

## LISTS OF SPECIES

### Aves, Booderee National Park, Jervis Bay territory, south-eastern Australia

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**Abstract:** A large-scale, long-term study is being conducted to describe the bird assemblages inhabiting a 6500 ha area at Booderee National Park, south-eastern Australia. In this paper, we provide a list of birds recorded within rainforest, forest, woodland, shrubland, heathland and sedgeland during surveys conducted each spring between 2003 and 2007. Of particular interest was the contrast between the birds of sites burned in a wildfire in 2003 and sites that remained unburned. We recorded a total of 103 species from 35 families. We found that after the major fire, the vast majority of individual species and the bird assemblage *per se* in most vegetation types recovered within two years. Exceptions occurred in structurally simple vegetation types such as sedgeland and wet heathland in which reduced levels of species had not returned to pre-fire (2003) levels by 2007.

#### Introduction

Two key factors influencing the distribution and abundance of vertebrates are vegetation type (Andersen et al. 2003; Burton et al. 2003; Krebs 2008) and disturbance (Agee 1993; Angelstam 1996; Brawn et al. 2001). We have initiated a major study of both at Booderee National Park in the Jervis Bay Territory, south-eastern Australia by quantifying the vertebrate populations in different vegetation types that have been subjected to varying numbers of past fires since 1972. In this paper we provide a list of birds recorded during extensive field surveys we have completed between 2003 and 2007 as part of our ongoing studies at Booderee National Park.

#### Materials and Methods

##### *Study Site*

We conducted this study at Booderee National Park, a ~6500 ha area co-managed by the Wreck Bay Aboriginal Community and Parks Australia (a section of the Australian Federal Government's

Department of the Environment, Water, Heritage and the Arts). Booderee National Park is located 200 km south of Sydney and 20 km south of the city of Nowra on the south coast of New South Wales, south-eastern Australia (approximate midpoint is 35°10' S latitude, 150° 40' E longitude). The area has a temperate maritime climate with an average rainfall of 1150 mm per annum spread relatively evenly over the year.

Average minimum and maximum air temperatures for January (summer) are 18 - 24° C and 9.5 - 15° C for July (winter) (Bureau of Meteorology 2007). The geology of the study area is dominated by Permian (~260 million year old) sandstone sequences that form part of the southern boundary of the extensive Sydney Basin. Pleistocene (< 1.6 million year old) windblown sand dune systems cover the Permian sandstones in parts of Booderee National Park. Other geological formations include siltstones and Tertiary-aged alluvial deposits (Cho 1995).

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Booderee National Park has some important features which made it a valuable area to study. It supports:

- (1) An extremely diverse bird assemblage (Braithwaite et al. 1995) including significant populations of a number of high profile taxa of conservation concern such as the Eastern Bristlebird (*Dasyornis brachypterus*) (Baker 1997; 2000);
- (2) Extraordinary patchiness and heterogeneity in vegetation types, ranging from sedgeland to rainforest, which are markedly different in floristics and structure (Ingwersen 1977; Mills 1995; Williams 1995; Taws 1998), and;
- (3) A well documented and carefully mapped fire history dating back several decades (Ingwersen 1977; Taws 1998).

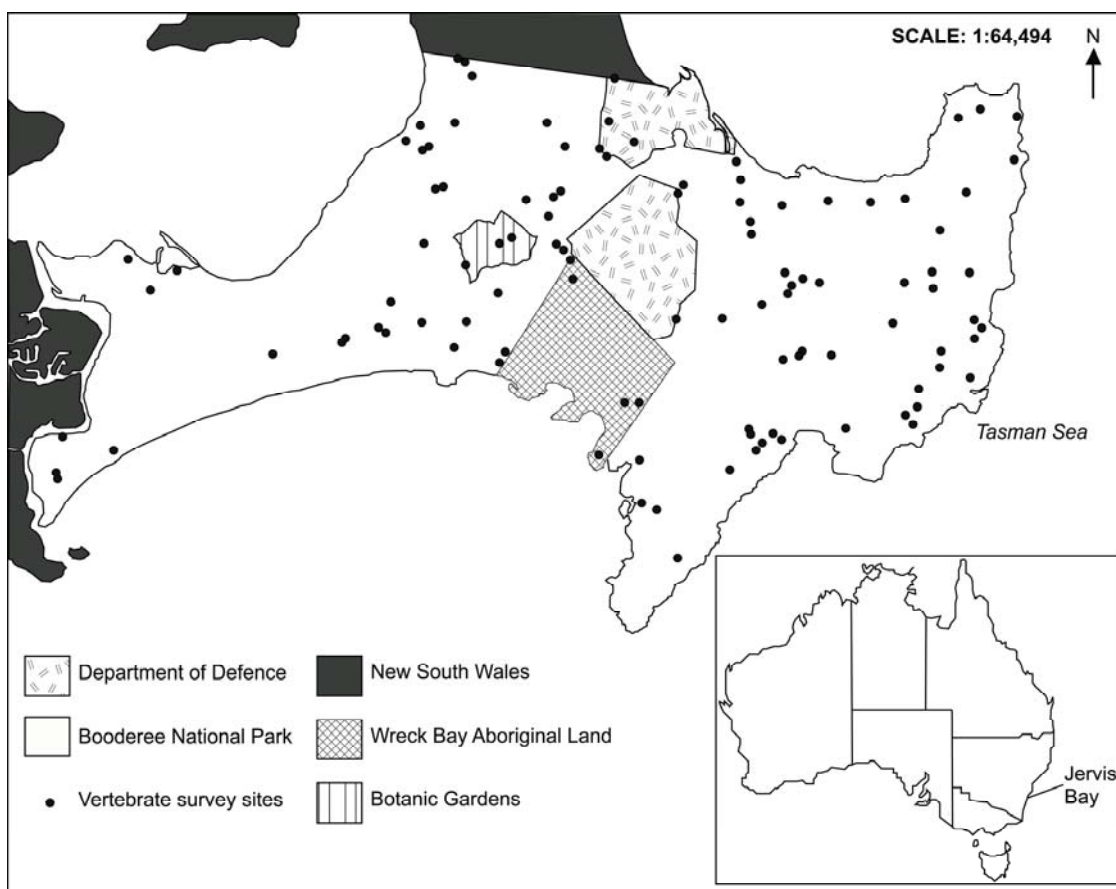
### Description of broad vegetation types

Six broad vegetation types have been recognized from extensive vegetation surveys conducted

throughout Booderee National Park (Ingwersen 1977; Taws 1998). We provide a brief description of the floristic composition and coverage of these vegetation types below.

The overstorey of Rainforest patches is dominated by *Eucalyptus pilularis* and *Eucalyptus botryoides* with scattered *Livistona australis*, *Acmena smithii*. Midstorey is comprised *Endiandra sieberi*, *Pittosporum undulatum*, *Elaeocarpus reticulata* and *Synoum glandulosum*. Understorey species include *Lomandra longifolia*, *Pteridium esculentum*, *Cissus hypoglauca*.

Forest typically has an overstorey dominated by *Eucalyptus pilularis*, *Corymbia gummifera* and *E. botryoides*. The midstorey is dominated by *Banksia serrata*, *Acacia longifolia* and *Monotoca eliptica* with *Elaeocarpus reticulatus* occurring on more moist sites. The understorey is dominated by *Pteridium esculentum* and *Lomandra longifolia*.



**Figure 1.** The general location of Booderee National Park in the Jervis Bay Territory. The location of sites targeted for repeated reptile sites in Booderee National Park are marked with black dots.

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The vegetation type, Casuarina, occurs mainly on the alluvial soils fringing St. Georges Basin (Taws 1998). It is dominated by *Casuarina glauca* interspersed with *Eucalyptus botryoides* and *Banksia integrifolia*. Midstorey and understorey is comprised of *Banksia integrifolia*, *Casuarina glauca*, *Chrysanthemoides monilifera*, *L. longifolia*, *P. esculentum* and *Hibertia scandens*.

The woodland vegetation type is a community where the tree crowns are clearly separated. The overstorey at Booderee is typically comprised of *Eucalyptus sclerophylla*, *Corymbia gummifera* and *Banksia serrata*. The midstorey is mainly comprised of *B. serrata* and *C.gummifera*. The understorey is comprised of *P. esculentum*, *B. serrata*, *Lambertia formosa*, *Acacia longifolia*, *A. suaveolens* and *Lomandra longifolia*.

Heathland as defined by Taws (1998) is vegetation dominated by shrubs with small narrow leaves, usually growing to less than 2 m tall. Dry heathland is dominated by *Banksia ericifolia*, *Allocasuarina distyla*, *Isopogon anemonifolius* and *Hakea teretifolia*. Wet heathland is mainly dominated by *B. ericifolia* but may also be dominated *Leptospermum* or *Meleleuca* species. *Gahnia clarkei* and *Gleichenia dicarpa* are also prevalent.

Shrubland is dominated by shrubs growing to greater than 2 m tall (Taws 1998). It is dominated by *Banksia serrata*, *Leptospermum laevigatum* and *B. integrifolia*. The understorey is often sparse due to the dense growth of the midstorey. Typical understorey species are *P. esculentum*, *L. longifolia* and *H. scandens*. Low Shrubland occurs on coastal foredunes where it was planted for dune stabilisation in the 1960s and 1970s. It is dominated by *Leptospermum laevigatum*, *Acacia sophorae* and *Chrysanthemoides molinifera*. In wet shrubland sites, soils are often waterlogged and the species composition is determined by the period of inundation and the saline content of the soils. More saline soils are dominated by dense post fire regrowth of *Melaleuca ericifolia* with a sparse overstorey of *Casuarina glauca*. Less saline soils are dominated by *M. squarrosa* and *Leptospermum juniperinum*.

Sedgeland is classified by Taws (1998) as herbaceous communities occurring on soils which are periodically or permanently waterlogged. Those sites not permanently waterlogged and are dominated by *Baumea*, *Eleocharis* and *Schoenus* species. Those with permanent waterlogging are dominated by *Gahnia clarkei*, *Lepidosperma forsythii* or *Isolepis nodosa*.

### *Site selection within broad vegetation types*

At the commencement of this project, we established a protocol for site selection by identifying important stratifying variables. These were: (1) Vegetation - classified into ten vegetation types. (2) Past fire history - classified into four classes of time since the last fire (0-10 years, 11 - 20 years, 21 - 30 years and > 30 years), and, (3) Future burning - assigned to two classes (areas left unburned and those to be burned over the next 1 - 4 years).

We overlaid vegetation and burning history maps to form 'homogeneous' polygons characterized by each of the three classifying factors. We mapped these polygons and then calculated the area of each polygon. We created a list of all polygons and constructed a table of counts (classified by vegetation, fire history, future fire and polygon area [ha]). We selected a stratified random sample of polygons for study after excluding polygons which contained places sacred to the local Wreck Bay Aboriginal Community and polygons measuring less than 1.5 ha in size which were too small to contain a valid (100 metre long) survey transect (see below). Our selection process ensured:

- (1) The full range of vegetation type by fire history by future burning classes was represented. There was replication of each class.
- (2) The number of samples was generally proportional to the total area occupied by each class.
- (3) There was a good geographic "spread" of selected polygons throughout the national park to avoid potential problems with geographic bias (see Figure 1).

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We then established a 100 metre long permanent transect (i.e. a “site”) within each selected polygon.

Our choice of transect length was influenced by the substantial heterogeneity in vegetation cover at Booderee National Park where major changes in vegetation type often occur over a short distance. Transect lengths in excess of 100 metres would have resulted in many transects spanning two vegetation types making it difficult to relate bird occurrence to vegetation type and vegetation type x burning history effects.

We established 110 permanent field sites. These permanent sites consisted of star picket markers set at 0 m, 20 m, 40 m, 60 m, 80 m and 100 m points along the transect.

### *2003 Wildfire*

Following establishment of all 110 sites in our study and the completion of bird counts in September 2003 (see below), a major wildfire in late December 2003 burned approximately 50 % of Booderee National Park. Fifty-nine of our permanent sites were burned at varying levels of severity. We repaired the infrastructure on all our damaged sites and recommenced surveys of all burned and unburned sites in early 2004. However, the prescribed burning program planned for Booderee National Park was modified and the objectives of the study we report here were altered to focus on the impacts of past fire history on birds as post-wildfire population recovery.

### *Bird counting protocols*

We recorded bird data at the 20 m and 80 m points at each of the 110 permanent established sites in our study. We completed repeated ten-minute point counts (*sensu* Pyke and Recher 1983) at these two stations in late September in 2003, 2004, 2005, 2006 and 2007. Late September coincides with the breeding season for many birds in the study region. The majority vocalize actively at this time, often for prolonged periods throughout the day. In addition, summer migrants are present at this time.

For each point count, observers recorded the presence of each bird species seen or heard within 50 m of the point. We completed counts between 5.30 - 9.30 am. We did not undertake counts on

days of poor weather (rain, high wind, fog or heavy cloud cover).

Several authors of this paper and six expert bird observers from the Canberra Ornithologists Group (see Acknowledgments) participated in the bird counts. Cunningham et al. (1999) showed that averaging the counts of two or more observers at the same site could compensate for extra variability due to observer heterogeneity. Similarly, Field et al. (2002) showed that weather and other conditions on any given day can influence bird detectability. Thus, in each year, each of the 110 sites was surveyed by at least two different observers on different days.

### **Results and Discussion**

Table 1 contains a detailed list of birds recorded during field surveys conducted between 2002 and 2007 as part of work quantifying avifaunal responses to vegetation type and wildfire.

We recorded 103 species from 35 families (Table 1). Three key results obtained from the five years of surveys completed to date were:

(1) Large differences between-vegetation-type in bird occurrence were apparent across all years. Some species were restricted to particular vegetation types. The Southern Emu-wren (*Stipiturus malachurus*) and the Sacred Kingfisher (*Todiramphus sanctus*) were good examples. Others were ubiquitous and found across all vegetation types (e.g. Grey Shrike Thrush, *Colluricincla harmonica*) (Table 1). Notably, no species were common in all vegetation types and the majority of ubiquitous taxa were sparse in the many vegetation types in which they occurred (Table 1). Some species such as the Eastern Bristlebird that were expected (prior to the commencement of our work) to be restricted to particular vegetation types (e.g. heathland) were, in fact, found to inhabit a relatively large proportion of the vegetation types at Booderee National Park (Table 1).

(2) We found that after the major 2003 wildfire, the vast majority of individual species and the bird assemblage *per se* in most vegetation types recovered within two years. Exceptions occurred in structurally simple vegetation types such as

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sedgeland and wet heathland in which reduced levels of species had not returned to pre-fire (2003) levels by 2007.

(3) Species thought to be fire-sensitive such as the Eastern Bristlebird based on other studies (e.g. Pyke et al. 1995; Baker 1997; 2000), were found to either have persisted continuously on burned sites or returned to previously occupied sites within two years of the 2003 conflagration - even on sites where a substantial amount of dense vegetation cover was removed by fire.

The list we provide in Table 1 should be of broad interest to an increasing number of

researchers working on wildfire in different vegetation types (e.g. Smucker et al. 2005; Kotliar et al. 2007).

Field surveys of birds at Booderee National Park are ongoing and major re-counts will be recommenced in the spring of coming years as other activities are ongoing such as the maintenance of an intensive poison baiting program to control feral predators, the re-institution of prescribed burning, and the use of spraying and burning to control stands of invasive plants such as Bitou Bush (*Chrysanthemoides monilifera*).

**Table 1.** Detections of bird species at Booderee National Park between 2003 and 2007 that have been classified by six vegetation types that were unburned (yes) or burned (no) in the 2003 fire. Codes are for the percentage number of possible detections for that vegetation type and burn class: Absent (A) (no [0 %] detections), rare (R) (detected at < 25% of sites), sparse (S) (detected at 25 - 50 % of sites), (C) common (detected at 51 - 74 % of sites), and abundant (detected at > 75 % of sites).

Bird Family / Species	Common Name	Forest		Heathland		Rain-forest		Sedge-land		Shrub-land		Wood-land	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<b>ACCIPITRIDAE</b>													
<i>Accipiter fasciatus</i>	Brown Goshawk	A	S	A	S	A	A	A	A	A	A	S	S
<i>Accipiter novaehollandiae</i>	Grey Goshawk	A	A	A	A	S	S	A	A	A	A	A	A
<i>Circus approximans</i>	Swamp Harrier	A	A	A	S	A	A	A	A	A	A	A	A
	Wedge-tailed												
<i>Aquila audax</i>	Eagle	A	A	A	A	A	A	A	A	S	A	A	A
<i>Haliastur spheunurus</i>	Whistling Kite	A	A	A	A	S	A	A	A	A	A	A	A
<b>ARDEIDAE</b>													
	White-faced												
<i>Egretta novaehollandiae</i>	Heron	S	A	A	A	A	A	A	A	A	A	A	A
<b>ARTAMIDAE</b>													
	Australian												
<i>Gymnorhina tibicen</i>	Magpie	S	S	A	S	A	A	S	A	A	A	S	A
	Dusky												
<i>Artamus cyanopterus</i>	Woodswallow	A	A	A	A	A	A	A	A	A	A	S	A
<i>Cracticus torquatus</i>	Grey Butcherbird	S	S	A	A	S	S	A	S	S	A	S	S
<i>Cracticus nigrogularis</i>	Pied Butcherbird	A	S	A	A	S	A	A	A	A	A	A	S
<i>Strepera graculina</i>	Pied Currawong	S	S	S	S	S	S	S	S	S	S	S	S
	White-browed												
<i>Artamus superciliosus</i>	Woodswallow	A	A	A	A	A	A	A	A	A	S	A	A
<b>CACATUIDAE</b>													
<i>Cacatua roseicapilla</i>	Galah	A	A	A	A	S	A	S	A	S	A	A	A

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Bird Family / Species	Common Name	Forest		Heathland		Rain-forest		Sedge-land		Shrub-land		Wood-land	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<i>Collocephalon fimbriatum</i>	Gang-gang												
	Cockatoo	S	S	S	S	S	A	S	S	A	A	S	A
<i>Cacatua galerita</i>	Sulphur-crested												
	Cockatoo	A	A	A	A	A	A	A	A	S	A	A	A
<i>Calyptorhynchus funereus</i>	Yellow-tailed												
	Black Cockatoo	S	S	A	S	A	S	A	A	S	S	S	S
CAMPEPHAGIDAE													
<i>Coracina novaehollandiae</i>	Black-faced												
	Cuckoo-shrike	S	S	A	S	S	A	S	A	S	A	S	S
CINCLOSOMATIDAE													
<i>Psophodes olivaceus</i>	Eastern Whipbird	S	S	S	S	S	S	S	S	S	S	S	S
CLIMACTERIDAE													
<i>Cormobates leucophaeus</i>	White-throated Trecreeper	S	S	A	S	S	S	S	A	S	S	S	S
COLUMBIDAE													
<i>Geopelia humeralis</i>	Bar-shouldered Dove	A	A	A	A	A	A	A	A	A	A	A	S
<i>Macropygia amboinensis</i>	Brown Cuckoo- dove	S	A	A	A	A	A	A	A	A	A	A	A
	Brush												
<i>Phaps elegans</i>	Bronzewing Common	S	S	A	S	A	A	A	S	S	A	S	S
<i>Phaps chalcoptera</i>	Bronzewing	A	S	A	S	A	A	A	S	S	A	S	A
<i>Ocyphaps lophotes</i>	Crested Pigeon	A	A	A	A	A	A	A	A	A	A	S	A
<i>Geopelia striata</i>	Peaceful Dove	A	A	A	A	A	A	A	A	A	A	A	S
<i>Streptopelia chinensis</i>	Spotted Turtle- Dove	S	A	S	A	A	A	A	A	A	A	A	A
<i>Lopholaimus antarcticus</i>	Topknot Pigeon	A	S	A	A	A	S	A	A	A	A	S	A
CORICIIDAE													
<i>Eurystomus orientalis</i>	Dollarbird	S	A	A	A	A	A	A	A	A	A	A	A
<i>Corvus coronoides</i>	Australian Raven	S	S	S	S	A	A	S	S	S	S	S	S
<i>Corvus mellori</i>	Little Raven	A	A	A	A	A	A	A	A	A	S	A	A
CUCULIDAE													
<i>Cacomantis variolosus</i>	Brush Cuckoo	A	A	A	S	A	A	A	A	A	A	A	S
<i>Eudynamys scolopacea</i>	Common Koel	A	S	A	A	A	A	A	A	A	A	A	A
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	S	S	S	S	S	S	S	A	S	A	S	S
	Horsfield's												
<i>Chrysococcyx basilis</i>	Bronze-Cuckoo	S	S	S	S	S	A	S	A	S	A	S	S
<i>Chrysococcyx lucidus</i>	Shining Bronze- Cuckoo	S	S	S	S	S	S	S	A	S	S	S	S
DICAEIDAE													
<i>Dicaeum hirundinaceum</i>	Mistletoebird	S	A	A	A	A	A	S	A	S	A	A	S
DICRUDIDAE													
<i>Monarcha melanopsis</i>	Black-faced Monarch	S	S	A	S	S	S	S	A	A	A	A	S

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Bird Family / Species	Common Name	Forest		Heathland		Rain-forest		Sedge-land		Shrub-land		Wood-land	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<i>Rhipidura fuliginosa</i>	Grey Fantail	S	S	S	S	S	S	S	S	S	S	S	S
<i>Myiagra rubecula</i>	Leaden Flycatcher	S	S	A	A	A	S	S	S	A	A	S	S
<i>Grallina cyanoleuca</i>	Magpie-lark	A	A	A	A	A	A	A	A	S	A	A	A
<i>Rhipidura rufifrons</i>	Rufous Fantail	S	S	A	A	S	S	A	A	A	A	A	A
<i>Rhipidura leucophrys</i>	Willie Wagtail	A	A	A	A	A	A	A	S	S	A	A	S
FALCONIDAE													
<i>Falco berigora</i>	Brown Falcon	A	A	A	A	A	A	A	A	S	A	A	A
HALCYONIDAE													
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	S	S	S	S	S	S	S	S	S	S	S	S
<i>Todiramphus sanctus</i>	Sacred Kingfisher	S	S	A	A	S	A	A	A	A	A	A	A
HIRUNDINIDAE													
<i>Hirundo nigricans</i>	Tree Martin	A	A	S	A	A	A	A	A	A	A	A	A
<i>Hirundo neoxena</i>	Welcome Swallow	A	A	A	S	A	A	A	A	S	A	A	S
MALURIDAE													
<i>Stipiturus malachurus</i>	Southern Emu-wren	A	A	S	S	A	A	A	S	A	A	A	S
<i>Malurus cyaneus</i>	Superb Fairy-wren	S	S	S	S	S	S	S	S	S	S	S	S
<i>Malurus lamberti</i>	Variiegated Fairy-wren	S	S	S	S	S	S	S	S	S	S	S	S
MELIPHAGIDAE													
<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	A	A	S	A	A	A	A	A	A	A	A	A
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	A	A	S	S	S	A	A	A	S	A	S	S
<i>Phylidonyris pyrrhoptera</i>	Crescent Honeyeater	S	S	A	S	A	A	A	A	A	A	S	S
<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	S	S	S	S	S	S	S	S	S	S	S	S
<i>Meliphaga lewinii</i>	Lewin's Honeyeater	S	S	A	S	S	S	S	A	S	S	S	S
<i>Anthochaera chrysoptera</i>	Little wattlebird	S	S	S	S	S	S	C	S	S	S	S	S
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	S	S	C	S	S	S	S	S	S	S	S	S
<i>Philemon corniculatus</i>	Noisy Friarbird	S	S	S	S	S	S	S	S	S	S	S	S
<i>Anthochaera carunculata</i>	Red Wattlebird	S	S	S	S	S	S	S	S	S	S	S	S
<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	S	S	A	A	S	S	A	A	S	A	S	S
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	A	A	S	S	A	A	A	A	A	A	A	A
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	A	S	S	S	A	A	S	A	S	A	S	A
<i>Lichenostomus leucotis</i>	White-eared Honeyeater	S	A	A	A	A	A	A	A	A	A	A	A

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		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<i>Phylidonyris albifrons</i>	White-fronted Honeyeater	A	A	A	A	A	A	A	A	S	A	A	A
<i>Melithreptus lunatus</i>	White-naped Honeyeater	S	S	A	A	A	A	S	A	S	A	S	A
<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater	S	S	S	S	S	S	S	S	S	S	S	S
MOTACILLIDAE													
<i>Anthus novaeseelandiae</i>	Richard's Pipit	A	A	A	S	A	A	A	A	A	A	A	A
<i>Turdus merula</i>	Blackbird	A	A	A	S	A	S	S	A	S	A	A	A
NEOSITTIDAE													
<i>Daphoenositta chrysoptera</i>	Varied Sittella	A	S	A	A	A	A	A	A	S	A	A	S
ORIOOLIDAE													
<i>Oriolus sagittatus</i>	Olive-backed Oriole	S	S	A	S	S	S	S	A	S	A	S	S
PACHYCEPHALIDAE													
<i>Falcunculus frontatus</i>	Crested Shrike-tit	S	A	A	A	S	A	A	A	S	A	A	S
<i>Pachycephala pectoralis</i>	Golden Whistler	S	S	S	S	S	S	S	S	S	S	S	S
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	S	S	S	S	S	S	S	S	S	S	S	S
<i>Pachycephala rufiventris</i>	Rufous Whistler	S	S	S	S	S	A	S	S	S	S	S	S
PARDALOTIDAE													
<i>Gerygone mouki</i>	Brown Gerygone	S	S	A	S	S	S	S	A	S	S	S	S
<i>Acanthiza pusilla</i>	Brown Thornbill	S	S	S	S	S	S	S	S	S	S	S	S
<i>Hylacola pyrrhopygia</i>	Chestnut-rumped hylacola	A	A	S	S	A	A	A	A	A	A	A	S
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	S	S	S	S	S	S	S	S	S	S	S	S
<i>Sericornis magnirostris</i>	Large-billed Scrubwren	A	A	A	A	S	A	A	A	A	A	A	A
<i>Pardalotus punctatus</i>	Spotted Pardalote	S	S	S	S	S	S	S	S	S	S	S	S
<i>Pardalotus striatus</i>	Striated Pardalote	S	S	A	A	A	A	A	A	S	A	A	A
<i>Acanthiza lineata</i>	Striated Thornbill	S	S	S	S	S	S	S	S	S	S	S	S
<i>Sericornis frontalis</i>	White-browed Scrubwren	S	S	S	S	S	S	S	S	S	S	S	S
<i>Gerygone olivacea</i>	White-throated Gerygone	A	A	A	A	A	A	A	A	S	A	A	A
<i>Acanthiza nana</i>	Yellow Thornbill	S	A	A	A	A	A	A	A	A	A	A	A
PASSERIDAE													
<i>Stagonopleura bella</i>	Beautiful Firetail	A	A	S	A	A	A	A	A	A	A	S	A
<i>Neochmia temporalis</i>	Red-browed Finch	S	A	A	S	A	A	S	A	S	A	S	S
PELICANIDAE													
<i>Pelecanus conspicillatus</i>	Australian Pelican	S	A	A	A	A	A	A	A	A	A	A	A



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Bird Family / Species	Common Name	Forest		Heathland		Rain-forest		Sedge-land		Shrub-land		Wood-land	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
<b>PETROICIDAE</b>													
<i>Eopsaltria australis</i>	Eastern Yellow Robin	S	S	S	S	S	S	S	S	S	S	S	S
<i>Petroica rosea</i>	Rose Robin	S	S	A	A	S	A	A	A	A	A	A	A
<b>PHALACROCORACIDAE</b>													
<i>Phalacrocorax varius</i>	Pied Cormorant	S	A	A	A	A	A	A	A	A	A	A	A
<b>PHASIANIDAE</b>													
<i>Coturnix pectoralis</i>	Stubble Quail	A	A	A	S	A	A	A	A	A	A	A	A
<b>PODARGIDAE</b>													
<i>Podargus strigoides</i>	Tawny Frogmouth	A	S	A	A	A	A	A	A	A	A	A	A
<b>PSITTACIDAE</b>													
<i>Platycercus elegans</i>	Crimson Rosella	S	S	S	S	S	S	S	S	S	S	S	S
<i>Pezoporus wallicus</i>	Ground Parrot	A	A	A	S	A	A	A	A	A	A	A	A
<i>Alisterus scapularis</i>	King Parrot	S	S	A	S	S	S	A	A	A	S	S	S
<i>Glossopsitta pusilla</i>	Little Lorikeet	A	A	A	A	A	A	A	A	A	A	S	A
<i>Glossopsitta concinna</i>	Musk Lorikeet	A	S	A	A	A	A	A	A	A	A	A	A
<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	S	S	S	S	S	S	S	S	S	A	S	S
<b>PTILONORHYNCHIDAE</b>													
<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird	S	S	S	S	S	S	S	S	S	S	S	S
<b>STRIGIDAE</b>													
<i>Ninox novaezealandiae</i>	Boobook Owl	A	A	S	A	S	A	A	A	A	A	A	A
<i>Ninox strenua</i>	Powerful Owl	A	A	A	A	A	A	A	A	S	A	A	A
<b>SYLVIIDAE</b>													
<i>Cisticola exilis</i>	Golden-headed Cisticola	A	A	S	A	A	A	A	A	A	A	A	A
<b>ZOSTEROPIDAE</b>													
<i>Zosterops lateralis</i>	Silvereeye	S	S	S	S	S	S	S	S	S	S	S	S

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