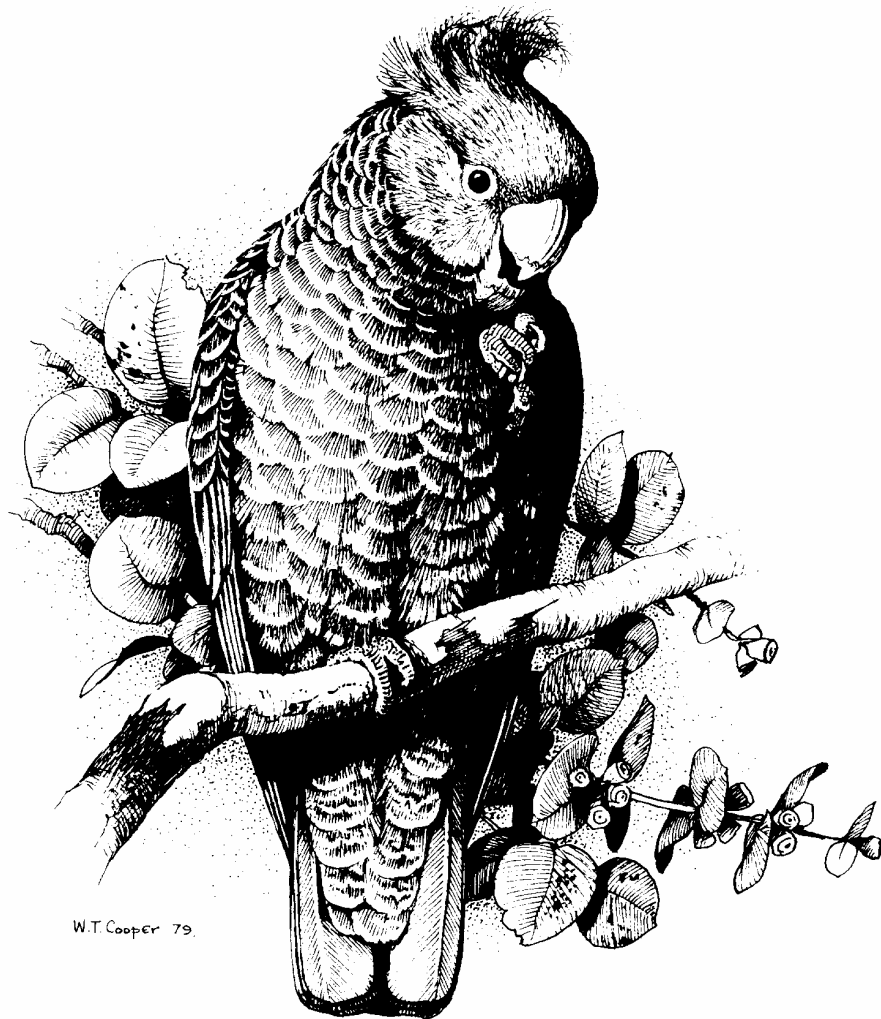


canberra bird notes

ISSN 0314-8211

Volume 33
Number 2
September 2008



Registered by Australia Post – Publication No. NBH 0255

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NUMBERS OF BREEDING LITTLE EAGLES *HIERAAETUS MORPHNOIDES* IN THE AUSTRALIAN CAPITAL TERRITORY IN 2007

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Abstract: *In 2007 we surveyed 11 Little Eagle territories in and near the Australian Capital Territory that were occupied in 1990-92. In addition we solicited reports from Canberra Ornithologists Group (COG) members and ACT Parks, Conservation and Lands personnel in an effort to find all Little Eagle nesting attempts in the ACT in 2007. Of the 11 active 1990-92 territories, all were abandoned by breeding pairs in 2007. In the new survey, aimed at finding all ACT nests, we found two new territories, one near Dunlop and one on the Lions Youth Haven agistment paddock near McQuoids Hill. Adding the pair already known from Fyshwick, this made three breeding pairs in the ACT in 2007. They fledged a total of four young. We discuss the status of breeding Little Eagles in the ACT and future research aims.*

Introduction

Taylor and COG (1992) said 13 Little Eagle *Hieraaetus morphnoides* territories had been identified in the ACT, many in reserves and bushland on the perimeter of the city. The highest concentrations were in the Murrumbidgee and Molonglo River Corridors, especially Uriarra Crossing. Olsen and Fuentes (2004) warned that some of the richness of species and breeding numbers would be lost if plans for expansion of Canberra's suburbs went ahead, and that Little Eagles were already declining. They found only one Little Eagle nest in the Murrumbidgee and Molonglo River Corridors in 2002-03. Olsen and Fuentes (2005) and Olsen and Osgood (2006) discussed the collapse of Little Eagle breeding territories, from 11

active nests in the early 1990s to two in 2005-06. Some of this decline was linked to Wedge-tailed Eagles *Aquila audax* displacing them, but other pairs disappeared for other reasons, including land development. We made a case for listing the Little Eagle as Vulnerable, and urged the ACT Government to stop urban development in woodlands used by the species (Olsen and Fuentes 2005, Olsen and Osgood 2006, Olsen 2007).

Our aims in the current study were to: a) search for active nests (defined as having at least one egg or young) in the areas first surveyed in 1990-92; and b) in a new survey, find all possible Little Eagle territories in the ACT. We did this by organising three survey teams: 1) J. Olsen and

M. Osgood, 2) COG members networked through G. Dabb and Barbara Allan, 3) ACT Parks, Conservation and Lands rangers networked through M. Maconachie.

Methods

In 2007, JO and MO searched by foot and car the original 1990-92 Little Eagle territories, and two sites containing single individuals found in 2005. GD vetted any reports of Little Eagle sightings from COG members and checked these on foot. MM vetted reports from the ACT Parks, Conservation and Lands and checked these on foot with JO to confirm breeding.

Results

All nests from previous surveys (Olsen 1992) were abandoned (Table 1). The nest on the Googong Foreshores not included in Table 1, but active through the 1990s to about 2002, was also abandoned.

We saw single Little Eagles at three locations:

- 1) a single adult near Site #7 on Mount Ainslie/Majura (Table 1) but we found no nest; Michael Lenz (personal communication) also reported a single adult in this area;
- 2) a single bird near a nest in the upper Molonglo Gorge disappeared by December with no evidence of breeding; and
- 3) a single bird was seen on 25 November 2007 near the Cotter campground by John McRae and

Michael Maconachie but no nest was found.

Breeding Pairs

We found three active territories in 2007:

- 1) a pair at Fyshwick (not in Table 1, see G. Dabb in Olsen and Osgood 2006) fledged a single young;
- 2) a pair near Dunlop on the ACT/NSW border found by Roger Curnow in an abandoned Wedge-tailed Eagle nest fledged a single young; we suspect that this pair formerly bred in NSW downstream from Ginninderra Falls in a site not included in Table 1; and
- 3) a pair on the Lions Youth Haven horse agistment paddocks near McQuoids Hill found by Nick Webb fledged two young, though JO, MM and John McRae were unable to find the nest.

The total then for the ACT and the ACT/NSW border in 2007 was four young fledged from three territories, much lower than the productivity for 11 territories in the early 1990s (see Olsen 1992), but higher than the productivity found in 2006. However, we believe this increase in productivity from 2006 to 2007 was due primarily to additional efforts by many people searching for active nests, not to any sort of recovery. We found no occupied nests along the Molonglo River and only one pair in the Murrumbidgee River Corridor, on the Lions Youth Haven agistment paddock.

Table 1. Active Little Eagle *Hieraaetus morphnoides* nests inside the ACT and *straddling the ACT/NSW border: occupied in the 1990s (1990-92) and in 2002-07. Active, i.e. containing eggs or young (A); Pair (P); Single adult (S); Abandoned by the pair (-).

	1990s	2002	2003	2004	2005	2006	2007
1)	A	-	-	-	-	-	-
2)	A	-	-	-	-	-	-
3)	A	A	-	-	-	-	-
4)	A	A	A	-	-	-	-
5)	A	A	A	A	A	A (failed)	-
6)	A	S	-	-	-	-	-
7)	A	P	P	P	P	S	-
8)	A	-	-	-	-	-	-
*9)	A	-	-	-	-	-	-
10)	A	-	-	-	-	-	-
11)	A	?	A	A	-	A	-

Discussion

The continued decline of Little Eagle pairs in the ACT is a concern. A major problem is that no radio-tagging has been done with any Australian eagle species, so we have no accurate data on habitat use and home-range size. Saving nest trees, or placing a buffer around nest trees is pointless because we don't understand eagle home-range requirements (Olsen and Fuentes 2004). A housing development can destroy a food source used by eagles nesting one or two kilometres away, and cause a nest to fail or cause an eagle to abandon a nest territory. In addition, there could be toxic materials used in or around the ACT that could affect nesting eagles some distance from the point of application.

In the 2006 and 2007 surveys we found that reports from COG members and ACT Parks, Conservation and

Lands personnel were instrumental in confirming all of the successful Little Eagle pairs we found, particularly the reports from Michael Lenz, Roger Curnow, Graeme Clifton, Nick Webb, and John McRae. We hope that COG and ACT Parks, Conservation and Lands personnel will continue to help through 2008.

Conclusions

In the early 1990s we had 11 pairs of Little Eagles under observation in and near the ACT, and Taylor and COG (1992) identified 13 pairs. In 2006 we found one successful nest, and in 2007, after increased effort, found three nests that fledged four young. Most previous territories, however, were abandoned. The reasons for the decline have yet to be determined, and the remaining pairs need to be protected.

In 2008, the ACT Government listed the Little Eagle as Vulnerable in the ACT region, and declared a 20 year moratorium on the building of houses and infrastructure in the Central Molonglo Valley. The aim of our Little Eagle surveys published in *Canberra Bird Notes* in 2005 and 2006 was to find all active nests in the ACT, while being careful to avoid being selective or slanting the data to support the listing of the species. That we failed to find more nests, and failed to confirm nesting in 11 1992 territories, strengthened the case with the ACT Flora and Fauna Committee for listing the Little Eagle as Vulnerable.

Four courses of action are recommended:

- 1) continue the ACT Little Eagle nest survey;
- 2) use radio-tracking to determine Little Eagle home range size and habitat use;
- 3) determine if pesticides, poisons or pollutants are implicated in the decline of Little Eagles; and
- 4) continue to lobby the ACT government to retain woodland where Little Eagles nest and hunt, and do this by providing accurate data on the status and biology of the species.

Acknowledgements

Thanks to COG members, especially Chris Davey, Barbara Allan, Michael Lenz, Roger Curnow, Graeme Clifton, Nick Webb, and John McRae who passed along Little Eagle and other raptor sightings for the survey. Thanks also to Christie Gould, David Shorthouse, Murray Evans, Bernard

Morris, Brett McNamara, Tony Bell, Mark Rodden, Marty Gardner, Trish D'Abbrera, Monica Muranyi, Paul Higginbotham, Kate Boyd, Meg Doepel and Darren Roso, and to the New South Wales Parks and Wildlife Service especially Luke Bond and Greg Hayes. Sue Trost and Les Boyd gave invaluable assistance in the field and Stephen Debus gave much appreciated advice.

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RAPTORS AND THE PROPOSED CENTRAL MOLONGLO DEVELOPMENT

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Zoology, University of New England, Armidale, NSW 2351

The subject of raptors in the Molonglo Valley, and the potential effects of development of the Central Molonglo precinct on raptors, has been controversial. As the author of one report (Debus 2005) and field surveyor and principal author of a second report (EA Systems 2006), it might help to provide some commentary and a revised assessment of some issues in the light of recent data. Some explanation is required, because those reports have been used to justify the proposed development or suggest minimal impact on raptors, but for a few species (notably the Little Eagle *Hieraaetus morphnoides*) the situation has changed in recent years. The Little Eagle is now listed as Vulnerable in the ACT, which supersedes statements that none of the raptors in the Molonglo Valley is threatened.

The survey and reports were principally targeted at icon and 'umbrella' species (White-bellied Sea-Eagle *Haliaeetus leucogaster*, Wedge-tailed Eagle *Aquila audax* and Peregrine Falcon *Falco peregrinus*), with the realisation in 2005 that the Little Eagle should be included in this category. The brief for the 2006 report was, on the basis of field survey, to suggest adjustments to the proposed development footprint, and to make other recommendations, in order to minimise impacts on raptor nest sites.

We now know that the Little Eagle population in the ACT has crashed from 13 breeding pairs to two known pairs that did not breed successfully in 2005-06 (Olsen and Fuentes 2005; Olsen and Osgood 2006), and its reporting rate has about halved in south-eastern NSW since the 1970s (NSW Bird Atlas data): results that invalidate some of the statements in my 2005 report. That's the nature of science; previous conclusions must be rejected when new data show them to be wrong. Furthermore, in 2007, the last Little Eagle breeding territory in the Lower Molonglo Valley was abandoned, and intensive survey found only three pairs, that raised four young between them, in the entire ACT (Olsen et al. 2008).

In my second report (EA Systems 2006) there were caveats about the number of breeding pairs of raptors being underestimated because of the survey limitations (e.g. a single survey week in October, partly in bad weather, when some pairs may have already failed). We also now know that Little Eagle sightings and nests interpreted as possibly two pairs were in fact referable to a single pair (Olsen and Fuentes 2005; Olsen and Osgood 2006). Therefore, the Little Eagle map in my report (which is labelled 'approximate' and only shows areas where the birds were actually seen foraging) is a

gross underestimate of total foraging range; they are probably 'snapshot' points in a single home range. Little Eagle home ranges in the ACT are likely to be considerably larger than previous published densities of 16-27 km² per pair obtained in the 1980s (Marchant and Higgins 1993). I agree with Olsen and Fuentes (2004) and Olsen et al. (2008) that radio-tracking would be required in order to delineate foraging ranges accurately.

I did not, in either report, state or imply that the highest value habitat for raptors in the Molonglo Valley is located only in the Molonglo River gorge (i.e. downstream from Coppins Crossing), which is not directly affected by the proposed development. What I did say (EA Systems 2006) is 'locally important areas within the Molonglo Valley for breeding raptors are the Molonglo riparian corridor; *dense woodland patches bounded by the river, Coppins Crossing Road, William Hovell Drive and Stockdill Drive* [my emphasis]; and the Murrumbidgee confluence area'. I also said (2005) 'The concentration [of raptors] in the Molonglo Valley ... is attributable to the presence of rivers *flanked by open and wooded habitats*' [my emphasis]. It is true that most raptor nests were found in the riparian zone, which I take to be the trees on the river banks, but if one includes cliffs in the definition then Peregrines also nest in the riparian zone.

I did not say (in EA Systems 2006) that the Wedge-tailed Eagle, Brown Goshawk *Accipiter fasciatus* and Brown Falcon *Falco berigora* were dependent on the riparian zone for

foraging. The maps clearly show observed foraging areas, and predicted minimum foraging areas, for the eagle and falcon extending well beyond the riparian zone, and half of the observed goshawk nests, and one foraging area, well away from the riparian zone. I flagged three woodland remnants along William Hovell Drive, Drake-Brockman Drive and Stockdill Drive (all on the south side of these roads) as important foraging and breeding habitat. The map of Molonglo raptor nests and foraging areas produced by ACTPLA (2007) omits the indicative minimum home ranges for Wedge-tailed Eagle and Brown Falcon shown in the EA Systems report (2006). In that report I used published densities and inter-nest distances (Marchant and Higgins 1993) to draw a 3 km radius (~30 km²) around the two eagle nests and 1.3 km radius (~4 km²) around the falcon nests, and said in the text that these would be minimum foraging ranges with the likelihood of larger and overlapping foraging ranges; these circles effectively covered most of East and Central Molonglo.

Both of my reports are tempered in several places with caveats about the need for adequate foraging habitat around nest sites. For instance, in 2005, I said 'The [more sensitive] species retreat from expanding suburbia, as it does not provide their *prey, foraging habitats*, nest sites or security from disturbance' [my emphasis], and 'the development proposal will remove the foraging habitat ... of ... one or more pairs of

Wedge-tailed Eagles and Little Eagles, and so displace [effectively eliminate] some pairs'. The 2006 report reinforced the points made in the 2005 report.

My reports and survey were completed without knowledge of the subsequently announced dam proposal on the Molonglo River. Discussion of potential impacts therefore omits reference to any likely impacts, including the possibility of drowning one occupied Wedge-tailed Eagle nest, and inundation of raptor breeding and foraging habitat and prey resources.

People concerned about the Molonglo Valley raptors are encouraged to obtain my reports under freedom of information provisions, and compare what I said with what apologists for the development are saying (or implying I said), bearing in mind more recent data on the raptor populations (e.g. Little Eagle). The executive summary of the 2006 report concludes by saying 'It should be noted that any assessment of actual impact on raptor species from development would require a much more in-depth study'. The 2006 report also makes many recommendations for minimising impacts on raptors, including protecting the woodland remnants in Central Molonglo. Finally, among the other threatened birds admitted by the Preliminary Assessment (ACTPLA 2007) to occur in the woodland remnants in Central Molonglo, there is no mention of the Superb Parrots *Polytelis swainsonii* that I reported (EA Systems 2006) in the woodland patch adjoining the historic cemetery on William Hovell Drive.

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**NOMINATION OF A VULNERABLE SPECIES TO THE
ACT FLORA AND FAUNA COMMITTEE**

LITTLE EAGLE

Abstract: The document nominating the Little Eagle as a threatened species in the ACT is included here for the information of COG members and other CBN readers.

a) Name, address and signature of nominator

Nominator:

Jenny Bounds for Canberra
Ornithologists Group

Address:

PO Box 301, Civic Square, ACT 2608

b) Nominated item

Category of nomination:

Vulnerable species

Scientific name:

Hieraetus morphnoides

c) Description

Family

Accipitridae

General Description

The Little Eagle is a small, booted eagle, one of two true eagles found in Australia, a group of raptors which has fully feathered legs. The Little Eagle is a compact and powerful raptor with neat plumage of soft, subtly blending shades of brown. There are light and dark colour forms of this species. Immatures are similar to but more strongly rufous in colour than adults. Females are almost twice as heavy as

males, ranging in length from 500 to 550 mm, and in weight from 890 to 1199 grams. Males range in length from 450 to 480 mm and 500-810 grams in weight. The Little Eagle's wingspan is less than 1.5 metres, compared with the larger booted eagle, the Wedge-tailed Eagle at close to two metres (Marchant and Higgins 1993, Olsen and Fuentes 2004).

Habitat

The Little Eagle is found in most types of woodland, but prefers wooded hillsides near or in open woodland and tree-lined watercourses (Marchant and Higgins 1993).

Locally, the Little Eagle has occurred in the northern half of the ACT and along the river corridors of the Tablelands area of New South Wales. Little Eagles hunt over open grazing country, woodland and forest margins and along timbered watercourses, with the pastoral lands of the Murrumbidgee and Molonglo River corridors having held the highest concentrations of Little Eagles (Taylor and COG 1992). In the 1999 review of the status of birds in the ACT published by Canberra Ornithologists Group, it was indicated that the Little Eagle was 'a breeding resident in small numbers in all but

the highest, wetter forests' (Wilson 1999).

Behaviour

Little Eagles live singly, in pairs or in small family parties. They are monogamous and usually have long-term pair-bonds (Marchant and Higgins 1993). Little Eagles use tall trees as lookouts for prey, and also soar in the air on flat wings in tight circles searching for food. They hunt live prey such as rabbits (especially young ones), small mammals, birds and reptiles. Little Eagles will sometimes take carrion, and will hawk to catch insects on the wing, like grasshoppers. It has been suggested that male Little Eagles take mostly smaller, more nimble prey, while females catch larger, slower animals. (Blakers et al. 1984; Marchant and Higgins 1993). In the ACT, Little Eagles primarily feed on rabbits and birds, especially parrots (Olsen and Fuentes 2004; Olsen et al. 2006).

Breeding

Pairs of Little Eagles establish a nesting territory which can range in size depending on quality and nature of the habitat (e.g. one pair per 1600 ha near Armidale NSW to an average of 2680 ha in arid areas of Victoria). They will not tolerate other Little Eagles in their territory and evict intruders. Nesting sites are usually in a large tree, and nests are a bulky mass of sticks, sometimes refurbished from another raptor's abandoned nest. Two chicks are usually hatched, but sometimes one only survives, as the first born, larger chick will usually kill

its sibling. They remain in the nest for between seven and nine weeks, and some young birds will remain in the parental territory for a time with others dispersing after a few weeks (Marchant and Higgins 1993).

Around Canberra, Little Eagles commence breeding and lay eggs from late August to early September and hatch young after about 37 days incubation; average brood size is 1.1 young fledged (Olsen and Fuentes 2004). Over the south-east of Australia, the breeding period spans from July to October (Pizzey and Knight 1997).

d) Distribution

The endemic Little Eagle occurs throughout Australia (except for Tasmania), and is present all year round in some areas, although there is evidence that some birds wander (Blakers et al. 1984). Many breeding pairs are located in the south-east of Australia, in NSW and Victoria, although the species breeds almost continent-wide (Marchant and Higgins 1993; Barrett et al. 2003; Olsen and Fuentes 2004). The New Guinea population, formerly regarded as a subspecies of the Little Eagle, deserves full species rank (Lerner and Mindell 2005).

e) Criteria satisfied and the reasons why

2.2 Species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT

region in the medium-term future, as demonstrated by:

2.2.1 Current serious decline in population or distribution from evidence based on

2.2.1.1 direct observation, including comparison of historical and current records

Based on historical information from an ACT wide survey conducted by the Canberra Ornithologists Group from 1986 to 1989 and expert research in the last decade, Little Eagles in the ACT have declined dramatically from an estimated 13 breeding territories in the late 1980s, to a probable two remaining breeding territories, both located around the Molonglo Valley. This significant decline in breeding is supported by other data and research.

In 2005, researchers from the University of Canberra, Esteban Fuentes and Jerry Olsen, published an article in Canberra Bird Notes (CBN), the journal of the Canberra Ornithologists Group, documenting from their research, a severe decline in numbers of Little Eagles in the ACT over the past decade. This research included, in the spring of 2005, two Little Eagle surveys in the ACT, one focused on searching old (previously known) nest sites and the other looking for new sites in areas which had not been carefully searched before.

Although Olsen and Fuentes suggested reasons such as loss of habitat due to urban expansion and competition from the Wedge-tailed Eagle, they indicated

the reasons for the decline needed to be determined and the remaining pairs protected (Olsen and Fuentes 2005). This article is appended to this nomination as it represents primary research findings regarding the decline in breeding of Little Eagles on which the nomination is substantially based.

Key conclusions in the Olsen and Fuentes research are:

1) of 11 Little Eagle breeding territories documented between 1990 and 1992:

- only six were found in 2002/03;
- only two pairs were found in 2005, with single males at two other sites; and
- two territories were displaced by Wedge-tailed Eagles, one territory was displaced by a housing development (East O'Malley) and the remaining eight territories were lost/displaced for unknown reasons.

2) of 11 active nests recorded in 1992, no successful Little Eagle nests, that is those which fledged young, were found in the 2005 spring survey.

3) during the spring 2005 survey, only a pair near Uriarra Crossing was known to have an active nest, which subsequently failed; one other pair (outside the Molonglo Valley) had an empty nest; and two former ACT breeding territories (outside the Molonglo Valley) were effectively defunct, with only single birds

present (Olsen and Fuentes 2004, Fuentes and Olsen 2005, Olsen and Fuentes 2005).

Another expert researcher on birds of prey, from the University of New England, Dr Stephen Debus, undertook fieldwork on birds of prey in the Molonglo Valley in the spring of 2005, as part of an environmental assessment being undertaken in the Molonglo Valley. Dr Debus' conclusions concerning the status of the Little Eagle in the ACT are broadly consistent with the Olsen and Fuentes research findings. Dr Debus view is: "as regards the Molonglo raptor community, I think Little Eagle is the conservation issue, and there would be grounds for a submission to have it listed as vulnerable in the ACT on the basis of the paper by Olsen and Fuentes in the Dec. 2005 Canberra Bird Notes" (Stephen Debus pers. comm.).

Key conclusions by Dr Debus are:

- 1) within the Molonglo Valley there are probably one or two breeding territories of the Little Eagle;
- 2) the nests or territories in the Molonglo Valley represent at least two-thirds, if not all, of the known ACT breeding pairs; and
- 3) the Molonglo riparian corridor and adjacent rural areas (including dense woodland patches), within the area broadly bounded by the Murrumbidgee River, Coppins Crossing Road, Stockdill Drive, Drake-Brockman Drive and William Hovell Drive, including the old cemetery at "Land's End" off William Hovell Drive, are critical

foraging and nesting areas for Little Eagle; all are likely to be impacted by proposed urban development in the Molonglo Valley, particularly development proposed for rural lands and woodlands south and west of Belconnen (Stephen Debus pers. comm.).

Dr Debus believes that these remaining nesting territories are critical in retaining the Little Eagle as a breeding species in the Molonglo Valley, indeed as a breeding species in the ACT (Stephen Debus pers. comm.).

Likely reasons for the decline of Little Eagles in the ACT include those factors outlined by Olsen and Fuentes, as well as urban development next to nesting sites, the probable decline of rabbits (a major prey species) since the arrival of Rabbit Calicivirus Disease, drought, loss of possible nest sites in the burnt Stromlo pine forest, loss of native woodland, and lack of alternative prey items (Stephen Debus pers. comm.). This contrasts with Wedge-tailed Eagles, a more adaptable species, which are known to be increasing and have abundant alternative prey in the form of juvenile kangaroos (Stephen Debus pers. comm.).

A study of two pairs of Little Eagles in the Mt Mugga area of the ACT from 1980 to 1986 suggested that laying of eggs was affected by the abundance of food, "in general, the eagles laid when rabbit numbers were relatively high and during months when rabbits were most consistently seen during the monthly surveys"

(Mallinson et al 1990; Marchant and Higgins 1993).

In 1992, the Atlas of Birds in the ACT was published based on a comprehensive survey undertaken by the Canberra Ornithologists Group over the years 1986 to 1989. The Atlas states that “thirteen (Little Eagle) territories have been identified, many of them in reserves and bushland on the perimeter of the city”, with the highest concentrations in the Murrumbidgee and Molonglo River corridors, and especially at Uriarra Crossing (Taylor and COG 1992). In the late 1980s, known breeding territories around Canberra nature parks included Mt Ainslie/Mt Majura, Black Mountain and Mt Mugga/East O’Malley area (COG database; Mallinson et al. 1990). Some 20 years later in 2006, Little Eagles appear to no longer breed in Canberra nature parks and reserves in and around the city (see below).

COG Database and Related Findings

The Canberra Ornithologists Group maintains databases (general records and woodland project) of observations of birds from the Canberra region, an area which includes the ACT and surrounding NSW, ranging from around Yass to Goulburn and south to Adaminaby and Duea National Park. COG members and other individuals contribute observations to these databases. Table 1 below shows by year since 1985, the total number of sightings (reports) of Little Eagles to

the COG databases (note, these are sightings from the COG area of interest, not just within the ACT).

It should be noted that these observations are for the most part, ad hoc observations rather than systematic survey data. An exception is the years 1986 to 1989 when an Atlas survey was conducted in the ACT by COG members; these data include repeated observations at the same sites by individuals as well as incidental/ad hoc records. The records from 1986 to 1989 form the basis of the estimated 13 breeding territories of Little Eagles in the ACT, as published in the ACT Atlas in 1992 (Taylor and COG 1992) and mentioned above. A second exception is the period 1998 to 2002 when the National Atlas survey was conducted by Birds Australia; COG members who participated similarly undertook repeated surveys at regular sites as well as reporting incidental records.

While these records are not put forward as the critical data on which the nomination is primarily based, the apparent downward trend overall in reporting of Little Eagles, as shown from sightings reported to COG, adds support to the research indicating that Little Eagles have declined as a breeding species in the ACT. It is noted that Little Eagles are so long lived, single adults will still be reported around, even if there are no successful breeders (Jerry Olsen pers. comm.).

Table 1.

Year	Total number of sightings reported to COG Databases	Notes
1985	14	
1986	70	ACT Atlas survey
1987	138	ACT Atlas survey
1988	156	ACT Atlas survey
1989	82	ACT Atlas survey
1990	35	
1991	30	
1992	25	
1993	31	
1994	35	
1995	48	Rabbit Calicivirus Disease (RCD) released
1996	32	
1997	17	
1998	13	National Atlas survey
1999	19	National Atlas survey
2000	11	National Atlas survey
2001	10	National Atlas survey
2002	17	National Atlas survey
2003	10	
2004	20	
2005	20	
2006	1	Some recent ACT sightings not yet in COG databases

Note: RCD escaped from Wardang Island in October 1995 and arrived in the ACT a year later, so effects are noted in 1997 when sightings dropped by around 50%; this also highlights the importance of rabbits in the diet (Chris Davey pers.comm.).

It is also useful to comment on several locations where Little Eagle breeding territories have been known historically, but where the species apparently no longer nests. These comments are based on records in the COG databases, some studies, and anecdotal information. At the Mulligan's Flat Nature Reserve on the outskirts of the city in Gungahlin, a pair of Little Eagles, including one light phase and one dark phase bird,

was known and observed regularly in COG surveys which commenced there with the ACT Atlas in the mid 1980s. There have been no reported sightings of this breeding pair in the reserve for several years. The last record from the COG woodland survey is of one bird in December 2001 (COG Woodland database), and there have been recent reports of one dark phase bird seen in the reserve (J. Bounds pers. observation). It is

noted that urban development in Gungahlin has taken over much of the open rural lands adjacent to Mulligan's Flat NR, thus reducing the amount of available foraging habitat for Little Eagles (J Bounds pers. observation).

Breeding pairs of Little Eagles are historically known in the woodland complex around Red Hill/Mt Mugga Nature Reserves and the Symonston area. In 1980, a study found two nesting pairs of Little Eagles in the Mt Mugga area; this study included monthly surveys in a 10 sq. km area, with surveys continuing to 1985. Over this period, the two pairs of eagles bred each year (Mallinson et al. 1990). There is also a record of a Little Eagle on a nest in October 1996 in the nearby Callum Brae leasehold (COG database). Eight records of Little Eagle were collected in the COG Woodland surveys in that woodland complex between 2000 and 2003 (COG Woodland Database). The East O'Malley woodlands were cleared for urban development in early 2005, including a Little Eagle nest tree. With the felling of the nest tree, there is no longer any occupied territory in that woodland complex. Searches over the surrounding woodland complex have failed to find a new nesting site and only a very occasional sighting of one adult bird has been reported in the area (Geoffrey Dabb and Richard Langdale-Smith pers. comm.).

A breeding pair of Little Eagles was historically known from the Mt Ainslie/Mt Majura woodland complex with COG database records going back to 1986 (COG Database). An

ornithologist who lives next to the nature park and who regularly walks there, reports that a pair of Little Eagles was seen engaging in pre-nuptial behaviour about three years ago, but the pair has not been around for at least 18 months (Terry Gourlay pers. comm.). Fuentes and Olsen found a pair of Little Eagles near an empty nest on Mt Majura/Mt Ainslie in November 2005, but could not confirm breeding (Fuentes and Olsen 2005). There has been a recent report on the COG email chat line of a pair of Little Eagles flying over the Campbell Park woodlands at the eastern footslopes of Mt Ainslie and some recent sightings of one or two Little Eagles over the Jerrabomberra wetlands not too far away, but no reports of breeding have been received (COG email chat line).

A pair of nesting Little Eagles is recorded in the COG database in the spring of 1995 at the Newline Woodland, a small but important Yellow Box/Red Gum woodland, a couple of kilometres east of Canberra airport, across the valley from Mt Ainslie and Campbell Park woodlands (COG database). In July 2000, COG commenced systematic surveys of birds (quarterly) at the Newline woodland as part of its Woodland Bird Monitoring project. Little Eagles have never been reported from the woodland surveys at that site in the six years since the surveys started.

The COG database has a record of Little Eagles breeding (nest with eggs) on Black Mountain in 1989 (COG Database); this is no longer an active breeding territory.

Over the wider Canberra region, the current numbers and status of Little Eagles are not really known with any degree of certainty. "It is difficult to comment on Little Eagles regionally. When pairs started disappearing from traditional ACT sites, I started searching further afield in places like Lake George and did find one successful pair (one chick) and another pair but we couldn't locate a nest, but nowhere are they common" (Jerry Olsen pers. comm.).

In the ACT, it is likely that urban expansion into rural lands and open woodlands is the last straw (on top of other factors) which has contributed to the very significant decline of Little Eagles as a breeding species in the ACT (Stephen Debus pers. comm.).

Dr Debus contrasts the situation around Armidale in New England, NSW, where Little Eagles do not appear to have declined as they have in the ACT. This is a regional centre of only 25,000 people and rabbits are still fairly abundant there (Stephen Debus pers. comm.).

On a regional basis, there is evidence of declines in reporting rates of Little Eagles, from surveys undertaken by Birds Australia and the NSW Bird Atlassers. See below.

2.2.1.3 serious decline in quality and quantity of habitat

In the 1980s, Little Eagles were found regularly in and around the nature parks and reserves and rural lands surrounding the developed area of Canberra (Taylor and COG 1992).

Urban Canberra has spread significantly over the last 25 years, taking over rural lands, as well as woodlands and grasslands. In Tuggeranong and Gungahlin, these would have provided foraging habitat for Little Eagles.

The last known urban nest of Little Eagles was displaced when the East O'Malley woodland in the Red Hill/Mt Mugga woodland complex was cleared for urban development in 2005 (Olsen and Fuentes 2005).

Proposed urban development in the Molonglo Valley, the hunting and breeding grounds of possibly the last known breeding pairs of Little Eagles in the ACT, will possibly result in the local disappearance of this species (Olsen and Fuentes 2005).

2.2.1.5 serious threats from ... competitors

Research indicates that the larger Wedge-tailed Eagle is a serious competitor of the Little Eagle and can displace the Little Eagle, although Wedge-tailed Eagles are not the sole reason for the decline of Little Eagles (Olsen and Fuentes 2005). The Olsen and Fuentes research in 2005 indicated that Wedge-tailed Eagles had displaced Little Eagles in at least two out of eleven territories, noting that the reasons for their displacement were unknown in another eight cases (Olsen and Fuentes 2005).

2.2.1.8 other indications of serious decline in population or distribution

Birds Australia Data

Birds Australia undertook two national censuses (surveys) of birds, one from 1977 to 1981 and the second from 1998 to 2002. COG members collected data from the Canberra region for both these projects. The analysis of Atlas reporting rates between these two surveys, indicates that in Australia, the Little Eagle shows a 14% decline overall between the two Atlases (Barrett et al. 2005).

The Atlas analysis indicates that there was significant regional variation for this species. The species was less likely to be recorded in the second Atlas, and there was statistical evidence of a possible decline overall. The Atlas notes that Little Eagle was one of the species where the atlas survey methods for the two censuses were comparable, with no overall effect due to the different survey methods used in the two censuses (Barrett et al. 2005).

The Atlas also analysed the data on the basis of the interim bio-geographic regions of Australia (IBRA regions), and this shows a significant decrease for Little Eagle in the south-east of Australia. In the South Eastern Highlands Region (SHE) which includes the ACT, the Little Eagle shows a greater than 20% decrease between the two Atlases. The adjacent NSW South Western Slopes Region (NSS) also shows a greater than 20% decline between the two Atlases (Barrett et al 2005).

NSW Bird Atlasers Data

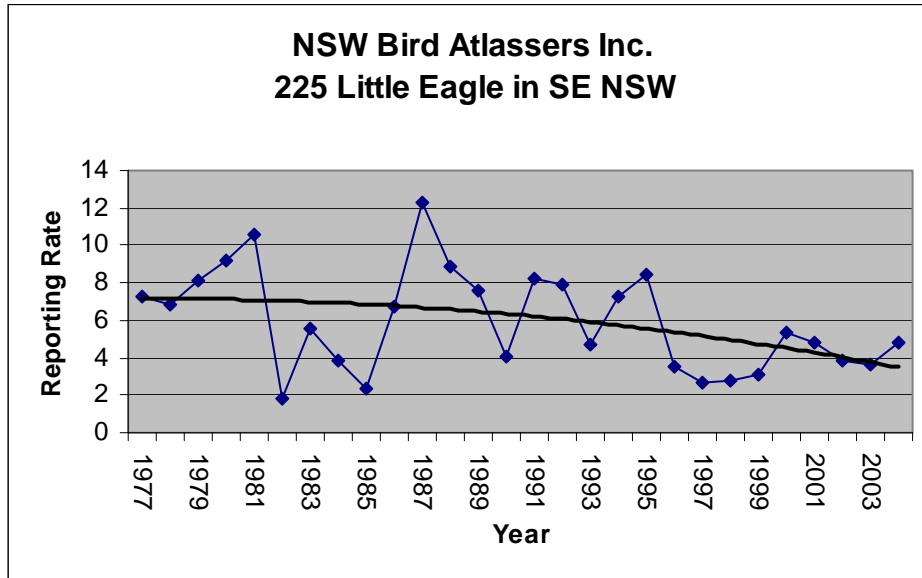
In NSW, the NSW Bird Atlasers collect data on birds from volunteers and maintain a comprehensive database. A graph of trends in the reporting rate of Little Eagle within the SE area of NSW, shows a “humped decline” over the years 1997 to 2003 – see graph at Figure 1 below. It should be noted that the dip in the graph in the early 1980s is more likely due to the lack of data (records) in this period, however, there may be other causes (Brian Curtis, NSW Bird Atlasers, pers. comm.).

Birds of Prey (BOP Watch)

There is research which corroborates the view that reductions in rabbit populations are a significant factor in the decline of Little Eagles. In the period 1996 to 1999, Birds Australia and the Australasian Raptor Association coordinated a nationwide survey by volunteers of roadside counts of diurnal birds of prey (BOP Watch 1) – some 25,251 survey sheets – by 271 volunteers (Baker-Gabb and Steele 1999). Relative abundance was calculated in terms of the number of birds recorded per 100km in each of the 61 bio-geographic regions. A second survey (BOP Watch 2) was undertaken from 1997 to 2000.

These two BOP Watch surveys provide baseline data in relation to the impacts on birds of prey due to the accidental release of the Rabbit Calicivirus Disease (RCD) in 1995.

Figure 1.



The BOP Watch shows that there was a decline in reporting rate of species such as Little Eagle following release of RCD: “Little Eagle populations also declined in affected areas during spring/summer following the introduction of RCD. These birds breed at this time of year, which means that they are under the greatest pressure to find prey at the time when RCD is also most effective at killing rabbits”. There was no evidence of this rabbit-eating species recovering during 1997 from the population decline suffered in 1996 following the reduction in rabbit numbers (Steele 1998, Steele unpubl. BOP Watch 2).

The COG database records in Table 1 also illustrate the decline in reporting rate of Little Eagles following RCD.

Decline of Little Eagles has also been reported in the wheatbelt of Western Australia (Johnstone and Storr 1980).

2.2.2 Imminent risk of serious decline in population or distribution from evidence based on one or more of 2.2.1.2 to 2.2.1.8 above

What are believed to be the last two remaining Little Eagle breeding territories in the ACT, are located in and around the Molonglo Valley, parts of which are proposed for urban development, although final decisions on where houses will be built are yet to occur.

These nesting territories which remain in the Molonglo Valley are regarded as critical in retaining the Little Eagle as a breeder in the Molonglo Valley,

indeed as a breeding species in the ACT (Stephen Debus pers. comm.).

2.2.6 small population

There are probably only two Little Eagle breeding territories remaining in the ACT (Olsen and Fuentes 2005, Stephen Debus pers.comm.). This compares with 11 active territories in 1992 and 13 territories estimated in the late 1980s during the ACT Bird Atlas study. This small, remaining breeding population is not secure due to pressures from urban development, overlaying other factors such as decline in prey species.

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Dr Stephen Debus pers. comm.:
Postdoctoral research fellow in
Zoology at University of New
England, Armidale, NSW.

Other personal communications:

Geoffrey Dabb, Richard Langdale-Smith,
Terry Gourlay: members of Canberra
Ornithologists Group (COG)/non-
professional ornithologists.

Chris Davey, COG member and former
CSIRO researcher (whose work included
rabbit related research projects).

Brian Curtis, Database Manager, NSW
Bird Atlassers Inc.

COG Email Chat Line – an email
discussion list set up by COG for
members to discuss bird sightings and
bird issues.

THE CANBERRA BIRD BLITZ 2007

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Abstract: *This paper describes the conduct of Canberra's third 'bird blitz' held on 27-28 October 2007, outlines some findings and comparisons with the blitzes of 2005 and 2006.*

Introduction

On Saturday 27 and Sunday 28 October 2006, the Canberra Ornithologists Group (COG) conducted its third 'bird blitz', a now-annual event held on the last weekend in October.

Our main aims were to record all species of bird present in the ACT over that weekend in all major habitats, to obtain a broad indication of their abundance, and to record breeding status. To achieve this, we set out to conduct a minimum of one 20-minute 2-hectare survey within each of the 165 grid cells covering the ACT (a 2.5 minute grid on lines of latitude and longitude, so each cell measures approximately 3.5 km by 4.5 km). By this exercise, we also hoped to encourage more of our members to get out and survey and submit datasheets.

The data collected were entered in the COG Atlas database, and subsequently contributed to the Birds Australia Atlas Database. They are available for scientific purposes and as an input to Canberra land use planning.

Conduct of the blitz

Participants registered for their preferred grid cells, on a first-in, best-dressed basis. In the allocation process, some site preference was given to members who surveyed given sites on a regular basis. More tardy volunteers were cajoled by the organiser into surveying the remaining sites. Less experienced birders were allocated to accompany those experienced birders who had indicated a willingness to take them along. And as a modest inducement to participants, a variety of prizes were on offer, courtesy of our members.

Participants were allowed to choose their preferred methodology from the three Birds Australia Atlas options: a 20-minute/2-ha survey; within 500 m of a central point, for >20 mins; or within 5 km of a central point, for >20 mins (with the proviso that the survey in all cases remained within a given COG grid cell).

Results and discussion

Operational problems

Our chosen weekend enjoyed something of an improvement in the weather stakes on the previous two blitzes. It did not snow! Those who

blitzed in the southern parts on the Sunday encountered rain but otherwise birding conditions were fair. Most adopters of grid cells managed to conduct their surveys this time, and quite a few did optional extra surveys, contributing to the excellent overall coverage we achieved this time.

Level of participation

At least 83 COG members took part in the blitz, plus a number of unnamed 'extras' (a list of known participants is at Table 1). This compares with the 75 named participants in 2005 and 62 in 2006. The steady increase in participation levels is pleasing. If data gleaned from the 'number surveying' box on the datasheet is taken into consideration, we probably achieved a participation rate of about 100.

Despite the level of uncertainty about the numbers participating, we achieved our aim of encouraging a few more of our members to survey. There were 25 named members who participated in the blitz for the first time in 2007.

Of the named participants, 47 (57%) were male and 36 (43%) female. Twenty-six hardy souls warmed to the task and blitzed for part or all of the two days, again an increase on previous years.

Coverage

We achieved a far better coverage of the ACT in this third blitz, with surveys conducted in 132 of the 165 possible grid cells (80%), compared with 109 in 2005 and 99 in 2006. In

fact, more grid cells were partially surveyed than are indicated, as a number of observers perhaps unwittingly gave as their central point coordinates a location virtually on the boundary of two grid cells. Total coverage was never going to be possible with the number of blitzers available, as some of the grid cells in Namadgi National Park require a strenuous bush-bash to reach. However, virtually all major habitat types were covered.

The possible total of 165 grid cells in the ACT includes cells which are only partly in the ACT. It has been argued that we could legitimately base our grid cell total on those cells totally within the ACT. Many surveys, however, were conducted in the ACT portion of cells only partly in the ACT, and it would have been unfortunate to discount them on a technicality.

Habitats surveyed

While specific habitat types have not yet been analysed, a broad land use division of datasheets has again been attempted. Last year's figures are provided for comparison, in parentheses. Urban areas were covered in 42 surveys, or 13% (34 last year); rural or semi-rural 63, or 20% (21); Namadgi National Park 127 or 40% (95); Canberra Nature Park or nature reserves, 54 or 17% (67); the Murrumbidgee River Corridor, 15 or 5% (15); the Australian National Botanic Gardens, 1 (3); Fyshwick and Queanbeyan sewage ponds and immediate environs, 9 (3); Tidbinbilla Nature Reserve 5 (4).

The richest bird areas, notwithstanding the experience of the observers or the time spent surveying, were once again the nature parks and reserves. It is possible, and even likely, that this effect is magnified by the familiarity of many participants with the areas they chose to survey. Not surprisingly most species (79) were recorded in grid cell L14, which includes Jerrabomberra Wetlands Nature Reserve, thanks to the efforts of Messrs Mackay, Fyfe, Scales, Antram and Perkins and Ms Lashko. Second place went to grid K13, including Gossan Hill and Bruce Ridge Nature Reserves and the Australian National Botanic Gardens, with 64 species recorded by Messrs Boekel and Nix. Mulligans Flat Nature Reserve also shared the 64 species total, thanks to the efforts of Ms Bounds and Mr Antram, though the reserve is spread over parts of four grid cells L10, L11, M10 and M11.

Datasheets received

Participants returned 316 datasheets for the 2007 blitz weekend, compared with 242 datasheets for 2006 and 254 for 2005. Disappointingly, there are now a few additional datasheets in COG's databases for the blitz weekend in 2007 which were not submitted to the organiser. These have been excluded from all analyses.

The percentage contribution of the blitz datasheets to the overall number of datasheets for the COG area of interest will not be known until the full-year figures for data sheets are in for 2007-08. However, it is likely to

be comparable to, or better than, the 2006-07 figure of 10%.

Type of survey

Participants were given the option of choosing their survey type to best fit the grid cell they were surveying, and to allow for personal preference and time or other constraints. In the event, most adopted the Birds Australia Atlas recommended option, namely 2-ha 20-minute surveys. Of the datasheets received, 161 (51%) were for 2-ha surveys; 101 (32%) were for surveys within 500 m of a central point; 26 (8%) were for surveys within 5 km of a central point (though in effect they had to be within a smaller area, to remain within a COG grid cell); and 28 (9%) were for incidental records.

Choice of day

A slight preference was shown for surveying on the Sunday, with 162 datasheets (51%) returned for 28 October compared with 154 (49%) for Sunday 28 October.

Species recorded

As Table 2 shows, a total of 164 species of bird was recorded in the ACT over the two blitz days. This compares with 157 in 2005, and 161 in 2006. Twelve species were recorded in 2007 and not in the previous year:

Emu
Pied Cormorant
White-bellied Sea-Eagle
Baillon's Crake

Australian Spotted Crake
Bar-tailed Godwit
Sharp-tailed Sandpiper
Black-winged Stilt
Major Mitchell's Cockatoo (escapee)
Common Koel
Red-backed Kingfisher
Rufous Fantail

Two of the above species were quite unexpected. The lone Bar-tailed Godwit at Kellys Swamp was the first of its kind recorded in the ACT since 1979, though the species is not unusual at Lake Bathurst. Also, the Red-backed Kingfishers are infrequent visitors to the ACT, last recorded near Duntroon in 2002.

These 164 species compare with a yearly total for 2006-07 of 233 from COG's broader area of concern.

Highlights included observations of several species badly affected by the current drought and the aftermath of the 2003 fires: Superb Lyrebird, Eastern Whipbird, Red-browed Treecreeper and Spotted Quail-thrush; though not the Bassian Thrush, Wonga Pigeon or Pilotbird this blitz.

The expected cuckoo species were all recorded, including the Common Koel, and numbers had rebounded from the previous year's relatively poor showing, with 34 Pallid Cuckoo records (of up to four birds), 4 Brush Cuckoo records, 38 Fan-tailed Cuckoo records, 31 Horsfield's Bronze-Cuckoo records and 13 Shining Bronze-Cuckoo records. All the usual raptors were again present, though not in high numbers; plus two surprises, a White-bellied Sea-Eagle at Cotter Hut

and a Swamp Harrier on Sam's River Fire Trail.

Of the species not recorded in the 2007 blitz, there were a few unexpected misses. The many observers who surveyed Jerrabomberra Wetlands NR as part of the Painted Snipe survey did not have time to take in the sewage farm, hence the Blue-billed Ducks and European Greenfinch went unrecorded. Similarly, the many breeding Musk Duck on Yerrabi Pond were missed. The grassland reserves were inadequately surveyed, resulting in no records of Stubble Quail. Nor were any button-quail recorded. And perhaps most disappointingly of all, the Powerful Owl which took up residence in the Australian National Botanic Gardens for the winter had apparently moved on.

During the blitz, 87 species (53% of the 164 species recorded) were recorded as breeding, when the broadest possible indicators of breeding were used (see Table 2). This compares with 76 breeding species in the 2006 blitz and 67 in the 2005 blitz. Across all of COG's area of concern in 2006-07, 130 species were recorded as breeding (COG 2008).

The species most commonly recorded as breeding was once again the Australian Magpie (37 breeding records), followed by Common Starling (25), Magpie-lark (21), Yellow-rumped Thornbill (16), Pied Currawong (15), and White-winged Chough (14). Breeding highlights for 2007 included records for four species

listed as vulnerable in the ACT: Hooded Robin, Brown Treecreeper, Varied Sittella and White-winged Triller.

Most frequently recorded species

The ten most frequently recorded species overall in the 2007 blitz (the number of records in parentheses) were:

Australian Magpie (196)
Pied Currawong (171)
Crimson Rosella (166)
Australian Raven (156)
Red Wattlebird (150)
Striated Pardalote (149)
Grey Fantail (147)
Yellow-faced Honeyeater (142)
Rufous Whistler (140)
Superb Fairy-wren (130)

Comparing the blitz top 10 with the Annual Bird Report top 10 for 2006-07, we find that the Pied Currawong and the Rufous Whistler were more commonly recorded in the Blitz than they were more generally in 2006-07. They displaced the Galah and the Weebill.

Species recorded only once

White-bellied Sea-Eagle
Swamp Harrier
Baillon's Crake
Australian Spotted Crake
Sharp-tailed Sandpiper
Red-kneed Dotterel
Rainbow Lorikeet
Common Koel
Eastern Whipbird

Species not recorded

As indicated above, some of the 2007 omissions included species well known to be present in the ACT at the time and which were inadvertently overlooked on the blitz weekend. Others, such as the Buff-banded Rail, Pied Butcherbird, Glossy Black-Cockatoo, Peaceful Dove and Cattle Egret, are species whose presence cannot be relied on in the ACT. Species unrecorded in all three blitz years include bitterns, owlet-nightjar, Olive Whistler, Cicadabird, and Zebra Finch. Nocturnal birds are particularly likely to be under-recorded.

Vulnerable species

No endangered species were recorded, but six species regarded as vulnerable in the ACT were: Little Eagle, Hooded Robin, Superb Parrot, Brown Treecreeper, Varied Sittella and White-winged Triller.

There were six records of the Hooded Robin, from six grid cells, with abundances ranging from 1-3. A dependent young was observed at Ginninderra Creek, West Macgregor; and at Mulligans Flat a bird was observed carrying food.

Superb Parrots (3 records, of 1-2 birds) were seen in their now-usual haunts at Goorooyarro and Mulligans Flat.

Brown Treecreepers were recorded seven times, with a range of 1-2 birds, from six grid cells, all but one in Namadgi NP (the exception being Hall TSR). They were disappointingly

not recorded in other known locations. Nest-building was recorded near Glendale Depot.

There were six records from six distinct grid cells of Varied Sittella, ranging from 1-6 birds. Dependent young were reported from Ainslie-Majura Nature Reserve.

Compared with the 18 records of White-winged Trillers in the 2006 blitz, the species positively exploded in 2007, being recorded 41 times, 1-8 birds, from many urban-fringe nature reserves as well as Namadgi NP. There were five breeding records, variously displaying, copulating, nest-building and sitting.

Little Eagles were recorded twice, a single bird at Melrose TSR and two at Ginninderra Creek, West Macgregor, where they subsequently bred successfully.

Conclusions and lessons for the future

In terms of our aims, the blitz has increased significantly the amount of available data about Canberra's birds. It is likely that several of the grid cells surveyed would not have been covered other than through the targeted efforts of the blitz. The blitz data will be made available to the managers of the Canberra nature reserves and Namadgi National Park. Over time, we anticipate that the annual blitz will help to establish trends.

A major lesson to be drawn from the three blitzes is that, when prompted, more of our members will get out,

survey, and submit datasheets. And as in 2005 and 2006, many blitzers took the opportunity to spend longer than their regular 20 minutes surveying their special spots.

As for the results, there was, inevitably, an element of 'luck of the day' and the final species total is not of huge significance. The blitz breeding observations, however, contribute disproportionately to our overall knowledge of bird breeding in Canberra. From this perspective, and despite rather unpredictable weather, the choice of the last weekend in October is vindicated.

Given the tendency of our vulnerable species to have a patchy distribution, any information about their distribution, numbers and breeding status is valuable, particularly in those areas which are due to have significant land use decisions made in the next decade or so. The blitz results reinforce the critical importance of the contribution of Canberra's nature parks and reserves to bird conservation.

The cumulative input of 316 additional datasheets to the COG database can only be a plus. We managed to survey many rarely surveyed spots and, if we continue to do so, we will be able to build up a more complete picture of the ACT avifauna.

Acknowledgments

First and foremost, thanks must go to all COG members who participated in the blitz, and particularly to those who put in two full days in sometimes challenging areas in sometimes less than ideal weather conditions. The assistance of staff at Namadgi National Park in providing advice, and access to areas behind locked gates, is greatly appreciated. And sincere thanks go to all those COG members who donated prizes.

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Table 1 Blitz participants 2007

<i>Barbara Allan</i>	<i>Jim Hone</i>
<i>Mark Allen</i>	<i>Jim Huggett</i>
<i>Fred Allsop</i>	<i>Janet Irons</i>
<i>Heather Allsop</i>	<i>Julienne Kamprad</i>
<i>Ian Anderson</i>	<i>Shirley Kral</i>
<i>Frank Antram</i>	<i>David Landon</i>
<i>Margaret Aston</i>	<i>Matthew Larkin</i>
<i>Shaun Bagley</i>	<i>Sue Lashko</i>
<i>Joe Barr</i>	<i>Tony Lawson</i>
<i>Darryl Beaumont</i>	<i>Bruce Lindenmayer</i>
<i>Rosemary Bell</i>	<i>Julie Lindner</i>
<i>Con Boekel</i>	<i>Noel Luff</i>
<i>Jenny Bounds</i>	<i>Rod Mackay</i>
<i>John Brannan</i>	<i>L MacPherson</i>
<i>Muriel Brookfield</i>	<i>David McDonald</i>
<i>Prue Buckley</i>	<i>Noela McDonald</i>
<i>Frances Butterfield</i>	<i>Martyn Moffat</i>
<i>Martin Butterfield</i>	<i>Pat Moffat</i>
<i>Bill Compston</i>	<i>Terry Munro</i>
<i>Elizabeth Compston</i>	<i>Gail Neumann</i>
<i>Belinda Cooke</i>	<i>Henry Nix</i>
<i>Roger Curnow</i>	<i>Peter Ormay</i>
<i>Chris Davey</i>	<i>Anthony Overs</i>
<i>Barbara de Bruine</i>	<i>Harvey Perkins</i>
<i>Chris de Bruine</i>	<i>Stuart Rae</i>
<i>Dianne Deans</i>	<i>Bruce Ramsay</i>
<i>Sue Edgar</i>	<i>Michael Robbins</i>
<i>Paul Fennell</i>	<i>Bill Robertson</i>
<i>Matthew Frawley</i>	<i>Margaret Robertson</i>
<i>Peter Fullagar</i>	<i>Susan Robertson</i>
<i>Malcolm Fyfe</i>	<i>Julian Robinson</i>
<i>Jeannie Gray</i>	<i>David Rosalky</i>
<i>Anne Hall</i>	<i>Brian Scales</i>
<i>Bill Handke</i>	<i>Nicki Taws</i>
<i>Jenny Handke</i>	<i>Alan Thomas</i>
<i>Lindsay Hansch</i>	<i>Mieke van den Bergh</i>
<i>Stuart Harris</i>	<i>Philip Veerman</i>
<i>Annette Harry</i>	<i>Ben Walcott</i>
<i>Tobias Hayashi</i>	<i>Ros Walcott</i>
<i>Sandra Henderson</i>	<i>John Waldron</i>
<i>Jack Holland</i>	<i>Benj Whitworth</i>
<i>Steve Holliday</i>	<i>Tony Willis</i>
<i>Owen Holton</i>	

Table 2 Species recorded during the 2007 blitz

Common name	Scientific name	Breeding code
Emu	<i>Dromaius novaehollandiae</i>	
Brown Quail	<i>Coturnix ypsilophora</i>	
Black Swan	<i>Cygnus atratus</i>	dy
Australian Wood Duck	<i>Chenonetta jubata</i>	ih; dy
Mallard	<i>Anas platyrhynchos</i>	
Pacific Black Duck	<i>Anas superciliosa</i>	dy
Australasian Shoveler	<i>Anas rhynchotis</i>	
Grey Teal	<i>Anas gracilis</i>	dy
Chestnut Teal	<i>Anas castanea</i>	dy
Pink-eared Duck	<i>Malacorhynchus membranaceus</i>	
Hardhead	<i>Aythya australis</i>	dy
Domestic duck/geese*		
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	nb; on; dy
Hoary-headed Grebe	<i>Poliiocephalus poliocephalus</i>	
Darter	<i>Anhinga melanogaster</i>	nb; on
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	on
Pied Cormorant	<i>Phalacrocorax varius</i>	
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	
Great Cormorant	<i>Phalacrocorax carbo</i>	
Australian Pelican	<i>Pelecanus conspicillatus</i>	
White-faced Heron	<i>Egretta novaehollandiae</i>	nb
White-necked Heron	<i>Ardea pacifica</i>	
Great Egret	<i>Ardea alba</i>	
Nankeen Night Heron	<i>Nycticorax caledonicus</i>	
Glossy Ibis	<i>Plegadis falcinellus</i>	
Australian White Ibis	<i>Threskiornis molucca</i>	nb; ny
Straw-necked Ibis	<i>Threskiornis spinicollis</i>	
Royal Spoonbill	<i>Platalea regia</i>	
Black-shouldered Kite	<i>Elanus axillaris</i>	
Whistling Kite	<i>Haliastur sphenurus</i>	di; ny
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	
Swamp Harrier	<i>Circus approximans</i>	
Brown Goshawk	<i>Accipiter fasciatus</i>	on
Collared Sparrowhawk	<i>Accipiter cirrhocephalus</i>	on
Wedge-tailed Eagle	<i>Aquila audax</i>	
Little Eagle	<i>Hieraaetus morphnoides</i>	
Brown Falcon	<i>Falco berigora</i>	co
Australian Hobby	<i>Falco longipennis</i>	on
Peregrine Falcon	<i>Falco peregrinus</i>	
Nankeen Kestrel	<i>Falco cenchroides</i>	on
Baillon's Crake	<i>Porzana pusilla</i>	
Australian Spotted Crake	<i>Porzana fluminea</i>	
Purple Swamphen	<i>Porphyrio porphyrio</i>	dy

Dusky Moorhen	<i>Gallinula tenebrosa</i>	dy
Eurasian Coot	<i>Fulica atra</i>	dy
Latham's Snipe	<i>Gallinago hardwickii</i>	
Bar-tailed Godwit	<i>Limosa lapponica</i>	
Sharp-tailed Sandpiper	<i>Calidris acuminata</i>	
Black-winged Stilt	<i>Himantopus himantopus</i>	
Black-fronted Dotterel	<i>Elseyaornis melanops</i>	
Red-kneed Dotterel	<i>Erythrogonys cinctus</i>	
Masked Lapwing	<i>Vanellus miles</i>	on
Silver Gull	<i>Larus novaehollandiae</i>	on
Rock Dove	<i>Columba livia</i>	
Common Bronzewing	<i>Phaps chalcoptera</i>	
Crested Pigeon	<i>Ocyphaps lophotes</i>	on
Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>	
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	
Galah	<i>Cacatua roseicapilla</i>	ih; on
Little Corella	<i>Cacatua sanguinea</i>	on
Major Mitchell's Cockatoo	<i>Cacatua leadbeateri</i>	
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	ih; on
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	
Australian King-Parrot	<i>Alisterus scapularis</i>	
Superb Parrot	<i>Polytelis swainsonii</i>	ih
Crimson Rosella	<i>Platycercus elegans</i>	ih; on; ne; dy
Eastern Rosella	<i>Platycercus eximius</i>	ih; on
Red-rumped Parrot	<i>Psephotus haematonotus</i>	on
Pallid Cuckoo	<i>Cuculus pallidus</i>	
Brush Cuckoo	<i>Cacomantis variolosus</i>	
Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	co
Horsfield's Bronze-Cuckoo	<i>Chrysococcyx basalis</i>	
Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>	
Common Koel	<i>Eudynamis scolopacea</i>	
Tawny Frogmouth	<i>Podargus strigoides</i>	on; ny; dy
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	
Red-backed Kingfisher	<i>Todiramphus pyrrophygia</i>	
Sacred Kingfisher	<i>Todiramphus sanctus</i>	ih; cf
Rainbow Bee-eater	<i>Merops ornatus</i>	on
Dollarbird	<i>Eurystomus orientalis</i>	co
Superb Lyrebird	<i>Menura novaehollandiae</i>	
White-throated Treecreeper	<i>Cormobates leucophaeus</i>	ih; cf
Red-browed Treecreeper	<i>Climacteris erythrops</i>	
Brown Treecreeper	<i>Climacteris picumnus</i>	nb
Superb Fairy-wren	<i>Malurus cyaneus</i>	on; cf; ny
Spotted Pardalote	<i>Pardalotus punctatus</i>	ih; nb; on
Striated Pardalote	<i>Pardalotus striatus</i>	ih; nb; on; dy
White-browed Scrubwren	<i>Sericornis frontalis</i>	cf; dy
Speckled Warbler	<i>Chthonicola sagittata</i>	dy
Weebill	<i>Smicromis brevirostris</i>	cf

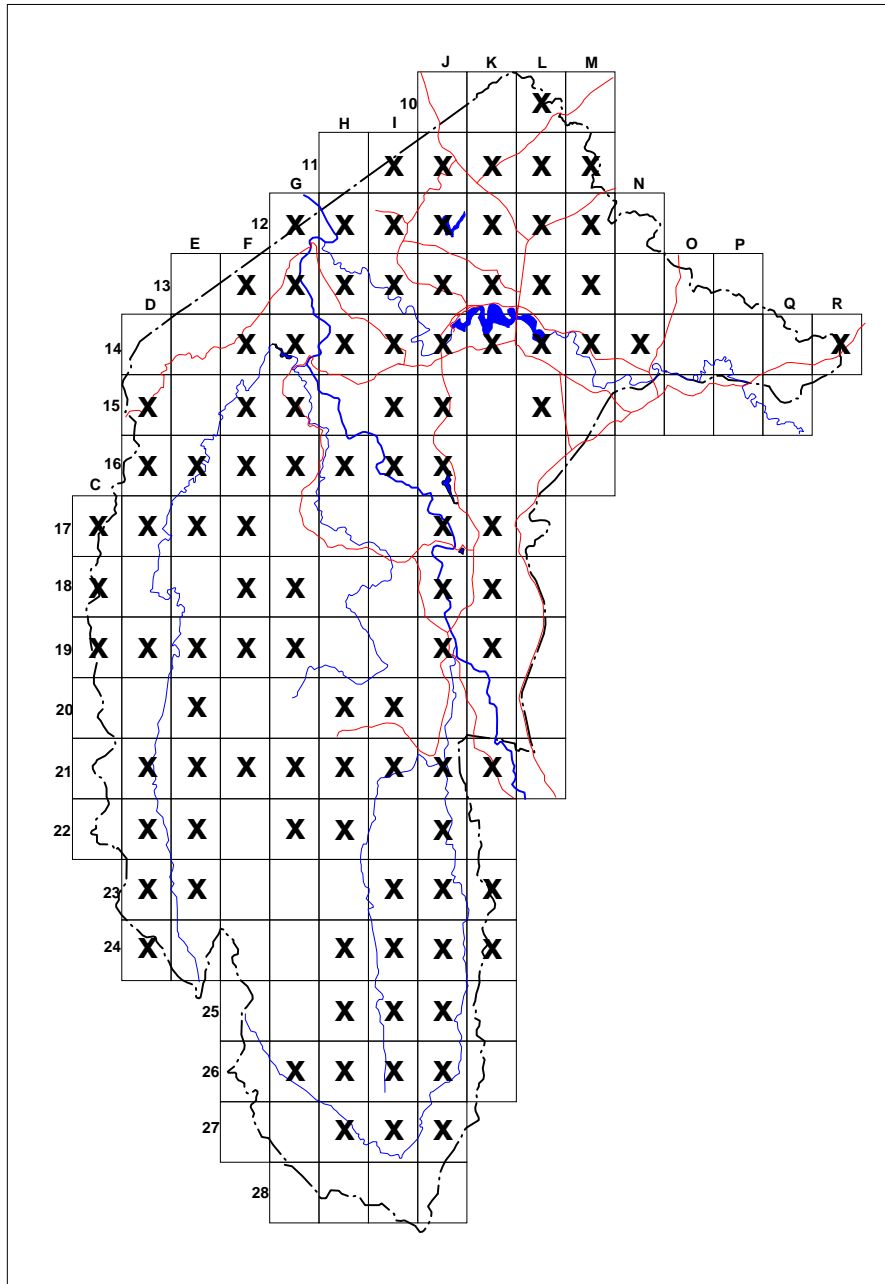
Western Gerygone	<i>Gerygone fusca</i>	
White-throated Gerygone	<i>Gerygone olivacea</i>	nb
Brown Thornbill	<i>Acanthiza pusilla</i>	dy
Buff-rumped Thornbill	<i>Acanthiza reguloides</i>	on; dy
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	nb; on; cf; dy
Yellow Thornbill	<i>Acanthiza nana</i>	
Striated Thornbill	<i>Acanthiza lineata</i>	dy
Southern Whiteface	<i>Aphelocephala leucopsis</i>	
Red Wattlebird	<i>Anthochaera carunculata</i>	nb; on; dy
Noisy Friarbird	<i>Philemon corniculatus</i>	nb
Noisy Miner	<i>Manorina melanocephala</i>	nb; on; ny
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	
White-eared Honeyeater	<i>Lichenostomus leucotis</i>	cf; dy
Fuscous Honeyeater	<i>Lichenostomus fuscus</i>	on; dy
White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>	on; dy
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	
White-naped Honeyeater	<i>Melithreptus lunatus</i>	cf; dy
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>	cf; dy
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	
Jacky Winter	<i>Microeca fascians</i>	
Scarlet Robin	<i>Petroica multicolor</i>	
Red-capped Robin	<i>Petroica goodenovii</i>	nb; on; dy
Flame Robin	<i>Petroica phoenicea</i>	nb; cf; dy
Rose Robin	<i>Petroica rosea</i>	
Hooded Robin	<i>Melanodryas cucullata</i>	cf; dy
Eastern Yellow Robin	<i>Eopsaltria australis</i>	
Eastern Whipbird	<i>Psophodes olivaceus</i>	
Spotted Quail-thrush	<i>Cinclosoma punctatum</i>	
Varied Sittella	<i>Daphoenositta chrysoptera</i>	dy
Crested Shrike-tit	<i>Falcunculus frontatus</i>	
Golden Whistler	<i>Pachycephala pectoralis</i>	
Rufous Whistler	<i>Pachycephala rufiventris</i>	cf
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	nb
Leaden Flycatcher	<i>Myiagra rubecula</i>	nb; on
Satin Flycatcher	<i>Myiagra cyanoleuca</i>	
Restless Flycatcher	<i>Myiagra inquieta</i>	
Magpie-lark	<i>Grallina cyanoleuca</i>	nb; on; cf; ny; dy
Rufous Fantail	<i>Rhipidura rufifrons</i>	
Grey Fantail	<i>Rhipidura fuliginosa</i>	
Willie Wagtail	<i>Rhipidura leucophrys</i>	nb; on; ny; dy
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	on
White-winged Triller	<i>Lalage sueurii</i>	di; co; nb; on
Olive-backed Oriole	<i>Oriolus sagittatus</i>	nb; on
Masked Woodswallow	<i>Artamus personatus</i>	
White-browed Woodswallow	<i>Artamus superciliosus</i>	nb; dy
Dusky Woodswallow	<i>Artamus cyanopterus</i>	co; nb; on; ny; dy
Grey Butcherbird	<i>Cracticus torquatus</i>	

Australian Magpie	<i>Gymnorhina tibicen</i>	on; ny; dy
Pied Currawong	<i>Strepera graculina</i>	nb; on; cf; ny
Grey Currawong	<i>Strepera versicolor</i>	cf
Australian Raven	<i>Corvus coronoides</i>	nb; on; cf; ny; dy
Little Raven	<i>Corvus mellori</i>	nb
White-winged Chough	<i>Corcorax melanorhamphos</i>	nb; on; ny; dy
Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>	
Skylark	<i>Alauda arvensis</i>	
Richard's Pipit	<i>Anthus novaeseelandiae</i>	cf
House Sparrow	<i>Passer domesticus</i>	on
Double-barred Finch	<i>Taeniopygia bichenovii</i>	nb; on
Red-browed Finch	<i>Neochmia temporalis</i>	nb; on; cf
Diamond Firetail	<i>Stagonopleura guttata</i>	
European Goldfinch	<i>Carduelis carduelis</i>	
Mistletoebird	<i>Dicaeum hirundinaceum</i>	
Welcome Swallow	<i>Hirundo neoxena</i>	on; dy
Tree Martin	<i>Hirundo nigricans</i>	nb; on
Fairy Martin	<i>Hirundo ariel</i>	on; ny
Clamorous Reed-Warbler	<i>Acrocephalus stentoreus</i>	
Little Grassbird	<i>Megalurus gramineus</i>	
Rufous Songlark	<i>Cincloramphus mathewsi</i>	
Brown Songlark	<i>Cincloramphus cruralis</i>	di
Golden-headed Cisticola	<i>Cisticola exilis</i>	
Silvereye	<i>Zosterops lateralis</i>	nb
Common Blackbird	<i>Turdus merula</i>	ne; ny
Common Starling	<i>Sturnus vulgaris</i>	co; ne; on; cf; dy
Common Myna	<i>Acridotheres tristis</i>	ih; nb; on; cf; ny

*Presumed escapees

Breeding codes: di=display; co=copulation; ih=inspecting hollow; nb=nest building; ne=nest with eggs; on=on nest; cf=carrying food; ny=nest with young; dy=dependent young (includes precocial young). Juv (juvenile) has been included for species where this was recorded in notes.

Map 1. Grid cells surveyed in the 2007 bird blitz



ODD OBS

Peregrine Falcons at Big Hole, Spring 2007.

The Big Hole, in Deua National Park, is thought to have been formed by the collapse of sedimentary rock into an underlying limestone cavern. It is 96 metres deep, with ferns and other vegetation at the bottom, and between 30 and 50 metres wide.

On 1 November 2007, Julian Robinson and I went to the Big Hole. Peregrine falcons (*Falco peregrinus*) had nested there in 2006 [CBN 31 (4)]. I wished to check whether the birds were nesting there again. I was very excited to find that they were. There were three nestlings on the same ledge as last year. They still had quite a lot of down on them but were not completely covered. When Penny Olsen was shown a photograph, she estimated that they were between three and four weeks old. A chewed bone was on the ledge. A parent was perched on a tree above the Big Hole.

We retreated 50 metres back along the track, in the hope that we might see the other parent come in with more food. We heard the bird calling, and saw it through the trees.

Geoffrey Dabb went to the Big Hole on 28 November 2007. He advised me as follows:

'I stayed at the site, the viewing platform, for about 25 minutes. There was a single juvenile

Peregrine Falcon, apparently a male, on the same ledge as used last year. The juvenile was similar to the flying young male that I saw last year, but I did not see it fly at any stage, and it only moved a few centimetres on the ledge while I was there.

A few minutes later two competently-flying juveniles, probably females, appeared, flew through the trees, dipped into the hole without landing, then perched briefly in trees above the rim of the Big Hole. Both adults appeared, flying rather agitatedly around 50-100 metres away, one calling in an unusual nasal parrot-like way 'tzinggt, tzinggt'. It seemed to be calling the juveniles away in warning fashion, because they left and did not reappear. The adult male came back to perch briefly in trees on the south side of the hole, giving the usual alarm call, apparently concerned about the juvenile on the ledge.

It appears to me: (1) two juveniles fledged perhaps a few days ago and are now competent flyers, at the hunter/learner stage; (2) the juvenile on the ledge seems to be a few days behind its siblings. I would almost suggest it has some kind of disability, except that that first impression of mine is often wrong. If indeed it has not flown, it will be surprising if it does not do so in another day or two at the most, and join its siblings. I think it is only the ledge-bound juvenile that is keeping any of the rest of the family about'.

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Olive-backed Orioles feeding on Kurrajong seeds.

A small Kurrajong *Brachychiton populneus* tree in our Ainslie garden flowered and seeded heavily this summer, possibly as a result of the good rains in November and December. Large bunches of pods eventually opened to reveal the orange seeds packed inside. I hadn't noticed any birds showing an interest in them until a young Olive-backed Oriole *Oriolus sagittatus* was seen in the tree on 29 March 2008. It examined pods methodically, and was observed on several occasions removing seeds and swallowing them. A single oriole was seen again on 30 March, and then two individuals on 1 April, young birds on each occasion. They were quite acrobatic, sometimes hanging upside down to get to the seeds. Occasionally a Red Wattlebird *Anthochaera carunculata* or Noisy Friarbird *Philemon corniculatus* would chase off an oriole and land in the tree; despite apparently examining the Kurrajong pods a couple of times they weren't seen attempting to feed from them. Although some of the least accessible pods still had seeds on 2 April, most were empty, and no orioles were noticed until an adult bird was observed feeding briefly in the tree on 13 and 16 April. The bird did not stay long on either occasion, presumably because there were so few seeds left.

As at least three different individuals were observed eating the seeds of the Kurrajong it seems likely that this is a regular food source for Olive-backed Orioles, where their range overlaps with that of the tree. It is rather surprising then that there do not appear to be any previous literature reports of this (Higgins et al. 2007). Australian Raven *Corvus coronoides* and Singing Honeyeater *Lichenostomus virescens* have been recorded feeding on Kurrajong seeds (Barker & Vestjens 1990), as has Pied Currawong *Strepera graculina* (Lepschi 1993).

I made another observation of an oriole in Kurrajongs on 29 May 2008 at Tufnell Park, a grazing property between Wantabadgery and Junee, north of Wagga Wagga. There were many mature Kurrajongs at the site, and although the bird was not directly observed eating seeds, there were many open pods with seeds visible and it seems likely that it was feeding on them.

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COLUMNISTS' CORNER

Of warbles, trills and reels

As a subject of scientific inquiry, the voice of birds is attracting increasing attention. *Handbook of the Birds of the World* vol 6 devoted a 30-page essay to 'Avian Bioacoustics'. Not the least impressive feature of this was the 12 pages of references, containing 484 entries. However, Stentoreus would like to begin with a basic question.

Warblers, it might be thought, produce warbles, but exactly what *is* a 'warble'? It is a word that has been around for some time. Shakespeare wrote of the 'well-tun'd warble' of the nightingale.

Back in 1773 'warbler' was adopted as the English name for a group of Old World 'small plain-coloured singing-birds'. My authority here is the Oxford English Dictionary (OED) which tells us also that within the next 20 years the word was applied in addition to (a) a group of New World birds, these being 'small, usually bright-coloured ... with little power of song', and (b) some Australian birds 'of the genera *Gerygone*, *Malurus* and others'. Most of these have moved on to new names, but we still have a 'Speckled Warbler'.

'Warble' might mean either 'to sing with trills and quavers', 'to sing softly and sweetly', 'to sing clearly and sweetly', or just 'to carol' (OED again). Clearly it would be a waste

of time looking for a warbling test that all so-called 'warblers' would be able to meet, especially the American ones.

Stentoreus is no expert, but the vocabulary for describing bird vocalisation is unsatisfactory. I base that view on a scan through several field guides and the 'VOICE' sections in HANZAB and its European counterpart 'BWP' (*The Birds of the Western Palearctic*). Many descriptive expressions are puzzling, ambiguous, and not defined. Consider 'churring'. Quite a lot of birds are said to make a 'churr', but what is it? My Shorter OED says this means 'to make a deep trilled or whirring sound, as some birds'. In HANZAB the Restless Flycatcher is said to make 'a sustained metallic grinding or churring *bzzzrrrrt*'. However, my Macquarie says that 'churr' is the same as 'chirr', which means 'to make a *shrill* trilling sound, as a grasshopper' [my italics].

'Trill', which is frequently used and has been mentioned above three times already, is a problem in itself. According to the dictionaries, this expression has, broadly, three different meanings: (a) the musical one, which divides into (i) 'a tremulous utterance of a note or notes = TREMOLO or VIBRATO' and (ii) 'a rapid alternation of two notes a degree apart'; (b) a broader one, being 'a tremulous high-pitched sound or succession of notes, especially in the singing of birds'; (c) a sense relevant to phonetics, 'the pronunciation of a consonant, especially 'r', with vibration of the tongue ...'.

I have never been strong musically, but I did learn something, at one time, about human speech. It never occurred to me that 'trill' meant anything other than (c), that is the 'brrrrt' sound you make from vibrating the tip of the tongue like the sound made by the traditional 'brrrrt, brrrrt' telephone or a purring cat.

I know that some birds do make that kind of sound e.g. Fan-tailed Cuckoo, 'far-carrying trill' (Slater); Rainbow Bee-eater, 'pleasant trilling' – query whether this is the same as its 'evenly spaced frequent *churr*' (HANZAB).

Consider the White-winged Triller, so-called. Back in 1911 when Leach wrote his little bird book it was still a 'Caterpillar-eater'. Leach wrote of one pair: 'The male called "Peter, Peter" ... and then broke into a trilling song that fully equalled any canary performance I have heard'. In 1926, 'Triller' was adopted as the official name of the species.

The HANZAB summaries show a fair degree of unanimity that the White-winged Triller makes a 'trill'. Some writers still compare this to a canary. This is interesting because the canary's song has been much studied and a particular two-note trill, at up to 20 repeated notes per second, has been found to be very attractive to female canaries. Apparently each note is accompanied by a 'mini-breath', and each of the two notes is made from different sides of the syrinx. Whether any of this is true of our White-

winged Triller you can consider for yourself when listening to it on the COG CD, Track 39.

In looking out for some suggested 'trills' you might need to disregard the definition given in BWP (the European authority). 'Trill' is there used only for 'a rapid and regular alternation of two notes, usually with a small pitch interval' (i.e. sense (a) (ii)). On the other hand, according to BWP the name for 'rapid reiteration of one note' is a *tremolo*. However, 'tremolo' is not an expression much used in relation to Australian birds. Incidentally, the Varied Triller makes a '*churring* trill'.

An assortment of expressions has been marshalled to describe the voice of the fairy-wrens. The following are used in HANZAB's treatment of the Superb Fairy-wren: 'reeling song', 'a characteristic *Malurus* reel', 'loud rippling trill', 'flock pripping call', 'short high-pitched series of trills', 'plaintive slightly downslurred trilling', 'a pripping call described as a rapid descending trill'. (I can find neither 'pripping' nor a verb 'to prip' in any dictionary).

You would probably need to hear a 'reel' to find out what the word refers to. The only sound-related meaning in the dictionaries is along the lines '[music for] a lively dance popular in Scotland' (Macquarie). In a 'reel', according to my Groves' music dictionary, 'the music is in 8-bar phrases, usually common time'. Moreover: 'The Irish reel is played much faster than the Scottish; in Yorkshire an ordinary hornpipe tune is used'. Can this be the relevant sense?

If you turn to the HANZAB entry for the White-winged Fairy-wren, you find that in the song the first notes are 'followed by a rapid transition into a prolonged weak trill or reel of rising and falling notes'. The song of the White-winged Fairy-wren sounds 'more regular than those of other fairy-wrens' and is 'likened to the sound of a sewing machine or winding of a fishing reel'. This is confusing. Can 'reel', wherever used in relation to fairy-wrens, possibly mean just the sound of a fishing reel, presumably one with the ratchet activated? You wouldn't expect that to rise and fall. Or perhaps a 'reel' is really just a 'trill'?

Here is the point. Too many accounts of bird sounds lack clarity and objectivity. Recordings contain all the needed information, but can't be put in a book. Sonagrams are useful, but need some expertise to decipher their detail. Imitative renderings can be helpful, like 'toc, toc' or 'tzzzt'. Even similes can be illuminating, as 'two pebbles struck together' or 'a clear bell-like sound'.

However, words like 'trill', 'churr' and 'rattle' are used to cover far too many diverse sounds, and, like the names of colours, they mean different things to different people.

Some Australian bird books offer their own glossaries that cover expressions relating to plumage, behaviour, habitat etc, but contain not a word about sounds. Standard, understandable definitions are badly needed. Even if given definitions are specific to the one book, which may

be true of those in BWP, it will be a great aid to communication. When such a glossary appears, 'trill', 'reel' and 'prip' are three of the first words I shall look for.

A. stentoreus

Birding in cyberspace, Canberra-style

The widespread adoption of internet broadband in this country now means that **listening to streaming audio** over the Internet is a popular pastime. Your columnist is a great fan, for example, of the BBC World Service to which he regularly listens online. So what about listening to birders using this medium? One of Australia's most popular birders, Sean Dooley, can be heard from anywhere in the world from any computer which has broadband Internet access. Simply point your web browser to <http://www.rrr.org.au/onair.php?pid=1> and click on 'Now Streaming' at 0815 hours on Thursdays to hear him ('The Birdman') in discussion with the Triple R Breakfasters. This is the Melbourne RRR community radio station that broadcasts in that city on 102.7 FM. Of course, you will also want to tune your FM radio receiver to ABC local radio (666 kHz) in Canberra at 2pm on alternate Wednesdays to hear Ian Fraser. Sadly 666 does not yet stream audio, although a number of the other capital cities' local ABC stations have adopted this technology.

By now most readers will have purchased a copy of the long-awaited and authoritative guide to the *Systematics and Taxonomy of Australian Birds* published in July by

CSIRO and now available in paperback as well as the original hardcover edition: Christidis, L & Boles, W 2008, *Systematics and taxonomy of Australian birds*, CSIRO Publishing, Collingwood, Vic.

<http://www.publish.csiro.au/nid/20/pid/5702.htm>. What, you did not buy a copy but would still like to have details of the new official list of Australian birds? Fortunately, Birds Australia has provided an excellent service in making the list available at its website [http://www.birdsaustralia.com.au/birds/hecklist.html](http://www.birdsaustralia.com.au/birds/checklist.html), along with a spreadsheet explaining the differences between the 1994 list and the 2008 list. Alert readers will see differences in the species' English names, scientific names, and the sequence of species. We understand that, in due course, COG will publish a statement detailing the changes that affect the nomenclature and taxonomy of the birds of the Canberra region.

One of the outcomes of the changes to the list is that your columnist has had to change his *nom de plume* from T. alba (the Barn Owl) to T. javanica (the Eastern Barn Owl). Apparently he has changed from being white (one meaning of alba) or from Scottish (another meaning of the same word) to being Javanese!

Contributors to the national email-based birding announcement and discussion list, Birding-Aus, Boyd and Alison who hail from the Burrigorang Valley of NSW, recently sent a request to the list with

the subject line '**Help with bird calls!**'. They advised that:

We are artists from the Burrigorang Valley NSW. A bird heaven!

We are working on a sound/sculpture installation for Goulburn Gallery NSW in October entitled 'Bird Cry from the Grassy Box Woodlands'.

We are wanting to collect mnemonics and onomatopoeias for Australian birds. We have the obvious bird books which tend to be better for onomatopoeias, though the Friar birds' "an extraordinary jumble of notes one of which has been interpreted as 4 o'clock" has always been a favourite. The plan is to use the sound descriptions as a score to be interpreted by musicians, this 'recreated' bird sound is what we hear in the exhibition. If we don't save our birds from extinction only the human record remains. For instance the call of the Dodo may have been doo doo! or not...

Do any of you have words you use to describe or help remember bird calls?

A number of interesting responses were posted, including these:

'The ones that immediately come to mind are "sweet pretty creature" for the Willie Wagtail, "choop-chullum" or various similar names for the Striated Pardalote and 'witch-u' for the Black-faced Monarch.'

'I have heard the Whistling Kite's call described as "one more rabbit and I'll spew!"'

'Little Wattlebirds are known in our family as "google-gackers" '.

The list could go on and on!

Over the years your columnist has drawn attention to a number of birding portals on the internet and has pointed out that many birders consider the Fatbirder web site <http://www.fatbirder.com/> to be the leading birding portal. Another of interest, perhaps not so well known, is **Surfbirds** <http://surfbirds.com/> (not to be confused with the similarly-named but very limited site **Surfbirder** <http://surfbirder.com/>). Surfbirds is an attractive, well-designed site with an extensive range of resources including solid information, trip reports, email resources, a photo gallery, facilities for maintaining your own bird lists, birding blogs, birding news, electronic postcards, birding wallpaper, etc. Are you interested in reading what is posted to various birding email groups? Just click on 'E-Mail Group Archives' at Surfbirds' home page and you'll see links to the site's own archives of birding email lists from every region of the world, including our own 'CanberraBirds'. Particularly helpful are the links provided, enabling one to subscribe to the various email lists that it covers. Surfbirds is an outstanding birding resource which, in my judgement, certainly challenges Fatbirder for the appellation of 'leading birding portal'.

'Birds "caring" for each other' was the subject line of a recent e-mail to Birding-Aus from Bob Ashford who lives on the south coast of New South Wales. He passed on a description of a fascinating event

that was described to him by a neighbour from Berry, NSW:

A female (presumed) Eastern Spinebill had knocked itself out by hitting a house window. As it lay stunned on the deck a male (again presumed) [Eastern Spinebill] arrived and proceeded to flutter and call around the female.

After about 30 seconds it landed on the female still fluttering and calling. It then proceeded to gently prod and push the female, which was lying on its back. About a minute and a half after the collision the male physically turned the female over so that it was lying on its stomach/breast still stunned but showing signs of revival.

For about another minute the male continued to flutter, call and gently prod the female which then quickly got up and flew off to the bushes accompanied by the male.

Bob concluded 'I'm fascinated by the effort put in by the male while trying not to read too many anthropomorphic conclusions in to it all', and wondered if other birders had also observed this type of behaviour which he characterised as 'caring', for want of a better term, as he put it.

One subscriber responded with a sad story about Crested Pigeons:

You reminded me of one morning when I set off for work here in northern Vic. Unfortunately I hit one of a pair of Crested Pigeons, he/she lay dead on the roadside with the partner nearby. We drove home for lunch and the Crestie's mate was still there sitting by the roadside next to its deceased partner. At the end of the day, driving home 8 hours

after the unfortunate incident, it was a little heart-breaking to see the dead Crested Pigeon's mate still there waiting in case a miracle happened.

Sometimes at COG meetings, when we have a Bird of the Month segment, the speaker provides documentation useful for identifying similar looking bird species. Well-known Mount Isa birder, Bob Forsyth, has developed seven **bird identification tables** which are available in PDF format at the Birds Queensland website <http://www.birdsqueensland.org.au/>.

The identification tables currently available there cover:

- Collared Sparrowhawk vs. Brown Goshawk
- Crows and Ravens
- Cuckoos
- The *Meliphaga* Honeyeaters (Lewin's, Yellow-spotted & Graceful)
- Fairy Martin vs. Tree Martin
- Grey-tailed vs. Wandering Tattler
- The Terns of Queensland.

The first of these, for example, covers some 16 characteristics that are useful in differentiating the species in the field. As is always the case with the excellent birding resources that Bob produces and makes publicly available, he requests that users make a donation to the Royal Flying Doctor Service rather than seek any remuneration for himself.

In August Dave Torr, the Honorary Marketing Manager for BOCA (the Melbourne-based membership organisation Bird Observation and Conservation Australia) sent a message to BirdingAus advising of the launch of **BOCA Birding Maps**. They are at: <http://www.birdobservers.org.au/BirdingMaps.asp>.

This is an ambitious undertaking, one in which Dave and his colleagues have made great advances. I suggest that it warrants attention from all birders who travel away from home. BOCA Birding Maps is based on Google Maps <http://maps.google.com/>. It is not easy to explain in a few words – I recommend that you try it yourself. BOCA has provided this explanation in a media release:

Birding Maps is an interactive map that provides consolidated information on bird watching locations and birding organisations throughout Australia. Interactive tools enable the user to zoom in on sections of the map and to search for specific types of information (i.e., birding locations, BOCA Branches, Affiliates and other birding organisations). Selecting a location on the map – whether it is a birding destination or a BOCA Branch – will reveal details for that location...

'Our aim is to make these maps a key resource for both local and international birders. Many visitors to Australia – or indeed Australian birders visiting other parts of the country – do not know the best places for bird watching or the locations of birding clubs that they might contact for further information. We have consolidated information that is scattered throughout the web on one site and placed the information on a map.

Whether you are planning a trip or looking for additional information on places to bird, BOCA Birding Maps is the one-stop shopping website for the information you need.'

BOCA Birding Maps is only the first part of what will be a major upgrade to our website with the aim of becoming the premier website in Australia for local and visiting birders. The list of birding locations will be expanded by contributions from birders across the country as the site develops. Further enhancements will be announced in the coming months.

At present the site has just four entries for the ACT: the Australian National Botanic Gardens, Campbell Park, the Canberra Ornithologists Group and Jerrabomberra Wetlands. The information covering these places is derived from COG's online resources. The site has a sophisticated filtering system enabling users to readily identify resources covering particular areas of interest, both geographical and by type.

When you visit the site you will find that it has a password protected section for BOCA members only. Dave has explained on Birding-Aus that, at present, there is very little additional information in the password protected section, though this may change in time. He also advises that plans are being developed to enable users of BOCA Birding Maps to upload information on birding sites. This facility will not go live until a quality control system is put in place. BOCA is to be

commended for developing and making available this wonderful resource.

While on the matter of the birding resources based around the online products of Google Inc, have you caught up with Google Street View yet? It is the facility in Google Maps <http://maps.google.com/help/maps/streetview/> that enables you to see close-up photographs of the areas mapped. If you live in Canberra or Queanbeyan, for example, and you enter the address of your home, you can see a picture of it and do all sorts of wonderful things with the pictures provided.

Birders, being innovative types, have rapidly developed a new form of birding called the **Google Street View Birdwatching Technology Challenge**. It all started when Street View came live in Australia in early August. A subscriber to BirdingAus wrote:

Alright folks...I've just been playing with Google Streetview. whoa...scary stuff. But it opens up a whole new view of the world. And maybe a new form of twitching. So I'm throwing up a challenge...who can be the first to find a pic of a native Australian bird on Google Street View. I've tried for about 10 minutes now, but no luck yet...Give it a try:

The first positive response came just 19 minutes later, with Dave Torr (the BOCA Birding Maps developer mentioned above) ticking a Silver Gull and a Pelican at Racecourse Road, Altona, Vic. Move the Street View character so it stands on the bridge over the water and the birds are identifiable - just. Someone observed a 'white blob' larger than a Silver Gull elsewhere in

Altona and speculated that it might be a Royal Spoonbill, but the photograph was not clear enough to be sure. A correspondent who had read the fine print about the approach taken by Google to preserve people's privacy quipped 'Ahhh yes, Google blurs out the faces of the birds so they can't be recognised!'.

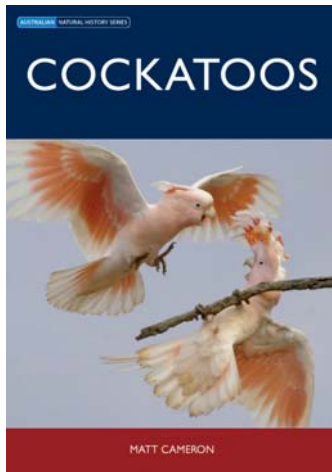
I wonder how long it will be before we start hearing reports of Canberra region birds being twitched on Google Street View?

T. javanica

Details on how to subscribe to *Birding-Aus*, the Australian birding email discussion list, are on the web at www.birding-aus.org/. A comprehensive searchable archive of the messages that have been posted to the list is at bioacoustics.cse.unsw.edu.au/archives/html/birding-aus.

To join the *CanberraBirds* email discussion list, send an email message with the word 'subscribe' in the subject line to canberrabirds-subscribe@canberrabirds.org.au. The list's searchable archive is at bioacoustics.cse.unsw.edu.au/archives/html/canberrabirds.

BOOK REVIEW



Cockatoos
by
Matt Cameron

Colour and black & white photographs,
maps; 220 pp
Publisher: CSIRO PUBLISHING
Publication date: 2007
ISBN 9780643092327

*Reviewed by Robert Heinsohn
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Australia has been called *Terra Psittacorum*, the land of parrots, due to the variety and abundance of its parrot species. One of the two families of the order Psittaciformes, the Cacatuidae or cockatoos, comprises some of the most quintessentially Australian birds. Whether the soul is stirred by the plaintive cries of black cockatoos as they float by in small groups, or the dazzling pink of a flock of Galahs (*Eolophus roseicapillus*), or indeed if the senses are jarred by the noisy Sulphur-crested Cockatoos (*Cacatua galerita*) outside the window first thing in the morning, these birds are both fascinating and hard to ignore. Fourteen of the 21 species reside on the Australian mainland, and none of the remaining species make it

past Wallace's Line into Asia, making their grouping in one book both taxonomically and geographically sensible. It was also fitting that this book should be written by one of our own excellent cockatoo specialists, Matt Cameron, who did his PhD study on Glossy Black Cockatoos (*Calyptorhynchus lathami*) in central New South Wales.

Cockatoos is a pleasure to read, and imparts information at a level appropriate for both bird enthusiasts and professional ornithologists. It is organized into 11 chapters covering descriptions of the cockatoo species, together with their morphology, ecology, and behaviour. The later chapters change course and discuss

how cockatoo numbers have been influenced since European settlement. Some have become major pests both in cities and agricultural lands, while others have declined to the point of near-extinction. This book is timely and reviews both the classic work by Denis Saunders, Ian Rowley and others in the Western Australian wheat belt, and the handful of more recent studies of the conservation biology of endangered cockatoo species throughout the region. It adopts the friendly approach of naming researchers explicitly in the text, and also highlights important examples from the author's own research. The book is brought to life by a large number of colour photos of the species in one section, and black and white photos throughout.

One thing I immediately enjoyed about the book was that it gives extensive coverage to cockatoos found in the islands to the north of Australia. These little known species balance the picture of cockatoo radiation in Australasia, and often comprise the populations that are most endangered. For example, how many people are aware of the Tanimbar (*Cacatua goffini*) or Solomon Corellas (*C. ducorpsii*), or indeed the Philippine Cockatoo (*C. haematuropygia*)? The latter species has suffered so greatly from habitat loss and trapping for the bird trade that it is now considered to be highly endangered. Another threatened species is the Yellow-crested Cockatoo (*Cacatua sulphurea*). All of its four sub-species are endangered, but none more so than Abbott's Cockatoo (*C. s. abbotti*) which has been reduced to a handful

of individuals on Masakambing Island.

The Australasian distribution of cockatoos also attests to their having evolved in Australia after it broke free from Antarctica and the rest of Gondwana. This would make the group less than 55 millions years old. Chapter 3 is a delight to read as the author takes us on a short guided tour of the cockatoos' likely beginnings in rainforests, before they diversified into the new opportunities created by the drying of the continent. The impact of more recent Pleistocene glacial cycles on distributions is outlined for Palm Cockatoos in the north, and the other black cockatoos and corellas across the continent.

This book makes one stop and consider what a cockatoo really is, what they eat, why they occur where they do, and why they move (Chapters 4-7). In the review of colour, size and shape of cockatoos, we are reminded that although we think of them as very large birds, the size range of cockatoos is really quite considerable (80-1000g). Similarly, bill size and shape falls into two major categories with Sulphur-crested Cockatoos, corellas (*Cacatua sp.*), Cockatiels (*Nymphicus hollandicus*), and Galahs having a "parrot-like" bill that allows them to exploit a variety of grasses, herbs and shrubs. This contrasts with the bills of black cockatoos designed as pincers for opening woody fruits. Bill form varies across the cockatoos according to preferred diet. For example, Long-billed (*Cacatua tenuirostris*) and Western Corellas (*C. pastinator*) have

elongated upper bill tips to help them dig up corms and tubers, and each subspecies of red-tailed cockatoo has a variation on bill design that helps it forage on the seeds in its region or habitat type.

This may reflect my own bias but I particularly enjoyed reading the chapter on reproduction (Chapter 8). As someone who has spent a lot of time pondering how the entire breeding biology and mating system of Eclectus Parrots (*Eclectus roratus*) on Cape York is driven by their competition for suitable nest hollows, I drew huge satisfaction from the account of the importance of this resource to cockatoos. Cockatoos are often big birds and therefore need large hollows but the propensity of trees to form hollows (i.e. from fungal and termite activity) varies greatly. The chapter draws explicit attention to the importance of both old trees, and senescent and standing dead trees, as being of particular importance to cockatoos. The location of nest trees is also important. In some cases, such as the glossy cockatoos on Kangaroo Island, the birds seem willing to travel large distances between nest trees and food and water. In other cases, such as Carnaby's Cockatoo (*Calyptorhynchus latirostris*), the birds have disappeared from areas where nesting habitat remains but food supplies have been reduced. I enjoyed the attention given to the typically slow life-history of cockatoos, starting with the (often) long periods of sexual immaturity, small clutch sizes, and slow growth rates of nestlings, with glossy cockatoos winning the prize for the longest nestling period (90 days).

Cockatoos in general seem to have low reproductive success, sometimes relating to food supply and other times to predators. Unfortunately adult mortality rates are poorly understood for most of the species. The low reproductive rate in a Carnaby's Cockatoo population with poor food supplies eventually led to their extinction. Other species and populations must have long adult life-spans to sustain such low rates of reproduction.

One fascinating attribute of the cockatoos is that whereas some of the populations have dwindled dramatically in the face of habitat loss and persecution, others have done the opposite. The clearing of woodlands and forests, addition of water supplies, and planting of crops has allowed open-country species such as Galahs, Little Corellas, Sulphur-crested Cockatoos and Cockatiels to expand their ranges considerably. However, woodland and forest species have declined in the face of similar environmental changes. The final chapters deal with this paradox explaining how cockatoos are pests in some places, and exceedingly rare in others. The subject matter of this section is at times both shocking and challenging. For example, tens of thousands of yellow-crested, umbrella, and salmon-crested cockatoos, and Tanimbar Corellas have been traded legally in the last few decades, leaving one to wonder the extent of the illegal trade. The thorny subject of whether wildlife can or should be given explicit economic value, so that species can be utilised sustainably, is also covered. The final

chapter on conservation brings together all these issues, giving detailed attention to habitat loss, forestry, agricultural landscapes, fire regimes, and global warming. The prognosis for the group as a whole is not too bad, and the author ends on a note of cautious optimism citing some important success stories where declining populations have been turned around. If I have one small complaint about this book, it is that the interaction between the often slow life history and conservation status of these birds could have been explored more fully.

In summary, I found reading this book both easy and highly rewarding. I am of course biased, but even though I am a parrot biologist, I nonetheless learned a great deal, and made many new connections. I think this was mostly aided by the overview nature of the book in which the cockatoos were brought together under various umbrella subjects (e.g. habitat, morphology, reproduction) rather than as single species identities. Matt Cameron has created one of those rare books in which there is something for everyone.

RARITIES PANEL NEWS

The undoubted highlight of the Endorsed List on this occasion was the much-observed and photographed Bar-tailed Godwit at Kellys Swamp in October. While the species has been recorded with some regularity at Lakes Bathurst and George, when they held water, there have been few ACT records and no recent ones.

Other surprises were the return in two locations of the Black-tailed Nativehen, last recorded in 2002 at Kellys Swamp; the Red-backed Kingfishers, previously recorded in 2002; and another Black-eared Cuckoo after last year's influx at Uriarra Crossing.

It was pleasing to see that the Swift Parrots visited the same spot on Mt Majura again, on their autumn northern migration. The Rarities Panel urges all birders who observed the parrots to put in records, so we can get a good assessment of the overall numbers and the period the birds remained there.

Azure Kingfishers are occasionally recorded along the Shoalhaven and in other easterly locations in our area of interest. Again, this is a species which is probably more common there than records suggest, though there have been very few ACT records in recent times.

The Panel has been unable to endorse four of the records received in this period, not because it doubts the identity of the species concerned but because of the paucity of the

information provided. It will reconsider these records, pending the receipt of further information. It urges observers once again to provide a *detailed* description of what they saw, including any diagnostic features they perhaps did not have the opportunity to see, or see well; and to explain why they discounted look-alike species. Five records, from Messrs Holliday, Baird and Layton, will be considered at the Panel's next meeting.

A revised and considerably truncated list of unusual birds in our area will be available shortly on the COG website. Species not reliably recorded since 1984 (the date of the inception of the Rarities Panel) will be omitted (though of course records of any of these species will still be required as they will not feature on the COG datasheet); species on the previous (2006) list of unusual birds for which there have been 10 or more records of probably distinct individuals or groups since 1984 will be omitted. Some examples include Spotted Crane, Pied Cormorant, Black Falcon, Swift Parrot, Turquoise Parrot, Little Friarbird, Painted Honeyeater, Scarlet Honeyeater and Pink Robin. Unusual bird reports are required for any species not previously recorded in the COG area of interest. As well as its adjudication role, the Panel reminds COG members that it is happy to assist with identification questions you might have – simply email rarities@canberrabirds.org.au. COG's datasheet checkers may also contact you to suggest that you seek

confirmation from the Panel for other unusual locations or at an unusual species seen in unusual numbers, time of year.

ENDORSED LIST 72, dated 21 June 2008

Spotless Crane *Porzana tabuensis*

2; 25 Feb 08; Matthew Frawley; Namadgi Visitors Information Centre GrJ19

Black-tailed Native-hen *Gallinula ventralis*

1; 31 Oct to 2 Nov 07; Bruce Ramsay; Point Hut pond GrJ18
1; 15 Nov 07; Dianne Deans; Readymix Quarries Bungendore GrS12

Bar-tailed Godwit *Limosa lapponica*

1; 24 Oct 07; Mat Gilfedder; Kellys Swamp GrL14

Swift Parrot *Lathamus discolor*

2; 10 May 08; Julienne Kamprad; Mt Majura GrM12

Black-eared Cuckoo *Chrysococcyx osculans*

1; 17 Dec 07; Jenny Bounds; Majura Firing Range GrN13

Azure Kingfisher *Alcedo azurea*

1; 23 May 08; Con Boekel; Shoalhaven R above Kings Hwy GrZ15

Red-backed Kingfisher *Todiramphus pyrrhopygia*

2; 27-28 Oct 08; Joe Barr; Ginninderra Creek GrH11

Chestnut-rumped Heathwren *Hylacola pyrrhopygia*

2; 15 May 08; Con Boekel; Queanbeyan River Track, Googong Dam GrP19

Little Wattlebird *Anthochaera chrysoptera*

1; 11 Sep 07; Bruce Lindenmayer; Monkman St Chapman
1; 24 Apr 08; Phyl Goddard; ANBG GrK13

Canberra Bird Notes is published quarterly by the Canberra Ornithologists Group Inc, and is edited by Anthony Overs. Major articles of up to 5000 words are welcomed on matters relating to the distribution, identification or behaviour of birds in the Australian Capital Territory and surrounding region. Please discuss any proposed major contribution in advance. Shorter notes, book reviews or correspondence are also encouraged. All contributions should be sent to cbn@canberrabirds.org.au.

Please note that the views expressed in the articles published in *Canberra Bird Notes* are those of the authors. They do not necessarily represent the views of the Canberra Ornithologists Group. Responses to the views expressed in *Canberra Bird Notes* articles are always welcomed and will be considered for publication as letters to the editor.

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