FAUNA SURVEY OF JANDAKOT AIRPORT; 2002

Final Report

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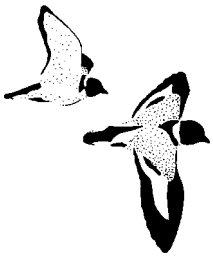

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EXECUTIVE SUMMARY

This fauna survey was carried out as part of the environmental impact assessment process being undertaken by Jandakot Airport Holdings Pty Ltd for the proposed development of part of the Jandakot Airport property. Bamford Consulting Ecologists was commissioned to undertake a comprehensive fauna survey of all bushland areas of the Airport. The aims of the survey were to:

- Provide a detailed review of existing information on the fauna species present or expected to be present in the Airport bushland, including species of National Conservation Significance and those of Regional Significance.
- Identify areas or habitats within the Airport bushland that are of special conservation significance for fauna.
- Produce quantitative data on levels of abundance of fauna through standard sampling procedures.

This report presents the results of the review of fauna expected on the property and of two periods of field-work that took place over the periods 12th to 27th March 2002, and 9th to 14th December 2002. The review collated information from the WA Museum, Department of Conservation and Land Management, and published and unpublished records. The field programme in March included:

1. trapping for amphibians, reptiles and mammals at 5 sites with pitfall, Elliott and cage traps;
2. censussing of birds at 6 sites;
3. clearing of tracklines to look for evidence of mammals in particular;
4. spotlighting for nocturnal species;
5. pellet count transects to estimate the Grey Kangaroo population;
6. surveying for bats with an ultrasonic detector;
7. opportunistic observations; and
8. censusing for birds.

The field survey in December included components 1, 2, 5, 7 and 8.

On the basis of the review, the vertebrate fauna predicted to use the site consists of 9 species of frogs, 42 species of reptiles, 84 species of birds and 19 species of mammals. Of these, 3 frog, 21 reptile, 46 bird, and at least 14 mammal species were recorded in the area. One additional mammal species, the bat *Falsistrellus mackenziei*, was unconfirmed. The fauna is richer than might otherwise be the case because of habitat diversity within the site, and the effect of this diversity was particularly apparent with the birds.

The majority of the fauna recorded or expected is of regional significance because it has disappeared from surrounding urban areas, with many of the birds in particular identified as significant in a recent state government review (Perth Bush Forever). One reptile, five bird and three mammal species are of National Conservation Significance, but only two of the mammal species were recorded. Invertebrates were not surveyed, but three species of native bee that are of National Conservation Significance may be present.

There were few clear patterns of local distribution apparent, with most species being either widespread or represented by too few records to allow for interpretation to be carried out. The Brush Wallaby, however, one of only two species of National Conservation Significance confirmed to be present, was recorded mainly in the north of the property, including the area proposed for development. This was expected as the north of the property has broad, shallow valleys with some seasonally damp soils, supporting dense thickets that are known to be favoured by the wallaby.

Main values and features of the fauna of the site are as follows:

- Almost all vertebrate species (and invertebrate species?) that were present at the time of European settlement are still present or expected to be present, with the greatest documented loss amongst mammals.
- The fauna is dominated by species of Regional Conservation Significance because these are species that cannot survive in the surrounding urban landscape.
- The fauna includes a number of species of National Conservation Significance.
- Management for conservation of the fauna has many facets, but factors noted as being important during this study relate to:
    - linkage with the Jandakot Botanic Park,
    - retention of as much native vegetation and as broad a range of vegetation types as possible,
    - protection of vegetation quality,
    - maintaining a mosaic of fire ages and avoiding extensive fires,
    - suppressing the abundance of introduced predators.

With respect to these issues, the proposed development raises concerns in that it will lead to some loss of habitat, in particular habitat in low-lying areas. However, identifying these issues may make it possible to design the development to minimise impacts.

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INTRODUCTION

As part of the Environmental Impact Assessment process being undertaken by Jandakot Airport Holdings Pty Ltd for a proposed industrial area, Bamford Consulting Ecologists were commissioned to undertake a comprehensive fauna survey of the Jandakot Airport property. The bushland on the property is known to support a number of species of fauna that have declined in the metropolitan area, and is part of a network of sites of high conservation value, including the Jandakot Botanic Park that lies immediately to the south-east.

The aims of a comprehensive fauna survey can be summarised as follows:

- Provide a detailed review of existing information on the fauna species present or expected to be present at a site, from published and unpublished records and including species scheduled as Threatened under the WA Wildlife Conservation Act and/or the Federal Environment Protection and Biodiversity Conservation (EPBC) Act.
- Identify areas or habitats within a site that are of special conservation significance for fauna.
- Produce quantitative data on levels of abundance of fauna through standard sampling procedures. Such data can be compared with information collected elsewhere, and also provide a baseline that can be used for the assessment of future rehabilitation.

This report presents the results of the review of fauna information and of two field surveys carried out in 2002. Field work was carried out throughout the Jandakot Airport bushland.

METHODS

Site Description

Jandakot Airport Lease Area is located in the southern suburb of Jandakot in the Perth Metropolitan Area and includes 410ha of remnant vegetation that largely surrounds the airport runways and infrastructure (Mattiske Consulting Pty Ltd 2001). The vegetation communities on the Swan Coastal Plain have been described by Gibson *et al.* (1994). The Jandakot Airport Lease Area supports five vegetation communities, namely:

- Woodland of *Eucalyptus marginata* with *Banksia* spp.;
- Open woodland of *Banksia attenuata* and *Banksia menziesii;*
- Woodland of *Banksia ilicifolia* with scattered other *Banksia* spp.;
- Woodland of *Melaleuca preissiana;*
- Heathland of *Beaufortia elegans* and *Hypocalymma* sp. (Mattiske Consulting 2001).

Results of a vegetation mapping survey by Mattiske Consulting Pty Ltd (2001) indicated that the area is predominately a combination of woodlands of *Banksia attenuata, B. menziesii, B. illicifolia, Eucalyptus rudus* and *Melaleuca preissiana,* and heathlands of *Beaufortia elegans* and *Hypocalymma* sp.

Five sampling sites were established in the Lease Area and these were selected so as to survey as much of the range of vegetation associations recognised by Mattiske Consulting Pty Ltd (2001) as possible. These trapping sites included one within the proposed industrial area, with the remainder located around the airstrip (see Figure 1). Site descriptions are presented in Table 1. In addition to these 5 sampling sites, some additional work was carried out at other locations to maximize the coverage of fauna habitats within the Lease Area.

Field Survey Programme

Field work for this project was undertaken primarily by Dr Mike Bamford and Mr Peter Smith, of Bamford Consulting Ecologists, with assistance from Dr Vi Saffer, Dr Phil Arena, Mr Adrian Maynier, Ms Jennifer Langton, Mr Brendan Metcalf, Ms Jennifer Wilcox and Mr R.A Davis. Field-work took place from 12th to 27th March 2002, with trapping occurring over five nights from 13th March to 17th March 2002, and 9th to 14th December 2002. In addition, spotlighting and a bat survey wee carried out on 20th February 2003, while bird censussing took place once a month between April and November 2002. Work carried out in the field included:

- Systematic trapping for amphibians, reptiles and mammals;
- Clearing of tracklines to detect tracks left by fauna;
- Estimating kangaroo population size;
- Mist-netting, harp-trapping and the use of an ultrasonic detector for bats;
- Spotlighting for mammals including bats and nocturnal birds;
- Censusing for birds;
- The keeping of opportunistic records at all times, including opportunistic observations on reptiles, birds and mammals.

Methods employed for these components of the field project are described in the following sections, while Table 1 provides descriptions of sampling sites, and when and where work was undertaken.

Systematic Trapping for Amphibians, Reptiles and Mammals

Systematic trapping for amphibians, reptiles and mammals took place at five sites, with the layout of traps (the Kingston layout) being that recommended by CALM, at each site. This layout consists of a grid of pitfall, Elliott and cage traps as illustrated in Figure 2. Five such grids were established and were operated for five nights during the sampling periods indicated above, with the Elliott and cage traps baited with universal bait, consisting of a stiff mixture of rolled oats, peanut paste and sardines. Trapping efforts were therefore 45 trapnights with cage traps and 75 trapnights with

each of Elliott and pitfall traps at each site in each survey. For each trap type, total effort for each field trip was therefore: cage traps - 225 trapnights; Elliott traps - 375 trapnights; and pitfall traps - 375 trapnights. Between the March and December field trips, pitfall traps were left *in situ* with lids firmly in place. Drift fences, Elliot and cage traps, however, were removed.

Trapping sites were checked each morning and all specimens caught were identified and some basic measurements were taken. Mammals were marked by excising a small "V" shape on the edge of the ear so that they could be recognised if caught again within a few days. Details on specimens caught are presented in Table 3 and Appendix 1. Trapping and all handling of specimens were carried out under Licence to Take Fauna for Scientific Purposes No. SF003750.

Clearing of Tracklines

The clearing of tracklines involved sweeping a length of bare ground smooth so that the tracks of animals that crossed this area could be readily seen. This was done in 100 m lengths by dragging several sacks half-filled with sand behind a vehicle in the evening, and then checking these prepared tracklines the following morning. Tracklines were cleared at all five sites and examined each morning from 13th to 17th March. Results are presented in Table 2.

Estimation of Kangaroo Population

The number of kangaroos was estimated by counting the number of faecal pellets in 1m wide transects in each of five areas (see Figure 1 and Table 4), and calculating the number of kangaroos per hectare based on the formula 100 pellets per 100 m^2 = 0.1 kangaroos per hectare (G. Arnold pers. comm.). Arnold and Maller (1991) demonstrated that kangaroo population estimates based on the density of pellets could be obtained quickly and were accurate, and this approach has been used for a number of years to monitor kangaroo populations in Whiteman Park (Bamford and Bamford 2001). This approach assumes a reasonably constant rate of pellet loss due to natural breakdown, with only pellets that are entire and not crumbling being counted.

Counting the number of pellets involved walking out a tape measure along the transect and recording the number of pellets in 50 m sub-transects, 50 cm either side of the tape. Results are presented in Table 5. The transects all included sections of mown vegetation within the perimeter road and therefore close to the runways, but extended into adjacent woodland. The kangaroo population was estimated on the basis of mean pellet densities.

Bat Surveys

Mist-netting and harp-trapping for bats and recording of ultrasonic calls were undertaken on the evening of 27th March 2002 and 20th February 2003. Two mist nets with a total length of 27m and one harp trap were set near Site 1 (in the proposed

industrial area). The nets and trap were set by sunset on both evenings and were monitored for 3 hours. Bats caught were identified, measured and immediately released. Recordings of ultrasonic calls of bats flying past were made with an Anabat II ultrasonic detector and compared to recordings in a reference collection. Recordings were also made during spotlighting surveys from a vehicle that largely followed the Perimeter Road.

Spotlighting Surveys

Spotlighting surveys were undertaken to target nocturnal species that were unlikely to be detected by other means, such as the Brush-tailed Possum and nocturnal birds. These surveys were conducted between 1900 hr and 2000 hr on 27th March 2002 and 1945 hr to 2100 hr on 20th February 2003. Each survey had a total length of *ca.* 12km and involved two people with one hand-held spotlight and vehicle lights on high beam. The speed was kept at 15-20 kph. One person operated an Anabat II Bat Detector to record bats passing overhead.

Censusing for Birds

Records of birds were made opportunistically both at and when travelling between sites, but two systematic approaches were also used. Whenever trapping sites were checked a bird-list was prepared, providing presence/absence information for each bird species for five survey events at each site during each field trip. This information makes it possible to compare the relative abundance of a species between sites. Results of this approach to carrying out bird censussing are presented in Table 7.

The second systematic approach used to record birds involved censussing at each site. The method used was a 20 minute, approximately 3 ha area search technique, with four search-areas being covered at each site. These search areas were based around the trapping quadrats at each site and results are presented in Table 6. This technique has been recommended by Birds Australia (the Royal Australasian Ornithologists Union) as being robust and producing consistent results in varying habitats and with different observers (Loyn 1986).

An additional site, Site 6, was surveyed using the second approach. This site included a small thicket of *Regelia* sp. surrounded by *Banksia* woodland and was included because this sort of thicket was not represented at any of the trapping sites.

The 20 minute, 3 hectare searches were carried out each month from March to November at sites 1, 2 and 5.

Opportunistic observations

At all times during field-work, observations were noted where they contributed to the accumulation of information on fauna of the study area. These included evidence of mammals and reptiles and casual observations of birds.

Sources of Information

Because even an intensive field study cannot be expected to record all species present in an area, the survey results were supplemented with records from a number of sources. Trapping records can be compared against this expected list.

Specimen records of frogs, reptiles and mammals were requested from the WA Museum and records were also requested from CALM's Threatened Fauna Database for the area. The Threatened Fauna Database includes threatened invertebrates. In addition, Volume 1 of Bush Forever (Government of WA 2000) presents lists of fauna of the Perth Metropolitan area. Further information on birds that could be expected in the area was obtained from Blakers *et al.* (1984) and Johnstone and Storr (1998), while additional information on reptiles was obtained from Storr *et al.* (1983, 1986, 1990 and 1999). The results of a pitfall trapping programme carried out independently of the present study in the west of the Jandakot Airport Lease Area were also obtained (D. Robinson pers comm.). These results are important as they provide additional data on fauna actually recorded within the Lease Area, as opposed to fauna expected on the basis of regional species lists.

These supplementary sources of information were used to create lists of species expected to occur at the site (see Tables 8, 9 and 10). As far as possible, expected species are those that are very likely to utilise the project area, and such lists exclude species that have been recorded in the general region as vagrants.

Taxonomic orders and names used in this report generally follow Tyler *et al.* (1984) for amphibians, Storr *et al.* (1983, 1986, 1990 and 1999) for reptiles, Strahan (1983) for mammals and Christidis and Boles (1994) for birds. Where recent taxonomic revisions have occurred that post-date these sources, earlier names are given in parenthesis.

Assessment of conservation significance

The conservation status of fauna species is assessed under Federal and State Acts such as the Commonwealth Environment Protection and Biodiversity Conservation Act (EPBC Act 1999) and the WA Wildlife Conservation Act. These use levels of significance recommended by the International Union for the Conservation of Nature and Natural Resources (IUCN) and reviewed by Mace and Stuart (1994), although the WA Act also has a category of "Other Specially Protected Fauna" that has no equivalent IUCN level. These categories are described in Appendix 4.

The EPBC Act also has separate listings for migratory and marine species. Migratory species are largely those listed under the Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animals), the Japan Australia Migratory Bird Agreement and the China Australia Migratory Bird Agreement. There is some ambiguity regarding the inclusion of non-migratory species that belong to families listed as migratory, but these species have been excluded from a truly migratory list provided by Environment Australia. The WA Department of Environmental Protection (DEP) also excludes non-migratory members of families listed under the

Migratory Category of the EPBC Act. The Marine Species list includes all birds recorded in the marine waters of the Commonwealth of Australia, with individual species not listed on Environment Australia's website. Marine species are not generally applicable to the study area.

In addition, Environment Australia has supported the publication of a report on the conservation status of Australian reptiles (Cogger *et al.* 1993) and birds (Garnett and Crowley 2000). Garnett and Crowley use the IUCN categories but in some cases assign species differently compared with the EPBC Act, while the categories used by Cogger e*t al.* (1993) differ in some respects as this report pre-dates Mace and Stuart's review.

In Western Australia, the Department of Conservation and Land Management has produced a supplementary list of Priority fauna, being species that are not considered Threatened under the IUCN categories or under the WA Wildlife Conservation Act but for which the Department feels there is cause for concern. Levels of Priority are described in Appendix 4.

Species can be considered to be of National Conservation Significance if they occur on any of the above lists. Species not on these lists may be of Regional Conservation Significance if they occur on the edge of their distribution or as an isolated population.

RESULTS

Frogs

The Jandakot airport bushland may support nine frog species (Table 8), but only two frog species were caught during sampling, with a third recorded in earlier fieldwork by D. Robinson (Table 3). Of these three species, the Turtle Frog is an entirely terrestrial species (Roberts 1981) that is probably present throughout woodland areas, while the Moaning Frog and Pobblebonk have aquatic larvae but terrestrial adults that live up to several kilometres away from wetlands (Bush *et al.* 1995, Bamford 1992). These two species probably breed in wetlands outside the Jandakot Airport property, with the concentration of frog captures in Sites 4 and 5 suggesting that the closest breeding wetlands are to the south. The two captures at Site 2 indicates that frogs may also utilize the seasonal wetlands that lie just to the north-east of the property. The remaining frog species are more closely associated with wetland environments, but may move through the Jandakot Airport bushland, especially after rain.

None of the frogs is of National Conservation Significance. Many of the species persist in the urban landscape because they remain around wetlands, but the Turtle Frog, Moaning Frog and Pobblebonk are sensitive to urban development because of their reliance on upland environments. The Turtle Frog in particular survives only where native upland vegetation remains, whereas the Moaning Frog and Pobblebonk often occur in suburbs even where native vegetation is fragmented. The population of the Turtle Frog within the Jandakot Airport bushland can therefore be considered of regional significance.

Reptiles

The Jandakot Airport bushland may support 42 reptile species; eleven of these were recorded during the March survey and 14 in December, but 21 had been found by D. Robinson (Tables 3 and 8). One species not found in 2002 or by D. Robinson, the skink *Morethia lineoocellata*, was recorded by Davidge (1980) in a trapping study at a location described as "Jandakot". The total of 42 species may not all be present, but are those known from the local area in the sorts of habitats represented on the site. A few species, such as the Mourning Skink, Dusky Morethia and Jan's Bandy-Bandy, are very patchily distributed in the region so may not be present, while the Carpet Python may be locally extinct.

The low number of species recorded in March was expected as reptile activity levels are low in autumn. Higher numbers of captures were obtained in the December survey. In general, however, reptiles are difficult to locate and even intensive trapping programmes cannot locate all species regularly. For example, How and Dell (1990) located only a proportion of the total of 26 reptile species recorded in Bold Park in each year of a long term trapping programme, while over a ten year period trapping for reptiles at a single site 130 km to the north of Perth, over half the 39 species recorded are represented by fewer than 10 specimens, and four of the species have been observed but not trapped (M. Bamford, unpub. data).

Numbers of captures of reptiles were generally too low to indicate local patterns of distribution, but most captures of the West Coast Four-toed Lerista were in upland areas (Sites 3, 4 and 5), suggesting that this species may avoid low-lying areas such as at Sites 1 and 2.

Most of the species of reptiles observed or expected are likely to be widespread in the habitats available, while time since fire is likely to have little impact on their distribution (Bamford 1995). Several of the species, however, favour seasonally damp areas so may be restricted in their local distribution. These include the South-West Cool Skink, Mourning Skink, Crowned Snake and Western Tiger Snake. Gray's Legless-Lizard and *P. gracilis* are commonly associated with heathland (Bush *et al.* 1995) so may be confined to such habitat in the south of the bushland area.

Some species are considered of Regional Conservation Significance because they are at the limit of their distribution in the area. The Sandhill Dragon, Black-headed Tree Goanna, Worm Lerista, Western Bluetongue, Narrow-banded Snake and Half-ringed Snake are at the southern limit of their range just south of the Swan River, while Rosenberg's Goanna, the Perth Lined Lerista and Crowned Snake are at the northern limit of their range. The Perth Lined Lerista and the Black-striped Snake are listed as Rare or Insufficiently Known and Endangered respectively by Cogger *et al.* (1993), but neither is recognised under Conservation Acts or by CALM, probably because both are secure in reserves outside the metropolitan area. In addition, almost all the reptile species are unable to survive in urban environments, so the more or less complete reptile assemblage in the Jandakot Airport bushland is of regional significance in itself.

One reptile species is of National Conservation Significance: the Carpet Python (South-West sub-species) is listed as Other Specially Protected Fauna under the WA Wildlife Conservation Act and as Priority 4 by CALM, and as Vulnerable by Cogger *et al.* (1993). It may be locally extinct, but it is known to persist in areas like Neerabup on the northern outskirts of Perth, while it is abundant on Garden Island (Bush *et al.* 1995).

Birds

Because of the mobility of birds, over a hundred species could probably be recorded in the Jandakot Airport bushland, but it is considered that only 84 species may make regular use of it, while 46 species were observed n total during the 2002 surveys (Table 9). The list consists mainly of landbirds but includes a small number of waterbirds that are known to fly over the site, such as the Australian Pelican, and species that forage on grasslands, such as the ibis and White-faced Heron. Australian Pelicans occur over Jandakot Airport when travelling between the Canning Vale Waste Disposal Facility, where they feed, and Bibra Lake, where they roost (M. Bamford, unpub. data).

The majority of the bird species observed or expected are dependent upon native vegetation and the bird assemblage is almost intact, with only four species considered to be locally extinct (Table 11). A number of other species, however, such as the Golden Whistler, are probably only infrequent visitors whereas they may once have been present regularly. Conversely, the bird fauna includes a number of introduced species, including some (ibis, Galah, corella species, Banded Lapwing) that have extended their ranges into the area as a result of habitat changes caused by clearing. Such species rely mainly on cleared areas, including lawns around the runway, as do some local species such as Richard's Pipit.

The results of recording birds during the area search censusses (Table 6) and while checking traps (Table 7) suggest that most bird species are widespread, but some differences between sites were detected. On the basis of the area search approach during the March survey, Site 6 had the least species and fewest records see (Table 6), reflecting the uniformly dense vegetation compared with other sites, which had greater structural and floristic diversity and were therefore more likely to support a great number and abundance of bird species. While a similar number of species were recorded for Sites 1 to 5 in March, species composition was markedly different between all sites. Overall, honeyeaters made up 50% of all birds recorded during the area searches. However, only 29% of honeyeaters were recorded from Sites 1, 2 and 6, while the remainder (71%) were recorded from Sites 3, 4 and 5. These latter sites are upland areas with the greatest density of nectar-bearing plants. The bias of honeyeaters towards Sites 3, 4 and 5 was due mainly to large numbers of New Holland and White-cheeked Honeyeaters (Table 6), with observations of the Singing and Brown Honeyeater, and most observations of the Western Spinebill, confined to Sites 1, 2 and 6. Sites 2 and 6, however, were the only sites where the Western Wattlebird was not recorded. These patterns of honeyeater distribution may change seasonally, as bird censussing carried out in April found the Brown Honeyeater to be abundant and widespread. The proportional distribution of honeyeaters was also

influenced by the abundance of other bird species at some sites. For example, large numbers of Tree Martins at Site 1 and Australian Ravens at Site 2 accounted for the high numbers of birds from these two sites, with Tree Martins representing nearly 40% of all birds from Site 1 and Australian Raven accounting for 53% of all birds at Site 2.

Bird censussing over the period April to November 2002 was carried out at only Sites 1, 2 and 5, but provides more information on seasonal and local patterns of abundance (see Table 8, Figure 3 and Appendix 2). The total number of records was consistent between sites, ranging from 390 (Site 2) 430 (Site 5), but the abundance of different species varied greatly. Honeyeaters dominated the assemblage at Site 15 (52% of records) and site 5 (48% of records), but not at Site 2 (30% of records) where the Australian Raven dominated (36% of records). Site 2 is close to the Canning Vale Waste Disposal Facility, so presumably this reflects birds visiting this area. There was also variation between honeyeater species, such as the White-cheeked Honeyeater being more abundant than the very similar New Holland Honeyeater at Sites 2 and 5, but not at Site 1 (see Table 8). There were also some patterns among less abundant species worthy of note, such as the Silvereye being common at only Sites 2 and 5, and the number of species recorded in small numbers at only one site. This indicates how the variability between sites within Jandakot airport contributes to the large number of species present in total.

Seasonal patterns in the abundance of many species are indicated in the census data from April to November (Table 8). For example, the introduced Rainbow Lorikeet was abundant in November but absent otherwise, coinciding with the flowering of *Banksia attenuata*. There were also patterns less easy to explain, such as few records of the resident Splendid Fairy-wren from April-June. The species may simply be less conspicuous then. The seasonal abundance of the two most abundant honeyeater species is plotted in Figure 3, and reveals a lot of between species, and within species across the year and between sites. The New Holland Honeyeater was most abundant at site 5, but not in autumn, while the Brown Honeyeater displayed less variation in abundance between sites. The Brown Honeyeater was at its lowest levels of abundant in March and June/July, resulting in a bimodal pattern of high levels of abundance in autumn and the period late winter to late spring.

Because most of the bird species present are dependent upon native vegetation, and the Jandakot Airport bushland is becoming increasingly surrounded by urban development, many of the species are of regional significance. The Bush Forever documents (Government of Western Australia 2000) list bird species that are significant in the metropolitan region, with many of these being small, sedentary species dependent upon native vegetation and prone to local extinction even in small reserves (Dell and How 1995). Many of these were recorded at Jandakot, including the Painted Button-quail, Splendid Fairy-wren, Western Thornbill, New Holland and White-cheeked Honeyeaters, Western Wattlebird, Scarlet Robin, Hooded Robin, Grey Shrike-thrush and Black-faced Woodswallow. The persistence of several of these species may depend upon ongoing linkage with the Jandakot Botanic Park, as some have been documented to disappear from even large but isolated reserves such as King's Park (Recher and Serventy 1991).

Four bird species of National Conservation Significance are expected to use the site: the Peregrine Falcon (Other Specially Protected Fauna of the WA Wildlife Conservation Act, not listed by Garnett and Crowley 2000 or under the EPBC Act), Swamp (Marsh) Harrier (listed as Migratory under the EPBC Act), Short-billed (Carnaby's) Black-Cockatoo (Schedule 1 (Endangered) of the WA Wildlife Conservation Act, also Endangered under the EPBC Act and according to Garnett and Crowley 2000) and the southern race of the Barking Owl near-Threatened by Garnett and Crowley (2000) and as Priority 2 by CALM). Of these, the Falcon is not given a high level of significance and is likely to be an infrequent visitor, although the site could be part of the range of a pair of Falcons and therefore important for them. Furthermore, the Peregrine Falcon is known to breed in a tree hollow in Whiteman Park on Perth's northern outskirts, so the species could breed in the Jandakot area. The Swamp Harrier is also likely to be only an infrequent visitor, as there is no suitable habitat for it within the Jandakot Airport property, although there is suitable habitat nearby. In addition, while listed as migratory, the Swamp Harrier is excluded from a list of truly migratory species under the EPBC Act.

Of the remaining two species, the Barking Owl is an infrequent visitor to the coastal plain, although one was seen at Blue Gum Swamp in Melville in April 2001 (Maddeford 2001). The Short-billed Black-Cockatoo, however, relies on patches of native vegetation and pine plantations to maintain its presence in the Perth region. Within the study area, it may be a regular visitor to forage on the seeds of Banksias. During both surveys the species was seen regularly, with flocks of over 100 birds flying near Site 2 on some evenings in March, and over Site 5 during the day in December.

Mammals

The extant mammal fauna of the site is likely to be poor with only 14 native and 5 introduced species, of which the presence of at least 9 native and all 5 introduced species was confirmed (Table 11). The presence of another native species, the bat *Falsistrellus mackenziei,* was unconfirmed, but it has been reported from near Thomson's Lake (Hosken and O'Shea 1994). Even if all 14 species expected are present, they are outnumbered by the 15 native mammal species that are considered to be locally extinct (Table 12), although some of these species disappeared from the Swan Coastal Plain in the early 20th Century and their past presence at the Jandakot site cannot be confirmed. This high level of extinction has affected mammals across much of Australia and has been attributed to changes in fire regime, habitat loss and fragmentation, and predation by Foxes and Cats (Burbidge and McKenzie 1989, Paton 1991).

Apart from some of the introduced species, the mammal fauna is dependent upon native vegetation, although the Grey Kangaroo and some of the bat species will forage in open areas. The Gould's Wattled Bat has been struck by aircraft on the runway, indicating that it forages over this area, while the White-striped Bat was heard foraging around the buildings on some evenings.

The results of trapping and other observations on mammals (Tables 2 and 3) indicate that most species were widespread. Of the five species caught on the trapping sites, the Honey Possum, Black Rat and Feral Cat were represented by either one or two specimens, but the Cat was recorded elsewhere on tracklines (Table 2), while the Honey Possum had been caught by D. Robinson. Furthermore, the abundance of Honey Possums was expected to be low because of seasonal factors (Saffer 1998), while low population levels have been recorded following years of below average rainfall (M. Bamford unpub. data). The Black Rat probably occurs at low levels of abundance, as it is infrequently caught in Banksia woodlands (M. Bamford pers. obs.), but it may be relevant that it was caught at Site 3, which was within a few hundred metres of buildings.

The remaining two mammal species caught in traps were the Quenda and the House Mouse. The Quenda was recorded at all sites in both March and December and the range in number of captures from one to nine does not suggest any significant difference in abundance between sites. Slightly more animals were caught in December (35) than in March (23), with the difference due largely to very young animals born in spring. In contrast, during the March survey the House Mouse was not caught at Site 1 but was extremely abundant at Sites 2 and 5. These were very different environments in some respects (see Table 2) but both supported dense understorey vegetation, which may be significant. In December, however, there appeared to be no difference in the abundance of the House Mouse between sites. This could indicate a seasonal shift in the distribution of the species.

Most information on bats was gained from recording their calls at Site 1, with only 2 specimens, both the Lesser Long-eared Bat, caught in February 2003. Dead Gould's Wattled Bats have been collected on the runway. All of the bat species listed have been recorded from the Swan Coastal Plain in the Perth region in recent years (Government of Western Australia 2000) with the exception of the Chocolate Wattled Bat. The record of this species is therefore of interest, but it probably reflects the use of comparatively new technology for detecting bats.

Additional information on Grey Kangaroos was collected in order to determine some measures of abundance of this species (Table 5). This was done by calculating the density of pellets along transects, and basing kangaroo densities on these values (see Methods). With the exception of one of the transects where the density of pellets was higher on slashed areas in March (Transect 3, see Table 5), the density of pellets did not differ significantly between woodland and open, slashed areas. Therefore, it was assumed that the mean pellet density for each transect could be used to calculate kangaroo density. On this basis, estimates of kangaroo density range from 0.028 (Transect 2) to 0.058 (Transect 1) in March, and 0.0022 (Transect 2) to 0.02 (Transect 5) in December. The population of kangaroos within the approximately 500 ha available to them on the Jandakot Airport property was therefore within the range of 14 to 29 in March and 1 to 10 in December. Nine were seen while spotlighting in March. These values are almost certainly underestimates, but there does seem to have been a fall in kangaroo numbers from March to December, while the information collected at least provides a benchmark for future assessments. The apparent decline in Kangaroo numbers is supported by the results of spotlighting, as no Kangaroos were seen in February 2003.

All the native mammal species observed or expected can be considered as at least of Regional Conservation Significance as they are scarce or absent in the urban area, although the Brush-tailed Possum and some of the bats persist in some suburbs. Furthermore, three species are of National Conservation Significance: the Quenda (listed as Priority 4 and Conservation Dependent by CALM), The Brush Wallaby and the bat *F. mackenziei* (both Priority 4). The Quenda is clearly abundant and widespread in the area while the bat appears also to be present and can probably move between Jandakot Airport and nearby sites. The Brush Wallaby may be the most critical of the three species of National Significance, as Bamford and Bamford (1999) found a population density of Brush Wallabies in Whiteman Park of 0.16 animals/ha, and that the species favours dense vegetation in low-lying areas. Brush Wallabies were seen only at Sites 1 and 2, which is consistent with their habitat preference in Whiteman Park. However, they have been reported from other parts of the bushland, including south of the runway. If the Whiteman Park density is applied to the total bushland area at Jandakot, a population of 66 can be predicted, but it is probably less than this and may consist of as few as 20 animals in the northern parts of the property, with a few in less favourable habitats elsewhere. Bamford and Bamford (1999) found the species to be sedentary and therefore such a small population could be vulnerable to local extinction.

Invertebrates

No field-work was undertaken to investigate the invertebrate fauna of the project area, but invertebrates were included in the investigation of CALM's Threatened Fauna Database. Three species of native bee that are of national conservation significance have been recorded in the vicinity of Jandakot Airport. *Leioproctus douglasiellus* and *Neopasiphae simplicior* are both listed under Schedule 1 of the WA Wildlife Conservation Act and have been recorded at Armadale Golf Course and Lake Forrestdale, while *L. contrarius* is listed as Priority 3 by CALM, and has been recorded at Forrestdale and Murdoch. The latter species may be more widespread than this listing justifies. *L. douglasiellus* has been recorded only from flowers of *Goodenia filiformis*, *N. simplicior* only from flowers of *G. filiformis*, *Lobelia tenulor* and *Angianthus preissianus*, and *L. contrarius* only from flowers of Goodeniaceae and possibly *Lechenaultia stenosepala*. If these plants are present at Jandakot Airport, then it seems very likely that the 3 bee species will also be present.

CONCLUSIONS

The Jandakot Airport bushland supports a substantially intact faunal assemblage that is representative of the fauna that once occurred throughout Perth's southern suburbs. Almost all vertebrate species (and invertebrate species?) that were present at the time of European settlement are still present, with the greatest documented loss amongst mammals. The fauna is dominated by species of Regional Conservation Significance because these are species that cannot survive in the surrounding urban landscape, but includes a number of species of National Conservation Significance. The

conservation value of this fauna is recognised by Jandakot Airport Holdings Pty Ltd and management plans to maintain these values have been prepared (Miller 2000).

Because of the nature of the fauna and fauna habitats present, a number of conservation issues need to be considered in order to preserve the fauna values of the site.

Linkage with the Jandakot Botanic Park and other areas of native vegetation is important as many of the species present are prone to local extinction in isolated bushland remnants. Some sedentary birds and the Brush Wallaby are particularly important in this respect.

Protection of as broad a range of habitat types is necessary as species undoubtedly have preferences, while seasonal patterns of usage can vary. It is also important to protect as large an area of native vegetation as possible, and to maintain the quality of this vegetation. Large area and high quality of habitat equate to larger and more robust fauna populations.

Most of the fauna is tolerant of fire, but extensive fires that reduce large areas of habitat to the same fire age are undesirable. The existing mosaic of fire-ages is encouraging.

Some of the species present are sensitive to predation by introduced species such as Cats and Foxes, both of which appear to be abundant. Suppression of these species is desirable, and may become more critical with increasing urban development in the region.

With respect to these issues, the proposed development in the general location of Site 1 raises concerns in that it could isolate some areas of native vegetation, it will lead to some loss of habitat and, in particular, it will impact upon habitat in low-lying areas that are poorly represented on the site. One species that may particularly suffer as a result is the Brush Wallaby. However, identifying these issues may make it possible to design the development to minimise impacts.

TABLE ONE. Descriptions of five fauna sampling sites, including locations in relation to airport complex dates and times of surveys and location of sixth bird censussing site with date and time of survey.

Site 1. West-north-west of airport complex, 32 05' 27" S, 115 52' 10" E.
Vegetation: Banksia woodland on slope and valley floor. Understorey in valley area dense in places. Last burnt October 1997. Classed as mixed Banksia woodland in Miller (2000) and as H2 (open woodland of *Banksia attenuata* and *B. menziesii*) by Mattiske Consulting (2001).
Trapping grid: 15 assisted pitfalls, 15 Elliott Traps and 9 cage traps.
13/03/'02 -17/03/'02.
Bird censussing: 4 areas, each of 3 ha and each searched for 20 minutes on 17/03/'02 between 1530 hr and 1657 hr.
Trackline: 100 m cleared on evenings of 13/03/'02 to 17/03/'02, inspected on the following mornings.

Site 2. North-north-east of airport complex, 32 05 '09" S, 115 53' 09" E.
Vegetation: Open woodland of *Melaleuca priessiana* over dense shrubs. A low-lying site that may be seasonally damp. Last burnt December 1995. Classed as *Melaleuca – Pericalymma* wetland in Miller (2000) and as K2 (*Melaleuca priessiana* woodland) by Mattiske consulting (2001).
Trapping grid: 15 assisted pitfalls, 15 Elliott Traps and 9 cage traps.
13/03/'02 -17/03/'02.
Bird censussing: 4 areas, each of 3 ha and each searched for 20 minutes on 16/03/'02 between 1316 hr and 1445 hr.
Trackline: 100 m cleared on evenings of 13/03/'02 to 17/03/'02, inspected on the following mornings.

Site 3. South-west of airport complex, 32 05' 45" S, 115 51' 51" E.
Vegetation: Banksia woodland with scattered Jarrah *Eucalyptus marginata* high in the landscape on a dune ridge. Last burnt March 1997. Classed as Jarrah-Banksia woodland in Miller (2000) and as H1 (woodland of Jarrah *Eucalyptus marginata* and *Banksia* spp.) by Mattiske Consulting (2001).
Trapping grid: 15 assisted pitfalls, 15 Elliott Traps and 9 cage traps.
13/03/'02 -17/03/'02.
Bird censussing: 4 areas, each of 3 ha and each searched for 20 minutes on 15/03/'02 between 1550 hr and 1635 hr.
Trackline: 100 m cleared on evenings of 13/03/'02 to 17/03/'02, inspected on the following mornings.

Site 4. South of airport complex, 32 06' 28" S, 115 52' 41" E.
Vegetation: Banksia woodland on a low rise. Last burnt prior to 1980. Classed as *Banksia attenuata* open low woodland in Miller (2000) and as H2 (open woodland of *Banksia attenuata* and *B. menziesii*) by Mattiske Consulting (2001).
Trapping grid: 15 assisted pitfalls, 15 Elliott Traps and 9 cage traps.
13/03/'02 -17/03/'02.
Bird censussing: 4 areas, each of 3 ha and each searched for 20 minutes on 15/03/'02 between 1705 hr and 1750 hr.
Trackline: 100 m cleared on evenings of 13/03/'02 to 17/03/'02, inspected on the following mornings.

Site 5. South-south-east of airport complex, 32 05' 24" S, 115 52' 41" E;
Vegetation: Dense Banksia woodland high in the landscape, on a dune slope and ridge. Understorey thickets present. Last burnt March 1993. Classed as *Banksia attenuata* open low woodland in Miller (2000) and as H2 (open woodland of *Banksia attenuata* and *B. menziesii*) by Mattiske Consulting (2001), but the woodland was dense rather than open.
Trapping grid: 15 assisted pitfalls, 15 Elliott Traps and 9 cage traps.
13/03/'02 -17/03/'02.
Bird censussing: 3 areas, each of 3 ha and each searched for 20 minutes on 16/03/'02 between 1603 hr and 1708 hr and 1 area of 3 ha for 20 minutes on 18/03/'02 from 0603 hr.
Trackline: 100 m cleared on evenings of 13/03/'02 to 17/03/'02, inspected on the following mornings.

Site 6. At eastern end of East-West runway.
Vegetation: Dense thicket in valley surrounded by Banksia woodland on slopes. Classed as mixed Banksia woodland over scrub in Miller (2000) and as J2 (heathland of *Beaufortia elegans* and *Hypocalymma* sp.) by Mattiske Consulting (2001).
Bird censussing: 4 areas, each of 3 ha and each searched for 20 minutes on 18/03/'02 between 1530 hr and 1620 hr.

TABLE TWO. Results of trackline surveys, indicating the total number of records of each species on each trackline over the period 13th-17th March 2002. See Tables 7, 8 and 9 for scientific names.

Species	Site 1	Site 2	Site 3	Site 4	Site 5
Bobtail	2			1	
small snake or legless lizard					1
Australian Raven		7	7	7	
Common Bronzewing		1		3	
honeyeater				3	7
Quenda (bandicoot)		1			
Grey Kangaroo	1	6	1		2
Fox	1	1	1	3	2
Cat	1	1	1		
Dog			2	3	
Rabbit	4		8	22	24

TABLE THREE. Numbers of captures (excluding recaptures) of frogs, reptiles and mammals on Sites 1 to 5 in March and December 2002. Raw data are presented in Appendix 1 and complete scientific names appear in Tables 8, 9 and 10. The column DR indicates the numbers of captures of frogs and reptiles made by Dave Robinson (unpub. data) in pitfall sampling carried out near Site 5 during 2001. Species observed only, and bats recorded during bat surveys, are indicated with an asterisk.

Table 3A March

Species	Site 1	Site 2	Site 3	Site 4	Site 5	DR
Myobatrachidae (ground frogs)						
Moaning Frog		1			1	-
Pobblebonk		1		3	3	13
Turtle Frog						10
Pygopodidae (legless lizards)						
Fraser's Legless Lizard						8
Gray's Legless Lizard						1
Burton's Legless Lizard						12
Pletholax gracilis						13
Common Scaleyfoot						18
Agamidae (dragon lizards)						
Western Bearded Dragon				1	1	40
Sandhill or Heath Dragon						5
Varanidae (monitors)						
Gould's Sand Goanna					1	*
Scincidae (skink lizards)						
South-West Cool Skink					1	5
Fence Skink						10
Western Limestone Ctenotus	2	2	1	1		26
Salmon-bellied Skink						2
Two-toed Earless Skink						21
West Coast Four-toed Lerista			3	4	4	47
Perth Lined Lerista	2			1	2	51
Dwarf Skink	4	1	2	4	2	51
Western Bluetongue						2
Bobtail	1	1		2	1	10
Typhlopidae (blind snakes)						
Ramphotyphlops australis						4
Elapidae (front-fanged snakes)						
Yellow-faced Whip-Snake						1
Black-striped Snake						2
Dugite						3
Gould's Snake						1

Table 3A March (cont.)

Species	Site 1	Site 2	Site 3	Site 4	Site 5	DR
Peramelidae (bandicoots)						
Quenda	6	1	6	3	7	
Tarsipedidae (honey possum)						
Honey Possum				1		
Macropodidae (kangaroos)						
Brush Wallaby	*	*				
Western Grey Kangaroo	*	*	*	*	*	
Mollosidae (mastiff bats)						
White-striped Bat	*	*				
Vespertilionidae (vesper bats)						
Gould's Wattled Bat	*					
Chocolate Wattled Bat	*					
Falsistrellus mackenziei	?					
Vespedalus (Eptesicus) regulus	*					
Lesser Long-eared Bat	?					
Gould's Long-eared Bat	?					
Greater Long-eared Bat	?					
Muridae (rats and mice)						
House Mouse	-	14	4	4	18	
Black Rat					1	
Leporidae (rabbits and hares)						
Rabbit	*	*	*	*	*	
Canidae (foxes and dogs)						
European Red Fox	*	*	*	*	*	
Felidae (cats)						
Feral Cat		1				
Number of species:						
Number of captures of frogs:	-	2	-	3	4	23
Number of captures of reptiles:	9	4	6	13	12	354
Number of captures of mammals:	6	16	10	8	26	NA

Table 3B. December

Species	Site 1	Site 2	Site 3	Site 4	Site 5
Myobatrachidae (ground frogs)					
Moaning Frog					
Pobblebonk					
Turtle Frog					
Pygopodidae (legless lizards)					
Fraser's Legless Lizard	-	-	-	1	1
Gray's Legless Lizard					
Burton's Legless Lizard					
Pletholax gracilis	-	1	-	-	-
Common Scaleyfoot					
Agamidae (dragon lizards)					
Western Bearded Dragon	2	-	-	1	1
Sandhill or Heath Dragon					
Varanidae (monitors)					
Gould's Sand Goanna					
Scincidae (skink lizards)					
South-West Cool Skink					
Fence Skink	8	2	2	1	-
Western Limestone Ctenotus	2	3	1	2	1
Salmon-bellied Skink	1	-	-	1	-
Two-toed Earless Skink	1	-	-	-	-
West Coast Four-toed Lerista	3	2	4	7	5
Perth Lined Lerista	-	-	4	3	2
Dwarf Skink	4	7	2	2	4
Western Bluetongue	-	1	-	-	-
Bobtail	5	5	6	-	4
Typhlopidae (blind snakes)					
Ramphotyphlops australis	1	-	-	-	-
Elapidae (front-fanged snakes)					
Yellow-faced Whip-Snake	-	1	-	-	-
Black-striped Snake					
Dugite					
Gould's Snake					
Peramelidae (bandicoots)					
Quenda	8	6	8	4	9
Tarsipedidae (honey possum)					
Honey Possum	-	-	-	1	-
Macropodidae (kangaroos)					
Brush Wallaby	*	*			
Western Grey Kangaroo					
Mollosidae (mastiff bats)					
White-striped Bat	*				

Table 3B. December (cont.)

Species	Site 1	Site 2	Site 3	Site 4	Site 5
Vespertilionidae (vesper bats)					
Gould's Wattled Bat					
Chocolate Wattled Bat					
Falsistrellus mackenziei					
Vespedalus (Eptesicus) regulus					
Lesser Long-eared Bat	*				
Gould's Long-eared Bat					
Greater Long-eared Bat					
Muridae (rats and mice)					
House Mouse	5	3	9	6	7
Black Rat	1	-	-	-	-
Leporidae (rabbits and hares)					
Rabbit	*	*	*	*	
Canidae (foxes and dogs)					
European Red Fox	*	*	*	*	
Felidae (cats)					
Feral Cat					
Number of species:	12	10	8	11	9
Number of captures of frogs:	-	-	-	-	-
Number of captures of reptiles:	27	22	19	18	18
Number of captures of mammals:	14	9	17	11	16

TABLE FOUR. Locations and details of kangaroo pellet sampling transects.

Transect 1.

Start Point: north of Survey Site 1. 32 05' 20"S, 115 52'30"E
Bearing: 270
End Point: 32 05' 22"S, 115 51' 55"E
Length: 950m
Habitat: entirely within Banksia woodland.

Transect 2.

Start Point: 19 m west of corner gable on south-west corner of east-west runway. Crosses Perimeter Road at 32 06' 06"S, 115 52' 09"E
Bearing: 250
End Point on boundary fence.
Length: 500m
Habitat: First 100m slashed area close to runway. Remaining 350m through Banksia woodland.

Transect 3.

Start Point: Eastern end of east-west runway, at corner gable. Crosses Perimeter Road at 32 06' 23"S, 115 52' 58"E
Bearing: 125
End Point: 32 06' 36"S, 115 53' 17"E
Length: 850m
Habitat: First 200m slashed area close to runway. Remaining 650m through Banksia woodland.

Transect 4.

Start Point: Centre Bore. Crosses Perimeter Road at
32 06' 06"S, 115 52' 55"E
Bearing: 130 to non-directional beacon.
End Point: southern-most tower of non-directional beacon at
32 06' 13"S, 115 53' 05"E
Length: 500m
Habitat: First 125m slashed area close to runway. Remaining 375m through Banksia woodland.

Transect 5.

Start Point: Second gable west of corner gables north of engine run-up bay;
32 05' 39"S, 115 52' 52"E
Bearing: 20
End Point: drainage sump near Site 2 at 32 05' 13"S, 115 53' 03"E
Length: 850m
Habitat: First 75m across mown lawn, the next 275m across areas regenerating from being slashed, the remaining 500 m through Banksia woodland.

TABLE FIVE. Results of kangaroo pellet counts and estimated number of kangaroos per hectare in March and December. (see Methods for formula). Raw data are presented in Appendix 3. s.e. is standard error.

March

Estimated number of kangaroos based on mean pellet densities

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5
Mean number of pellets per 50 m	62.8	33.0	49.8	46.8	56.3
s.e.	5.8	9.8	7.2	18.0	12.1
Kangaroos per ha.:	0.063	0.033	0.049	0.047	0.056

Mean pellet densities in bushland areas only of each transect

Bush only	T1	T2	T3	T4	T5
Mean number of pellets per 50m	31.4	11.9	19.4	29.8	21.0
s.e.	3.6	3.5	2.3	11.9	6.1
N 50m sub-transects	18	7	13	6	10
Min number of pellets	9	0	8	6	4
Max number of pellets	74	25	32	87	67

Mean pellet densities in other vegetation (mainly slashed areas close to runways) of each transect

Other vegetation	T1	T2	T3	T4	T5
Mean number of pellets per 50 m	NA	26.5	40.3	13.0	38.3
s.e.		0.5	4.0	3.0	11.0
N 50m sub-transects		2	4	2	7
Min number of pellets		26	32	10	9
Max number of pellets		27	48	16	93

Comparison of pellet densities between bushland and other vegetation on each transect, using Student's t-test.

t-test	T1	T2	T3	T4	T5
t	-	2.15	4.44	0.77	1.48
df	-	7	15	6	15
p	-	0.068	0.001	0.470	0.159

December

Estimated number of kangaroos based on mean pellet densities

	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5
Mean number of pellets per 50 m	14.6	2.2	7.3	12.2	20.0
s.e.	1.7	1.1	1.5	3.4	3.7
Kangaroos per ha.:	0.015	0.0022	0.0073	0.012	0.020

Mean pellet densities in bushland areas only of each transect

Bush only	T1	T2	T3	T4	T5
Mean number of pellets per 50m	14.6	2.8	9.7	15.2	20.0
s.e.		1.3	1.7		3.7
N 50m sub-transects	18	7	13	8	10
Min number of pellets	6	0	1	1	9
Max number of pellets	30	9	19	26	43

Mean pellet densities in other vegetation (mainly slashed areas close to runways) of each transect. Note that there was no other vegetation types in Transects 1 and 5.

Other vegetation	T1	T2	T3	T4	T5
Mean number of pellets per 50 m	NA	0	0.8	0	NA
s.e.		-	0.5	-	
N 50m sub-transects		2	4	2	
Min number of pellets		0	0		
Max number of pellets		0	2		

TABLE SIX. Summary of bird censussing presenting the total number of each species seen in four, 20 minute searches, each covering an area of ca. 3 ha, at each of the six bird census sites in March (see Methods for details). Raw data from bird censussing are presented in Appendix 2.

Species	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Australian Pelican	-	-	3	-	-	-
Laughing Turtle-Dove	-	-	-	1	-	-
Common Bronzewing	-	1	2	1	3	3
Short-billed Black-Cockatoo	-	-	-	3	-	-
Rainbow Lorikeet	-	-	2	-	-	-
Australian Ringneck	4	-	-	-	-	-
Red-capped Parrot	4	-	2	4	2	1
Splendid Fairy-wren	2	2	1	-	3	-
Western Gerygone	2	-	1	-	-	-
Western Thornbill	-	2	-	-	-	-
Red Wattlebird	5	-	-	1	-	1
Western Wattlebird	1	-	3	1	5	-
Singing Honeyeater	3	2	-	-	-	-
New Holland Honeyeater	9	5	15	1	35	5
White-cheeked Honeyeater	1	7	21	21	22	7
Western Spinebill	-	2	-	-	5	4
Scarlet Robin	-	-	2	-	-	-
Hooded Robin	-	-	-	-	-	1
Rufous Whistler	-	-	2	-	2	-
Black-faced Cuckoo-shrike	-	3	-	-	-	-
Grey Butcherbird	-	-	-	1	-	-
Australian Magpie	7	-	-	1	1	-
Australian Raven	7	33	24	7	4	-
Tree Martin	29	-	-	-	3	1
Silvereye	-	5	-	2	4	-
Totals: N species	12	10	12	12	12	8
N records	74	62	78	44	91	24

TABLE SEVEN. Observations on birds made when checking the traps for (A) March and (B) December. The number of observations is out of 5 for March and out of 6 for December at each site.

Species	Site 1		Site 2		Site 3		Site 4		Site 5	
	A	B	A	B	A	B	A	B	A	B
Australian Pelican	-	-	1	-	-	-	-	-	-	-
Brown Falcon	-	-	-	-	-	-	-	1	-	-
Painted Button-quail	-	-	-	-	-	1	-	1	1	1
Laughing Turtle-Dove	1	-	-	-	-	-	-	-	-	-
Common Bronzewing	-	1	-	-	-	2	1	2	1	2
Short-billed Black-Cockatoo	1	-	-	1	1	-	-	-	-	2
Galah	-	1	-	-	-	-	-	-	-	1
corella spp.	1		-		-		-		-	
Rainbow Lorikeet	-	3	-	1	-	-	-	1	-	1
Australian Ringneck	-	1	2	-	2	-	-	-	-	1
Red-capped Parrot	-	-	2	-	1	2	-	-	3	2
Southern Boobook	1	-	-	-	-	-	-	-	-	-
Laughing Kookaburra	-	1	-	-	-	-	-	-	-	-
Splendid Fairy-wren	-	2	1	4	1	3	-	3	2	2
Striated Pardalote	1	1	-	-	1	-	-	-	-	-
Western Gerygone	2	3	-	1	2	-	1	4	-	-
Western Thornbill	-	-	-	-	1	-	1	1	-	-
Red Wattlebird	2	2	-	1	-	-	-	-	1	2
Western Wattlebird	2	1	-	-	4	2	1	2	2	-
Singing Honeyeater	2	3	1	3	-	1	1	-	1	2
Brown Honeyeater	1	6	-	6	-	6	-	6	-	6
New Holland Honeyeater	2	-	2	-	4	-	4	-	5	1
White-cheeked Honeyeater	1	-	3	1	5	1	3	-	1	-
Western Spinebill	1	4	-	2	1	-	1	1	2	-
Varied Sittella	-	-	-	-	-	-	-	-	-	1
Scarlet Robin	-	-	-	-	-	-	-	2	-	-
Rufous Whistler	2	4	1	2	3	4	2	5	1	3
Grey Shrike-thrush	-	-	1	-	-	-	-	-	1	-
Black-faced Cuckoo-shrike	1	2	1	1	-	-	-	1	-	1
White-winged Triller		-	2	-	-	-	-	-	-	-
Black-faced Woodswallow	-	-	1	1	-	1	-	-	-	-
Grey Butcherbird	4	1	2	-	3	-	3	-	-	2
Australian Magpie	1	1	2	1	-	-	1	1	-	-
Australian Raven	4	5	4	4	4	2	4	2	2	4
Mistletoebird	-	-	-	-	-	-	3	-	-	-
Welcome Swallow	-	-	1	-	-	-	1	-	-	-
Tree Martin	1	-	1	-	2	-	3	-	-	-
Silvereye	1	2	2	3	2	1	1	1	2	-
Totals: N species	20	21	17	16	16	13	16	16	14	17
N records	34	50	28	35	37	27	31	34	26	34

TABLE EIGHT. Total numbers of records of each bird species in sites 1, 2 and 5 from monthly censussing carried out April-November 2002. See appendix 2 for raw data.

Species	Site 1	Site 2	Site 3
'quail'	1	-	-
Australian White Ibis	2	-	15
Brown Goshawk	1	-	-
Laughing Turtle-Dove	5	-	-
Spotted Turtle-Dove	7	-	-
Common Bronzewing	-	-	1
Short-billed Black-Cockatoo	34	2	16
Rainbow Lorikeet	14	-	30
Australian Ringneck	13	8	14
Red-capped Parrot	4	4	5
Pallid Cuckoo	1	1	-
Horsfield's Bronze-cuckoo	7	3	-
Rainbow Bee-eater	4	3	-
Splendid Fairy-wren	11	27	9
Striated Pardalote	2	1	-
Western Gerygone	10	11	9
Inland Thornbill	-	1	-
Western Thornbill	1	-	3
Yellow-rumped Thornbill	3	4	10
Red Wattlebird	21	8	30
Western Wattlebird	1	-	3
Singing Honeyeater	2	11	10
Brown Honeyeater	114	58	105
Tawny-crowned Honeyeater	-	-	6
New Holland Honeyeater	51	11	11
White-cheeked Honeyeater	6	23	41
White-naped Honeyeater	-	-	1
Western Spinebill	2	5	-
Scarlet Robin	1	1	-
Varied Sittella	2	-	-
Golden Whistler	-	1	-
Rufous Whistler	11	4	6
Grey Shrike-thrush	-	3	1
Grey Fantail	3	1	-
Willie Wagtail	2	2	-
Black-faced Cuckoo-shrike	1	2	1
Black-faced Woodswallow	4	-	-
Grey Butcherbird	-	2	1
Australian Magpie	3	11	5
Australian Raven	44	141	64
Welcome Swallow	-	2	-
Tree Martin	-	-	2
Silvereye	6	39	31
total records:	414	390	430

TABLE NINE. Species list of amphibians and reptiles of Jandakot Airport, indicating species recorded during the March survey (+), those recorded on the December survey (x) and those found by D. Robinson (DR). NCS indicates species of National Conservation Significance (listed under EPBC or WA Wildlife Conservation Acts). RCS indicates species of Regional Conservation Significance (restricted distribution, on edge of range).

Species		Status	Comments
Myobatrachidae (ground frogs)			
Quacking Frog	*Crinia georgiana*		
Glauert's Froglet	*Crinia (Ranidella) glauerti*		
Sandplain Froglet	*Crinia (Ranidella) insignifera*		
Moaning Frog	*Heleioporus eyrei*		+
Pobblebonk	*Limnodynastes dorsalis*		+ (DR)
Turtle Frog	*Myobatrachus gouldii*		(DR)
Guenther's Toadlet	*Pseudophryne guentheri*		
Hylidae (tree frogs)			
Slender Tree Frog	*Litoria adelaidensis*		
Motorbike Frog	*Litoria moorei*		
Gekkonidae (geckoes)			
Southern Spiny-tailed Gecko	*Diplodactylus spinigerus*		
Marbled Gecko	*Phyllodactylus marmoratus*		
Pygopodidae (legless lizards)			
Sand-Plain Worm-Lizard	*Aprasia repens*		
Fraser's Legless Lizard	*Delma fraseri*		x (DR)
Gray's Legless Lizard	*Delma grayii*		(DR)
Burton's Legless Lizard	*Lialis burtonis*		(DR)
	Pletholax gracilis	RCS	x (DR)
Common Scaleyfoot	*Pygopus lepidopodus*		(DR)
Agamidae (dragon lizards)			
Western Bearded Dragon	*Pogona minor*		+ x (DR)
Sandhill or Heath Dragon		RCS	(DR)
	Rankinia (Tympanocryptis) adelaidensis		
Varanidae (monitors or goannas)			
Gould's Sand Goanna	*Varanus gouldii*		+ (DR)
Rosenberg's Goanna	*Varanus rosenbergi*	RCS	
Black-headed Tree Goanna	*Varanus tristis*	RCS	
Scincidae (skink lizards)			
South-West Cool Skink			+ (DR)
	Acritoscincus (Bassiana) trilineatum		
Fence Skink	*Cryptoblepharus plagiocephalus*		x
West Coast Ctenotus	*Ctenotus fallens*		
	Ctenotus impar		
Western Limestone Ctenotus			+ x (DR)
	Ctenotus australis (lesueurii)		
King's Skink	*Egernia kingii*		
Mourning Skink	*Egernia luctuosa*		
Salmon-bellied Skink	*Egernia napoleonis*		x (DR)

Table 9 (cont.)

Species	Status	Comments
Two-toed Earless Skink *Hemiergis quadrilineata*		x (DR)
West Coast Four-toed Lerista *Lerista elegans*		+ x
Perth Lined Lerista *Lerista lineata*	RCS	+ x (DR)
Worm Lerista *Lerista praepedita*	RCS	
Dwarf Skink *Menetia greyii*		+ x
West Coast Morethia *Morethia lineoocellata*		
Dusky Morethia *Morethia obscura*		
Western Bluetongue *Tiliqua occipitalis*	RCS	x (DR)
Bobtail *Tiliqua rugosa*		+ x (DR)
Typhlopidae (blind snakes)		
Ramphotyphlops australis		x (DR)
Boidae (pythons)		
South-West Carpet Python *Morelia spilota imbricata*	NCS	
Elapidae (front-fanged snakes)		
Yellow-faced Whip-Snake *Demansia psammophis*	RCS	x (DR)
Crowned Snake *Drysdalia coronata*	RCS	
Black-naped Snake *Neelaps (Vermicella) bimaculatus*		
Black-striped Snake *Neelaps (Vermicella) calonotus*	RCS	(DR)
Western Tiger Snake *Notechis scutatus*		
Dugite *Pseudonaja affinis*		+ (DR)
Gould's Snake *Parasuta (Rhinoplocephalus) gouldii*		(DR)
Jan's Bandy-Bandy *Simoselaps (Vermicella) bertholdi*		
Narrow-banded Snake *Simoselaps (Vermicella) fasciolata*		
Half-ringed Snake *Simoselaps (Vermicella) semifasciatus*		
Number of species observed or expected:		
Frogs: 9		
Reptiles: 42		

TABLE TEN. Species list of birds of Jandakot Airport, indicating species recorded during fieldwork in 2002 (+). NCS indicates species of National Conservation Significance (listed under EPBC or WA Wildlife Conservation Acts). RCS indicates species of Regional Conservation Significance (restricted distribution, on edge of range or identified as having declined in the Perth area in Bush Forever documents). Int. indicates introduced species.

Species		Status	Comments
Phasianidae (pheasants and quails)			
Stubble Quail	*Coturnix pectoralis*		+
Ardeidae (herons and egrets)			
White-faced Heron	*Egretta novaehollandiae*		
Pelecanidae (pelicans)			
Australian Pelican	*Pelecanus conspicillatus*		+
Plataleidae (ibis and spoonbills)			
Australian White Ibis	*Threskiornis molucca*		+
Straw-necked Ibis	*Threskiornis spinicollis*		+
Accipitridae (kites, hawks and eagles)			
Black-shouldered Kite	*Elanus notatus*		
Square-tailed Kite	*Lophoictinia isura*	RCS	
Whistling Kite	*Haliastur sphenurus*	RCS	
Swamp Harrier	*Circus approximans*	NCS	
Brown Goshawk	*Accipiter fasciatus*	RCS	+
Collared Sparrowhawk	*Accipiter cirrhocephalus*	RCS	+
Wedge-tailed Eagle	*Aquila audax*	RCS	+
Little Eagle	*Hieraaetus morphnoides*	RCS	+
Falconidae (falcons)			
Brown Falcon	*Falco berigora*	RCS	+
Peregrine Falcon	*Falco peregrinus*	NCS	
Australian Hobby	*Falco longipennis*		
Nankeen Kestrel	*Falco cenchroides*		+
Turnicidae (button-quails)			
Painted Button-quail	*Turnix varia*	RCS	+
Charadriidae (plovers and lapwings)			
Banded Lapwing	*Vanellus tricolor*		+
Laridae (gulls and terns)			
Silver Gull	*Larus novaehollandiae*		
Columbidae (pigeons and doves)			
Rock Dove (feral pigeon)	*Columba livia*	Int	
Spotted Turtle-Dove	*Streptopelia chinensis*	Int	+
Laughing Turtle-Dove	*Streptopelia senegalensis*	Int	+
Common Bronzewing	*Phaps chalcoptera*	RCS	+
Crested Pigeon	*Ocyphaps lophotes*		
Cacatuidae (cockatoos)			
Short-billed Black-Cockatoo	*Calyptorhynchus latirostris*	NCS	+
Corella	*Cacatua* spp.	Int	+
Galah	*Cacatua roseicapilla*		+

Table 10 (cont.)

Species		Status	Comments
Psittacidae (lorikeets and parrots)			
Rainbow Lorikeet	*Trichoglossus haematodus*	Int	+
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*		
Red-capped Parrot	*Purpureicephalus spurius*		+
Australian Ringneck (twenty-eight)	*Barnardius zonarius*		+
Elegant Parrot	*Neophema elegans*		
Cuculidae (cuckoos)			
Pallid Cuckoo	*Cuculus pallidus*		+
Fan-tailed Cuckoo	*Cuculus pyrrhophanus*		
Horsfield's Bronze-Cuckoo	*Chrysococcyx basalis*		+
Shining Bronze-Cuckoo	*Chrysococcyx lucidus*		
Strigidae (hawk-owls)			
Barking Owl	*Ninox connivens*	NCS	
Southern Boobook Owl	*Ninox novaeseelandiae*		+
Tytonidae (barn owls)			
Barn Owl	*Tyto alba*		
Podargidae (frogmouths)			
Tawny Frogmouth	*Podargus strigoides*		+
Apodidae (swifts)			
Fork-tailed Swift	*Apus pacificus*		
Halcyonidae (forest kingfishers)			
Laughing Kookaburra	*Dacelo novaeguineae*		+
Sacred Kingfisher	*Todiramphus sanctus*		
Meropidae (bee-eaters)			
Rainbow Bee-eater	*Merops ornatus*		+
Maluridae (fairy-wrens)			
Splendid Fairy-wren	*Malurus splendens*	RCS	+
Pardalotidae (pardalotes)			
Spotted Pardalote	*Pardalotus punctatus*		
Striated Pardalote	*Pardalotus striatus*		+
White-browed Scrubwren	*Sericornis frontalis*	RCS	
Weebill	*Smicrornis brevirostris*	RCS	+
Western Gerygone	*Gerygone fusca*		+
Inland Thornbill	*Acanthiza apicalis*	RCS	+
Western Thornbill	*Acanthiza inornata*	RCS	+
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	RCS	+

Table 10 (cont.)

Species		Status	Comments
Meliphagidae (honeyeaters)			
Red Wattlebird	*Anthochaera carunculata*		+
Western Wattlebird	*Anthochaera lunullata*	RCS	+
Yellow-throated Miner	*Manorina flavigula*	RCS	
Singing Honeyeater	*Lichenostomus virescens*		+
Brown Honeyeater	*Lichmera indistincta*		+
New Holland Honeyeater	*Phylidonyris novaehollandiae*	RCS	+
White-cheeked Honeyeater	*Phylidonyris nigra*	RCS	+
Tawny-crowned Honeyeater	*Phylidonyris melanops*	RCS	+
Western Spinebill	*Acanthorhynchus superciliosus*		+
Petroicidae (Australian robins)			
Hooded Robin	*Melanodryas cucullata*	RCS	+
Scarlet Robin	*Petroica multicolor*	RCS	+
Neosittidae (sittellas)			
Varied Sittella	*Daphoenositta chrysoptera*	RCS	+
Pachycephalidae (whistlers)			
Rufous Whistler	*Pachycephala rufiventris*		+
Golden Whistler	*Pachycephala pectoralis*	RCS	+
Grey Shrike-thrush	*Colluricincla harmonica*	RCS	+
Dicruridae (flycatchers)			
Magpie-lark	*Grallina cyanoleuca*		+
Grey Fantail	*Rhipidura fuliginosa*		+
Willie Wagtail	*Rhipidura leucophrys*		+
Campephagidae (cuckoo-shrikes)			
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*		+
White-winged Triller	*Lalage sueurii*		+
Artamidae (woodswallows)			
Black-faced Woodswallow	*Artamus cinereus*	RCS	+
Grey Butcherbird	*Cracticus torquatus*		+
Australian Magpie	*Gymnorhina tibicen*		+
Corvidae (ravens and crows)			
Australian Raven	*Corvus coronoides*		+
Motacillidae (pipits and true wagtails)			
Richard's Pipit	*Anthus novaeseelandiae*		+
Dicaeidae (flower-peckers)			
Mistletoebird	*Dicaeum hirundinaceum*		+
Hirundinidae (swallows)			
White-backed Swallow	*Cheramoeca leucosternus*		
Welcome Swallow	*Hirundo neoxena*		+
Tree Martin	*Hirundo nigricans*		+
Zosteropidae (white-eyes)			
Silvereye	*Zosterops lateralis*		+
Number of species	observed or expected (observed):	84 (46)	
	Regional Conservation Significance:	26	
	National Conservation Significance:	4	

TABLE ELEVEN. Species list of mammals of Jandakot Airport, indicating species recorded during the March survey (+) and the December survey (x). NCS indicates species of National Conservation Significance (listed under EPBC or WA Wildlife Conservation Acts). RCS indicates species of Regional Conservation Significance (restricted distribution, on edge of range). Int indicates introduced species. Comments include if species were observed or trapped during surveys.

Species		**Status**	**Comments**	
Tachyglossidae (echidnas)				
Echidna	*Tachyglossus aculeatus*			
Peramelidae (bandicoots)				
Quenda or Southern Brown Bandicoot	*Isoodon obesulus*	NCS	+	x
Tarsipedidae (honey possum)				
Honey Possum	*Tarsipes rostratus*	RCS	+	x
Phalangeridae (possums)				
Brush-tailed Possum	*Trichosurus vulpecula*			
Macropodidae (kangaroos and wallabies)				
Brush Wallaby	*Macropus irma*		+	x
Western Grey Kangaroo	*Macropus fuliginosus*	NCS	+	x
Mollosidae (mastiff bats)				
White-striped Bat	*Tadarida* (*Nyctinemus) australis*		+	
Vespertilionidae (vesper bats)				
Gould's Wattled Bat	*Chalinolobus gouldii*		+	
Chocolate Wattled Bat	*Chalinolobus morio*		+	
	Falsistrellus mackenziei	NCS	?+	
	Vespedalus (Eptesicus) regulus		+	
Lesser Long-eared Bat	*Nyctophilus geoffroyi*		+	
Gould's Long-eared Bat	*Nyctophilus gouldii*		?+	
Greater Long-eared Bat	*Nyctophilus major (timoriensis)*		?+	
Muridae (rats and mice)				
House Mouse	*Mus musculus*	Int		x
Black Rat	*Rattus rattus*	Int		x
Leporidae (rabbits and hares)				
Rabbit	*Oryctolagus cuniculus*	Int	+	x
Canidae (foxes and dogs)				
European Red Fox	*Vulpes vulpes*	Int	+	x
Felidae (cats)				
Feral Cat	*Felis catus*	Int	+	
Number of species expected (observed):	16 (14)			

TABLE TWELVE. Species believed to have occurred in the general region of the site, defined as the Swan Coastal Plain south of the Swan River, but which are now extinct in the vicinity of the study site. Note that some of these species persist nearby. Species of regional or national conservation significance are indicated by "C".

Species		Comments
Casuariidae (emus)		
Emu	*Casuarius casuarius*	
Psittacidae (parrots)		
Ground Parrot	*Pezoporus wallicus*	C
Pardalotidae (pardalotes and allies)		
Western Bristlebird	*Dasyornis longirostris*	C
Petroicidae (Australian robins)		
Western Yellow Robin	*Eopsaltria griseogularis*	
Dasyuridae		
Chuditch	*Dasyurus geoffroyi*	C
Brush-tailed Phascogale	*Phascogale tapoatafa*	C
dunnart	*Sminthopsis griseoventer*	
Myrmecobiidae (numbat)		
Numbat	*Myrmecobius fasciatus*	C
Thylacomyidae (bilbies or rabbit-eared bandicoots)		
Bilby, Dalgyte or Walpiri	*Macrotis lagotis*	C
Peramelidae (bandicoots)		
Western Barred Bandicoot	*Perameles bougainville*	C
Burramyidae (pygmy possums)		
Western Pygmy Possum	*Cercartetus concinnus*	
Pseudocheiridae (ring-tailed possums)		
Western Ring-tailed Possum	*Pseudochierus occidentalis*	C
Potoroidae (rat-kangaroos and allies)		
Woylie	*Bettongia penicillata*	C
Boodie	*Bettongia lesueur*	C
Macropodidae (kangaroos and wallabies)		
Banded Hare-Wallaby	*Lagostrophus fasciatus*	C
Tammar	M*acropus eugenii*	
Quokka	*Setonix brachyurus*	C
Muridae (rats and mice)		
Noodji or Ashy-grey Mouse	*Pseudomys albocinereus*	
Canidae (foxes and dogs)		
Dingo	*Canis familiaris dingo*	

FIGURE ONE. Map of Jandakot Airport property, indicating the locations of fauna trapping and bird census sites (numbers 1-6). Double broken lines indicate kangaroo pellet transects (T1-T5). Cleared and developed areas are enclosed by a single broken line, and the perimeter road is indicated by a dotted line. The scale bar is 500 m.

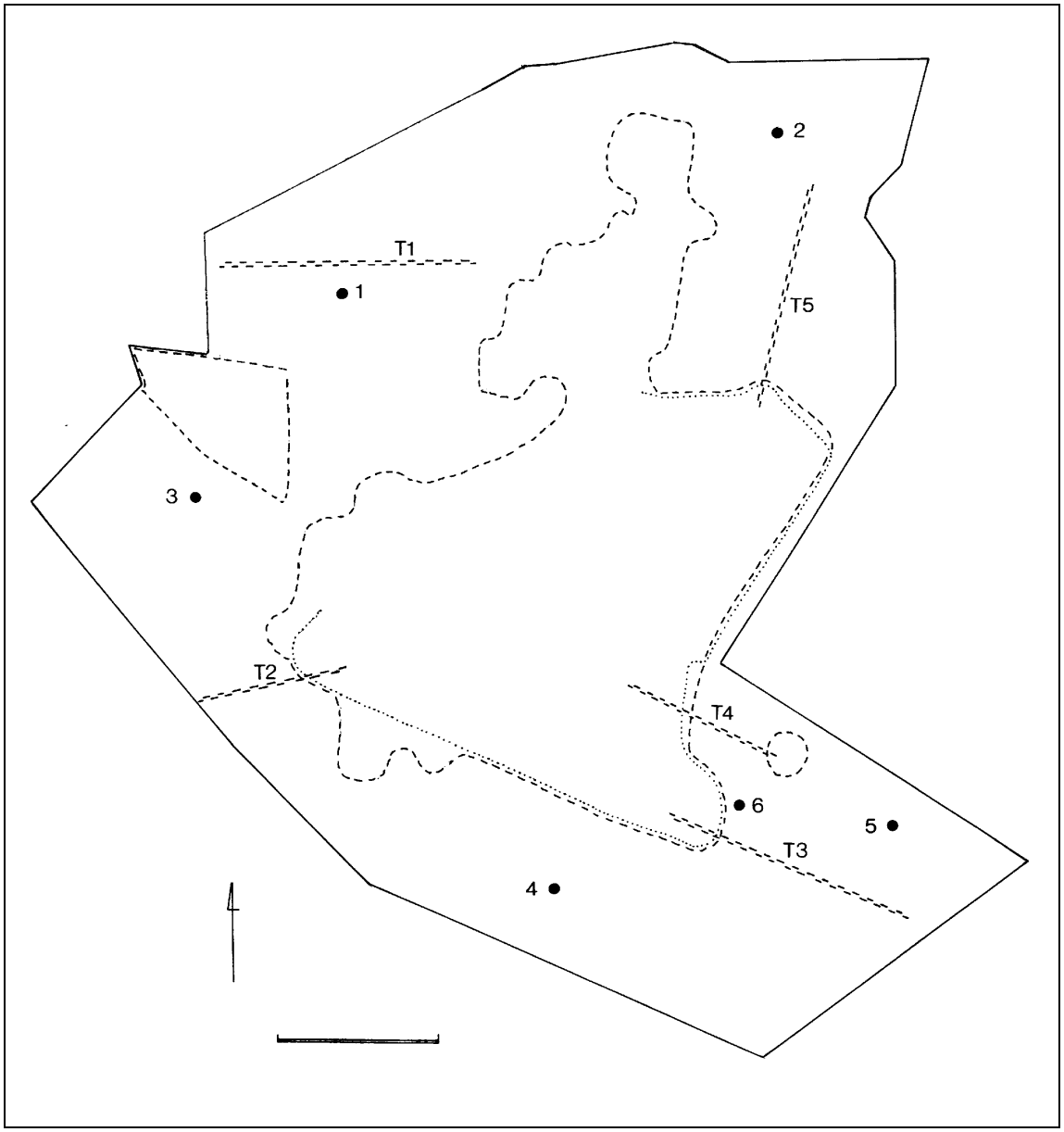


FIGURE TWO. The Kingston trapping layout used at Jandakot Airport, consisting of 15 assisted pitfall traps (20 l buckets each with an *ca*. 7 m driftfence, 15 medium Elliott Traps and 9 cage traps).

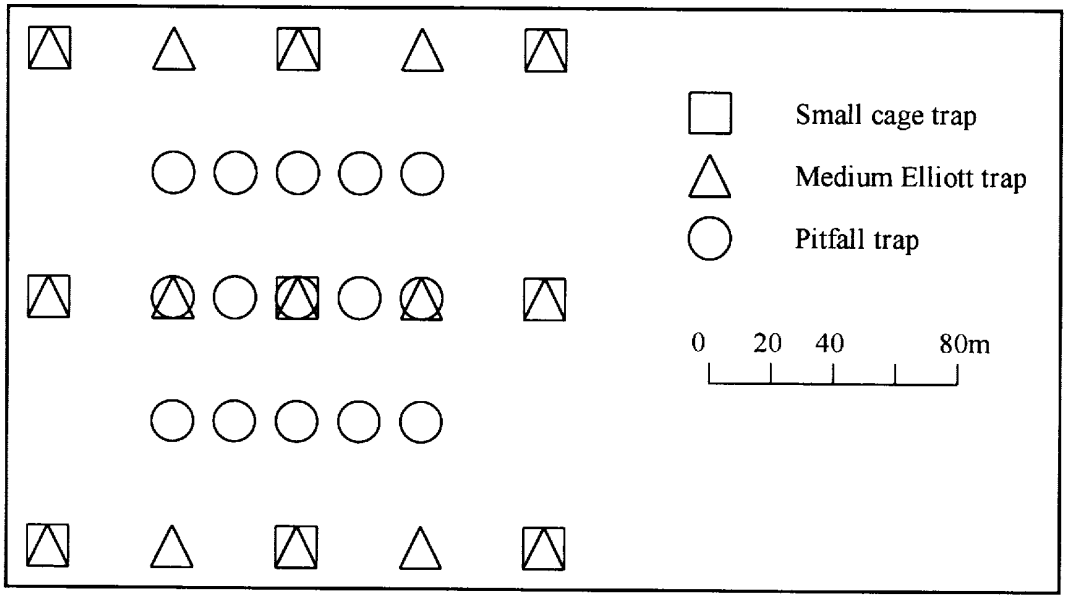
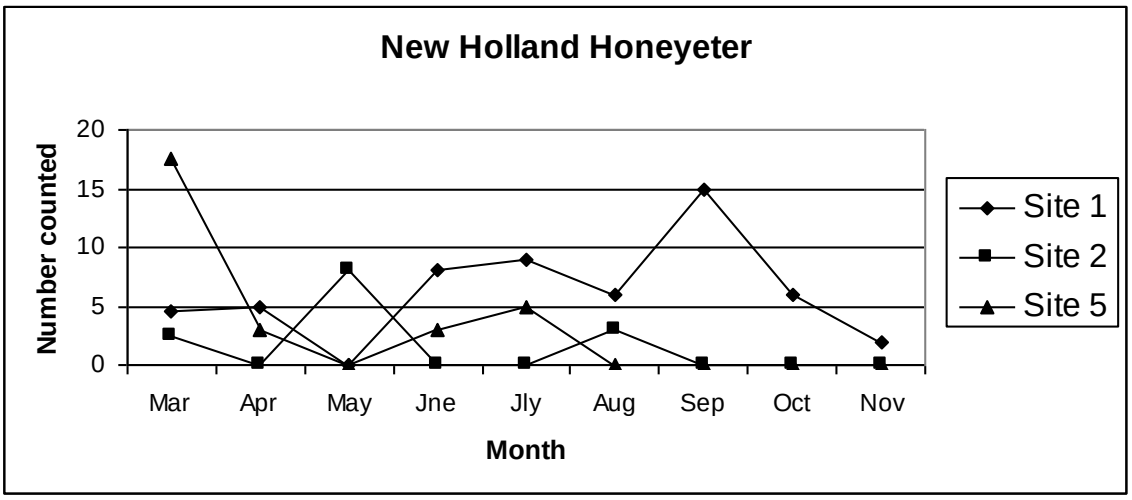
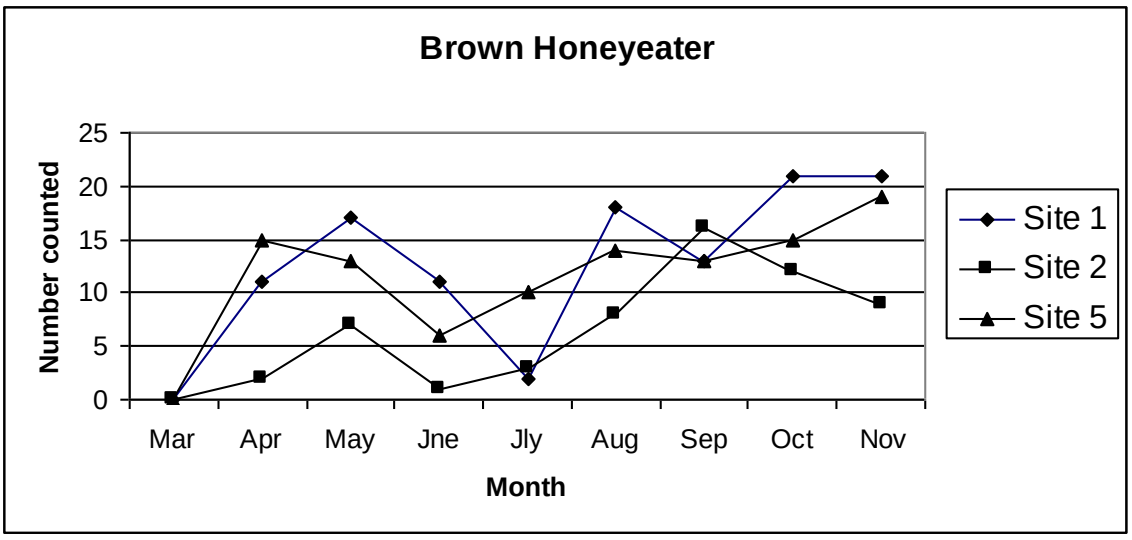


FIGURE THREE. Results of bird censussing, March to November 2002, for the New Holland Honeyeater and Brown Honeyeater.





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APPENDIX 1A: Amphibian and reptile captures on Sites 1 – 5, March 2002. Measurements are in mm. SVL is snout-to-vent length and Tot is total length (including tail).

Date	Species	Site	Trap type	SVL	Tot	sex
14/03	*Menetia greyii*	1	Pit	30	62	
14/03	*Lerista elegans*	3	Pit			
14/03	*L. elegans*	3	Pit	26	57	
14/03	*M. greyii*	3	Pit	15		
14/03	*M. greyii*	3	Pit			
14/03	*M. greyii*	5	Pit	22	51	
14/03	*Pogona minor*	5	Elliot	100	310	
15/03	*Ctenotus australis*	1	Pit	41	72	
15/03	*C. australis*	1	Pit			
15/03	*L. lineata*	1	Pit			
15/03	*Tiliqua rugosa*	1	Elliot	285	362	
15/03	*M. greyii*	2	Pit	29	37	
15/03	*Ctenotus sp.*	4	Pit			
15/03	*L. elegans*	4	Pit	35	80	
15/03	*L. elegans*	4	Pit	40	62	
15/03	*Limnodynastes dorsalis*	4	Pit	55.7		
15/03	*M. greyii*	4	Pit	15	32	
15/03	*M. greyii*	4	Pit	18	37	
15/03	*T. rugosa*	4	Cage	273	335	
15/03	*L. elegans*	5	Pit	24	48	
15/03	*L. lineata*	5	Pit	29	57	
15/03	*M. greyii*	5	Pit	27	64	
16/03	*M. greyii*	1	Pit	31	75	
16/03	*C. australis*	2	Pit	50	50	
16/03	*T. rugosa*	2	Cage	260	335	
16/03	*L. elegans*	3	Pit	34	70	
16/03	*L. dorsalis*	4	Pit	47		
16/03	*L. dorsalis*	4	Pit	48		
16/03	*P. minor*	4	Pit	101	225	
16/03	*Heleioporus eyrei*	5	Pit	63		
16/03	*L. dorsalis*	5	Pit	53		
16/03	*L. dorsalis*	5	Pit	66		
16/03	*L. elegans*	5	Pit	23	50	
16/03	*L. elegans*	5	Pit	40	82	
16/03	*T. rugosa*	5	Cage	260	337	

Appendix1A (cont.)

Date	Species	Site	Trap type	SVL	Tot	sex
17/03	*L. lineata*	1	Pit	30	62	
17/03	*M. greyii*	1	Pit	16	41	
17/03	*M. greyii*	1	Pit	19	44	
17/03	*C. australis*	2	Pit	46	145	
17/03	*H. eyrei*	2	Pit	54		
17/03	*L. dorsalis*	2	Pit			
17/03	*C. australis*	3	Pit	45	133	
17/03	*M. greyii*	3	Pit	26	46	
17/03	*L. elegans*	4	Pit	36	69	
17/03	*L. elegans*	4	Pit	38	81	
17/03	*L. lineata*	4	Pit			
17/03	*M. greyii*	4	Pit			
17/03	*M. greyii*	4	Pit			
17/03	*T. rugosa*	4	Cage	265	341	
17/03	*Acritoscincus trilineatum*	5	Pit	33	61	
18/03	*L. dorsalis*	5	Pit	57.9		
18/03	*L. elegans*	5	Pit	30	46	
18/03	*L. elegans*	5	Pit	32	74	
18/03	*L. lineata*	5	Pit	20	47	
18/03	*M. greyii*	5	Pit	22	49	
18/03	*Varanus gouldii*	5	Elliot	143	365	

APPENDIX 1B: Mammal captures on Sites 1 – 5, March 2002. Measurements are in mm, with Crn being crown (distance from back of skull to tip of snout) and GW being gonad width. pe indicates pouch empty, while py indicates that pouch young were present.

Date	Species	Site	Trap	Wt (g)	Crn	GW	sex	Notes
14/03	*Isoodon obesulus*	1	Cage	650	79.4		F	pe
14/03	*I. obesulus*	3	Cage	1250	84.1	28		
14/03	*Mus musculus*	5	Elliott					
14/03	*Rattus rattus*	3	Cage				M	
14/03	*M. musculus*	5	Pit				F	
15/03	*M. musculus*	2	Elliott				F	
15/03	*M. musculus*	2	Elliott					
15/03	*M. musculus*	2	Pit					
15/03	*M. musculus*	2	Elliott					
15/03	*M. musculus*	2	Elliott					
15/03	*M. musculus*	2	Pit				F	
15/03	*M. musculus*	2	Pit				F	
15/03	*M. musculus*	2	Elliott					
15/03	*I. obesulus*	2	Cage	600	73.1		F	pe
15/03	*I. obesulus*	5	Cage	550	68.23		F	pe
15/03	*I. obesulus*	5	Cage				F	py
15/03	*M. musculus*	5	Elliott				F	
15/03	*M. musculus*	5	Pit				M	
15/03	*M. musculus*	5	Pit				M	
15/03	*M. musculus*	4	Elliott					
15/03	*I. obesulus*	3	Cage	800				
15/03	*I. obesulus*	3	Cage	1150	80			
15/03	*M. musculus*	4	Elliott					
15/03	*M. musculus*	4	Pit				M	
15/03	*I. obesulus*	4	Cage	1150	90	20.9	M	
15/03	*I. obesulus*	1	Cage	1250	83	30.8	M	
15/03	*I. obesulus*	1	Cage	1000	82	27.2	M	
16/03	*I. obesulus*	3	Cage	1000		25	M	
16/03	*M. musculus*	3	Pit					
16/03	*M. musculus*	4	Pit				M	
16/03	*I. obesulus*	5	Elliott	500	70		F	pe
16/03	*M. musculus*	5	Elliott					
16/03	*I. obesulus*	5	Cage	1250	84	30	M	
16/03	*M. musculus*	5	Elliott					
16/03	*M. musculus*	2	Elliott					

Appendix 1B (cont.)

Date	Species	Site	Trap	Wt (g)	Crn	GW	sex	Notes
16/03	*M. musculus*	2	Elliott					
16/03	*I. obesulus*	1	Cage	550			F	
17/03	*M. musculus*	5	Pit				M	
17/03	*M. musculus*	5	Pit				F	
17/03	*M. musculus*	5	Pit					
17/03	*M. musculus*	5	Pit				F	
17/03	*M. musculus*	5	Elliott				F	
17/03	*M. musculus*	5	Elliott				M	
17/03	*I. obesulus*	5	Cage	650	70.1		F	pe
17/03	*I. obesulus*	5	Cage					py
17/03	*M. musculus*	5	Elliott				F	
17/03	*I. obesulus*	4	Cage	1500				
17/03	*M. musculus*	3	Pit				M	
17/03	*I. obesulus*	3	Cage	1600	83.1		F	pe
17/03	*I. obesulus*	3	Cage	1400	86.4			
17/03	*I. obesulus*	1	Cage	650	70			
17/03	*I. obesulus*	1	Cage	1200				
17/03	*I. obesulus*	1	Cage					
17/03	*M. musculus*	2	Elliott				M	
17/03	*Felis catus*	2	Cage					
17/03	*M. musculus*	2	Pit				M	
18/03	*I. obesulus*	3	Cage					
18/03	*I. obesulus*	3	Cage					
18/03	*M. musculus*	3	Elliott				M	
18/03	*I. obesulus*	4	Cage	1100	76.9		F	pe
18/03	*Tarsipes rostratus*	4	Pit		24	8.89	M	
18/03	*M. musculus*	5	Elliott				F	
18/03	*M. musculus*	5	Elliott				M	
18/03	*M. musculus*	5	Elliott				F	
18/03	*M. musculus*	5	Pit				F	
18/03	*M. musculus*	5	Pit				F	
18/03	*I. obesulus*	5	Cage	1300	86.9	21.9	M	
18/03	*I. obesulus*	5	Cage					
18/03	*I. obesulus*	2	Cage	600				
18/03	*I. obesulus*	2	Cage	850	78		F	py
18/03	*M. musculus*	2	Pit				F	
18/03	*M. musculus*	2	Pit				F	
18/03	*I. obesulus*	1	Cage	1300				
18/03	*I. obesulus*	1	Cage	1000				
18/03	*I. obesulus*	1	Cage					

APPENDIX 1C: Amphibian and reptile captures on Sites 1 – 5, December 2002. Measurements are in mm. SVL is snout-to-vent length and Tot is total length (including tail).

Date	Species	Site	Trap type	SVL	Tot	sex
10/12	*Cryptoblepharus plagiocephalus*	1	Pit			
10/12	*C. plagiocephalus*	1	Pit			
10/12	*C. plagiocephalus*	1	Pit			
10/12	*Menetia greyii*	1	Pit			
10/12	*M. greyii*	1	Pit			
10/12	*Lerista elegans*	1	Pit			
10/12	*Hemiergis quadrilineata*	1	Pit			
10/12	*Tiliqua rugosa*	2	Cage			
10/12	*L. elegans*	2	Pit			
10/12	*M. greyii*	2	Pit			
10/12	*Lerista lineata*	3	Pit			
10/12	*L. lineata*	3	Pit			
10/12	*L. elegans*	4	Pit			
10/12	*T. rugosa*	5	Cage			
10/12	*T. rugosa*	5	Cage			
10/12	*M. greyii*	5	Pit			
10/12	*Pogona minor*	5	Pit			
11/12	*T. rugosa*	1	Cage			
11/12	*T. rugosa*	1	Cage			
11/12	*C. plagiocaphalus*	1	Pit			
11/12	*C. plagiocaphalus*	1	Pit			
11/12	*M. greyii*	1	Pit			
11/12	*M. greyii*	1	Pit			
11/12	*P. minor*	1	Pit			
11/12	*P. minor*	1	Pit			
11/12	*L. elegans*	1	Pit			
11/12	*Ctenotus australis*	1	Pit			
11/12	*Ramphotyphlops australis*	1	Pit			
11/12	*C. plagiocephalus*	2	Pit			
11/12	*M. greyii*	2	Pit			
11/12	*M. greyii*	2	Pit			
11/12	*M. greyii*	2	Pit			
11/12	*M. greyii*	2	Pit			
11/12	*L. elegans*	2	Pit			
11/12	*C. australis*	2	Pit			
11/12	*C. australis*	2	Pit			

Appendix 1C (cont.)

Date	Species	Site	Trap type	SVL	Tot	sex
11/12	*C. plagiocephalus*	3	Pit			
11/12	*C. plagiocephalus*	3	Pit			
11/12	*M. greyii*	3	Pit			
11/12	*M. greyii*	3	Pit			
11/12	*T. rugosa*	3	Pit			
11/12	*P. minor*	4	Pit			
11/12	*C. australis*	5	Elliott			
11/12	*Delma fraseri*	5	Pit			
11/12	*L. elegans*	5	Pit			
12/12	*C. plagiocephalus*	1	Pit			
12/12	*C. plagiocephalus*	1	Pit			
12/12	*L. elegans*	1	Pit			
12/12	*T. rugosa*	2	Cage	240	305	
12/12	*C. plagiocephalus*	2	Pit			
12/12	*Pletholax gracilis*	2	Pit			
12/12	*T. rugosa*	3	Cage	265	335	
12/12	*T. rugosa*	3	Cage			
12/12	*L. elegans*	4	Pit			
12/12	*L. elegans*	4	Pit			
12/12	*L. elegans*	4	Pit			
12/12	*D. fraseri*	4	Pit			
12/12	*C. plagiocephalus*	4	Pit			
12/12	*L. lineata*	4	Pit			
12/12	*L. lineata*	4	Pit			
12/12	*M. greyii*	4	Pit			
12/12	*Egernia napoleonis*	4	Pit			
12/12	*M. greyii*	5	Pit			
12/12	*M. greyii*	5	Pit			
13/12	*C. australis*	1	Pit			
13/12	*C. plagiocephalus*	1	Pit			
13/12	*T. rugosa*	2	Cage	217	275	
13/12	*T. rugosa*	2	Cage			
13/12	*T. rugosa*	2	Elliott			
13/12	*M. greyii*	2	Pit			
13/12	*M. greyii*	2	Pit			
13/12	*T. rugosa*	3	Cage			
13/12	*L. lineata*	3	Pit			

Appendix 1C (cont.)

Date	Species	Site	Trap type	SVL	Tot	sex
13/12	*L. lineata*	3	Pit			
13/12	*C. australis*	3	Pit			
13/12	*L. elegans*	4	Pit			
13/12	*C. australis*	4	Pit			
13/12	*T. rugosa*	5	Cage			
13/12	*M. greyii*	5	Pit			
14/12	*E. napoleonis*	1	Pit	100	210	
14/12	*T. rugosa*	1	Elliott	210	275	
14/12	*T. rugosa*	1	Elliott	245	320	
14/12	*T. rugosa*	1	Cage			
14/12	*Tiliqua occipitalis*	2	Cage	265	385	
14/12	*Demansia psammophis*	2	Pit			
14/12	*C. australis*	2	Pit			
14/12	*T. rugosa*	3	Cage	290	360	F
14/12	*T. rugosa*	3	Cage	285	360	
14/12	*L. elegans*	3	Pit			
14/12	*L. elegans*	3	Pit			
14/12	*L. elegans*	3	Pit			
14/12	*L. elegans*	3	Pit			
14/12	*C. australis*	4	Pit			
14/12	*L. elegans*	4	Pit			
14/12	*L. elegans*	4	Pit			
14/12	*L. lineata*	4	Pit			
14/12	*M. greyii*	4	Pit			
14/12	*T. rugosa*	5	Cage	285	365	M
14/12	*L. elegans*	5	Pit			
14/12	*L. elegans*	5	Pit			
14/12	*L. elegans*	5	Pit			
14/12	*L. elegans*	5	Pit			
14/12	*L. lineata*	5	Pit			
14/12	*L. lineata*	5	Pit			

APPENDIX 1D: Mammal captures on Sites 1 – 5, December 2002. Measurements are in mm, with Crn being crown (distance from back of skull to tip of snout). pe indicates pouch empty, while py indicates that pouch young were present.

Date	Species	Site	Trap	Wt (g)	Crn	sex	Notes
10/12	*Mus musculus*	1	Elliott			M	
10/12	*M. musculus*	1	Elliott			M	
10/12	*Isoodon obesulus*	1	Cage	1275			
10/12	*M. musculus*	2	Elliott			M	
10/12	*I. obesulus*	2	Cage	1200		M	#16?
10/12	*M. musculus*	3	Pit			M	
10/12	*M. musculus*	3	Pit			F	
10/12	*M. musculus*	3	Pit				
10/12	*I. obesulus*	3	Cage	1250	85.7	M	#1
10/12	*I. obesulus*	3	Cage				
10/12	*M. musculus*	4	Pit			F	
10/12	*I. obesulus*	4	Cage	1500	91	M	Natural notches at #16 + #32
10/12	*I. obesulus*	4	Cage	1050	83.9	M	Damaged left shoulder
10/12	*M. musculus*	5	Pit			M	
10/12	*I. obesulus*	5	Cage	525	71.9	M	2 small notches at #1 + #2
11/12	*M. musculus*	1	Pit			M	
11/12	*M. musculus*	1	Pit				
11/12	*I. obesulus*	1	Cage	750	75.2	M	
11/12	*I. obesulus*	3	Cage				
11/12	*I. obesulus*	3	Cage				
11/12	*I. obesulus*	3	Cage				
11/12	*M. musculus*	3	Pit				
11/12	*M. musculus*	3	Pit				
11/12	*M. musculus*	3	Elliott				
11/12	*M. musculus*	4	Pit			F	
11/12	*M. musculus*	4	Pit			F	
11/12	*M. musculus*	4	Pit			M	
11/12	*Tarsipes rostratus*	4	Pit			M	
11/12	*M. musculus*	5	Elliott			F	
11/12	*M. musculus*	5	Elliott			M	
11/12	*I. obesulus*	5	Cage	975		F	Small py
12/12	*I. obesulus*	1	Cage	1550	93	M	No tail; #5?
12/12	*I. obesulus*	1	Cage			M	
12/12	*I. obesulus*	2	Elliott	500		M	Juv.

Appendix 1D (cont.)

Date	Species	Site	Trap	Wt (g)	Crn	sex	Notes
12/12	*M. musculus*	2	Cage				
12/12	*I. obesulus*	3	Elliott	550	76	M	Juv.
12/12	*M. musculus*	3	Elliott				
12/12	*I. obesulus*	4	Cage	850		M	
12/12	*I. obesulus*	5	Cage	950	91	M	
12/12	*M. musculus*	5	Pit			M	
12/12	*M. musculus*	5	Pit			M	
13/12	*I. obesulus*	1	Cage	1350		M	
13/12	*I. obesulus*	1	Cage	800		M	Juv.
13/12	*M. musculus*	1	Elliott				
13/12	*I. obesulus*	2	Cage	500	80	F	Juv. Npy
13/12	*I. obesulus*	2	Cage	650		F	py
13/12	*I. obesulus*	2	Cage	1350	93	M	Tear in left ear
13/12	*M. musculus*	2	Elliott				
13/12	*I. obesulus*	3	Cage	650		M	
13/12	*I. obesulus*	3	Cage	1000		F	Small py
13/12	*M. musculus*	4	Elliott				
13/12	*I. obesulus*	5	Cage			F	Py, dead (stress related to fire?)
13/12	*I. obesulus*	5	Elliott		53	M	Juv.
13/12	*I. obesulus*	5	Elliott	1300	93	M	
13/12	*M. musculus*	5	Pit				dead
13/12	*M. musculus*	5	Pit				
14/12	*I. obesulus*	1	Cage	850		M	
14/12	*I. obesulus*	1	Cage	1400		M	Recapture (no tail)
14/12	*Rattus rattus*	1	Elliott				
14/12	*I. obesulus*	2	Cage	1350		M	
14/12	*M. musculus*	3	Elliott				
14/12	*M. musculus*	3	Pit				
14/12	*I. obesulus*	4	Cage	1350		M	
14/12	*M. musculus*	4	Elliott				
14/12	*I. obesulus*	5	Cage	1300		M	Recapture from 13/12
14/12	*I. obesulus*	5	Elliott				Juv.
14/12	*I. obesulus*	5	Cage	1100		M	

APPENDIX TWO.

Appendix 2A. Results from bird censusing in March, presenting the number or each species seen in each 3 ha search area in each site. Sites descriptions and dates and times when bird surveys were carried out are presented in Table 1.

Species	Site 1				Site 2				Site 3				Site 4				Site 5				Site 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Australian Pelican									-	3	-	-												
Laughing Turtle-Dove													-	1	-	-								
Common Bronzewing					1	-	-	-	-	-	1	1	-	-	-	1	-	-	1	2	-	-	2	1
Short-billed Black-Cockatoo													-	3	-	-								
Rainbow Lorikeet									-	-	2	-												
Australian Ringneck	-	-	4	-																				
Red-capped Parrot	-	-	4	-					-	-	-	2	-	-	-	4	2	-	-	-	-	1	-	-
Splendid Fairy-wren	-	2	-	-	2	-	-	-	1	-	-	-					-	3	-	-				
Western Gerygone	1	-	1	-					1	-	-	-												
Western Thornbill					-	2	-	-																
Red Wattlebird	1	1	2	1									-	-	1	-					-	-	1	-
Western Wattlebird	-	-	1	-					1	-	-	2	-	1	-	-	4	-	-	1				
Singing Honeyeater	-	-	3	-	2	-	-	-																
New Holland Honeyeater	-	-	4	5	-	-	4	1	-	3	-	12	1	-	-	-	16	3	-	16	4	1	-	-
White-cheeked Honeyeater	-	1	-	-	6	-	-	1	6	5	7	3	-	10	-	11	15	1	1	5	1	2	1	3
Western Spinebill					1	1	-	-									3	-	1	1	4	-	-	-
Scarlet Robin									2	-	-	-												
Hooded Robin																					-	1	-	-
Rufous Whistler									-	-	2	-					-	2	-	-				
Black-faced Cuckoo-shrike					1	-	2	-																
Grey Butcherbird													-	1	-	-								
Australian Magpie	1	-	4	2									-	-	-	1	-	-	-	1				
Australian Raven	3	1	3	-	2	1	26	4	6	10	-	8	1	-	6	-	-	-	-	4				
Tree Martin	-	-	20	9													-	3	-	-	-	-	-	1
Silvereye					-	4	1	-					-	-	2	-	-	-	4	-				

Appendix 2B. Results of bird censusing April to November 2002. The numbers are the sum of each species seen in two 20 minute, 3ha searches in each site.

Site 1.

Species	Month of Survey							
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
'quail'	-	-	-	-	1	-	-	-
Australian White Ibis	-	-	-	-	-	2	-	-
Brown Goshawk	-	-	-	-	-	1	-	-
Laughing Turtle-Dove	-	-	1	-	2	1	-	1
Spotted Turtle-dove	-	-	-	-	2	-	-	-
Common Bronzewing								
Short-billed Black-Cockatoo	-	-	-	-	-	-	34	-
Rainbow Lorikeet	-	-	-	-	-	-	-	14
Australian Ringneck	-	4	2	3	-	2	-	2
Red-capped Parrot	-	-	-	-	-	2	-	2
Pallid Cuckoo	-	-	-	-	1	-	-	-
Horsfield's Bronze-cuckoo	-	-	-	-	2	3	-	2
Rainbow Bee-eater	-	-	-	-	-	-	2	2
Splendid Fairy-wren	-	-	-	-	-	3	2	6
Striated Pardalote	-	-	1	-	-	-	1	-
Western Gerygone	1	2	-	-	-	4	2	1
Inland Thornbill								
Western Thornbill	-	-	-	-	-	-	1	-
Yellow-rumped Thornbill		-	-	-	3	-	-	-
Red Wattlebird	2	6	9	-	-	2	2	-
Western Wattlebird	-	1	-	-	-	-	-	-
Singing Honeyeater	5	1	3	5	1	2	1	4
Brown Honeyeater	11	17	11	2	18	13	21	21
Tawny-crowned Honeyeater								
New Holland Honeyeater	5	-	8	9	6	15	6	2
White-cheeked Honeyeater	-	1	2	-	3	-	-	-
White-naped Honeyeater								
Western Spinebill	-	2	-	-	-	-	-	-
Scarlet Robin	-	-	-	-	-	-	1	-
Varied Sittella	-	-	-	-	-	-	-	2
Golden Whistler								
Rufous Whistler	1	2	-	-	3	2	3	-
Grey Shrike-thrush								
Grey Fantail	-	2	-	-	-	-	1	-
Willie Wagtail	-	1	-	-	-	-	1	-
Black-faced Cuckoo-shrike	-	-	-	-	-	1	-	-
Black-faced Woodswallow	-	-	-	-	-	-	4	-
Grey Butcherbird								
Australian Magpie	-	-	-	2	-	-	1	-
Australian Raven	4	2	7	11	7	4	2	7
Welcome Swallow								
Tree Martin								
Silvereye	-	-	-	3	-	-	-	3
'raptor'								
Number of species:	7	12	10	7	12	15	17	14
Number of individuals:	29	41	46	35	49	57	85	69

Appendix 2B (cont)

Site 2.

Species	Month of Survey							
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
'quail'								
Australian White Ibis								
Brown Goshawk								
Laughing Turtle-Dove								
Spotted Turtle-dove								
Common Bronzewing								
Short-billed Black-Cockatoo	-	-	-	-	-	-	2	-
Rainbow Lorikeet								
Australian Ringneck	-	-	4	-	3	-	1	-
Red-capped Parrot	2	-	-	2	-	-	-	-
Pallid Cuckoo	-	-	-	-	1	-	-	-
Horsfield's Bronze-cuckoo	-	-	-	-	1	-	1	1
Rainbow Bee-eater	-	-	-	-	-	-	1	2
Splendid Fairy-wren	2	-	-	4	4	2	7	8
Striated Pardalote	-	-	1	-	-	-	-	-
Western Gerygone	-	1	-	3	1	2	2	1
Inland Thornbill	-	1	-	-	-	-	-	-
Western Thornbill								
Yellow-rumped Thornbill	-	-	-	2	-	2	-	-
Red Wattlebird	-	3	5	-	-	-	-	-
Western Wattlebird								
Singing Honeyeater	2	3	3	2	-	-	-	1
Brown Honeyeater	2	7	1	3	8	16	12	9
Tawny-crowned Honeyeater								
New Holland Honeyeater	-	8	-	-	3	-	-	-
White-cheeked Honeyeater	6	4	7	2	2	-	-	2
White-naped Honeyeater								
Western Spinebill	-	-	1	1	1	-	-	2
Scarlet Robin	-	1	-	-	-	-	-	-
Varied Sittella								
Golden Whistler	-	-	-	1	-	-	-	-
Rufous Whistler	-	-	-	-	3	-	1	-
Grey Shrike-thrush	-	-	-	-	-	1	-	2
Grey Fantail	-	1	-	-	-	-	-	-
Willie Wagtail	-	-	2	-	-	-	-	-
Black-faced Cuckoo-shrike	-	-	2	-	-	-	-	-
Black-faced Woodswallow								
Grey Butcherbird	-	-	1	-	-	-	1	-
Australian Magpie	-	-	4	-	6	-	-	1
Australian Raven	11	15	16	14	34	12	28	11
Welcome Swallow	-	-	2	-	-	-	-	-
Tree Martin								
Silvereye	-	9	3	11	9	2	2	3
'raptor'								
Number of species:	6	11	14	11	13	7	11	12
Number of individuals:	25	53	52	45	76	37	58	43

Appendix 2B (cont)

Site 5.

Species	Month of Survey							
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
'quail'								
Australian White Ibis	-	-	-	-	-	-	-	15
Brown Goshawk								
Laughing Turtle-Dove								
Spotted Turtle-dove								
Common Bronzewing	-	-	-	-	-	-	1	-
Short-billed Black-Cockatoo	-	-	-	-	3	-	13	-
Rainbow Lorikeet	-	-	-	-	-	-	-	30
Australian Ringneck	6	1	-	2	2	3	-	-
Red-capped Parrot	-	-	-	5	-	-	-	-
Pallid Cuckoo								
Horsfield's Bronze-cuckoo								
Rainbow Bee-eater								
Splendid Fairy-wren	-	-	-	1	4	-	1	3
Striated Pardalote								
Western Gerygone	-	1	-	1	1	1	2	3
Inland Thornbill								
Western Thornbill	-	3	-	-	-	-	-	-
Yellow-rumped Thornbill			5		3	2		
Red Wattlebird	12	7	3	2	1		1	4
Western Wattlebird	3	-	-	-	-	-	-	-
Singing Honeyeater	4	2	-	2	1	-	1	-
Brown Honeyeater	15	13	6	10	14	13	15	19
Tawny-crowned Honeyeater	3	-	3	-	-	-	-	-
New Holland Honeyeater	3	-	3	5	-	-	-	-
White-cheeked Honeyeater	8	9	3	1	6	9	5	-
White-naped Honeyeater	-	1	-	-	-	-	-	-
Western Spinebill								
Scarlet Robin								
Varied Sittella								
Golden Whistler								
Rufous Whistler	-	2	-	-	-	1	2	1
Grey Shrike-thrush	-	-	-	-	-	1	-	-
Grey Fantail								
Willie Wagtail								
Black-faced Cuckoo-shrike	-	-	-	1	-	-	-	-
Black-faced Woodswallow								
Grey Butcherbird	-	-	-	-	1	-	-	-
Australian Magpie	-	-	1	-	1	-	1	2
Australian Raven	10	6	15	7	7	4	5	10
Welcome Swallow								
Tree Martin	-	-	-	2	-	-	-	-
Silvereye	-	8	13	4	-	2	1	3
'raptor'								
Number of species:	9	11	9	13	12	9	12	11
Number of individuals:	64	53	52	43	44	36	48	61

APPENDIX THREE. Results of kangaroo pellet transects, indicating the number of pellets per 50 m sub-transect. Details of transects are given in Table 4.

Transect 1.

50m sub-transect	N pellets		Vegetation and notes
	March	December	
0-50	9	12	Banksia woodland
50-100	74	30	
100-150	15	6	
150-200	32	11	
200-250	32	8	
250-300	28	10	
300-350	30	17	
350-400	50	11	
400-450	10	16	
450-500	16	21	
500-550	35	27	
550-600	31	15	
600-650	35	20	
650-700	36	10	
700-750	46	8	
750-800	21	23	
800-850	32	7	alter bearing to 260^{o} to avoid beehives
850-900	33	11	
900-950	4	-	30m to fence

Transect 2

50m sub-transect	N pellets		Vegetation and notes
	March	December	
0-50	26	0	slashed area near runway
50-100	27	0	slashed area near runway
100-150	0	3	Banksia woodland
150-200	12	2	
200-250	21	0	
250-300	25	8	
350-400	6	9	
400-450	15	0	
450-500	4	0	

Appendix 3 (cont.)

Transect 3

50 m sub-transect	N pellets		Vegetation and notes
	March	December	
0-50	48	2	slashed area near runway
50-100	35	0	slashed
100-150	32	0	slashed
150-200	46	1	slashed
200-250	18	8	Banksia woodland
250-300	10	16	
300-350	22	12	
350-400	32	13	
400-450	27	6	
450-500	9	1	
500-550	29	11	
550-600	8	8	
600-650	26	17	
650-700	17	5	
700-750	12	1	
750-800	27	19	
800-850	15	9	

Transect 4

50 m sub-transect	N pellets		Vegetation and notes
	March	December	
0-50	10	0	slashed area near runway
50-100	16	0	slashed
100-150	1/0	1	slashed/Banksia woodland
150-200	20	13	Banksia woodland
200-250	14	19	
250-300	21	26	
300-350	31	11	
350-400	87	31	Banksia woodland/fire training area
400-450	6	14	Banksia woodland
450-500	1/27	7	Banksia woodland/clearing around tower

Appendix 3 (cont.)

Transect 5

50 m sub-transect	N pellets		Vegetation and notes
	March	December	
0-50	55	-	mown lawn
50-100	1/8	-	mown lawn/slashed vegetation
100-150	93	-	regrowth
150-200	24	-	regrowth
200-250	34	-	regrowth
250-300	41	-	regrowth
300-350	12	-	regrowth
350-400	7	9	dense Banksia woodland
400-450	8	13	as above
450-500	10	12	as above
500-550	28	20	as above
550-600	35	16	as above
600-650	4	19	as above with dense leaf litter
650-700	67	12	dense Banksia woodland
700-750	11	16	as above
750-800	13	43	as above
800-850	27	14	as above

APPENDIX FOUR. Categories used in the assessment of conservation status.

Environmental Protection and Biodiversity Conservation Act and the WA Wildlife Conservation Act (categories mainly from IUCN, based on review by Mace and Stuart 1994).

Extinct. Taxa not definitely located in the wild during the past 50 years.

Extinct in the Wild. Taxa known to survive only in captivity.

Critically Endangered. Taxa facing an extremely high risk of extinction in the wild in the immediate future.

Endangered. Taxa facing a very high risk of extinction in the wild in the near future.

Vulnerable. Taxa facing a high risk of extinction in the wild in the medium-term future.

Near Threatened. Taxa that risk becoming Vulnerable in the wild.

Conservation Dependent. Taxa whose survival depends upon ongoing conservation measures. Without these measures, a conservation dependent taxon would be classed as Vulnerable or more severely threatened.

Other Specially Protected Fauna (WA Act only).

Data Deficient (Insufficiently Known). Taxa suspected of being Rare, Vulnerable or Endangered, but whose true status cannot be determined without more information.

Least Concern. Taxa that are not Threatened.

WA Department of Conservation and Land Management Priority species (species not listed under the Conservation Act, but for which there is some concern).

Priority 1. Taxa with few, poorly known populations on threatened lands.

Priority 2. Taxa with few, poorly known populations on conservation lands; or taxa with several, poorly known populations not on conservation lands.

Priority 3. Taxa with several, poorly known populations, some on conservation lands.

Priority 4. Taxa in need of monitoring.