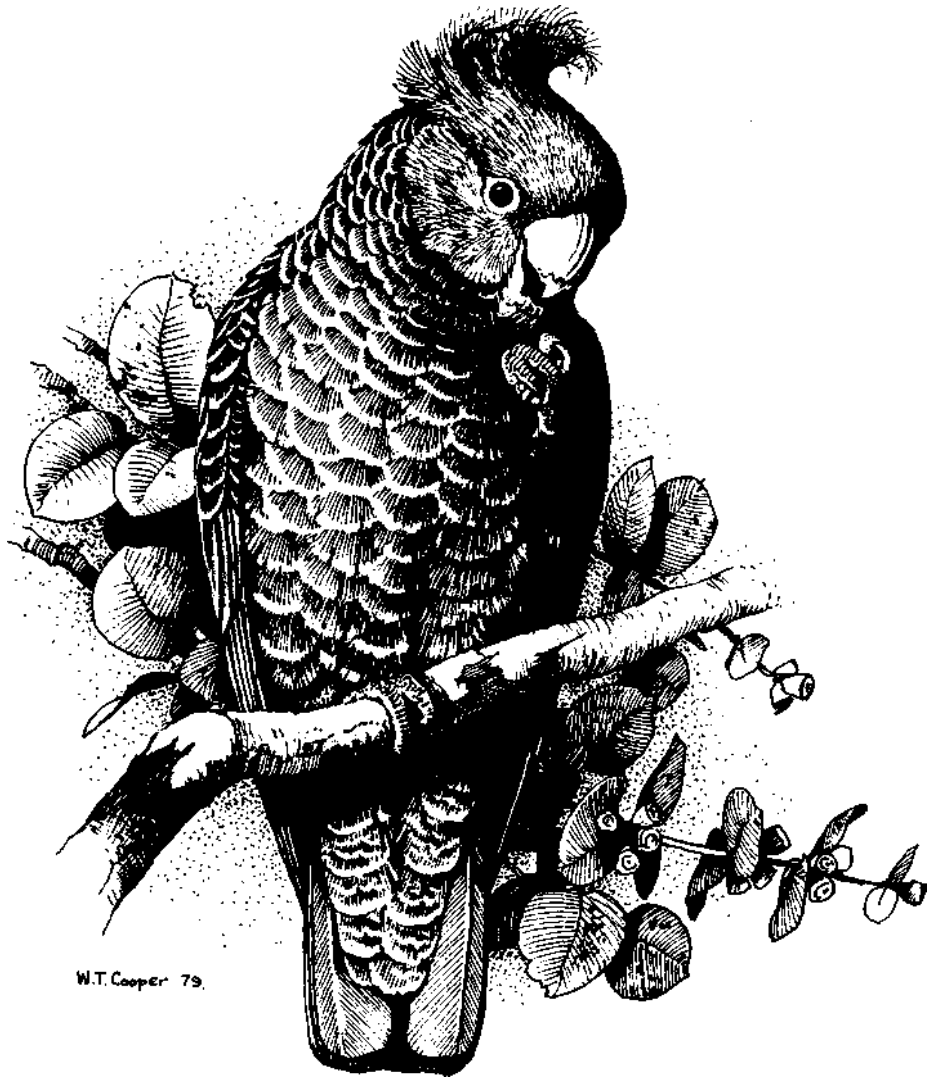


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(Continued inside back cover)

HOODED ROBIN: BIRD OF THE YEAR FOR 1991

Bill Graham

Background

The idea for the Bird of the Year project was first suggested to the committee of the Canberra Ornithologists Group (COG) by Michael Lenz on 17 October 1990. The idea was based on a similar project undertaken in Germany in which a well-known species, but one whose survival was under threat, was selected to be the subject of special study for one year. In view of my interest in the Hooded Robin *Melanodryas cucullata*, developed while gathering information for the ACT Bird Atlas (Taylor and Canberra Ornithologists Group 1992) I was asked to act as coordinator of a project on the Hooded Robin. My earlier work on the species had resulted in three papers (Graham 1990, 1993; Graham and Handke 1991).

The Hooded Robin was officially named as Bird of the Year for 1991 at a committee meeting held on 16 January 1991 (Anon. 1991). The project was to be open to all COG members and its aims were to investigate the habitat requirements of the species, and to locate and map territories in the ACT. This was later extended to include the foreshores of Googong Dam in NSW.

The Hooded Robin

The Hooded Robin is found throughout mainland Australia, except for coastal and northern Queensland. It is replaced in Tasmania by the Dusky Robin *M. vittata*. Throughout its range it is found in small numbers. Concern has been expressed that, although it is not a threatened species, it is declining in many places. Robinson (1993) shows the Hooded Robin to be declining in Victoria, south-west Western Australia, south-east South Australia, the Australian Capital Territory, and southern New South Wales.

Records from the vicinity of Canberra

The first mention of the Hooded Robin in the ACT is in a paper by D.P. Jones who was head teacher at the Duntroon Public School (Jones 1929). The paper contains a list of 122 species he had seen since June 1913. No indication is given as to their abundance or where they were seen, other than the paper states the list was compiled "at Duntroon".

With the increase in the number of bird watchers in Canberra (Wilson 1994) there was an increase in the number of reports of Hooded Robins being recorded. Of

particular interest are the following reports of breeding from the immediate vicinity of Canberra.

Black Mountain

From late October 1964 to December 1968 up to four territories were held each year west of Black Mountain in an area now bisected by Caswell Drive (Marchant 1973). In the mid-1960s there were three territories in an area extending from the National Botanic Gardens through to Black Mountain Peninsula (two nestlings were banded on 29 September 1964 and a further two on 28 December 1964) (Steve Wilson pers. comm.).

Other sightings of Hooded Robins from the Australian National Botanic Gardens were recorded in the observations book of the ACT Branch of the RAOU (Dow 1988). These consisted of two birds seen on 21 February 1966 by Mark Clayton, Barry Baker and R. Gibson. and two birds seen on 13 September 1966 by an anonymous observer.

The following extracts from early Annual Bird Reports provide more details of Hooded Robins from this area, including the above reports:

1964-65 "Breeding began early September 1964 in open forest round Black Mt. At least one nest was attended by two males and one female." (Wilson 1965).

1965-66 "Second or replacement clutches started at end of November on Black Mt. No records of first clutches." (Wilson 1966).

1966-67 "BM (Black Mountain) - resident, 34 breeding pairs. Also recorded Botanical Gardens, Belconnen, Pine Island, Tharwa." (Wilson 1968).

1967-68 "BM (Black Mountain) - 3/4 pairs regular, breeding." (Anon. 1969).

The last published sightings of Hooded Robins from this area were two at "Black Mountain" (exact location not given) by J. Stevens on 20 May 1973 (Dow 1988) and a pair at Caswell Drive by I. McRae on 20 July 1974 (Clark 1975).

Mount Mugga Mugga

In the mid-1960s there were two territories along Mugga Lane between Mt Mugga Mugga and the landfill area (one nestling was banded on 29 November 1964) (Steve Wilson pers. comm.).

Several sightings of Hooded Robins from this area were recorded in the observations book of COG by Jim McNaughton (Dow 1988). These were: three on 1 January 1971 at Long Gully Road; six on 2 May 1971 at Mugga Lane and Long

Gully Road; one female on 6 June 1971 at Mugga Lane and Long Gully Road; and three on 9 January 1972 at Mugga Lane (this is the last published sighting of Hooded Robins from this area).

Mount Ainslie

On 28 November 1961 two nestlings were banded at the rifle range which was then situated in this area (Steve Wilson pers. comm.). Balfour (1978) saw a male Hooded Robin on the lower eastern slopes in July 1976 and "two or three weeks later" saw a female fly to, and sit on a nest in the same area. During 1979, Balfour (1980) observed Hooded Robins in most months (they were not seen in April, May or June). In 1990 and 1991 a pair bred on the lower eastern slopes (Sullivan 1993).

On 21 December 1962, Max Murn banded two nestlings in an area now occupied by the Australian Defence Force Academy (Steve Wilson pers. comm.).

Methods

I contacted most of the people who had supplied data on Hooded Robins during the period of the ACT Bird Atlas (1 September 1986 to 31 August 1989) and obtained information from them on habitat, location, frequency of visits, and the numbers seen. Using these data, I estimated there were about 40 breeding pairs of Hooded Robins in the ACT. After the investigation of a number of sites from which Hooded Robins had been reported, five were chosen for further study; Mulligans Flat, Gigerline, Malcolmvale, and Yalgum in the ACT; and Googong Foreshores in nearby NSW. Permission to enter these sites was obtained and teams of three or more were called for and allocated to sites which they were to visit four times a year.

As the survey did not begin until March 1991 it was continued through to the end of February 1992. On the first visit to each site a sketch map was prepared and divided into a 1 ha grid. These maps were based on 1:250 000 topographic maps and contained prominent features such as roads, creeks, fences, pine plantations, and buildings. On each visit the location of the birds seen and their movements were recorded on these maps. The surveys were usually made in the morning and lasted from two to four hours.

Results

The numbers reported at each site are shown in Table 1. On three occasions, two visits were made in the same month, so the higher number seen was recorded.

Table 1. Number of Hooded Robins reported at each site. March 1991 to February 1992.

Site	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Mulligans Flat		2		0		0	4		3			0
Yalgum		5	0	5		4						3
Gigerline		4	3	4		0	3	1	5			0
Googong Foreshores					3	7	8	4	1		5	
Malcolmvale	2	4	4		4	4	1	4				

Mulligans Flat

This is an isolated remnant of relatively undisturbed open forest, woodland and native grassland surrounded by highly modified grazing land (Taylor and Canberra Ornithologists Group 1992). The main area surveyed was in the central flat (Lindenmayer 1992) near the woolshed, yards and surrounding woodland and dams (35°10' S., 149°09'E.). Of all the sites, this had the heaviest cover of trees and it was harder to find birds here, or to track them. The territory size was estimated to be 25 ha.

On 8 September, three adults and one immature were seen, which suggests that breeding took place in this, or a nearby territory.

Subsequent work indicated that there were four territories at this site (Purcell 1993).

Yalgum

Yalgum is on the Kings Highway between Queanbeyan and Bungendore, 3 km north-east of Burbong Bridge (Figure 1a). It is part of the Kowen State Forest. Hooded Robins were regularly reported from this area during the atlas (Bryan FitzGerald and Alastair Morrison pers. comm.). The territory was at 35°19' S., 149° 21' E. and straddled the highway. It was about 40 ha and most was south-east of the highway. The pine forest formed its southern and eastern boundary and it included a large paddock with scattered trees, dams and a well-timbered gully. The gully had a remnant of mature eucalypts including Apple Box *Eucalyptus bridgesiana*, Candlebark *E. rubida*, Yellow Box *E. melliodora*, Red Box *E. polyanthemos* and Scribbly Gum *E. rossii*. There was an understorey including Silver Wattle *Acacia dealbata*, Sweet Bursaria *Bursaria lasiophylla*, and a mixture of introduced and native grasses.

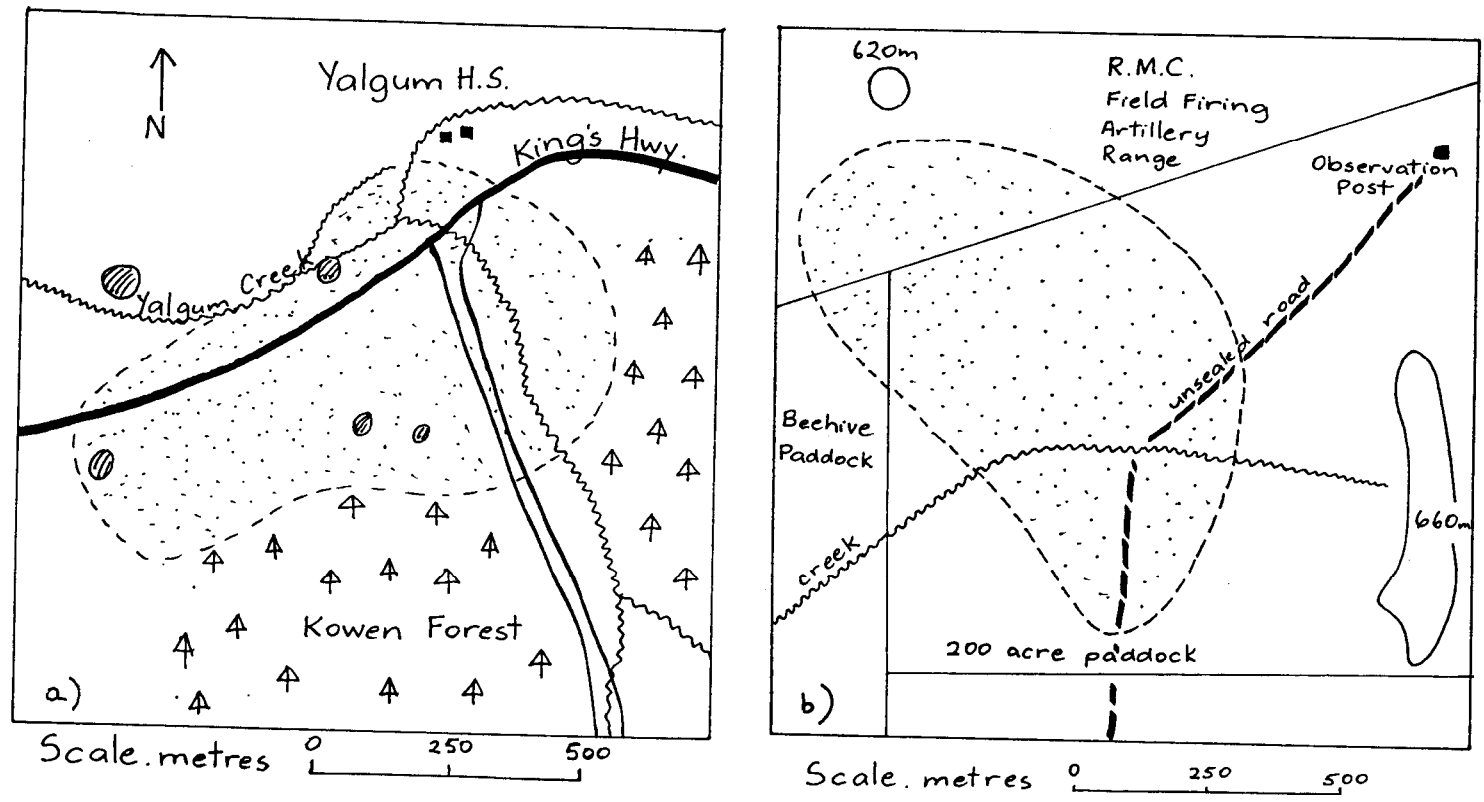


Figure 1. Sketch maps of the territories at: a) Yalgum; and b) Malcolmvale.

On 16 June, four adults and one immature male were seen, which suggests that breeding took place in this, or a nearby territory. The immature had plumage like an adult female, but with a darker grey head and a white bar on the shoulder as well as the white bar on the wing.

On 25 August, a team led by Mark Clayton located four birds and colour-banded one male. Even though the site was open woodland, it took two hours of searching to locate the birds. This is a problem associated with studying a single species which is thinly distributed. The advantage with the Hooded Robin is that it is sedentary. The presence of the highway seemed to present no problems to the birds.

Gigerline

This site is 4 km SE of Tharwa on the south side of the Murrumbidgee River (35°32' S., 149°05' E.). It is in a valley of 70 ha beside the river and a steep ridge on the north side. Access is a half hour walk from Smiths Road or the Sandwash carpark at the river. The territory is about 40 ha, most in the valley and some straddling the spur. The valley has a good cover of mature eucalypts including Yellow Box and Blakely's Red Gum *E. blakelyi*, with some crowns touching. The understorey includes Silver Wattle, pomaderris *Pomaderris* sp., Sweet Bursaria, and clumps of the introduced Sweetbriar *Rosa rubiginosa*. There is a regrowth of young saplings and a scattering of fallen timber. The site is well grassed and not over-grazed.

On 17 November, a pair of adults with two dependent juveniles which were out of the nest were seen, indicating that breeding took place in this territory.

Googong Foreshores

Googong is 10 km south of Queanbeyan off the Old Cooma Road (35°24' S., 149°16' E.).

Four main territories were located. The first included the Visitors Centre and went down over the hill to the Queanbeyan River. The hillside was thickly covered with eucalypt forest and nearer the river, thickets of Silver Tea-tree *Leptospermum multicaule*. The second was in the area between the dam spillway and the picnic area beside the river. The third began 500 m south of the boat ramp carpark and continued south to Shannon Inlet. The fourth was another 2 km south, near some dams at Paradise Inlet. The latter three were in open woodland with erosion control taking place, including replantings. These territories were all about 40 ha.

Other sightings further south along the dam, and along the river north towards Queanbeyan, have been reported by rangers and others. This is ideal habitat for Hooded Robins and visitors have a high likelihood of seeing them.

On 16 June, four adults and one immature male were seen at the carpark below the dam spillway. which suggests that breeding took place in this, or a nearby territory. The immature had plumage like an adult female, but with a darker grey head and a white bar on the shoulder as well as the white bar on the wing. On 15 October. one juvenile and one egg were in a nest about 1.5 m above the ground in a small eucalypt at Shannon Inlet.

Malcolmvale

Malcolmvale (35° 17' S., 149°13' E.) is a leasehold property on the north side of Canberra Airport. On its northern boundary is the RMC Field Firing and Artillery Range. The territory of about 50 ha (Figure 1b) is in the "200 acre paddock" and the artillery range. The 200 acre paddock contains a remnant of eucalypt woodland, including Yellow Box. The understorey contains low shrubs including wattles *Acacia* sp., Sweet Bursaria and tussocks of *Poa* sp. In contrast, the artillery range had mainly cleared ground with scattered trees.

On 28 October, two dependent young with speckled plumage were seen out of the nest in the company of two adults. which indicated breeding had taken place in this territory.

Several incidents of inter-specific aggression were reported from this site:

28 April 1991. The birds would often sit together, usually no more than two, preening, enjoying the sun, observing their surroundings, then dart off chasing one another, or diving for food. On one occasion a male Hooded Robin harassed a resident Restless Flycatcher *Myiagra inquieta*. During the afternoon the gully contained pools of water, following recent rain. The Hooded Robins, plus other birds, were drinking at these pools. Every now and then we would observe the robins dart to the pools for a drink. Once, a male chased a Diamond Firetail *Stagonopleura guttata* away from its drinking site. Later, one harassed a White-plumed Honeyeater *Lichenostomus penicillatus*. (Graham Stephinson pers. comm.)

In September the Australian Army constructed an access road through the territory in the 200 acre paddock. A number of mature trees were removed. As the highway at Yalgum did not seem to affect the territory there, this action should not adversely affect the birds here. On 20 September the army commenced training and no further studies were done at this site. In May and June some visits were made to Warralonga, three kilometres to the north-east. A pair of robins was found in two separate locations, but no further studies were done there. The firing range covers an extensive area. Parts are almost completely cleared of trees, while other areas have

open forest and plenty of ground cover. The presence of the army seems to guarantee that the Hooded Robin habitats in this area will remain relatively undisturbed.

Conclusion

The viability of Hooded Robins at the five sites appears to be secure. Breeding was confirmed (by the observation of eggs or young in the nest, or dependent young out of the nest) at Googong Foreshores, Malcolmvale, and Gigerline. The presence of immature birds, less than 12 months old, at Yalgum and Mulligans Flat, suggests that breeding may have taken place at those sites.

Earlier work at Enchanted Hill, ACT, indicated that during the non-breeding season the size of the territory occupied by Hooded Robins was about 50 ha (Graham 1993). During the present study the total time spent observing at each site varied from 10 to 16 hours, which was insufficient to fully establish the extent of the birds' movements within each site. Therefore the sizes given for the territories, which range from 25 to 50 ha, are estimates. However, they are similar to those at Enchanted Hill and also the 30 ha for a pair at Armidale, NSW (Bell 1984).

Much more work remains to be done if we are to understand more fully the biology and habitat requirements of the Hooded Robin. Colour-banding and long-term monitoring could provide more information on social behaviour, survival of individuals and movements between territories. Such information is a prerequisite if we are to ensure the conservation of the species.

Acknowledgements

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**OBSERVATIONS ON A LARGE FLOCK OF FRECKLED DUCK ON LAKE
GEORGE, NSW - SHOULD LAKE GEORGE BE CONSIDERED A
WETLAND OF INTERNATIONAL IMPORTANCE?**

Chris Davey and Peter Fullagar

Within the local region the Freckled Duck is regarded as an uncommon visitor (Canberra Ornithologists Group 1993). Frith (1984) states that the bird is a regular visitor to Lakes George and Bathurst and other large water areas in the Canberra district, and flocks as large as two hundred sometimes occur. In New South Wales the Freckled Duck is listed on Part 2 of Schedule 12 (Vulnerable and Rare Fauna) of the National Parks and Wildlife Act 1974 and is described as having a severely reduced population.

On 27 May 1993, when participating in one of the regular Canberra Ornithologists Group (COG) waterbird surveys of Lake George, Malcolm Fyfe reported 728 Freckled Duck *Stictonetta naevosa* dispersed in the various bays along the south-west side below the escarpment. On 5 June over 400 birds were seen in the same area by Jenny Bounds, Malcolm Fyfe, David Purchase, and Robin Smith.

Having spent many hours observing breeding Freckled Duck in the wild and having managed a captive breeding flock at "Gungahlin", the headquarters of the CSIRO Division of Wildlife and Ecology, we wished to collect as much information as possible from this unusually large gathering of birds. Early in the morning of 19 June we found the birds scattered in groups in the various bays along Lake Road. We independently counted the number of birds in the various groups, and in a number of randomly chosen groups we noted the sex, plumage condition, age, bill colour of the drakes and signs of any courtship displays.

We counted 662 Freckled Duck. All were adult birds - juveniles are distinguishable from adults in the field by their finer, paler and less boldly marked appearance (Marchant and Higgins 1990). Given appropriate experience it is possible to sex Freckled Duck from a distance by noting the silhouette of the bird - the shape and size of the bill and head are diagnostic. Five samples with a total of 176 birds contained 141 drakes (80%) and 35 ducks (20%).

Of the 141 drakes only three had a faint hint of red to the base of the bill (in breeding males the upper mandible is a bright pillar-box red from the base to the nostrils). the remainder had dull slate-grey bills. Only one drake was seen to give the 'axle-grind' display once (Fullagar et al. 1990). The lack of courtship displays was not surprising given the very low number of red-billed drakes.

The birds were disturbed after they were counted and all took off from the water. Many of the birds had been observed preening either in the water or on the shore-line and none were seen to remove feathers. As with all members of the Anatidae, Freckled Duck become flightless during the period of wing moult because all flight feathers are lost simultaneously. Therefore, this large gathering of Freckled Duck did not include birds in wing moult or substantial body moult. Most of the birds appeared to have recently moulted because the body plumages looked fresh. This is consistent with the normal pattern of seasonal moult for this species (Marchant and Higgins 1990).

On 22 June Michael Lenz reported 660 birds and on 24 June Malcolm Fyfe reported over 320 birds, both at the south end. The latter count was incomplete as the birds took to the wing when a White-bellied Sea-Eagle *Haliaeetus leucogaster* flew into the vicinity. No Freckled Duck were seen in the area during the waterbird survey at the end of July. At Lake Bathurst, the only Freckled Duck counted during the monthly surveys over this period were 82 on 18 July. Prior to this, none had been seen at Lake Bathurst since January 1993.

Sex ratio in Freckled Duck populations

There are few recorded observations on the sex ratio of Freckled Duck populations with which to compare our findings. The carcasses of 164 Freckled Duck shot in and around Bool Lagoon on 1 March 1980 were collected and of the 146 birds sexed 63.7% were drakes (Norman and Horton 1993). The sex ratio of 182 Freckled Duck shot at three Victorian swamps on 7 March 1981 varied between sites, but not significantly, and averaged 53.3% drakes (Norman and Norris 1982).

It is interesting to note that this is not the first time observations of greatly biased sex ratios in waterfowl have been recorded from Lake George. McKean and Braithwaite (1976) reported that of 215 Australian Shelduck *Tadorna tadarnoides* caught in January 1965, 78.4% were females, and of 788 birds caught in February 1970, 72.6% were female.

Previous observations of Freckled Duck from Lake George

Few observations were recorded from Lake George before regular waterbird surveys of the north and south ends of the lake started in July 1979. The observations book of the ACT Branch of the RAOU contains a report of 300 on 27 August 1965 by John McKean and Ian Betts (Grahame Clark pers. comm., see also Dow 1988). The 1978/79 Bird Report states "remarkable numbers at L. Geo, apparently in connection with dry conditions more inland" with 154 reported on 10 June at the north end and 100+ on 18 June at the south end (Lenz 1980). The start of regular waterbird surveys resulted in an increase in the number of visits to Lake George. In July and October 1979 and

February, April and May 1980 the number of Freckled Duck recorded were 260, 160, 113, 153 and 109 respectively, all at the north end (Lenz 1981). In 1980-81 a maximum of 242 was recorded over the summer months (Lenz 1982). From July 1981 through to February 1989 there were no records from Lake George. Over this period the lake was either dry or less than 1 m deep for 70% of the time, and for the majority of this period no surveys were undertaken. However, 166 were recorded from Lake Bathurst in February 1983, and 486, 183 and 138 respectively in April, May and June 1986. Unpublished records made available from the COG database show two further observations of groups of about 200 Freckled Duck on Lake George; 217 in June 1992 and 190 in December 1994 (M. Lenz unpublished observations).

How many Freckled Duck are there in eastern Australia?

Aerial surveys covering 12% of the land area of eastern Australia originally conducted by CSIRO and later by the NSW National Parks and Wildlife Service each year from 1983 to 1993, produced annual indices of abundance of 2925, 10,861 (misprinted as 1086 in Marchant and Higgins (1990) and copied by others e.g. Garnett (1992)), 4119, 201, 1954, 64, 112, 325, 3866, 11,760 and 1826 (Braithwaite et al. 1985a, 1985b, 1986, 1987; Kingsford et al. 1988, 1989, 1990, 1991, 1992, 1993, 1994). About 8000 birds were counted in eastern Australia in early 1983 with an estimated total population of 19,000 (Martindale 1983). Population estimates of birds in Victoria gave 3000 in the summer of 1983 (Corrick 1982). Given the paucity of data it is virtually impossible to estimate the population numbers or track population fluctuations of the Freckled Duck.

Why Lake George should be considered as a wetland of international importance

Australia is a contracting party to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention). The Australian Government therefore has international responsibilities to those wetlands identified as internationally important

The criteria for identifying wetlands of importance are:

- a) sites that regularly support 20,000 or more waterfowl; or
- b) sites that regularly support 1% or more of the individuals in a population of one species or sub-species of waterfowl.

There are two problems: first it is necessary to know the size of the population; and second it is necessary to define the term "regularly".

In *A National Plan for Shorebird Conservation in Australia* (Watkins 1993) the term "regular" is taken to mean that 1% of the population is observed on a wetland

on at least one occasion. This interpretation was used for two reasons: first the inland wetlands of Australia are frequently ephemeral and shorebirds therefore need a much larger network of wetlands to enable them to move in response to water availability; and second in some instances only one count is available for an area.

Clearly a major problem is to define the total population of the Freckled Duck. Lack of coverage and large fluctuations in population numbers make the task particularly difficult.

If they are to represent 1% of the total population, the group of about 700 Freckled Duck recorded on Lake George in the autumn of 1993 would need to be part of a population of 70,000 birds - a figure far in excess of any known population estimates. If Martindale's population estimate of 19,000 is accepted as being realistic then any observations of flocks in excess of 200 birds would be significant.

Because of low water levels, Lake George has been surveyed for waterbirds by members of COG on only 52 occasions between June 1979 and June 1991. Surveys have been of the north and south ends only, yet Freckled Duck can be seen on any part of the lake (Michael Lenz, pers. comm.). The population varies considerably in number from year to year and there are no data to suggest that the birds are not nomadic; moving away from their preferred habitat in the arid zone only during periods of inland drought (Marchant and Higgins 1990). It is therefore surprising that large numbers of Freckled Duck are reported from Lake George as frequently as they are.

COG has recorded an excess of 200 Freckled Duck on Lake George on five occasions: 300 in 1965; 260 in July 1979; 242 in December 1980; 217 in June 1992; and 600+ in June 1993. In addition, 190 were observed at Lake George in December 1994 and 486 from Lake Bathurst in April 1986.

Given the criteria as defined by the Ramsar Convention, areas such as Lake George that "regularly" support populations in excess of 200 Freckled Duck should be considered as wetlands of international importance.

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TREE SPECIES PREFERENCE OF NESTING MAGPIE-LARKS IN THE AUSTRALIAN NATIONAL UNIVERSITY CAMPUS - NATIVES OR EXOTICS?

Kenneth B.H. Er, Thiang H. Wong and Yung En Chee

Introduction

The Australian Magpie-lark *Grallina cyanoleuca* is one of several bird species in Australia that build mud nests. It is an extremely common bird of suburban Canberra. Often described as a species inhabiting open areas where there is water, it has adapted well to the urban environment in Canberra. With the exception of brief descriptions offered by Rowley (1969), Taylor (1988), and Taylor and Canberra Ornithologists Group (1992), there has been little mention about the breeding behaviour of the magpie-lark in Canberra and consequently, not much is known about the tree species preference of nesting magpie-larks in suburban areas.

This paper reports on the tree species preference of nesting magpie-larks monitored from March 1993 through to April 1995 on the Australian National University campus.

Study Site

A study site of about 15 ha was located in the Australian National University campus (Figure 1 (p. 67)). The campus was chosen because it is typical of the urban environment in Canberra and has a sizeable population of magpie-larks.

The study site consisted of well-watered lawns and was bordered by Sullivan's Creek which runs through the heart of the campus. Both exotic tree species and native eucalypts have been planted in the study site. The dominant species are Willow Oak *Quercus phellos*, English Elm *Ulmus procera*, Weeping Willow *Salix babylonica*, Eastern Poplar *Populus deltoides*, Lombardy Poplar *P. nigra* var. *italics*, Blakely's Red Gum *Eucalyptus blakelyi*, Ribbon Gum *E. viminalis* and Southern Blue Gum *E. globulus* subsp. *bicostata*. Table 1 shows the composition of the dominant tree species and their distribution is shown in Figure 1.

Methodology

From March 1993 through to April 1995 the study site was systematically searched on a regular basis of about once every two weeks by alternating between two fixed routes each time. Nest searches often took place between 0800 to 1000 h in the morning and 1600 to 1800 h in the evenings, and were confined to fine weather. During each search, locations of pairs of magpie-larks, new nests and breeding behaviour were

Table 1. Composition of the tree species in the study site.

<u>Tree Species</u>	<u>No. of Trees</u>	<u>Percentage</u>
Willow Oak	28	9.3
English Elm	56	18.6
Weeping Willow	20	6.6
Eastern Poplar	75	24.9
Blakely's Red Gum	21	7.0
Ribbon Gum	7	2.3
Southern Blue Gum	18	6.0
Lombardy Poplar	<u>76</u>	<u>25.2</u>

recorded. Trees in which new nests were located were identified to species level and the height of the nests from the ground were measured with a Haga altimeter (accuracy —0.5 m).

A chi-square test was used to test the null hypothesis that the number of nests found was independent on tree species.

Five trees of each dominant species were systematically selected within the study site and the height of the nearest horizontal branch from the ground was measured for each tree, again with a Haga altimeter. The average height of the nearest horizontal branch to the ground was then calculated for each tree species. This provided an indication of the suitability of that tree species for nesting, with respect to height. The bark shedding nature of the tree species, if any, was also noted.

Results and Discussion

A total of ten nests were found over a period of about 25 months. Of the ten nests, four were found in the Willow Oak, three in the English Elm, two in the Weeping Willow and one in the Eastern Poplar (Table 2). No nests were found in Blakely's Red Gum, Ribbon Gum, Southern Blue Gum and Lombardy Poplar. This observation is most interesting since Blakely's Red Gum is native to the eucalypt woodlands in Canberra. Furthermore, Rowley (1969) noted that magpie-larks nest 70% of the time in eucalypts in Canberra. This therefore poses an interesting question as to why the magpie-larks were not using the eucalypts or the Lombardy Poplar for nesting in the study site.

Results of the chi-square test may offer a clue. It suggested that the number of nests found was independent on tree species (at significance level, $p < 0.05$). This meant that a magpie-lark's choice of a nesting tree was not merely species-dependent.

Table 2. Average nest heights in the various tree species.

Tree Species	Average Nest Height \pm SD (m)	Number of Nests
Willow Oak	8.6 \pm 2.4	4
English Elm	6.2 \pm 3.2	3
Weeping Willow	6.3 \pm 0.4	2
Eastern Poplar	10.5	1
Overall Average	7.9 \pm 2.1	

In other words, magpie-larks did not restrict their nesting preference to a specific tree species. Rather, they chose trees that were able to fulfil their requirements for nesting. These factors will be discussed in greater detail below.

Examination of the distribution of the dominant tree species in the study site (Figure 1) showed clearly that the various stands were in close proximity to one another. This meant that all trees must have been equally accessible to the magpie-larks. Therefore, the abundance of each of the dominant tree species was most probably not a prominent factor influencing the number of nests found in any particular tree species.

The question is thus examined here in the light of four factors which may affect the choice of nesting tree species by magpie-larks in the study site. These factors are:

1. proximity to water and food (Rowley 1969, Tingay 1982);
2. the presence of horizontal branching within the heights of 4 to 20 m (Chisholm 1934, Rowley 1969, Schodde and Tidemann 1986);
3. absence of bark-shedding in branches; and
4. availability of adequate foliage cover in trees (Rowley 1969).

Proximity to Water and Food

Proximity to water and food was not a major factor in determining the choice of nesting trees by magpie-larks. This is because of the close proximity of Sullivan's Creek and the presence of well-watered lawns within the study site (Figure 1).

Presence of Horizontal Branching

Being mud-nest builders, magpie-larks require horizontal or just slightly sloping branches on which to plaster their nests.

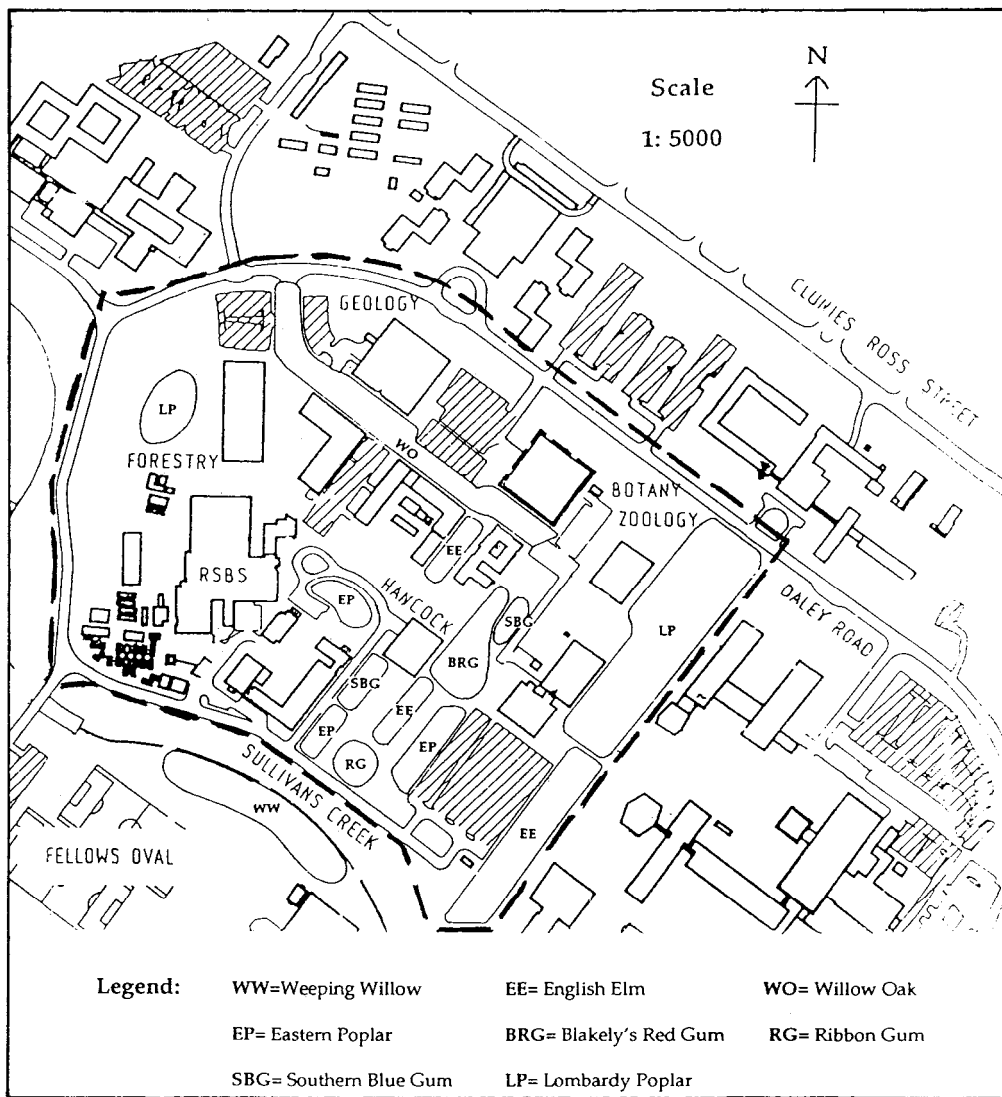


Figure 1. Location of study site in the Australian National University.

Schodde and Tidemann (1986) reported the nest height range of magpie-larks as 4 to 20 m. Rowley (1969) gave the average height at which magpie-larks nest in the Canberra area as 36 feet (*c.* 11 m). Taylor (1988) recorded that the average nest height in the Canberra area was $8.23 \text{ m} \pm 2.26 \text{ m}$, which is comparable with the overall average nest height of $7.9 \text{ m} \pm 2.1 \text{ m}$ recorded in this study (Table 2).

The Lombardy Poplar has such acute and dense branching that there are no suitable horizontal branches (Table 3). Building of a mud-nest would not have been feasible in such a situation. This therefore explains why no nests were found on the Lombardy Poplars in the study site.

At the same time, the average heights of the first horizontal branch of Blakely's Red Gum, Ribbon Gum and the Southern Blue Gum were well within the nesting range of 4 to 20 m (Table 3). Hence, it remains unclear at this juncture why these species were not utilised by the magpie-larks for nesting.

Table 3. Comparison of first horizontal branch heights for the various species.

Tree Species	Average First Horizontal Branch Height \pm SD (m)
Willow Oak	4.5 \pm 1.8
English Elm	4.2 \pm 0.8
Weeping Willow	2.7 \pm 0.6
Eastern Poplar	4.7 \pm 0.6
Blakely's Red Gum	8.2 \pm 2.6
Ribbon Gum	8.8 \pm 3.0
Southern Blue Gum	10.0 \pm 1.0
<u>Lombardy Poplar</u>	<u>No horizontal branching</u>

Absence of Bark-Shedding in Branches

Given that magpie-larks build mud nests on horizontal branches, these branches must logically not have a bark-shedding nature. Although none of the literature researched made explicit mention of this point, Barrett (1945) and Rowley (1969) did note that the nests were constructed on bare branches. Both the Ribbon Gum and the Southern Blue Gum have the tendency to shed bark from their branches and this makes them unsuitable to magpie-larks for nesting. This, however, still does not explain the unsuitability of the Blakely's Red Gum which has a lower tendency of shedding its bark.

Availability of Adequate Foliage Cover

Other than the availability of food and water, the presence of adequate cover is extremely important during the period of nesting. This is because it provides cover for the eggs and young from predators, and minimises the effects of strong winds and rain. This will greatly determine the breeding success of the magpie-larks.

The Blakely's Red Gums in the study site showed symptoms of eucalypt dieback, possibly the result of drought and insect defoliation. This resulted in the Blakely's Red Gums having very low foliage cover, as compared to the exotics, such as the Willow Oaks, English Elms and the Weeping Willows. This will then explain why they have not been attractive to the magpie-larks as nesting trees.

Conclusion

This study illustrates very nicely how sensitive birds can be in their choice of nesting trees. It further shows the versatility of magpie-larks in adapting to exotic tree species when local species such as Blakely's Red Gum are not suitable for nesting. In a city like Canberra, it is important to realise there is a need to be selective in the choice of the tree species planted, by making sure they will provide nesting sites for native birds.

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ATTEMPTED PREDATION OF A RAINBOW BEE-EATER'S NEST BY AN EASTERN BROWN SNAKE

Chris Davey

During the morning of 27 November 1991 I was walking along the bed of a deep erosion gully in the vicinity of Wallaroo Road, NSW, in Canberra Ornithologists Group's grid cell H10, looking for nest tunnels of Rainbow Bee-eaters *Merops ornatus*. The gully was about 4 m deep with the tunnels about 13 cm below the top of the gully wall. As I looked up at the entrance of a freshly dug tunnel I could see the head of an Eastern Brown Snake *Pseudonaja textilis* silhouetted against the bright sky. The snake stretched its body out over the edge and on seeing the entrance to the Rainbow Bee-eater's nest below, slid its head into the hole. The diameter of the tunnel was 3 cm and the body of the snake only just managed to fit into it. The snake slid about 45 cm along the tunnel, its tail still on the ground 13 cm above. The snake then slowly withdrew its body and returned to the surface.

I climbed to the top of the gully and found the snake resting on the ground. I estimated its length to be c. 1.3 m. I then measured the length and width of the tunnel and with a mirror was able to see eggs 53 cm away in the nest chamber.

The snake was obviously searching for a meal and was prepared to place itself into a precarious position in an attempt to obtain the contents of the nest. Had the tunnel been 8 cm shorter there is little doubt that the snake would have been successful in taking the eggs.

I continued to infrequently visit the gully. During my final visit on 8 January 1992 I measured the 48 tunnels in the gully, 23 of which were longer than 10 cm; the longest being 72 cm. During earlier visits I observed that four of these tunnels were being regularly used by Rainbow Bee-eaters. Their lengths ranged from 53 cm to 62 cm of which two were straight enough for me to detect eggs, including the nest described above.

According to Fry (1984) the nest tunnels of Rainbow Bee-eaters are up to 1 m long ending in a chamber. The tunnels are dug into flat ground or the side of ruts, ridges, low banks and, less often, high perpendicular cliffs. Nest tunnels in cliffs are horizontal and straight or curving to one side, whilst those on flat ground slope gradually to a depth of about 40 cm with the contents at the mercy of snakes, foxes, skinks, goannas and feral dogs. No mention is made by Fry of the predators of nests in high cliffs.

When nesting in cliffs, or gully walls, there are two ways to reduce the possibility of nest predation by snakes: to dig the nest tunnel far enough below the edge

so that snakes cannot reach the tunnel entrance; or to dig a long enough tunnel so that snakes cannot reach the nest chamber.

In the local region the soil profile is characterised by a relatively soft top layer of about 40 cm on top of a much harder lower layer. I have been unable to find any tunnels dug into the hard lower layer. The tunnels are therefore restricted to the top 40 cm of the soil surface so the only way to reduce the possibility of snake predation is to dig long tunnels.

This observation suggests one good reason why Rainbow Bee-eaters dig long nest tunnels. Tunnels less than 50 cm long which are dug into gully walls are prone to predation by Eastern Brown Snakes. Those dug into flat ground would need to be longer.

Reference

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Chris Davey, 24 Bardsley Place, HOLTACT 2615

OUT AND ABOUT

G. Tibicen

One of the lesser known areas of Australia is the Gulf County around Karumba and Burketown in north-west Queensland. It is an area that is not often visited by bird watchers but contains some interesting birds. Karumba itself is one of the arrival/departure points for palearctic waders.

A bird watchers guide for the area has recently been published by the Gulf Savannah Tourist Organisation, 55 McLeod Street, Cairns, Qld. 4870. The publication is available free and lists not only the birds of the area, but also places that you can stay (including properties) and brief notes and a map of the area. If you are thinking of visiting the area, it is worth writing and requesting a copy of the guide.

A recent edition of the *New Scientist* carried an article on the lead poisoning of waterbirds as a result of ingesting shot-gun pellets. The survey was carried out in Spain's Coto Donana wetlands in 1991 and 1992 following the death of large numbers of flamingos. The study says stray lead shot is responsible for the deaths of 25,000 to 30,000 birds each year. In this case not only waterbirds suffered, but also vultures, eagles and buzzards that have eaten the affected waterbirds, including two Golden Eagles, one of which had 40 pellets in its gizzard.

Apparently the Spanish Hunting Federation has reacted unenthusiastically to suggestions that it should encourage hunters to switch to other types of shot. Their concern is that other kinds of metal would require the complete overhaul of the kind of weapons used and this is expensive. I presume this means it is better that the birds should suffer than hunters have to pay out money.

The recent discussions in *Canberra Bird Notes* have barely touched on the issue of the "passive" killing of waterbirds by lead poisoning brought about by the use of lead shot. Does anybody know what the present situation is in regard to the use of lead shot or the official attitude of the Field and Game Federation of Australia to the use of lead shot?

While on the subject of duck hunting, perhaps we can leave the last word to Ogden Nash:

*The hunter crouches in his blind
'Neath camouflage of every kind,
And conjures up a quacking noise
To lend allure to his decoys.
This grown up man, with pluck and luck
Is hoping to outwit a duck.*

In June the government's Biodiversity Unit released two reports which give a few interesting facts about the clearing of Australian bush and woodland. Between 1983 and 1993, we cleared an average of half a million hectares per year - or as I saw it written in the *New Scientist*, the equivalent of two rugby pitches per minute. For instance in 1990 we cleared 650,000 ha - more than half the area cleared in the Amazon Basin. And if you think the amount of clearing is being reduced, you are wrong. Last year in Queensland alone permits were granted to clear more than one million hectares, including 685,000 h of virgin bush. The report also points out that as much land has been cleared in the last 50 years as in the preceding 150 years.

So remember, before getting too uptight about foreign governments permitting the clearing of vast tracts of land, our own governments are responsible for one of the worst records in the world.

Here is a piece of good news for a change. Did you know that in the USA the Peregrine Falcon is about to be taken of the list of endangered species? You may remember that the Peregrine Falcon almost disappeared from the USA because of the effects of DDT, particularly its role in the thinning of eggshell. The US Fish and Wildlife Service now says there are about 1300 nesting pairs in the USA and that that is enough for the bird to manage without special protection.

The Peregrine Falcon was the subject of a well-publicised program of captive breeding to produce birds that were released into the wild.

It is good to see that species can recover from situations where they are seriously endangered.

REVIEW

Reader's Digest Photographic Field Guide to the Birds of Australia by Jim Flegg (1994). Reader's Digest: Sydney. Pp. 367, 210 mm x 148 mm, softcover. \$35.

This is the first photographic field guide to the birds of Australia and should not be confused with the *Reader's Digest Complete Book of Australian Birds*. It contains over 760 photographs and has painted illustrations of a small number of species, such as the Night Parrot, for which satisfactory photographs are not available.

The guide follows what is becoming a standard, perhaps optimal page layout with the left-hand page having distribution maps and text, while the right-hand has the photographs, usually four to six to a page and generally one photograph per species.

The text covers similar ground to the other Australian guides: not as comprehensive as Pizzey, but more so than Slater. As well as a photograph, range map and information on each individual species. it has chapters on how to use the book, bird biology, bird habitats, bird names and classification. family characteristics,

field equipment, conservation, organisations and addresses, and a six-entry bibliography.

Many birders, particularly those new to Australian birding, will find the book a delight to own and use. Page after page we are presented with wonderful photographs of the Australian birds, in most cases as we see them in the field. Birds which are usually seen in flight (such as the swifts) are shown that way. The book is well made with a strong, stitched binding and is likely to cope satisfactorily with wet weather and some rough handling in the field.

The book has the usual drawbacks of all photographic field guides - often a single small photograph cannot show important identification features and the Peterson-system arrows which draw attention to key features are not provided. On the other hand, the author has made a commendable effort to include photographs which reflect the diversity seen within individual species. For example, photographs of both the male and female in some of the sexually dimorphic species are provided, and some immature and non-breeding birds are illustrated with photographs, along with birds in mature and breeding plumages. The book has none of the additional illustrations of field marks (e.g. underwing patterns in raptors) found in field guides with painted illustrations.

Unfortunately the book has a number of errors in page layout, errors which would cause confusion. Most of the photographs of the whistlers (pp. 244-247) are misplaced. For example, the photograph captioned "Gilbert's Whistler" which is set opposite the text for that species, is of one of the male Golden Whistlers. A colleague has pointed to at least seven other misplaced/mislabelled photographs, including the Sooty Albatross and Light-mantled Albatross (pp. 52-53), and the Grey Teal and female Chestnut Teal (pp. 90-91). It is hard to see how such a prominent international author as Jim Flegg, the book's Australian consultant N. Longmore, and the publisher, could have overlooked such errors. Indeed, some might think that these errors are serious enough to have justified the withdrawal and reissuing of the book. Perhaps commercial pressures to have it in the bookshops in time for the 1994 Christmas rush left insufficient time for adequate proof-reading?

One aspect of the presentation of the range maps is very strange and is also potentially confusing. Sabine's Gull is described in the text as occupying the habitat "at sea, rarely close to land" (p. 154). The accompanying range map, however, shows the whole of the Australian continent (including Tasmania) cross-hatched, suggesting that the bird is to be found anywhere in Australia! At least six other species, including the Fulmar Prion and Antarctic Tern are shown similarly. The explanation is found in the introduction "A number of species, often seabirds arriving at random intervals and unpredictable areas around the coast, are seen in Australia from time to time" (p. 9).

This hardly justifies showing all of Australia, from coast to the outback, as part of their ranges.

A third problem I have with it is the author's approach to taxonomy and nomenclature. He states that the book follows "...the internationally widely accepted order published by the RAOU in 1975" (p. 24) and, in the main, it does. With regard to scientific names he states that the book follows "the most up-to-date information available on the classification of Australian birds" (p. 10). This, I suggest, is problematic. Obviously authors must decide whether to follow the "official" list, knowing that research to be published subsequent to its release will suggest modifications, or to incorporate new knowledge into the book's taxonomy and nomenclature, based on the author's own knowledge and, perhaps, information from the scientist developing the new list. Examples of derivations from the 1975 RAOU list are found among the Acanthizidae (pp. 276 ff.) and the Australian thrushes (p. 232). (The guide was published one month before Christidis and Boles's new taxonomy of Australian birds was released. It does not apply the new taxonomy nor English names.)

Just who is the book for? Indeed, who are any photographic field guides for? They are generally unsuitable for identifying the difficult species such as some of the shorebirds, pelagic birds and raptors. I would not recommend the *Reader's Digest Photographic Field Guide to the Birds of Australia* to serious birders new to Australian birding who wanted to acquire just one field guide. Similarly, I would be reluctant to recommend it to a beginning birder. Any of the other three guides, with their painted plates, would be preferable for both categories of birder. On the other hand, many will find it an excellent second guide to have in the car as a back-up to Slater, Simpson and Day, or Pizzey in the backpack.

Acknowledgements and note re sources

A draft of this review was distributed on the Internet electronic conference BirdChat (McDonald, D. (20 November 1994). New Australian Field Guide. *BirdChat* [Online]. Available [e-mail: BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU](mailto:BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU)). I am grateful to Lawrie Conole and Tony Pallister for their comments on the draft, which have been taken into account in the preparation of this final version of the review. See Conole, L. (25 November 1994), Re: New Australian Field Guide, *BirdChat* [Online]. available [e-mail: BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU](mailto:BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU)) and Pallister, T. (7 December 1994), Re Photographic Guide, *BirdChat* [Online]. available [e-mail: BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU](mailto:BIRDCHAT@ARIZVM1.CCIT.ARIZONA.EDU)).

David McDonald

LETTERS

DUCK HUNTING

5 June 1995

I have been a member of the Canberra Ornithologists Group for ten years and the Bird Observers Club of Australia for fifteen - prior to that I was a member of the Royal Society for the Protection of Birds (UK) for twelve years.

I am totally opposed to recreational duck hunting because it is, in reality, the killing and maiming of all waterfowl and many other birds which are wrongly identified by uncaring shooters.

But I am far from being a lone voice as the following official statements indicate:

- (a) "...the RAOU does not support recreational waterfowl hunting in Australia"
- (b) "The BOCA opposes the shooting of all wild birds, including game Birds, except for the selective culling of pest species"
- (c) "COG is dedicated to the study of birds and the conservation of native birds and their habitats"

Despite the objective stated at (c) above, COG is yet to announce its official policy on duck shooting, although I am pleased to see that "the committee intends to develop a general conservation statement for COG, which will include reference to duck hunting ..." (Letter from the President of COG dated 11 January 1995.)

Continued silence on this subject by the National Capital's highly respected bird club may readily be construed by the Field and Game Federation of Australia as tacit agreement with their duck killing, thus helping the hunters to achieve some legitimacy for their shooting activities - a legitimacy which would be quite unjustified.

May the COG Committee be speedy in their deliberations and please remember just this: duck hunting is duck shooting which results in duck killing and duck maiming. It is as simple as that - and as cruel.

David Landon

9 July 1995

I refer to the letter to the editor in *Canberra Bird Notes* 19(4) December 1994, from Malcolm Fyfe and Ian Fraser. encouraging COG to develop a policy against duck shooting, and to the President's response.

I wish to reply to the President's response, to present some more ideas about the negative impacts of duck shooting, and to reply to some arguments put forward by Chris Davey in favour of a continuation of shooting.

Reply to the President's response: why COG should have a policy on duck shooting

I agree with the point made in the response that "...it is not possible nor appropriate for COG to actively take on every worthy conservation cause". but I would see duck shooting as a central issue which should not be ignored by our group. The fact that duck shooting is not legally permitted in the ACT is not a sufficient reason for COG to avoid the issue, as you suggest in your letter. Two arguments come to mind here. Firstly, as a body, we pride ourselves on taking responsibility for the "COG area of concern" which extends into NSW, where duck shooting is permitted. Secondly, many species of waterfowl are not sedentary, so that ACT individuals and populations may also spend time in states where they may legally be shot during the declared season. I feel that we cannot avoid this issue in the ACT simply because most COG members are fortunate enough to live in a very small and civilised state which does not permit duck shooting. As a result, many COG members will also be fortunate enough to have not experienced what it is like to live where shooting is permitted. This leads on to the second part of my letter, where I describe what it is like for waterbirds to live with shooting, and repeat some of the arguments against duck shooting.

Some negative impacts of shooting

Fear induced in populations of waterbirds by shooting

I can still remember my first impression of the waterbirds on the Gippsland Lakes in Victoria when I became one of the resident wardens at the RAOU's Rotamah Island Bird Observatory a decade ago. I was puzzled by the edginess of the ducks and some other waterbirds. It was January when I arrived, over six months after the end of the previous shooting season, and it was difficult to get within 50-100 m of waterbirds. It was only after the commencement of the next season that I came to appreciate why the birds were so inapproachable. By the end of the first week of legal shooting, it was impossible to get within 200 m, without patiently and quietly stalking through the vegetation fringing the lakes. I was a naive product of the ACT no-shooting policy, and even when I had lived in other Australian states where shooting was permitted, I had resided in cities, far from where duck shooting occurred. I had never spent time with populations of wild ducks which were available for shooting. The apparent fear

expressed by these birds, and other species which shared their habitat, had a very strong impact on me. I came to feel that we do not have a right to inflict such fear on species unable, because of their biological conditioning, to escape from the cause of the fear.

Impact on non-target species and non-target individuals

At Rotamah I was also forced to face the connected issues of non-target species being shot at, and of non-target individuals being wounded and not dying immediately. While I agree that shooter education can diminish the number of protected species being shot at, non-target individuals are always going to suffer so long as pellets of shot (rather than individual bullets) are used on species that are gregarious by nature, and keep together for protection. David Close has addressed (*inter alia*) the ethics of killing as it is practised by duck shooters, in his article in the RAOU's *Wingspan* no. 15, September 1994, so I will not go over the same ground, except to reiterate that injured "non-target" birds are an inevitable by-product of recreational duck shooting. Such injuries are a function of the method used.

Reply to some of Chris Davey's arguments in favour of a continuation of shooting

I was fortunate to be able to discuss the pros and cons of duck shooting recently with Chris Davey, and so was able to hear many of the ideas presented at the March COG meeting, which I had been unable to attend. I had not previously heard some of the points which Chris made, but, after further consideration, the arguments in favour of shooting remain for me flawed, as discussed below.

Impact of shooting at the population and species levels

Chris made the point that arguments against and for duck shooting may be made at the level of the individual bird, of a population, or of the species. For example, it may be argued that shooting of Grey Teal obviously affects individuals in various ways, and that some populations may be temporarily depleted, but that the species as a whole is not affected (my example). Most of the anti-shooting arguments tend to be at the individual level and fewer at the population or species levels (e.g. impact on endangered species).

As a biologist, I share Chris's inclination to view this issue at the population and species levels, as biologists are trained to view organisms (other than their own species!) in this way. Chris agrees with many of the anti-shooting arguments at the individual level, but feels that the negative impacts on these individuals are outweighed by the positive benefits to the species accruing from shooting. One of these benefits is funding for waterfowl surveys, conservation and other research, which Chris is concerned would inevitably diminish or cease following a ban on shooting. My response is that any lobbying for a cessation of duck shooting must include arguments for an increase in funding for waterfowl conservation and research. Publicly recorded

assurances must be obtained from the relevant state and federal ministers that such research will be continued.

I also feel that to argue for the achievement of a positive outcome (i.e. more waterfowl research and better wetland conservation) when one does not approve of the means to achieve that end (i.e. shooting) is unethical. This is the argument so often used to justify ignoble means to achieve noble ends.

Chris contrasted the large impact on a population of something like an outbreak of botulism, with the relatively small impact of shooting, and felt that those opposed to shooting should concentrate on the fundamental issues of habitat destruction, and wetland conservation and management (i.e. to prevent the outbreak of botulism, a disease which causes great suffering), rather than trying to ban shooting. I agree that the problem of habitat destruction is the most important issue, for ducks as for other species. The best way to tackle such a large issue is to take on local problems where one can make some impact, as Chris has with Superb Parrot habitat on the south-western slopes of NSW. Suggesting that the smaller issue of duck shooting is not a worthwhile goal, and that those opposed to shooting should concentrate their energies elsewhere, is akin to grassland enthusiasts chiding the defenders of the forests for ignoring a more endangered community. I feel that we are better off, each choosing our own particular issue, however apparently small, and concentrating on it.

Impact on Freckled Duck in particular

Chris feels that there are no negative impacts from shooting at the species level in Australia, but my superficial glance at some of the pertinent literature leads me to be concerned about the impact of shooting on an endangered endemic species, the Freckled Duck. *The Atlas of Australian Birds* treatment of this species noted that "Though protected, the Freckled Duck suffers high mortality when large numbers in south-eastern Australia coincide with the duck-shooting season. In March 1980 about 500 of an estimated 700 present were shot on Bool Lagoon, and in March 1981 about 800 of 3000 estimated to be in Victoria were shot. The total number of breeding reports historically is small, never involving more than a few pairs and during the Field Atlas [1977-81] only four breeding reports were received."

John Martindale in his 1986 RAOU Conservation Statement *The Freckled Duck* stated that "a high proportion of the Freckled Duck population present at some popular hunting areas is shot and this may be an important factor affecting its mortality. During drought, the effects of such shooting become serious for several reasons. Firstly, drought refuges are mostly in the south-east of the continent, ... where hunting pressure is greatest. Secondly, during drought, Freckled Ducks congregate on a small number of wetlands [and this] ... makes them vulnerable to being shot..." He goes on to say that "On the opening days of the duck hunting season in 1980 and 1981 ... 815 Freckled Duck carcasses were counted. The shot birds were collected from the water at Bool Lagoon in South Australia, and from the water and hunters' bags at a

number of sites in south-eastern Australia. The actual number ... shot must have been considerably greater ... because many sites were not inspected on opening day ...". Estimates of the population at this time led Martindale to estimate that "... the 815 ducks known to have been shot ... represent at least 4.3% of the [then] estimated total population". I agree with his conclusion that while a hunting mortality of at least 4.3% is not necessarily significant, the pressure caused by this illegal shooting on the Freckled Duck population must be considered serious, as the capacity of this species to breed rapidly in good seasons and replace shot birds is not known.

It is often argued that since the introduction in Victoria of pre-season counts in 1987 (to identify wetlands carrying large numbers of Freckled Duck for temporary closure to shooting) and of the licence test in 1989, the impact of shooting on Freckled Duck populations is not significant. But as there have been no large congregations of Freckled Duck since the drought of the early 1980s, it is not possible to estimate the impact of shooting on the Victorian population over recent years.

For this and the three following reasons. I feel that the potential impact of shooting on this endangered species is a valid argument against the continuation of duck shooting:

- i) some shooters find field identification of Freckled Duck difficult;
- ii) Freckled Duck are particularly vulnerable to shooting, as, under fire, they tend to circle low and repeatedly above the water;
- iii) there is little knowledge of the breeding biology of this species in the wild, e.g. there are only seven nest records of wild birds in the RAOU Nest Record Scheme to 1989.

Conclusion

I conclude that there are sound biological and ethical reasons for COG to lobby against duck shooting, and emphasise the importance of concurrently lobbying for an increase in waterfowl research and habitat conservation at the state and federal levels.

Isobel Crawford

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(Continued from inside front cover)

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