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THE SUNBIRD

Volume 25 No. 2 June 1995

EARLY ORNITHOLOGY IN AUSTRALIA

J.D. MACDONALD

Soon after the arrival of the First Fleet in February 1788, and establishment of the colony at Sydney Cove, records of the period indicate that the large flightless birds in the vicinity attracted a good deal of attention. Efforts were made to establish their identity, and among those showing interest was Arthur Bowes, surgeon on the *Mary Penrhyn*. Bowes seems to have had some knowledge of natural history, for he thought the birds of sufficient interest to preserve a sketch of one in his diary (Fig. 1), and to record that he considered it to be a "A bird of a new genus" (Bowes 1788).

Although a number of officers in the company were intrigued by the identity of these strange creatures, there can be little doubt that they were just as interested in their edibility. The prospect of fresh meat must have been uppermost in the minds of people who had eaten mostly salt beef and pork during a period of eight months at sea. Even the governor, Arthur Phillip, appreciated the change in diet. He kept a daily diary, and his 3 March 1788 entry reads "Shot a remarkably large bird this day ... which proved very good eating and five of us dined off it from one of the sidebones" (Phillip 1788). Among other grateful comments, a captain of marines, named Hill, in a letter home, stated that "Seven officers have dined abundantly off the ridesbone [or side bone] ... which cut up was like a loin of veal" (Collingridge 1909).

The identity of this culinarily useful bird was a puzzle. Understandably, comparisons were made with the only other similar large birds commonly known at the time, Ostrich *Struthio camelus* and Cassowary *Casuarius sp.*. Relationship with the Ostrich seemed likely. Phillip (1788) found it to be "as large and high as an ostrich". And in the lower ranks, a midshipman, in a letter home, described it as "a large bird of the ostrich kind" (Collingridge 1909). Sometimes it was more formally called New Holland Ostrich. However, in spite of obvious differences, it became generally acknowledged that the bird must be related to the Cassowary, possibly because the Cassowary was very common in nearby New Guinea (Irian Jaya). The Southern Cassowary *C. casuarius* of Australia was not discovered until 1854.

Figure 1. The first drawing of the Emu, made by surgeon Arthur Bowes on the day after the First Fleet arrived at Botany Bay.

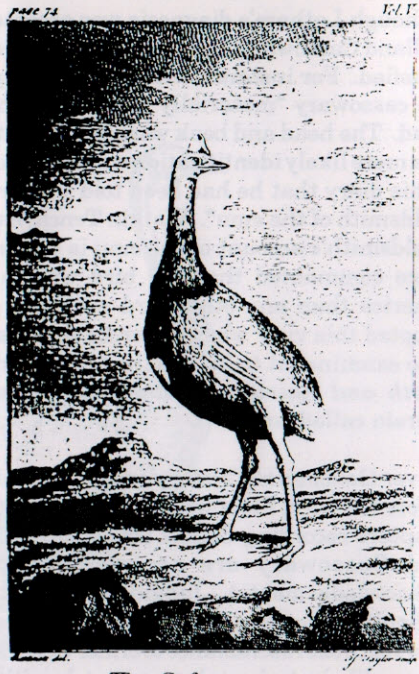
The Cassowary-Ostrich identity was widely used. Surgeon general John White, for instance, recorded that "A New Holland cassowary was brought into camp", adding that it was "The first specimen obtained, shot within two miles of Sydney Cove", and giving a short description of it. This is almost certainly the specimen, probably just skin with head and legs, "which was sent over to England in spirit" for Sir Joseph Banks. Before "being stuffed, or put into form" it was examined by Dr Latham, who came to the conclusion that it was a new species of cassowary, and gave it the name *Casuarius novaehollandiae* in 1790.

Although Latham's diagnosis was accepted, and the bird officially named New Holland Cassowary, the governor and his officer ornithologists were not entirely satisfied. For instance, White (1790) emphasised that their bird differed from the cassowary "materially in wanting the horny appendage at the top of the head. The head and beak were more like that of the ostrich". What appeared to be a more likely identification was later discovered in a book. The governor noted in his diary that he had been told the bird "answered the description given by Goldsmith of the emu". Watkin Tench, a captain of marines, also observed that "Goldsmith's account of the emu is the only one I can refer to", and in another place commented that the bird was "apparently nearer the emu of South America than any other bird we know of" (Tench 1789). White (1790) also adopted this view when he wrote that a specimen "was thought by the officers who examined it to be like the bird described in Goldsmith's *An History of the Earth and Animated Nature*, the only book of reference available ... and therein called emu."

Oliver Goldsmith's 'history' is an eight volume work, published in 1774, shortly before the First Fleet left Britain for Australia. In volume 5 there are separate chapters recording details for Ostrich, Emu and Cassowary, but only Ostrich and Cassowary are accompanied by illustrations (see Fig. 2 and Acknowledgements). Judging by the artist's conception of the birds, it is not difficult to imagine why Phillip's officers concluded that the live bird at their door had little resemblance to either Ostrich or Cassowary. Rather, by elimination, it was likely to be a better match with the one which was not illustrated, prompting the governor's comment "matches the description". Following this conclusion, word would have circulated in the colony that officers thought the bird was 'like an emu'. In the nature of spoken words, the name soon became 'emu' or some variant thereof. An extreme variant discovered in a letter was "a large bird which we call amues" (Collingridge 1909). As it was never claimed that the bird was in fact an Emu, the official name remained New Holland Cassowary until 1816, when Vieillot concluded that it was not a cassowary and raised it to generic status. This necessitated an alteration to the common name and the popular 'Emu' was chosen. In the light of current knowledge, there is every reason to believe that Latham's diagnosis was correct. The Emu *Dromaius novaehollandiae* is an adapted form of cassowary which evolved when forests were largely replaced by more arid environments (see Marchant & Higgins 1990 for a fuller account). It is one of many similar examples. The divergence between the two is no greater than that between the three species of kiwi *Apteryx spp.* (Christidis & Boles 1994).

Historically, it is of interest that the name of Australia's national bird, often mistakenly assumed to come from an aboriginal language, was borrowed from the original name of the Greater Rhea *Rhea americana*, a bird still popularly called *ema* in Brazil (M.H.C. Cortes pers. comm.). Of further interest is the fact

The Ostrich.



The Caſsowary.

AN HISTORY OF

CHAP. V.

The Emu.

OF this bird, which many call the American Oſtrich, but little is certainly known. It is an inhabitant of the New Continent: and the travellers who have mentioned it, ſeem to have been more ſolicitous in proving its affinity to the oſtrich, than in deſcribing thoſe peculiarities which diſtinguiſh it from all others of the feathered creation.

Figure 2. Photocopies of figures and start of text (probably from the actual volume) which Governor Phillip and his officers examined (from Goldsmith 1774).

that the name emu is derived from the Arabian *Na amah* for the Ostrich. In the 7th century it reached Portugal and became *ema*, and in the 17th century, in some variant of *ema* or 'large bird', it was transported throughout the Portuguese empire. *Avestrus*, the Portuguese name for the Ostrich, also means 'large bird' (M.H.C. Cortes pers. comm.). These various names are discussed more fully by Macdonald (1986) and Marchant & Higgins (1990).

Thus, in my opinion, ornithology in Australia began on the arrival of the first colonists, with investigation into the identity of the bird which eventually became part of its national emblem.

ACKNOWLEDGEMENTS

The figures reproduced here as Fig. 2 might easily have been taken from the actual copy of Goldsmith's 'history' examined by the colonists. The reproduction was provided by the Librarian of Monash University, which boasts one of only two sets in Australia. I am also grateful to His Excellency Marcos Henrique C. Cortes, Portuguese Ambassador to Australia, for detail about Portuguese names.

REFERENCES

BOWES, A. 1788. *Original daily diary.*

CHRISTIDIS, L. & BOLES, W.E. 1994. *The taxonomy and species of birds of Australia and its territories.* RAOU Monograph 2.

COLLINGRIDGE, G. 1909. Emus and Kangaroos. *The Australian Magazine:* 1041-1046.

GOLDSMITH, O. 1774. *An History of the Earth and Animate Nature.* 8 vols. London: Nourse.

MACDONALD, J.D. 1986. Origin of Name Emu. *Sunbird* 16: 68-72.

MARCHANT, S. & HIGGINS, P.J. (Eds) 1990. *The Handbook of Australian, New Zealand and Antarctic Birds.* Vol. 1. Melbourne: Oxford University Press.

PHILLIP, A. 1788. *Original daily diary.*

PHILLIP, A. 1789. *The Voyage of Governor to Botany Bay.* London: Stockdale.

TENCH, W. 1789. *A Narrative of the Expedition to Botany Bay.* London: Debrett.

WHITE, J. 1790. *Journal of a Voyage to New South Wales.* London: Debrett.

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EDITOR'S FOOTNOTE

Members of the first settlement made a purposeful effort to establish the identity of the Emu, which was considered to be "A bird of a new genus". In regarding these events as the beginning of Australian ornithology, the author prefers to assess earlier information as history rather than ornithology. Further details are included here, although this statement is by no means exhaustive.

Observations on the birds of Australia were made by Haevick Claeszoon from the *Zeewolf* in 1618, while Dampier and Vlaming, as early navigators, provided various accounts which included mention of birds. Whittell (1954, *The Literature of Australian Birds*) provided a translation of Vlaming's account of his visit to Jurien Bay, Western Australia. An entry on 15 January 1697 reads "proceeded nearly a league and a half inland, but saw no men or fresh water, but several footsteps of men and steps like those of the dog and of the kasuarius". A few years later, Dampier's journal included annotated sketches of birds, which have since been identified as Red-necked Avocet *Recurvirostra novaehollandiae*, Pied Oystercatcher *Haematopus longirostris*, Bridled Tern *Sterna anaethetus* and Common Noddy *Anous stolidus*.

Hindwood (1932, An historic diary, *Emu* 32: 17-29) noted that aboriginal rock drawings of the Emu long predate European publications. One such interesting picture, collected by Spencer and Gillian in Central Australia, shows the bird from below, sitting on nest and eggs (see *Emu* 77: 169-172). Further detail in Hindwood (1932) is also relevant. Bowes provided general observations on the animals of the colony as early as 21 January 1788, although some weeks elapsed before a person was able to get within range of an Emu for a successful shot. Another point made by Hindwood (1932) is that Bowes probably copied Watt's drawing of the first Emu. In the original (but transcribed) diary that survives, the sketch of the Emu is inserted into the folio before the entry which details the events of 22 January. The sketch is attached to a sheet on which there are notes and drawings about the food of the bird.

Much of the detail reproduced here was provided by Stephen Davies. I am grateful to both Stephen Debus and Stephen Davies for their assistance with this paper.

BIRDS OF CURRAWINYA NATIONAL PARK, SOUTH-WEST QUEENSLAND

ANDREW J. LEY and PETER DAVIE

INTRODUCTION

Currawinya National Park is located in south-west Queensland, on the New South Wales border near the village of Hungerford (29° 00'S, 144° 25'E). It covers about 150 000 ha and conserves samples of ecosystems within the Mulga Biogeographic Region. It includes the adjacent Lakes Wyara and Numalla which comprise an important wetland site. Formerly a grazing property, Currawinya became a national park on 11 May 1991.

METHODS

Three visits were made to the national park: from 4 to 18 July 1992 and from 17 April to 1 May 1993 by the Northern New South Wales Group of the Royal Australasian Ornithologists Union (RAOU); and from 15 October to 7 November 1993 by the New South Wales Field Ornithologists Club (FOC). A total of 47 observers participated in these visits.

The birds of the park were atlassed on the basis of ten-minute grid blocks. Parts of the park are included in ten such blocks (Fig. 1). Participants divided into teams to survey the grid blocks as thoroughly as possible, recording species seen on specially prepared sheets. During the RAOU visits, one sheet was completed for each visit to a grid block, whereas FOC observers, after completing a sheet for each visit to a grid block, consolidated their records into one sheet for each grid block for the duration of their visit. For each species seen, presence, confirmed breeding and abundance rank were recorded on the sheet. The last of these had four possible values:

+ present in trivial numbers
1 uncommon
2 moderately common
3 very common.

Abundance rank was not always recorded, for example when noting the presence of a species in a grid block in passing. When abundance was recorded, the rank was usually arrived at by consensus of the team members after the visit to the grid block.

In addition to the sheets for individual grid blocks, a master sheet was completed containing all species seen in the park for the duration of each of the three visits.

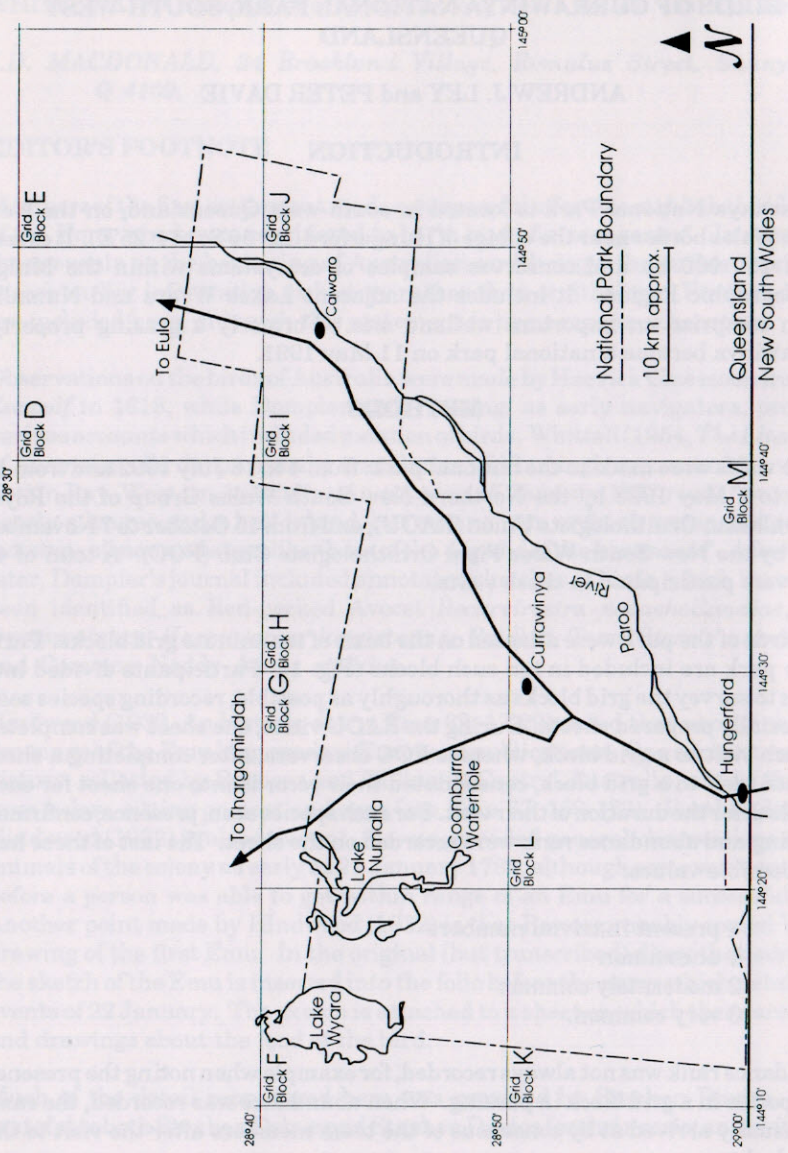

Figure 1. Currawinya National Park.

These sheets included abundance ranks arrived at by discussion towards the end of the visits, that is, these overall ranks were not directly derived from the totals of the ranks from the sheets from individual grid blocks.

Additional information was gained from Geeves & Thomas (1992) and Kingsford & Porter (1994), and the Queensland Ornithological Society (QOSI) provided details of their records from a trip to the national park in September 1993 (Jan England *in litt.*).

RESULTS

A total of 172 species was recorded during our visits. Four species were added to this total from Geeves & Thomas (1992) and one addition was recorded by the QOSI in September 1993. The species list appears as Appendix 1.

Counting the observations recorded by Geeves & Thomas (1992) as one sheet (for grid block F), 55 data sheets were completed for individual grid blocks, of which 45 included abundance ranks. These sheets contained 2572 individual species records. The number of sheets completed for each grid block, and the number of species recorded in the block, are shown in Table 1.

Table 1. Atlas sheets completed and species recorded per grid block.

Grid block	Number of sheets completed	Total species
D	3	62
E	5	61
F	6	146
G	9	140
H	4	85
I	9	90
J	3	58
K	7	131
L	5	95
M	4	74

Appendix 1 lists, for each species, the number of grid blocks (of a possible ten) in which it was recorded, the number of times (of a possible 55) it was recorded, the number of times it received each of the available abundance ranks, or was unranked, and its overall abundance during each of our three visits.

Thirty-eight species were recorded from all ten grid blocks and a further 20 were

recorded from eight or nine blocks. Thirty species were recorded 30 or more times and a further 63 were recorded 10-29 times. Forty species were given at least one overall rank of '3', a further 35 were given at least one '2', 50 were given at least one '1', and 47 were not given higher than '+'. The five species added to our list from Geeves & Thomas (1992) and from the QOSI were unranked.

We recorded little breeding during our visits, probably because of the generally dry conditions. We saw no breeding waterbirds, although the remains of nesting colonies were obvious in several places. Appendix 1 shows the species for which breeding was confirmed, and includes waterbird breeding records from Kingsford & Porter (1994).

DISCUSSION

The system of abundance ranks led to some discussion. But, as Appendix 1 shows, this treatment adds an extra dimension to the species and grid block information. There is an obvious problem with differences in 'observability' between species, for example nocturnal, cryptic or hard-to-identify species may be difficult to rank. Nevertheless, this need not detract from the system's general applicability and usefulness.

Most of the ranks were added to a data sheet towards the end of the period covered by the sheet and were worked out in discussion between the observers involved. That consensus was fairly easily reached may suggest that the system has some merit. While obviously related to the number of individuals of the species present, in practice the ranks were not used simply as a measure of absolute numbers. In discussions related to the allocation of ranks, the following were considered.

*Numbers of individuals present.
*Numbers present relative to the observers' experience of the species elsewhere.
*Numbers present relative to a known or expected or possible presence. For example, during July 1992 Black-breasted Buzzard *Hamirostra melanosternon* was ranked '2' on the sighting of 4+ individuals, on the grounds that, at this population level, this large raptor with an extensive home range was relatively common. By contrast, 4+ Galahs *Cacatua roseicapilla* would only rank '+'.
*On a broader scale, habitat may be of relevance. For example, some common waterbirds were ranked '3' overall, even though they did not occur in most grid blocks.

Our observations reinforce Kingsford & Porter's (1994) finding that Currawinya's wetlands are a major Australian waterbird site. During July 1992 Lake Wyara held spectacularly large numbers of birds, especially Grey Teal *Anas gracilis*,

Freckled Duck *Stictonetta naevosa* and very big numbers of Eurasian Coot *Fulica atra*. Other waterbirds present in good numbers during our visits included Australasian Shoveler *Anas rhynchotis*, Pink-eared Duck *Malacorhynchus membranaceus*, Black-winged Stilt *Himantopus himantopus* and Red-necked Avocet *Recurvirostra novaehollandiae*. Given our sightings of Black-tailed Godwit *Limosa limosa*, Marsh Sandpiper *Tringa stagnatilis*, Ruddy Turnstone *Arenaria interpres*, and other species, the lakes may form part of an inland route for migratory waders.

Kingsford & Porter (1994) further suggest that Lake Numalla may be an important refuge for waterbirds when the water level drops in Lake Wyara. In April 1993, with the water level in Lake Wyara significantly reduced and few birds present there, a single flock of Freckled Duck estimated at 10 000 birds was camped at Coomburra Waterhole, an offshoot of Lake Numalla. At the same time many thousands of Grey Teal were in a shallow bay on the western side of Lake Numalla. By contrast, Eurasian Coot, probably the commonest waterbird in the park in July 1992, were apparently not suited by Lake Numalla and had largely disappeared by October 1993 as Lake Wyara dried up. The salt Wyara is shallower, clearer and contains more aquatic vegetation than the fresh Numalla (Kingsford & Porter 1994).

During the period of our visits, Currawinya was generally dry and was showing the effects of its history as a sheep station. However, the stock were being removed and attempts were being made to eradicate or at least bring under control the many feral animals. Plans were afoot to control kangaroo numbers by reducing the number of artificial watering points. There was talk of trying to reinstate parts of the original grassland by eliminating some of the 'woody weeds'. As they take effect, these changes will be reflected in the avifauna of the park. As the first detailed bird list for Currawinya, the observations recorded here will provide a base against which to measure future changes, whether these result from natural events such as heavy rain and/or floods, or are by-products of the change in management from that of a grazing property to that of a permanent reserve.

ACKNOWLEDGEMENTS

We thank the Honourable Pat Comben M.L.A., then Queensland Minister for Environment and Heritage, and Dr Phil Moors, then Director of the Royal Australasian Ornithologists Union, who initially encouraged us to take an interest in Currawinya National Park. Martyn Swain, Malcolm Kirk and Danny McKellar of the Queensland National Parks and Wildlife Service assisted us during our stays at the national park. The following people attended one or more of the three visits to the park: Graham Alcorn, Frank Bigg, Eric Birt, Mike Blake, Philip Brook, Garry Breen, Andy Burton, Carole Carpenter, John Carpenter,

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REFERENCES

GEEVES, J. & THOMAS, M. 1992. Bird observations for Lake Numalla and Lake Wyara - Currawinya National Park, south-west Queensland. *Qld. Nat.* 31:114-118.

KINGSFORD, R.T. & PORTER, J.L. 1994. Waterbirds on an adjacent freshwater lake and salt lake in arid Australia. *Biol. Conserv.* 69:219-228.

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Appendix 1. Bird list for Currawinya National Park, including grid block and abundance rank information.

Blocks = the number of grid blocks in which the species was recorded, of a possible ten.
Records = the number of grid block records of the species, of a possible 55.
Abundance = the number of times the species was given each rank; n/s = not specified.
Overall abundance = the overall rank given to the species at each of our three visits (July 1992, April 1993, October - November 1993).
Species with no overall ranks were recorded only by Geeves & Thomas (1992).
* = breeding recorded by us; # = additional breeding records from Kingsford & Porter (1994).

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
EMU *	10	44	3	5	7	21	8	3	3	2
STUBBLE QUAIL	1	2		2					+	
BLUE-BILLED DUCK	1	1	1							
MUSK DUCK	3	6	1	5					+	
FRECKLED DUCK	3	8	1	2	1	1	3	2	3	
BLACK SWAN #	4	15	1	5	1	5	3	2	3	1
AUSTRALIAN WOOD DUCK	6	18	1	7	8	1	1	1	2	2
PACIFIC BLACK DUCK #	7	21	1	16	2	2		+	1	1
AUSTRALASIAN SHOVELER	3	5		1	3	1		2	1	1
GREY TEAL	7	21	3	5	3	4	6	3	3	3
CHESTNUT TEAL	1	2		2					+	
PINK-EARED DUCK	4	13	2	4	3	1	3	3	2	2
HARDHEAD	4	12	1	6	3	1	1	1	1	2
AUSTRALASIAN GREBE	4	10	2	6	2			+	+	1
HOARY-HEADED GREBE	3	10	1	7	1	1		1	+	1

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
GREAT CRESTED GREBE	2	5	1	3	1			+	+	
DARTER	4	14	1	8	5			+	1	1
LITTLE PIED CORMORANT	3	8	1	5	1		1	+	+	+
PIED CORMORANT #	3	13	1	6	2	1	3	2	2	1
LITTLE BLACK CORMORANT	3	10	1	3	5	1		1	1	1
GREAT CORMORANT	3	10	1	5	4			1	+	1
AUSTRALIAN PELICAN #	8	23	2	8	4	3	6	1	3	2
WHITE-FACED HERON	5	12	1	9	2			+	+	
WHITE-NECKED HERON #	8	21	3	11	5	2		+	2	+
GREAT EGRET	6	20	2	13	5			+	1	1
INTERMEDIATE EGRET	3	4	1	3					+	
NANKEEN NIGHT HERON	2	2		2				+	+	
GLOSSY IBIS	2	2	1	1						+
AUSTRALIAN WHITE IBIS #	4	5	1	4					+	+
STRAW-NECKED IBIS	2	3		3				+	+	
ROYAL SPOONBILL #	3	11	1	6	4			+	+	1
YELLOW-BILLED SPOONBILL #	5	15	1	6	8			1	+	1
SQUARE-TAILED KITE	1	1			1			1		
BLACK-BREASTED BUZZARD	6	11	3	6	2			2	1	+
BLACK KITE	3	4		3	1			+	+	1
WHISTLING KITE *	9	31	2	13	14	2		1	2	2
WHITE-BELLIED SEA-EAGLE	1	2		2					+	
SWAMP HARRIER	2	3		3				+	+	
BROWN GOSHAWK	7	13	3	9	1			+	1	1
COLLARED SPARROWHAWK	8	11	2	8	1			+	1	1
WEDGE-TAILED EAGLE *	10	34	4	21	6	3		2	1	2
LITTLE EAGLE *	4	4		3	1			+	+	1

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
BROWN FALCON	9	22	3	13	5	1		+	1	2
AUSTRALIAN HOBBY *	7	13		9	4			2	+	1
GREY FALCON	2	2		2						+
BLACK FALCON	1	1	1							
PEREGRINE FALCON	4	5		4	1			+		1
NANKEEN KESTREL	7	20	4	11	3	2		+	+	1
BROLGA	6	11	3	7	1			+	+	1
DUSKY MOORHEN	1	1		1				+		
BLACK-TAILED NATIVE-HEN	3	7	1	3	1	1	1	+	2	+
EURASIAN COOT	3	11		5	4	1	1	3	1	+
AUSTRALIAN BUSTARD	1	1	1							
LITTLE BUTTON-QUAIL	1	1	1							
BLACK-TAILED GODWIT	2	2		2					+	
MARSH SANDPIPER	2	4	1	3					+	+
COMMON GREENSHANK	3	6	1	2	3				+	1
RUDDY TURNSTONE	1	1		1						+
RED-NECKED STINT	2	5	1	2	2			+	+	+
SHARP-TAILED SANDPIPER	3	9	1	6	1	1			+	1
CURLEW SANDPIPER	2	2		1	1			+		+
BLACK-WINGED STILT	2	7	1	2	4			+	+	+
BANDED STILT	1	1	1							
RED-NECKED AVOCET #	3	9	1	2	3	1	2	+	2	3
RED-CAPPED PLOVER *	4	13	1	3	7	1	1	2	3	1
INLAND DOTTEREL	1	1	1						+	
BLACK-FRONTED DOTTEREL *	7	26	2	11	8	5		1	2	2
RED-KNEED DOTTEREL	3	9	1	8				+	+	+
BANDED LAPWING *	3	5	1	2	2				+	1

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
MASKED LAPWING *	10	28	3	11	11	2	1	1	2	3
AUSTRALIAN PRATINCOLE	3	4	1	1	2					1
SILVER GULL #	3	13	1	7	5			+	+	1
GULL-BILLED TERN	2	5	1	4				+	+	
CASPIAN TERN #	3	9	1	4	3	1		+	1	+
WHISKERED TERN	3	11	1	1	5	4		+	1	1
WHITE-WINGED BLACK TERN	1	2		2					+	
COMMON BRONZEWING	10	31	3	10	8	8	2	2	2	3
CRESTED PIGEON	10	44	3	2	8	17	14	2	3	3
DIAMOND DOVE	7	13	2	4	5	2			+	3
PEACEFUL DOVE	8	25	2	18	3	2		+	1	2
GALAH	10	40	3	4	7	11	15	3	3	3
LITTLE CORELLA	7	14	2	3	2	3	4	1	+	3
MAJOR MITCHELL'S COCKATOO	10	26	2	9	10	5		2	2	2
COCKATIEL	10	17	1	7	4	4	1		+	3
RED-WINGED PARROT	10	26	2	6	13	5		2	2	1
AUSTRALIAN RINGNECK	10	43	2	4	12	17	8	2	3	3
BLUE BONNET	10	40	3	13	12	10	2	2	2	3
MULGA PARROT	10	37	4	13	9	8	3	3	2	3
BUDGERIGAR	6	11	3	3	4	1			+	2
BOURKE'S PARROT	3	5		3	2			+	+	+
BLUE-WINGED PARROT	1	1		1					+	
PALLID CUCKOO	3	5		5				+	+	+
BLACK-EARED CUCKOO	1	1	1						+	
HORSFIELD'S BRONZE-CUCKOO	6	11	1	8	2				1	1
SOUTHERN BOOBOOK	2	2		2				+	+	
SPOTTED NIGHTJAR	1	1	1						+	

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
AUSTRALIAN OWLET-NIGHTJAR	6	12	2	9	1			+	1	1
LAUGHING KOOKABURRA	1	3		2	1				+	+
RED-BACKED KINGFISHER	3	4	1	2	1					1
SACRED KINGFISHER	6	6	1	3	2					2
RAINBOW BEE-EATER	10	11	1	1	3	5	1			3
WHITE-BROWED TREECREEPER	3	4		4				+	+	+
BROWN TREECREEPER	10	36	2	8	9	14	3	3	3	2
SPLENDID FAIRY-WREN	5	7	2	2	3			1	+	1
VARIEGATED FAIRY-WREN	9	27	4	10	10	3		1	1	2
WHITE-WINGED FAIRY-WREN	2	9	2	4	1	2		2	+	1
RED-BROWED PARDALOTE	4	5	1	3	1			+		+
STRIATED PARDALOTE *	10	32	2	7	6	15	2	3	1	3
WEEBILL *	10	31	1	6	17	7		2	2	2
WESTERN GERYGONE	6	7	2	4	1			+	+	1
INLAND THORNBILL	6	9	2	3	2	2		+	+	1
CHESTNUT-RUMPED THORNBILL *	10	42	4	6	4	22	6	3	3	3
YELLOW-RUMPED THORNBILL *	10	24	2	7	11	4		1	1	3
YELLOW THORNBILL	3	3		2	1			+		1
SOUTHERN WHITEFACE	8	27	3	13	3	7	1	2	2	3
SPINY-CHEEKED HONEYEATER	10	41	3	9	4	8	17	3	1	3
STRIPED HONEYEATER	4	4	1	1	1	1		+	+	1
NOISY FRIARBIRD	9	15	1	7	6	1		1		1
LITTLE FRIARBIRD	10	12			6	5	1	1		2
BLUE-FACED HONEYEATER *	9	23	2	13	7		1	+	1	1
YELLOW-THROATED MINER *	10	43	2		1	4	36	3	3	3
SINGING HONEYEATER	10	41	3	7	14	10	7	3	2	2
GREY-FRONTED HONEYEATER	1	1		1						+

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
WHITE-PLUMED HONEYEATER	10	43	2	1	8	9	23	3	3	3
BLACK-CHINNED HONEYEATER	1	1		1				+		
BROWN-HEADED HONEYEATER	4	5	1	3	1				+	1
BROWN HONEYEATER *	8	13	1	8	4			1	+	1
PAINTED HONEYEATER	1	1		1				+		
WHITE-FRONTED HONEYEATER	8	11	1	5	5			1		1
BLACK HONEYEATER	3	3		1	2					1
PIED HONEYEATER	1	1					1			1
CRIMSON CHAT	6	10	1	4	3	2		+	+	2
ORANGE CHAT	3	8		2	3	1	2	+	3	+
WHITE-FRONTED CHAT	2	2		2				+	+	
JACKY WINTER	5	8	1	4	3			+	+	1
RED-CAPPED ROBIN *	10	39	3	15	8	13		2	2	2
HOODED ROBIN	2	2		2					+	
GREY-CROWNED BABBLER	10	23	2	8	11	2		1	1	2
WHITE-BROWED BABBLER	1	1			1					+
HALL'S BABBLER *	1	1				1				+
CHESTNUT-CROWNED BABBLER *	9	34	2	7	8	14	3	3	2	2
CHIRRUPING WEDGEBILL	3	5		4	1			1	+	
CINNAMON QUAIL-THRUSH	2	3	1	2				1	+	
VARIED SITTELLA	4	6	1	2	3			+	+	1
CRESTED BELLBIRD	10	41	3	17	6	12	3	3	2	3
RUFOUS WHISTLER	9	29	2	10	16	1		+	1	2
GREY SHRIKE-THRUSH	10	37	3	19	9	6		+	1	3
RESTLESS FLYCATCHER	7	14	2	9	3			+	+	+
MAGPIE-LARK *	10	44	3	7	14	14	6	2	3	3
GREY FANTAIL	8	14	2	10	2			+	+	

Appendix 1 cont.

Species	Blocks (max.10)	Records (max.55)	Abundances n/s	+	1	2	3	Overall abundance 7/92	4/93	10-11/93
WILLIE WAGTAIL	10	44	3	13	16	11	1	2	2	2
BLACK-FACED CUCKOO-SHRIKE	10	29	17	9	3		+	+	2	
WHITE-WINGED TRILLER	5	5		1	3	1				1
OLIVE-BACKED ORIOLE	1	1		1				+		
WHITE-BREASTED WOODSWALLOW *	8	15	2	4	7	2			1	3
MASKED WOODSWALLOW	6	7	1	1	3	2		+		2
WHITE-BROWED WOODSWALLOW	9	12	1	2	5	2	2	2	+	2
BLACK-FACED WOODSWALLOW	8	25	2	6	12	4	1	1	2	2
LITTLE WOODSWALLOW	1	1	1							
GREY BUTCHERBIRD	8	32	2	18	11	1		1	1	2
PIED BUTCHERBIRD	10	45	3	19	12	10	1	2	2	3
AUSTRALIAN MAGPIE	10	46	3	21	9	9	4	1	1	3
AUSTRALIAN RAVEN	10	41	2	9	9	15	6	2	1	3
LITTLE CROW	10	26	3	6	13	2	2	1	+	2
WHITE-WINGED CHOUGH	9	29	4	6	14	4	1	1	2	2
APOSTLEBIRD *	10	31	3	3	12	8	5	1	2	3
SPOTTED BOWERBIRD	10	36	2	15	14	5		2	2	2
RICHARD'S PIPIT	6	16	2	9	3	1	1	+	1	1
ZEBRA FINCH	6	9	3	4	2				+	1
MISTLETOEBIRD	10	31	1	22	4	4		+	1	1
WHITE-BACKED SWALLOW	2	3		2	1			+	+	+
WELCOME SWALLOW	7	20	2	12	4	2		+	1	1
TREE MARTIN *	10	29	2	7	9	6	5	3	3	3
FAIRY MARTIN *	5	5		1	3	1		+		2
RUFOUS SONGLARK	4	4		4					+	
BROWN SONGLARK	3	4	2	2					+	
COMMON STARLING	4	9	3	3	3			+	1	1

CICADAS (INSECTA: CICADIDAE) AS PREY OF REGENT BOWERBIRDS *SERICULUS CHRYSOCEPHALUS* AND OTHER BOWERBIRD SPECIES (PTILONORHYNCHIDAE)

CLIFFORD B. FRITH

Cicadas in Australia have been noted as "quality food" for insect-eating birds, smaller ones often being eaten whole and larger ones having their abdomen to everything but their wings eaten. Singing male cicadas are at far greater risk of predation by birds than are mute females. Some bowerbirds (Ptilonorhynchidae) are known to mimic cicada calls (Frith unpubl. data, cited in Moulds 1990) which could conceivably function to assist these birds in locating cicadas, but this has never been studied.

A female-plumaged Regent Bowerbird *Sericulus chrysocephalus* was observed to flutter to the ground with a Greengrocer Cicada *Cyclochila australasiae* at Brisbane Forest Park on 9 December 1992 (Woodall 1994). Remaining on the ground, the bird removed the insect's legs and wings by holding them in the bill and sharply flicking the insect before eating the contents of its abdomen and flying off with the thorax. Woodall (1994) concluded that cicadas may form a more important part of Regent Bowerbird diet than previously thought, because the method of eating he observed would leave few identifiable remains in birds' stomachs. A brief review of some recent research, stimulated by Woodall's interesting observation, reveals the following pertinent facts.

Regent Bowerbirds feeding their offspring "small cicadas" were recorded by Threlfo (1985) who closely observed and photographed activity at a nest containing two nestlings. Lenz (1993) found that animal foods represented 7.6% of the 1193 independent Regent Bowerbird feeding instances observed. He recorded this bowerbird species eating cicadas, specifically mentioning the Bladder Cicada *Cystosoma saundersii*. Having studied Satin Bowerbirds *Ptilonorhynchus violaceus* for eleven years, the Vellengas (1980, 1985) concluded that seasonally available cicadas represented the "most important and life-giving food" during post-moult weight-gain by independent birds and for the feeding of young offspring. They noted that the Greengrocer Cicada was the first cicada species to appear each season, in September. During 1966 and 1971 cicadas were locally few in the Vellengas' study areas and Satin Bowerbirds failed to breed there, whilst doing so elsewhere where cicadas were abundant. It has been noted that the hatching of Satin Bowerbird eggs coincides with the emergence of large numbers of cicadas (Borgia 1986), just as it has been suggested that the hatching of Great Bowerbird *Chlamydera nuchalis* and Spotted Bowerbird *C. maculata* eggs coincides with the seasonal availability of larger grasshoppers (Frith & Frith 1990a,b).

Adult Green Catirds *Ailuroedus crassirostris* were observed to eat cicadas seven times (24% of all observed feeding upon arthropods) and adult Satin Bowerbirds were seen to eat cicadas 10 times (18% of all feeding upon arthropods) by Donaghey (1981). Of 16 arthropod meals fed to nestling Green Catbirds, 50% consisted of cicadas; and, more significantly, he identified the remains of cicadas in 9.5% of 42 nestling faecal sacs examined. Of over 300 meals delivered to nestling Satin Bowerbirds, 8.7% consisted of cicadas (Donaghey 1981)

Of 112 animals observed to be fed to three single nestling broods of Archbold's Bowerbird *Archboldia papuensis* in upland Papua New Guinea, 4% consisted of cicadas, and another 4% consisted of unidentified large insects that might have included them (Frith & Frith 1994). During several days photography from a hide at a nest of a Macgregor's Bowerbird *Amblyornis macgregoriae* in upland Papua New Guinea during late October 1987, the female parent was seen to feed cicada abdomens to her single nestling several times (Frith unpubl. data, see Figure 1).

In North Queensland, the present author has often recorded both adult and nestling tropical rainforest-dwelling Spotted Catbirds *Ailuroedus melanotis* and Golden Bowerbirds *Prionodura newtoniana* feeding upon cicadas. This has involved direct observation of feeding activity (adults and parents feeding nestlings) and examination of faecal samples (adults and nestlings). In addition, several adult Tooth-billed Bowerbirds *Scenopoeetes dentirostris* were watched catching and eating cicadas. The remains of cicadas ingested by bowerbirds are easily found and identified in bowerbird faeces. These fragments of the insects' ectoskeletons are often characteristically marked, particularly parts of the thorax (Frith unpubl. data).

There doubtless exist additional records of bowerbirds eating cicadas. The above facts are adequate to indicate, however, that Woodall's record is not novel with respect to the eating of cicadas by Regent Bowerbirds. Whilst the feeding process he described may well leave relatively few remains in the bird's stomach, even small pieces of the abdomen ectoskeleton of larger cicadas should remain identifiable. In addition to containing information on the possible importance of cicadas in Regent Bowerbirds' diets, Woodall's report contains a usefully documented description of the way in which large food items, such as a larger cicada, are eaten by a Regent Bowerbird. Evidence accumulated during observation of wild and captive bowerbirds over more than a decade indicates that they rarely, if ever, hold larger food items by a foot to a perch or the ground to reduce them in size. Typical birds of paradise (Paradisaeinae), previously considered close relatives if not members of the same family as bowerbirds, invariably do so, however (Frith unpubl. data). The author of this note is eager to learn of any unpublished observations of how bowerbird and bird of paradise species reduced larger food items in size before eating them.

Figure 1. A presumed female Macgregor's Bowerbird *Amblyornis macgregoriae* feeding a cicada abdomen to her nestling near Benaria, eastern Tari Valley, Southern Highlands, Papua New Guinea, 29 October 1987.

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REFERENCES

BORGIA, G. 1986. Sexual selection in bowerbirds. *Sci. Amer.* 254: 92-100.

DONAGHEY, R. 1981. *The Ecology and Evolution of Bowerbird Mating Systems.* Ph.D. Thesis, Monash University, Melbourne.

FRITH, C.B. & FRITH, D.W. 1990a. Notes on the nesting biology of the Great Bowerbird *Chlamydera nuchalis* (Ptilonorhynchidae). *Aust. Bird Watcher* 13: 137-148.

FRITH, C.B. & FRITH, D.W. 1990b. Notes on the nesting biology of the Spotted Bowerbird *Chlamydera maculata* (Ptilonorhynchidae). *Aust. Bird Watcher* 13: 218-225.

FRITH, C.B. & FRITH, D.W. 1994. The nesting biology of Archbold's Bowerbird *Archiboldia papuensis* and a review of that of other bowerbirds (Ptilonorhynchidae). *Ibis* 136: 153-160.

LENZ, N.H.G. 1993. *Behavioural and Reproductive Biology of the Regent Bowerbird* Sericulus chrysocephalus (Lewin, 1808). Ph.D. Thesis, Griffith University, Brisbane.

MOULDS, M.S. 1990. *Australian Cicadas.* Kensington: New South Wales University Press.

THRELFO, G. 1985. *Sharing a Dream.* Homebush West: Anzea Publishers.

VELLENGA, R.E. 1980. Distribution of bowers of the Satin Bowerbird at Leura, NSW, with notes on parental care, development and independence of the young. *Emu* 80: 97-102.

VELLENGA, S. & VELLENGA, R. 1985. Notes on the food cycle of the Satin Bowerbird *Ptilonorhynchus violaceus. Bird Observer* 643: 74-75.

WOODALL, P.F. 1994. Regent Bowerbird feeding on a Greengrocer Cicada. *Sunbird* 24: 44.

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SERVENTY, D., SERVENTY, V.N. & WARHAM, J. 1971. *The Handbook of Australian Sea-birds*. Sydney: Reed.

SLATER, P. 1970. *A Field Guide to Australian Birds. Non-Passerines.* Adelaide: Rigby.

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