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BIOLOGICAL SURVEY AND CONSERVATION VALUES

OF THE DONNYBROOK TO KATANNING RAIL RESERVE

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Prepared For: Department of Conservation and Land Management

December 1992

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MAPPING CODE	PLANT COMMUNITY
FG1	Fringing Woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca* spp. - *Pteridium esculentum* - *Agonis* spp.
FG2	Open Woodland of *Eucalyptus rudis* - *Eucalyptus calophylla* - *Eucalyptus patens* - *Agonis flexuosa*.
FG3	Woodland of *Eucalyptus rudis* - *Hakea varia*.
J1	Open Forest of *Eucalyptus marginata* - *Eucalyptus calophylla* - *Persoonia longifolia* - *Pteridium esculentum* occasionally *Nuytsia floribunda*.
J2	Open Forest of *Eucalyptus marginata* - *Eucalyptus calophylla* - *Banksia grandis* .
J3	Open Woodland of *Eucalyptus calophylla* - *Eucalyptus marginata* and Heath of Myrtaceae spp. and Restionaceae spp.
J4	Open Forest of *Eucalyptus marginata* - *Eucalyptus calophylla* - *Eucalyptus patens* over sedges.
J5	Open Forest of *Eucalyptus marginata* - *Eucalyptus calophylla* - *Banksia littoralis* - *Banksia grandis*.
M1	Open Forest of *Eucalyptus calophylla* - *Eucalyptus marginata* - *Eucalyptus rudis*.
M2	Open Woodland of *Eucalyptus calophylla*.
M3	Open Forest of *Eucalyptus calophylla* - *Eucalyptus marginata* - *Banksia grandis* - *Banksia littoralis* - *Persoonia longifolia* - *Melaleuca* spp.
M4	Open Woodland of *Eucalyptus calophylla* - *Eucalyptus rudis* - *Agonis* spp. and Proteaceae spp.
ME1	Wetland of Myrtaceae spp. - Proteaceae spp. dominated by *Melaleuca* spp.
W1	Woodland of *Eucalyptus wandoo* (Wandoo) - *Eucalyptus marginata* (Jarrah) - *Eucalyptus calophylla* (Marri) - *Hakea prostrata*.
W2	Woodland of *Eucalyptus wandoo* - *Eucalyptus calophylla* - *Eucalyptus rudis* - *Allocasuarina* spp.
W3	Woodland of *Eucalyptus wandoo* - *Eucalyptus calophylla* - *Dryandra sessilis* - Myrtaceae spp.
W4	Woodland of *Eucalyptus wandoo* - Mallees - heath of Proteaceae spp.
W5	Open Woodland of *Eucalyptus wandoo* - *Allocasuarina fraseriana* - *Hakea prostrata* - *Acacia acuminata*.
W6	Open Woodland of *Eucalyptus wandoo* - *Eucalyptus astringens* - *Allocasuarina fraseriana*.
W7	Open Woodland of *Eucalyptus wandoo* - *Eucalyptus occidentalis* (Yate) - *Hakea prostrata*.
YK1	Open Woodland of *Eucalyptus loxophleba* (York Gum) - *Eucalyptus rudis* - *Acacia acuminata*.

DISTURBANCE LEVELS:

- Undisturbed - No obvious clearing, community dominated by native species, weeds lacking.
- Disturbed - Community dominated by native species and only occasional weed species present.
- Very Disturbed - Community dominated by natives but weeds present in localized patches.
- Very Very Disturbed - Community disturbed, native species still dominate overstorey and understorey, although weeds present.
- Very Very Very Disturbed - Community disturbed, native species dominate overstorey, but weeds common in understorey.
- Very Very Very Very Disturbed - Community very disturbed with only patches of native overstorey remaining and weeds dominating understorey.
- Very Very Very Very Very Disturbed - Native overstorey species generally absent or very patchy and community dominated by weeds.

SCALE

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E.M. MATTISKE & ASSOCIATES
Dec. 1992

VEGETATION MAP

DONNYBROOK – KATANNING

SUMMARY

E.M. Mattiske & Associates were commissioned in 1992 to undertake a biological survey and review of the conservation values of remnants of native vegetation on 212 km of rail reserve between Donnybrook and Katanning in the South-west of Western Australia.

The criteria selected to assess the conservation values of the rail reserve was based on methods established in previous studies carried out on other Westrail lines (E.M. Mattiske & Associates, 1991). The degree of disturbance in the plant communities on the rail reserve reflected the proximity of adjacent State Forest and cleared agricultural properties, with the less disturbed communities occurring through the State Forest and the more disturbed areas in the cleared Wheatbelt areas. Therefore the conservation value of the rail reserve appeared to be related to the floristic diversity of the different biogeographic regions in the survey area.

Twenty one different plant communities were identified. Findings indicated that as the habitat becomes more disturbed the number of flora and fauna species decreases. These results were comparable with those presented in previous Westrail surveys (E.M. Mattiske & Associates, 1991, 1992). As the areas in the Wheatbelt have been largely cleared the importance of the rail reserve in these areas becomes more significant as remnant areas and corridors for the native flora and fauna species. The wetlands are a significant feature of the rail reserve particularly those occurring in the Wheatbelt section. Therefore in reviewing the values of these areas it is also important to place the communities and habitats in a local and regional context. Consequently although some sections may be degraded when compared with the western section of the rail reserve the values are increased by the degree of clearing still occurring in the adjacent agricultural areas.

On the basis of current information and records, no Declared Rare Flora (DRF) are known to occur on this rail reserve (Department of Conservation and Land Management, 1992). One mammal species and two bird species which are gazetted under Schedules 1 and 2 of the Wildlife Conservation Act (1950) as likely to become extinct or is rare (Schedule 1) and in need of special protection (Schedule 2) were recorded.

In summary, the Donnybrook to Katanning rail reserve supports a significant range of plant communities and habitats which are locally and regionally important to the native flora and fauna species of the area. The corridor within the rail reserve has different values in the western section (State Forest) and the eastern section (cleared agricultural areas of the Wheatbelt). On the basis of findings the rail reserve and the current recreational use, the reserve should be maintained as a corridor for native flora and fauna species and as local trails for recreational use. In addition, all currently less disturbed areas (V2 and V3) that are being used as long paddocks should be returned to the reserve.

LIST OF PARTICIPANTS

Principal:	Dr Libby Mattiske
Field Work:	Denise True Angela Sanders
Report Production:	Dr Libby Mattiske Denise True Angela Sanders

ACKNOWLEDGMENTS

The authors thank the following organisations and individuals for their assistance in this project:

Department of Conservation and Land Management

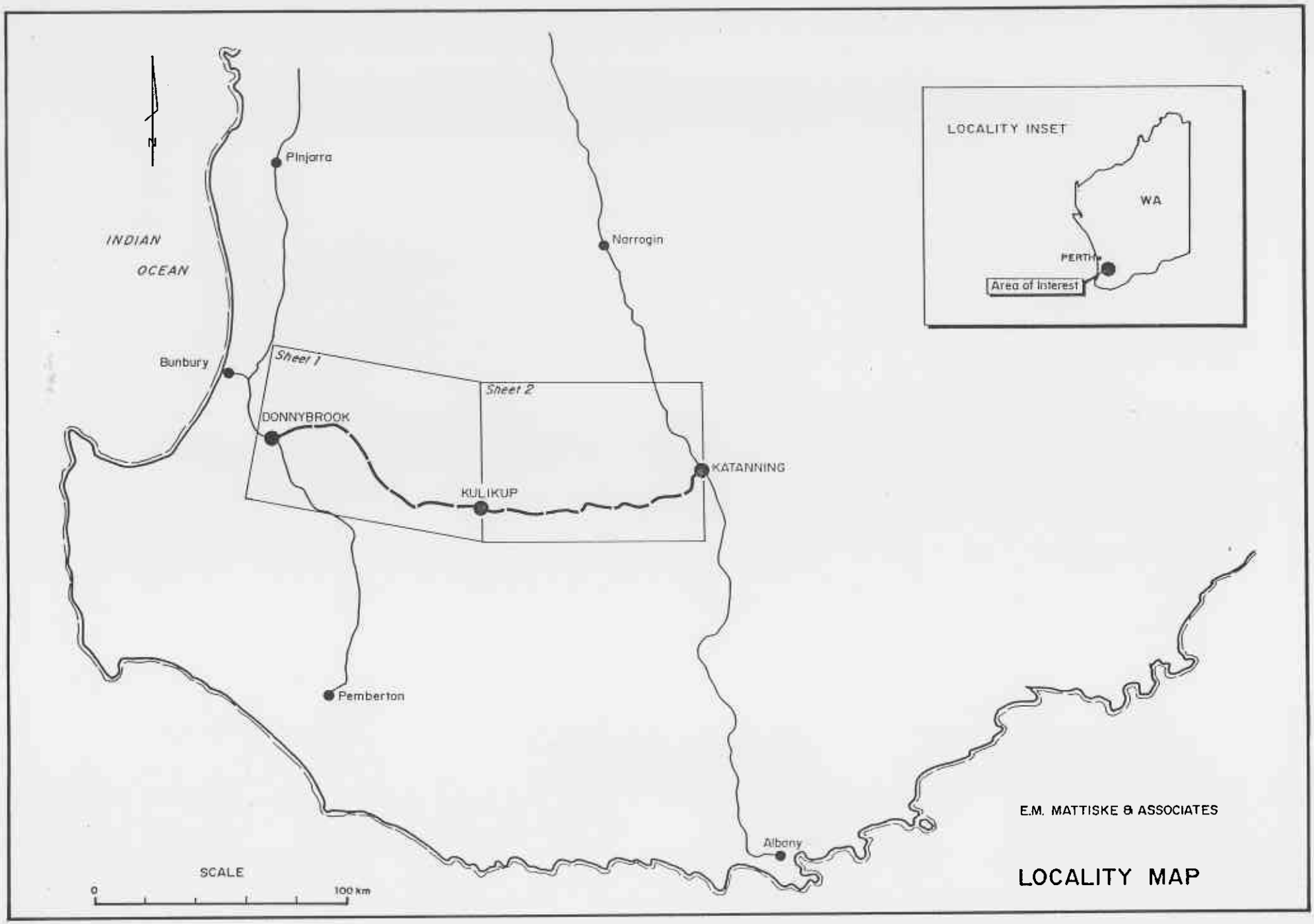
In particular:	Dr K J Atkins - Rare Flora Staff of the State Herbarium, in particular Mr R Cranfield
Report Preparation:	Mr G Schlapfer Mrs J Barrett Ms N Keals

1. INTRODUCTION

E.M. Mattiske & Associates were commissioned in 1992, by the Department of Conservation and Land Management in association with the Roadside Conservation Committee, to undertake a biological survey and review the conservation values of native vegetation within 212km of rail reserve from Donnybrook to Katanning. This rail reserve has been abandoned for several years and the opportunity arises to review its status and future land use options. The location of the rail reserve surveyed is represented in Figure 1.

The criteria selected to assess the conservation values of the rail reserve was based on previous studies by E.M. Mattiske & Associates (1991, 1992) on other rail reserves.

This report presents the results of the biological survey and summarises the conservation values of the rail reserve and recommends strategies for future management.


LOCALITY INSET
WA
PERTH
Area of Interest
INDIAN
OCEAN
Pinjarra
Narrogin
Bunbury
Sheet 1
Sheet 2
DONNYBROOK
KULIKUP
KATANNING
Pemberton
Albany
SCALE
0
100 km
E.M. MATTISKE & ASSOCIATES
LOCALITY MAP

2. OBJECTIVES

The scope of the project was to undertake a detailed biological survey of the proposed rail reserve from Donnybrook to Katanning (34SLK to 210SLK).

The specific objectives were:

- An inventory of the vascular plant species in this section of rail reserve.
- A review of plant species considered to be rare and endangered, geographically restricted or an outlier population which are known to occur, or may occur within the rail reserve.
- A description and location, including mapping, of the plant communities on the rail reserve.
- A review of the local regional significance of the plant communities.
- An assessment of vertebrate fauna on the rail reserve.
- A review of degrees of disturbance on the rail reserve.
- Information directed towards practical management techniques for improving the value of rail reserve for conservation of flora and fauna species known to exist within, or use, this section of rail reserve.
- Preparation of vegetation maps and a final report summarising findings.

3. METHODS

3.1 Extraction of Relevant Data for the Rail Reserve

Information was extracted from the following sources for the preparation of maps and the report:

- Topo-cadastral Maps at a scale of 1:50 000.
- Declared Rare Flora data - provided by the Department of Conservation and Land Management from the current data-bases (Department of Conservation and Land Management, 1992) and Hopper et al. (1990).
- Previous publications relevant to the study of corridors.
- Previous techniques developed by E.M. Mattiske & Associates (1991).

3.2 Field Survey Techniques

The field survey techniques used in the current survey followed E.M. Mattiske & Associates (1991, 1992) and included:

- Regular observations on plant communities/habitats, vertebrate fauna and disturbance levels along the 212 kilometres of rail reserve.
- Detailed site recordings at 29 locations on the rail reserve in representative communities and disturbance levels.

The survey field recording sheets were based on those developed previously by E.M. Mattiske & Associates (1991, 1992). The taxonomy of the vascular plant species follows Green (1985). All voucher specimens collected were checked with plant specimens at the State Herbarium, South Perth.

In addition to the information gathered by observations, a list of expected bird species was compiled using habitat information and species distribution maps (Blakers *et al.*, 1984, Marchant and Higgins 1990).

3.3 Data Analysis

All data analysis was based on information collected from the recording sites located at intervals along the railway line and from the regular notes taken along the survey route. The information was summarised as a percentage of the plant communities and the degree of disturbance levels along the route. Where possible, information was summarised in a graphical or tabular form.

The vegetation was classified, defined and mapped on the basis of the structural and floristic composition. The following categories of disturbance levels were defined for the rail reserve. This assessment was undertaken along the entire length of the rail reserve surveyed and incorporated in the vegetation map. The categories were defined as follows:

UND - Undisturbed:
No obvious clearing, community dominated by native species, weeds lacking.

D - Disturbed:
Community dominated by native species and only occasional weed species present.

VD - Very Disturbed:
Community dominated by natives but weeds present in localised patches.

V2 - Very Very Disturbed:
Community disturbed, native species still dominate overstorey and understorey, although weeds present.

V3 - Very Very Very Disturbed:
Community disturbed, native species dominate overstorey, but weeds common in understorey.

V4 - Very Very Very Very Disturbed:
Community very disturbed with only patches of native overstorey remaining and weeds dominating understorey.

V5 - Very Very Very Very Very Disturbed:
Native overstorey species generally absent or very patchy and community dominated by weeds.

The interpretation of these levels of disturbance were checked regularly by personnel during the survey to maintain consistency during visual assessment of the line.

For general comparisons and assessment of fauna habitat, the plant communities were grouped using the dominant overstorey species and community type. For example, all Wandoo (*Eucalyptus wandoo* - 'W' vegetation mapping codes) were grouped.

4. RESULTS

4.1 Flora

A total of 38 families, 96 genera and 154 vascular plant species were recorded on the rail reserve (Appendix A). The total number of species on this rail corridor is much higher, as only the dominant and indicator species for the respective communities were recorded. Of the 146 species, 18 were introduced or weed species.

The dominant families recorded were Myrtaceae (23 species), Proteaceae (21 species), Papilionaceae (17 species, including 2 introduced species).

4.2 Rare and Restricted Flora Species

On the basis of current information and records, no Declared Rare Flora (DRF) are known to occur on this rail reserve.

4.3 Vegetation

The plant communities on the rail reserve surveyed were defined and mapped (see Appendix B and enclosed vegetation maps). A total of 21 plant communities were identified on the basis of structural and floristic characteristics. All plant communities reflected local site conditions and these details have been briefly summarised in Appendix B.

The plant communities defined and mapped supported different species, and the species richness varied significantly between disturbance levels within plant communities. The representation of the plant community groupings on the rail reserve is summarised in Figure 2.

4.4 Conservation Values

The degree of disturbance of the rail reserve was summarised in Figure 3. The results reflect a low occurrence of areas of minimal disturbance (UND, D, VD, V2) when compared with the levels of high disturbance (V3, V4, V5).

The occurrence of V5 disturbance, where none or very few native species exist, contributed to 30% of the total length of the reserve. Including the other high levels of disturbance, this accounted for more than 70% of the reserve being degraded.

Figure 2
Comparison of the Proportion of
each Plant Community Group

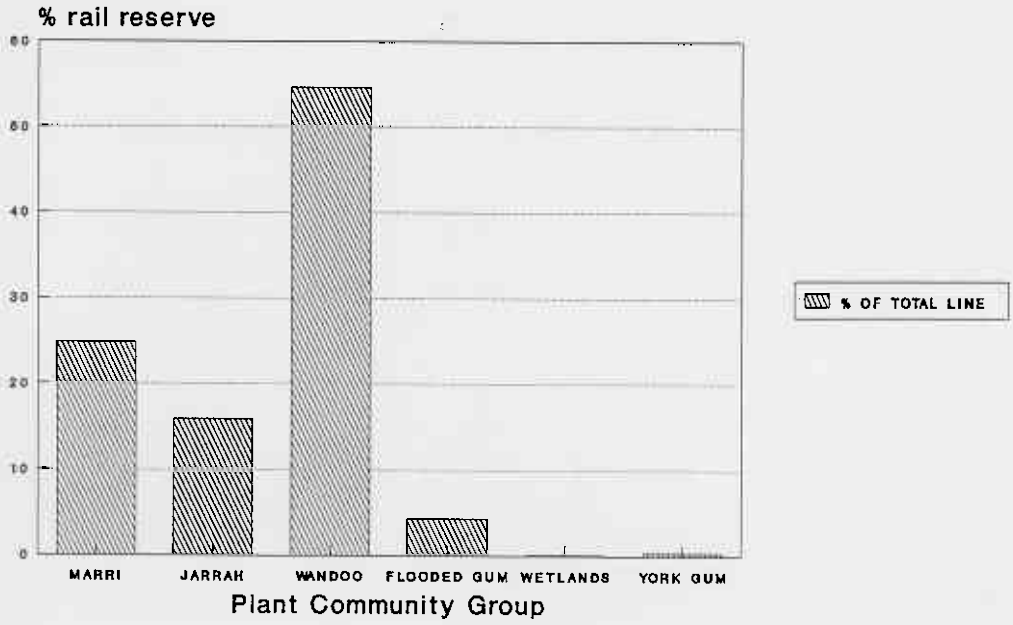
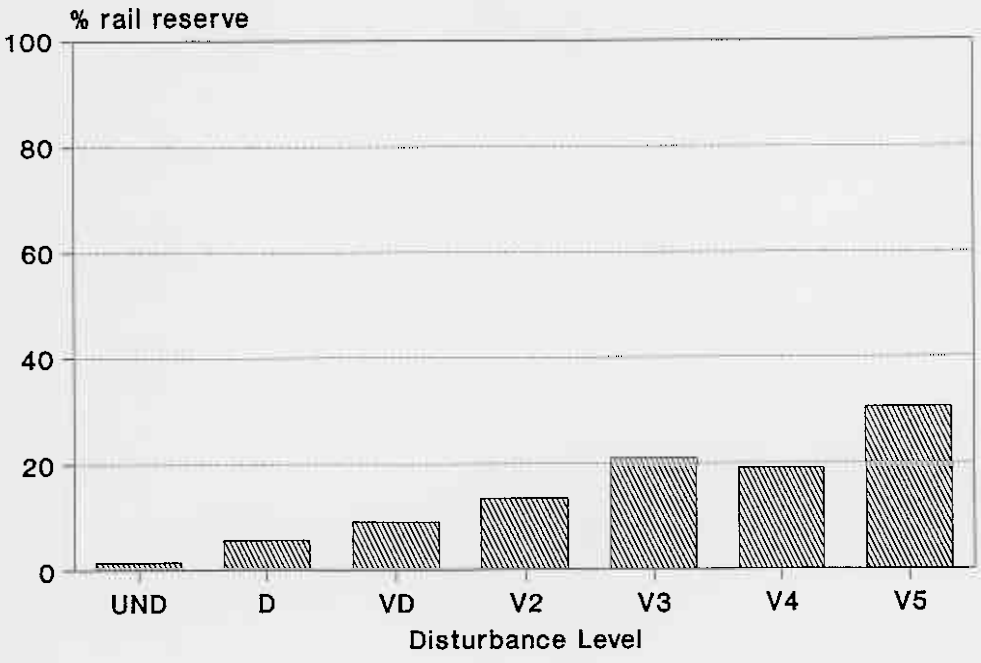


Figure 3
Comparison of the Levels of Disturbance



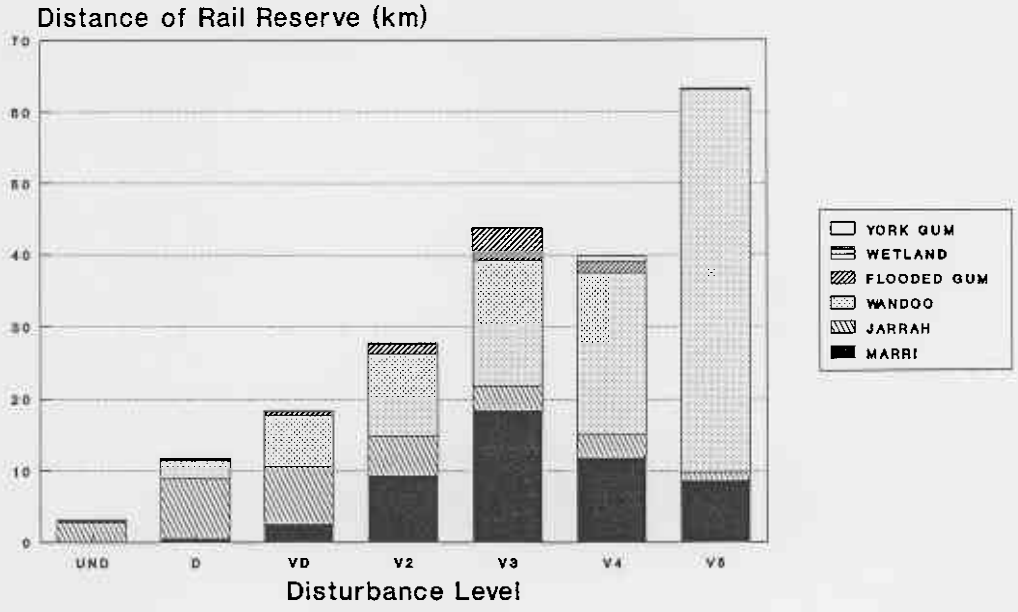
As demonstrated by previous rail reserve surveys (E.M. Mattiske & Associates, 1991, 1992), the degree of degradation of a reserve is closely related to the type of vegetation on the line. That is, the relative representation of the plant community groupings in part can reflect the differences in quality of the rail reserve to stress and disturbance, as some plant communities are more vulnerable to changes from human influences.

A large proportion of the rail reserve exhibiting low disturbance levels was comprised of Jarrah Forest and Marri Woodland communities adjacent to large tracts State Forest.

From Figure 4 it can be seen, that the disturbance level of V5 was comprised mainly of Wandoo Plant Communities. These Wandoo Communities are mostly open woodlands, readily degraded by disturbances such as grazing, as much of this community was subject to.

At the time of the survey, sixty-one kilometres of the rail reserve or 30 percent, was exposed to grazing. This exposure was a result of the construction of fences and gates across the reserve creating long paddocks, or the absence of entire sections of fencing where the boundary between reserve and pasture was indistinguishable.

Figure 4
Comparison of the Disturbance Levels
between the Plant Community Groups



4.5 Birds

Fifty-nine bird species were recorded on the rail reserve during the survey. Based on an assessment of the habitats available a further 80 species could be expected to occur (Appendix C). These additional species mainly represent water birds and birds associated with water (50%) and nomadic, migratory, nocturnal and uncommon or secretive species that are not easily observed. Many of these additional species would only be recorded if long-term, seasonal surveys or nocturnal studies were carried out, this is especially the case with waterbirds as most would only be present during favourable conditions. It should be noted however, that habitat disturbance levels were not considered when compiling the additional species list. Therefore those birds sensitive to habitat disturbance may be absent from the rail reserve despite the occurrence of suitable habitat.

The results for average bird species richness for each disturbance level and by plant community groupings are given in Figures 5 and 6. Although the bird data was collected largely in an opportunistic manner comparisons of species recorded in each disturbance level and vegetation groups shows the following trends.

Figure 5 indicates that as the habitat becomes more disturbed the number of species decreases. These results were calculated using the number of species recorded for each disturbance level divided by the amount of each disturbance level represented on the reserve. These results are comparable with those presented in previous rail reserve surveys (E.M. Mattiske & Associates, 1991, 1992).

Figure 6 indicates that the Flooded Gum community has the highest bird species richness per kilometre of the rail reserve with 2.44 bird species/kilometre. This plant community group included water courses such as the Blackwood River and Carlecatup River where 3 species of waterbird were recorded with a selection of a further 30 species expected, given suitable water levels over time (Appendix C). This plant community group occurred in patches throughout the rail reserve.

The rail reserve passes through Jarrah and Marri vegetation groups from Donnybrook to Boyup Brook (approx 76km). These plant community groups had 0.94 and 0.60 bird species/km respectively. These figures reflect the disturbance levels found in these plant community groups (Figure 4).

The Wandoo woodland plant community group occurred mainly on the Boyup Brook to Katanning (Wheatbelt) section of rail reserve. This habitat showed a high degree of disturbance (Figure 4) and this was reflected by the low bird species richness per kilometre (0.45).

Figure 5
Average Number of Bird Species
in each Disturbance Level

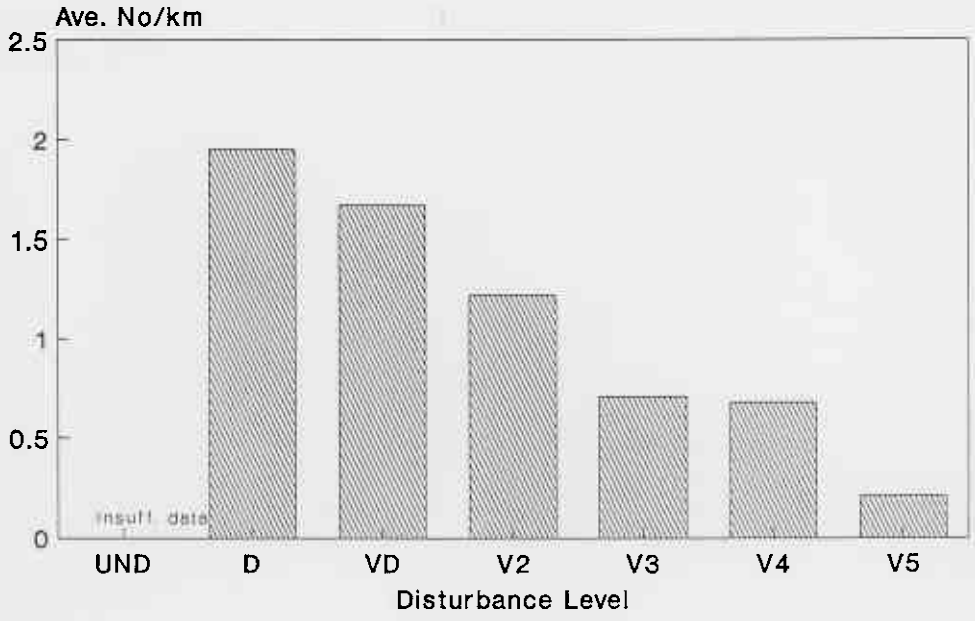
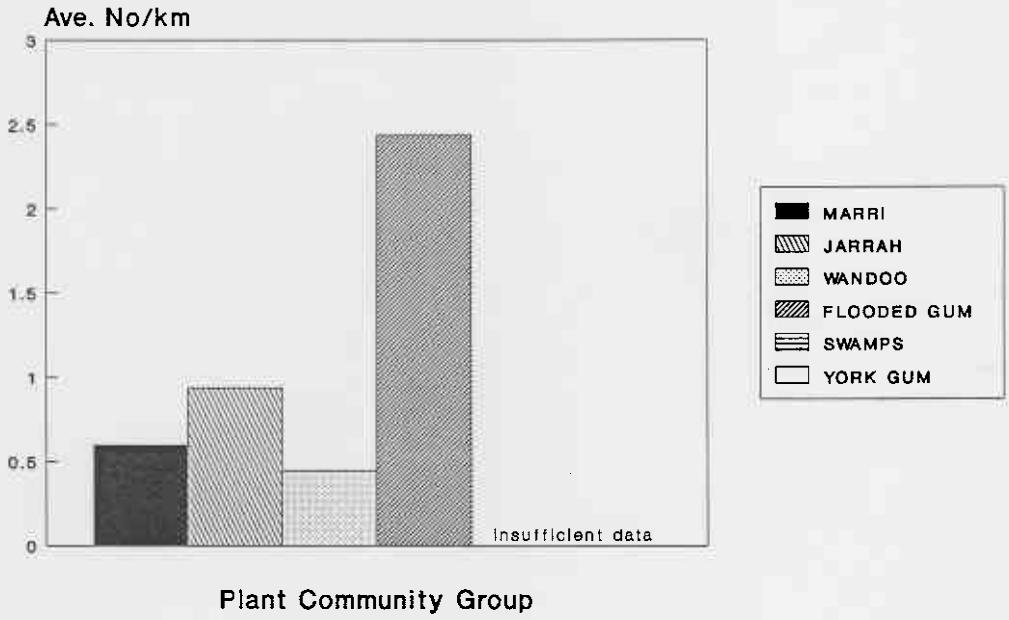


Figure 6
Average Number of Bird Species
in each Plant Community Group



4.6 Other Vertebrate Fauna

Two species of native mammal were recorded during the survey, the Western Grey Kangaroo *Macropus fuliginosus* and the gazetted Southern Brown Bandicoot *Isoodon obesulus*.

Five species of frog were recorded, *Crinia georgiana*, *C. glauerti*, *C. pseudinsignifera*, *Litoria adelaidensis* and *L. moorei*. Four of the five species recorded (*C. georgiana*, *C. glauerti*, *L. adelaidensis* and *L. moorei*) occurred on the section from Donnybrook to just east of Boyup Brook in the Jarrah, Marri and Flooded Gum plant community groups. *Crinia pseudinsignifera* was recorded along the length of the rail reserve in wetter sections of Jarrah, Marri, Wandoo and Flooded Gum. Tadpoles and recently metamorphosed frogs were present in water lying on the rail access track, particularly on the Donnybrook to Boyup Brook section.

Opportunistic recordings of reptiles such as the skink (*Cryptoblepharus plagiocephalus*) and Bobtail (*Tiliqua rugosa rugosa*) and the snake (*Rhinoplocephalus nigriceps*) were made. However, to establish the presence of other reptile, amphibian and mammal species, intensive seasonal surveys including pit trapping, hand foraging and nocturnal searching would be required.

4.7 Rare Fauna

One mammal species and two bird species which are gazetted under the Wildlife Conservation Act (1950) were recorded during the survey.

The Southern Brown Bandicoot (*Isoodon obesulus*) is gazetted under Schedule 1 of the Wildlife Conservation Act (1950) as likely to become extinct or is rare. A total of six recordings of their diggings were made on the rail reserve as follows in Table 1. All recordings occurred in the Donnybrook to Boyup Brook section of rail reserve.

Table 1: Details of the Southern Brown Bandicoot Sightings

No. of Sightings	Plant Community	Disturbance Level	Plant Community Group
1	J2	D	JARRAH
2	M1	V2	MARRI
2	M4	VD	MARRI
1	FG1	V2	FLOODED GUM

Two species of bird gazetted on Schedule 2 as otherwise in need of special protection were recorded during the survey. These were the Peregrine Falcon (*Falco peregrinus macropus*) and the Red-eared Firetail (*Emblema oculata*). The Peregrine falcon was recorded in remnant vegetation adjacent to the rail reserve approximately 1.4km west of Site 21. The Red-eared Firetail was recorded at Site 12, in disturbed J2 vegetation (see enclosed map).

Three additional gazetted bird species may occur on the railway line where suitable habitat exists (Appendix C). These are the Crested Shrike-tit (*Falcunculus frontatus*), Carnaby's Cockatoo (*Calyptorhyncus latirostris*) and Baudin's Cockatoo (*C. baudinii*).

4.8 Introduced Fauna

The introduced rabbit (*Orycytolagus cuniculus*) and fox (*Vulpes vulpes*) were recorded in all plant communities and in all disturbance levels. Signs of feral pigs (*Sus scrofa*) were also recorded at Sites 13 and 15.

5. DISCUSSION

The Donnybrook to Katanning rail reserve overlaps two major biogeographical units, both with respect to its vegetation and vertebrate fauna.

The Donnybrook to Boyup Brook section (76km) passes mainly through State Forest areas dominated by Jarrah - Marri (*Eucalyptus marginata - Eucalyptus calophylla*) communities with minor occurrences of Flooded Gum (*Eucalyptus rudis*) and swamp communities. The Boyup Brook to Katanning section (136km) passes through what is broadly described as Wheatbelt comprising mainly Wandoo communities with minor occurrences of Flooded Gum and Marri communities. These sections of the rail reserve have species in common and also support species restricted to either the Wheatbelt or the State Forest communities.

From Figure 3 it can be seen that the majority of the rail reserve (more than 70%) has a disturbance level of V3 or higher. This level of disturbance reflects the dominance of woodland communities (Figure 4) that are naturally more susceptible to disturbance and weed invasion (Mattiske & Associates 1991 and 1992; True 1991). The highly disturbed Wandoo woodland communities occurred in the Wheatbelt section of rail reserve. Communities exhibiting low disturbance levels occurred mainly in the Jarrah and Marri forest communities.

The less disturbed plant communities on the rail reserve within the Wheatbelt region are particularly significant as many of these communities have been either cleared or modified for agriculture in the Region. The plant communities which occur on the wetlands and low lying areas in the rail reserve are particularly significant, as many of these areas have been markedly affected directly and indirectly by the agricultural activities in the Wheatbelt.

A total of 61km (approximately 30%) of the rail reserve was grazed, a proportion of this was paddock with no defined rail reserve boundaries. The grazed areas all occurred in the Wheatbelt section of rail reserve.

The biological survey identified five broad fauna habitats (plant community groups). Of these the Jarrah, Marri and Flooded Gum groups have the highest bird species richness per kilometre and are the least disturbed. In addition, one gazetted mammal and 2 bird species were recorded in these communities.

The Wandoo community group comprised 54% of the rail reserve and of that 66% had disturbance levels of V4 and V5. This is reflected by the low average number of bird species per kilometre. Although the majority of the Wheatbelt section is highly disturbed, in parts, it still retains values as a corridor, contributing to the maintenance of biological diversity and facilitating movement of vertebrates, especially birds, both regionally between the Wheatbelt and State Forest and locally between adjacent remnants.

A small percentage of the rail reserve consisted of wetlands including rivers, minor creeklines and seasonally inundated swamps (FG1, FG2, FG3 and ME1 plant community groups). The Flooded Gum communities had a higher bird species richness per kilometre (2.44 species/km) than any other community and included three species of waterbird with a further 30 species predicted given suitable water levels over time. These wetlands are a significant feature of the rail reserve particularly those occurring in the Wheatbelt section.

Two species of bird gazetted as otherwise in need of special protection were recorded during the survey. The Peregrine Falcon has a worldwide distribution and is threatened over most of its global range by birth defects, egg-shell thinning due to pesticide ingestion and by falconry. However, the Australian subspecies appears to be under no immediate threat and has coped well with European settlement. In Australia it is affected by pesticides in relatively small areas subject to intensive agriculture (Garnett, 1992).

The Red-eared Firetail depends on riparian vegetation associated with forests in the south-west of Western Australia. It was feared that local extinctions could occur due to its habitat being destroyed by the construction of water storage dams, clearing for agriculture, and salinization. The species has now been shown to disperse more widely than previously believed and still occurs over most of its former range (Garnett, 1992).

Numerous diggings of the gazetted Southern Brown Bandicoot were recorded in the Donnybrook to Boyup Brook section (Table 1). This species requires a dense understorey to survive and typically lives around wetlands, along water courses and in wet heaths. These animals are known to be good colonisers after disturbance and will persist in areas where the understorey consists entirely of weeds, providing the cover is dense (Cockburn, 1990; Stoddard and Braithwaite, 1979; A. Sanders, pers. comm.). Their diggings were noted amongst thickets of introduced *Watsonia bulbillifera* and any future weed control programmes should take into account the presence of these gazetted animals.

The characteristics that influence the conservation value of a rail corridor established previously (E.M. Mattiske & Associates, 1991 and 1992), were also reflected in this survey. They are

. the close proximity of cleared agricultural lands,

. the predominance of woodlands and

. the close proximity of State Forest areas.

The conservation value of the rail reserve appeared to be related to the floristic diversity of the two different biogeographic regions (the Dale and Avon phytogeographical regions according to Beard, 1980 or the natural regions of the Wheatbelt and Jarrah Forest according to Clarke, 1926) in the survey area.

6. RECOMMENDATIONS FOR MANAGEMENT

On the basis of results from the survey, the following recommendations for management are made:

- Review all issues related to disease control (e.g. fungal diseases such as *Phytophthora cinnamomi*). Hygiene measures should be adopted by all users of the rail reserve corridor. Discussions on hygiene measures should be undertaken with appropriate Government officers.

- All disused sidings should be revegetated at the earliest opportunity with local native species. This activity could be conducted with the support from Greening Australia, Men of the Trees, local Schools and the Land Conservation District Committees.

- All ungrazed sections of this rail reserve should be maintained as corridors and therefore firebreaks should not be established by farmers within the rail reserve. Further fencing creating long paddocks to allow stock onto the rail reserve should not occur. The latter use of the rail reserves as "long paddocks" markedly reduces the conservation value of the corridors. Positive aspects of the potential use of the rail reserve for recreational purposes should be encouraged.

- The conservation values of the corridors are reduced near railway crossings by the greater clearing activities in these areas. Therefore particular attention should be placed on the management of these areas with regard to minimising access through the establishment of barriers in appropriate areas.

- Maintain, wherever possible, habitats which provide shelter for fauna species. For example, old trees with hollows, piles of old sleepers and fallen logs which are utilised by bird, reptile and mammal species.

- Establish a feral animal control programme in conjunction with local land-holders and management authorities (particularly for rabbit and fox control).

- Establish a weed control programme in conjunction with local land-holders and management authorities, but with due consideration to the wider issues of conserving native flora and fauna species (e.g. Southern Brown Bandicoot). In some areas where weeds are particularly invasive, a rehabilitation programme would involve earthworks, seeding and planting. The latter activity could be conducted with the support from Greening Australia, Men of the Trees, local Schools and the Land Conservation District Committees.

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APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
DENNSTAEDTIACEAE	Pteridium esculentum
ZAMIACEAE	Macrozamia riedlei
PINACEAE	Pinus pinaster
POACEAE	Danthonia caespitosa
	Neurachne alopecuroidea
	Stipa elegantissima
	Tetrarrhena laevis
	Themeda triandra
	*Briza minor
	*Ehrharta longiflora
	*Eragrostis curvula
CYPERACEAE	Chorizandra enodis
	Gahnia trifida
	Lepidosperma angustifolium
	Lepidosperma tenue
	Mesomelaena pseudostygia
	Mesomelaena tetragona
	Tricostularia neesii
RESTIONACEAE	Hypolaena exsulca
	Lepidobolus preissinus
	Leptocarpus aristatus
	Loxocarya cinerea
	Loxocarya fasciculata
	Loxocarya flexuosa
	Lyginia barbata
JUNCACEAE	*Juncus acutus

APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
DASYPOGONACEAE	
	Lomandra sp.
XANTHORRHOEACEAE	
	Xanthorrhoea gracilis
	Xanthorrhoea preissii
PHORMIACEAE	
	Dianella revoluta
	Stypandra grandiflora
ANTHERICACEAE	
	Arthropodium capillipes
	Borya sphaerocephala
	Thysanotus patersonii
HAEMODORACEAE	
	Anigozanthos manglesii
	Haemodorum laxum
IRIDACEAE	
	Patersonia occidentalis
	*Romulea rosea
	*Watsonia bulbillifera
ORCHIDACEAE	
	Pterostylis sp.
	*Monadenia bracteata
CASUARINACEAE	
	Allocasuarina fraseriana
	Allocasuarina huegeliana
	Allocasuarina humilis
	Allocasuarina lehmanniana

APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
PROTEACEAE	
	Adenanthos obovatus
	Banksia attenuata
	Banksia grandis
	Banksia littoralis
	Dryandra armata
	Dryandra bipinnatifida
	Dryandra fraseri
	Dryandra nivea
	Dryandra sessilis
	Grevillea bipinnatifida
	Hakea erinacea
	Hakea lissocarpha
	Hakea prostrata
	Hakea ruscifolia
	Hakea trifurcata
	Hakea undulata
	Hakea varia
	Isopogon axillaris
	Isopogon sp.
	Persoonia longifolia
	Petrophile sp.
	Synaphea aff. reticulata
LORANTHACEAE	
	Nuytsia floribunda
POLYGONACEAE	
	*Rumex brownii
CHENOPODIACEAE	
	Halosarcia halocnemoides
BRASSICACEAE	
	*Brassica tournefortii
DROSERACEAE	
	Drosera sp.

APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
PITTOSPORACEAE	
	Billardiera bicolor
ROSACEAE	
	*Acaena echinata
	Rubus fruticosus
MIMOSACEAE	
	Acacia acuminata
	Acacia decurrens
	Acacia dentifera
	Acacia microbotrya
	Acacia nervosa
	Acacia pulchella
	Acacia saligna
	Acacia sp.
	Acacia squamata
PAPILIONACEAE	
	Bossiaea eriocarpa
	Bossiaea ornata
	Brachysema eelsianum
	Brachysema praemorsum
	*Cytisus proliferus
	Daviesia decurrens
	Daviesia hakeoides
	Gastrolobium calycinum
	Gastrolobium spinosum
	Gastrolobium villosum
	Gompholobium knightianum
	Hardenbergia comptoniana
	Hovea trisperma
	Jacksonia furcellata
	Kennedia coccinea
	Kennedia prostrata
	Nemcia cuneatum
	Nemcia obovata
	*Trifolium arvense
OXALIDACEAE	
	*Oxalis sp.

APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
RUTACEAE	
	Phebalium tuberculosum
STERCULIACEAE	
	Thomasia macrocalyx
DILLENIACEAE	
	Hibbertia amphlexicaulis
	Hibbertia commutata
	Hibbertia hypericoides
VIOLACEAE	
	Hybanthus floribundus
THYMELAEACEAE	
	Pimelea suaveolens
MYRTACEAE	
	Agonis flexuosa
	Agonis linearifolia
	Astartea fascicularis
	Eremaea beaufortioides
	Eucalyptus astringens
	Eucalyptus calophylla
	Eucalyptus camaldulensis
	Eucalyptus decipiens
	Eucalyptus drummondii
	Eucalyptus globulus
	Eucalyptus loxophleba
	Eucalyptus marginata
	Eucalyptus occidentalis
	Eucalyptus patens
	Eucalyptus rudis
	Eucalyptus wandoo
	Hypocalymma angustifolium
	Kunzea ericifolia (form)

APPENDIX A : DOMINANT VASCULAR PLANT SPECIES LIST

FAMILY	SPECIES
MYRTACEAE (Continued)	Melaleuca aff. viminea
	Melaleuca cuticularis
	Melaleuca hamulosa
	Melaleuca rhaphiophylla
	Melaleuca sheathiana
	Melaleuca sp.
	Pericalymma ellipticum
	Verticordia densiflora
APIACEAE	Xanthosia candida
EPACRIDACEAE	Astroloma ciliatum
	Astroloma compactum
	Astroloma pallidum
	Epacridaceae sp.
	Leucopogon sp.
LAMIACEAE	Hemiandra pungens
	Hemigenia ?canescens
	*Lavendula sp.
GOODENIACEAE	Dampiera linearis
	Goodeniaceae sp.
	Lechenaultia biloba
	Lechenaultia formosa
STYLIDIACEAE	Stylidium piluliferum
ASTERACEAE	*Ursinia anthemoides
	*Arctotheca calendula
	*Hypochaeris glabra

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: M1
Vegetation Description:

Open Forest of *Eucalyptus calophylla - Eucalyptus marginata - Eucalyptus rudis.*

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Eucalyptus rudis

Understorey:

Acacia pulchella
Acacia saligna
Melaleuca hamulosa
Lechenaultia biloba
Xanthorrhoea preissii
Synaphea aff. reticulata
Anigozanthus manglesii
Kennedia prostrata
Daviesia decurrens
Lepidosperma tenue
Patersonia occidentalis

No. Structural Layers: 3-5
Height of Trees: 10 - 20m
Height of Shrubs: 0.5 - 4m
Height of Understorey: <0.5m

Topography: Mid Slopes - Gully
Soil Type: Sands, Sandy Loam
Soil Colour: Grey

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: M2
Vegetation Description:

Open Woodland of *Eucalyptus calophylla*.

Indicator Species:

Trees:
Eucalyptus calophylla

Understorey:
Acacia nervosa
Dianella revoluta
Haemodorum laxum
Hybanthus floribundus
Kennedia prostrata
Lepidosperma angustatum
Macrozamia riedlei
Patersonia occidentalis
Xanthorrhoea preissii

No. Structural Layers: 3

Height of Trees:	2 - 10m
Height of Shrubs:	0.5 - 1.5m
Height of Understorey:	<0.5m

Topography:	Mid Slopes
Soil Type:	Sands, Gravel
Soil Colour:	Grey

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: M4
Vegetation Description:

Open Woodland of *Eucalyptus calophylla - Eucalyptus rudis - Agonis* spp. and Proteaceae spp..

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus rudis

Understorey:

Acacia pulchella
Allocasuarina humilis
Astroloma ciliatum
Dryandra nivea
Hakea prostrata
Haemodorum laxum
Lepidosperma angustatum
Loxocarya fasciculata
Xanthorrhoea preissii

No. Structural Layers: 5

Height of Trees:	10 - 20m
Height of Shrubs:	0.5 - 3m
Height of Understorey:	<0.2m

Topography:	Lower slopes
Soil Type:	Clay loam, Gravel
Soil Colour:	Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: J1
Vegetation Description:

Open Forest of *Eucalyptus marginata - Eucalyptus calophylla - Persoonia longifolia - Pteridium esculentum* occasionally *Nuytsia floribunda*.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Banksia grandis
Persoonia longifolia

Understorey:

Acacia pulchella
Bossiaea ornata
Haemodorum laxum
Hakea erinacea
Kennedia coccinea
Lepidosperma angustatum
Leptocarpus aristatus
Loxocarya fasciculata
Macrozamia riedlei
Xanthorrhoea gracilis

No. Structural Layers: 4-5

Height of Trees:	2 - 25m
Height of Shrubs:	0.5 - 2m
Height of Understorey:	<0.5m

Topography: Mid to Upper slopes
Soil Type: Sands, Sandy loam, Gravel
Soil Colour: Caramel

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: J2
Vegetation Description:

Open Forest of *Eucalyptus marginata - Eucalyptus calophylla - Banksia grandis.*

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Banksia grandis
Banksia attenuata

Understorey:

Adenanthos obovatus
Bossiaea eriocarpa
Haemodorum laxum
Hovea trisperma
Kennedia prostrata
Kunzea ericifolia
Lepidosperma angustatum
Loxocarya fasciculata
Macrozamia riedlei
Xanthorrhoea preissii

No. Structural Layers: 5

Height of Trees:	5 - 20m
Height of Shrubs:	0.5 - 3.5m
Height of Understorey:	<0.2m

Topography: Mid slope
Soil Type: Sands
Soil Colour: Grey, Caramel

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: J3
Vegetation Description:

Open Woodland of *Eucalyptus calophylla* - *Eucalyptus marginata* and Heath of Myrtaceae spp. and Restionaceae spp.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata

Understorey:

Acacia squamata
Anigozanthos manglesii
Dryandra sessilis
Gastrolobium calycinum
Hakea trifurcata
Lepidosperma angustatum
Loxocarya cinerea
Loxocarya fasciculata
Mesomelaena pseudostygia
Xanthorrhoea preissii

No. Structural Layers: 6

Height of Trees:	5 - 20m
Height of Shrubs:	0.5 - 3m
Height of Understorey:	<0.5m

Topography: Mid slope
Soil Type: Sands
Soil Colour: Grey

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: J4
Vegetation Description:

Open Forest of *Eucalyptus marginata - Eucalyptus calophylla - Eucalyptus patens* over sedges.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Eucalyptus patens
Eucalyptus rudis

Understorey:

Acacia pulchella
Haemodorum laxum
Hibbertia amphlexicaulis
Lepidosperma angustatum
Mesomelaena pseudostygia
Pteridium esculentum
Tricostularia neesii
Xanthorrhoea preissii

No. Structural Layers: 5
Height of Trees: 15 - 20m
Height of Shrubs: 0.5 - 3m
Height of Understorey: <0.5m

Topography: Drainage line
Soil Type: Clay loam
Soil Colour: Dark brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: J5
Vegetation Description:

Open Forest of *Eucalyptus marginata - Eucalyptus calophylla - Banksia littoralis - Banksia grandis.*

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Banksia grandis
Banksia littoralis

Understorey:

Acacia pulchella
Dryandra nivea
Hibbertia amphlexicaulis
Hibbertia hypericoides
Lepidosperma tenue
Loxocarya fasciculata
Thomasia macrocalyx

No. Structural Layers: 5

Height of Trees:	10 - 20m
Height of Shrubs:	0.5 - 1m
Height of Understorey:	<0.2m

Topography:	Mid slope
Soil Type:	Sandy loam
Soil Colour:	Orange

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W1
Vegetation Description:

Woodland of *Eucalyptus wandoo* - *Eucalyptus marginata* - *Eucalyptus calophylla* - *Hakea prostrata*.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus marginata
Eucalyptus wandoo

Understorey:

Acacia pulchella
Arthropodium capillipes
Brachysema praemorsum
Daviesia hakeoides
Dianella revoluta
Dryandra nivea
Hakea lissocarpha
Hakea prostrata
Lepidosperma angustatum
Nemcia cuneatum
Neurachne alopecuroidea

No. Structural Layers: 5
Height of Trees: 4 - 20m
Height of Shrubs: 0.5 - 1.5m
Height of Understorey: <0.5m

Topography: Mid slope, Upper slope
Soil Type: Clay loam, Sand, Gravel
Soil Colour: Caramel

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W2.
Vegetation Description:

Woodland of *Eucalyptus wandoo* - *Eucalyptus calophylla* - *Eucalyptus rudis* - *Allocasuarina* spp.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus rudis
Eucalyptus wandoo
Allocasuarina huegeliana

Understorey:

Acacia acuminata
Allocasuarina lehmanniana
Arthropodium capillipes
Dampiera spp.
Dianella revoluta
Hakea lissocarpha
Hakea prostrata
Neurachne alopecuroidea

No. Structural Layers: 4
Height of Trees: 5 - 15m
Height of Shrubs: 0.5 - 3m
Height of Understorey: <0.5m

Topography: Mid slope, Crest
Soil Type: Sandy loam, Gravel, Quartz
Soil Colour: Grey

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W4.
Vegetation Description:

Woodland of *Eucalyptus wandoo* - Mallees - heath of Proteaceae spp.

Indicator Species:

Trees:

Eucalyptus decipiens
Eucalyptus drummondii
Eucalyptus wandoo

Understorey:

Daviesia decurrens
Dryandra nivea
Hakea lissocarpha
Hakea prostrata
Hakea undulata
Hakea varia
Lepidosperma angustatum
Neurachne alopecuroidea
Petrophile sp.

No. Structural Layers: 6

Height of Trees:	4 - 20m
Height of Shrubs:	0.5 - 3m
Height of Understorey:	<0.2m

Topography:	Mid slope
Soil Type:	Clay loam
Soil Colour:	Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W5.
Vegetation Description:

Open Woodland of *Eucalyptus wandoo* - *Allocasuarina fraseriana* - *Hakea prostrata* - *Acacia acuminata*

Indicator Species:

Trees:
Allocasuarina fraseriana
Eucalyptus rudis
Eucalyptus wandoo

Understorey:
Acacia acuminata
Acacia saligna
Arthropodium capillipes
Hakea prostrata
Lechenaultia formosa
Lepidosperma angustatum
Neurachne alopecuroidea

No. Structural Layers: 3-4
Height of Trees: 4 - 12m
Height of Shrubs: 1 - 3m
Height of Understorey: <0.2m

Topography: Mid slope, Lower slope
Soil Type: Sandy loam, Sandy clay
Soil Colour: Grey brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: FG1.
Vegetation Description:

Fringing Woodland of *Eucalyptus rudis* - *Melaleuca* spp. - *Pteridium esculentum* - *Agonis* spp.

Indicator Species:

Trees:
Allocasuarina fraseriana
Eucalyptus rudis

Understorey:
Acacia saligna
Agonis linearifolia
Melaleuca rhaphiophylla
Pteridium esculentum

No. Structural Layers: 4
Height of Trees: 5 - 15m
Height of Shrubs: 1 - 3m
Height of Understorey: <0.5m

Topography: Lower slope creek lines
Soil Type: Sandy loam
Soil Colour: Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: FG2.
Vegetation Description:

Open Woodland of *Eucalyptus rudis - Eucalyptus calophylla - Eucalyptus patens - Agonis flexuosa.*

Indicator Species:

Trees:
Agonis flexuosa
Eucalyptus calophylla
Eucalyptus patens
Eucalyptus rudis

Understorey:
Pteridium esculentum
Restionaceae spp.

No. Structural Layers: 4
Height of Trees: 5 - 15m
Height of Shrubs: 0.5 -1.5m
Height of Understorey: <0.5m

Topography: Lower slope creek lines
Soil Type: Sandy loam, Clay loam
Soil Colour: Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: FG3.
Vegetation Description:

Woodland of *Eucalyptus rudis - Hakea varia.*

Indicator Species:

Trees:
Eucalyptus calophylla
Eucalyptus rudis

Understorey:
Hakea undulata
Hakea varia
Pteridium esculentum
Restionaceae spp.

No. Structural Layers: 4
Height of Trees: 5 - 15m
Height of Shrubs: 0.5 -1.5m
Height of Understorey: <0.5m

Topography: Lower slope, Creek lines
Soil Type: Sandy loam, Clay, Laterite
Soil Colour: Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: M3.
Vegetation Description:

Open Forest of *Eucalyptus calophylla* - *Eucalyptus marginata* - *Banksia grandis* - *Banksia littoralis* - *Persoonia longifolia* - *Melaleuca* spp.

Indicator Species:

Trees:

Banksia grandis
Banksia littoralis
Eucalyptus calophylla
Eucalyptus marginata
Persoonia longifolia

Understorey:

Agonis linearifolia
Melaleuca spp.
Pteridium esculentum
Xanthorrhoea preissii

No. Structural Layers: 5
Height of Trees: 5 - 20m
Height of Shrubs: 0.5 -1.5m
Height of Understorey: <0.5m

Topography: Lower slope, Creek lines
Soil Type: Sandy loam, Clay
Soil Colour: Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: ME1.
Vegetation Description:

Wetland of Myrtaceae spp. - Proteaceae spp. dominated by *Melaleuca* spp.

Indicator Species:

Trees:

Understorey:

Eremaea beaufortioides
Hakea varia
Hypocalymma angustifolium
Hypolaena exsulca
Isopogon axillaris
Melaleuca sheathiana
Patersonia occidentalis
Verticordia densiflora

No. Structural Layers: 2
Height of Trees:
Height of Shrubs: 0.2 - 1m
Height of Understorey: <0.2m

Topography: Lower slope, Swamp
Soil Type: Sand
Soil Colour: Brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W3.
Vegetation Description:

Woodland of *Eucalyptus wandoo* - *Eucalyptus calophylla* - *Dryandra sessilis* - Myrtaceae spp.

Indicator Species:

Trees:

Eucalyptus calophylla
Eucalyptus wandoo

Understorey:

Dryandra armata
Dryandra sessilis
Hakea lissocarpha
Hibbertia hypericoides
Lechenaultia biloba
Lepidosperma angustatum
Lepidosperma tenue
Pericalymma ellipticum
Verticordia sp.

No. Structural Layers: 4
Height of Trees: 10 - 15m
Height of Shrubs: 0.5 - 2m
Height of Understorey: <0.5m

Topography: Mid slope, Lower slope
Soil Type: Sand, Laterite
Soil Colour: Grey brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W6.
Vegetation Description:

Open Woodland of *Eucalyptus wandoo* - *Eucalyptus astringens* - *Allocasuarina fraseriana*.

Indicator Species:

Trees:

Allocasuarina fraseriana
Eucalyptus astringens
Eucalyptus wandoo

Understorey:

Acacia pulchella
Astroloma compactum
Dryandra sessilis
Gastrolobium villosum
Hakea lissocarpha
Lepidosperma tenue
Nemcia obovata
Neurachne alopecuroidea

No. Structural Layers: 4

Height of Trees:	10 - 15m
Height of Shrubs:	0.5 - 2m
Height of Understorey:	<0.5m

Topography:	Mid slope
Soil Type:	Sandy loam
Soil Colour:	Red brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: W7.
Vegetation Description:

Open Woodland of *Eucalyptus wandoo* - *Eucalyptus occidentalis* - *Hakea prostrata*.

Indicator Species:

Trees:
Eucalyptus occidentalis
Eucalyptus wandoo

Understorey:
Acacia acuminata
Astroloma compactum
Chorizandra enodis
Hakea prostrata
Kennedia prostrata
Lepidosperma tenue
Loxocarya fasciculata
Neurachne alopecuroidea

No. Structural Layers: 3
Height of Trees: 8 - 20m
Height of Shrubs: 0.5 - 3m
Height of Understorey: <0.2m

Topography: Mid slope
Soil Type: Sandy loam
Soil Colour: Pale brown

APPENDIX B: PLANT COMMUNITIES

Vegetation Mapping Code: YK1.
Vegetation Description:

Open Woodland of *Eucalyptus loxophleba - Eucalyptus rudis - Acacia acuminata.*

Indicator Species:

Trees:
Eucalyptus loxophleba
Eucalyptus rudis

Understorey:
Acacia acuminata
Hakea prostrata
Kennedia prostrata
Lepidosperma tenue
Loxocarya fasciculata
Neurachne alopecuroidea
Stypandra grandiflora

No. Structural Layers: 3
Height of Trees: 5 - 15m
Height of Shrubs: 0.5 - 3m
Height of Understorey: <0.5m

Topography: Slopes, Crests and Drainage lines
Soil Type: Sandy loam, Clay loam.
Soil Colour: Red brown

APPENDIX C: BIRD SPECIES RECORDED AND THOSE EXPECTED TO OCCUR ON THE DONNYBROOK-KATANNING RAIL RESERVE

KEY

+ Bird species recorded
* Bird species expected to occur
^ Rare, or otherwise in need of special protection
I Introduced species

BIRD SPECIES	Recorded	Expected
DROMAIIDAE		
Dromaius novaehollandiae, Emu		*
PODICIPEDIDAE		
Poliocephalus poliocephalus, Hoary-headed Grebe		*
Tachybaptus novaehollandiae, Australasian Grebe	+	
PELECANIDAE		
Pelecanus conspicillatus, Australian Pelican	+	
ANHINGIDAE		
Anhinga melanogaster, Darter		*
PHALACROCORACIDAE		
Phalacrocorax carbo, Great Cormorant		*
P. sulcirostris, Little Black Cormorant		*
P. melanoleucos, Little Pied Cormorant		*
ARDEIDAE		
Ardea pacifica, Pacific Heron		*
A. novaehollandiae, White-faced Heron		*
Egretta alba, Great Egret		*
Nycticorax caledonicus, Rufous Night Heron		*
PLATALEIDAE		
Threskiornis aethiopica, Sacred Ibis		*
T. spinicollis, Straw-necked Ibis		*
Platalea flavipes, Yellow-billed Spoonbill		*

APPENDIX C: BIRD SPECIES RECORDED AND THOSE EXPECTED TO OCCUR ON THE DONNYBROOK-KATANNING RAIL RESERVE

BIRD SPECIES	Recorded	Expected
ANATIDAE		
Cygnus atratus, Black Swan		*
Tadorna tadornoides, Australian Shelduck		*
Anas superciliosa, Pacific Black Duck	+	
A. gracilis, Grey Teal	+	
A. castanea, Chestnut Teal		*
Malacorhynchus membranaceus, Pink-eared Duck		*
Chenonetta jubata, Maned Duck		*
ACCIPITRIDAE		
Elanus notatus, Black-shouldered Kite	+	
Lophoictinia isura, Square-tailed Kite		*
Haliastur sphenurus, Whistling Kite		*
Accipiter fasciatus, Brown Goshawk		*
A. cirrhocephalus, Collared Sparrowhawk		*
Aquila audax, Wedge-tailed Eagle		*
Hieraaetus morphnoides, Little Eagle		*
Circus assimilis, Spotted Harrier		*
C. aeruginosus, Marsh Harrier		*
FALCONIDAE		
Falco peregrinus macropus, Peregrine Falcon ^	+	
F. longipennis, Australian Hobby		*
F. berigora, Brown Falcon	+	
F. cenchroides, Australian Kestrel	+	
PHASIANIDAE		
Coturnix novaezealandiae, Stubble Quail		*
C. australis, Brown Quail		*
TURNICIDAE		
Turnix varia, Painted Button-quail		*
T. velox, Little Button-quail		*

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BIRD SPECIES	Recorded	Expected
RALLIDAE		
P. fluminea, Australian Crake		*
P. tabuensis, Spotless Crake		*
Gallinula ventralis, Black-tailed Native-hen		*
G. tenebrosa, Dusky Moorhen		*
Porphyrio porphyrio, Purple Swamphen		*
Fulica atra, Eurasian Coot		*
OTIDIDAE		
Ardeotis australis, Australian Bustard		*
BURHINIDAE		
Burhinus magnirostris, Bush Thick-knee		*
CHARADRIIDAE		
Vanellus tricolor, Banded Lapwing		*
C. ruficapillus, Red-capped Plover		*
C. melanops, Black-fronted Plover		*
RECURVIROSTRIDAE		
Himantopus himantopus, Black-winged Stilt		*
Recurvirostra novaehollandiae, Red-necked Avocet		*
SCOLOPACIDAE		
T. hypoleucos, Common Sandpiper		*
T. nebularia, Greenshank		*
COLUMBIDAE		
Columba livia, Feral Pigeon I		*
Streptopelia chinensis, Spotted Turtle-Dove I		*
S. senegalensis, Laughing Turtle-Dove I		*
Phaps chalcoptera, Common Bronzewing	+	
P. elegans, Brush Bronzewing		*
Ocyphaps lophotes, Crested Pigeon	+	

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BIRD SPECIES	Recorded	Expected
CACATUIDAE		
Calyptorhynchus magnificus, Red-tailed Black-Cockatoo	+	
C. baudinii., White-tailed Black-Cockatoo ^		*
C. latirostris, White-tailed Black-Cockatoo ^		*
Cacatua roseicapilla, Galah		*
LORIIDAE		
Glossopsitta porphyrocephala, Purple-crowned Lorikeet		*
POLYTELITIDAE		
Polytelis anthopeplus, Regent Parrot	+	
PLATYCERCIDAE		
Purpureicephalus spurius, Red-capped Parrot	+	
Platycercus icterotis, Western Rosella	+	
Barnardius zonarius, Port Lincoln Ringneck	+	
Neophema elegans, Elegant Parrot	+	
CUCULIDAE		
Cuculus pallidus, Pallid Cuckoo	+	
C. pyrrhophanus, Fan-tailed Cuckoo	+	
C. basalis, Horsfield's Bronze-Cuckoo		*
C. lucidus, Shining Bronze-Cuckoo		*
STRIGIDAE		
Ninox novaeseelandiae, Southern Boobook		*
TYTONIDAE		
Tyto alba, Barn Owl		*
PODARGIDAE		
Podargus strigoides, Tawny Frogmouth		*
AEGOTHELIDAE		
Aegotheles cristatus, Australian Owlet-nightjar		*

APPENDIX C: BIRD SPECIES RECORDED AND THOSE EXPECTED TO OCCUR ON THE DONNYBROOK-KATANNING RAIL RESERVE

BIRD SPECIES	Recorded	Expected
CAPRIMULGIDAE		
Caprimulgus guttatus, Spotted Nightjar		*
ALCEDINIDAE		
Dacelo novaeguineae, Laughing Kookaburra I	+	
H. sancta, Sacred Kingfisher		*
MEROPIDAE		
Merops ornatus, Rainbow Bee-eater		*
HIRUNDINIDAE		
Hirundo neoxena, Welcome Swallow	+	
Cecropis nigricans, Tree Martin	+	
C. ariel, Fairy Martin		*
MOTACILLIDAE		
Anthus novaeseelandiae, Richard's Pipit	+	
CAMPEPHAGIDAE		
Coracina novaehollandiae, Black-faced Cuckoo-shrike	+	
Lalage sueurii, White-winged Triller		*
MUSCICAPIDAE		
Petroica multicolor, Scarlet Robin	+	
P. goodenovii, Red-capped Robin	+	
Melanodryas cucullata, Hooded Robin		*
Eopsaltria georgiana, White-breasted Robin	+	
E. griseogularis, Western Yellow Robin		*
Microeca leucophaea, Jacky Winter	+	
Falcunculus frontatus, Crested Shrike-tit ^		*
P. pectoralis, Golden Whistler	+	
P. rufiventris, Rufous Whistler	+	

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BIRD SPECIES	Recorded	Expected
MUSCICAPIDAE (contd.)		
Colluricincla harmonica, Grey Shrike-thrush	+	
Oreoica gutturalis, Crested Bellbird		*
Myiagra inquieta, Restless Flycatcher		*
Rhipidura fuliginosa, Grey Fantail	+	
R. leucophrys, Willie Wagtail	+	
TIMALIIDAE		
Pomatostomus superciliosus, White-browed Babbler	+	
SYLVIIDAE		
Cinclorhamphus mathewsi, Rufous Songlark		*
C. cruralis, Brown Songlark		*
MALURIDAE		
Malurus splendens, Splendid Fairy-wren	+	
Stipiturus malachurus, Southern Emu-wren		*
ACANTHIZIDAE		
Sericornis frontalis, White-browed Scrubwren	+	
Smicrornis brevirostris, Weebill	+	
Gerygone fusca, Western Gerygone	+	
Acanthiza apicalis, Inland Thornbill	+	
A. inornata, Western Thornbill	+	
A. chrysorrhoa, Yellow-rumped Thornbill	+	
NEOSITTIDAE		
Daphoenositta chrysoptera, Varied Sittella	+	
CLIMACTERIDAE		
Climacteris rufa, Rufous Treecreeper	+	

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BIRD SPECIES	Recorded	Expected
MELIPHAGIDAE		
Anthochaera carunculata, Red Wattlebird	+	
A. chrysoptera, Little Wattlebird		*
Manorina flavigula, Yellow-throated Miner	+	
Lichenostomus virescens, Singing Honeyeater	+	
L. ornatus, Yellow-plumed Honeyeater		*
Melithreptus brevirostris, Brown-headed Honeyeater	+	
M. lunatus, White-naped Honeyeater	+	
Lichmera indistincta, Brown Honeyeater	+	
Phylidonyris novaehollandiae, New Holland Honeyeater	+	
P. nigra, White-cheeked Honeyeater		*
Acanthorhynchus superciliosus, Western Spinebill	+	
EPHTHIANURIDAE		
E. albifrons, White-fronted Chat		*
DICAEIDAE		
Dicaeum hirundinaceum, Mistletoebird		*
PARDALOTIDAE		
Pardalotus punctatus, Spotted Pardalote		*
P. striatus, Striated Pardalote		*
ZOSTEROPIDAE		
Zosterops lateralis, Silvereye	+	
PLOCEIDAE		
Emblema oculata, Red-eared Firetail ^	+	
GRALLINIDAE		
Grallina cyanoleuca, Australian Magpie-lark	+	
ARTAMIDAE		
A. cinereus, Black-faced Woodswallow	+	
A. cyanopterus, Dusky Woodswallow	+	

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BIRD SPECIES	Recorded	Expected
CRACTICIDAE		
Cracticus torquatus, Grey Butcherbird	+	
Gymnorhina tibicen, Australian Magpie	+	
Strepera versicolor, Grey Currawong	+	
CORVIDAE		
Corvus coronoides, Australian Raven	+	