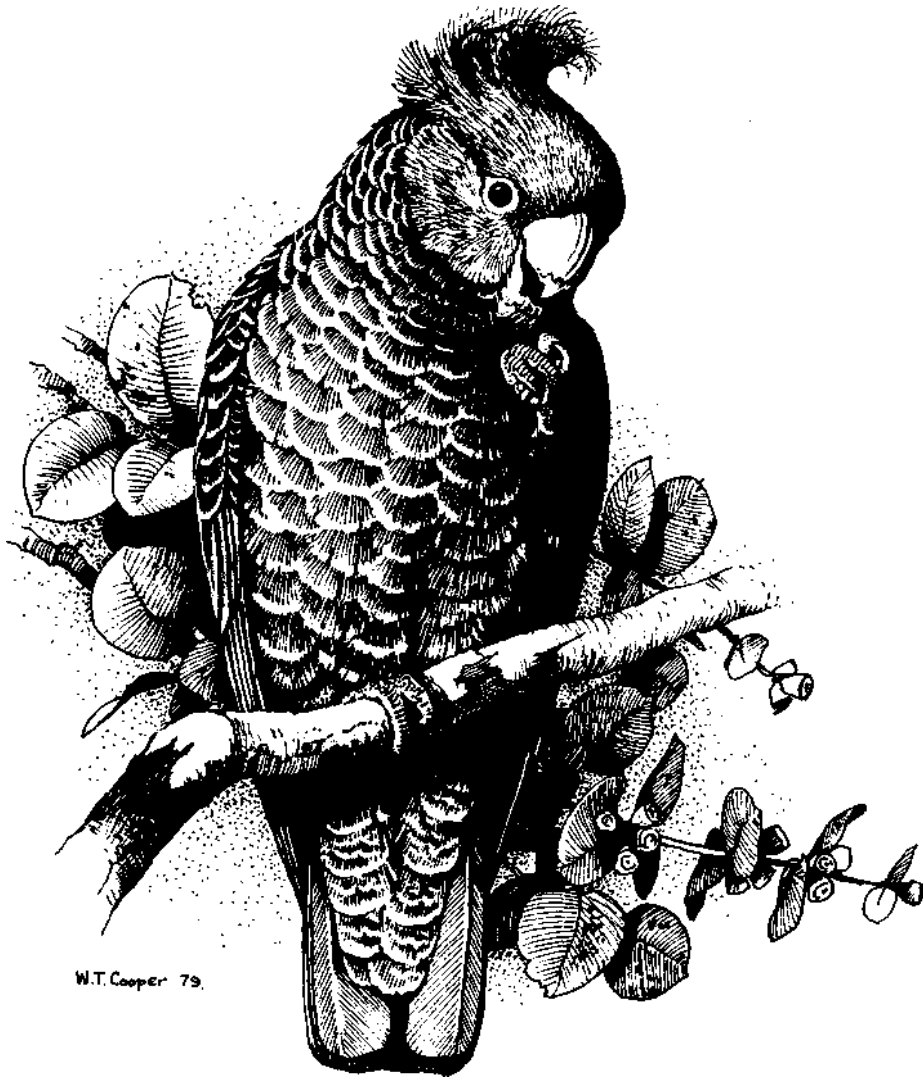


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W.T. Cooper 79.

**FORAGING, BROODING AND DEFENSIVE BEHAVIOUR OF A BREEDING
GROUP OF WHITE-WINGED CHOUGHS.**

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ABSTRACT

Foraging, brooding and defensive behaviour of a small group of Choughs were observed during the nesting period and the home range of the group was determined. The distance and direction of foraging and defensive behaviour were observed over a whole day, both before and after the young had hatched. The time spent foraging differed significantly between both distance and direction from the nest, which is thought to be attributable to the amount of leaf litter in particular sites. The number and duration of brooding intervals both before and after hatching were also observed.

INTRODUCTION

An extreme case of group cooperation occurs in White-winged Choughs *Corcorax melanorhamphos* and extends beyond breeding to foraging, defence, roosting and aggression. Choughs live in permanent cooperative groups of between 4 and 15 individuals, comprising at least two breeders and their progeny from previous broods (Heinsohn et al. 1988). Individuals do not breed until their fifth year, and almost always spend their adolescence in their natal group helping to raise siblings or other relatives (Rowley 1978). This facilitates the observation of behaviour and movements of Chough groups.

Little is known of the territory and feeding range of nesting Choughs as very few estimates have been made. There appears to be uncertainty concerning the territory size of nesting Choughs. In 1965, Rowley suggested that breeding territories were about four hectares from which Choughs other than group members are excluded and within which all feeding takes place. Rowley (1974) reported that the breeding territories were about fifty hectares and in 1978, Rowley reduced the figure to twenty hectares. Rowley's 1978 estimate of twenty hectares has subsequently been used by Blakers et al. (1984), Campbell and Lack (1985) and Readers Digest (1986) in describing the breeding territory of Choughs. Baldwin (1971) represents perhaps the only other published description of the feeding territory of Choughs.

In view of the lack of information on the subject, the aims of this study are to determine the territory and home range of one group of nesting Choughs.

Unlike the Eurasian Chough which is a member of the crow family, the White-Winged Chough and the Apostlebird *Struthidea cinerea*, are endemic to Australia and comprise the family Corcoracidae. They are confined to the south eastern part of the continent. They are common in the dry sclerophyll Woodlands of the tablelands along the Great

Dividing Range and inland to the Darling River but are less frequent near the coast (Campbell and Lack 1985).

A group of Choughs nesting in dry sclerophyll forest on our family property along Macks Reef Rd (149°15'E., 35°10'S.) in the Southern Tablelands of NSW were selected for this study. The group comprised four individuals. They were not banded so it was not possible to distinguish between them. The nest is located towards the south western border of a densely timbered sixteen hectare property. The main physical features of the area are shown on Fig. 1. They correlate with the area used (Fig. 5) as explained further, below.

Two specific objectives were to determine:-

- * the distance and direction from the nest in which foraging occurs;
- * the distance and direction in which the group defends the nest against others of its own species.

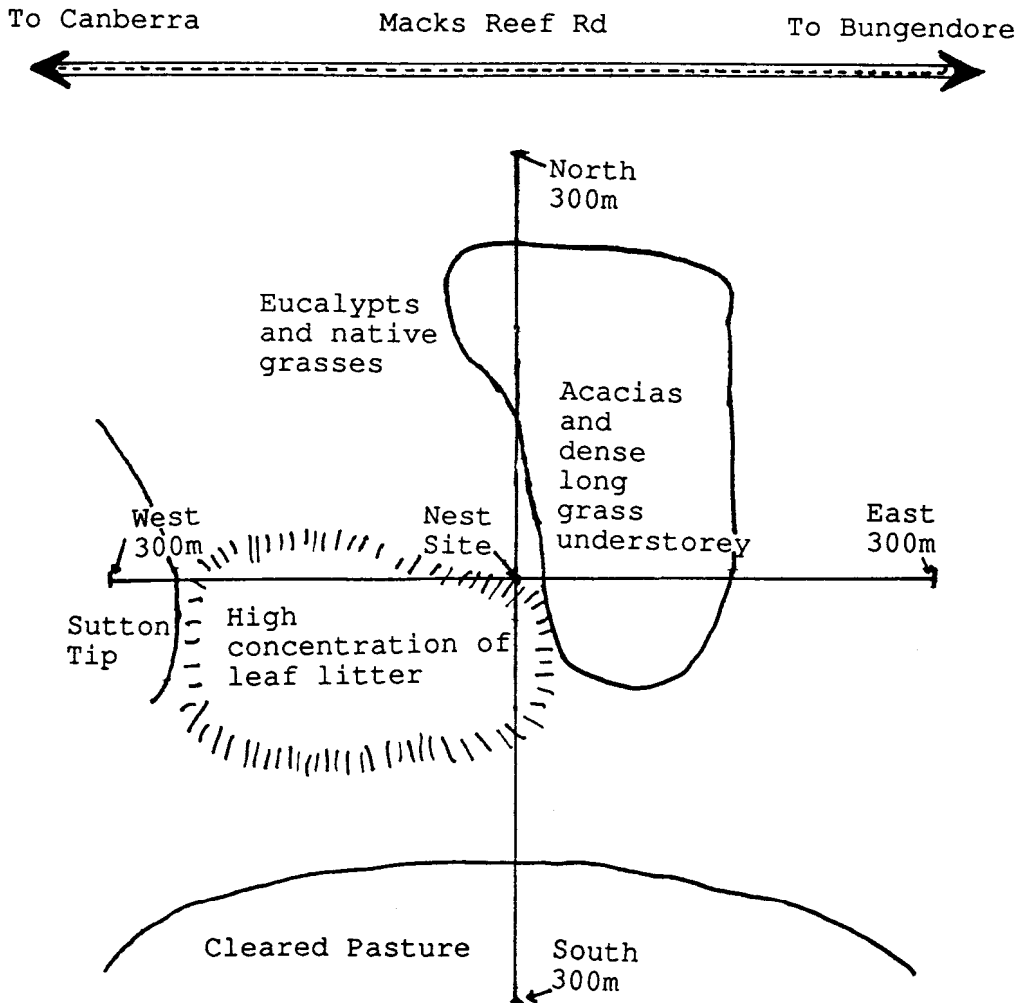


Figure 1 : Physical Features of Study Location

METHOD

A preliminary survey conducted between 8 and 12 October 1988 estimated the approximate feeding range of the group and determined what data would be feasible to collect. From this survey and from inferences made in the literature (Heinsohn et al. 1988) it was predicted that 300 metres is the maximum distance that Choughs are likely to venture from the nest. Most of the area surrounding the nest is heavily timbered and visibility restricted. Markers were placed at distances of 50, 100, 150, 200, 250 and 300 metres from the nest, in the directions of North, North East, East, South East, South, South West, West and North West. The sectors between these markers are shown in Fig. 5 and referred to throughout. The birds are easy to follow, flying only short distances at a time (maximum observed was about 200 metres) and spending most time walking on the ground, foraging. It was possible to keep within about 10 metres from them.

The main survey involved continuous observations of the group over two, thirteen hour periods (5.30 am to 6.30 pm) Australian Eastern Standard Time. Times quoted in this report represent the midpoint within an hour of observation so that for example, the hour between 0530 and 0630 is referred to as 0600. The weather on the observation days was fine, cool, windy and overcast. One of the observation days was during the incubation period (15 October 1988 : termed Day A) and the other was eight days later (23 October 1988 : termed Day B) shortly after the young had hatched. (Actual hatching date is unknown).

Two observers were involved. Observer 1 (myself) followed the three birds in the group which were not sitting on the nest and recorded the time spent foraging, the direction and distance from the nest. Mostly, three Choughs foraged together but occasionally only two were foraging together and the whereabouts of the third was not always known. I then followed the two individuals. There was always at least one bird on the nest. Interactions with other Choughs not part of the study group were recorded.

Observer 2 (Mrs Christa Cantor) remained near the nest and recorded the frequency that the birds changed nest sitting and the duration of each sitting period.

RESULTS

Total Foraging Time per Day

The number of minutes spent foraging were pooled for the group, as it was not possible to distinguish between individuals. There were 4680 (= 3 Choughs X 13 hours X 60 minutes X 2 days) total possible foraging minutes for the group of Choughs during the period of observation (or 2340 minutes per day). The actual times and the percent of possible time spent foraging are presented in Table 1.

Table 1 : Total Foraging Minutes and Nest Visits.

	<u>Foraging Minutes</u>		<u>Nest Visits</u>		
	Actual	% of Possible Food	E2	Food	Total
Day A	1752	74.87	0	68	68
Day B	1955	83.55	50	14	64
Both Days	3707	79.21	50	82	132

The time spent foraging increased from 74.87% to 83.55% after the young had hatched (Table 1) and most of the increase occurred in the morning (Fig 4). On Day A, before the young had hatched, Choughs in the group made a total of 68 visits to the nest. No food was carried to the nest on any of these trips. Interestingly, after the young had hatched, they did not increase the number of nest visits but made 64 visits (almost as many) to the nest. However, food was observed to be brought to the nest on fifty (78%) of these trips. The difference between the number of with food and without food visits to the nest between the two days is clearly highly significant.

Foraging Time per Distance from Nest

The percentage of time that the Choughs spent foraging in each distance class from the nest (an annulus or ring), for each of the two days of observation and for both days combined, is presented in Table 2 and in Fig. 2. Also presented is the area available at each distance and area used (derived from Fig. 5).

Table 2 : Percentage of Actual Foraging Time Spent per Distance from Nest and Area Included in Each Annulus.

Distance (metres)	Area (hectares)		% of Total Days Foraging Time		
	Available	Used	Day A	Day B	Both Days
0-50	0.78	0.68	5.83	2.97	4.32
50-100	2.36	2.07	42.82	14.94	28.10
100-150	3.92	3.43	38.64	27.13	32.60
150-200	5.50	4.13	5.36	38.86	23.01
200-250	7.07	4.42	5.47	16.00	11.03
250-300	8.64	2.16	1.88	0.10	0.94
Total	28.27	16.89	100.00	100.00	100.00

There is considerable variability between the time spent foraging in each distance class from the nest for both days of observation (Table 2 and Fig. 2). Time spent in each distance annulus is a compromise of increases with the area of the annulus and then decreases with distance from the nest. This trend is superimposed on other features of the habitat. It is clear that the Choughs preferred certain distances on each of the two days of observation.

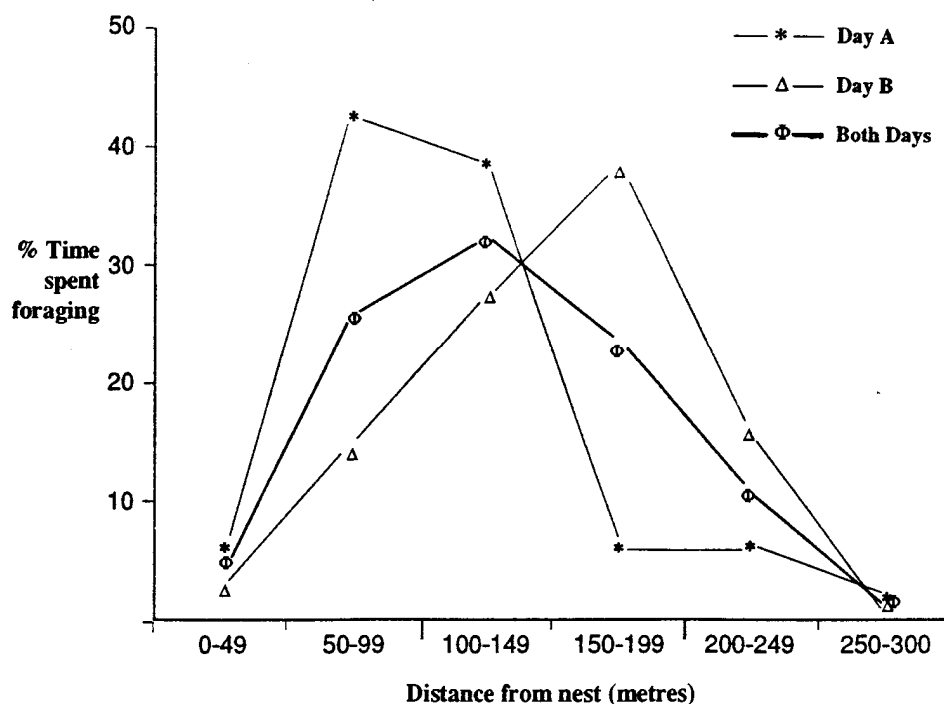


Figure 2 : Percentage of Total Foraging Time per Distance for Days A and B and both Days combined.

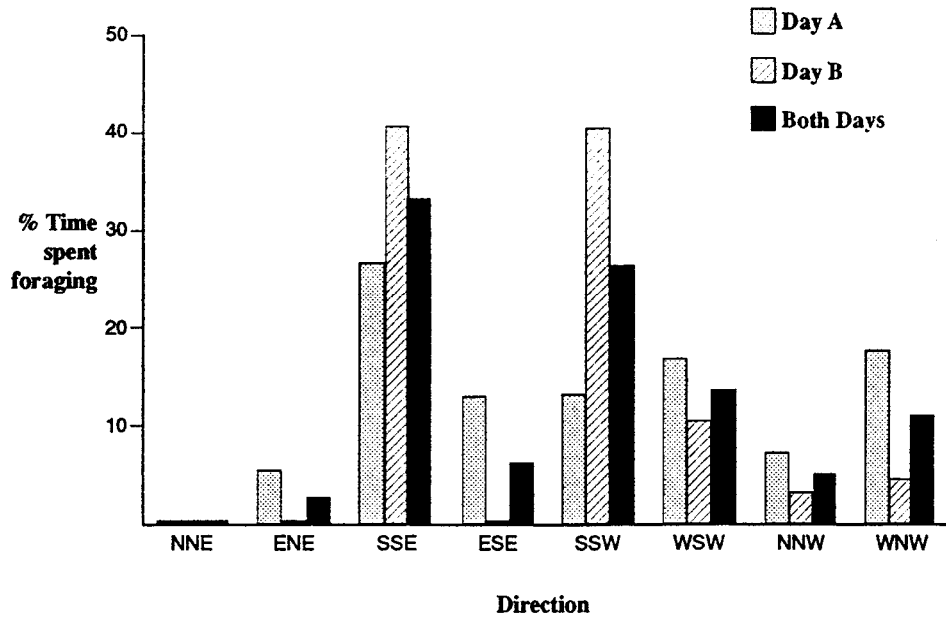
Foraging Time per Direction from Nest

The percentage of time spent in each direction from the nest for each of the two days of observation and for both days combined is presented in Fig. 3. There is considerable variation between time spent foraging in each direction from the nest for each of the two days of observation (Fig. 3). The Choughs used different sectors on each of the two days of observation. This appears to correlate with features of the plant community and litter layer explained below.

Foraging Time per Direction, Distance and Day

A comparison was made on the difference in foraging time between the six distance classes, the eight directions and the two days of observation. The ANOVA table is presented in the Appendix on page 117.

It Was found that the difference between the time spent foraging for the days was not significant. The difference between the time spent foraging for the directions Was found to be highly significant ($p < 0.001$ and $F_{7,35} = 11.11$ three way analysis of variance) but the magnitude of the differences depended on the day of observation ($p < 0.01$ and $F_{7,35} = 4.03$) (See Fig. 3). The difference between the time spent foraging for distances was also highly significant ($p < 0.001$ and $F_{5,35} = 11.63$) (See Fig. 2).



The total number of times the Choughs changed over brooding are shown in Table 3.

Table 3 : Number of Brooding Change Overs per Hour

Time	Day A	Day B	Average
0600	3	8	5.5
0700	1	2	1.5
0800	3	4	3.5
0900	2	3	2.5
1000	4	3	3.5
1100	1	1	1.0
1200	2	4	3.0
1300	1	2	1.5
1400	3	4	3.5
1500	2	1	1.5
1600	1	2	1.5
1700	3	2	2.5
1800	5	7	6.0
Average	2.3	3.3	2.8
Total	31.0	43.0	37.0

During the first and last hour of Day B When the birds were spending less time foraging, the number of change overs at the nest Was significantly higher than at other times. Otherwise, the number of change overs per hour varies at random (average about 2.5). The average brooding times for each day were 23.5 minutes on Day A and 18.0 minutes on Day B. These results are not significantly different in either number of change overs or duration, between days.

Foraging Time per Hourly Interval

The possible time spent foraging per hour for a group of three Choughs is 180 minutes. The average observed foraging time per hour for Day A was 134.78 minutes and for Day B was 150.38 minutes. The actual and maximum possible time spent foraging by the group for thirteen, one hour intervals, over each of the two days is summarised in Fig. 4. On both days the amount of time spent foraging increased between 0600 and 0700 then varied randomly throughout the morning, then stayed fairly constant through the afternoon until 1800 when it declined. There was much more morning foraging on Day B (when there were chicks to feed) than Day A. However, there was only slightly more time spent foraging on the afternoon of Day B than Day A.

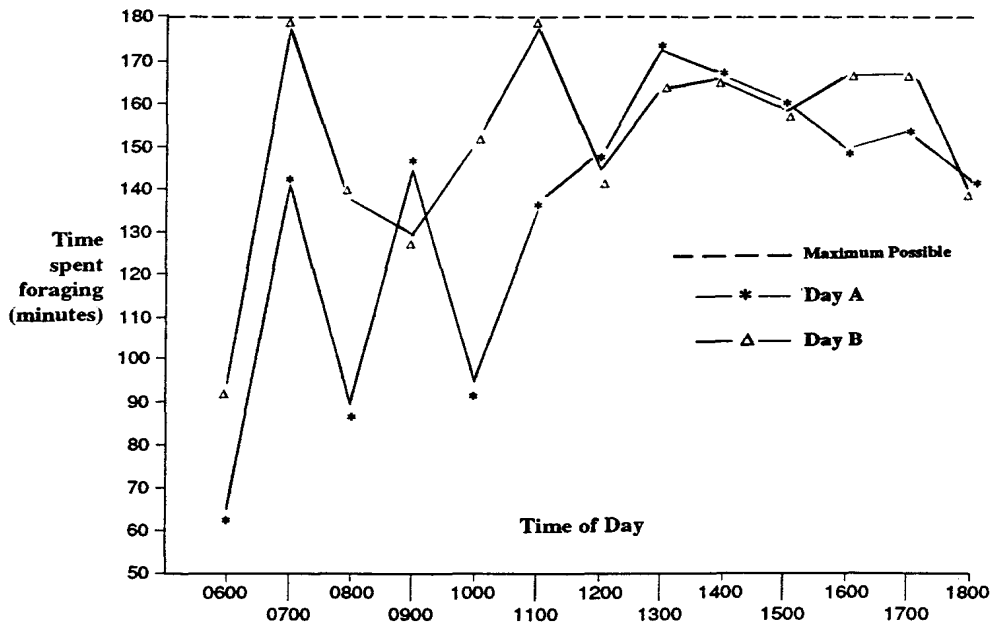


Figure 4 : Total Foraging Time per Hour for Days A and B.

Home Range During Nesting

The home range was estimated according to the distance and direction from the nest that the Chough group were observed to forage during the study period and is presented in Fig. 5. The total area used to forage in Was 16.89 hectares. It amounts to 60% of the area of a circle of 300 metres radius. This figure comes from adding together all the areas of the annulus sectors used by the group as given in Table 2 and Fig. 5.

Territory

Four interactions between the Chough group studied and another group residing nearby were recorded. The locations of these interactions are shown in Fig. 5. The

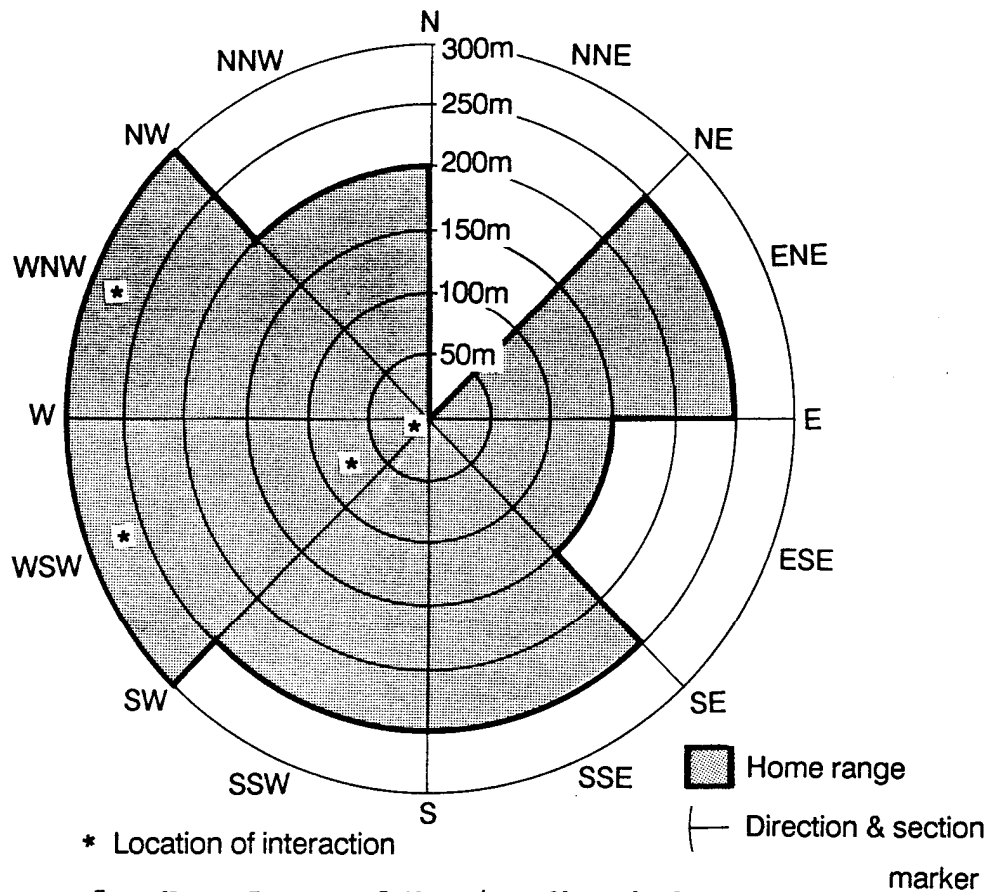


Figure 5 : Home Range of Nesting Chough Group.

first took place during the preliminary survey and involved a fight between three members of the study group and four members of the nearby group. It took place 70 metres WSW of the nest and lasted half a minute. The study group flew to the nest tree and the other group flew west until they were no longer in sight. The second occurred on Day A, in the WNW sector between 250 and 300 metres from the nest. The study group, again three individuals, were chased by six Choughs from the nearby group. The study group retreated about 30 metres towards the nest and no contact fighting took place. The third occurred on Day B, in the WSW sector, between 250 and 300 metres from the nest. The study group retreated approximately 100 metres and again no contact fighting took place. The fourth, also on Day B, occurred on the nest tree about 5 metres away from the nest. Three members of the nearby group flew onto the nest tree and perched 5 metres away from the nest. Within 30 seconds, the study group who had been foraging in the SSW sector, between 50 and 100 metres from the nest arrived and aggressively attacked the other Choughs. The fight lasted about 30 seconds and the other Choughs flew off in a North West direction. The Choughs in the study group chased the other Choughs for 100 metres and resumed foraging. The other Choughs retreated a further 200m.

DISCUSSION

A limitation to this study was that individual members of the group were not recognizable as such. Rowley (1978) described a method to age Choughs based on the iris colour which gradually changes with age to the fifth year. Two individuals in the group appeared to be red eyed suggesting they were a minimum of five years old and the other two individuals appeared to be brown eyed suggesting they are in their second year. I have no data on whether the older or younger birds participated equally in foraging or brooding.

Effects of Hatching on Foraging Time

The results show that more of the possible foraging time was spent foraging after the young had hatched. The increase is consistent with the added food needs of the young. It also follows that food was brought back to the nest on the majority of trips (ie 78%) after hatching. There are no references in the literature concerning the time spent foraging before and after chicks hatch although Heinsohn et al. (1988) found that the number of food items eaten by Choughs and invested in young continues to increase until adulthood.

Effects of Distance and Direction on Foraging

Baldwin (1971) observed in a group of Choughs that foraging did not occur within a 200 yard area around the nest tree before hatching but appeared to be reserved for a source of quickly obtained food for the chicks. The findings of this study differ as the Choughs spent 87 % of their foraging time within a distance of 150 metres from the nest, before hatching. However, little time was spent foraging within 50 metres from the nest on either day of observation. This low use of the area closest to the nest is only to a small extent accounted for by the fact that the actual area is less than annuli further out. The group spent more time foraging in the greater area further from the nest after the chicks hatched than before. Very little time was spent foraging further than 250 metres from the nest on either day of observation, suggesting that Choughs are reluctant to forage further than 250 metres from the nest during nesting. The local dump which appears to be a good supply of regular food is located within between 250 to 300 metres and was visited on occasions. The Chough group residing nearby could usually be seen there and twice chased the study group from the dump. Apparently the other Chough group hold the dump site as part of their feeding territory.

The majority of foraging time was spent between 50 and 200 metres from the nest. In all directions up to a distance of 200 metres, there is fairly dense tree cover with a dense coverage of native grass. At a distance of 100 to 180 metres from the nest in the directions of SSW and SSE there is a high coverage of leaf litter and

considering the foraging preference for these directions, it is likely that the leaf litter provides a valuable supply of insects. In a southern direction approximately 200 metres from the nest, the landscape changes rather suddenly to a cleared pasture which is grazed by sheep. The Choughs spent some time foraging in the cleared area particularly on Day B. Long grass and Acacias predominate in the directions of NNE and ENE for a distance of approximately 150 metres from the nest. These areas were least preferred as foraging areas. Eucalypts and native grasses and a fair coverage of leaf litter predominate in the remaining distance classes. There are no other obvious environmental features which correlate with preferences shown for foraging in certain distance classes. Overall, there appeared to be a sufficient amount of food within 200 metres from the nest.

At this site, there is an obvious preference for foraging in predominantly southern and western directions from the nest. The SSE sector contains the densest cover of leaf litter and it was the most favoured direction for foraging on both days. At no time during the two days did any members of the group forage the NNE sector which is lower, wetter and has a higher grass cover than the other areas. It also has more Acacias and less Eucalypts and noticeably less leaf litter than the other directions. Again, the apparent relationship between foraging time and availability of leaf litter suggests that the leaf litter provides an important source of insects, which form a major part of the diet of Choughs.

Brooding Interval

Rowley (1978) reported that the average duration of incubating for female Choughs was 57.9 minutes and for male Choughs 49.2 minutes. I did not differentiate between males and females but the average incubation interval (Day A : before hatching) of 23.48 minutes is noticeably shorter than the averages of Rowley's data. The average brooding interval after hatching (Day B) of 17.98 minutes, is even shorter. There are no apparent reasons for the high degree of variation between brooding interval for the group in this study compared with those observed by Rowley (1978).

There are no published reports of the daily number of times that a Chough group change over brooding. Other aspects of brooding about which little is known, are whether the group size influences brooding period and whether brooding is shared equally among all individuals of the group. The latter point is particularly worth investigating on a colour banded group.

Effects of Daily Time on Foraging

There are no other published accounts of the foraging behaviour of Choughs over an entire day. Perhaps the main inference concerning the time spent foraging by this group over the thirteen daylight hours is that they tend to spend less time foraging in the first and last

hour of daylight. During this time they spend more time preening and flying to and from the nest than in any of the other daylight hours.

Effects of Nesting on Home Range

Rowley (1974) describes home range as the area over which the animal pursues its day to day activities. Activities observed apart from foraging were preening and flying to and from the nest, both of which took place within the foraging range. The home range was thus determined according to the furthest distance in each direction that the Choughs were observed to forage. The estimates of home range in the literature are limited to the non-breeding period at 800 to 1000 hectares (Rowley 1965, 1974 and 1978). The home range of the study group during nesting (16.89 hectares) suggests a marked reduction in home range of Choughs during the nesting period. The 16.89 hectare home range observed in this study compares closely with the estimate of 20 hectares (Rowley 1978) for nesting territory of Chough groups.

Determination of Territory

Territorial behaviour has been defined by Fretwell and Lucas (1974) as any site dependent display behaviour that results in conspicuousness and in the avoidance of other similar behaving individuals. This definition does not specifically restrict territorial behaviour to defensive and/or aggressive behaviour. Both aggressive and non-aggressive interactions were observed in this study, however, it is not considered that there are sufficient observations to estimate the territory range of the group beyond what is implied in the above discussion on home range. All interactions occurred in a western direction from the nest, with individuals from the one group residing nearby. There were no other groups in close proximity. The interactions that did occur between the study group and the "other" group are somewhat open to interpretation. It appears however, that the "other" group defend the dumpsite which is 250 metres out from the nest in a WSW direction.

CONCLUSION

This study has provided some data on aspects of the White-winged Choughs, about which little is known. The data is obviously limited and more days spent observing similar groups both before and after hatching would be needed to further substantiate some of the findings.

ACKNOWLEDGEMENTS

This study was done and a precursor of this paper was submitted as part of a post-graduate unit "Wildlife Survey" at the Canberra College of Advanced Education. My thanks to Dr Jim Hone and Robert Heinsohn for helpful

advice and to my mother, Christa Cantor for patiently observing and recording activities at the nest site.

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APPENDIX

Directions, Distance and Days.

Source	D.F.	SS	MS	F	sig
Between Directions	7	24.35	3.48	11.11	***
Between Distance	5	18.21	3.64	11.63	***
Between Days	1	0.87	0.87	2.78	ns
Direction * Distance	35	11.51	0.33	1.05	ns
Distance * Days	5	2.20	0.44	1.41	ns
Days * Direction	7	8.82	1.26	4.03	**
Error	35	10.96	0.31		
Total	96	76.92			

ns=not significant, **=sign, at p<0.01,
***=rsign.at p<0.001.

**HIGH FLIGHT INSECT EATING BY
BROWN FALCONS, KESTRELS AND DOLLARBIRDS**

Philip Veerman, 24 Castley Circuit, KAMBAH ACT 2902

On 1 January 1987 I visited my old Murrumbidgee Corridor Survey Site at the Uriarra East Picnic Ground ACT and at 1800 hrs AEST a short harsh cackle drew attention to one Brown Falcon *Falco berigora* and two Dollarbirds *Eurystomus orientalis* circling very high above open grassland and in close proximity. The hawk in particular varied between circling, hovering and very energetic fluttering chases and erratic sideslipping. It put its feet out and then could be seen to bring its head down to its feet. The Dollarbirds' movements were similar, perhaps less erratic and no movements of the feet were noted (nor expected). No interaction between the birds was obvious although they passed within a metre or two at times and maintained not more than 20 metres distance. During the ten minutes I watched, it appeared that many insects were taken by all. Another Brown Falcon joined in briefly then all four birds departed simultaneously.

At that height I could not see what they were feeding on but would suggest it was a single swarm of either Christmas beetles or cicadas. I believe they were large (rather than small) insects because of the time the hawk apparently spent eating each one. Brown falcons have been observed using this feeding method before (Debus, 1985 *Aust. Bird Watcher* 11(3):87) but it is not common. The *Readers Digest* (First edn, Second revised *Complete Book of Aust. Birds*) states that Dollarbirds "sit quietly in tree-tops watching for large insects ... which they catch in the air ... and take the insect back and batter it against the branch before eating it." These birds were certainly not doing this latter action, as all this activity continued at several times the altitude of the tallest nearby trees. Whilst their manoeuvres certainly suggested it, I cannot claim total certainty that the Dollarbirds were actually feeding. If not feeding, they would have been wasting considerable energy in a situation of vulnerability to potential predators.

On 19 November 1988 at Tuggeranong Hill I observed exactly the same behaviour by a pair of Brown Falcons and four Australian Kestrels *Falco cenchroides*. In this case the lesser distance left no doubt that both species were capturing large insects and eating them in flight. Methods used appeared the same except the kestrel displayed greater manoeuvrability. There was no obvious interaction among the six birds even though about 15 minutes earlier and 100 metres away a pair of Kestrels had vigorously driven a Brown Falcon (probably the same individual) away from a site on the hill-side.

NEW SUBSPECIES OF AUSTRALIAN BIRDS

Richard Schodde, CSIRO Division of Wildlife and Ecology, P.O. Box 84, Lyneham, A.C.T. 2602

Through my revisions for the Zoological Catalogue of Australia, Aves, I am putting on notice new subspecies that I have identified during the course of that research or which have become necessary to describe because their types or type localities have been misinterpreted. Where new names herein are co-authored, authorship is given in full; the coauthors are Dr J.G. Blackman and A.T. Haffenden, Queensland National Parks and Wildlife Service, Professor D.G. Homberger, Louisiana State University, Baton Rouge, Dr D. Saunders, CSIRO Division of Wildlife and Ecology, Perth and Dr. L.L. Short, American Museum of Natural History, New York. Wing measurements are of the flattened chord from the shoulder. More detailed cases for the designation of the subspecies will be published elsewhere, the objective of the present paper being simply to make the names of the taxa available promptly now that my revisions are complete.

Grus antigone gillae Schodde, Blackman and Haffenden (Sarus Crane). Feather patch on ears larger, darker grey than in Eurasian subspecies, c. 30-35x15-20mm, feather patch on upper throat large and consistently present, size small (wing male 580-620, female 550-570mm). *Range*: north-east Queensland, straggling erratically west to the Kimberley Division, W.A. *Holotype*: ANWC 38355, male adult, 14 km north of Maggieville near Karumba, Qld., 18 Aug. 1984, coll. J.G. Blackman and A.T. Haffenden. *Paratypes*: ANWC 38353, ANWC 38354, ANWC 38356, ANWC 38357, QM 0.11076. Named for Mrs. H.B. Gill who first reported Sarus Cranes in Australia (Gill 1969) and who prepared the holotype. The presence of an endemic subspecies of the Sarus Crane in Australia implies that it has been present in north-east Queensland since long before the period of European colonization of Australia.

Macropygia amboinensis quinkan (Brown Cuckoo-Dove). Male crown light leaden grey, breast light vinaceous-brown, female mid russet ventrally with lighter dusky barring than in other Australian populations, size small (wing male 175-180, female 168-180 mm). *Range*: rainforests of eastern Cape York Peninsula, Qld., south to McIlwraith Range. *Holotype*: QM 0.4934, male adult, Tozer Gap, 11 July 1948, coll. D.P. Vernon. *Paratypes*: ANWC 18207, ANWC 40604, ANWC 40605, NMV D.F. Thomson coll. 322, QM 0.4929, QM 0.4930, QM 0.4933. The name *quinkan* commemorates the Quinkans, spirit people that hide in the caves and hills of Cape York Peninsula (Trezise 1969). This subspecies forms the morphological and geographical link between the small, pale New Guinea forms of *Macropygia amboinensis* and the large, dark ones of eastern Australia.

Phaps elegans occidentalis (Brush Bronzewing). Dorsum paler than in other populations, mid brown with cinnamon-rufous cast, frons sandy and collar pale to mid chestnut in males, size large (wing male 165-175, female 163-170mm), *Range*: south-west Australia between Geraldton and Israelite Bay. *Holotype*: NMV B9355, male adult, Gordon River, 9 Feb. 1889, coll. J.L. Ayres.

Calyptorhynchus banksii graptogyne Schodde, Saunders and Homberger (Red-tailed Black Cockatoo). Female brightly marked with broad cream-yellow spots 5-8mm wide on wing coverts and barred ventrally with 3-5mm wide pale yellow bars, maxilla small and unstepped inside mouth, size small (wing male 370-375, female 360-375mm). *Range*: extreme south-east South Australia and south-west Victoria, between Bangham, Mt. Gambier, Portland and Horsham. *Holotype*: ANWC 36273, female adult, Penola, S.A., 24 Sept. 1978, coll. J. Bourne. *Paratypes*: ANWC 41224, NMV B6416, NMV R11400. *Grптоgyne*, a noun in apposition, is Greek for. 'painted lady'. The name *banksii* Latham is used for this species instead of *magnificus* Shaw because, although the latter has seniority by several days, it is according to its illustration based on an immature female Glossy Black Cockatoo, *Calyptorhynchus lathamii* Temminck, 1807 (Shaw 1790).

Eolophus roseicapillus albiceps (Galah). Periophthalmic skin warty red, crown whitish with contrasting darker pink collar, size large (wing male 255-275, female 250-265mm). *Range*: eastern Australia north to 18° -20'S and west to Eyre Peninsula and central Australia. *Holotype*: ANWC 37510, male adult, Gungahlin, A.C.T., 3 May 1983, coll. L.W. Braithwaite. Note: the type of *Cacatua roseicapilla* Vieillot (and *Psittacus* em Kuhl), previously thought to have come from inland New South Wales, is of the Western Australian subspecies and was collected by the expedition Baudin probably from around Shark Bay. The Galah is placed here in its own monotypic genus, *Eolophus*, because of its colour pattern, pink-downed nestlings, and distinctive skull, with well-developed maxillary processes and reduced temporal fossae. (Homberger and Schodde, in prep.).

Platycercus eximius elecica Schodde and Short (Eastern Rosella). Head and breast bright scarlet, mantle feathers edged brilliant golden yellow, rump pale bluish green. *Range*: north-east New South Wales, north to the border ranges with Queensland, south to the Hunter River and inland to the summit ridges of the Great Dividing Range. *Holotype*: ANWC 37583, male adult, Lynche's Creek, Wiangaree, 16 April 1983, coll. R. Schodde. The name *elecica* is an anagram of *cecilae*. It replaces *Platycercus cecilae* Mathews and *Platycercus splendidus* Gould (preoccupied) for this form because the last two names are both based on the same unidentifiable hybrids between *Platycercus eximius* and *P. adscitus* figured by Gould (1848).

Lalage leucomela macrura (Varied Triller). Male and female plumage as for *LI rufiventris* (Gray), but size larger and tail disproportionately longer (wing male 98-103, female 97-99mm, mean tail/wing ratio male 0.91, female 0.88). *Range*: vine thickets of north-west Kimberley Division, W.A. *Holotype*: WAM A14698, male adult Mitchell Plateau, 29 October 1976, coll. R.E. Johnstone and L.A. Smith. *Paratypes*: NMV H.L. White coll. 5910, 5911.

Zoothera dauma paraheinei (White's Thrush). Plumage as for *Z. d. heinei* (Cabanis), but white tip to outermost rectrix longer (30-45mm long), and size smaller (wing of 3 unsexed specimens 115-125, female 118mm). *Range*: rainforests uplands of Clarke and Connors Ranges about Mackay, Qld. *Holotype*: ANWC 41455, female subadult, Dalrymple, Clarke Range, 9 Oct. 1988, coll. I.J. Mason.

Cormobates leucophaeus metastasis (White-throated Treecreeper). Throat largely white, separated from centrally plain cream (-buff) belly by distinct broad grey-buff breast band, undertail coverts marked white and black, size intermediate between northern and southern populations (wing male 83-94, female 83-89mm). *Range*: central east Australia, north to Tropic of Capricorn, south to Hunter River, N.S.W., and inland to east scarps of Great Dividing Range. *Holotype*: ANWC 39265, male adult, Conondale Range, QLD., 18 June 1985, coll. J.C. Wombey. *Paratypes*: ANWC 39393, ANWC 39941, ANWC 39953. The name *metastasis* alludes to the intermediate position of this form in morphology and distribution, providing the most unequivocal grounds for combining northern (*minor*, *intermedius*) and southern (*leucophaeus*) populations of the White-throated Treecreeper complex in one species (cf. Boles and Longmore 1983). Use of the generic segregate *Cormobates* follows Noske (1982) and Parker (1982).

Meliphaga lewinii amphochlora (Lewin's Honeyeater). Dorsum mid olive with citrine cast, ventral surface pale olive with creamy-yellow wash, size small (wing male 92-98, female 85-90mm). *Range*: summit rainforests on ranges of east Cape York Peninsula (Mcllwraith Range to ? Cooktown). *Holotype*: ANWC 39739, female adult, summit of Mcllwraith Range, 12 July 1985, coll. J.C. Wombey. *Paratypes*: ANWC 39710, NMV H.L. White coll. 6820, 6821, QM 0.5169. The name *amphochlora* refers to the distinctively pale yellowish olive tone of this isolated form which, although first collected in 1922, has generally not been recognized as occurring high into Cape York Peninsula (Story 1984).

Meliphaga albilineata fordiana (White-lined Honeyeater). Remiges plain grey without citrine wash, under wing coverts pale cream-buff, belly milky white. *Range*: sandstone formations of north-west Kimberley Division, W.A. *Holotype*: ANWC 39168, male adult, Mitchell River falls, 13 Aug. 1985, coll. L. Christidis. *Paratypes*: WAM

Al2386, Al2387, Al2624, Al2625, Al3166, Al4085, Al4086, Al4699. Named for the late Dr. Julian R. Ford, in recognition of his outstanding contributions to Western Australian ornithology.

Melithreptus albogularis inopinatus (White-throated Honeyeater). Dorsum dull citrine, size large (wing male 72-78mm, mean 75.4). *Range*: coastal east Australia, north to east foot of Cape York Peninsula, south to Macleay River, N.S.W., and inland to Great Dividing Range. *Holotype*: ANWC 39202, female adult, mouth of Macleay River, N.S.W., 13 June 1985, coll. L. Christidis. *Paratype*: ANWC 15665. Nominotypical *albogularis*, which ranges across northern Australia east to Cape York Peninsula, is brighter citrine dorsally and small (wing male 69-74mm, mean 71.3).

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BOOK REVIEWS

WHERE TO FIND BIRDS IN AUSTRALIA by JOHN BRANSBURY

Hutchinson Australia, 1987, 539 pp RRP \$35.00.

From my observations this book seems to have been an immediate success and it's worth examining what sets it apart from its competitors (of which there are several, including the one reviewed below). To my mind the strengths of this book are:

1. It sticks basically to a single purpose ie to inform the reader where to find particular birds or what birds may be found in a particular area. It contains no information on how to identify birds, leaving this to the readily available Field Guides.
2. It is the right size, readily fitting into the rucksack or glovebox alongside a Field Guide.
3. It is competitively priced at \$35. To their credit the publishers have actively promoted bulk reductions to bird organisations (including COG Where a good number of members have availed themselves of this opportunity).
4. It covers the Whole of Australia including the external territories Lord Howe, Christmas and Cocos (Keeling) Islands (see however, comments below).
5. It is extremely comprehensive giving in addition to the birds you might find in a given location, maps and information on history, climate, habitat, accommodation etc.
6. It is accurate (I can vouch, for example, how readily Rock Parrots are seen at William Bay National Park). This Was achieved by either obtaining the information first hand, or by correspondence with local birdwatchers, National Park authorities etc.
7. In addition to a list of useful addresses of bird organisations and relevant Government authorities, it also contains a bibliography of key bird publications for each State or Territory and a very extensive and useful index (enough to send any compulsive tucker on his way!).
8. It is written in an easy, friendly style, with the author's enthusiasm for birds clearly evident.

In spite of these strengths there are some weaknesses. Most notable is a rather uneven treatment. While COG members will be more than adequately served by the chapter on the ACT, there is no information whatsoever on the entire South Coast from Royal National park right down to the Victorian border. This leads to the omission of many excellent birding spots, perhaps the most notable being the RAOU's Barren Grounds Bird Observatory With its two star attractions, the Ground Parrot and the Eastern Bristlebird, not to mention its other birds not found in the Canberra region. Readers from other States may also find their favourite birding spot missing (eg Rotamah Island, the RAOU's other bird observatory on this side of the continent, gets only a

mention in passing, without even the briefest of bird lists).

While Australia is obviously too large for all areas to be included without blowing a book out to unmanageable proportions, there do seem to be areas where some pruning could have been exercised. For example Western Australia, Without question the biggest State, gets just over 100 pages, while NSW, the most populous, under 70 pages. Certainly the treatment of the Perth area borders on the overkill, with so many areas mentioned, many of which duplicate habitat and species, that even the most devoted birdwatcher, could not, or would not, want to visit all of them. While it's nice to see Lake Claremont included (an area I know well from visiting family in Perth), it does not rank highly on Perth's Wetlands priorities list for birds.

While the paragraph on Lake Claremont does at least include one bird to be seen, there are other areas in the book for which only general (and no bird) information is given; eg Platypus Rocks etc (p 228), Lennard River and Adcock Gorges (p 440). In my view the book should not attempt to be a general tourist's guide and in any revised edition the author would do well to delete this type of information in favour of overlooked areas which are high on the list of Australia's best bird spots.

In a similar vein the book is heavily biased towards coastal rather than inland areas. The photographs dispersed amongst the text are also superfluous as they are unsuitable in size for identification purposes (which is not a primary aim of the book anyway) or even as indications of habitat types.

These criticisms aside the book is recommended, particularly as essential to the Canberra birdwatcher venturing far afield. I most certainly shall have a copy close at hand on my next planned major trip around the continent.

THE GREAT AUSTRALIAN BIRDFINDER by MICHAEL MORCOMBE
Landsdowne Press, 1986, 432 pp RRP \$59.95.

It's hard to imagine how two books with similar objectives could be so different. This is a more complex and ambitious book whose large size and weight (nearly 2.5kg) makes it almost impossible to take into the field (where it should be used) and inevitably banishes it to a life spent not far from the coffee table. The bulkiness is a result of it being essentially 3 books rather than one (bird finder, field guide or "bird reference" and bird picture book). To my mind at least the "bird reference" part (which contributes nearly half of the pages) could be deleted, making the work an accessory rather than a competitor to the available good field guides of which several already compete on a saturated market.

This would leave a short introduction, a section on birds by habitat (eg birds of the heathlands, mangroves, grasslands etc), a longer section on birds by regions, a regional birdlist (probably best described as a

fieldlist), a one page general bibliography and an index. Interspersed between these are many bird photographs of a number of sizes ranging from double page to as small as 6 x 5cm and a series of plates of the author's own drawings. The photos, particularly the large ones, are superb, the drawings less so. Morcombe is justly famous for his work with the camera but while some of his books are best described as pictorial essays, this book, particularly the text in the early chapters, clearly indicate him to be a very capable and knowledgeable bird observer who can write well. This is no doubt the results of many hours in the field waiting for all those perfect photos.

This points to another dilemma, to remove the large photographs in order to obtain an acceptable field-size publication would rob the work of much of its visual appeal. The book's concept may therefore have been flawed from the beginning, which is a shame because of the obvious hard work and many hours spent putting this complex work together. The splitting of habitats and regions fragments the coverage and, for example, in the case where the reader may want to identify an unfamiliar species of pigeon it necessitates turning to the relevant section in the "bird reference" and then locating the individual photo or drawing scattered through the book (by use of the number in italics below the text - Morcombe has assigned each of the 647 species covered a unique number according to taxonomic order). Certainly not likely to be appreciated by the beginner or even the moderate observer.

It seems a pity to be so negative about such an outwardly impressive and beautifully produced book. There is no doubt the Habitats and Regions sections are well written and contain much useful information not readily available elsewhere. The coverage in the Regions section is much more uniform than in Bransbury's book, encompassing the whole of Australia though in less depth. Somewhere in between would probably be ideal. However, in my view the parts do not come together well and may have been better published separately. For my money a copy of Bransbury's book, together with a personal choice of a field guide, presents by far the better value.

Morcombe's book is actually now out of print but COG were kindly provided with a review copy, by the publishers. Bransbury's book has been reviewed here for comparison.

Jack Holland

THE AGE OF BIRDS by ALAN FEDUCCIA

Harvard Uni. Press, 1980, 196 pp RRP \$32.95.
(Distributed by Harper and Row, Artarmon Sydney).

This book presents an evolutionary viewpoint of the major past and present bird groups. The book discusses basic trends and ideas on bird evolution and the major groups in a manner in which people with a reasonable biology background will follow easily and bird watching enthusiasts will have a pleasant learning experience. In structure of chapters, arrangement, style of writing, relevance and choice of illustrations and captions I cannot fault it. It is well spaced out and profusely illustrated in a variety of styles with photographs, paintings, diagrams, silhouettes and sketches. Almost every double page spread (except 13 pages of bibliography and index) has from one to several illustrations.

The author presents cases for all his viewpoints clearly and in some cases strongly. In particular the debate on endothermy of dinosaurs, Whether *Archaeopteryx* was a tree dweller and Why it had feathers anyway, conflict strongly with others Who Would argue that birds arose from small members of a 'warm blooded' group, the dinosaurs, Who evolved feathers as thermal insulators. The arguments swirl around the same evidence.

Feduccia here presents the best discussion I've understood on why the ratites (Emu, Rhea, Moas, Ostrich etc) are classified in so many Orders, rather than all one Family, When the major and rather trivial differences even if just convergence, appear to be the Ostrich's deficiency in toes and the presence or absence of the feather aftershaft. It is a good discussion but stops short of an answer. The problem is highlighted by comparison with the Birds of Prey (excluding owls) Which are grouped in one Order (Falconiformes) but in that group, the New World Vultures, Secretarybird, Falcons and all the rest, appear to represent four quite different groups, at least as different as Emus and Rheas. The discussion on the suboscine and oscine Passerines and the bones in their ears appeared to me the most complex issues in the book. Biochemical and chromosomal features are not given the attention that morphological features receive. Clearly such features are unavailable for study on prehistorically extinct taxa, which are the basic material for this book. However the failure to include such criteria, Which may elucidate relationships Within extant groups Would appear to be a deficiency in the book, even if including such things would have added considerable complexity.

The book demonstrates Why a knowledge of What birds are, Why certain groups show certain trends and others don't (eg flightlessness in the rail group and not in the quail group) can add greatly to the general appreciation of the average bird observer. This reviewer being of (at least) that category, reading the book cover to cover, found only one error (cassowaries do not share the forest of New Guinea with kiwis, as stated).

The book is well worth a good look, there is plenty to learn, think about or just enjoy. Indeed the appeal of the book is such that, unlike any other bird book I didn't even notice the lack of coloured pictures until drafting this review.

The publishers kindly donated a review copy to COG.
Philip Veerman

WEDGETAILED EAGLES COOPERATIVELY HUNTING A KANGAROO

Chris Woodland, 16 Mulga Place, O'CONNOR ACT 2601

Received: 9 June 1988

In 1960 I used to work at a station about 200km West of Bourke. The property of about 50 000 hectares is situated near the Paroo channel country and adjoins the Nocholeche, part of which is now under the care of the NSW National Parks and Wildlife Service. In this area I saw a very memorable incident which showed one of the hunting methods of the Wedge-tailed Eagle *Aquila audax*. I was mustering sheep near a large salt lake and though the country was very open with only the odd tree, low shrubs such as annual saltbush gave some ground cover. Over a sandy ridge came a three-quarter grown female Red Kangaroo *Macropus rufus* with two eagles in pursuit flapping their wings around its head apparently attempting to confuse it. The 'roo was frothing at the mouth so I doubted that she had much time left. In a vain attempt to interfere with the workings of nature I galloped my horse towards the bounding animal to try and frighten the birds off, which I did. However the 'roo kept leaping unsteadily away from my charges and I had to leave her to the eagles which quickly descended again.

Riding over to the scene I had noticed quite a group of eagles following the battle from way up high. As I returned to the ewes and their lambs I counted thirteen eagles overhead, two of which soon left the pack and came earthwards towards the hunting scene and actually took over from the two that had been doing the attacking passing them about 30 to 50 metres above the ground. I had seen lone eagles hunting Red Foxes *Vulpes vulpes* and Red Kangaroos before but had never seen a group of them working as a team. One can only wonder how many times the two hunters had been relieved by fresh members of the team, and how many were involved until the 'roo finally dropped.

DOLLARBIRDS COMINGS AND GOINGS

E.C. (Slim) Metcalf, 11 Peel St, O'CONNOR ACT 2601

Received: 22 July 1988

The Dollarbird *Eurystomus orientalis* is a common migrant in the ACT. Arriving here in early October (Taylor 1985) to breed, they leave in February on their way to islands to the north of Australia.

I have observed Dollarbirds from my O'Connor garden every year since 1978, usually as single birds but once as many as 4 flying together. Over the last five years, in February, I have been aware of a single (presumably young bird) loitering around the local electricity wires and the big Yellow Box *Eucalyptus meliodora* that shades the house. At 1000hr on 22 February 1988 I was attracted by the call of a single bird catching insects from a wire and subjected it to intensive observation over the next 11 days until 2 March 1988 when it left the area.

He was a juvenile. His tail and wing feathers patently grew over the period. The feather colouring was drab with only a muted hint of blue and green. However the feet and beak were definitely red. His voice too improved over the 11 days. When first heard the single repeated "Kha" was weak and hesitant but though it grew stronger and calling sessions of up to a minute were recorded, it never developed to the running shower of rough sound produced by the adults early in the breeding season. No other Dollarbirds adult or juvenile were seen. Nor was there observed any interaction between it and the general run of garden birds. However there were 2 occasions when his evening roosting was rudely interrupted first by the local male Australian Magpie *Gymnorhina tibicen* and then by a female Collared Sparrowhawk *Accipiter cirrocephalus*.

The bird could be seen all day and for the first 9 days he operated in an area of 150m diameter. He roosted at night in the Yellow Box and rested up there when not catching insects from the wire. He would start moving as early as 30 minutes before sunrise and as late as 10 minutes after sunset. He would feed 6 times at dawn and after 1500hr would take about 20 insects at a rate of 1 every 15 minutes. He saw and caught insects as distant as a few metres to as far as 40m away. At 15m from the observer the snap of his beak was distinctly audible. Some prey took a whole minute for him to devour. Butterflies, stick insects and dragonflies abounded at the time.

On the 10th and 11th days he made several forays out of the area and was unseen for as long as 2 minutes. He also began to fly vertically up for 50-100m and they were not feeding flights. Rather he was seeking something. Twice he called shortly as he flew.

On the end of the 11th day after sleeping from 1700-1900hrs he became unduly active flying north west and south, going far out of sight. He was not seen again though I checked the usual places at 30 minute prior to sunrise and 1 hour after.

Bravery (1970) has recorded the Dollarbirds coming and going round Atherton from 3 October to 20 April. With our Dollarbirds arriving in October and leaving in late February it suggests that the migrants move swiftly to their breeding sites but loiter over their departure from Australia.

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ODD (?) BEHAVIOUR OF A BROWN GOSHAWK

Rob Parnell, 31 Meehan Gardens, NARRABUNDAH ACT 2604

Received: 13 January 1988

On 9 January 1988 at 19.55 Glenda James and I Watched a Brown Goshawk *Accipiter fasciatus* presumably stalking Silvereyes *Zosterops lateralis*, in a hedge in the front yard of a vacant suburban house. It stood on the lawn two metres from the hedge. What attracted our attention was it moving its wings around in a peculiar fashion that suggested something Was wrong much as a duck Will put on a wounded bird routine. It then flew into a small tree and hung upside down by one leg from a branch at about 1.8 metres, spun round in a clumsy fashion and dropped to the ground. It stood on the lawn for five minutes eyeing alternatively the hedge and us Watching it from 30 metres. From the hedge came the Silvereye's alarm call.

Two very pale blue marks stood out quite prominently on the hawk's slate grey back/shoulder (secondaries) which added to the impression that it was a Wounded bird. When we moved closer it hopped/flew to the side of the hedge and crouched in the leaves. It appeared to be breathing heavily. We were able to walk Within 6 metres and note that the pale marks were natural and not damaged feathers. At no stage did We get a clear view of its legs but when it flew off its tail Was well rounded and it was identified on this basis. Up until the bird flew off I believed it to be injured and it was only When we tried to get closer than 6 metres that it flew off. Stephen Debus points out that the behaviour may be consistent with the bird having an injured leg in which case the behaviour is not odd. However there is insufficient information to decide.

CHASING AND VOCALISATIONS BY WHITE-THROATED NEEDLETAILS

Philip Veerman, 24 Castley Circ, KAMBAH ACT 2902
September 1988

The White-throated Needletail *Hirundapus caudacutus* (Swift) in their high circling flocks or single birds slicing across the horizon are among the highlights of summer bird observing in Eastern Australia. Whilst often in aggregations, there is usually little evidence of direct social interaction and calling is not often noted and usually seems to only have a contact maintenance function. This note describes one local example of pursuit and calling by these birds.

On the late afternoon of 28 February 1988 I walked up the northwest face of Tuggeranong Hill (centre south of atlas square 78), intending to watch at close range a large group of these birds that were just visible from the base of the hill. It was a prime swift watching situation, at the top of a large open hill with clouds building up. The birds were flying over the hilltop and it was soon clear that there was considerable interaction among the dispersed flock of about fifty birds.

Virtually all individuals were engaged in duo or trio co-ordinated chases. Mostly I observed one bird being chased by one or two others all at very high speed, the chasers following every twist and turn of the first within one or a few metres. These chases continued from hill top level (or below) to over a hundred metres or the limit of easy observability. On several occasions the same birds were watched in tandem for about a minute, apparently ignoring other pairs or trios crossing their path. Attempts to follow individuals for long were thwarted by their identical appearance, rapid twisting flight and several times by distractions from others passing so close behind me that the sound of their wings and in one case the wind felt, being quite startling. There were only a few occasions when one of two chasers 'latched on' to another pair or single bird. As trios swooped down near my position on the hill top, on almost every occasion I heard a shrill rapid twittering or piping call vaguely similar to calls of swallows and sandpipers respectively. It was not possible to tell which was making these calls but the calling was less intense when one leader and one chaser passed by and not heard at all when just one bird came as close.

Some of the chases appeared to reach maximum speed at the end of long glides down to my position. Indeed several almost collisions with the transmitting tower, trig point and writer had me quite concerned. Perhaps ten times, one bird interrupted this behaviour by coming to an abrupt almost halt, within a metre of the transmitting tower then hovering for a few seconds within centimetres of the tower, giving every appearance of an intention to perch on it (I don't know how) but every time they continued flying to rejoin the circling group. This was reminiscent of the way some of the thornbill

group hover at the outer fringes of the canopy. Chasing pairs did not engage in this hovering.

Reader's Digest (1977) states "At their breeding grounds in the Northern Hemisphere, groups of the birds often stage aerial courtship displays, and similar displays have been recorded throughout the summer in Australia." Frith (1984) and Simpson and Noonan (1967) discuss apparently the same type of display flight. Presumably this is what I observed (for about forty minutes).

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SEVEN WEDGE-TAILED EAGLES FLYING TOGETHER

David and Noela McDonald, PO Box 1355, WODEN ACT 2606
Received: 14 September 1988

On the morning of 28 August 1988 we were walking north-west along the Grassy Creek trail at the far south end of Namadgi National Park, ACT, in fine but cold weather. Approximately two kilometres NW of the Boboyan road we observed an unusually large number of Wedge-tailed Eagles *Aquila audax*, in the air at the one location. Seven eagles were involved. They were not in distinct pairs or other small groupings, but rather appeared to be interacting, insofar as they were flying fairly close to the ground, close to each other, and mingling their flight paths. Adult and juvenile birds were included in the seven. We observed them in this group for perhaps five minutes before they moved out of sight.

Wedge-tailed Eagles are generally observed in the ACT as single birds, in pairs or in threes. We were not able to identify any particular reason for this congregation of birds: they were not coming to the ground to feed on any carrion, nor did they appear to be circling any potential food.

SUPERB LYREBIRD POSSIBLY MIMICKING FERAL PIG

David and Noela McDonald, PO Box 1355, WODEN ACT 2606
Received: 14 September 1988

On the morning of 9 May 1988 we were walking on the trail from the Orroral Road to Nursery Swamp, Namadgi National Park, Australian Capital Territory. The weather was cool and clear. Near the top of the ridge south-west of the walk's car park we could hear a number of Superb Lyrebirds *Menura novaehollandiae* singing loudly. One male, in particular, attracted our attention as it was close to us and singing continuously for a long period. We decided to attempt to observe the bird visually, and subsequently succeeded in doing so.

While approaching the lyrebird's location, we became aware of the contents of its song. In addition to the familiar mimicry of local bird species and its own calls, we heard what we believe to be it mimicking the grunting of a pig. On close observation of the cycle of songs being given by the bird, we noticed that the pig imitation was repeated, at intervals, as the bird proceeded through its repertoire.

Feral Pigs *Sus scrota* are not uncommon in that area. We observed signs of their feeding there. The lyrebirds would have had the opportunity, therefore, of learning the sound of the grunting of the Feral Pig.

The Superb Lyrebird is known to imitate the sounds of mammals, as well as those of other birds and sounds emanating from inanimate sources (Reader's Digest 1986). Smith (1988) states that he has "heard the lyrebird imitating the barking of a fox terrier, and once heard a lyrebird in Sherbrooke giving a perfect imitation of the panting of a large dog. He reports other people having heard lyrebirds mimicking, at various times, a dog, a fox and a koala. Pollock (1967) describes and in the record included with his book provides clear evidence of a female lyrebird mimicking a small dog, including yapping interspersed with panting.

In a study of the songs of ten Superb Lyrebirds in the Australian Capital Territory, Taylor (1986) observed only bird songs and two other sounds, like those made by birds, in their song repertoires. Magrath's (1988) report on the song sequence of the Superb Lyrebird makes no reference to the mimicking of mammals' sounds, nor do those of Robertson and Frith (1981) nor Frith (1984), two other Australian Capital Territory based authors.

Perhaps the present observation of a lyrebird mimicking a Feral Pig provides some support for the 1863 statement that the lyrebird can imitate 'every note of the bush' (Smith 1988).

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RODENT PREDATION OF A BLACKBIRD'S NEST?

Catherine Bennett, C/- 66 Eggleston Cres, CHIFLEY ACT
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Received: 17 June 1988

In the summer of 1984-85 a pair of Blackbirds *Turdus merula* nested in an apple tree in the corner of a modest suburban garden in Chifley. Three young were hatched but did not live to fly. Correctly or incorrectly the Pied Currawongs *Strepera graculina* were blamed.

For the next two summers no nests were built in this garden, but the back lawn continued to be the feeding ground for a pair of diligent and very energetic Blackbirds. The male in particular was seen frequently to disappear over the fence flying towards bushes in a neighbouring street.

Returning to Canberra in January this year, it was pleasing to see "our" Blackbirds were feeding as usual on this lawn. At first it was thought they were collecting food, but a few days later the female was seen carrying a piece of twine to a Wisteria vine growing on a trellis, which is across the drive just outside the dining room window. This window afforded an excellent observation post during the next few weeks. The twine became part of what was found to be a well advanced nest, which the female bird continued to build through the heat of that day. Then for three days it was largely unattended though she was seen to go to it, on the fourth day she spent a considerable time at it. By the fifth day incubation had begun definitely.

Two weeks elapsed during which she continued to sit, often with her beak open, panting in the heat. The male bird fed busily through the day, but could be seen standing by the nest when the female was absent, especially towards the end of the second week of incubation. Then he would stand looking at it intently.

At the end of January we were away for three days and on our return found the young had hatched. All went well for five days with the parent birds actively feeding the three nestlings.

Then tragedy struck! First the female was seen to have a sore leg which she dragged while digging grubs from the lawn; and next it appeared that only two

nestlings were being fed. The explanation was clear the following morning when the male pulled a heavy weight from the nest and flew across the back lawn. He obviously dropped his burden before clearing the end fence for later. We found the corpse. On examination the nestling Blackbird was found to have excavations on its shoulder, neck and rump. These were not bleeding and must have been made a reasonable time earlier.

Soon after the removal of the carcass from the nest the top of the head of a rodent was seen in the nest. I do not know if it was a large mouse or a small rat but I ran out and tried to frighten it away. The female bird was nearby and of course being startled flew from the Wisteria. A ladder was then used to investigate the nest. As expected there were two young in it, but one had a wound on an upper wing which was not freshly made. For the remainder of the day the tempo of feeding the nestlings did seem to slow, and the female bird spent much time sitting at the nest. That night rain fell. The next morning the nest was deserted and the parent birds had disappeared from our garden enclosure. Eventually one dead nestling was found hanging in the Wisteria. Had the rat/mouse taken the other?

AUSTRALIAN KING-PARROTS FOLIAGE BATHING

Malcolm Fyfe, 27 Kilby Crescent, WEETANGERA ACT 2614
Received: 25 August 1988

In CBN 13(1):24-27 were detailed some observations of Australian Birds Rain and Foliage Bathing. At 0745hrs on the morning of Sunday 14 August 1988, I was on my Atlas grid, No. 36, 2km due south of Coppins Crossing. The weather was foggy with visibility restricted. I was attracted by a considerable commotion which I soon found to be created by a large number of birds cavorting in the foliage at the top of a large eucalypt. I counted at least eighty birds in the group. On closer inspection I observed King-Parrots *Alisterus scapularis*, indulging in foliage bathing. Their behaviour was similar to that, described by Veerman (1988 CBN 13:26), in relation to a Sulphur-crested Cockatoo. The birds half-flew, half-tumbled into clumps of wet leaves in the canopy, there remaining motionless for some moments with wings and tails outstretched. This romp continued with a great deal of noise for some twenty minutes after which the birds gradually settled down quietly in the upper branches preening themselves.

The movement of numbers of King-Parrots across this location has been observed over the winter of 1988. They move in the early morning from the direction of the pine forests to the western side of Coppins Crossing in the general direction of the Scrivener Dam, pausing in the eucalypts which are loosely scattered in the grazing paddocks on the western side of the Molonglo River. They

move in loose groups generally totalling between seventy to one hundred birds.

AUSTRALIAN MAGPIE-LARK RAINBATHING

Brendan J. Lepschi, 24 Fullwood Street, WESTON ACT 2611

Received: 9 November 1988

During a brief but very violent thunderstorm on 3 November 1988, I observed a female Australian Magpie-lark *Grallina cyanoleuca* rainbathing on powerlines on the CSIRO Site on Black Mountain, ACT. The maximum temperature for the day was 31°C, dropping to 21°C as the storm passed over.

The bird spent a total of five minutes rainbathing, for the most part facing directly into the rain, fanning her wings and tail and ruffling her body feathers so as to thoroughly wet her plumage. This was accompanied by frequent head scratching and some preening. After the storm passed, the bird spent another five minutes in intensive preening, before flying off.

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Due to the lengths of the lists of committee members and contents of this number, it has been necessary to insert the committee list on the inside of the back cover on page 135.

CONTENTS	PAGE
Foraging, Brooding and Defensive Behaviour of a Breeding Group of White-winged Choughs	106
High Flight Insect Eating by Brown Falcons, Kestrels and Dollarbirds	118
New Subspecies of Australian Birds	119
Book Reviews - Where to Find Birds in Australia	123
- The Great Australian Birdfinder	124
- The Age of Birds	126
Wedge-tailed Eagles Co-operatively Hunting a Kangaroo	127
Dollarbirds Comings and Goings	128
Odd (?) Behaviour of a Brown Goshawk	129
Chasing and Vocalisation by White-throated Needletails	130
Seven Wedge-tailed Eagles Flying Together	131
Superb Lyrebird Possibly Mimicking Feral Pig	132
Rodent Predation of a Blackbird's Nest?	133
Australian King-Parrots Foliage Bathing	134
Australian Magpie-lark Rainbathing	135
Canberra Ornithologists Group Committee	135
