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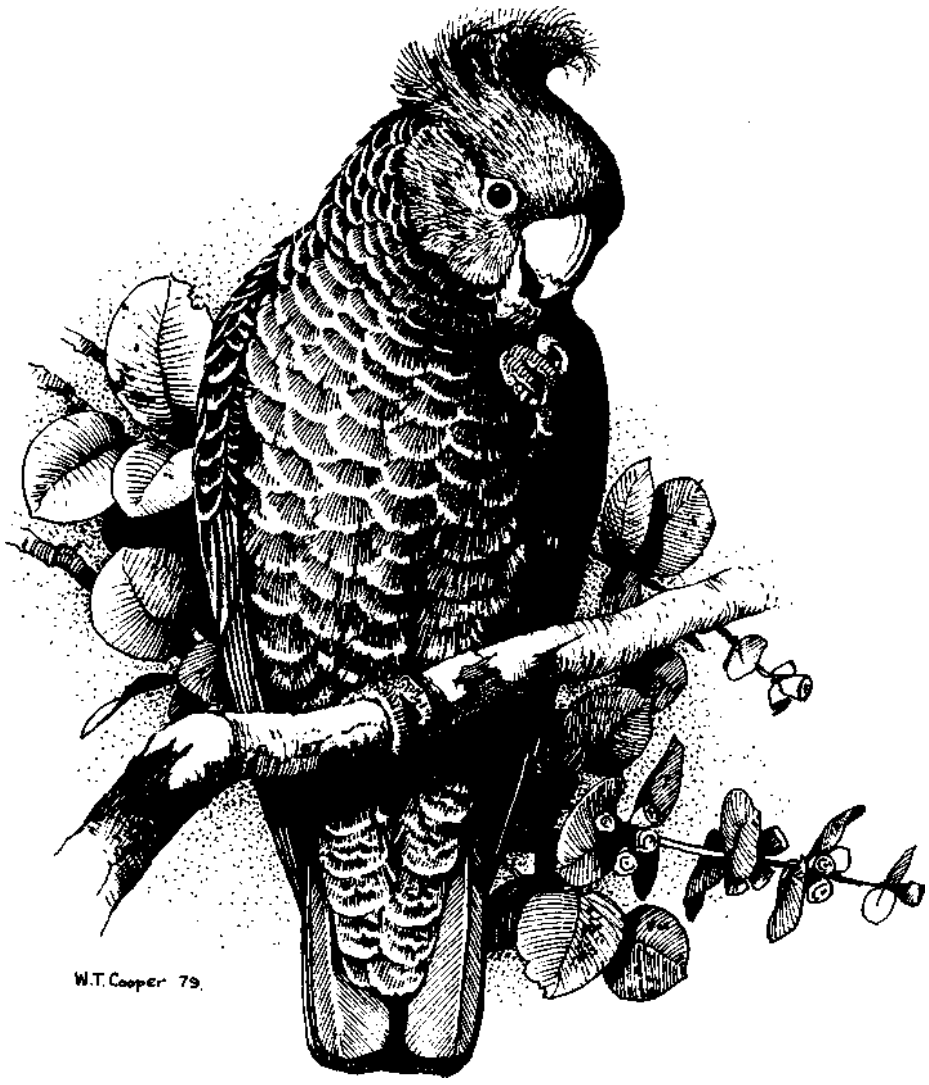

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(Continued inside back cover)

THE INTERACTION OF A SOLITARY REGENT HONEYEATER WITH A GROUP OF RED WATTLEBIRDS

John Leonard

It is widely believed that one of the reasons for the decline of the Regent Honeyeater *Xanthomyza phrygia* in eastern Australia in recent years is the increased fragmentation of its preferred habitat and the consequent greater competition from larger, more numerous, aggressive and opportunistic honeyeaters such as Noisy Miners *Manorina melanocephala,* Noisy Friarbirds *Philemon corniculatus* and Red Wattlebirds *Anthochaera carunculata* (Franklin et al.). It is also thought that this process is a self-reinforcing one — the more habitat is fragmented, the more competition the Regent Honeyeaters face; the more competition they face, the less successful their breeding; the less successful their breeding, the fewer of them there are, and the more they suffer from competition.

I should like to give an account of the interaction I observed between a solitary Regent Honeyeater and a group of Red Wattlebirds in urban street trees in Belconnen, north Canberra If this is typical of the sort of interactions which take place in other. less-than-optimum habitats then it might shed more light on the question of competition as a cause for the decline of the Regent Honeyeaters.

I had been alerted to the presence of a Regent Honeyeater at this location by the COG Bird Watchers Hotline, and arrived in Chandler Street, Belconnen, at approximately 0645 hr on a freezing morning (9 August 1995, temperature -2 degrees). Chandler Street is a cold, dark concrete canyon between two two-storey Commonwealth Government buildings, however, when I arrived the sun was already illuminating the upper branches of the street trees, amongst which I located five *Eucalyptus mannifera* in flower. The five trees were, from south to north:

Tree 1: A tall tree with many dense bunches of leaves; it had flowered profusely, but by the date of observation almost all the flowers were over, with only a few white flowers still out.

Tree 2 and **Tree 3:** Growing close together with their branches contiguous, they were close to Tree **l,** but separated by a gap; they were both tall trees with many dense bunches of leaves; they were in flower, and less advanced than Tree 1 with perhaps 40% of the flowers still white.

Tree 4 and **Tree 5:** These were smaller trees, separated from the first three trees, and from each other, by other non-flowering gums and native trees. They were in full flower, but each tree had only a few flowers on it.

By the time I arrived between 10 and 15 Red Wattlebirds were already in possession of these five trees. During the entire time I was observing them, their number remained constant, though from time to time two or three birds would leave the street and about as frequently others would arrive. The wattlebirds were mostly using Trees 2 and 3, occasionally two or three would move down to Trees 4 and 5. There were always birds in those trees, though my impression was that each individual would not stay long in them, but would soon return to Trees 2 and 3. Apart from the occasional peck, there appeared to be no aggression between the wattlebirds. They made no use of Tree 1, so far as I could see.

At 0700 hrs the solitary Regent Honeyeater arrived. It flew in from the north, up the street, from the direction of Lake Ginninderra, a previous breeding location for a pair of Regent Honeyeaters (Allan 1989). It made straight for Tree 3, evidently aware that this was the best tree in terms of flowers. However, as soon as it landed the alarm went up, and in the next five minutes the Regent Honeyeater was not allowed to feed, or have a moment's peace in Tree 3 or 2, but instead it was ruthlessly hunted about the trees by four or five wattlebirds acting in concert, even when it tried to make itself inconspicuous by hiding in the dense bunches of leaves. It flew for refuge to Tree 1 and, during this initial period, tried to return to Tree 3 twice, but each time it was chased back. Eventually it accepted the situation and remained feeding for ten minutes or so in Tree l, moving around the tree along branches out in the open, and feeding on the tops of bunches of leaves and on sprays out in the open, picking and choosing the best flowers — in exactly the same way as the wattlebirds in the next tree.

However, after about ten minutes the wattlebirds began to move in on Tree 1, which they had not done before, and although they only chased the Regent Honeyeater once or twice, and that not very determinedly, the Regent Honeyeater, taking advantage of its smaller size, retreated to the safety of the dense bunches of leaves, and continued feeding on what flowers it could find within these bunches. Whenever the wattlebirds left the tree, which they did from time to time, the Regent Honeyeater would appear again in the open, and begin feeding as before.

This state of affairs lasted for about half an hour with the wattlebirds coming and going in Tree 1; each time they did so the Regent Honeyeater retreated to the bunches of leaves. It made one more attempt to approach Tree 3, but was chased away again. At around 0745 hrs it left. I did not observe exactly when, or in what direction it went, being distracted by frozen feet and hands.

Using these observations I should like to suggest two hypotheses:

1 That the Red Wattlebirds, having located a nectar-source in a sub-optimal habitat, were concerned jealously to guard it against other nectar-eating species. They concentrated most of their defensive

efforts on the then richest source (Trees 2 and 3) and tolerated an intruder in the poorest source (Tree 1), but presence of the intruder even there made them more protective of a source they had hardly visited before. In addition, I suspect that the coming and going of birds from this group of trees indicates that the birds present were a `garrison' — that is, I believe these birds were acting to protect a nectar source on behalf of a larger population of which they were part. I assume, from what I observed, that the wattlebirds were continually being replaced, with birds coming on and off duty.

2 That the most efficient method of feeding for the Regent Honeyeater is in the more open foliage, picking and choosing amongst flowers, and on the richest tree. However. it was excluded from Trees 2 and 3, and was forced to feed in an inefficient way (amongst the leaves) when in presence of its larger and more numerous rivals.

It would be interesting to see whether these observations are typical of the interactions of Regent Honeyeaters and its larger congeners, and whether they correspond with observations of such interactions in more natural, but still modified, habitats, such as paddocks and larger stands of urban trees.

References

Allan, B.M. (1989). Successful breeding of Regent Honeyeaters on Lake Ginninderra Peninsula. *Canberra Bird Notes* 14: 25-26.

Franklin, D.C., Menkhorst, P.W. and Robinson, J.L. (1987). Ecology of the Regent Honeyeater *Xanthomyza phrygia. Emu* 89: 140-154.

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ACT BIRD WATCHERS HOTLINE **Telephone 247 5530**

An up-to-date five minute recorded message with interesting news such as returning migrants, rarities, meetings, outings, and bargains for bird-watchers in Canberra. Twenty-four hour service, up-dated twice weekly.

SHRIKE-LIKE FEEDING BEHAVIOUR IN A GREY SHRIKE-THRUSH

David McDonald

On 20 May 1995 in a Yellow Box *Eucalyptus melliodora* — Blakely's Red Gum *E. blakelyi* woodland near Tharwa, ACT, I observed a Grey Shrike-thrush *Colluricincla harmonica* engaging in interesting feeding behaviour. It captured a large flying insect (perhaps 7 cm long) with wings at least as long as its body. It tried to eat the insect, without success. It then flew with the insect to a part of the tree with an exposed dead branch pointing upwards. At the top of the branch was a sharp cleft. The shrike-thrush wedged the insect in the cleft and pulled off one of the insect's wings, allowing it (the wing) to flutter to the ground. It took the insect out of the cleft stick, apparently tried to eat it (again without success) and wedged it back again into the cleft. It then pulled off the insect's other wing and again removed the insect. It tried to eat it again, apparently achieved nothing and returned it, yet again, to the wedged position. It pulled at the insect (perhaps tore some tissue from it; I was unable to see) then removed the carcase and finally swallowed it in one piece. (The detail I have been able to document reflects the fact that I recorded the observations with a tape recorder.)

Impaling and wedging food is commonplace in the Old World shrikes of the family Laniidae, the "true shrikes" of North America, Africa and Eurasia (Gill 1995, p. 172). Indeed they are sometimes called "butcher-birds" for this reason. The Grey Shrike-thrush, however, is neither a shrike nor a thrush! It is an Australian/New Guinean endemic of the family Pachycephalidae, the thickheads; any similarity to the Old World shrikes and thrushes is a case of convergence.

I have not been able to find out if this butcher-bird/shrike-like behaviour is common in our thickheads generally or in our shrike-thrushes specifically. If such behaviour is common, is it this similarity to the behaviour of the Old World shrikes that led to the Australian shrike-thrushes getting their eurocentric common names?

Reference

Gill, F.B. (1995). *Ornithology* (2nd edition). Freeman: New York.

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A BREEDING COLONY OF AUSTRALIAN WHITE IBIS AT BURRINJUCK RESERVOIR, NSW.

Chris Davey

The Australian White Ibis *Threskiornis molucca* occurs throughout Australia. It breeds in all states except Tasmania (Marchant and Higgins 1990) with major colonies in New South Wales and Victoria. The nearest major colony to the Australian Capital Territory is at Barrenbox Swamp west of Griffith, New South Wales, although for the last few years there has been a small breeding colony of about 35 nests in a group of willows *Salix* sp. over a farm dam *c.* 10 km NW of Bungendore in COG Grid Q11 (M. Fyfe pers. comm.). White ibis breed in fresh, brackish or saline wetlands vegetated with reeds, shrubs or trees, in which nests are built. It occasionally nests on bare ground or in trees away from water (Marchant and Higgins 1990). It feeds on small animals, often aquatic. that include fish, frogs, freshwater crayfish, crickets, beetles and earthworms (Marchant and Higgins 1990) and is also commonly found scavenging on rubbish tips. Of 189 local councils surveyed by mail across Australia, 35% reported white ibis at their tips (Bishop 1993).

White ibis are active during the day. They move from their night roosts, which are always over or very close to water, early in the morning to feeding areas and return in the late evening. The birds do not appear to be particularly faithful to any one roosting spot because they will readily move with any disturbance. Movements to and from the roosting sites are characterised by large numbers of birds flying in skeins, direct and fast. Movements during the day are usually of small numbers of birds flying low and fast for short distances to different feeding sites or of larger flocks wheeling to gain altitude in an updraught of hot air and moving away at considerable height.

It therefore came as a surprise one day in late October 1992, whilst working on a property in the vicinity of Wallaroo Road, near the Murrumbidgee River, to see small groups of white ibis flying along the river. The groups, each of about 12 birds, flew at all times of the day upstream and downstream, high up and obviously following the river corridor, occasionally cutting corners which reduced the flight distance. On following the birds with binoculars I realised the birds were travelling to and from the Belconnen Tip, flying over the saddle to the south-west of Surveyors Hill (COG Grid H11). On leaving the tip the birds would either fly relatively low over the saddle and then down the corridor or else they would catch an up-draft of hot air to gain height and then break out of the thermal to head downstream.

This activity continued until the first week of March 1993, after which all movements ceased. I wondered whether the birds were flying to and from a breeding site somewhere downstream towards the Burrinjuck Reservoir.

Seven months later, in October 1993, I asked Penny Olsen if she was aware of any white ibis activity around Burrinjuck Reservoir. She said that when collecting data for her raptor study during the previous year she had noticed much activity and noise coming from white ibis in a group of partly drowned willows just downstream from

Taemas Bridge (COG Grid E7). She also mentioned she had recently noticed further activity at the same site but at a lower intensity than the previous year. Penny indicated that the birds had been present during her visits between September and December for as long as she could remember, perhaps as early as 1975 when she began her study. She also noted that the birds appeared to leave the area by early December each year.

On 4 November 1993 I visited the area below Taemas Bridge, but was unable to get to the site without a canoe. At the time I noticed about 60 white ibis loafing and flying around the trees, with a movement to and from the willows over Taemas Bridge and up the Murrumbidgee River. From the bank it was possible to detect young birds flapping their undeveloped wings.

On 16 November, when near the end of Wallaroo Road in COG Grid Hl0, I saw six birds flying from the corridor to the Belconnen Tip. On 19 November I again visited the breeding colony and with a canoe was able to visit the willows. I estimated there were about 70 nests containing young at various stages of development ranging from recently hatched to young which were on branches. The only eggs I noticed were very stained and I presumed they were infertile. In addition to the nests I counted about 250 adults. Photos were taken. From the bridge, starting at 1300 hrs, I took two 10 minute samples of the number of birds flying up or down the river. On both occasions there was a one-way passage downstream to the colony at the rate of one bird per minute. No birds were seen flying upstream.

Observations from near the end of Wallaroo Road indicated that the passage of birds continued until the end of January 1994 when all movement ceased; a month earlier than the previous year.

During the spring and early summer of 1994 I was again in the same areas as the previous two years and throughout the period no passage of ibis was seen between the Belconnen Tip and Taemas Bridge. In early October 1994 I received reports that the water level of Burrinjuck Reservoir was low and the willows were standing high and dry. A visit to the area on 9 November confirmed the reports and no white ibis were seen in the area. Counts of white ibis at the face of the Belconnen Tip indicated that there was a large increase in the number of birds in October, at about the time the birds would normally have started to breed (Table l). The maximum number seen at the tip in October was 475, which was about double the maximum number usually seen during the spring and early summer months in 1992 and 1993. This could indicate that a population of about 450 to 500 birds use the breeding site near Taemas Bridge. When birds are breeding about half of the population (i.e. *c.* 200 birds) is to be found at the tip, with the remainder at the breeding site or in transit. If this is correct. the figures would indicate that the drought conditions inland did not bring additional birds to the tip.

Table 1. Maximum numbers of Australian White Ibis counted at the Belconnen lip during spring and early summer. (nc = no count.)

	Aug	Sept	Oct	Nov	Dec	Jan
1992	240	250	nc	200	200	200
1993	nc	17	40	120	200	30
1994	130	nc	475	250	275	nc

To my knowledge this breeding colony has not been reported before and I am unable to find out how long the colony has been active. The birds are obviously feeding at the Belconnen Tip then flying along the corridor of the Murrumbidgee River to the breeding colony downstream from Taemas Bridge. It appears from the number of birds seen moving up and down the river, the length of time the movements occurred, and from Penny Olsen's comments, that the number of birds breeding during 1993-94 was less and the season shorter than the previous year.

During September to December in 1992, 1993 and 1994 the amount of water in Burrinjuck Reservoir has varied (Table 2).

Table 2. Water storage of Burrinjuck Reservoir. Volume of water held in storage towards the end of the month expressed as a percentage of the design capacity. (Source: Monthly Rainfall Review, Bureau of Meteorology.)

	Sept	Oct	Nov	Dec
1992	102%	101%	100%	99%
1993	97%	99%	99%	96%
1994	71%	61%	58%	41%

The trees were in about 2 m of water during the visit to the breeding site on 19 November 1993; towards the end of that month the reservoir was 99% full. Toward the end of September 1994 the reservoir was 71% full and the trees were well above the water level. These figures suggest that the trees are out of the water when the water storage of the reservoir falls to between 75% and 90% full. Since 1975 the capacity of the Burrinjuck Reservoir in October and November fell to less than 90% in only four years (Table 3). The Belconnen Tip, which is a source of food for the ibis, has been in existence since late 1973. From these observations, I suggest that it is possible for the white ibis to have been breeding at Taemas Bridge since the mid 1970s and could have bred in all but the four years when the capacity of the reservoir in October and November had fallen to less than 90%.

Table 3. Capacity of the Burrinjuck Reservoir in October and November during the four years since 1975 when it was less than 90% full.

	Oct	Nov
1977	87%	70%
1980	50%	44%
1982	37%	29%
1994	61%	58%

I would be grateful for any information that could throw light on how long the colony has been active. I would like to thank Robert Moore, John Bray and Simon Thompson for helping me with these observations.

References

Bishop, L. (1993). Aspects of foraging and breeding ecology of the White Ibis *Threskiornis molucca* in inland Australia. B.Sc. Hons. thesis. School of Environmental and Information Science, Charles Sturt University: Albury.

Marchant, S. and Higgins, P. (co-ordinators) (1990). *Handbook of Australian, New Zealand and Antarctic Birds*. Volume 1. Oxford University Press: Melbourne.

Postscript

With the refilling of Burrinjuck Reservoir after the 1994-95 drought it came as no surprise to find Australian White Ibis once again moving between the Belconnen Tip and the reservoir. The movement this year was observed for the first time on 26 October and continues to the time of writing this postscript (13 November 1995). During a visit to the colony on 27 October, breeding was in full swing. I was unable to obtain an estimate of the number of nests, but eggs, chicks and about 40 fully-feathered but non-flying young were present. I counted about 185 adult birds and came away with the distinct impression that the breeding activity was about 30% less than two years previously. but this reduction may have been attributable to the visit being earlier in the season than in previous years. During the visit I again counted the number of ibis flying to and from the colony. Starting at 1330 hrs, during 11 five-minute counts 17 ibis were seen flying upstream from the colony in the direction of the Belconnen Tip and 26 were seen returning a rate of passage of 0.8 birds per minute, slightly less than two years previously. No ibis were seen flying in any other direction.

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COUNTING TERRESTRIAL BIRDS — A BIRD-WATCHER'S DILEMMA?

Kenneth B.H. Er

Introduction

The idea for this paper first came about when I was working on birds in the woodlands around Canberra. I realised that data collected by members of the Canberra Ornithologist's Group (COG) were invaluable to our understanding of the changing avifauna of Canberra and the surrounding area. While this was so, I felt that much of these data could have been enhanced if appropriate and standardised counting techniques were applied. For example, in analysing long-term changes in the avifauna. bird data collected on a presence basis only, without any information on the number of individual birds seen, can infer changes in bird species make-up, but not changes in the abundance of these species. The latter may prove essential in the identification of declining species or species which have increased greatly in numbers over the years. Hence, it is important that an observer records not only the presence of a bird species, but also the number of individuals. The choice of counting technique then becomes important in that an unsuitable technique may result in some bird species remaining undetected or inaccurate estimates of bird numbers. The problem perhaps lies in that relevant literature of bird counting techniques are often found only in scientific journals which are not only inaccessible to many, but also terribly unpalatable to some.

In this paper, I attempt to: (1) clarify the meaning of the term "census" which has until now not been mentioned in this paper, but has often been wrongly used by many; (2) highlight the main sources of bias in counting birds; (3) describe common counting techniques, such as the fixed-width strip transect technique, the point count technique and the area search technique, and the use of bird atlas studies; and (4) encourage COG members to take note of bird numbers in their records.

This paper was written as an introduction of bird counting techniques to the bird-watcher in as assimilable a form as possible and must not be seen as a review of bird counting techniques. Furthermore, the information presented here is applicable only to terrestrial birds.

What is a census?

A census is a total count, so it measures abundance on an absolute scale. Total counts are possible only in special circumstances, as with colonially nesting birds whose nests are relatively conspicuous. True censuses are hence rare in ornithological studies, although many forms of counting have wrongly been called "censuses". Most of these so called "censuses" are in fact samples of the population which are expressed in terms

of bird abundance indices such as number of birds/ha or number of birds/count duration.

Owing to the confusion which may arise from the term "census", the word "count" has been used throughout this paper.

Main sources of bias in bird counts

What is bias?

Bias is a measure of the deviation from the real value of a parameter by estimators of that parameter (e.g. the observed number of birds/ha is an estimate of the true bird density). In other words, bias can be seen as an error which contributes to the inaccuracy of an estimate. Many sources of bias can arise during a bird count. Although they are often not directly highlighted by authors, they may bring about discrepancies in the eventual results of the bird count. Hence, an understanding of these biases will be useful. Four main common sources of bias will be highlighted here.

Weather

It will not be new to the avid bird-watcher that bird activity will vary with weather conditions. Rainy and windy conditions will not only reduce bird activity, but also reduce visibility and hearing ability so that the probability of detecting birds will decrease. Such conditions will also bring about much discomfort to the observer, thereby affecting concentration. Bias may be controlled by avoiding the following conditions: (l) strong winds (> 11 km/h); (2) light to heavy precipitation; (3) extreme cold or hot temperatures; and (4) fog.

Seasonal variation

Seasonal variation becomes especially important in places with a temperate climate, such as Canberra. The extremities of temperature will greatly affect the availability of food and will in term have an effect on bird behaviour. For example, it is common to find large mixed flocks of thornbills *Acanthiza* spp. in autumn and winter, whereas in spring and summer, flocking tends to be less apparent. The change in climatic seasons also means that the avifauna is made up not only of resident species, but also migrant species. Some species, such as the Yellow-faced Honeyeaters *Lichenostomus chrysops* and White-eared Honeyeaters *L. leucotis,* will peak at certain times of the year. Other species, such as the Rufous Whistler *Pachycephala rufiventris* and the Golden Whistler *P. pectoralis,* will only be present at certain time of the year. More importantly, some birds become more conspicuous (i.e. increased frequency of calls) during the breeding season. Examples include the Scarlet Robin *Petroica multicolor,* Jacky Winter *Microeca fascinans* and Olive Whistler *P. olivacea.*

Because of the seasonal variation in bird activities and composition, it is necessary to realise that any form of counting must attempt to take into account these differences. This may involve counting in all seasons.

Time of day

Various studies have shown that the number of bird species and number of individuals per species detected will change at different times of the day. It has been reported that the period of maximum morning song activity for birds in Australia is between 0730 and 0830 hrs. It has been suggested that in open forest and woodland in Australia, counts should begin about an hour after sunrise and be limited to 2 1/2 to 3 hours a day. For most species, hourly variation, particularly within the first three hours of the morning. is not large enough to warrant limitation of bird counts to shorter periods.

Observer variation

Of all sources of bias, observer variability is potentially the most serious because it is usually overlooked. This becomes particularly important in bird surveys across large areas where there may be pressures to complete surveys quickly and to accomplish this by using many observers. Differences between observer search patterns, their individual behavioural traits and ability to identify birds may considerably affect the counts. Perhaps the best way to minimise observer variability is to reduce the number of observers. Where this is not possible, it is important that all observers should be able to identify birds to an acceptable level of competence and that they fully understand the procedures of the counting technique.

Common counting techniques

Fixed-width strip transect

The fixed-width strip transect technique is one of the most widely used and accepted bird counting techniques in Australia. It has been used with great success in a variety of vegetation types.

This technique involves an observer moving along a transect line at a constant speed, counting birds within a fixed-distance from either side of the line. To minimise the chance of individual birds being counted more than once. birds in flight should not be counted and the position of birds counted should be marked on a simple plan of the strip transect.

The effectiveness of strip counts depend greatly upon: 1) strip width; 2) transect length; and 3) rate of movement of the observer, which will vary with

vegetation type and observer competence. Strip width may vary from 20 m in rainforest. to 60 m in eucalypt woodland and to 120 m in coastal heathland. In urban environments. strip widths are usually taken as the distance between houses on opposite sides of a street. Transect length may vary from 200 m to about 2 km. The rate of movement of the observer can vary from 3 min for every 50 m of transect in grassland to 10 min for every 50 m in eucalypt woodland and forest.

Advantages:

1. Can provide reasonably reliable indices of bird abundance;
2. Simple. efficient and repeatable;
3. Minimise the risk of individual birds being counted more than once.

Disadvantages:

1. Has a tendency to underestimate the number of bird species found in the study area;
2. Prone to problems associated with varying detectability of different bird species;
3. Requires the measuring and marking of strip.

Point count

The point count technique was initially designed to estimate bird numbers in tall, structurally complex types of vegetation in rugged terrain where the majority of the contacts was by sound. Over the years it has been widely used in Europe and the USA, primarily for the counting of songbirds, and also in the USA and Australia to monitor breeding bird populations.

This technique involves an observer standing on a fixed point and recording species and bird numbers or calls detected either within a known distance, or irrespective of distance. An index of bird abundance may be expressed in terms of the number of birds or the number of species detected per minute of count. To minimise the chance of repeated counts. fixed scanning periods are often used where the observer, located at the point, scans the surrounding area every X minutes which should be adjusted to allow time to record observations.

Effectiveness of the point count technique depends greatly upon the length of the counting duration and the separation of the points. Too long a duration will increase the chances of counting birds more than once. The most common counting durations are 5 min and 10 min. A graph of the average cumulative number of birds per point detected versus the length of the count interval in one minute increments may be constructed to determine the optimal count duration. It is further recommended that

points be separated as far as possible so that birds will not be counted more than once. Ideally, they should be no closer than 200 m.

This technique is used by COG members in the bird survey at Mulligans Flat Nature Reserve.

Advantages:

1. Most effective for the counting of songbirds;
2. Points easy to locate and set up, thereby most efficient for the counting of birds during the breeding season where it is desirable to survey as many sites as possible.

Disadvantages:

1. Difficult to avoid the counting of individual birds more than once;
2. Will bias against less vocal birds in a species diversity count, unless birds are counted only when seen.

Area search

The area search technique is becoming increasingly popular in Australia and was adopted as the counting method for the RAOU Australian Bird Count.

This technique involves an observer searching a known area and recording numbers of individual birds of each species seen or heard in a certain fixed time period, usually 20 min for every 3 ha of eucalypt woodland or forest. Counts or searches are usually repeated a number of times. Results can be expressed as number of birds of each species per count (or per 10 or 20 counts etc.) or as percentages of total birds observed. For the purpose of accuracy, the area should be marked. although as suggested by Richard Loyn (see Further reading), this becomes unnecessary if the size of the area searched is known and a constant searching time is used at all times.

Effectiveness of the technique is independent upon the amount of time spent searching. It was reported that to obtain a complete list of bird species in woodlands and open forests. a total count time of around 100 min was required in sparse sites, while a total count time of 150 min was required in dense sites. The total time spent was also more important than the duration or number of repetitions of the count period in dense sites. whereas in sparse sites. it was more effective to have more repetitions of counts of short duration.

Advantages:

1. Most effective for the production of a comprehensive species list in an area;
2. Observer bias greatly reduced due to the close contact between the observer and the birds.

Disadvantages:

1. Difficult to avoid counting birds more than once;
2. May not provide reliable indices of bird abundance due to point l.

Bird atlas studies

Bird atlas studies, as those COG members who were involved in the project to prepare a bird atlas of the ACT would already realise, can provide much data about bird distribution. often on a local, regional or national scale. Although not strictly a method of counting birds, atlas studies can be used to record the presence of birds based on a grid system over the area of interest (as with the bird atlas of the ACT). In some cases, indices of bird abundance (e.g. number of birds/unit area surveyed) have also been included (as with the *Atlas of Wintering Birds in Britain and Ireland, Atlas of Wintering North American Birds* and the *Bird Atlas of the Netherlands).*

The success of bird atlas studies depend greatly on the scale of the survey and the grid size. Scale is an important consideration in any atlas survey because the smaller and more cells there are in the grid, the more detail will be attributed to the data. This will require a greater number of field workers and a longer survey period. Grid size, although influenced by the survey scale, must be carefully chosen such that it will ensure optimum detection of all possible bird species present in the survey area. This is because the number of species detected increases with grid size on a logarithmic scale.

Advantages:

1. Can provide a basis for future comparison of bird species distribution and abundance (if recorded) on a large scale;
2. Simple, efficient and repeatable.

Disadvantages:

1. Requires large number of dedicated field workers;
2. Requires good database system which may be costly and time-consuming.

Counting birds need not be difficult

Counting techniques must not be seen as complicated, thereby restricted only to the scientist. Rather, one must begin to realise that it can be applied by anyone and at anytime, as long as the appropriate technique is chosen.

Given that most of COG's projects currently involve the collection of bird data for the purpose of recording changes in the avifauna of the ACT and surrounding area, as well as the creation of species lists, it is especially useful to apply counting techniques which are easily repeatable by any individual; easy to standardise; and able to provide an easy index of bird abundance (e.g. number of birds/ha, number of birds/minute of counting time). An example of this is the counting technique used by Harry Bell in his work with birds on Black Mountain, almost twenty years ago (see Further reading). His technique was simple and well documented which means that anyone could repeat his work today to see what changes, if any, have occurred in the bird fauna.

The COG Garden Bird Survey is a good example of a simple, yet effective counting technique. This requires participants to record the maximum number of birds of each species seen at the one time during a week within a 100 m radius of their houses. The strength of this technique is that it is simple enough for any individual to participate in the survey. More importantly, it gives a weekly record of bird numbers. Although it may not be accurate because of repeated counts, it will, nevertheless, provide a good indication of the seasonal trends of bird numbers in Canberra.

The techniques described in this article have been well-established and continuously refined by avian ecologists to provide better estimates of bird abundance indices. As illustrated by the Garden Bird Survey technique (adaptation of the point count technique), there is no rule against the modification or adaptation of these techniques to suit the survey objectives and environmental situation. Ultimately, no technique is without problems and it is important that we try to minimise these. Choice of the counting technique is specific for each particular project and the decision should not be made on a purely scientific basis, but should also account for practical feasibility.

Happy counting!

Acknowledgments

I thank David Purchase, Chris Davey, Stuart Pell, Chris Tidemann and Henry Nix for providing the forum for discussion. David Purchase, Chris Davey, Nick Nicholls and Michael Lenz also provided helpful comments and criticisms on an earlier

draft of this paper. Finally. many thanks to T.H. Wong for the encouragement to finish this paper.

Further reading

General

Bibby, C.J., Burgess, N.D. and Hill, D.A. (1992). *Bird Censusing Techniques.* Academic Press: San Diego.

Davies, S.J.J.F. (editor) (1984). *Methods of Censusing Birds in Australia.* RAOU Report No. 7.

Ralph. C.J. and Scott, J.M. (editors) (1981). *Estimating Numbers of Terrestrial Birds.* Studies in Avian Biology No. 6.

Recher, H.F. (1988). Counting terrestrial birds: use and application of census procedures in Australia. *Australian Zoological Review* 1: 25-45.

Verner, J. (1985). Assessment of counting techniques. *Current Ornithology* 2: 247-302.

Sources of bias

Weather:

Dawson, D.G. (1981). Counting birds for a relative measure (index) of density. In: *Estimating Numbers of Terrestrial Birds* (editors C.J. Ralph and J.M. Scott) pp. 12-16, Studies in Avian Biology No. 6.

Seasonal variation:

Bell, H.L. (1980). Composition and seasonality of mixed-species flocks of insectivorous birds in the Australian Capital Territory. *Emu* 80: 227-232.

Time of day:

Arnold, G.W. (1989). Changes with time of day in the species and numbers of birds seen in Wandoo woodland. *Corella* 13: 81-85.

Observer variation:

Kavanagh, R. and Recher, H.F. (1983). Effects of observer variability on the census of birds. *Corella* 7: 93-100.

Counting techniques

Bird atlas studies:

Taylor, M. and Canberra Ornithologists Group (1992). ***Birds of the Australian Capital Territory - an Atlas.*** Canberra Ornithologists Group and National Capital Planning Authority: Canberra.

Lack, P. (1986). ***The Atlas of Wintering Birds in Britain and Ireland.*** T & A. D Poyser: Calton.

Fixed-width strip transect:

Bell, H.L. (1980). Effects of power-line clearing on birds. ***Corella*** 4: 8-19.

Er, K.B.H., Robinson, A.P. and Tidemann, C.R. (1995). Importance of censusing duration and strip width in the use of the fixed-width strip transect for the censusing of birds in Yellow Box woodlands. ***Corella*** 19(4):

Point count:

Pyke, G.H. (1983). Analysis of an instantaneous census method for heathland birds. ***Australian Wildlife Research 10:*** 521-526.

Osborne, W.S. and Green. K. (1992). Seasonal changes in composition, abundance and foraging behaviour of birds in the Snowy Mountains. ***Emu*** 92: 93-105.

Area search:

Loyn, R.H. (1986). The 20 minute search - a simple method for counting forest birds. ***Corella*** 10: 58-60.

Slater, P.J. (1994). Factors affecting the efficiency of the area search method of censusing birds in open forests and woodlands. ***Emu*** 94: 9-16.

COG Garden Bird Survey technique:

Hermes, N. (1981). Garden bird chart and survey. ***Canberra Bird Notes*** 6: 112-114.

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OUT AND ABOUT

G. Tibicen

The views expressed in "Out and About" do not necessarily reflect the views or policy of the Canberra Ornithologists Group Inc.

The July issue of *Albatross,* the newsletter of the Southern Oceans Seabird Study Association, has a tribute to Arthur (Arfie) Mothersdill. I can hear you say "Arfie who?". Well Arfie provided an important foundation on which the studies now being undertaken on albatrosses along the central coast of New South Wales were built. He owned and operated "Mabel". a 14 foot (4.27 m) Kauri Pine clinker-built boat powered with a 4 hp single cylinder 4-stroke water-cooled engine which. when it was bought in 1938, was "state of the art". This boat, and Arfie's seamanship, were the means by which the first Wandering Albatrosses were caught and banded in 1956. Although you may have heard of other members of the group, Doug Gibson, Alan Sefton and Dave Walsh, who wrote-up the early work, you probably have not heard of Arfie, but without Arfie there may have been no study.

To quote from *Albatross,* "Birdos tend to acknowledge the efforts of other birdos and the contributions (often significant) of colleagues, such as Arfie, often fade from sight (in the history of the world according to birdos) as time progresses. Without Arfie, Mabel, his sense of humour, seamanship, knowledge and participation, it is probable that the NSW Albatross Study would never have eventuated."

Translated to the local scene, how many of the modern Canberra birdos remember Jim McNaughton? In the early days Jim kept good records of the birds of the east end of Lake Burley Griffin and it is largely because of his records that we now have the area off Dairy Road to watch waterbirds. Without these records the fight to make the area into a reserve would have been much harder.

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SHOPFRONT AND OFFICE

Natural History Centre, Room G5, Griffin Centre, 19 Bunda Street. Civic ACT.
(Together with the Field Naturalist Association of Canberra and the ACT Herpetologists Association.)
Hours: Wednesday, Thursday, Friday 10 am to 2 pm; Saturday 10 am to 1 pm.

Telephone: (06) 247 4996; answering machine after hours.

REVIEW

Birds of Southwestern Australia — an atlas of the changes in distribution and abundance of the wheatbelt avifauna by Denis Saunders and John Ingram (1995). Surrey Beatty: Chipping Norton. Pp. 296, 210 mm x 297 mm (A4), $39.95.

Any birders going west in the foreseeable future will find this compendium a valuable guide. Its strength is its seasonal and temporal maps of distribution. Building on a wealth of records coming out of CSIRO' s sponsorship of community involvement in bird recording, the authors have combed the historic literature to build a species-by species picture of the changing distribution and status of birds in the Western Australian wheat-belt. That region is one that has been almost entirely shorn of its natural vegetation cover since the second world war; and the effect on birdlife has been devastating. Like no other document, this compendium traces that collapse.

Added to the maps are brief accounts of the biology of each species, and well-referenced summaries of changes in status and threats. More, perhaps, could have been said about the general biology of each species in south-west Australia; certainly there is enough blank space in columns at the side of each page for more text, and even further illustrations. As it is, the biological information that is given is so simple and general that it can only be of interest to the very beginner.

There are two noteworthy shortcomings for ornithologists with an interstate perspective. one minor, the other major. The first is the title which is somewhat misleading because the book is really just about birds of the Western Australian wheat-belt, and does not include species restricted to the wetter south-west corner. Confusion is often abetted by the maps which include an incomplete scattering of records from the latter region as well for those species that occur in both wheat-belt and wet south-west.

The second, and major shortcoming, is the inconsistent English nomenclature. The book was in press when the new RAOU list appeared, but the names used do not even follow previous RAOU standards and format. The old generic "warbler" returns for gerygone, Black Cormorant for the Great Cormorant, and Red-capped Dotterel for the Red-capped Plover, yet Pink Cockatoo is kept for a species for which Major Mitchell's Cockatoo has become widely preferred throughout Australia, particularly in the west! There are many more such examples, all compounded by unstandardised hyphenation and decapitalisation of generic stems such as dotterel, rosella, wren and swallow. English names for birds have as their primary purpose the communication of identity; and unstandardised nomenclatures confound communication. It may give the authors a warm feeling to choose their own names, but it is as confusing as it is annoying to others and diverts the reader from the real message - and value - of the book.

These cavils apart, the book is clearly and readably printed and presented, and contains a useful transparent map overlay for pin-pointing localities and the locations of observers. A particular plus for Canberra ornithologists is the size of the book, its binding and cover which are an exact match for COG's *Birds of the Australian Capital Territory - an atlas:* the two make a perfect pair on any bookshelf.

Richard Schodde

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LETTER TO THE EDITORS

DUCK HUNTING

The December issue contained a letter to the editors by Malcolm Fyfe and Ian Fraser urging COG to develop a policy on duck hunting. In order to encourage discussion a further eight letters have been published on the subject in subsequent issues. These covered a range of opinions. In addition, the March 1995 meeting was largely devoted to talks by four people who provided various views of duck hunting. On the basis of the views expressed by members, the COG Committee will produce a draft statement on duck hunting as part of its conservation policy. The controversy surrounding duck hunting has been well aired and it is anticipated that the following letter will be the last published on the subject prior to the preparation of a conservation policy for COG.

24 May 1995

WHY WE BELIEVE THAT COG MUST OPPOSE RECREATIONAL HUNTING

The Basic Argument

The essential and central argument against duck (and other game bird) hunting is a very simple one based on the definition of recreational hunting. *Australian recreational game hunting is the killing of native animals for amusement; it relies on deriving entertainment from causing the death of a bird.* All other arguments in support of hunting are mere rationalisations for this.

Given this it is obviously inappropriate for COG to be even contemplating supporting the practice. This is not adequate however - it is equally inappropriate for COG to ignore it. *It is essential that we take a stand at least as firm as that of the Victorian Bird Observers' Club; viz "opposes the shooting of all wild birds ... except for the selective culling of pest species".* We would substitute "native" for "wild", and are uncertain of the necessity of the added condition; if included it requires a codicil such as "as determined by government wildlife conservation officers".

The discussion could indeed end there, but it is worth exploring the other arguments against the practice - which are in themselves very potent - and those for it. which on mildly critical analysis prove to be unsubstantiated assertions and rationalisations.

Other Arguments

*** Individual Cruelty.** It is broadly accepted both socially and legally that it is unacceptable to cause deliberate cruelty to animals. The same must apply to a practice in which such cruelty is an essential, even if not intentional, component. For incontrovertible evidence that such cruelty is an unavoidable element of duck hunting, members are referred for instance to the first hand professional account of veterinarian Dr Meltzer at the March COG meeting. Simple assertions that such cruelty does not exist cannot stand up to such evidence.

*** Killing of Non-target Species.** To kill a protected species intentionally carries the penalty of law. To carry out a recreational activity in which such killing is integral, albeit not necessarily intended, makes a mockery of wildlife protection. It is in recognition of this that proponents of duck hunting make such astounding claims to deny the existence of the annual slaughter of everything from coots to darters to pelicans to egrets.

We have even heard a lobbyist for the industry claim on local ABC radio that the pile of dead protected birds collected during the 1993 shooting season and dumped at Parliament House in Sydney had all died of natural causes! We would challenge him to take us to **a swamp** and collect such a pile of freshly dead birds on a morning of our choosing. Even if successful he would then have to convince us that the bullet wounds were all evidence of mass suicide

Two years ago we were asked to identify a freshly shot Straw-necked Ibis and Boobook Owl from **Lake Cowell.** To assert that such events do not occur displays contempt for the observer and the lobbyist's audience. COG members do not deserve such contempt.

It is irrelevant that most "non-target species" are not endangered; to follow that argument would **lead** to our support for removing protection from all native species except those **already** at threat of extinction.

Mention must **be made** here of the annual kill of Freckled Duck. listed as "rare" by the **Royal** Australasian Ornithologists Union *(Threatened Birds af Australia; an annotated list. J* Brouwer & S Garnett. 1990). The RAOU's *The Atlas of Australian Birds* comments that it "suffers high mortality when large numbers in south-eastern Australia coincide with the duck-shooting season", and goes on to cite kills of 500 of 700 Freckled Duck at Bool Lagoon in 1980, and 800 of an estimated 3000 in Victoria in 1981. Nor are these figures simply historical; at Lake Buloke in Victoria in March 1994, on the first weekend of the 1994 season, 48 Freckled Duck were found dead and

handed to Departmental Wildlife Officers, out of 60 counted at the beginning of the weekend (RAOU office, pers. comm.).

Is COG going to believe the RAOU, or a Field and Game representative who in a letter in our possession, referring to an ABC radio show Ian did on the subject, asserts without evidence simply that "Freckled Ducks are not regarded as endangered" and later "I strongly doubt that the pelicans and egret displayed by protesters were shot, they were probably dead before duck opening from natural causes[!]"?

*** Lead Shot.** While it would make no difference to the overall argument if steel shot were used, the annual deposition of an estimated 350 tonnes of lead shot in Australian wetlands by shooters has to be regarded as a major environmental issue. Just one ingested pellet may be enough to kill a duck. Furthermore lead is a cumulative poison, concentrating up the food chain, putting predators and scavengers at even greater risk.

The references to the scientific research behind these statements, as well as an excellent summary of other related research in Australia and the US, may be found in *The Use of Lead Shot in Cartridges for Hunting Waterfowl; Action Statement No. 32,* Flora & Fauna Guarantee Unit, Victorian Dept of Conservation & Environment. (We can provide the COG Committee with a copy, if it so desires).

As a result of its research, this unit has listed the use of lead shot as a "potentially threatening process" under the Victorian *Flora and Fauna Guarantee Act* 1988, and has banned its use in that state. This follows its banning in South Australia and parts of the Northern Territory, as well in the United States, where repeated court cases have upheld the necessity for the ban on the basis of scientific environmental evidence.

It is worth noting that the South Australia Field & Game Association supported the ban in that state *(Modern Hunting and Conservation,* Field and Game Federation), though the NSW Association and the Australian Federation continue to oppose such a ban. We would happily discuss their own "research" further if required.

The Case - Or Rationalisation - For Hunting

*** Culture and Tradition.** Perhaps this hardly requires a response, but since it has been put up as an argument it deserves to be demolished as one. If COG were to accept this argument as justification, let us point out some other traditions which it would also have to support to be consistent.

Ian's father, in common with many of his generation, collected birds' eggs as a boy. Can Ian claim COG's support to take up the hobby based on this family tradition?

Many Australians come from cultures where killing of songbirds for food or trapping for caging is acceptable. Since presumably COG will not be arguing that Anglo-Celtic traditions are OK but Asian or southern European ones are not, this

could well be potentially embarrassing for COG when it is asked to support such a trade on the basis of tradition!

The essence of the argument is that tradition does not change with time; a practice such as duck hunting is acceptable *now* because it was acceptable in the past. Will COG be supporting moves to revive the slaughter of lyrebirds and egrets on the basis that they are traditional?

*** Hunting Organisations Pay for Reserves.** The theory is that because hunters' fees in part fund public wetland reserves, hunting organisations have the right to determine their usage. The important principle here is that public reserve management objectives should be determined only by professional reserve managers, in consultation with the community at large. These management objectives must never be determined by the requirements of private vested interest groups in a sort of auction. If COG were to accept this principle - and on superficial examination it may seem an attractive one - how shall it say "no" to similar bids from trail bike or 4WD groups for use of wilderness areas in return for fees, or from those who'd like to hunt kangaroos with dogs in reserves, or perhaps the wood chipping industry who could fund the whole running costs of a reserve in return for say, just 5% of it a year?

If a wetland reserve is managed specifically for the (short-term!!) benefit of a limited number of "game" species, what are the implications for other animal species and plant communities of the reserve?

Are we going to start explaining to reserve visitors that the real reason we're putting such effort and resources into attracting waterbirds there is so that a few people can kill them? If COG is not prepared to put its name to such a statement, should it be supporting it?

Nor have we ever seen an independent cost-benefit analysis to support the claims that wetland habitats rely on such "sponsorship" for their survival or even adequate management. How much of hunters' fees goes into Game Reserve management *as a supplement to what would otherwise be available,* and how much just vanishes into consolidated revenue? If such funding did in fact find its way into a given reserve's budget, how much of it would be absorbed in funding the extra management required to police the hunting season and to provide the special management prescriptions needed to favour game species over others?

We are unaware of any studies that indicate that it would be financially prohibitive for wetlands currently managed as game reserves to be managed as broader purpose conservation reserves. Presumably COG would prefer the latter if there were a choice; without proof that it is impossible, we should not even be contemplating a lesser degree of protection!

* *"Wetland* habitat is more plentiful now with farm dams and major irrigation and water supply storages providing drought refuge habitat." (Quote from the letter mentioned earlier. whose implication is presumably that thereby we have created

more ducks, which are ours by right to dispose of). It is hard to know whether this reflects an abysmal ignorance of the ecology of Australian waterfowl, or simply a cynical optimism that the recipient of the assertion is ignorant! Either way it is not an argument that COG should be impressed by. "Habitat" means a species' requirements for feeding and breeding, as well as just sitting!

Most Australian ducks are shallow water dabblers and wet pasture graziers. Most southern species have evolved to breed opportunistically on floodwater plains and in flood-generated lagoons. Drainage of swamps and regulation of seasonal flood systems accounts for most of the wetlands that we have destroyed - which is most of them! A deep water storage, usually with no surrounding reed beds, is as about as valid a substitute as a pine plantation is for a mature eucalypt forest.

It is worth noting, incidentally, that all anecdotal evidence from early nineteenth century explorers of which we are aware suggests that duck numbers in south-eastern Australia were higher then than now.

*** Testing for Identification of Game Species.** It is a boast of hunting associations that members must pass a test to identify game species. Having noted that the "pass" mark is 70% - i.e. it's OK to be wrong 30% of the time - we make the observation that this is a red herring relative to the observation, made previously, that "non-target species" *are* being shot in large numbers.

Referring for instance to the freshly shot ibis and owl mentioned above, we are prepared to let a Field and Game Association representative nominate whether they think the birds were shot by someone who couldn't distinguish them from a duck, or by someone who didn't care. Either way it was presumably by someone who'd passed the required test

Conclusion

It may be tempting for COG to consider the "no stance" option, using the excuse that hunting is not legally practised in our immediate area. The effect, however, would be to offer tacit acceptance, if not support; if we are going to do this, we may as well be honest and offer it overtly. To ignore the issue because it's not in our immediate back yard would be not only morally indefensible, but inconsistent. How shall we then justify supporting the Capertee Valley Regent Honeyeater project, or protection of Hooded Plovers on the coast? How shall we ask other organisations to support our local concerns when the time comes? How can we justify saying "tough luck!" about turning Lake Cowell or Barrenbox Swamp into an annual killing ground, simply because they aren't lucky enough to have a local ornithologists group?

And for how long, in the 1990s, can a serious ornithologists' organisation continue to peer through nineteenth century binoculars that only see birds as existing for our entertainment, but whose well-being or future is not our concern?

Ian Fraser and Margaret McJannett

(Continued from inside front cover)

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Canberra Bird Notes is published quarterly by the Canberra Ornithologists Group. Contributions are welcome. These should fit into one of the following categories: major articles (up to about 3000 words); short notes and "Odd Obs" (up to about 300 words); reviews of books and articles (up to about 500 words); and where to watch birds (up to about 800 words). The articles and notes should cover matters of the distribution, identification, and behaviour of birds occurring in the Australian Capital Territory and surrounding area (i.e. New South Wales coast north to Jervis Bay, and west to the Riverina). Contributions can be sent, preferably on an IBM-formatted disk together with a hard copy, to the editors c/o David Purchase, 5 Orchard Place, Melba, ACT 2615 (Tel 258 2252).

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