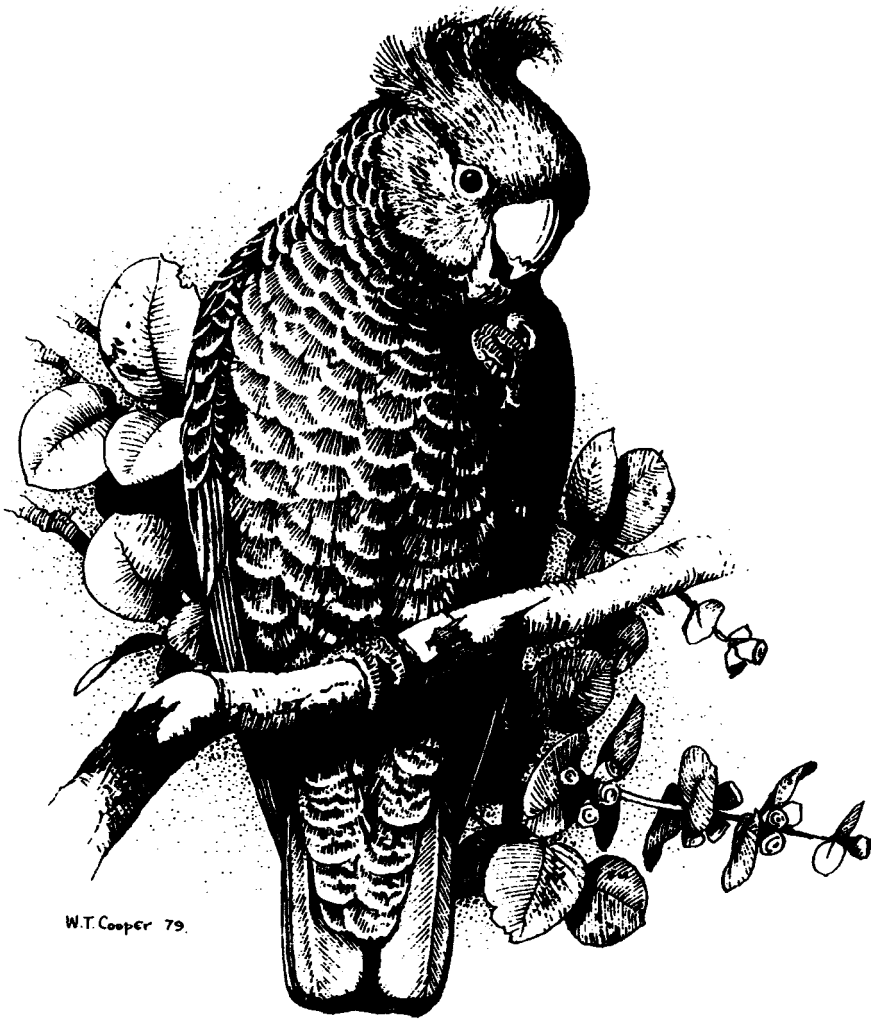
canberra bird notes

ISSN 0314-8211

Volume 25
Number 3
September 2000



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THE GREENING AUSTRALIA BIRDWATCH PROJECT

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Introduction

The plight of woodland birds across the `wheat-sheep' belt of southern Australia has only recently been recognised. The loss of most of the native vegetation (up to 90% in places) has already resulted in major changes to the bird communities present and is now leading to a more insidious decline in populations of what were once some of the most common and widespread species. Halting and reversing this decline requires protection of the woodland remnants that remain, and a reconstruction of woodland habitats across the region.

Greening Australia (GA) has been involving the community in revegetation for more than a decade. Achievements in the ACT and south-eastern NSW include the establishment of 3,400 km of tree line using direct seeding on 400 properties, growing and planting of 40,000 trees and shrubs each year and 50 ha of revegetation in vegetation corridors.

In 1996 GA surveyed over 70 of these direct seeded sites to determine growth rates, density, species composition, soil types, topography and general health. The direct seeding monitoring project provided a valuable foundation for the strategic evaluation of GA revegetation efforts. Early in 2000, GA in conjunction with CSIRO Wildlife and Ecology (now CSIRO Sustainable Ecosystems) and the Canberra Ornithologists Group (COG), began the Birdwatch project to help determine the value of revegetation as habitat for birds.

Fifteen COG members have been helping survey 123 sites located on 52 private properties and 13 parcels of public land across the Southern Tablelands (see map). The sites include revegetation of varying sizes, ages, species composition and within varying environments. Sixty-seven sites were established by direct seeding, 33 by tubestock plantings, and 23 are control sites in two types of habitat, remnant woodlands and farm paddocks.

GA's revegetation is concentrated in the agricultural areas of the southern tablelands where most of the original grassy woodlands have been totally removed or heavily modified. The grassy woodland types range from Snowgum (Eucalyptus pauciflora) in cold locations through Yellow Box/ Red Gum (E. melliodora/ E. blakelyi) to White Box (E. albens) in the warmer northern and western parts of the region. The majority of Birdwatch sites are located in areas formerly covered by Yellow Box/ Red Gum grassy woodland, now listed in the ACT as an endangered ecological community.

Methods

The sites are surveyed using the Birds Australia Atlas format of a 20 minute/ 2 hectare search. For sites that are larger than 2 hectares, or take longer than 20 minutes to cover, additional observations

in the rest of the site are recorded as an Area search within 500 metres, The 20 minute/ 2 hectare search provides a standard method for comparing bird numbers across sites.

The sites are surveyed at a minimum twice a year, once each in the breeding and non-breeding seasons, however many of the sites will be surveyed four times a year. Some of the sites are now also registered with the Birds Australia Atlas, that is, a Habitat Form has been completed,

Even though some of the sites are outside the COG area of interest, the survey is recorded on COG data sheets. This allows bird species abundance to be recorded, unlike the Birds Australia Atlas sheets which only record presence. The face of the COG data sheet was modified slightly for Birdwatch to include some additional information about each site. The survey data will be entered into the COG database and will then be available to COG, GA and CSIRO, and will be passed on electronically to Birds Australia.

An assessment of the vegetation at each site will be completed this year. Habitat structure in terms of tree, shrub and ground cover will be assessed, and tree and shrub density will be measured. This information will then be correlated with bird species and abundance at each site. A full set of non-breeding and breeding season data will be available at the end of February 2001 for full analysis.

Results to date

At least one bird survey has been completed for each site during the year 2000 non-breeding season. No formal analyses have yet been carried out on the data, however a few preliminary results are given below.

In total, 68 bird species have been observed using the revegetation sites (see list below). The most commonly recorded birds are the Superb Fairy- wren, Crimson Rosella, Yellow-rumped Thornbill, White-plumed Honeyeater, Grey Fantail, Australian Magpie and Willie Wagtail.

Acacias usually form a significant component of most of the direct seeded sites. They grow quickly providing dense cover rapidly, and flower and seed prolifically. After as little as three years, some of the small insectivorous birds, particularly the Superb Fairy-wren, Grey Fantail, Brown Thornbill and Yellow Thornbill can be found in these sites. Silvereyes are common in flowering acacias, and the seed provides an abundant food source for Crimson Rosellas, Eastern Rosellas and Common Bronzewings. The rapidly growing acacias however, often dominate a site, suppressing growth of eucalypts and understorey species. In the older sites (>10 years) many of the acacias are dying and the sites are changing from dense, dark acacia-dominated, to more open and eucalypt-dominated. It remains to be seen whether these sites will become more like the woodlands which once covered these areas, and provide the habitat needed by woodland birds.

The number of bird species is generally found to be higher in the older sites where there is more variety in tree and shrub height, As the plants mature they also provide more resources for birds

such as nectar-producing flowers for honeyeaters and insects, and seeds for parrots, pigeons and finches. Over the years fallen leaves, twigs and bark form a layer of litter, important for ground-dwelling invertebrates and the birds that feed on them such as White-winged Choughs.

Significantly, ten woodland birds listed by Reid (1999) as declining have been recorded in the revegetation sites. These are the Crested Shrike-tit, Diamond Firetail, Dusky Woodswallow, Eastern Yellow Robin, Hooded Robin, Jacky Winter, Red-capped Robin, Restless Flycatcher, Rufous Whistler and Speckled Warbler. These species have mostly been found in the larger sites and older sites where there is greater diversity of plant height and density.

Further results

At the end of summer 2001 the data will be analysed by CSIRO Sustainable Ecosystems to determine the site factors that contribute most to high habitat value.

Some of the hypotheses to be tested by these results are:

- more species of interesting bush birds ('threatened and declining species') will be found to use revegetation sites in the non-breeding than breeding season;
- composition of bird community at revegetation sites will be different to those in both types of control sites;
- time since establishment will explain a lot of variation in bird community composition, and several other vegetation variables (e.g. average height, canopy density) will be strongly correlated with this variation;
- size and shape of revegetation sites will explain some variation in bird community composition independently of time, and will prove to be an important predictor of the presence of 'interesting bush birds'.

It is also expected that factors such as geographic location, topographic position, distance to nearest watercourse, distance to nearest remnant and percentage of remnant vegetation in the surrounding landscape will explain some of the variation between bird communities across the sites.

Outcomes

Information will be presented both as scientific papers and as a user friendly *Bringing Back the Birds: A glovebox guide* produced by Greening Australia. This will be forwarded to Landcare groups, councils, land managers and other community organisations on the southern tablelands to improve the understanding, design and planning of revegetation projects to benefit birds.

For COG, Birdwatch has increased survey coverage of COG's area of interest, particularly on private property in areas which are rarely surveyed. The information will be forwarded to Birds Australia as part of the current Atlas of Australian Birds, and has improved atlas coverage in agricultural areas of the NSW southern tablelands and provided

additional habitat sites in revegetation areas.

Acknowledgments

Funding and support for Birdwatch is provided by the Natural Heritage Trust, Greening Australia ACT & SE NSW Inc., and CSIRO Sustainable Ecosystems. Members of COG and other bird observers are providing a significant contribution by carrying out the quarterly surveys; thanks to Barbara Allan, Tony Daukus, Dianne Deans, Mike Doyle, Ken Freeman, Roger Freney, Malcolm Fyfe, Bill Graham, Jonette McDonnell, Julie McGuiness, Martin Moffat, John Reynolds, Milton Smith, and Graham and Helen Stephinson.

Sue Streatfield, Greening Australia, is managing the project and Nicki Taws is co-ordinating COG' s contribution. Julian Reid of CSIRO has carried out some of the surveys and will be undertaking the data analysis and report writing.

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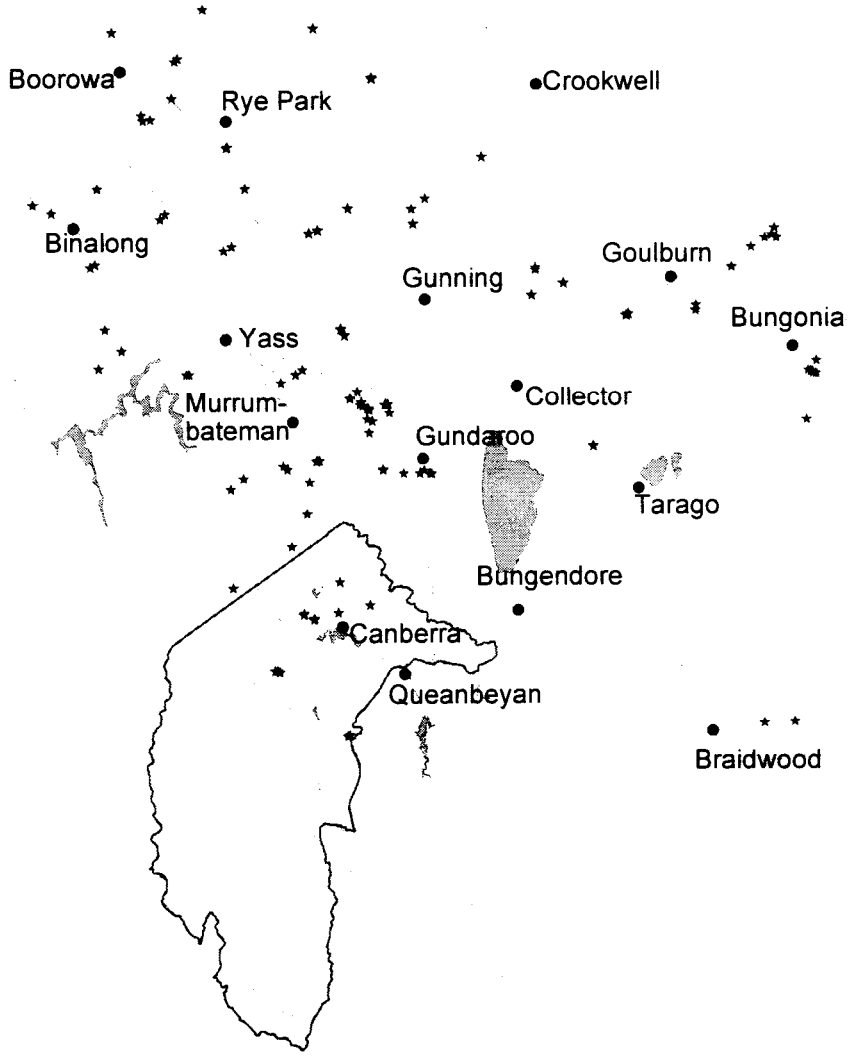
Birds observed in the Birdwatch sites, March August 2000

Stubble Quail	*Coturnix pectoralis*
Brown Quail Black-shouldered Kite	*Coturnix ypsilophora*
Little Eagle	*Elanus axillaris*
Brown Falcon	*Hieraaetus morphnoides*
Nankeen Kestrel	*Falco berigora*
Common Bronzewing	*Falco cenchroides*
Crested Pigeon	*Phaps chalcoptera*
Galah	*Ocyphaps lophotes*
Sulphur-crested Cockatoo	*Cacatua roseicapilla*
Crimson Rosella	*Cacatua galerita*
Eastern Rosella	*Platycercus elegans*
Red-rumped Parrot	*Platycercus eximius*
Southern Boobook	*Psephotus haematonotus*
Laughing Kookaburra	*Ninox novaeseelandiae*
Superb Fairy-wren	*Dacelo novaeguineae*
Spotted Pardalote	*Malurus cyaneus*
Striated Pardalote	*Pardalotus punctatus*
White-browed Scrubwren Speckled	*Pardalotus striatus*
Warbler Weebill	*Sericornis frontalis*
Brown Thornbill	*Chthonicola sagittata*
Buff-rumped Thornbill	*Smicrornis brevirostris*
Yellow-rumped Thornbill Yellow	*Acanthiza pusilla*
Thornbill	*Acanthiza reguloides*
	Acanthiza chrysorrhoa
	Acanthiza nana
	Acanthiza lineata

Red Wattlebird	*Anthochaera carunculata*
Noisy Friarbird	*Philemon corniculatus*
Noisy Miner	*Manorina melanocephala*
Yellow-faced Honeyeater	*Lichenostomus chrysops*
White-eared Honeyeater	*Lichenostomus leucotis*
White-plumed Honeyeater	*Lichenostomus penicillatus*
Brown-headed Honeyeater	*Melithreptus brevirostris*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Jacky Winter	*Microeca fascinans*
Scarlet Robin	*Petroica multicolor*
Red-capped Robin	*Petroica goodenovii*
Flame Robin	*Petroica phoenicea*
Hooded Robin	*Melanodryas cucullata*
Eastern Yellow Robin	*Eopsaltria australis*
Crested Shrike-tit	*Falcunculus frontatus*
Golden Whistler	*Pachycephala pectoralis*
Rufous Whistler	*Pachycephala rufiventris*
Grey Shrike-thrush	*Colluricincla harmonica*
Restless Flycatcher	*Myiagra inquieta*
Magpie-lark	*Grallina cyanoleuca*
Grey Fantail	*Rhipidura fuliginosa*
Willie Wagtail	*Rhipidura leucophrys*
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*
Olive-backed Oriole	*Oriolus sagittatus*
Dusky Woodswallow	*Artamus cyanopterus*
Australian Magpie	*Gymnorhina tibicen*
Pied Currawong	*Strepera graculina*
Grey Currawong	*Strepera versicolor*
Australian Raven	*Corvus coronoides*
White-winged Chough	*Corcorax melanorhamphos*
Richard's Pipit	*Anthus novaeseelandiae*
Double-barred Finch	*Taeniopygia bichenovii*
Red-browed Finch	*Neochmia temporalis*
Diamond Firetail	*Stagonopleura guttata*
European Goldfinch	*Carduelis carduelis*
Mistletoebird	*Dicaeum hirundinaceum*
Welcome Swallow	*Hirundo neoxena*
Rufous Songlark	*Cincloramphus mathewsi*
Golden-headed Cisticola	*Cisticola exilis*
Silvereye	*Zosterops lateralis*
Common Blackbird	*Turdus merula*
Common Starling	*Sturnus vulgaris*



Greening Australia Birdwatch Sites

COMMON MYNA NESTING AND EGGS

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Background

In September 1999 I made and put up a nest box on the back corner of our house in Kambah in the hope that rosellas might find it suitable and nest in it. Unfortunately I never saw any rosellas show any interest in it at all, but by mid-October a pair of Common Mynas *Acridotheres tristis* were decidedly interested. Overcoming my impulse to scare the mynas away and prevent them from nesting, I left them in peace to get on with it.

The introduced Common Myna is currently in a state of rapid expansion in the Canberra region, both in range and numbers (Wilson 1999, COG 2000). They are bold, aggressive and invasive, and they are a potential threat to populations of native birds such as rosellas through competition for nest hollows (Pell & Tidemann 1997a, 1997b). Scorned by many, they attract little basic ornithological interest or study.

Dick Schodde, then director of the Australian National Wildlife Collection (ANWC) at CSlRO Wildlife and Ecology in Gungahlin. had several months previously notified COG members that eggs of the Common Myna were not represented in the egg collection of the ANWC and that any contributions would be welcome. So I left my mynas to get on with it!

Nest-building

The mynas began showing an interest in the nest box early in October. Nest-building extended over about a three-week period from the middle of October until 7 November when the first egg was laid. The mynas apparently thought little of the mulch of fine wood chips I had put in the nest box for rosellas and began by removing much of it. ln its place they built an untidy bowl-shaped nest, mainly of wiry plant stems, but including some straw and grass, several feathers, a few leaves (both dried and fresh), and a fair number of small pieces of plastic, paper and foil, preferably of a crackly type such as lolly wrappers, bits of ice cream wrappers and foil from cigarette packets.

On two occasions after laying had begun, fragments of fresh green leaves from a nearby *Viburnum* bush were found to have been added to the nest: sometime during the day after the second egg was laid, and again three days after the last egg was laid.

Laying and clutch

From about the beginning of November I began checking the nest for eggs, generally only once in the morning and once in the evening so as to minimise disturbance to the birds. The first egg was discovered at 7:30 h on Sunday 7 November, and a further three eggs were laid over the next three days to complete the clutch of four. Although not conclusive, the times at which successive

eggs were first observed suggests that laying occurred early in the morning at intervals of slightly more than 24 hours.

During the laying period the birds were generally nearby but only once when I checked was a bird actually in the nest box (8:25 h on Tuesday 9 November after the laying of the third egg). After the fourth egg was laid the birds seemed to be a little more wary and upset by my approach, but the eggs were still largely unattended, a bird being present in the nest box on only two of thirteen occasions when I checked over the following four days. The first observation of a sitting bird was at 22:00 h on Friday 12 November, and the second was at 12:35 h the following day, i.e. on the second and third days after the last egg was laid. On Saturday 13 November I again checked at night (21:10 h and 23:04 h) but there was no bird in the box.

Late on Sunday 14 November, a week after the first egg and four days after the last egg were laid, I removed the clutch from the nest. After removal of the eggs, the mynas lost interest in the nest box and did not try to re-nest in that location. It is unknown whether they went on to breed elsewhere.

The eggs

The four eggs were packaged up in cotton wool and presented to Dick Schodde at ANWC. While there I took some measurements and noted details of their colour. The individual measurements listed below are in millimetres but the order of lay is not known. The fourth egg on the list was somewhat chalky and rough-surfaced unlike the others which were glossy and smooth.

1 27.54 x 20.54

2 26.25 x 20.54

3 25.77 x 20.12

4 27.29 x 20.18

mean **26.71 x 20.35**

I determined the colour of the fresh eggs to be greenish-turquoise [intermediate between 'light turquoise' (A4/5 of plate and 'light/pastel green' (AS of plate of the Methuen Handbook of Colour (Kornerup & Wauscher 1978)].

Discussion

Published information on the nesting and eggs of Common Mynas in various Australian field guides (Pizzey & Doyle 1980, Pizzey & Knight 1997, Slater *et al* 1986, Beruldsen 1980) and other references (Schodde & Tidemann 1986, Strahan 1996) are in strong agreement. Nests are described as 'untidy', and include twigs, straw, grass, leaves, feathers, and man-made items variously described as 'paper', 'rubbish', and 'human refuse'. Clutch size is usually given as 4-5 and egg size is invariably claimed to be 3lx22 mm. Egg colour is mostly described as glossy pale blue, although Beruldsen describes them as 'bright blue and glossy': the illustration in Slater *et al* has only a very pale blue tinge to an otherwise white egg.

In nest description and clutch size my observations are entirely concordant with these authorities. However, the dimensions of the eggs of this clutch are somewhat less than the stated 31 x22 mm, and the colour descriptions also

seem at odds. Thinking that perhaps egg colour fades with time, I returned to the ANWC in October 2000 to do a follow-up colour determination. Eleven months after collection and without any contents, the eggs were determined to be two shades lighter, best described as pale greenish-turquoise [intermediate between 'pale turquoise' (A3 of plate 24) and 'pale green' (A3 of plate 25)]. The slightly rough and chalky egg had less of the greenish tinge of the others and was closest to pale turquoise (A3 of plate 24).

Thus egg size and colour of this clutch seem to differ to the descriptions in standard references. Geographical or provenance differences may be involved, but it also seems likely that field guides and similar references may borrow from one another for descriptive information for which there are few original data.

These eggs are now housed in the ANWC, Registration Number E6373, where they currently constitute the only clutch of this species in the egg collection.

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FURTHER OBSERVATIONS OF SATIN BOWERBIRDS IN CHAPMAN, 1999-2000

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This article records further observations on the presence and activities of the Satin Bowerbird *Ptilonorhynchus violaceus* in the vicinity of my home in the Canberra suburb of Chapman. It highlights the variability of numbers of birds, the discovery of a winter roost site, and the surprising density of bowers. The paper comprises four distinct parts: the first is a chronological record of general bowerbird activity, followed by more detailed sections on the search for the roost site and occurrence of bowers in the area. The final section summarises the salient issues brought to light by these observations.

Data collection

This was not a planned project, but rather grew from a relatively sudden realisation over two years ago that the observations I had been making regularly on this species as part of COG's Garden Bird Survey were worth recording in a paper. This resulted in the first article mainly about the increase in numbers in my garden area since 1980, largely taken retrospectively from records in my notebooks (Holland 1999). The information contained in this follow-up paper is drawn from my diary notes, written up much closer to the time the events occurred.

The location of the observations

The north-west part of Chapman that includes my garden was settled in the mid-1970s and by now includes largely mature gardens, many of them native, but often with a mix of exotics. It is close to extensive mature pine plantations at Narrabundah Hill (adjacent to the neighbouring suburb of Duffy) and Mt Stromlo. It is within a few kilometres of the Cotter River, the closest spot where the Satin Bowerbird could generally be located twenty years ago before they commenced their spread into the suburbs (Holland and Veerman 2000). A map of the area around my home, as well as an indication of the closest bowers, feeding table and roost site, is shown in Figure l.

Autumn/winter 1999

May/June: In my earlier article (Holland 1999) I noted the lower level of bowerbird activity in my garden area in the autumn of 1999 compared with previous years. This continued into the early winter. Few bowerbirds were present during the day in late May and June (we were, however, away for the first three weeks of June). As a result many of the hawthorn berries, a popular food source in previous years, withered uneaten on the tree. Only a few birds were seen from time to time in the vicinity of the former bower site. However, they continued to gather early in the morning in the large gum tree above the feeding area at 54 Darwinia Terrace; ten green birds were seen dispersing from there between 7:10 and 7:25 h on 29 May, and 12 and 8 green

birds respectively just after 7:00 h on 27 June and 2 July.

July: **I** regularly recorded between 7 and 15 birds, mainly green and with only the occasional male, in the large gum shortly after 7:00 h. Their presence was often not obvious initially, but **I** was usually alerted by their calls and with a little patience the birds could be discerned as shadowy figures moving through the tree before flying away. However, during the day they were much less conspicuous than in previous years. Maximum daytime numbers were five birds, though on a number of occasions two males were seen together. On 31 July, as detailed below, an immature male attempted to rebuild the bower in my neighbour's garden at 10 Chauvel Circle.

August: By Saturday morning 14 August the immature male had given up as the bower had been completely destroyed. However, a male and several green birds were still in the garden area and round the bower site for several hours during the middle of the day. Unlike the light-billed bird that had rebuilt the bower, they were very timid, retreating further under the cover of bushes or flying away as soon as I approached. This pattern of behaviour continued for the remainder of the month. The birds started to call much earlier (6:10 h on 25 and 30 August, about 20 minutes before sunrise) and numbers dropped significantly from eight together early on 16 and 20 August to a maximum of five in the last ten days of the month. The only exception to this was at least nine birds gathered noisily in the shrubs and taller trees close to the bower site at 6:35 h on 30 August, though the area was quiet by 7:00 h. One other interesting observation was of a full male and two dark-billed green birds displaying while perched on the edge of one of my bird baths on 21 August.

Spring 1999

September: Sightings were still regular throughout September 1999, including in the area around the bower site. Up to three birds were seen at the site itself and birds were seen carrying bower material on a couple of occasions. However, numbers tapered off in the second half of the month, with one or two birds being the norm. The maximum was 11 green birds seen together near the feeding area just after 6:00 h on 10 September. Surprisingly a full male was seen on several occasions at the end of September/early October.

October: Records were much reduced both in terms of numbers and frequency, though six green birds moved through early on 29 October.

November: Sightings were reduced even further and were mainly of single birds, except for four green birds on 12 November. There were no records at or near the bower site from early October. Birds were typically recorded moving through, and occasionally feeding from the neighbour's compost heap.

Summer 1999-2000

December: A surprise record was of a full male calling loudly from wires on 7 December. This was the first male observed for two months. Up to that time, it was highly unusual to see male bowerbirds in summer, my only previous sightings being five observations of single males during January/February

1997, and the immature male moulting into adult plumage on 7 February 1999 (Holland 1999). Bowerbirds were still around until Christmas.

January: It was a surprise on return from holidays to record single male birds plus two green birds on both Saturday and Sunday 15 and 16 January 2000. On one occasion, the male briefly displayed towards a green bird which joined him for a minute or so in the tall gum above the bower site, before they flew off independently. A green bird had been observed in the bushes one to two metres above the bower site the previous day. Another male was seen in the garden on 18, 22 and 29 January, several times during the day on the last occasion; he called on the bower site in the morning, and near it during the afternoon. Single green birds were also seen on 23 and 26 January, as well as three together several times on 30 January, with two of them on one occasion at the bower site. One was seen pecking at bower material. Another was observed several times eating the nearby ripening fruit of *Viburnum x burkwoodi,* which proved popular with a variety of birds in the following week (my daughters reported seeing green birds in these bushes several times).

February: Certainly up to then summer activity was higher than in 1998-9, though probably less than the two summers before that (Holland, 1999). Despite the level of activity the discovery of the rebuilding of the bower in my neighbour's garden round 8:00 h on Saturday 5 February was a complete bowerbirds were not considered to occur in Canberra suburbs (but see Holland 1999, Holland and Veerman 2000). A male with only some blue feathers tended the bower for over two hours on the day after the rebuilt bower was discovered. This was followed by a period of quieter activity during which it was unclear who might have built (or owned) the bower. Activity increased towards the end of February and it gradually became clear that an adult male had taken charge of the bower and was the dominant bird there (if not the builder). However, a much more mottled moulting blue (>50%)/green immature male bird was seen visiting the bower for about 15 minutes on 26 February. For the next four to five weeks, the adult male moved to and from the bower very surreptitiously, and quite late, seemingly coming in from some distance compared with winter/spring. He was also often observed quietly sitting just off the ground in the nearby bushes, apparently waiting patiently for the opportunity to attract birds passing through.

Autumn 2000

March: This pattern seemed to change halfway through March, when the male started to arrive earlier (and stay later) and also to advertise himself for the first hour or so from vantage points in the garden (see Pizzey 1980), particularly from the tall gum above the bower. Activity during March was relatively low, with the adult male being absent for long periods during the day, though at the end of the month the bower was profusely decorated with blue objects. During this time a maximum of two green birds was seen together. On the morning of 27 March, another male was

seen being driven off. If the male was not at the bower, green birds (including immature males with light bills) took the opportunity to display or add material, but they were almost invariably submissive in the presence of the dominant male. This behaviour is consistent with that published by Vellenga (1970, 1980).

April: By the end of March and into early April a much more usual pattern started to emerge. By mid-April birds were again starting to be observed in the Chapman area, and bowers were rebuilt. The male bird was consistently seen near my neighbour's bower, but by the end of the month he stopped advertising his presence by calling high from the tree tops. Curiously, a green bird was heard several times mimicking a raven, instead of the more usual kookaburra. Maximum numbers of bowerbirds seen this month were at least five green birds plus the adult male seen on 29 April.

May: The species appeared to be becoming as conspicuous in the garden as it had been in previous winters, with the exception of 1999. However, numbers were very variable. For example at 6:45 h on 12 May I was alerted to calling from the large tree over the feeding area at 54 Darwinia Terrace and at least six green birds could be seen moving through the foliage; one of them visited the bower shortly after. This was the first record for 2000 of birds moving through earl?. in the morning (a little earlier than in 1999). By contrast activity on the next day was low, with only the male observed quietly at or round the bower, and only a couple of sightings of a green bird. This was also the case on Sunday 14 May until about 11:00 h when the male was at the bower and up to six green birds were in close by for several hours. However, on both rather wet days activity ceased after 15:00 h.

Winter 2000

June: Activity was still variable after this time, but with birds regularly heard before it was properly light. All the hawthorn berries were stripped quickly from the tree but there were generally few birds and little activity after about 15:00 h. On 4 June a maximum of five birds (four green) was observed at the bower which seemed to undergo a constant rebuilding (including by green birds in the presence of the male) and partial destruction process, though it remained liberally adorned with blue objects (>20) as well as some yellow ones. This process continued all through winter. In contrast to other bowers in the area, particularly that at 14 Burgan Place, it was always of perfect shape, with the sticks nearly coming to a close at the top, in keeping with a primary bower (Vellenga 1970, 1980).

It proved hard to observe further the early dispersal of the birds until the dark and windy morning of 12 June, when at 7:15 h there were at least five green birds at the feeding table at 54 Darwinia Terrace and a similar number moving through the tree above it. My failure to observe this previously may have been a matter of timing. At 7:15 h on 25 June I saw 15 green and two full males here, with most of them dispersing into Riven. This was also the only time I was able to observe males at the 10 Chauvel Circle and 14 Burgan Place bowers close in time to each other. At least eight green birds were seen later that morning

stripping the leaves of the broccoli plants in my vegetable garden, leaving only the stalks. An immature male with a patch of blue no bigger than 5x5 cm in one wing was briefly seen near the bower on the afternoon of 18 June.

July: Bower activity increased during July with the male present regularly, though sometimes absent for parts of the day. He stayed till at least 16:20 h on 16 July, which was also the day that the maximum of six green birds were seen near the bower.

August: Activity increased further in August with the male staying at the bower until nearly 17:00 h on 4 August and 17:20 h on 13 August, consistent with the later roosting time. Early in the month he was at the bower by 7:00 h, accompanied sometimes by green birds. The male was sometimes absent for long periods and may have been destroying other bowers in the area. In his absence a light-billed and dark-billed green pair was seen systematically pulling material from the bower between 13:00 and 13:30 h on 14 August, but it was surprisingly intact an hour later, and at 16:45 h the male bird was seen making further repairs to a nearly complete bower.

As an example of the increased activity, on Saturday 19 August the male was at his bower for most of the day (7:00 h until after 17:00 h), accompanied by at least three green birds. Up to eight green birds were seen in the garden during the morning. One side of the bower looked very tattered early in the day. On 26 August the male was at his bower for most of the morning, accompanied by five or six green birds, but the area was quiet that afternoon. He stayed till about 18:30 h the next day (daylight saving had started) as he also did the following evening. Activity was typically greater it the morning, and all through winter thy male was often observed enjoying a tat(spruce up of the bower and surrounding area, in preparation for the next day. This is again consistent with behaviou described in the literature (Vellenga 1970. 1980).

Spring 2000

September: The birds' arrival in the morning steadily became earlier and departure later. I was surprised on 2 September to see about ten green birds gathered around the feeding area just after 16:00 h, a number of which joined the male at his bower shortly afterwards. This seemed to be a rare example of larger numbers gathering pre-roost in my garden. Assaults on the bower still occurred. At 9:30 h an immature male was seen to take a number of mouthfuls of bower material before departing in the direction of Riven with a blue bottle top in its bill. I suspect he was heading to a different bower than the one at 14 Burgan Place as there were very few decorations there at the time. The bower was also only about 60% intact at 15:00 h on Monday 11 September, but soon after the male bird commenced rebuilding and it was complete again when he left after 18:40 h. It was also looking very much the worse for wear early in the afternoon of 16 September, but was quickly repaired once he returned, typically flying in low and fast to re-establish his authority over the bower.

The break-up of the winter roost did not seem to affect activity at the bower

immediately. On Sunday 24 September the first call was heard at 6:35 h and the male and up to three green birds were at the bower during the day, with the male observed making a quick late visit at 18:30 h. At this stage the bower was decorated with a number of light yellow objects, in addition to the many blue ones. During the next week things were generally quieter, but on one occasion two males were seen chasing one another, and surprisingly one and then two greens birds were at the bower late on 29 and 30 September.

October: 1 thought the presence of green birds at the bower might have indicated that the male had left but on 1 October he was at the bower for most of the day. As there was less activity, his behaviour was much quieter and more like that of March. He was often to be seen sitting quietly near the bower. He was also there early on Monday 2 October, though again quiet except for one occasion when he called from the top of the tree. He repeated this behaviour at 7:00 h on 6 October and also seemed to leave much earlier during the week. He was again calling from the top of the tree at 6:30 h on Saturday 7 October and was still in the area sitting quietly at the top of a nearby tree surveying the scene until at least 18:40 h. Activity was greater the following day, with the male calling successively from the tops of several trees early in the morning. He managed to entice three green birds to the bower mid-morning and two in the afternoon. He was again observed sitting at the top of the same tree until just after 18:50 h which suggested he was still roosting close by.

The male was at the bower at 6:20 h on Tuesday 10 October, and by 7:00 h the following day, as was a green bird. He stayed tending the bower till at least 19:10 h on 11 October. Activity on the weekend of 14-15 October was quieter. Though the male seemed to be near the bower (often not able to be seen but still heard), he was often alone. He still displayed occasionally and one or two green birds were attracted a number of times. Activity was definitely waning, suggesting that the period of highest activity was over.

The search for the roost site

Large numbers of birds moving through my local area had led me to suspect the existence of a roost site somewhere nearby. The following account details my search for and discovery of this roost.

At *7:15* h on 9 July 15 birds were seen passing through the tree at 54 Darwinia Terrace, but it was not until 15 July that the extent of this movement became clear to me. Only four birds were seen from 7:05 to 7:20 h, but over 40 birds (up to 20 at a time) passed through over the next 10 minutes. They clearly came in about tree top level from a SSW direction, before crossing Darwinia Terrace and dispersing into Rivett. On 22 July a total of well over 50 birds moved through, but this time in three distinct waves. The first wave of at least 15 birds moved through at tree top level at 7:00 h. They were followed by over 20 birds at 7:20 h moving low through a nearby hedge before climbing up the tree and leaving from near the top. From 7:30-7:45 h another 15-20 birds moved through much more slowly, lingering at the feeding table and/or the nearby bower and climbing up the tree before

heading for Rivett. Similar patterns of movement were observed on 29 July (>40 birds), 4 August (>50), 12 August (>45) and 17 August (>50), though progressively earlier because of the earlier sunrise.

On Friday 25 August movement began from about 6:10 h with a total of about 20 birds moving through over a half hour period. Early birds moved through in typical fashion while late arriving birds seemed to come from several directions and to linger longer. Numbers were higher again on 2 September when >50 birds moved through between 7:05 and 7:35 h (daylight saving had started early due to the Sydney Olympics), but this time in small groups, with no more than 5 arriving at the one time.

On 8 September four birds emerged from the hedge next to the tree/feeding area just after 7:00 h and were joined by several others arriving in very much an ad hoc fashion over the next 20 minutes. Despite the slow start, >30 birds came through in typical fashion over the next five minutes. A total of only 20-25 birds moved through between 6:45 and 7:20 h on 16 September. Only three birds were seen in the area on the morning of 21 September: five on 24 September, and three on 1 October. It appeared the roost had broken up.

Such large numbers of birds moving through early on winter mornings prompted me to investigate where they were coming from. I already suspected they may have been coming from a possible roost in the Narrabundah Hill Pine Forest, but I ruled this out on 16 July when for 30 minutes from 7:00 h I saw no bowerbirds crossing the open area between the south-east corner of the forest and Kathner Street in Chapman.

Next, on Sunday 23 July, I tried to see if they crossed the laneway between Chauvel Circle and Percy Crescent. This time I was successful. Between 6:45 and 7:00 h at least 20 birds crossed in a very nun_ v%, band from the back of the house at 33 Percy Crescent to the battle-axe blocks of 22 and 30 Chauvel Circle. Although difficult to see clearly, the birds seemed to be coming low around the south-east corner of the Percy Crescent house and landing on the verandah railings to visit a feeding table. Activity after 7:00 h was very low, but on return to my garden just after 7:30 11 bowerbirds were very conspicuous.

Attempts to trace early movements back as far as Kathner Street proved fruitless and I concluded that the birds were roosting closer to the feeding area. On Friday 28 July I observed about 20 birds move from the eastern side of Chauvel Circle to the table at 33 Percy Crescent and back, between 6:35 and 6:50 h. Following this discovery, I dropped a call for information into the letter boxes of relevant houses in this area. This evoked an almost immediate response from the owners of 26 Chauvel Circle who had had bowerbirds roosting in their garden for the past three winters. They said up to 20 birds regularly gathered from about 16:00 h (ca 15:00 11 in mid-winter) and flew very rapidly from bush to bush for about an hour before suddenly diving into bushes and going silent. Several *Pittosporum* bushes and a cypress hedge were preferred.

Later that afternoon, from about 17:15 11, I watched about six birds trying to enter

the *Pittosporum* hedge beside the carport on the boundary with 24 Chauvel Circle. **I** also saw at least eight birds dive into a compact shrub on the boundary with 28 Chauvel Circle. Birds also seemed to settle in other gardens, indicating a loose rather than a tight roost. This was confirmed on Tuesday 1 August when scattered calls were heard from 6:35:h. Only one bird was seen to leave the carport hedge (though there might have been more in there), and it appeared that individual birds were roosting over about a 100-m stretch from 16 to 30 Chauvel Circle.

On Friday 4 August **I** saw six birds apparently settle in the *Pittosporum* hedge between 17:15 and 17:45 h. but I was unable to locate them once settled. The owners had similarly been unable to find settled birds during the week, but it seems clear they did not roost close together.

The roost site being so close to my garden came as a great surprise. The evidence for my earlier hunch that, like the Pied Currawongs *Strepera graculina.* they came in from Narrabundah Hill Pine Plantation was only circumstantial. I had seen bowerbirds in the pine forest occasionally in past years, and up to five green birds were seen near Eucumbene Drive and Warragamba Avenue. Duffy on the evening of 14 January 2000. Birds had also been heard around 16:30 h about 300-400 metres into the forest near Renmark Street. Duffy on 6, 12 and 18 June, and a bird was seen crossing the open area from Kathner Street. Chapman one autumn evening,
At about 17:20 h on 27 August 2000, after the discovery of the Chauvel Circle roost, at least ten bowerbirds were seen gathering in a bare silver birch near the corner of Eucumbene Drive and Warragamba Avenue, before several of them flew across to the pine forest. Shortly after I also saw two males and two green birds at 62 Eucumbene Drive, where earlier observations led me to suspect a roost site. Chris Hastir has also observed birds roosting in privet and silky oaks near her house in Tantangara Street, Duffy, as well as in the pines, with 20-30 birds regularly visiting her feeding area just after sunrise.

This body of evidence suggests that there are a number of roost sites in this part of Weston Creek.

A **bower-building saga**

Winter 1999 bower

At 10:30 h. Saturday 31 July, 1 saw a green bird with a very light bill working on a new bower in my neighbour's garden at 10 Chauvel Circle. It had been seen and heard calling harshly earlier in the day. (This was one of the first times that I noticed the light bill colour, enabling me to identify an immature male). Within an hour the new bower was half built, and by 16:30 h it was quite substantial, It was <0.5 m west of the indistinct remains of a former bower destroyed 14 months previously, and was aligned in roughly the same NE/SW orientation. A dark-billed green bird was in the vicinity for most of the afternoon, displaying several times with blue tape in its bill, while the light-billed bird continued to augment the bower.

Early next morning the bower was half destroyed. Up to seven green birds were

in the area and the presumed builder was observed with bulging eyes, vigorously attempting to defend the bower. Things quietened down briefly and the 'pair' displayed and attempted to rebuild the bower. At 9:15 h a full male arrived and attacked the bower, pulling it up by the base and reducing it to a pile of sticks. The light-billed green bird made little, if any, effort to prevent the destruction. Once the full male had left, the bower was rebuilt between 10:30 and 13:30 h. Again a male showed up but instead of being destroyed, material was added to the bower at various times by all three birds, the full male seeming to do most of the work!

There was little change to the bower over the next day, but the followimg morning, after fairly high bowerbird activity (>12) the bower appeared somewhat dishevelled, Next morning, 4 August, one side was clearly damaged, and after quick visits by a full male and a light-billed green bird it was even more damaged. A day later only about 20% was left standing but the 'pair' was again observed displaying, after which the light-billed bird started rebuilding. The following morning about 50% remained.

Early on Saturday morning, 7 August, the bower was only about 20% intact. A male and five or six green birds were in the area but the anticipated building and destroying activity did not occur. From 8:45 to 9:45 h a light-billed green bird was observed displaying and repairing the bower, but by 17:30 h only about 10% of the bower remained standing. A day later only about 5% of the bower remained on a large mat of bower material. Around 7:00 h on Tuesday 10 August, a male bird was seen displaying on this mound with blue tape in his bill, with up to five green birds in the area. By Saturday 14 August the bower had been completely destroyed. Despite activity in the area there was no further attempt to rebuild the bower.

Summer 2000 bower

To my complete surprise, I discovered on 5 February that the bower had been substantially rebuilt. The bushes were more overgrown but the bower was on the same site, this time aligned in a NNE/SSW orientation.

From 8:45 h I heard a very timid adult male calling from the bower several times over 15 minutes. At 11:45 h he was observed in the company of two dark-billed green birds within 20 metres of the bower. Missing tail feathers led me to believe he was the same bird I had seen display briefly in the tree above several weeks previously. The area was quiet for the rest of the hot windy day.

Next morning the timid male and at least three green birds were within 20 metres of the bower. He was particularly active for 30 minutes from 8:40 h, carrying bits of blue tape in his bill and adding some light-coloured straw to the front of the bower. At 11:45 h alight-billed immature male showed up. He was mainly green but had some dark blue primary wing feathers and a two-thirds blue tail feather. (This was only the second time I had seen a bird in this plumage in my garden. the previous one being on 9 February 1999, exactly one year before). This bird was less shy and allowed reasonable observation. He displayed with blue tape in his bill and seemingly added material to the bower, which,

however, seemed less substantial when he left the area after 14:00 h.

Up to two green birds were observed or heard early in the morning or late in the evening over the next three days, but it was surprising to have no observations whatsoever over the weekend 12-13 February. The bower remained intact and the several blue decorations were not moved. However, on Monday morning a bird was heard close to the bower and by that evening additional bower material had been added and the blue objects had been moved. Things remained fairly quiet over that week, but a dark-billed green bird and a full male were both seen adding material or moving objects at different times.

Early on Saturday 19 February, two dark-billed green birds were seen close to the bower before a full male was observed adding material to it at 9:45 h. A dark-billed green bird was again at the bower from 12:45 h where it seemed to stay for at least 30 minutes. Later, a full male was seen several times, and, from the movement of decorations, appeared to be there from about 15:45 to 16:30 h.

Establishment of ownership

On Sunday, a full male seen at the bower around 8:00 h was soon joined by a light-billed green bird with distinct orange-brown primary feathers in the wings and tail. For about 20 minutes the immature bird acted very passively either behind (southern end) or more usually in the bower itself, while the full male displayed vigorously at the front, moving around, occasionally with wings spread and tail cocked, bobbing his head up and down while holding blue objects in his bill, and making a variety of churring noises. This behaviour was repeated a couple of hours later for over an hour before the immature male appeared to be chased off by a dark-billed green bird. The full male stayed in the area for about another hour during which he was observed moving around and adding to the bower, though more often was quietly sitting in a slightly elevated position (30-50 cm high) in the bushes around the bower. Except for a dark-billed green bird calling harshly at 13:00 h. things remained quiet until about 14:30 h when the behaviour between the two males was again repeated, lasting for about 30 minutes. The full male was occasionally seen in the area till 17:00 h.

This was the first time I had seen two birds together at the bower, It was also notable that the male bird now moved to and from the bower very surreptitiously, in contrast to his usual behaviour and that of the dark-billed green birds. I thought the most likely scenario was that the full male was now the owner (if not the builder) of the bower and was establishing dominance, An alternative explanation might be that the adult male was teaching a younger one.

Through most of the next week no birds were observed except for a dark-billed green bird standing right in front of the bower at 18:15 h on Thursday night. There were, however, signs each evening of decorations having being moved.

On Saturday 26 February, a full male bird was present for most of the day, generally fairly quiet, except for a minute or so around 9:25 h when he displayed vigorously but failed to attract a nearby dark-billed green bird

Activity was generally similar on the Sunday with the full male seen in the bower area until 9:30 h. An hour later I surprised a dark-billed green bird at the bower, and another green bird with an immature male with very mottled blue and green plumage were present in the Viburnum bushes about 30 metres away. (This bird was more than half blue, though still clearly showing some orange/brown primary wing feathers. It was tempting to speculate that he was the same moulting bird I had seen three weeks previously.) Shortly after, this moulting bird was seen displaying and adding to the bower, where he was soon joined by a full male. Initially the moulting male was at the front, but he soon retired to the back and was very passive while the full male displayed vigorously at the front for about 15 minutes, The full male stayed in the area until at least 15:30 h, mainly sitting in the same low bush but occasionally calling or adding to his bower.

At last a pattern seemed to be emerging, The full male would tend the bower for most of the day, but was mainly active on first arrival or when other bowerbirds were in the area. In contrast to the normal winter pattern he seemed to arrive fairly late and leave fairly early,

Summary of general activity

Annual Cycle, Satin Bowerbird activity was greatest through the winter when groups of anywhere between 3 to 12 birds were typical, but up to 20 were seen together, Numbers dropped steadily through spring until summer when mainly single birds were seen, or occasionally 2-3 birds together, They became more conspicuous around April, building again to a winter peak, Overall activity in summer of 1999-2000 was higher than that of the previous summer, but probably lower than the two summers before that.

Daily cycle. Birds were seen at any time of day, especially through the winter, but were generally more obvious in the early morning. This is in large part due to the dispersal of large numbers of birds from their overnight roosting site.

Morning dispersal. After the discovery of the roost site, numbers of birds moving through in the morning were monitored more closely. Significant activity was restricted to the winter period (mid-May to mid-September 2000). The total number of birds was estimated to be something over 50, with birds seeming to move through in waves over about a 30-45 minute period, the timing of which is related to sunrise and weather conditions. The largest number seen moving together at any one time was 20-25 birds.

Diet, mimicry, interactions. Food items seen taken during casual observation included hawthorn berries and the ripening fruit of *Viburnum x burkwoodi.* Broccoli leaves and sweet peas were also eaten, and birds were seen foraging in a compost heap, Satin Bowerbirds were sometimes heard to mimic Laughing Kookaburras *Dacelo novaeguineae* and once a raven. Common Blackbirds *Turdus merula* and other bird species were generally ignored around bowers,

Summary of bower information

Period of bower activity. Most bower activity occurs through the winter period,

typically between May and October (coinciding with peak numbers of birds). Some activity was observed well outside this period, however, and the rebuilding of a bower in early February 2000 was surprising.

Bower density. The observations described in this paper (excepting the Sidaway Street bower which is 1 km distant) all occur within an area of approximately 500m x 250 m (l/8 km^2). Ten bowers were checked, monitored or otherwise examined, and another five were reported to exist. This gives a minimum density of 80-120 bowers/km^2 or approximately 1 bower/hectare for this particular part of Chapman/Rivett. The distance between bowers was often as little as 30-50 m, with some being as close as 15-20 m, even when both were apparently active. It may be that there were more undetected bowers in the area.

Bower type. Some of the bowers (at least two) were primary bowers, complete and well constructed, and used regularly for display and mate attraction although no copulation attempts were observed. As Vellenga (1970, 1980) notes. this is difficult to record. Other bowers appeared to be more rudimentary practice bowers but it was not possible to be sure of their status.

Bower construction. Most bowers were positioned under shrubbery in well vegetated gardens, although several were located in more open situations. Several were located within several metres of houses, lawns or pathways. Most bowers were oriented in a generally NE/SW direction; all were within N/S to E/W limits. As expected, decorations were predominantly blue and included tape, bottle-tops and tail feathers of Crimson Rosellas *Platycercus elegans*. Pale yellow items, including leaves and straw, were also included at two bowers.

Bower ownership. Ownership of bowers was not easy to determine and was made more difficult by the fact that apparent ownership may change over time and with the cycle of destruction and reconstruction. Individual bowers clearly fall in and out of favour and may be reduced from primary to practice bowers or mats of bower material that are still visited for display purposes. Several different birds may be involved in building and modifying a bower, even if a dominant adult male has assumed ownership.

Owner behaviour. Displaying behaviour included dancing in front of or on the mat of the bower, churring, and bobbing up and down with blue objects in the bill. Associated behaviours included calling from tree-tops or wires, scaring off other males, and sitting unobtrusively in bushes or trees near the bower waiting for passim.' birds.

Summary of roost information

Roost size. The roost site was spread out over about a 100 m stretch where the birds apparently roosted in the denser vegetation such as *Pittosporum* and cypress hedges. It was clear the birds were fairly well spaced rather than clustering closely together. Assuming there were about 50 birds occupying the roost site at peak times, their density would have been in the order of 50 birds/l 000m^-. As far as I can ascertain,

this is the first evidence for such a roost *site.*

Number of roosts. Casual observations and comments from others suggests that other roost sites probably occur in the Weston Creek area, such as in the pine forest near Narrabundah Hill off Eucumbene Drive, Duffy; in privet and Silky Oaks *Grevillea robusta* in Tantangara Street. Duffy; in Beaumont Close, Chapman; and possibly in Holder.

Acknowledgements

I would like to thank Barry Greenberger, Mike Hinchey, Mike Johnston, Lynda! Lewis, Jane and Rick Smyth, Ananda Weeraratne and Margaret West for providing me with information about Satin Bowerbirds and bowers in their gardens and allowing me to inspect them.

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Brief descriptions of other bowers in the area (see also Figure 1)

Bower at 54 Darwinia Terrace, Chapman

- Initially seen 17 July 1999: >80% dismantled; stick platform; no ornaments; alignment NE/SW; under bushes.
- Less than 50 m from former bower at 10 Chauvel Circle; close to feeding table.
- 12 June 2000 a full bower; six blue objects and Crimson Rosella tail feathers; alignment N/S (about 20° E of N): active since end May.
- By 23 July 2000, bower 30-40% intact; adorned by only two Crimson Rosella tailfeathers;
- Male bowerbird from 10 Chauvel Circle seen to visit a number of times.
- Active till mid-October, (active particularly when feeding table visited during early morning dispersal, mid-May to mid-September).

Bower at 58 Darwinia Terrace, Chapman

- 16 August 1999, birds seen carry blue and yellow objects to bushes here.
- 4 August 2000 old bower material seen as mat on ground; three large blue decorations: < 30 metres from bower at 10 Chauvel Circle.

Bowers at 2230 Chauvel Circle, Chapman

- 30 July 2000, two bowers within 15 m in 26 Chauvel Circle; had been first noticed in April/May.
- Bower 1 very full; almost closing at the top; orientation NNE/SSW; at least 12 blue decorations; under bushes; visited by an immature (light-billed) male.
- Bower 2 in a more open situation; only a mat of bower material; still decorated with blue objects; had been destroyed, rebuilt over a fortnight, then pulled down again in July.
- Both bowers close to hedges where the birds roost.
- Full male seen in garden for the first time in the first week of August; by then immature bower 1 owner had a small blue spot on breast.
- First week August 2000, a third bower seen in garden of 22 Chauvel Circle; within 20 m of more active bower in no. 26; oriented E/W; large amount of blue decorations.
- Up to five bowers reported in garden of 28 Chauvel Circle (unconfirmed); no sign of previous bower at 30 Chauvel Circle (Holland 1999).

Bower at 34 Monkman Street, Chapman

- Active bower (possibly primary) for past 6 years (Holland 1999).
- Green bird attempted to build bower in winter 1999; destroyed within a few days.
- Bower material on ground in July 1999 in a clearing in a narrow shrubby border.
- Bower not rebuilt in winter 1999 or 2000, though birds continued to visit.

Bower at 36 Sidaway Street, Chapman

- Active bower for first time June-August 1999; aligned NE/SW.
- Full bower with many blue decorations and yellow straw: in very mature native front garden, within 3 m of house near large window.
- Bower destroyed end August 1999; not rebuilt (area cleared over summer).

Bower al 14 Burgan Place, Rivet!

- 400 m from author's garden, close to original 1980 sighting (Holland 1999).
- Active bower seen 12 September 1999; remained active in October: dismantled by start of December.
- Located in front garden, within 5 m public path and within 2 m of veranda; aligned NE/SW: a substantial bower with plentiful blue objects: in a grassier situation than most of the above bowers which were on mulch or litter.
- Garden owner indicated bower built in past three winters; (full male in attendance and up to six green birds; did not mind observation).
- lnitial rebuilding (<10%) commenced March 2000; destroyed in a fortnight: 20% rebuilt by 15 April; destroyed again by 13:30 h on 25 April; rebuilt by end of that afternoon in rudimentary fashion with sticks pointing in all directions. suggestive of a practice bower (Vellenga 1970, 1980). Two green birds present.

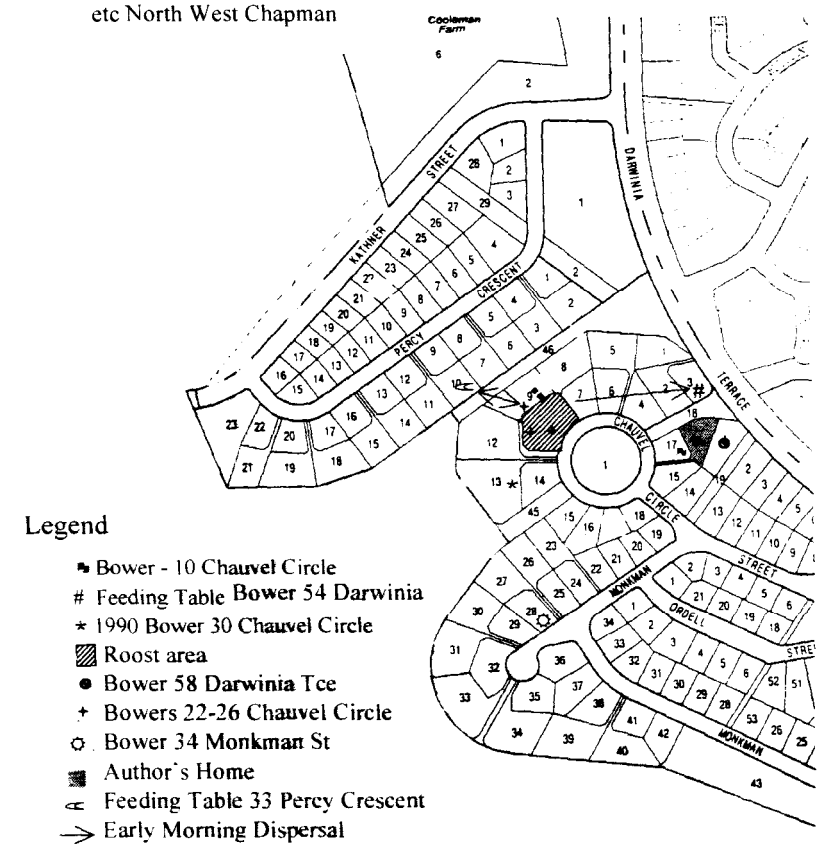
- Rebuilding, destruction continued throughout May and June: male seen several times: positions of the few blue objects varied; bower most robust on 28 May with only one side a little skewed; 50% intact on 8 July; completely destroyed by 22 July; 50% rebuilt (crudely) at rear of bower mat by early on 12 August; systematically pulled apart by full male on 13 August (the day the 10 Chauvel Circle male was absent for much of the day).

- Substantially rebuilt 2 September; up to 6 green birds present; bower full but crude, suggesting the work of learners; became more shoddy but still substantial and active till mid-October though no birds seen after 24 September.

Bower at 7 Toona Place, Rivett

- Remains of bower mat seen mid-July 2000; 2 m from public path; < 100 m from 14 Burgan Place bower: relatively open position; blue decorations appeared and disappeared in July; green bird displaying early 29 July.
- Dead green bird in bushes then on ground by bower early August.
- Activity continued; garden cleaned up, bower mat removed by 23 September.

Figure 1 Locations of Bowers, Roosts etc North West Chapman



ODD OBS

Spring migration of honeyeaters

On September 17, in the year 2000, the local honeyeaters did their own Olympic thing — they moved in huge numbers through the upper Shoalhaven valley, in the general direction of Tallaganda State Forest, and three days later were still continuing. Is this a record?

ln the Jerrabattgulla Creek area, just west of the upper Shoalhaven road from Braidwood to Cooma, about two kilometres along the road to Kain, I saw over 2000 Honeyeaters in a 20 minute period. flying south. This was around 11:00 h: I have no information on how long it had been going on. There were two species only, Red Wattlebirds *Acanthochaera carunculata* (about 20%), and Yellow-faced Honeyeaters *Lichenostomus chrysops* (80%). The Red Wattlebirds were in parties of 20-25, the Yellow-faced Honeyeaters in flocks of 20- 40. Occasionally they intermingled.

Both species were flying just above tree-top height, and alighting quite frequently and very briefly in eucalypts. They were still coming when I moved on up the valley to try to track the leaders. I was unsuccessful, though there were a few seemingly already resident honeyeaters of both species in woods as far south as Hereford Hall.

Around 16:00 h I was back at Warragandra on the same creek, where about 200 (equal numbers of both species) were baled up temporarily by a Brown Falcon *Falco berigora*, the Red Wattlebirds in two trees across the creek. the Yellow-faced Honeyeaters in willow trees. Two kilometres further on at the area where I had first spotted the migration, small flocks of fives and tens still spurted through until 16:30 h when I had to leave.

On 20 September I returned around the same time, and the migration was still continuing. Numbers had halved (to **only** over 1000 in 20 minutes). The composition of the small flocks had changed — there were far fewer Red Wattlebirds, but this time there were fair numbers of White-naped Honeyeaters *Melithreptus lunatus* and an occasional White-eared Honeyeater *Lichenostomus leucotis*. The majority was still Yellow-faced Honeyeaters. They were zig-zagging in the same direction, toward Tallaganda State Forest as far as I could tell - I needed a birdo on the other side of the valley to be sure! They mainly zagged back and forth in the trees along the road. but a few parties zagged down to the trees along the creek, then returned to the ziggers along the road. Small squadrons of the smaller honeyeaters flew higher above the lot — umpires?

Certainly this spring migration stream rivalled anything I have seen along the Murrumbidgee in autumn. It presents many fascinating queries. I intend to contact local people for possible further information. Could it be possible that the huge number of birds involved had followed the Shoalhaven River in a south-westerly direction for most of its length, only to split into local groups on reaching more southerly latitudes? The small groups that we see moving through Canberra would presumably have to turn

northwest at some point if they used the same track.

Muriel Brookfield

84 Wybalena Grove, Cook, ACT 2614

Editors' addendum

The frenzied migration of vast numbers of honeyeaters out of the Canberra region each autumn is a well-known and documented phenomenon. Their return in spring, however, is normally a much quieter and less conspicuous affair. This report of Muriel Brookfield's implies that migration of large numbers of honeyeaters moving in a concerted fashion back into the region does in fact occur, at least in some areas or in certain circumstances. Muriel posted her observations in an email to the COG email discussion list (cog-l:canberrabirds@topica.com) on 17 September. Over the following few days a number of people responded with their own observations of obvious flocks of honeyeaters on return migration. These observations are summarised below.

Ian Fraser

Large numbers of returning flocks (Yellow-faced Honeyeaters and some Red Wattlebirds) between Canberra and Jindabyne on Friday 15 September and again on the return trip the following morning.

Julie McGuiness

Return honeyeater migration very noticeable from the woodland survey sites around Tuggeranong Hill on Saturday 16 September, and also at Tharwa Sandwash the next day. In both cases, groups of 5-15 coming through every five minutes or so. About 80% Yellow-faced Honeyeaters and 20% White-naped Honeyeaters. Red Wattlebirds not noticed (although a few around). All heading in the direction of Mt Tennent and beyond (i.e. south-south-west).

Marnix Zwankhuizen

Rocky Crossing, Saturday 16 September: 100s of Yellow-faced Honeyeaters and White-naped Honeyeaters (some 10-20 per minute over crossing); some small groups of Red Wattlebirds. All heading south-west.

Orroral Campground: same species flying north along river.

Orroral Valley: same species heading north-west, although they seemed to lose direction here. 100s in trees along Orroral Swamp.

Philip Veerman

Namadgi Visitors' Centre, Tuesday 19 September: flocks of Yellow-faced Honeyeaters flying towards Mt. Tennent (i.e. south-west).

Nicki Taws

Mulligan's Flat, 16-17 September: small flocks of honeyeaters continuously moving through.

Gudgenby/Orroral area, early in the week: regular flocks of 10-20 flying in a westerly direction throughout the day.

There was also a response from Carol Probets in Katoomba who reported particularly large numbers of returning Yellow-faced Honeyeaters this spring. She also wrote, 'Our spring migration is normally much less spectacular than that of autumn, but this year it's the other way around' but added that 'Unlike Canberra, our autumn migration this year was almost non-existent along many of

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Satin Bowerbird sighting in Farrer

In their review of sightings of Satin Bowerbirds *Ptilonorhynchus violaceus* in Canberra suburbs, Holland and Veerman (2000) reported only one sighting of four birds in Farrer, in September 1996. At 9:30 h on Saturday 2 September 2000 a friend and I saw a Satin Bowerbird in the back yard at 34 Werribee Crescent, Farrer, on the corner of Roseworthy Street.

The bird was either a female or immature male. It joined a mixed flock of Australian Magpies *Gymnorhina tibicen* and Pied Currawongs *Strepera graculina* on our flat garage roof, feeding with the other birds on the household scraps we had tossed there earlier in the morning. We were able to observe them from a distance of five to ten metres from our kitchen window, a vantage point higher than the garage roof.

The bowerbird arrived from a large Monterey Pine *Pinus radiata* in our neighbour's yard. It stayed with the other birds for about four or five minutes then flew back to the pine, where it was magnificently camouflaged by the olive-bronze foliage. A few minutes later it returned to the garage roof and stayed for about a minute before flying off in the direction of Farrer Ridge.

Reference

Holland, J. and Veerman, P. (2000). Observations on the spread of the Satin Bowerbird into the suburbs of Canberra. *Canberra Bird Notes* 25: 59-71.

Kevin Wilson
34 Werribee Crescent, Farrer, ACT 2607

Over-wintering honeyeaters

In dealing with the status of honeyeaters (Wilson 1999) the comment was made of the Red Wattlebird *Anthochaera carunculata,* Tart of the population is migratory, especially in the ranges' and regarding the Yellow-faced Honeyeater *Lichenostomus chrysops,* Some birds are present in winter, especially where sufficient food is available.' This year I decided to document the size of the overwintering population in my garden.

Just outside our kitchen window I have a small-capacity 'nectar' feeder which is filled each morning. Over the cooler months of this year it has been emptied generally before midday. During April and May 2000, many nectar-feeding species were attracted to the food. Three wattlebirds visited several times each morning and each could be recognised by habits or appearance. One, for example, would perch on a rhododendron twig out of sight then dip forward for the food, much in the manner of a swinging toy. The wattlebirds were present all winter.

Up to the Yellow-faced Honeyeaters were present until 9 July 2000; on 25 July, after our eight-day absence, there were five; on 21 August, after we had been away for a further three weeks on holiday, numbers were down to two. It is not known how either species managed for food during our absences as there is little native flora in our vicinity. Both species were seen less frequently from 11 September and both disappeared during the following week, although other Red Wattlebirds are always in the vicinity. This coincided with a marked warming of the weather.

Reference

Rowley, I. (2000). Cooperative breeding by Dusky Woodswallows. *Canberra Bird Notes* 25 (2): 49-58.

Steve Wilson
56 Harrington Circuit, Kambah, ACT, 2902

A concentrated cacophony of cuckoos

On the morning of 30 September 2000 I did a survey of Grid .119 which starts on the Tharwa Road just beyond the Lanyon Homestead , includes the Tharwa to Tidbinbilla Road as far as Booroomba Road then south beyond the Visitors' Centre of the Namadgi National Park

Dive-bombing by woodswallows

The comment by Ian Rowley (Rowley 2000) that Dusky Woodswallows 'are very bold and frequently swooped close to my head when I was handling nestlings, even brushing my hair' struck a familiar note with me.

In the early 1960s I was banding nestlings of this species on the lower southern slopes of Mt Ainslie. The nest was on loose bark over two metres above the ground but I could just reach it by standing on a natural rock formation beside the base of the tree. I took the nestlings from the nest and a helper did the banding, then I replaced the birds.

My situation on the rock was fairly precarious and while this was going on, up to three parent birds repeatedly flew directly at my eyes, missing my head by centimetres. A slightly experienced

Steve Wilson
56 Harrington Circuit, Kambah, ACT

Reference

Wilson, S. 1999. *Birds of the ACT: Two Centuries of Change.* Canberra Ornithologists Group.

and so includes the Gigerline area of the Murrumbidgee River.

Along the first 1.5 km of the Tidbinbilla Road, eight Pallid Cuckoos *Cuculus pallidus*, two Brush Cuckoos *Cacomantis variolosus* and four Fan-tailed Cuckoos *Cacomantis flabelliformis* were recorded; indeed there was not a time when one or more of the birds was not calling in the scrubby open forest on either side of the road. These species, especially the Pallid Cuckoo, have calls which carry very well. 1 was amazed at the number of these birds in such a relatively small area and, as it seems likely that the area could not support so many cuckoos, I thought it probable that many were migrating through.

This concentration was all the more remarkable in that, while a Brush Cuckoo was calling in the grounds of Cuppacumbalong, no other cuckoos were recorded during the morning.

Steve Wilson
56 Harrington Circuit, Kambah, ACT, 2902

RARITIES PANEL NEWS

Rarities Panel News and endorsed lists of unusual bird sightings have been held over until the next available issue of *Canberra Bird Notes*. For information regarding unusual bird reports, please contact the panel secretary, Barbara Allan.

BOOK REVIEW

Birds of Canberra Gardens, edited by Paul Fennell, and published by the Canberra Ornithologists' Group, Canberra 2000.

The arrival of this important publication gives me great pleasure. It is the product of a unique project; the Garden Bird Survey. This publication is the first major gathering and analysis of the data collected by hundreds of Canberra observers over 270 urban sites over a period approaching 20 years. It is a worthwhile and interesting publication whose worth and interest will increase over the years.

When a small group of Canberra Ornithologists' Group (COG) members first conceived of the Garden Bird Survey, it was recognised that we (and many other COG members) were making incidental but regular birds observations around our homes all the time. COG had published Annual Bird Reports (ABR) from 1975 and by 1981 the ABR ran to 31 pages of published figures and notes. While the annual reports contained much interesting information from urban areas, the data were increasingly in a form that was difficult to interpret or publish. The urban data collected were erratic and, in the end, other than personal enrichment or gross changes in status in the birds, it was unlikely that general observations would ever produce any useful long term information on breeding patterns, seasonal variations, data on impact of urban pressures or long term changes in status.

In 1979 we saw the publication of the Pilot Atlas in which COG members and others had pioneered methodical collection of bird data by amateurs. The resulting bird atlas of the south coast of NSW lead Birds Australia (then the RAOU) to embark on the Atlas of Australian Birds from 1977 to 1981. While amateur collection of systematic bird data was criticised in some quarters at the time, it was clear that very useful records and information could be achieved if the collection of data was made methodical and consistent. Whilst the bird watching activities were still fun and personally enriching, there was also wider purpose for collecting information.

It was in this environment that the idea of the Garden Bird Chart was conceived. The intentions were manyfold. At its highest level it was to provide a format in which people doing regular observation of garden birds could contribute to our knowledge of local birds. However it was also intended to be fun and to encourage people to learn about the birds literally in their own backyards. It was to be personally rewarding. It was envisaged that, while all COG members could and would be encouraged to participate, the scheme would especially be rewarding to older, younger or handicapped members: often those less able to participate in the more adventurous birding activities. The scheme had to be inexpensive, very simple and easy to follow. It had to allow for people's domestic activities, including weekends away, holidays, etc. It had to be flexible and relevant for every type of garden from flats to rural spreads. The information collected needed to be able to be processed simply.

Eventually the Garden Bird Survey was launched in 1981 (see Hermes, N. 1981 Garden Bird Chart *CBN* 6:112-4). Key COG members involved in establishing the scheme were Cedric Bear, Henry Nix, Michael Lenz, Richard Gregory Smith and the President at the time, John Penhallurick. Since that time many have contributed to maintaining the scheme including McComas Taylor. Philip Veerman, Ian Baird and Graeme Elliot.

Full credit goes to the team lead by Paul Fennell in producing this large format synopsis of the data currently held in the Garden Bird Survey. It is noted in the text that there is no detailed analysis but the data presented is clear and informative. Whilst there are many trends of interest and concern (mynas, currawongs), I find the changes of status of the Satin Bowerbirds of particular interest. When this is examined with the atlas data there is interesting story of urban colonisation of these proud birds being documented.

I was very pleased to see the chapter on 'Some Conservation Issues'. Even with only preliminary analysis, it is possible to detect negative early warning signs on the status of some local species. This type of information will be invaluable in the future in planning conservation measures for some species prior to their reaching critical low numbers when conservation action is much more difficult and expensive.

Whilst the book has much to commend, I was disappointed in quality of some of the photos and wonder whether their inclusion was necessary in this type of publication. I would like to have seen an illustration of the survey chart to give a more complete picture of the way the survey works. I do not like books that are published with no obvious author (it makes the book hard to find in indexes). Paul Fennell's name as editor should have had higher prominence.

This book is a valuable and encouraging first step for the Garden Bird Survey and shows the early cynics what can be done by an organised and keen amateur group. I would like to congratulate Paul and the book's production team but acknowledge and encourage the real 'contributors', all those keeping regular records of birds in their gardens. Enjoy it and keep up the good work!

Neil Hermes

COLUMNISTS' CORNER

Birding in cyberspace, Canberra style

The internet birding chat and information lines have been running hot with reports of returning migrants, breeding, Twitchathons and other spring birding activities. Obviously internet birders are making good use of the fine weather to leave their computer keyboards and undertake field observations, be it from the kitchen windows, the local parks or further afield. But it is great to see them sharing their observations, and reflections upon them, on the national email information and discussion list Birding-Aus and other internet communication channels.

Many birders have stories to tell that could be headlined 'Interesting Experiences While Birding' or similar. Coastal birders wandering around a headline onto a nude beach sometimes report feeling especially conspicuous with bins around the necks and telescopes over their shoulders! Encounters with wild animals also make good stories, but the category I enjoy most is the one that covers birders' interactions with the men and women of our police services. So here, at last, is the report, posted to Birding-Aus, of Allan Benson's 'Encounter with the NSW Police', aka '**The Cop and the Nightjar'.**

One night recently, Allan and his 15 year old son Ian were spotlighting along a road in Central Western NSW. He reports that they had seen three foxes, a couple of Galahs and some magpie-larks' nests 'when we saw the car coming towards us stop. As we drove past the blue light flashed so we stopped. The conversation went something like this:

> Police: Can I see your drivers licence? Me: Sure.
> Police: Where are you from? Me: Gosford.
> Police: Where are you staying? Me: Willi Retreat.
> Police: What are you doing? Me: Bird watching.
> Police (very sceptical tone): What do you expect to see at night?. Me: Owlet Nightjars, Barn Owls, Tawny Frogmouths.
> Police: You don't need to spotlight for Owlet Nightjars, we see them on the road all the time. Me: Really?
> Police: We have seen a couple tonight and we must have seen 20 last night. Me: Where did you see the last one?
> Police: About 10 km back. Do you have in weapons in the car? Me: Of course not.
> Police: So you are not pig shooting?

Allan succeeded in convincing the police that they were not shooting pigs. Continuing their spotlighting, they had some success, having fine views of a Tawny Frogmouth and an Owlet Nightjar. They returned to their accommodation and had just settled into a cuppa when a vehicle pulled up. It was the police. 'Don't tell me they are checking up on us" was Allan's first thought. But no, this is what eventuated:

> The policeman [came into the house,] reached into his jacket pocket and pulled out - wait for it - an Owlet Nightjar. 'Look what we caught for you.' After a close examination and a picture, we released the nightjar, gave the policemen a cup of tea

> and had a very interesting chat about birds and [the local area].

Phew!

A chap named Grubb (really) has written a fine book called *Beyond Birding*. (David McDonald reviewed it in *CBN* some years ago.) One of the messages of this book is how we can usefully move from simply identifying and listing birds, to more closely observing and recording their behaviour, and seeking to interpret it. This approach to birding has been boost in Australia owing to the efforts of Dr Jim Davis and others concerned with **interpretive birding.** Jim's web site www.ibirding.com has details, and the publication that he edits, *Interpretive Birding Bulletin* is, as its subtitle indicates, a valuable resource for interpreting bird behaviour. Jim raised with Birding-Aus list members an intriguing aspect of **the behaviour of Restless Flycatchers:**

> While foraging, Restless Flycatchers are reported to hover a metre or so above the ground while emitting a characteristic grinding call. I was once told that the flycatcher's call attracts the attention of spiders. Specifically, trap door spiders will open the door of their tunnels to investigates the noise ... in so doing, they become vulnerable to being caught by the flycatcher. Can anyone confirm this interpretation?

Anthea Fleming responded with her observations of a Restless Flycatcher hovering above a post, 'chattering in the usual manner'. 'Presently it alighted on top of a post', she reported, and apparently extracted a large blackish-grey spider from a crack down the side of the post. It then took a while processing the spider by knocking off most legs etc, and then swallowed it...' She saw nothing to indicate that the flycatcher's call had attracted the spider as the bird had dragged its prey from its hiding-place. Anthea then speculated that Jim's report was wrong as she has been told that spiders are deaf. Andrew Taylor clarified this, stating that 'There doesn't seem to be a lot known about hearing in spiders. Spiders do possess sensory organs on their legs capable of detecting sound as well as vibration. Responses to sounds have been observed in some species.' So ... Let's pay careful attention to the next hovering and grinding Restless Flycatcher we notice and check out the siren hypothesis that Jim has proposed.

Sometimes on Birding-Aus people raise fascinating issues for discussion but they become lost, with people rapidly moving onto other, perhaps more topical, issues. This occurred with **the use of exotic pine trees as food sources by Galahs.** Peter Pfeiffer observed six Galahs apparently feeding on the tops of pines *Pinus radiata*. He describes the experience we have recently had in Canberra: these pines 'covering everything in sight with the sulphur yellow pollen'. He noted that 'The male cones were seen standing upright on the tops of the trees like candles. The Galahs may have been feeding on the pollen, young shoots or the male cones. Has anybody got any thoughts on this?' Peter asked. Sadly, no-one responded. I wonder of any *CBN* readers have any suggestions about what part or parts of the Radiata Pines the Galahs feed upon?

Remember this column's motto: 'There's more to birding than the internet!'. So

switch off that computer, grab your bins and get into some fine birding in this beautiful spring season.

T .alba

Details on how to subscribe to Birding-Aus are on the web at http://www. shc.m elb.catho I c .edu .au/h o me/birding/index.html, and a comprehensive searchable archive of the messages that have been posted to the list is maintained by Andrew Taylor at http://www.cse.unsw.edu.au/birding-aus.

To join the Canberra Birding email discussion list, send a blank email message to canberrabirds-subscribe@topica.com, or join online at http:// www,topica.com/lists/canberrabirds.

Oriental anecdotes and capital cacatuids

In 1994, *Stentoreus* wandered into a natural history book-shop in London, and emerged not only with an armful of books but with membership of a body known as the 'Oriental Bird Club'. Since then, your columnist has maintained that membership, and in return has received an intermittent flow of OBC literature about the birds of the fascinating region to our north. Actually, the OBC area of interest' rather resembles some empire of past centuries. It expands, too. The western and southern boundaries remain, for the moment, at about Pakistan and Timor respectively, but the eastern boundary has recently ─ and surprisingly - been extended to embrace the eastern half of Russia, the Korean peninsula, and Japan.

The given reason for this expansion accepts that 'we [that is, the OBC] are no longer 'Oriental' in the biogeographical sense'. In fact, the given rationale for the enlarged boundaries would have done credit to Imperial Rome or the irresistible hordes of the Mongol khanates, namely: 'at this stage of our development we felt it important to become more inclusive'.

OBC's publications contain much of interest for an intending ornitho-tourist in the region. Sadly, however, an underlying theme is the pervasive and apparently irresistible degradation, environmentally speaking, of many parts of the area covered. There are recurrent depressing references to things like the slow extinction of Gurney's Pitta (a rare Thailand species). Here are some other items from the latest bulletin, received June 2000.

- China has decided to allow controlled export of Saker Falcons *Falco cherrug.* This is an attempt to combat falcon smuggling, given that about 1000 smugglers, belonging to organized gangs from the Middle East have recently been active in China's north-west, with thousands of captive falcons being confiscated.

- In Taiwan, 'Happy', a Black-faced Spoonbill *Platalea minor,* was a surprise candidate in last March's presidential election. This was an initiative by an environmental group, to focus attention on the government's plans for an industrial

development on an important wetland. Unhappily, Happy was not actually elected president, but the group gained some satisfaction from the defeat of a government candidate. (`Happy' is a shortened form of the Taiwanese word for Black-faced Spoonbill.)

- Red-whiskered Bulbuls have become very rare in Thailand. This is because of the booming popularity of 'singing and fighting contests', some with a gambling element, in which caged birds are placed next to one another to see which prevails in giving out territorial calls to drive away the 'intruder'. Wild birds are better than captive-ones for this kind of competition. (The Red-whiskered Bulbul *Pycnonotus jocosus* is of course a well-known introduced suburbanite, and spreader of the privet shrub, in the Sydney area.)

The next item resists summarising, and is reproduced verbatim:

> **Armed gang steals Bali Mynas** In November 1999 a gang of armed robbers stole 39 Bali Mynas *Leucopsar rothschildi* from their captive breeding cage at West Bali National Park. The robbers, armed with sharp weapons and homemade bombs, also stole a rifle and bullets before handcuffing the park's four guards inside the cage. A single Bali Myna has a street value of around 10 million rupiah and this raid is symptomatic of the desparation [sic] felt by many people in Indonesia, following the recent collapse of the Asian economy.

That report was sourced by OBC to the *Jakarta Post*, whose distinctive journalistic style is reflected in the interesting combination of thoughts in the last sentence. As it happens, the same event was reported in the June 2000 edition of the conservation journal *World Birdwatch*. This added the information that this particular myna-snatch took half of the park's breeding stock, and that *rothschildi is* an endangered species that at one time numbered only 13 individuals in the wild. As a showy all-white species, it might seem to some Canberrans to be an attractive possible introduction to the ACT, or at least to have been a desirable alternative to the Common (Indian) Myna. Surely, though, familiarity would breed indifference and possibly resentment as in the case of our plentiful and raucous all-white (almost) cockatoos.

Then there is the melancholy saga of Thailand's White-eyed River-martin *Eurochelidon sirintarae*. The general issue of taking specimens of living birds for scientific purposes is a potentially divisive one, and this columnist confesses to having no objection of principle to the practice - when soundly based. However, it must be admitted that the unfortunate *E. sirintarae* might be Exhibit A in the case for the contrary view. According to the OBC Bulletin, this species, surprisingly, was unknown until 1968. Some dozen specimens were collected between 1968 and 1971. (There are rumours, one wonders how well-founded, of 120 more specimens having been collected 'unofficially', due in part to demand created by the naming of the species after a Thai royal princess.) The last confirmed sighting of the species was in 1978. Now, 'there is only a faint chance that this, 'one of the most elusive species in the world', still survives'.

None of the above is meant to suggest that there is a sharp distinction between the rate of environment or species destruction in Thailand or Borneo, on the one hand, and Queensland on the other.

Speaking of journalistic styles, while it may be only a matter of taste, *Stentoreus* cannot wholly recommend the *Canberra Times* offering under the heading of `Capital Times'. This approximately twice-weekly feature has an irritatingly disingenuous style marked by the frequent floating of questions (`Hey, someone asked us this really interesting question! Can anyone help?') but with little interest, afterwards, in publishing a satisfying answer. The chief object is, it seems, to have 'really got the wires humming with our question about (whatever)'. Unfortunately, a frequent wire-stimulating topic is, for some reason, the deadly serious one of the local birds.

Capital Times of 16 August 2000 might or might not have served a useful purpose by flushing out an alleged confession from an anonymous individual (Teter X, a Griffith bird fancier') who claimed to have introduced Little Corellas to Canberra. Whether this is hoax, humour, half-truth or hard fact may never be known, but the claimed date of introduction (1989) does suggest that this event, even if true, would have been just another small step in the accumulation of the ACT's corella population.

Capital Times of 26 July 2000 did raise an interesting question arising from a report that Denis Saunders had seen `eight parrot species in a single walk to the Hughes shops'. The question how many parrot species (including for this purpose cockatoos and lorikeets) one could find on a walk of, say, one hour, through selected Canberra suburbs, deserves some thought. A useful starting point will be your bookshelf where two basic texts will be ready to hand: Steve *Wilson's Birds of the ACT: Two Centuries of Change,* and COG's *Birds of Canberra Gardens* (BCG). The conclusions on status in Steve Wilson's list, updated by David McDonald, have recently been published as the definitive COG checklist.

The Wilson/McDonald (COG) list gives 22 parrot species for the ACT, including rare vagrants but excluding escapers/releasees if not established. BCG provides a comprehensive table that gives results of the famous COG Garden Bird Survey (GBS) over 17 years for a total of 270 Canberra sites, many reporting, it must be added, for only a single year. According to the table, the following are among the most commonly recorded of the 216 recorded suburban Canberra bird species (rank in brackets).

Galah (2)

Crimson Rosella (4) Sulphur-crested Cockatoo (10)

Eastern Rosella (11)

The parrots then fall away a little, but the following have been recorded in each of the 17 years and in at least 50 per cent of the total number of sites:

Gang-gang Cockatoo (24)
Australian King-Parrot (25)
Red-rumped Parrot (36)

There is then a longish gap until we get

From here, it will be more informative to give the number of years recorded and the number of sites.

Rainbow Lorikeet [16 years-32 sites]
Budgerigar [16-38]
Little Corella [12-29]
Yellow-tailed Black-Cockatoo [14-22]
Cockatiel [13-22]

At this point, at No 113, we come to the first GBS parrot species not on the COG list: Peachfaced Lovebird. This African species has been seen over a remarkable 13 years at 17 sites, although one wonders whether all sightings involved only this one species. Let's confine ourselves for the moment to species on the COG list:

Superb Parrot [11-14]
Little Lorikeet [9-13]
Long-billed Corella [5-4]
Musk Lorikeet [4-3]

Glossy Black-Cockatoo [3-3]
Scaly-breasted Lorikeet [2-3]
Swift Parrot [2-2]

Turquoise Parrot [l-l]
Major Mitchell's Cockatoo [l-l]

The following are the GBS-recorded species not on the COG list: Peachfaced Lovebird, Port Lincoln Ringneck, Rose-ringed Parrakeet, Yellow Rosella, Mallee Ringneck, Red-capped Parrot, Fischer's Lovebird, Regent Parrot, and Purple-crowned Lorikeet.

Of these, the Port Lincoln Ringneck [87] is noteworthy. Steve Wilson mentions sightings in the period 1967-1974 in the Campbell-Hackett-Mt Majura area, including an observation of two adults feeding three young, He draws attention to McComas Tavlor's comment in the uncommon breeding resident'. It was possibly this that led to the statement in the 1992 parrots volume of the *National Photographic Index:* 'a feral bird in the suburbs of Melbourne, Canberra, and Sydney'. While almost certainly not established here, the Port Lincoln Ringneck does crop up regularly. *Stentoreus* last noticed it over a period of three weeks near the Campbell Park Offices, in the summer of 1998-1999. There was an adult pair engaged in ground-feeding and also in a bit of nuzzling and food-passing, both birds belonging to one of the hybrid varieties, with crimson frontal patch and solid yellow from lower breast to belly.

So, how many species for the single one-hour suburban walk? TEN is the number you are allowed to make a noise about. This is based on the assumption that you could get the 'common' seven with moderate effort, and could pick up an eighth by walking through certain suburbs where, and when, you could pick up either a Little Corella or a Yellow-tailed Black-Cockatoo fairly easily. You'd get nine by the strategy of only starting your walk WHEN you'd noticed something unusual: possibly an escapee or an unusual over-flyer. (During August, for example, Richard Allen has been reporting a regular Princess Parrot in Curtin, and a Long-billed Corella has been in the Griffith shops car-park.)

The next species, your tenth, will be more difficult, but that's what you'll need to qualify for life membership of the Ten Parrot Club. As a former Prime Minister almost said, 'Life membership wasn't meant to be easy'.

A. stentoreus

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Annual COG subscriptions for 2000 are:

Individual, family or institution - $30
Student (18 or younger) - $15

Canberra Bird Notes is published by the Canberra Ornithologists Group Inc and is edited by Harvey Perkins and Barbara Allan. Major articles of up to 5000 words are welcome on matters of the distribution, identification or behaviour of birds occurring in the Australian Capital Territory and surrounding area. Contributions on these topics should be sent to Harvey Perkins, 42 Summerland Circuit, Kambah ACT 2902, or via email to harvey.perkins@anu.edu.au. Short notes, book reviews and other contributions should be sent to Barbara Allan, 47 Hannaford Street, Page ACT 2614 or via email to bmallan@ozemail.com.au. If you would like to discuss your proposed article in advance, please feel free to contact Harvey on 6231 8209 or Barbara on 6254 6520.

COG's Annual Bird Reports are incorporated in an appropriate issue of *Canberra Bird Notes.*

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