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ARTICLE

# A short-term avifauna survey of Faraway Bay in the north Kimberley, Western Australia

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**Abstract.** A brief avifauna survey was undertaken during the dry season at Faraway Bay, a poorly studied area of the north Kimberley. Despite the brevity of the survey, 81 species were recorded. The area is dominated by eucalypt woodland with patchy species composition. The bird communities in this habitat were variable with only the Rufous Whistler *Pachycephala rufiventris* recorded from all lowland woodland sites surveyed. Mangal was characterised by a relatively species poor community that showed very little overlap with other vegetation types. Gorges shared several species with eucalypt woodlands, but also contained several unique species. For greater resolution of the avifauna of Faraway Bay, it is recommended that further surveys be undertaken in the diverse woodland communities in addition to wet-season surveys in all habitats.

## Introduction

Faraway Bay (13°55'42"S, 127°11'36"E) bush camp is located on the north coast of the Kimberley, 150 km north-east of Kulumburu, Western Australia. With the exception of a survey of Drysdale River National Park (Johnstone *et al*. 1977), published data on the avifauna of the north-east Kimberley is limited to the summaries provided by Storr (1980) and Johnstone and Storr (1998; 2004).

The remaining studies published on the avifauna of the north Kimberley have been in the sub-humid north-west (Prince Regent Nature Reserve, Storr *et al*. 1975; Mitchell Plateau and Admiralty Gulf, Johnstone and Smith 1981) or focused solely on rainforest (Johnstone and Burbidge 1991) or mangrove communities (Johnstone 1990). Our primary aim was to survey the main habitats in the area because of concern about the environmental impacts of proposed future developments. Additionally, this survey will serve to better resolve species distributions and bird communities in this poorly studied region.

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## Methods and Study Site

Surveys were undertaken from the 17th to the 20th August 2005. Ten sites were selected to include a broad range of habitats within an approximately 10 km radius of the Faraway Bay bush camp. This area includes Faraway Bay, neighbouring Gumboot Bay and the gorges leading into both bays. The four main habitats were mangroves, sandy beach, gorges and woodland. Each site was surveyed once for between one and three hours, depending upon the size of the area. Details of the dominant vegetation and timing of the surveys are provided in Table 1.

*Mangroves:*
Faraway Bay is in the region between Cape Londonderry and Cape Dussejour, which is characterised by isolated pockets of mangroves, generally under 10 ha in size (Johnstone 1990). The mangroves in Faraway bay are approximately 100 × 50 m in size at the mouth of a gorge and were investigated on foot. The patch of mangroves in neighbouring Gumboot bay is considerably larger and lines the majority of the bay and two tidal creeks approximately 1 km in length. At low tide, mudflats were exposed at the mouth of the tidal creeks. The survey of the Gumboot Bay mangroves was mostly undertaken by boat. Having moved upstream under power, the boat was allowed to drift downstream under the influence of the tide enabling birds to be detected by sight and call. Additionally, two walks of ap-

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**Table 1.** Dominant vegetation and survey details for all sites. FBM: Faraway Bay mangroves, GBM: Gumboot Bay mangroves; B: Faraway Bay beach; GG: Gumboot Gorge; FBG: Faraway Bay Gorge; BR: burnt ridge; ET: *Eucalyptus tectifica* woodland; W1, W2: Eucalypt woodland around billabongs; MW: mixed species woodland.

| Habitat | Site | Dominant vegetation | Time | Date |
|---|---|---|---|---|
| Mangroves | FBM | *Rhizophora stylosa* | 10:00-12:00 | 17/8/2005 |
| | GBM | *Rhizophora stylosa* | 14:30-17:00 | 18/8/2005 |
| Shore | B | None | 13:30-14:30 | 17/8/2005 |
| Gorges | GG | *Acacia delibrata, Calytrix brownii, Melaleuca argentea, Passiflora foetida, Syzygium eucalyptoides* and at the shallower, seaward end *Opilia amentacea* and *Terminalia canescens* | 9:30-12:30 | 18/8/2005 |
| | FBG | *Calytrix exstipulata, Erythrophleum chlorostachys, Melaleuca argentea* and *Pandanus spiralis* | 7:00-9:00 | 19/8/2005 |
| Woodland | BR | *Buchanania obovata, Eucalyptus brevifolia, Livistonia eastonii* and *Owenia vernicosa* | 16:00-18:00 | 17/8/2005 |
| | ET | *Eucalyptus tectifica* | 6:30-8:30 | 18/8/2005 |
| | W1 | *Acacia tumida, Corymbia latifolia, Eucalyptus tetrodonta, Grevillea pteridifolia,* and, around billabongs, *Melaleuca nervosa* and *Pandanus spiralis* | 7:00-9:00 | 19/8/2005 |
| | MW | *Callitris intratropica, Grevillea agrifolia* and *Verticordia cunninghamii* | 9:30-11:30 | 19/8/2005 |
| | W2 | *Acacia tumida, Corymbia latifolia, Eucalyptus tetrodonta, Grevillea pteridifolia*, and, around billabongs, *Melaleuca nervosa* and *Pandanus spiralis* | 15:00-17:00 | 19/8/2005 |

**Table 2:** Bird counts from mangroves (including adjacent mudflats) and beaches in the Faraway Bay area.

| Common Name | Species Name | Faraway Bay mangroves | Gumboot Bay mangroves | Beach |
|---|---|---|---|---|
| Australasian Darter | *Anhinga novaehollandiae* | | 3 | 1 |
| White-faced Heron | *Egretta novaehollandiae* | | 1 | 1 |
| Great-billed Heron | *Ardea sumatrana* | 3 | 1 | |
| Eastern Great Egret | *Ardea modesta* | 1 | 1 | |
| Striated Heron | *Butorides striatus* | 1 | 2 | |
| Rufous Night Heron | *Nycticorax caledonicus* | | 3 | |
| Australian White Ibis | *Threskiornis molucca* | | 1 | |
| Black-necked Stork | *Ephippiorhynchus asiaticus* | | 2 | |
| Eastern Osprey | *Pandion cristatus* | | | 1 |
| Brahminy Kite | *Haliastur indus* | 1 | 2 | 3 |
| White-bellied Sea-Eagle | *Haliaeetus leucogaster* | | | 2 |
| Common Sandpiper | *Actitis hypoleucos* | | 1 | 2 |
| Beach Stone-Curlew | *Esacus neglectus* | | | 2 |
| Bar-shouldered Dove | *Geopelia humeralis* | | 1 | |
| Pied Imperial-Pigeon | *Ducula bicolor* | | 2 | |
| Azure Kingfisher | *Alcedo azurea* | | 2 | |
| Sacred Kingfisher | *Todiramphus sanctus* | 1 | | |
| Large-billed Gerygone | *Gerygone magnirostris* | 12 | 1 | |
| Brown Honeyeater | *Lichmera indistincta* | 9 | 8 | |
| Red-headed Honeyeater | *Myzomela erythrocephala* | | 4 | |
| Mangrove Robin | *Peneonanthe pulverulenta* | | 1 | |
| Shining Flycatcher | *Myiagra alecto* | 3 | 3 | |
| Mangrove Grey Fantail | *Rhipidura phasiana* | | 6 | |
| Torresian Crow | *Corvus orru* | 1 | | |
| Great Bowerbird | *Ptilonorhynchus nuchalis* | | 3 | |
| **Number of Species** | | **9** | **20** | **7** |

proximately 25 minutes in duration were undertaken through the mangroves.

*Sandy beach:*
An area of sandy beach approximately 500 m in length with

**Table 3.** Bird counts from woodlands and gorges in the Faraway Bay area. Sites are: FBM: Faraway Bay mangroves, GBM: Gumboot Bay mangroves, B: Faraway Bay beach, GG: Gumboot Gorge, FBG: Faraway Bay Gorge, BR: burnt ridge, ET: *Eucalyptus tectifica* woodland, W1, W2: Eucalypt woodland around billabongs, MW: mixed species woodland, OR = opportunistic recordings in woodland, OC = opportunistic recordings from Faraway Bay bush camp, SL = spotlighting.

| Common Name | Species Name | Gorges | | Woodland | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | GG | FBG | W1 | W2 | MW | ET | BR | OR | OC |
| Pacific Black Duck | *Anas superciliosa* | | | | 2 | | | | | |
| Hardhead | *Aythya australis* | | | | 1 | | | | | |
| Black Bittern | *Ixobrychus flavicollis* | 1 | | | | | | | | |
| Whistling Kite | *Haliastur sphenurus* | | | | | | | | | X |
| Wedge-tailed Eagle | *Aquila audax* | | | | | | | | X | X |
| Brown Falcon | *Falco berigora* | 1 | | | 1 | | | | X | |
| Australian Hobby | *Falco longipennis* | | | | | | | | | |
| Australian Kestrel | *Falco cenchroides* | 1 | | | | | 2 | | X | |
| Brolga | *Grus rubicundus* | | | | | | | | X | |
| Chestnut-backed Button-quail | *Turnix castonata* | | | | | | | | X | |
| White-quilled Rock-Pigeon | *Petrophassa albipennis* | 1 | 1 | | | | | | | |
| Peaceful Dove | *Geopelia striata* | | 36 | 1 | | | 2 | | X | X |
| Bar-shouldered Dove | *Geopelia humeralis* | 1 | | 1 | | | 8 | | X | X |
| Red-tailed Black-Cockatoo | *Calyptorhynchus banksii* | | | | | | | | X | X |
| Sulphur-crested Cockatoo | *Cacatua galerita* | | | | | | 4 | | | |
| Rainbow Lorikeet | *Trichoglossus haematodus* | | | 2 | | | | | | |
| Varied Lorikeet | *Psitteuteles versicolor* | | | 30 | | 20 | | | | |
| Red-winged Parrot | *Aprosmictus erythropterus* | | | 3 | 42 | | | | X | |
| Black-eared Cuckoo | *Chalcites osculans* | | | | 1 | | | | | |
| Tawny Frogmouth | *Podargus strigoides* | | | | | | | | | |
| Spotted Nightjar | *Eurostopodus argus* | | | | | | | | | |
| Blue-winged Kookaburra | *Dacelo leachii* | | | 2 | | | 2 | 2 | X | |
| Red-backed Kingfisher | *Todiramphus pyrrhopygia* | | | | | | | | X | |
| Rainbow Bee-eater | *Merops ornatus* | 12+ | | 2 | 5+ | | 4 | | X | X |
| Variegated Fairy-wren | *Malurus lamberti* | | | | | | | 5 | | |
| Red-backed Fairy-wren | *Malurus melanocephalus* | | | | | | 9 | | | X |
| Striated Pardalote | *Pardalotus striatus* | | | 2 | 2 | 5 | | | | |
| Weebill | *Smicrornis brevirostis* | | | 6 | | 4 | 9 | | | |
| Green-backed Gerygone | *Gerygone chloronotus* | | 2 | 1 | | | 1 | | | |
| White-throated Gerygone | *Gerygone olivacea* | | | | | 3 | | | | |
| Silver-crowned Friarbird | *Philemon argenticeps* | 2 | | 1 | | 4 | | | X | |
| Yellow-throated Miner | *Manorina flavigula* | | | | | 2 | | | | |
| White-gaped Honeyeater | *Lichenostomus unicolor* | | | 1 | | | 2 | | | X |
| Yellow-tinted Honeyeater | *Lichenostomus flavescens* | | | | 2 | | | | | |
| White-throated Honeyeater | *Melithreptus albogularis* | | 4 | | 1 | | 17 | | | X |
| Brown Honeyeater | *Lichmera indistincta* | 6 | 8 | 4 | | 7 | 15 | 1 | | X |
| Bar-breasted Honeyeater | *Ramsayornis fasciatus* | 1 | | | | | 2 | | | |
| Jacky Winter | *Microeca fascinans* | | | | | | | | X | |
| Grey-crowned Babbler | *Pomatostomus temporalis* | | | 6 | | | | | | |
| Rufous Whistler | *Pachycephala rufiventris* | 2 | | 4 | 4 | 1 | 1 | | | |
| Sandstone Shrike-thrush | *Colluricincla woodwardi* | | 1 | | | | | | | |
| Leaden Flycatcher | *Myiagra rubecula* | 3 | 2 | 1 | | | | | | |
| Restless Flycatcher | *Myiagra inquieta* | | | 3 | 2 | | 1 | | | |
| Magpie Lark | *Grallina cyanoleuca* | | | | | | | | | X |
| Northern Fantail | *Rhipidura rufiventris* | 1 | 3 | 2 | 2 | | 2 | | | |
| Willie Wagtail | *Rhipidura leucophrys* | | | 1 | | 1 | 1 | 1 | | |
| Black faced Cuckoo-shrike | *Coracina novaehollandiae* | | | | 1 | | | | X | |
| White-bellied Cuckoo-shrike | *Coracina papuensis* | | | | 1 | | | | X | |
| White-winged Triller | *Lalage sueurii* | 1 | | 1 | | | | | | |
| Little Woodswallow | *Artamus minor* | 6 | 2 | | 8 | | | | | |
| Grey Butcherbird | *Cracticus torquatus* | 1 | 1 | | | | 4 | 1 | X | |
| Pied Butcherbird | *Cracticus nigrogularis* | | | 4 | | 1 | | | X | |
| Torresian Crow | *Corvus orru* | | | 4 | 2 | | | 1 | X | X |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Great Bowerbird | *Ptilonorhynchus nuchalis* | 2 | 2 | | | | 1 | 2 | | X |
| Double-barred Finch | *Taeniopygia bichenovii* | 6 | | 2 | 10 | | 26 | | | X |
| Long-tailed Finch | *Peophila acuticauda* | | | 2 | 15 | | | | X | |
| Mistletoebird | *Dicaeum hirundinaceum* | 3 | | 1 | 1 | | | | | X |
| Golden-headed Cisticola | *Cisticola exilis* | | | | | | 2 | | | |
| Yellow White-eye | *Zosterops luteus* | | | | | | | | | X |
| **Number of Species** | | **18** | **11** | **25** | **19** | **10** | **21** | **7** | **20** | **16** |

patches of rubble is located immediately adjacent to the bush camp.

*Gorges:*
Gumboot Gorge is approximately 3 km in length, the majority of which comprises of boulders of a dry riverbed with patches of stunted trees. The sides of the gorge become progressively steeper inland culminating in sheer sides and a deep pool lined by *Pandanus aquaticus*. Faraway Bay Gorge is a steep valley with a narrow creekline. The valley sides and floor are well vegetated compared to Gumboot Gorge.

*Woodland:*
Woodland sites were generally eucalypt dominated but soil-type, canopy species and understorey species varied considerably. A creekline, which was reduced to a series of billabongs, runs through the woodland to the south-east of Faraway Bay. Bird surveys were centred around these billabongs with further surveys conducted in the remaining woodland habitats. Opportunistic records have been divided into two categories (i) those made in transit between study sites (ii) those from the *Eucalyptus tectifica* woodland surrounding the Faraway Bay bush camp. Spotlighting was conducted by car from 20:00hrs until 22:30hrs on the night of the 19th, through a variety of woodland habitats.

## Results and Discussion

A total of 81 species (40 non-passerine, 41 passerine) were recorded. The number of individuals recorded for each species at each site is presented in Tables 2 and 3.

The number of species recorded at Faraway Bay was considerably less than in the more extensive north Kimberley surveys of Johnstone et al. (1977), Storr et al. (1975) and Johnstone and Smith (1981). However, more species were recorded in the present study than in this one-degree block during the first or second Atlas of Australian Birds (Blakers et al. 1984; Barrett et al. 2003). The brevity of the present survey makes direct comparison to previous survey work difficult. However, a paucity of Kimberley rainforest specialists (see Johnstone and Burbidge 1991), separates the terrestrial avifauna of Faraway Bay from north-west coastal sites (Storr et al. 1975; Johnstone and Smith 1981). The only rainforest species recorded at Faraway Bay were the Pied Imperial Pigeon, Shining Flycatcher and Green-backed Gerygone, with the former two species being confined to mangal.

Species richness was highest at woodland sites. The richness of the woodland community appears to be enhanced by the variability in avifauna composition within this habitat. For example, the Rufous Whistler was the only species recorded in all four lowland woodland sites. Furthermore, 16 species were recorded from only one woodland site. Due to the brief nature of this survey, it is unknown whether the patchy distribution of species is caused by low abundance or through selection for specific habitat characteristics within the woodland.

Gorge and hilltop woodland exhibited lower species richness than other woodland habitats, but contained a small number of species unique to these habitats. Black Bittern, White-quilled Rock Pigeon, Sandstone Shrike-thrush and Little Woodswallow were only observed in gorges while the Variegated Fairy-wren was restricted to rocky hilltops. A relatively low richness of terrestrial birds was recorded from the mangrove sites with very little overlap of species with other habitats. Only the Brown Honeyeater, Great Bowerbird and Torresian Crow were recorded from both mangroves and another habitat. Pied Imperial Pigeon, Mangrove Robin, Shining Flycatcher, Mangrove Grey Fantail, Large-billed Gerygone and Red-headed Honeyeater were only recorded from mangroves. This record of the Mangrove Robin represents the most easterly north Kimberley sighting of this species (Johnstone 1990; Barrett et al. 2003; Johnstone and Storr 2004).

In the Kimberley, many mangrove species inhabit structurally similar areas such as vine thickets and Melaleuca thickets when they are in close proximity to mangroves (Storr 1980; Johnstone 1990). However, such habitats are not available around Faraway Bay, resulting in mangrove and the few rainforest species being locally restricted to this habitat. While mangrove species may be less common in this region than in the more expansive mangroves in Cambridge Gulf or west of Cape Londonderry (Johnstone 1990), it appears that the small blocks of mangroves in this area may provide refuge or means of dispersal for a scattering of mangrove and rainforest species.

Given the brevity of this survey, 81 species is likely to be a considerable underestimate of the avifauna using the Faraway Bay area. The richness of woodlands and the patchy nature of bird species' distributions within this habitat indicate that it warrants further survey effort. Additionally, wet season surveys would reveal whether the mudflats and beach are used for roosting and feeding by migratory waders and further add to the species recorded from woodland.

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