..	..	B1	B1	..	..	..	..	B2	..	.	.	.	.	.
DS	*Andersonia caerulea* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Andersonia parvifolia* R. Br.	..	..	A3	..	..	..	..	..	C4	..	..	..	..	..	.	.	.	.	.
DS	*Astroloma epacridis* (DC.) Druce	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Astroloma microphyllum* Stschegl.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Astroloma prostratum* R. Br.	..	..	B1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Astroloma serratifolium* (DC.) Druce	..	..	C2	..	..	..	B1	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Astroloma tectum* R. Br.	..	..	..	..	..	..	..	..	..	..	B1	..	..	..	.	.	.	.	.
SS	*Brachyloma concolor* (F. Muell.) C. Gardner	..	..	A2	..	..	..	..	B2	..	..	..	..	A2	..	.	.	.	.	.

LF	Taxon	Vegetation type												Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
DS	*Leucopogon concinnus* Benth.	..	..	D3	..	..	..	..	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Leucopogon conostephioides* DC.	..	..	..	..	..	..	..	..	..	..	..	..	C2	..	.	.	.	.	.
SS	*Leucopogon corynocarpus* Sonder	..	..	..	..	..	..	..	..	B2	..	..	..	..	..	.	.	.	.	.
MS	*Leucopogon cuneifolius* Stschegl.	..	..	C1	..	..	..	A2	B2	..	..	..	D2	D2	..	.	.	.	.	.
DS	*Leucopogon glabellus* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Leucopogon hamulosus* E. Pritzel	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Leucopogon insularis* Cunn. ex DC.	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	.	.
DS	*Leucopogon marginatus* W. Fitzg.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Leucopogon minutifolius* W. Fitzg.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Leucopogon striatus* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Leucopogon* aff. *conostephioides* DC. A (KRN 4082)	..	..	D2	..	..	..	..	..	C3	..	D4	..	..	..	.	.	.	.	.
DS	*Leucopogon* sp. (KRN 1813)	..	..	..	..	..	A2	..	..	..	..	..	..	A2	..	X	.	.	X	.
DS	*Leucopogon* sp. (KRN 11795)	..	..	..	..	..	A1	..	..	..	..	..	..	..	..	.	.	.	.	.
SS	*Lysinema ciliatum* R. Br.	..	..	E3	..	..	A2	..	..	..	..	E3	..	D3	..	.	.	.	.	.
DS	*Styphelia pulchella* (Stschegl.)Druce	..	..	..	..	..	..	B2	..	..	..	..	..	A2	..	.	.	.	X	.
SS	*Styphelia tenuiflora* Lindley	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
PRIMULACEAE (293)																				
AS	**Anagallis arvensis* L.	A3	B2	..	..	..	..	..	..	..	..	..	..	..	C3	.	.	.	.	.
DS	*Samolus junceus* R. Br.	..	..	..	..	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
LOGANIACEAE (302)																				
SS	*Logania buxifolia* F. Muell.	..	..	C1	..	..	..	..	B1	..	..	..	..	C2	..	.	.	.	.	.
DS	*Logania micrantha* Benth.	..	..	..	..	..	..	..	..	..	..	C2	..	..	..	.	.	.	.	.
DS	*Logania tortuosa* D.A. Herbert	..	..	A2	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
GENTIANACEAE (303)																				
AS	**Centarium erythraea* Rafn ssp. ?	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
CONVOLVULACEAE (307)																				
MP	*Wilsonia humilis* R. Br.	..	B3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
BORAGINACEAE (310)																				
SS	*Halgania andromedifolia* Behr & F. Muell.	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
DS	*Halgania preissiana* Lehm.	..	..	..	..	..	..	..	B2	..	..	..	..	A2	..	.	.	.	.	.
DS	*Halgania viscosa* S. Moore	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
LAMIACEAE (313)																				
DS	*Hemigenia eutaxioides* C.R.P. Andrews	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Hemigenia* sp. (KRN 10842)	..	..	A2	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Microcorys exserta* Benth.	..	..	..	..	..	..	..	..	..	..	..	..	A3	..	.	.	.	.	.
DS	*Microcorys glabra* (Bartling)Benth.	..	C1	..	..	..	..	C1	..	..	..	..	..	B2	..	.	.	.	.	.
SS	*Microcorys purpurea* R. Br.	..	..	A1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	X	.
MS	*Microcorys virgata* R. Br.	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Westringia rigida* R. Br.	..	D3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
SOLANACEAE (315)																				
DS	**Solanum nigrum* L.	B1	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MYOPORACEAE (326)																				
DS	*Eremophila densifolia* F. Muell.	..	A3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
CAMPANULACEAE (339)																				
AS	*Wahlenbergia gracilenta* Loth.	..	..	..	..	..	..	..	..	..	..	..	B2	..	B2	.	.	.	.	.
LOBELIACEAE (340)																				
AS	*Isotoma hypocrateriformis* (R. Br.)Druce	..	..	..	..	..	..	..	..	..	..	..	..	A2	A2	.	.	.	.	.
AS	*Lobelia rarifolia* E. Wimmer	..	..	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
GOODENIACEAE (341)																				
DS	*Coopernookia polygalacea* (Vriese)Carolin	..	..	..	..	..	..	C3	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Coopernookia strophiolata* (F. Muell.) Carolin	..	..	..	..	..	..	C2	..	..	..	..	..	B2	..	.	.	.	.	.
DS	*Dampiera lavandulacea* Lindley	..	..	D2	..	..	..	B2	C2	B2	..	..	..	B2	..	.	.	.	.	.
SS	*Dampiera oligophylla* Benth. ssp. *juncea* (Benth.)Rajput & Carolin	..	..	D1	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Dampiera sacculata* F. Muell.	..	..	D3	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Dampiera* aff. *alata* Lindley (KRN 2697)	..	..	..	..	..	..	A2	..	..	..	..	..	..	..	.	.	.	X	.
DS	*Dampiera* aff. *trigona* Vriese (KRN 11261)	..	..	..	..	..	..	A2	B2	..	..	..	..	C2	..	.	.	.	X	.
DS	*Goodenia affinis* Vriese	..	..	..	..	..	..	..	..	..	..	..	..	..	B2	.	.	.	.	.
DS	*Goodenia concinna* Benth.	..	..	..	..	..	..	..	..	..	..	..	..	B3	B2	.	.	.	.	.
DS	*Goodenia laevis* Benth.	..	C2	..	C2	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
MS	*Goodenia pinifolia* Vriese	..	..	D3	..	..	..	..	B2	..	..	..	..	C3	..	.	.	.	.	.
DS	*Goodenia scapigera* R. Br.	..	..	D2	..	..	..	..	B2	C2	..	..	B3	E2	..	.	.	.	.	.
SS	*Goodenia stenophylla* F. Muell.	..	..	..	..	..	..	..	..	..	..	..	..	A1	..	.	.	.	X	.
MP	*Lechenaultia formosa* R. Br.	A1	..	..	..	..	..	..	..	A2	..	..	..	..	..	.	.	.	.	.

Appendix II (continued)

LF	Taxon	Vegetation type													Cons.				
		EA	ET	DF	EN	EA	EP	ET	EE	EQ	ER	ES	GR	EF	DR	A	E	G	R	O
STYLIDIACEAE (343)																				
AS	*Levenhookia pusilla* R. Br.	..	..	..	..	..	..	..	..	..	..	..	D3	..	..	.	.	.	.	.
RP	*Stylidium albomontis* Carlq.	B1	..	D2	..	..	..	B2	B2	..	..	..	..	C2	..	.	.	.	.	.
DS	*Stylidium breviscapum* R. Br.	..	..	B2	..	..	..	A2	B2	..	..	..	..	..	..	.	.	.	.	.
RP	*Stylidium piliferum* R. Br. ssp. *minor* (Milbr.)Carlq.	..	..	C2	..	..	..	..	..	..	B2	..	..	A2	..	.	.	.	.	.
ASTERACEAE (345)																				
AS	*Actinobole uliginosum* (A. Gray) H. Eichler	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Angianthus tomentosus* Wendl.	B4	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Arctotheca calendula* (L.)Levyns	..	A2	..	..	..	..	..	A1	..	..	..	..	..	..	.	.	.	.	.
AS	*Asteridea asteroides* (Turcz.)G. Kroner	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Asteridea athrixioides* (Sonder & Muell.) G. Kroner	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Brachycome ciliaris* (Labill.)Less. var. *ciliaris*	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Carduus pycnocephalus* L.	..	A3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Carthamus lanatus* L.	A2	A2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Centarea melitensis* L.	..	B3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Cirsium arvense* (L.)Scop.	A1	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Conyza bonariensis* (L.)Cronq.	..	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Cotula coronopifolia* L.	..	..	..	..	..	..	..	..	..	..	..	..	..	C2	.	.	.	.	.
AS	*Cotula cotuloides* (Steetz)Druce	..	..	..	..	..	..	..	..	..	..	..	..	..	D3	.	.	.	.	.
AS	**Dittrichia graveolens* (L.)Greuter	..	B2	..	..	..	..	..	..	..	..	..	..	A2	..	.	.	.	.	.
AS	**Gnaphalium calviceps* Fern.	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Gnaphalium gymnocephalum* DC.	..	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Helichrysum lepidophyllum* (Steetz)Benth.	..	..	..	..	..	..	B2	..	..	..	..	..	..	..	.	.	.	.	.
DS	*Helichrysum obtusifolium* F. Muell. & Sonder ex Sonder	..	..	..	..	..	..	..	..	..	..	C1	..	B2	..	.	.	.	.	.
AS	*Helipterum demissum* (A. Gray)Druce	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Helipterum gracile* (A. Gray)Benth.	A3	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	X	.
AS	*Helipterum pygmaeum* (DC.)Benth.	..	B2	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Hypochoeris glabra* L.	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Millotia tenuifolia* Cass. var. *tenuifolia*	C2	B2	..	..	..	..	..	C2	..	..	..	..	..	..	.	.	.	.	.
DS	*Olearia muelleri* (Sonder)Benth.	C2	B1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
MS	*Olearia* sp. (KRN 11797)	..	A1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Podolepis rugata* Labill. var. *rugata*	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Podolepis tepperi* (F. Muell.)D.A. Cooke	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Podotheca angustifolia* (Labill.)Less.	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Podotheca gnaphalioides* R.A. Graham	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Podotheca pygmaea* A. Gray	??	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Pogonolepis stricta* Steetz	..	B3	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Pseudognaphalium luteoalbum* (L.) Hilliard & B.L. Burtt	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Senecio glossanthus* (Sonder)Belcher	C2	B2	..	..	..	..	..	B2	..	..	..	..	..	..	.	.	.	.	.
AS	*Senecio quadridentatus* Labill.	B2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Senecio vulgaris* L.	A1	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	**Sonchus asper* Hill ssp. *nymanii* Tin. ex Guss.	..	..	..	..	..	..	..	..	..	..	..	A1	..	A1	.	.	.	.	.
AS	**Sonchus oleraceus* L.	B2	..	..	..	..	..	..	A2	..	..	..	..	..	C2	.	.	.	.	.
MS	*Vittadinia gracilis* (J.D. Hook.)N. Burb.	C2	B1	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.
AS	*Waitzia acuminata* Steetz	A2	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	.

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Assessment of Wickepin fence post trial after 62 years

G.K. BRENNAN[1], J.A. PITCHER[1], R. RULE[1] AND D.A. GREEP[2]

[1]Science and Information Division, Department of Conservation and Land Management, Wood Utilisation Research Centre, Harvey 6220, Western Australia.

[2]Formerly as above. Present address: Australian Furniture Research and Development Institute, Launceston 7250, Tasmania.

SUMMARY

The Wickepin fence post trial was one of three trials established in 1930 to assess timber preservatives for use in different hazard levels of fungal and insect attack in Western Australia, set up by the then Council for Scientific and Industrial Research (CSIR). The species assessed, in order of decreasing expected natural durability, were wandoo (*Eucalyptus wandoo* Blakely), jam (*Acacia acuminata* Benth.), brown mallet (*E. astringens* (Maiden) Maiden), jarrah (*E. marginata* Donn ex Sm.), marri (*E. calophylla* R. Br. ex Lindl.) and radiata pine (*Pinus radiata* D. Don.). Several preservative treatments were tested on the last four species, using hot and cold bath methods, but wandoo and jam were left untreated. Although the CSIR objectives were met by 1951, the Wickepin fence line was still functional, and the Department of Conservation and Land Management (CALM) carried out assessments in 1987 and 1992.

The 1992 assessment reported here gave the percentage of posts remaining in service, an estimation of the service life remaining, and the reasons for failure. The percentage of posts estimated in 1987 to fail by 1992, was compared with the actual failures assessed in the 1992 assessment.

The untreated wandoo and jam are performing extremely well, with 94 per cent and 67 per cent respectively remaining in service. Jarrah, marri and radiata pine treated with a mixture of zinc chloride and arsenic trioxide, jarrah and marri treated with a mixture of sodium fluoride and arsenic trioxide, and marri and radiata pine treated with a mixture of creosote and oil are performing well with generally more than 50 per cent of the posts remaining in service. Brown mallet posts treated with any of the preservatives had 30 per cent of posts remaining in service, which is still a good performance after 62 years.

INTRODUCTION

In 1930 the Council for Scientific and Industrial Research (CSIR), now CSIRO, in conjunction with the then Forests Department, established three preservative-treated fence post trials in Western Australia (Cummins 1932). Only the Wickepin fence line, located on a site then rated as having light decay and intermediate termite hazard, remains in service, with the treated posts used in a fence line. The other two trials were located near Pemberton and Southern Cross, on sites rated as having a severe decay hazard and severe termite hazard respectively, and are no longer operational after road clearing or vandalism. The major aim of these trials was to determine differences between the durability of treated and untreated fence posts of six locally-used species.

At the three sites, eleven different timber species were included principally as small round posts, with under bark butt diameters between 100 and 150 mm (Tamblyn 1954). Only two of the chemicals in this trial are still used today, e.g. creosote and crude oil, although their formulations have changed, and the trial provides long-term data on service life of fence posts treated with these chemicals. The continuation of assessments of wandoo and jam will provide long-term natural durability data, as untreated posts still remain in service.

The last CSIRO assessment of the Wickepin trial was by Mr N. Tamblyn in 1951, based on the extent of deterioration of each post, and indicated that treated posts were at that time out-performing untreated posts (Tamblyn 1954). The Department of Conservation and Land Management (CALM) has continued evaluation of this trial and made assessments in 1987 (Rule 1989) and 1992. This report gives the results of the September 1992 assessment of the Wickepin trial, in which the future life of the posts was estimated, and the factors contributing to post failure were assessed. Estimates made in the 1987 assessment of posts expected to fail by 1992 were compared with actual failures by September 1992.

METHODS

This preservative treatment trial is a fence line located about 8 km south-west of Wickepin, which is about

200 km south-east of Perth. With a mean annual rainfall of about 500 mm, the area was considered by CSIR to have a light hazard for fungal attack but an intermediate hazard for termite attack (Cummins 1932). By 1987 many nails had fallen out of the posts, making identification difficult, therefore it was necessary to re-tag many of the posts.

The Wickepin trial used posts cut from six species, detailed in Table 1, that were subsequently dried to a moisture content of below 30 per cent before treatment to aid preservative penetration, although some brown mallet posts were treated green.

TABLE 1
Species and total number of posts in the Wickepin fence post trial.

SPECIES	TOTAL No. POSTS INSTALLED IN 1930
Wandoo (*Eucalyptus wandoo* Blakely)	50*(untreated)
Jam (*Acacia acuminata* Benth.)	9 (untreated)
Brown mallet (*E. astringens* (Maiden) Maiden)	175
Jarrah (*E. marginata* Donn ex Sm.)	150
Marri (*E. calophylla* R. Br. ex Lindl.)	150
Radiata pine (*Pinus radiata* D. Don.)	150

*This included 16 wandoo strainers and 34 ordinary posts, but the latter had disappeared by 1987 for reasons other than fungal or termite attack. Subsequent discussion is therefore based on the sixteen strainers.

Each species is located in different blocks along the fence line with the wandoo strainers strategically located to support the fence. Untreated jam posts were included to complete the fence.

Six different treatments were used. These include four open tank (hot and cold bath) treatments, one dry powder treatment and an untreated control. The bottom 760 mm of the debarked posts was treated with sapwood moisture contents below fibre saturation point (f.s.p.) of about 30 per cent. Drying the sapwood bands to below f.s.p. took between 8 and 17 months. The hot and cold bath process involved heating the posts in hot liquid preservative to force out any air in the posts, followed by cooling in preservative, when atmospheric pressure assists capillary forces in moving the liquid to replace the air driven out. Heating to just below 100°C in water, or to higher temperatures in oil or steam, was most effective.

The chemicals and treatment methods used were :

(1) *Creosote and crude oil.* Hot and cold bath treatment with two parts of Australian vertical retort creosote mixed with one part crude oil. The posts were placed butt down to a depth of 760 mm in the preservative which was then heated to about 99°C (range 93° - 103°C) and maintained at this temperature for a minimum of 1.5 hours, and up to 6 hours. Following heating they were allowed to cool in the mixture or were transferred to a cold bath of the same mixture to cool for 3 to 21 hours. There was a temperature drop of over 38°C.

(2) *Zinc chloride and arsenic trioxide* (syn. white arsenic). A 53.8 per cent zinc chloride solution was added to water containing arsenic trioxide, and boiled for 20 minutes to allow it to dissolve. Using the hot and cold bath method as in (1), posts were immersed in the final preservative solution of 3.5 per cent zinc chloride and 2.0 per cent arsenic trioxide.

(3) *Sodium fluoride and arsenic trioxide.* A mixture of 3.5 per cent sodium fluoride and 2.0 per cent arsenic trioxide was dissolved in soda ash and water to produce the preservative. Butt sections were immersed to 760 mm and treated by the hot and cold bath method described in (1). Brown mallet was treated using green posts as well as dry posts.

(4) *Arsenic trioxide.* 4.1 kg (9 lb) of arsenic trioxide were added to 200 L (44 gallons) of water to form a 2.0 per cent solution. The immersed butt sections were treated using the hot and cold bath method decribed in (1).

(5) *Solid arsenic.* Arsenic trioxide powder was applied as a collar around the posts at and below ground-line at the rate of 0.45 kg (1.0 lb) per post, with larger quantities (0.7 and 0.9 kg) used when the post's top diameter exceeded 100 mm and 150 mm respectively. The object of treatment was to form a preservative barrier around the posts and also to permit the arsenic to diffuse slowly into the wood.

(6) *Untreated.* This was the control.

Posts were installed to a depth of approximately 600 mm, in fence lines with wires passing through bored holes or held by staples. In some cases no wires were attached (Tamblyn and Bond 1948).

The 1992 assessment included an estimate of the future life of each post in categories of 0-4 years, 5-9 years and 10+ years. Each post was assessed by pushing the top of the upright post by hand, with the assessor maintaining a uniform loading. If the post was considered doubtful, it was inspected more closely after scraping soil away from the ground-line to a depth of 150 mm and examining the wood for the extent of fungal or insect attack, by probing with a pocket knife. Any damage to the exposed section of the post from weathering, fire or mechanical damage was recorded, as well as the reason for any post failure (i.e. decay, termites or fire) between the 1987 and 1992 assessments.

RESULTS AND DISCUSSION

The untreated wandoo and jam have lasted extremely well, considering that wandoo may be expected to last an average minimum 25 years and jam 15 to 25 years when used in ground contact (Thornton *et al.* 1983). Since the 1987 assessment no wandoo posts have failed, however, 25 per cent of jam posts failed (Table 2), indicating that wandoo has a higher natural durability than jam. As stated previously, only 16 wandoo strainers remain because 34 posts were missing.

The 1987 assessment indicated a ranking of preservative-treated species (from best to worst), as

TABLE 2
Condition of treated and untreated posts, and their estimated future performance, relating to the inspections carried out in 1987 and 1992.

		FROM THE 1987 INSPECTION		FROM THE 1992 INSPECTION		
Species	Preservative treatment	No. of posts remaining after this inspection	Estimated failure at Sept.1992 (%)	No. of posts remaining after this inspection	Actual failure at Sept. 1992 (%)	Estimated failure by 1997(%)
Wandoo	Untreated	15	7	15	0	7
Jam	Untreated	8	0	6	25	17
Brown mallet	Creosote + oil	11	81.8	7	36	43
	$Zn Cl_2 + As_2 O_3$	11	45.5	7	36	0
	$Na F + As_2 O_3$ (treated dry)	17	41.2	9	47	67
	As above (treated green)	8	37.5	4	50	0
	$As_2 O_3$ solution	16	62.5	8	50	50
	$As_2 O_3$ powder	7	57.1	4	43	50
	Untreated	-	-	-	-	-
Jarrah	Creosote + oil	12	41.7	5	58	40
	$Zn Cl_2 + As_2 O_3$	18	5.56	16	11	19
	$Na F + As_2 O_3$ (treated dry)	18	5.56	11	39	18
	$As_2 O_3$ solution	15	13.3	11	27	27
	$As_2 O_3$ powder	13	23.1	7	46	71
	Untreated	-	-	-	-	-
Marri	Creosote + oil	17	35.5	14	18	36
	$Zn Cl_2 + As_2 O_3$	23	13	19	17	5
	$Na F + As2 O_3$ (treated dry)	23	8.7	16	30	31
	$As_2 O_3$ solution	21	19	15	29	40
	$As_2 O_3$ powder	15	13.3	12	20	25
	Untreated	-	-	-	-	-
Radiata pine	Creosote + oil	16	18.8	12	25	17
	$Zn Cl_2 + As_2 O_3$	17	5.88	16	6	31
	$Na F + As2 O_3$ (treated dry)	6	66.7	4	33	75
	$As_2 O_3$ solution	8	62.5	4	50	25
	$As_2 O_3$ powder	13	15.4	11	15	45
	Untreated	-	-	-	-	-

Note: 1987 and 1992 estimates are based on the number of posts remaining at those inspections, not the original number installed in 1930.

follows: marri, jarrah, radiata pine and brown mallet. In comparison, the 1992 assessment has indicated the following order: marri, radiata pine, brown mallet and jarrah.

The latter assessment indicated little difference in performance between brown mallet and jarrah, considering that 58 per cent of creosote plus oil treated jarrah had failed since 1987. Marri and radiata pine are out-performing brown mallet and jarrah, presumably owing to a wider sapwood band giving better penetration and retention of preservative. In some treated posts, hollowing of the heartwood was found in the top of the posts, inside the annulus of treated sapwood.

Creosote and furnace oil plus an insecticide are currently used commercially in Australia to treat transmission poles and railway sleepers. Creosote is available to land owners who can treat their own fence posts on-site using a hot and cold bath or cold soaking methods. The other chemicals used in this trial are no longer available, having been replaced by copper-chrome-arsenic (CCA), which can be fixed into the timber cells using a vacuum/pressure treatment process. This trial has indicated the advantages of preservative treatment of fence posts and the long-term natural durability of wandoo and jam. The advantage of using creosote can be seen, particularly in species with wide sapwood bands.

Table 3 gives the causes of post failure up to and including the 1992 assessment. The Wickepin trial was considered to have a light decay and intermediate termite hazard (Cummins 1932). In 1992, more failures were caused by decay than termite attack, which differs from the 1987 assessment (Rule 1989). The posts assessed as having decay in 1987 presumably failed because the decay had subsequently spread through the moist timber around the ground-line, which could be considered unusual after 60 years of service. The combination of decay and termite attack resulted in a high proportion of failures. Generally, decaying wood attracts termites, which could access the untreated heartwood through splits in the treated sapwood band.

Cummins (1932) found five species of termites in the area, of which three were attacking the fence posts and two were in the vicinity. The species attacking the posts were:

Amitermes obeuntis (Silvestri) (formerly *Hamitermes obeuntis*);
Amitermes westraliensis (Hill) (formerly *Eutermes westraliensis*);
Coptotermes sp.

The two other species occurring in the vicinity were:

Occasitermes occasus (Silvestri) (formerly *Eutermes occasus*);
Heterotermes occiduus (Hill) (formerly *Heterotermes occidus*).

TABLE 3
Overall causes of post failure, including the 1992 assessment.

SPECIES	PRESERVATIVE TREATMENT	FAILURES BETWEEN 1987 AND 1992 (%)					
		Decay	Decay and Termites	Termites	Fire or accident	Missing	Other
Wandoo	Untreated	-	-	-	-	-	
Jam	Untreated	13	-	-	-	12	
Brown mallet	Creosote + oil	-	15	15	-	6	
	$Zn Cl_2 + As_2O_3$	18	-	9	-	9	
	$Na F + As_2O_3$ (treated dry)	16	10	5	-	16	
	As above (treated green)	37	-	13	-	-	
	As_2O_3 solution	43	7	-	-	-	
	As_2O_3 powder	-					
	Untreated *	-	-	-	-	-	
Jarrah	Creosote + oil	8	-	25	-	25	
	$Zn Cl_2 + As_2O_3$	-	-	-	-	11	
	$Na F + As_2O_3$ (treated dry)	28	-	-	-	11	
	As_2O_3 solution	7	-	13	-	7	
	As_2O_3 powder	31	-	8	-	7	
	Untreated*	-	-	-	-	-	
Marri	Creosote + oil	-	12	-	-	6	
	$Zn Cl_2 + As_2O_3$	13	-	-	4	-	
	$Na F + As_2O_3$ (treated dry)	26	-	-	-	-	4
	As_2O_3 solution	23	-	-	-	-	6
	As_2O_3 powder	13	-	-	-	7	
	Untreated *	-	46	33	-	-	
Radiata pine	Creosote + oil	-	-	13	20	12	
	$Zn Cl_2 + As_2O_3$	-	-	-	6	-	
	$Na F + As_2O_3$ (treated dry)	-	16	17	-	-	
	As_2O_3 solution	-	20	30	-	-	
	As_2O_3 powder	-	-	8	-	7	
	Untreated *	-	-	-	-	-	

Notes: (1) Reasons for failure between 1930 and 1992 were unable to be determined owing to different assessment methods by CSIRO and CALM.
(2) 26 per cent of failed posts were affected by weathering but are not recorded. These posts failed at ground-line owing to decay, termite attack or fire, and failure is recorded as being one of these causes. Other causes of failure were owing to weathering or mechanical failure.
Untreated post data (*) are from Tamblyn (1954)

In 1995 a CALM officer collected specimens from four occurrences adjacent to the residual fence line. *Amitermes conformis* Gay and *Heterotermes platycephalus* Froggatt were identified, but the other two samples could not be identified because no soldiers were sampled.

Ninety-four per cent of those wandoo strainers and 67 per cent of jam are still in service after 62 years (Table 4). Two thirds of the untreated wandoo and jam posts are expected to be remaining in service for at least another 10 years. Untreated posts of the other species had failed many years previously, long before Tamblyn's 1951 assessment (Tamblyn 1954).

The individual preservative treatments can be ranked in decreasing efficacy, using the data from Tables 1, 2 and 3:

zinc chloride and arsenic trioxide;
sodium fluoride and arsenic trioxide;
creosote and mineral oil (equal);
arsenic trioxide solution (equal);
solid arsenic.

This is the same ranking as in the 1987 assessment. Jarrah posts treated with creosote and oil, and radiata pine posts treated with sodium fluoride plus arsenic trioxide or arsenic trioxide solution are performing worse than the other treatments.

As might be expected, after 62 years in service the life of many posts is becoming limited, irrespective of preservative treatment. In the last five years, there has been a rapid decline in the number of posts capable of supporting a fence line, e.g. only 42 per cent of the 20 per cent of creosote and oil treated jarrah posts still in service in 1987 survived until 1992. A final assessment will be conducted in 1997 because the number of posts in service is declining, and as stated previously, many of the preservatives used in the trial are either no longer available or have different formulations.

Table 4
Percentage of posts in service since 1930 and 1987, and estimated life following the 1992 assessment.

SPECIES	PRESERVATIVE TREATMENT	IN SERVICE SINCE 1930 (%)	IN SERVICE SINCE 1987 (%)	ESTIMATED LIFE (YEARS) 0-4	5-9	10+
Wandoo	Untreated	94	100	7	27	66
Jam	Untreated	67	75	13	0	63
Brown mallet	Creosote + oil	28	64	27	36	0
	$ZnCl_2 + As_2O_3$	28	64	0	45	18
	$NaF + As_2O_3$ (treated dry)	36	53	35	6	12
	As above (treated green)	16	50	0	50	0
	As_2O_3 solution	32	50	25	25	0
	As_2O_3 powder	16	57	29	14	14
	Untreated	0	0	-	-	-
Jarrah	Creosote + oil	20	42	17	8	17
	$ZnCl_2 + As_2O_3$	64	89	17	44	28
	$NaF + As_2O_3$ (treated dry)	44	61	11	17	33
	As_2O_3 solution	44	79	21	36	21
	As_2O_3 powder	28	54	38	8	8
	Untreated	0	0	-	-	-
Marri	Creosote + oil	56	82	29	18	35
	$ZnCl_2 + As_2O_3$	76	83	4	30	48
	$NaF + As_2O_3$ (treated dry)	64	70	22	13	35
	As_2O_3 solution	60	71	29	29	14
	As_2O_3 powder	48	80	20	27	33
	Untreated	0	0	-	-	-
Radiata pine	Creosote + oil	48	75	13	19	44
	$ZnCl_2 + As_2O_3$	64	94	29	47	18
	$NaF + As_2O_3$ (treated dry)	16	67	50	0	17
	As_2O_3 solution	16	50	13	25	13
	As_2O_3 powder	44	85	38	31	15
	Untreated	0	0	-	-	-

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NOTES ON CONTRIBUTORS

Ian Abbott is Science Adviser and Acting Head, Corporate Services Group, in the Science and Information Division of CALM. He can be contacted at State Headquarters, Crawley on (09) 386 8811.

Gary Brennan is a Senior Research Scientist at CALM's Wood Utilisation Research Centre, Harvey. He can be contacted on (097) 29 1913.

Andrew Chapman is Regional Ecologist for CALM's Goldfields Region, and is based at Kalgoorlie. His duties include provision of information on flora and fauna, as well as Aboriginal liaison. He can be contacted on (090) 21 2677.

David Greep was a Technical Officer working on Valwood® research at CALM's Wood Utilisation Research Centre, Harvey. He is now at the Australian Furniture Research and Development Institute in Launceston, Tasmania.

Ken Newbey was an Ongerup farmer with an intense interest in south coast flora and its soil type and landform relationshiips. He completed a Master of Philosophy degree in 1979 and worked as a consultant plant ecologist until his death in 1988.

Judy Pitcher is a Technical Officer based at CALM's Wood Utilisation Research Centre, Harvey. She can be contacted on (097) 29 1913.

Rob Rule is Manager of CALM's Wood Utilisation Research Centre, Harvey. He can be contacted on (097) 29 1913.

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