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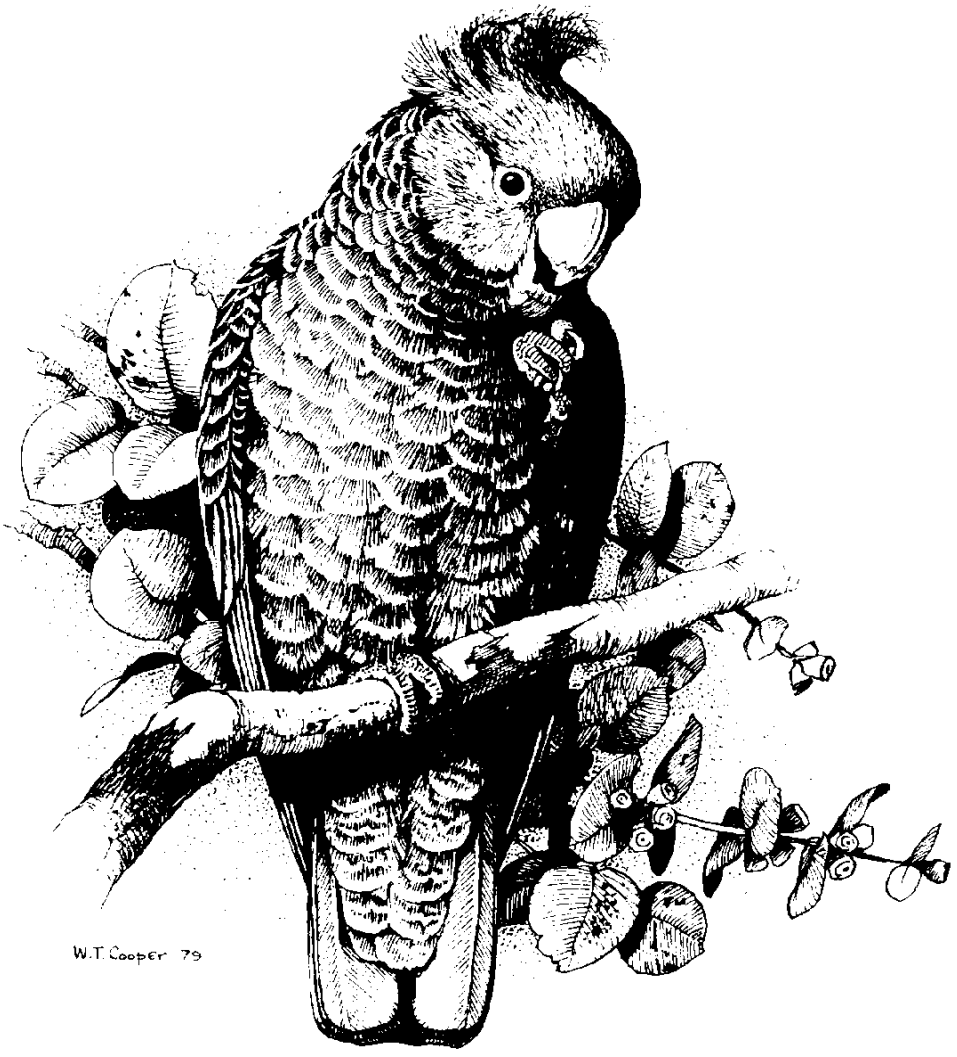

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ARTICLES

LITTLE EAGLES IN THE AUSTRALIAN CAPITAL TERRITORY IN 2014

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Abstract. *In 2014 we surveyed Little Eagles* (Hieraaetus morphnoides) *in the Australian Capital Territory. Three successful Little Eagle nests were reported to us, at Campbell Park, at Strathnairn, and in the northern ACT. Each pair fledged one young making three young fledged in the ACT in 2014. The ACT Government has planned a housing development at the Strathnairn breeding site which may destroy this territory.*

1. Introduction and Methods

In previous reports (*i.e*. Olsen *et al.* 2010) we discussed the collapse of breeding Little Eagles (*Hieraaetus morphnoides*) in the ACT. Here we present data for the 2014 breeding season. Methods followed those described in Olsen *et al*. (2010).

2. Results

Black Mountain - The nests on Black Mountain (Con Boekel, northern side; J. Olsen unpublished data for the southern slope of Black Mountain) were not used though a pair of Wedge-tailed Eagles (*Aquila audax*) attempted to breed near the Glenloch Interchange. These eagles failed because of disturbance from photographers and bird watchers.

Lions Youth Haven - The Little Eagle pair at Lions Youth Haven in Kambah (Nick Webb) was not present. However, a pair of Wedge-tailed Eagles was resident on this territory and they fledged one young.

Dunlop and Strathnairn – The Little Eagle nest at Dunlop (Roger Curnow) was not used. The nest at the Strathnairn Art Galleries (Peter Christian) fledged one young that we colour-banded and radio-tagged. Susan Trost and Thomas Long followed the fledged juvenile for some two months before the juvenile and adults dispersed (see Olsen *et al.* 2015, this issue).

Campbell Park/Jerrabomberra Wetlands - The territory near Campbell Park Offices (Michael Lenz), fledged one young, and Little Eagles were commonly seen at Jerrabomberra Wetlands, even before the breeding season. However, GD photographically compared colours of the eagles at the Wetlands to adults that later nested at Campbell Park (Fig. 1). Some did not match, that is, other Little Eagles besides the territorial pair were sometimes present. Jerrabomberra Wetlands may serve as wintering habitat for this apparently migratory species.

Northern ACT - A third Little Eagle pair was reported to us in the northern ACT, checked by JO and Sue Trost. The property manager insisted that a condition for checking this pair was that we did not reveal its location. We agreed. This territory fledged one young. Little Eagles

had been sporadically reported to us near in the northern ACT for several years by observers such as Mark Clayton but nobody had pinned down a nest. This territory probably was not so much a new one, but one that was not counted in earlier surveys in the 1980s and 1990s and not found in our more recent surveys after 2005 because access to the area was blocked.

The total then, for 2014, was three young fledged from three territories, lower than the productivity for 11 territories in the early 1990's (which in reality was probably closer to 20 territories), and with no 'twin' nestlings, something we commonly found back in the 1980s and 1990s.

Figure 1. Little Eagles (*Geoffrey Dabb*) from left to right, i) light morph adult, ii) fledged juvenile, iii) dark morph adult, iv) dark morph adult, all at the Jerrabomberra Wetlands/Campbell territory. Both partners of the breeding pair were light morphs, so other adults come into this area during the non-breeding season.

3. Discussion and Conclusions

Little Eagles are stable at low levels in the ACT. A problem is that the ACT government continues to direct housing development to areas needed for Little Eagle nesting. By one territory at a time the government is reducing the species in the ACT and that policy may be responsible for the loss of the species as a breeder here. The government was warned by JO and others that the O'Malley/Mount Mugga pair, the Gungahlin Hill pair, and now the Strathnairn pair, would disappear if housing projects proceeded near these nests. The O'Malley and Gungahlin developments went ahead anyway and the eagles were lost. The Strathnairn development is going ahead. Because Little Eagles occur only in the northern part of the ACT, not in Namadgi, these remaining pairs will eventually be forced out. The ACT government continues a 'plan' of suburban sprawl across the northern ACT that ruins species-rich habitat, such as in Gungahlin, the Molonglo Valley, and now Strathnairn.

The statutory Action Plan for protection of the Little Eagle as a vulnerable species (ACT Government 2013) noted that the main threat to the species was loss of habitat which was 'mostly due to the encroachment of urban development on remnant woodland and grassland'. The 'primary conservation issue' was stated to be 'retention of adequate foraging and breeding habitat'.

Among proposed actions was giving 'identified nest sites and foraging sites a high priority for protection', and to 'protect known previous nest sites … with a buffer'. The Strathnairn site is one of very few left, and has been used in successive seasons.

We would expect the ACT government to conform to its own Action Plan, without need for constant representations by concerned members of the public.

Acknowledgements

Thanks to COG members, especially Martin Butterfield, Con Boekel, Steve Holliday, Chris Davey, Barbara Allan**,** Michael Lenz, Peter Christian, Roger Curnow, Rod Mackay and Graeme Clifton. Thanks also to Oliver Orgill, Felicity Hatton, Nick Webb, and John McRae who passed along Little Eagle and Swamp Harrier sightings for the survey and Christie Gould, David Shorthouse, Murray Evans, Don Fletcher, Michael Mulvaney, Tom Long, Michael Maconachie, Brett McNamara and Darren Roso, and to Greg Hayes. Sue Trost gave invaluable assistance in the field; Stephen Debus and McComas Taylor gave much appreciated advice.

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THE CANBERRA BIRD BLITZ 2014

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Abstract. *This paper describes the conduct and outcomes of the Canberra Ornithologists Group's tenth "bird blitz", held on 25-26 October 2014, and provides comparisons with the nine previous blitzes. In 2014, 293 datasheets were submitted, from 90 grid cells; 173 bird species were recorded, 78 of them breeding. Highlights included the first blitz records of the Bush Stone-curlew, the Pied ButcherBird and the Painted Honeyeater*.

Introduction

On the last weekend in October 2014 (Saturday 25 and Sunday 26), the Canberra Ornithologists Group (COG) held its tenth annual "bird blitz". In this exercise, we aim to record all species of wild bird present in the ACT over that weekend, to obtain a broad indication of their abundance, and to record breeding status. To achieve this, we set out to conduct a minimum of one 20-minute 2-hectare survey within each of the 165 grid cells covering the ACT (a 2.5-minute grid on lines of latitude and longitude, so each cell measures approximately 3.5 km by 4.5 km). A subsidiary aim of this exercise is to encourage more of our members to get out, survey and submit datasheets.

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

Conduct of the blitz

Participants register for their preferred locations or grid cells, on a first-in, best-dressed basis. In the allocation process, some site preference is given to members who survey given sites on a regular basis. More tardy volunteers are cajoled by the organiser into surveying the remaining sites. Less experienced birders may accompany more experienced birders who indicate a willingness to take them along. And as a modest inducement to participants, a variety of prizes are on offer, courtesy of our members.

Participants are allowed to choose their preferred methodology from the three BirdLife Australia Atlas options: a 20-minute/2-ha survey; within 500 m of a central point, for >20 mins; or within 5 km of a central point, for >20 mins. Incidental records are also welcomed.

Results and discussion

Operational issues

We enjoyed fairly good birding weather, though warmer than some years, and windy on both afternoons. Not all trails in Namadgi National Park were accessible, however, so coverage of the Park was spotty. Unlike 2013, we did not conduct training classes to assist newcomers.

Level of participation and coverage

At least 85 named COG members and friends took part in the 2014 blitz, plus a number of unnamed "extras" (a list of known participants is at Table 1). As noted before, this probably

equates to about 100 participants if the "number surveying" box on the datasheets is taken into consideration. Five of the named individuals participated for the first time. Congratulations must go to the 11 individuals who have supported the blitz each year since its inception: Ian Anderson, Daryl Beaumont, Muriel Brookfield, Stuart Harris, Shirley Kral, Bruce Lindenmayer, Gail Neumann, Susan Robertson, Philip Veerman and Tony Willis, as well as the author.

Datasheets were received from ninety grid cells, the fewest we have managed in the blitz. Our best coverage was in 2007, when we managed 122 grid cells; our average coverage is 104.6. The lower numbers covered in 2014 can only partly be explained by the lack of access to certain areas in Namadgi National Park. It is my suspicion that observers prefer surveying areas where they can be assured of seeing good numbers of bird species – an understandable but, for blitz purposes, regrettable choice. Nevertheless the grid cells surveyed covered most habitat types, so I believe we have a representative sample of ACT avifauna for the weekend. Map 1 shows the grid cells covered, while the table below indicates the comparisons between blitz years.

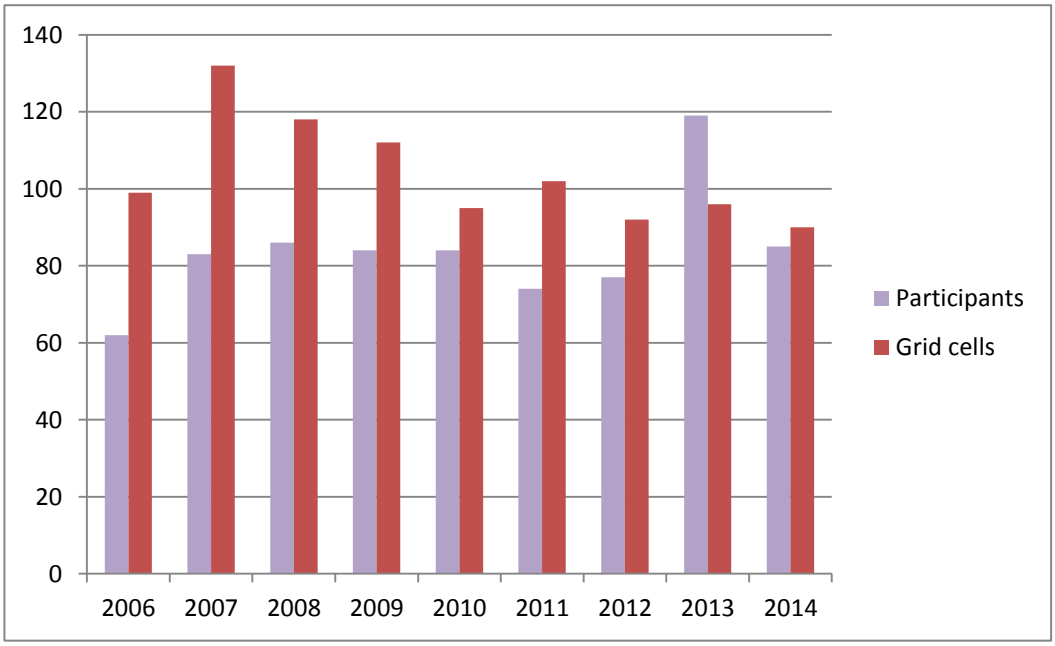


Figure 1. Blitz participation numbers and grid cells covered.

Datasheets submitted

In the 2014 blitz, a total of 293 eligible datasheets were received, 191 in hard copy and 102 electronically. Datasheet numbers have fluctuated over the nine years of the blitz from a previous high of 359 in 2013 to a low of 242 in 2006. The actual number each year appears to have more to do with the types of surveys undertaken, and the relative proportion of lengthy surveys. It is at times a difficult trade-off for our blitzers between covering many grid cells and hence generally adopting the "20-minute, two-hectare" survey, and covering fewer areas but doing so more intensively over a longer period with a "within 500m" survey.

Type of survey

As usual, participants were given the option of choosing their survey type to best fit the grid cell or location they were surveying and to allow for personal preference and time or other

constraints. In the 2014 blitz, the "2-ha, 20 min" survey proved the most popular, accounting for 46.3% of the records. Next came the "within 500 m" survey, with 37.2% of datasheets being for this type of survey; some 8.8% were 'within 5km'; and a further 7.4% were incidental records. Without closer analysis, it is impossible to be definitive about the effects of survey type on outcomes. In the case of the blitz, which is essentially a citizen science exercise involving observers of differing levels of expertise, it is likely that the time spent at each site has a greater bearing on the numbers of species recorded, or the breeding status.

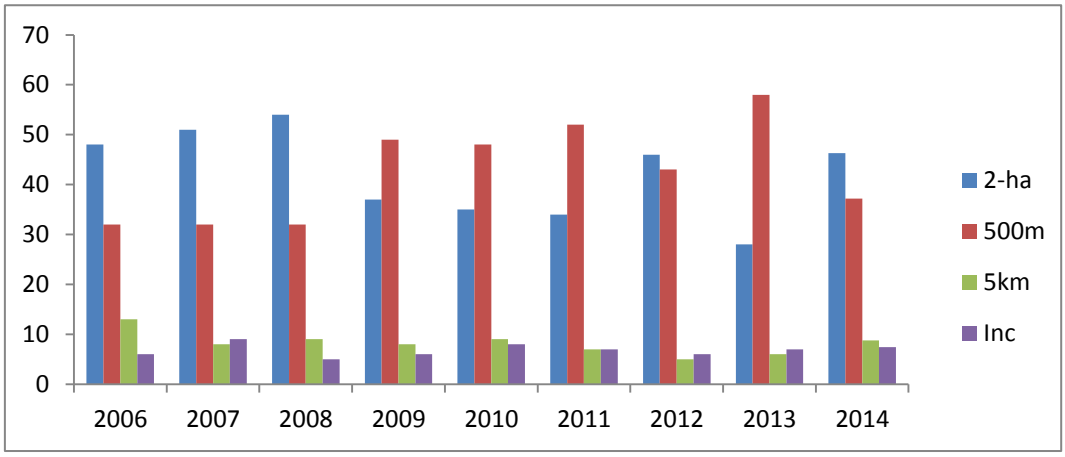


Figure 2. Survey type (percentages).

Species recorded

As Figure 3 and Table 2 show, 173 bird species were recorded over the two blitz days in 2014, one fewer than last year. When all ten blitz years are considered together, 207 species have been recorded, while 130 species have been recorded every year. By way of comparison, the species total for all of the financial year 2013-14 and the whole of COG's area of concern, as recorded in the Annual Bird Report, was 254 from 233 grid cells (COG 2015). There have been blitz breeding records every year for only 32 species; while 131 species have been recorded as breeding at least once in the blitz.

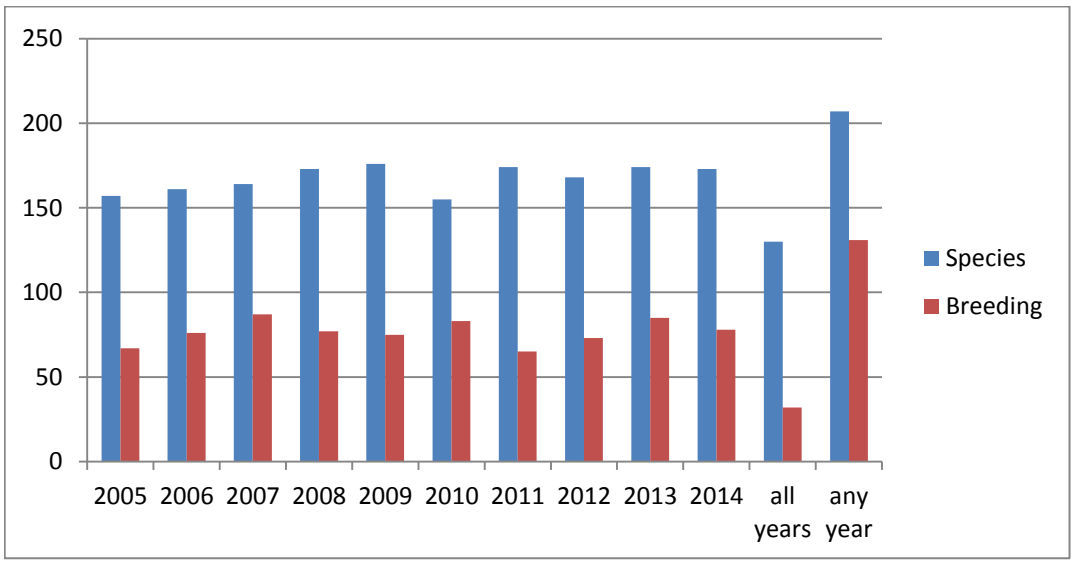


Figure 3. Number of species recorded, and recorded breeding.

Highlights of the 2014 blitz

The standout record for the 2014 blitz was of the Bush Stone-curlews *Burhinus grallarius* at Mulligans Flat. Admittedly they did not arrive of their own accord but were deliberately reintroduced to the Sanctuary there, some 44 years after the last recorded observation of wild birds in the ACT (Wilson 1999). It will be interesting to see if they or their successors survive to be recorded in blitz 2015, given the failure of the previous attempt to reintroduce Brown Treecreepers *Climacteris picumnus* to the reserve.

Other pleasant surprises were two more "firsts" for the blitz, one expected, the other less so: the Pied Butcherbird *Cracticus nigrogularis* which obliged by staying around the Film and Sound Archive for several days after it was first recorded; and a Painted Honeyeater *Grantiella picta* heard at Goorooyarroo NR. Both these species are recorded in most years now in COG's general area but cannot be relied upon in the ACT in the last weekend of October.

Two other species were recorded for only the second time in the blitz: the Great Crested Grebe and the Spotless Crake. The former is only an occasional visitor to the ACT and this was a fortuitous observation at Uriarra Homestead Dam. The latter, however, may be expected more regularly given the proliferation of urban reed-fringed wetlands especially in north Canberra.

Several expected species which were missed in 2013 put in an appearance in 2014, including the Southern Whiteface.

Species most commonly recorded

The Australian Magpie (with 177 records, involving 820 individuals) was restored to its usual preeminent position as "most common" species. It was followed by the Crimson Rosella (167 records), Grey Fantail (153), Superb Fairy-wren (152), Red Wattlebird (148), Pied Currawong (146), Australian Raven (144), Galah (142), Sulphur-crested Cockatoo (139), Galah (175) and Magpie-lark (137) (see Collage below).

Photos and Collage of the most commonly recorded species during the 10th blitz (Geoffrey Dabb).

No surprises here. All these species are widespread and readily identifiable. This largely reflects the pattern reported in the 2014 Annual Bird Report, with the Crested Pigeon edging out the Grey Fantail, however, in the latter (COG 2015).

Species recorded only once in blitz 2014

While it was gratifying to record some species which are often overlooked or which are simply not always present in the ACT, it was sobering to note that there were only single records of 18 species. While many of these, such as Blue-billed Duck *Oxyura australis* and Peaceful Dove *Geopelia striata*, are thought to be present all year but in very low numbers, and others such as Great Crested Grebe *Podiceps cristatus* are merely occasional visitors, single records of Swamp Harrier *Circus approximans*, Southern Whiteface *Aphelocephala leucopsis* and Restless Flycatcher *Myiagra inquieta* give pause for thought.

Species not recorded in blitz 2014

Inevitably, species known to be present in the ACT over the blitz weekend sometimes fail to be recorded. "Resident" crakes and rails can be missed, as was the case in 2014 with Buff-banded Rail *Gallirallus philippensis* and Lewin's Rail *Lewinia pectoralis*. Other species with quite restricted distribution in the ACT, such as Chestnut-rumped Heathwren *Calamanthus pyrrhopygia* and White-fronted Chat *Epthianura albifrons*, were not recorded in 2014. Several of our occasional visitors did not visit over the blitz weekend, including Glossy Ibis *Plegadis falcinellus* and Channel-billed Cuckoo *Scythrops novaehollandiae*. There was a notable absence of arid-zone specialists, suggesting that conditions to our west had not deteriorated badly by October 2014.

Of some concern was the absence of so many of our high-country specialists, including Wonga Pigeon *Leucosarcia melanoleuca*, Olive Whistler *Pachycephala olivacea*, Cicadabird *Coracina tenuirostris*, Red-browed Treecreeper *Climacteris erythrops* and Rufous Fantail *Rhipidura rufifrons*. There are possible non-worrying explanations for our missing this group of birds. Some are migrants and may simply not have returned by the last weekend in October. Our survey did not coincide with the efforts of a banding team, responsible for last year's good returns. We did not have as many observers in the high country and they did not spend as long there as in some years. But it does appear that the 2003 fires are probably a continuing influence here.

Two "misses" warrant particular attention. The nationally endangered Regent Honeyeater *Anthochaera phrygia* was recorded in the ACT just prior to the blitz but seemingly did not wait to be counted. Also the rarely recorded Powerful Owl *Ninox strenua* was discovered roosting in Turner shortly thereafter and may well have been present but undiscovered at that time.

Breeding

As Table 2 and Figure 3 show, in the 2014 blitz 78 species of bird were recorded as "breeding" – that is a generous interpretation, including the widest parameters recorded such as "display" and "inspecting hollow". The highest breeding we have recorded in the blitz was 87 species in 2007 and the lowest, 65 species in 2011. As usual, the species most commonly recorded as breeding were the relatively large and/or conspicuous ones, namely (in order of frequency) Australian Magpie *Cracticus tibicen*, Magpie-lark *Grallina cyanoleuca*, Red Wattlebird *Anthochaera*, Pied Currawong *Strepera graculina*, Common Starling *Sturnus*

vulgaris, Willie Wagtail *Rhipidura leucophrys*, Australian Raven *Corvus coronoides* and Pacific Black Duck *Anas superciliosa*.

Arguably the most pleasing breeding record was that of the dependent young Peregrine Falcons *Falco peregrinus* at Red Rocks Gorge. While the area has long been a known breeding site for the species, they are not always recorded and their success rate is unclear. We also recorded a Western Gerygone *Gerygone fusca* nest-building, a first for the blitz and a pleasing record as the 2014 ABR only noted one breeding record for the species that year (COG 2015).

Left: Peregrine Falcon *(Julian Robinson)*; Right: Breeding Western Gerygone *(Stuart Harris)*

If we exclude the Swift Parrot *Lathamus discolor* which is unlikely to be here in late October, and the Australian Painted Snipe and Regent Honeyeater which are very rare in the ACT, of the bird species listed as vulnerable or endangered in the ACT, only the Glossy Black-Cockatoo *Calyptorhynchus lathami* was not recorded during the 2014 blitz and in fact has only been recorded in three previous blitzes, most recently in 2008. As usual, the most widely recorded of the "vulnerables" was the White-winged Triller *Lalage tricolor*, particularly from urban or semi-urban nature reserves, and mostly in low numbers. There were 25 triller records, of 1-5 birds, widespread. The highest number of individuals was 30 at Narrabundah Hill. There was a single breeding record: 'di', at Mulligans Flat NR. The triller reporting rate of 8.77%, while down from a high of 14.21% last year, was well above its blitz average of 7.91%. The Superb Parrot *Polytelis swainsonii* too appears to be holding its own adequately. There were 14 records of 1-5 birds from 9 grid cells, all in north and north-west Canberra. Its reporting rate of 4.91% was well above the blitz average of 2.69%. No breeding was recorded, however. The Brown Treecreeper *Climacteris picumnus* was also recorded from three known locations – Castle Hill, Glendale Crossing and the Naas Valley, with a maximum of 6 birds in the last-named site. Its reporting rate was below the blitz average of 2.42%. There were 10 Varied Sittella *Daphoenositta chrysoptera* records of 1-5 birds from nature reserves in 6 grid cells, at a reporting rate of 3.51%, above the blitz average of 2.55%.

Encouragingly the sittella was also recorded breeding, with a nest with young at Campbell Park.

ACT-listed vulnerable and endangered species

The picture for the Little Eagle *Hieraaetus morphnoides* is far less clear. The two known breeding sites in north central Canberra and west Belconnen were again active, although no records were presented for the former, allegedly to discourage over-zealous photographers from disturbing the birds. There are rumoured to be two other active Little Eagle nests in our region (but see Olsen *et al.* 2015, this issue).

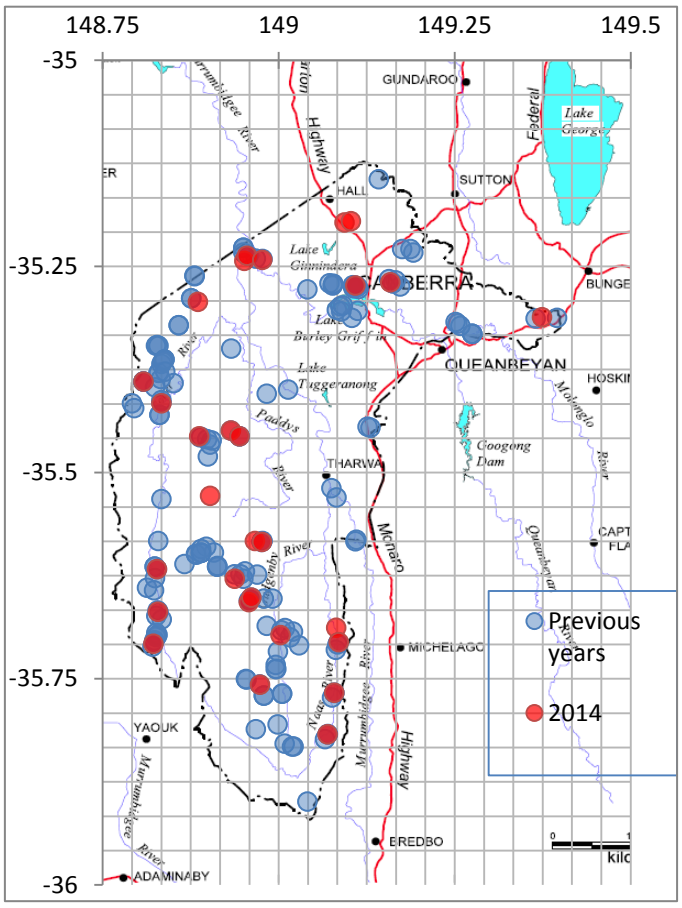
Photos and Collage of the vulnerable and endangered species in the ACT (*Geoffrey Dabb*)

The Hooded Robin *Melanodryas cucullata* has this month (May 2015) been joined by the Scarlet Robin *Petroica multicolor* on the ACT vulnerables list. The former was only recorded from a known location at Glendale Crossing and from Horse Gully Hut; its reporting rate is down to 0.7%. The Scarlet Robin, on the other hand, was recorded 23 times, 1-3 birds, from 17 widespread grid cells. There was also a breeding record of dependent young from Mulligans Flat NR.

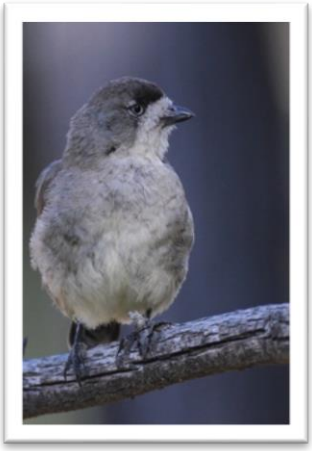
Females of Scarlet Robin [left] (*Julian Robinson*) and Hooded Robin [right] (*David Cook*).

A case study: Eastern Yellow Robin *Eopsaltria australis*

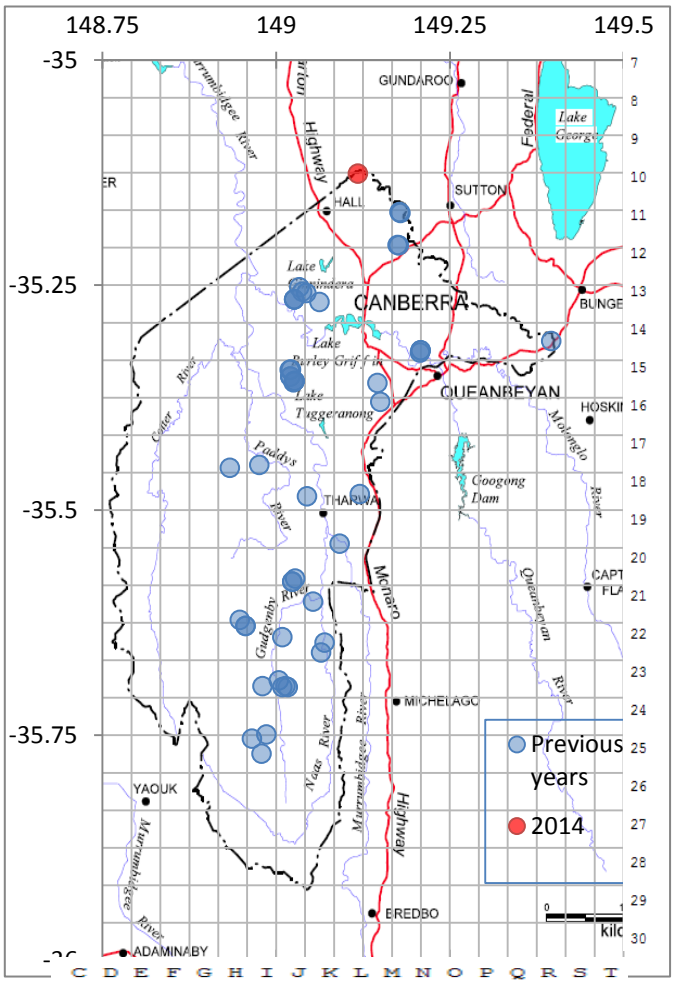
Of the passerines, the Eastern Yellow Robin (Photo *Geoffrey Dabb*) appears to be doing better than most. Blitz 2014 records show that the recording rate has reached 10.18%, a steady rise since 6.12% in 2011. There were 29 records of the species, above the blitz average of 18.56, with 53 individuals being recorded. And they were widespread. Twenty-three grid cells (almost a quarter of all grid cells visited) recorded them, as the chart shows. There was one breeding record, *i.e.* carrying food in Tidbinbilla NR.



A case study: Southern Whiteface



There was only a single record of two whiteface in the 2014 blitz, from the northern NSW/ACT border, by Duncan McCaskill. This is one of them, photographed by him. At least that was an improvement on the none-recorded in blitz 2013. The present blitz recording rate is 0.35%, compared with a high of 3.24% in 2011, and the 37 individuals recorded in blitz 2010. It is puzzling to consider why the species is not being recorded more frequently, given that is largely terrestrial and broadly sedentary, but its decline was registered as early as 2002 (HANZAB vol. 6, p. 352). From personal experience, I am aware of an apparently resident population in the Pinnacle NR, Hawker, but am often unable to locate them. So are the birds around, but simply difficult to detect? The Annual Bird Report for 2014 also noted a decline in the whiteface reporting rate to 0.9% (COG 2015).



Trends

While the number of records and recording rate of the majority of species fluctuate, in some cases markedly, after ten blitzes, trends are emerging for certain species, trends which are for the most part also reflected in COG's Annual Bird Reports. Many of the ducks and other waterbirds are doing very well, perhaps thanks to the increasing number of urban wetlands being created, particularly in north Canberra. Of the raptors, the Wedge-tailed Eagle *Aquila audax* is doing well but the falcons, particularly the Peregrine *Falco peregrinus* and the Brown Falcon *F. berigora*, are less common. Amongst the parrots, Little Corella *Cacatua sanguinea*, Rainbow Lorikeet *Trichoglossus haematodus* and Superb Parrot *Polytelis swainsonii* are on the increase and are spreading throughout the ACT. The Eastern Koel *Eudynamys orientalis* is expanding rapidly while the Pallid Cuckoo *Cacomantis pallidus* is declining. Amongst the honeyeaters, both the Red Wattlebird *Anthochaera carunculata* and the Noisy Miner *Manorina melanocephala* continue to be strongly represented. The Australian Magpie *Cracticus tibicen*, the Pied Currawong *Strepera graculina* and the Magpie-lark *Grallina cyanoleuca* are all thriving, but the Superb Lyrebird *Menura novaehollandiae* and the Southern Whiteface *Aphelocephala leucopsis* are struggling. The picture is varied for the finches, with the Red-browed Finch *Neochmia temporalis* increasing strongly until 2014, and the Diamond Firetail *Stagonopleura guttata* decreasing.

Conclusions and lessons for the future

Blitz 2014, like its predecessors, has increased significantly the amount of data about Canberra's birds. Several of the grid cells surveyed would in all probability not have been covered but for the targeted effort of the blitz. The blitz data are made available to the managers of Canberra's national park and nature reserves. A lesson to be drawn from the blitz is that, when prompted, more of our members will get out, survey and submit datasheets and perhaps revisit favoured spots.

There is, inevitably, an element of "luck of the day" in terms of the results but the long-term trends are already being highlighted. The blitz breeding observations are particularly useful in fleshing out a more detailed overall picture of bird breeding in Canberra. And given the tendency of our vulnerable species to be patchily distributed, the additional blitz information about where they are and in what numbers is highly valuable.

Acknowledgements

First and foremost, thanks must go to all COG members who participated in the 2014 blitz, and particularly to those who put in two full days of birding in remote sites. The assistance of staff at Namadgi National Park in providing advice, and access to areas behind locked gates, is greatly appreciated. Thanks also go to Paul Fennell and Steve Wallace for extracting and manipulating blitz data from the COG databases and to Geoffrey Dabb for his wonderful photographs. And sincere thanks too to all those COG members who donated prizes.

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Table 1. Known blitz participants 2014.

Barbara Allan	Barbara de Bruine	Dougald Maxwell
Mark Allen	Tristan Dewick	Duncan McCaskill
Richard Allen	Paul Fennell	David McDonald
Ian Anderson	Matthew Frawley	Peter Milburn
Frank Antram	John Goldie	Martyn Moffat
Lia Battison	Bill Graham	Elizabeth Moore
Sue Beatty	Jeannie Gray	Helen Munro
Daryl Beaumont	Horst Hahne	Terry Munro
Terry Bell	Kay Hahne	Gail Neumann
Leo Berzins	Anne Hall	Harvey Perkins
Rosemary Blemings	Bill Handke	Lucy Randall
Con Boekel	Lindsay Hansch	Steve Read
Jenny Bounds	John Harris	Bill Robertson
John Brannan	Stuart Harris	Margaret Robertson
John Bromhead	Sandra Henderson	Susan Robertson
Tina Bromhead	Steve Holliday	Julian Robinson
Muriel Brookfield	Jim Kennedy	Alison Russell French
Mariko Buszynski	Shirley Kral	Alastair Smith
Martin Butterfield	David Landon	Nicki Taws
Anne Carrick	Kim Farley Larmour	Julian Teh
Jean Casburn	Tony Lawson	Meredith Thomas
Brian Chauncy	Fleur Leary	Alan Thomas
Mark Clayton	Michael Lenz	Philip Veerman
Elizabeth Compston	Bruce Lindenmayer	Steve Wallace
Julie Crawford	Noel Luff	Louise Wangerek
Roger Curnow	Rod Mackay	Tony Willis
Geoffrey Dabb	Alison Mackerras	Kevin Windle
Chris Davey	Paul Mackerras	
Paul Davies	Sue Mathews	

Table 2. Species recorded during the 2005 - 2014 blitzes.
[X=present;*=breeding]

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Emu	X		X	X			X	X		
Stubble Quail		X			X		X		X	X
Brown Quail		X	X	X	X		X	X	X	X
Indian Peafowl	X			X		X			X	X
Magpie Goose				X	X					
Musk Duck	X	X*		X*	X*		X	X		X
Freckled Duck								X	X	X
Black Swan	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Australian Wood Duck	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*

Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Pink-eared Duck		X	X		X			X	X	X
Australasian. Shoveler	X	X*	X	X*	X	X*	X*	X	X*	X
Grey Teal	X*	X	X*	X*	X	X*	X	X*	X	X
Chestnut Teal	X	X	X*	X	X	X	X	X	X	X
Pacific Black Duck	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Hardhead	X	X	X*	X	X	X	X	X	X	X
Blue-billed Duck	X	X		X	X		X			X
Australasian Grebe	X*	X	X*	X*	X	X*	X*	X*	X*	X*
Hoary-headed Grebe	X	X	X	X	X	X	X	X	X	X
Great Crested Grebe	X									X
Rock Dove	X	X	X	X	X	X	X	X	X*	X*
Spotted Dove				X	X	X	X	X*	X*	X*
Common Bronzewing	X	X	X	X*	X	X*	X	X	X	X
Brush Bronzewing					X					
Crested Pigeon	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Peaceful Dove	X	X		X	X		X		X	X
Wonga Pigeon	X			X				X		
Tawny Frogmouth	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Australian Owlet-nightjar				X			X	X	X	X
Australasian Darter	X	X*	X*	X*	X*	X*	X*	X	X	X*
Little Pied Cormorant	X	X	X*	X*	X*	X*	X*	X	X	X
Great Cormorant	X	X	X	X	X	X	X	X	X	X
Little Black Cormorant	X	X	X	X	X	X*	X	X	X	X
Pied Cormorant			X	X	X		X		X	X
Australian Pelican	X	X		X	X	X	X	X	X	X
White-necked Heron		X	X		X		X	X	X	X
Eastern Great Egret		X	X	X	X	X	X	X	X	X
Intermediate Egret				X		X	X	X		X
Cattle Egret		X					X	X	X	X
White-faced Heron	X*	X*	X*	X	X	X*	X*	X	X	X
Little Egret				X			X			
Nankeen Night Heron	X	X	X	X	X	X	X	X	X	X
Glossy Ibis		X	X				X			
Australian White Ibis	X	X	X*	X*	X*	X*	X	X	X	X*
Straw-necked Ibis		X	X	X	X		X		X	X

Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Royal Spoonbill		X	X	X	X	X			X	X
Black-shouldered Kite	X	X	X	X	X		X	X	X	X
White-bellied Sea-Eagle			X	X			X		X	X
Whistling Kite	X	X	X*	X	X		X*	X	X	X
Brown Goshawk	X*	X*	X*	X*	X*	X*	X	X	X	X
Collared Sparrowhawk	X	X	X*	X	X	X	X	X	X	X
Spotted Harrier								X	X	X
Swamp Harrier	X	X	X	X		X	X	X	X*	X
Wedge-tailed Eagle	X	X	X	X	X*	X*	X	X*	X	X*
Little Eagle	X	X	X	X*	X*	X*	X	X	X*	X*
Nankeen Kestrel	X*	X*	X*	X*	X	X	X*	X*	X*	X*
Brown Falcon	X	X	X*	X	X	X	X	X*	X	X
Australian Hobby	X	X	X*	X*	X*	X*	X	X	X*	X
Peregrine Falcon	X	X	X	X	X	X*	X*	X	X	X*
Purple Swamphen	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Buff-banded Rail		X		X	X				X	
Lewin's Rail								X		
Baillon's Crake				X	X		X		X	X
Australian Spotted Crake			X		X	X	X		X	X
Spotless Crake								X		X
Black-tailed Native-hen					X		X	X		
Dusky Moorhen	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Eurasian Coot	X*	X	X*	X*	X*	X*	X*	X	X	X*
Black-winged Stilt			X		X				X	
Bush Stone-curlew										X
Black-fronted Dotterel	X	X	X	X	X	X*	X	X*	X*	X
Red-kneed Dotterel		X	X	X	X				X*	X
Banded Lapwing					X					
Masked Lapwing	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Australian Painted Snipe							X	X		
Latham's Snipe	X	X	X	X	X	X	X	X	X	X
Pectoral Sandpiper									X	
Bar-tailed Godwit			X							
Sharp-tailed Sandpiper	X		X		X		X		X	X
Painted Button-quail	X			X	X	X	X	X		

Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Whiskered Tern				X	X					
Silver Gull	X*	X*	X*	X	X	X	X	X	X	X
Glossy Black-Cockatoo	X	X		X						
Yellow-tailed Black-Cockatoo	X	X	X	X*	X	X	X	X	X*	X*
Gang-gang Cockatoo	X	X	X	X	X*	X	X*	X	X	X*
Major Mitchell's Cockatoo			X							
Galah	X*	X*	X*	X*	X*	X*	X	X*	X*	X*
Long-billed Corella				X		X	X		X	X*
Little Corella	X*	X*	X*	X*	X	X	X	X*	X*	X*
Sulphur-crested Cockatoo	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Cockatiel					X					
Rainbow Lorikeet	X	X	X	X*	X	X	X	X	X	X
Australian King-Parrot	X	X	X	X*	X	X*	X*	X*	X*	X*
Superb Parrot	X	X*	X*	X	X*	X*	X	X	X	X
Crimson Rosella	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Eastern Rosella	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Red-rumped Parrot	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Turquoise Parrot					X					
Eastern Koel			X	X		X*		X	X	X
Channel-billed Cuckoo						X				
Horsfield's Bronze-Cuckoo	X	X*	X	X	X*	X	X	X	X	X
Shining Bronze-Cuckoo	X*	X*	X	X	X	X	X	X	X*	X
Pallid Cuckoo	X	X	X	X	X	X	X	X*	X	X
Fan-tailed Cuckoo	X	X	X*	X	X	X	X	X	X	X*
Brush Cuckoo	X	X	X	X	X	X	X	X	X	X
Powerful Owl					X					
Southern Boobook	X			X		X		X	X	X
Eastern Barn Owl							X			
Laughing Kookaburra	X*	X*	X	X	X*	X	X	X	X*	X
Red-backed Kingfisher			X	X						
Sacred Kingfisher	X*	X*	X*	X	X*	X*	X	X*	X*	X*
Rainbow Bee-eater	X	X	X*	X*	X	X*	X*	X	X*	X*
Dollarbird	X	X	X*	X	X*	X*	X	X*	X	X*
Superb Lyrebird	X	X	X	X	X	X	X	X	X	X

Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
White-throated Treecreeper	X	X*	X*	X*	X*	X*	X*	X*	X*	X
Red-browed Treecreeper	X	X	X		X	X			X	
Brown Treecreeper	X	X	X*	X*	X*	X	X	X*	X	X
Satin Bowerbird	X	X	X	X*	X*	X	X	X	X*	X*
Superb Fairy-wren	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Pilotbird	X				X	X	X		X*	
White-browed Scrubwren	X*	X*	X*	X*	X*	X	X*	X	X*	X*
Chestnut-rumped Heathwren						X		X		
Speckled Warbler	X*	X	X*	X*	X*	X*	X*	X	X	X
Weebill	X*	X	X*	X*	X	X*	X*	X	X*	X
Western Gerygone	X	X	X	X	X	X	X	X	X	X*
White-throated Gerygone	X*	X	X*	X	X	X*	X	X*	X*	X*
Striated Thornbill	X*	X*	X*	X	X*	X*	X*	X*	X*	X*
Yellow Thornbill	X	X	X	X	X*	X*	X	X	X	X
Yellow-rumped Thornbill	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Buff-rumped Thornbill	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Brown Thornbill	X	X*	X*	X	X*	X*	X*	X*	X*	X*
Southern Whiteface	X	X*	X	X	X	X	X	X		X
Spotted Pardalote	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Striated Pardalote	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Eastern Spinebill	X*	X*	X	X	X	X	X	X	X*	X*
Yellow-faced Honeyeater	X	X*	X	X*	X*	X	X	X	X*	X
White-eared Honeyeater	X*	X	X*	X*	X*	X	X	X	X*	X
Yellow-tufted Honeyeater	X						X		X	X
Fuscous Honeyeater	X*	X	X*	X*	X	X*	X	X*	X	X*
White-plumed Honeyeater	X*	X*	X*	X*	X*	X*	X	X*	X*	X*
Noisy Miner	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Red Wattlebird	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
White-fronted Chat					X	X	X	X		
Crescent Honeyeater				X	X	X	X		X*	

Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
New Holland Honeyeater	X	X*	X*	X	X	X	X	X	X	X
Brown-headed Honeyeater	X	X	X	X*	X	X	X*	X*	X	X
White-naped Honeyeater	X	X	X	X*	X*	X	X	X*	X*	X*
Noisy Friarbird	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Painted Honeyeater										X
Spotted Quail-thrush	X	X	X	X	X	X	X	X	X	X
Eastern Whipbird		X	X	X	X	X	X	X	X	X
Varied Sittella	X*	X*	X*	X	X*	X*	X	X*	X*	X*
Black-faced Cuckoo-shrike	X	X*	X*	X*	X*	X*	X*	X*	X*	X
Cicadabird				X	X	X		X	X	
White-winged Triller	X*	X*	X*	X	X	X	X	X*	X*	X*
Crested Shrike-tit	X	X*	X	X	X	X	X	X	X	X
Olive Whistler							X			
Golden Whistler	X	X	X	X	X	X	X	X	X*	X
Rufous Whistler	X*	X*	X*	X*	X	X*	X	X	X*	X*
Grey Shrike-thrush	X	X*	X*	X*	X	X*	X	X	X	X
Olive-backed Oriole	X	X	X*	X*	X	X*	X	X	X*	X*
Masked Woodswallow		X	X	X	X		X	X	X	
White-browed Woodswallow		X*	X*	X	X		X	X	X	X
Dusky Woodswallow	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Grey Butcherbird	X*	X*	X	X	X*	X*	X*	X*	X*	X*
Pied Butcherbird										X
Australian Magpie	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Pied Currawong	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Grey Currawong	X	X	X*	X*	X*	X*	X	X*	X*	X*
Rufous Fantail	X		X	X	X	X	X		X	
Grey Fantail	X*	X*	X	X*	X*	X*	X*	X*	X*	X*
Willie Wagtail	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Australian Raven	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Little Raven	X*	X	X*	X*	X*	X*	X*	X*	X	X
Leaden Flycatcher	X*	X*	X*	X*	X	X*	X*	X*	X*	X*
Satin Flycatcher	X	X	X	X	X	X	X	X	X	X
Restless Flycatcher	X	X	X		X		X	X	X	X
Magpie-lark	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*

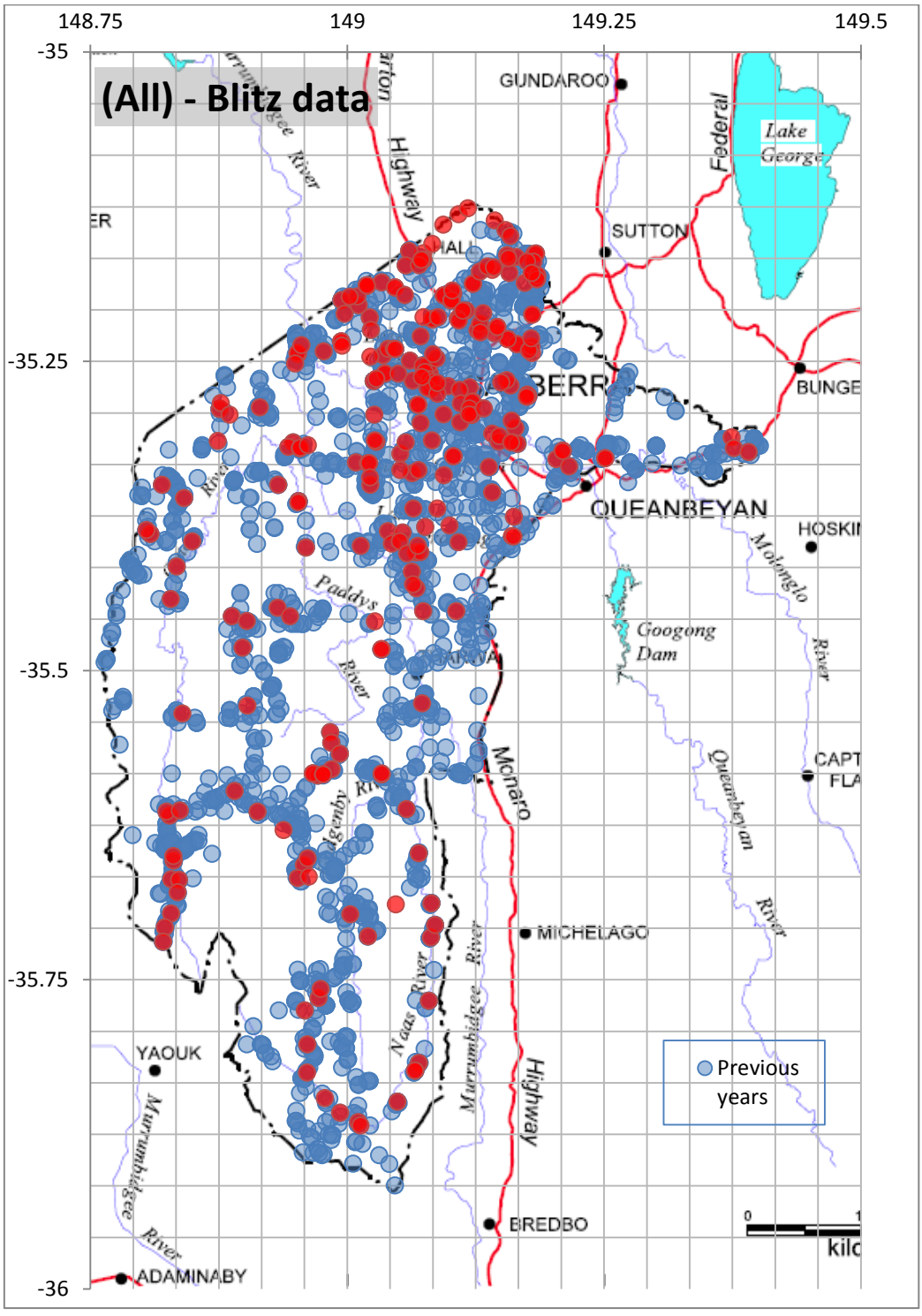
Table 2 continued

Common name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
White-winged Chough	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Jacky Winter	X	X*	X	X	X	X	X	X	X	X
Scarlet Robin	X*	X*	X	X*	X*	X	X*	X	X*	X*
Red-capped Robin	X	X*	X*	X	X	X*	X	X	X	X
Flame Robin	X	X*	X*	X*	X*	X*	X*	X*	X*	X*
Rose Robin	X	X	X	X	X	X	X		X	X
Hooded Robin	X*	X*	X*	X	X*	X	X*	X	X*	X
Eastern Yellow Robin	X*	X*		X	X	X	X	X*	X*	X*
Eurasian Skylark	X	X	X	X*	X	X	X	X*	X	X
Golden-headed Cisticola	X	X	X	X	X	X*	X	X*	X	X*
Australian Reed-Warbler	X*	X	X	X	X*	X*	X*	X*	X*	X*
Little Grassbird	X	X	X	X	X*	X	X	X	X	X
Rufous Songlark	X	X	X	X	X	X	X*	X*	X	X
Brown Songlark	X*	X	X*	X	X		X	X		
Silvereye	X	X	X*	X	X	X*	X	X*	X*	X
Welcome Swallow	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Fairy Martin	X	X	X*	X*	X*	X*	X*	X*	X*	X
Tree Martin	X*	X*	X*	X*	X*	X*	X	X*	X*	X*
Bassian Thrush	X	X		X	X			X	X*	
Common Blackbird	X*	X	X*	X	X	X	X*	X*	X*	X
Common Starling	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Common Myna	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Mistletoebird	X*	X	X	X	X*	X*	X	X*	X	X
Double-barred Finch	X	X*	X*	X*	X	X	X*	X	X	X
Red-browed Finch	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Diamond Firetail	X	X	X	X	X	X	X	X	X	X
House Sparrow	X*	X*	X*	X*	X*	X*	X*	X*	X*	X*
Australasian Pipit	X	X	X*	X*	X*	X*	X*	X	X*	X*
European Goldfinch	X	X*	X	X	X	X	X	X	X	X
Common Greenfinch	X				X	X	X	X	X*	X
Mallards, Black Duck-Mallard hybrids, Muscovies and variants	X	X	X	X	X	X	X	X	X	X

Notes

Domestic ducks and geese, which frequent the lakes, have been excluded, as have domestic chickens even when recorded far from civilisation. The peafowl have been included as they appear to be a naturally reproducing "wild" population, in suburbia. The "mallards" group has been lumped as their exact identity cannot be assured – it probably includes crosses with domestic as well as wild birds. The Emu and Magpie Geese are – or were - probably part of the semi-captive population at Tidbinbilla Nature Reserve.

Map 1. Blitz coverage 2005-2013 (blue) and 2014 (red)



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OPPORTUNISTIC OBSERVATIONS OF TRAVEL DISTANCES IN COMMON MYNAS (*Acridotheres tristis*)

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Abstract: *Understanding patterns and drivers of movement in invasive species is critically important to modelling their spread and evaluating their impact. The Common Myna (Acridotheres tristis according to http://www.worldbirdnames.org/, but recently proposed to be re-classified as Sturnus tristis, Christidis and Boles 2008) is an introduced commensal passerine which is expanding its range across the East coast of Australia. Aside a few published anecdotes of long distance travel, nothing is known about the spatial behaviour of mynas. Here, we report a series of opportunistic observations on the movement of translocated individuals in this species. These observations show that the Common Myna appears to have a strong homing instinct when it is translocated away from its home base and is capable of covering long distances (40 km). Homing occurs even when individuals have been held in captivity for a substantial amount of time. One can only assume that homing must be enabled by excellent navigation capabilities. We also noted that two long-term bonded pair of mynas remained together from capture, during captive holding and during post-release travel and were found within proximity of their original trapping location, with one pair known to be breeding. These observations confirm published reports that mynas form behaviourally monogamous, life-long pair bonds.*

1. Introduction

Long-distance movements might be an important component explaining the invasive success of certain species. Indeed, the ability to move quickly and/or for a large amount of time could accelerate the spread of invasive populations and promote rapid geographic range expansion, particularly at a front edge (Hui *et al*. 2012; Llewelyn *et al*. 2010; Niewiarowski *et al.* 2012; Phillips *et al.* 2006). It is therefore crucial to use realistic information on movement ability to understand how a species can travel and to predict future range expansion rates (Chiaverano *et al.* 2014; Hastings *et al.* 2005; Miller and Holloway 2015; Strona 2015; Wilson *et al.* 2009).

The Common (Indian) Myna is a highly commensal passerine native to India and south-east Asia which has been introduced to Australia in the 1860s (Feare and Craig 1999; Hindwood 1948). Following a series of independent introduction events, the Common Myna has experienced global spread and is now present in North America, the Middle East, South Africa, North Africa, Australia, New Zealand and islands throughout the Pacific region (IUCN Global Invasive Species Database 2015). It is one of only three species of birds to be nominated by the Invasive Species Specialist Group among the "100 World's Worst" invaders (Lowe et al 2000). The Common Myna is now well established in major urban centres along Australia's eastern and south-eastern coastline and still expanding its range.

A study on the invasion sequence of the Common Myna showed a slow rate of demographic range expansion for this species (Grarock *et al.* 2013). Common Myna population sizes seem to increase slowly before reaching a peak growth rate that lasts until the maximum population size is reached (Grarock *et al.* 2013). Then, the growth rate slows and the population size

decreases again (Grarock *et al.* 2013). This slow growth pattern reinforces the common perception that Common Mynas have a sedentary nature. Indeed, movements of adults have been reported to be limited to an average travel distance of three kilometres between the roost and feeding sites (Feare and Craig 1999). This is consistent with observations made in Canberra of banded individuals that were re-sighted less than 3 km from the capture location (Nicholls and Nicholls 2010). This distance is even smaller in Singapore, where a study showed an average of only 0.4 km from roost to feeding sites (Kang 1989).

But can the Common Myna travel longer distances under certain conditions? A small number of references suggest that this species might be capable of long-distance flights. In Canberra, two birds are reported to have travelled more than 3 km from their capture location (respectively 4 km and 9.5 km) (Nicholls and Nicholls 2010). In Dhami *et al* (2010), the authors mention observations of flights between islands 50 km apart. In another paper, Parkes and Avarua (2006) refer to Watling (2004) who showed that birds flew from Tutuila to Manu'a (American Samoa, 134 km distance). Similar observations of movement across the sea (colonization of n. Tasmania from Victoria and some offshore islands in New Zealand) are reported by Higgins *et al.* 2006. However, how these observations were quantified is not clear.

In our Comparative Cognition Laboratory based at the University of Newcastle (NSW, Australia), our research team has been studying the Common Myna since 2005, investigating why this species is ecologically so successful. Our research has focused primarily on its opportunistic and behaviourally flexible nature. Amongst other things, we have demonstrated that Common Mynas learn from each other about novel predators (Griffin 2008) and dangerous places and that they show consistent individual differences (*i.e.* personality) in exploration, approach of novelty and problem solving tendencies (Diquelou *et al.* 2015; Griffin and Diquelou 2015; Griffin *et al.* 2013; Sol *et al.* 2011). The outstanding learning capacities of this monogamous vocal mimic are in line with published scientific studies reporting bait avoidance learning (Feare 2010) and learning of armed myna shooters and their whereabouts (Dhami *et a*l. 2010). These behavioural traits no doubt contribute to the extraordinary success of this ecological invader. For references and more information on our research, please go to http://andreasgriffin.weebly.com/. Recently, we have begun investigating the spatial movements of this species. Within the context of this novel angle to our myna research, we report a series of opportunistic observations collected in our laboratory.

2. Observations

Part of the work in our laboratory involves trapping birds and transporting them into captivity for testing. As part of our routine processing, each bird is measured and tagged with a unique combination of coloured leg bands. Over the years, a handful of accidental releases of tagged birds have occurred for reasons outside our control (*e.g.* our research facility was broken into; a super storm destroyed our aviaries; our traps have been vandalized). On the occasions reported here, these tagged birds have been resighted in the wild by members of our research group. With knowledge of the original trapping location (presumably their home base), the release location and the re-sighting location, we have been able to document several important aspects of myna spatial, but also pair bonding behaviour. This series of re-sightings is reported in Table 1 and Fig 1 and summarised briefly below.

Three birds (100, 110 and Dark blue, see footnote in Table 1) trapped at the Broadmeadow Racecourse in Newcastle on the 15 Jul 2014 were transported to the Central Animal House at

the University of Newcastle and held in captivity for testing. One month later (on the 01 Aug 2014 they were accidentally released. One of them was re-sighted on the 28 Jul 2015 (almost one year later) in close proximity to the location where it was originally captured (32°55'53.7"S 151°44'47.9"E), seven kilometres from the University of Newcastle Central Animal House. The two other birds were observed breeding twice in a nest box at the racecourse on the 26 Nov 2015 and the 5 Jan 2016 (16 to 17 months after release).

Two further birds (208 and 211, Table 1) were trapped at the racecourse between the 12 and 14 Nov 2014 and escaped from the Central Animal House five months later (kept paired together in an aviary) during the storm (22 Apr 2015). Both were re-sighted near the racecourse on 15 Jul 2015 (32°55'35.8"S 151°44'47.2"E).

Lastly, one very noticeable event was reported. A bird (14) trapped on the 21 May 2013 in the Newcastle suburb of Jesmond (Blue Gum Road, NSW 2299) was transported and held in the Central Animal House. On approximately the 25 Nov 2013, the bird was moved to Cooranbong to serve as a caller bird inside a trap (Freemans Drive, Cooranbong NSW 2265). On 28 Nov 2013, the trap was vandalized and the bird escaped. Eleven months later, this bird was re-sighted in Darby St in Newcastle, 40 km away from the release site.

Table 1. Details of the observations of accidentally released common mynas in Newcastle.

Birds	ID				Capture	Release	Re-sighted	
No.	**Band No.**	**Colour bands (as sighted)**	**Age**	**Sex**	**Date**	**Date**	**Date**	**Dis-tance (km)**
1	14	Orange/Red	Adult	Unknown	21 May 13	28 Nov 13	18 Oct 14	40
2	211	White/Grey	Adult	Male	14 Nov 14	22 Apr 15	15 Jul 15	7
3	208	Orange/ Light Green	Adult	Female	12 Nov 14	22 Apr 15	15 Jul 15	7
4	*	Dark Blue	Adult	Unknown	15 Jul 14	01 Aug 14	28 Jul 15	7
5	110	Light Blue/ Light Blue	Adult	Female	15 Jul 14	01 Aug 14	26 Nov 15	7
6	100	Light Blue/Dark Blue	Adult	Male	15 Jul 14	01 Aug 14	5 Jan 16	7

*Seven escaped birds were banded with at least one dark blue band. Of those seven, six were captured on the date and location indicated in the table and one was trapped on 16 Sep 14 in Gavey St and escaped on the 06 Apr 2015 from the CAH. This uncertainty as to the exact identify of this bird will not change the distance travelled between release and re-sighting (7 km).

3. Discussion

Common Mynas are thought to be sedentary and previous studies showed that they were mostly travelling short distances (around 3 km) between roost and feeding sites (Feare and Craig 1999; Kang 1989; Nicholls and Nicholls 2010). Yet, the Common Myna is a very

successful invader across all the locations to which it has been introduced. Its Australian range is still expanding. As such, we might expect this species to show some ability for long-travel to support its geographical expansion. Our observations show that the Common Myna is capable of long-distance travel. Indeed, five birds had moved 7 km between a release site and a re-sighting location, and one bird travelled 40 km.

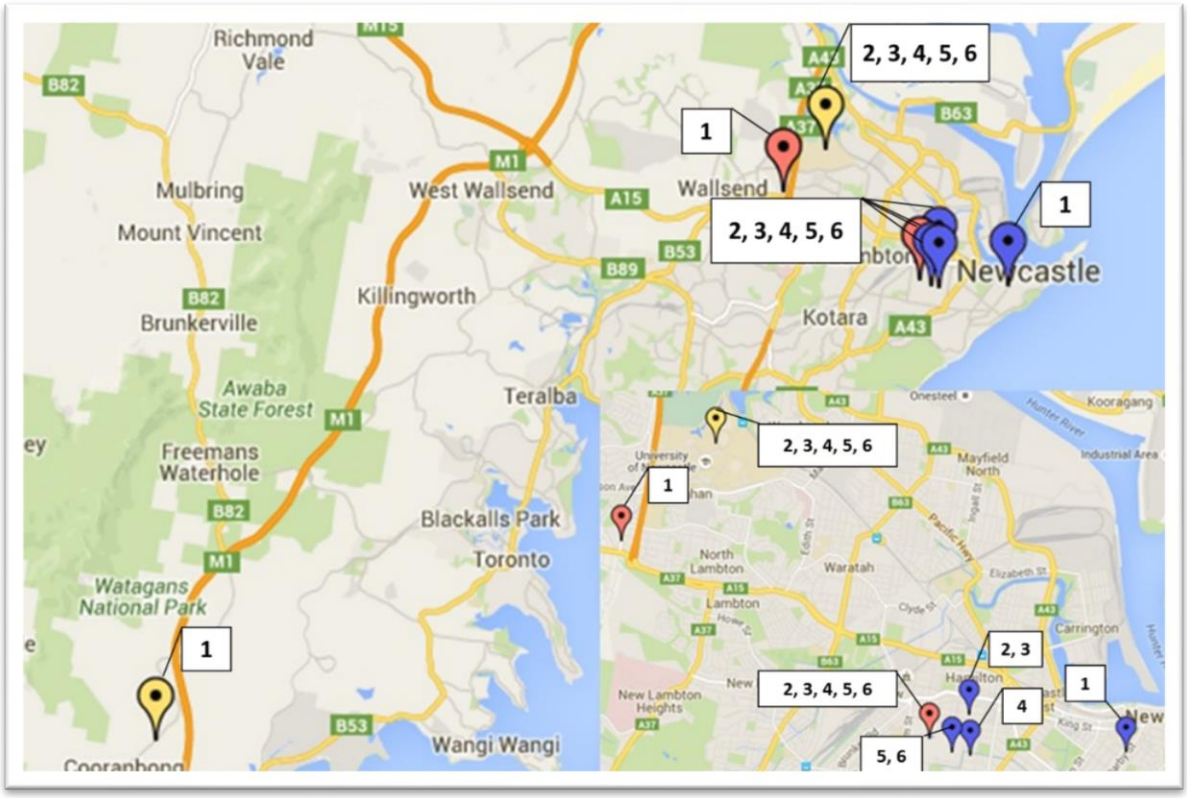

Figure 1. Map of the different event locations (trapping, release, and re-sighting). The numbers on the map match the observation number indicated in Table 1. In red (medium grey in b/w print): trapping sites; in yellow (light grey): release sites; in blue (dark grey): re-sighting positions.

Previous research on spatial movements in birds suggests that translocated individuals having a stronger tendency to move than resident birds (Armstrong *et al.* 1999; Coates *et al.* 2006; Toepfer 1976). For example, a radio-tracking study on Greater Prairie-Chickens (*Tympanuchus cupido pinnatus*), a resident species with relatively short distance movements, showed that translocated individuals could travel an average of 330 km over the course of a year, with one bird moving up to 10 times that distance (3988 km) (Vogel *et al.* 2015). Another study on the same species suggested that longer movements might be linked to the stage of the breeding cycle in translocated birds (Toepfer 1976). Birds transplanted during the breeding season had large wandering movements. This suggested a searching pattern in a potential effort to return to their original breeding territories. On the other hand, a bird transplanted after the breeding period and that was then no longer under the influence of a territory drive, did not wander and seemed to accept a new area immediately.

In line with the findings from these studies, our observations indicate a tendency for birds translocated from what was presumably their home base to come back to that location, even

after several months in captivity. All individuals were adults when captured. Therefore, based on the behaviour of prairie chickens, this homing instinct might have been linked to the fact that the birds might have already established their adult breeding territory. This hypothesis receives support from additional observations in our research group. In this case, mynas in juvenile plumage escaped, but were re-captured several months later at the release site, suggesting that these young individuals had remained at the location where they were held in captivity instead of returning to their capture location.

Our observations seem to lend support to the reported sedentary nature of common mynas. The birds preferred to go back to their territory rather than remain in an alternative location. This sedentary nature seems difficult to reconcile with the fact that the Common Myna is an invasive species, still spreading across Australia. We can note that all escapees were captured in Newcastle, in a long-established (more than 60 years) population. Research in several invasive species is revealing that differences exist between populations at the source and front of the invasion wave in relation to morphological, physiological and/or behavioural characteristics that might promote dispersal (Liebl and Martin 2012; Liebl and Martin 2014; Llewelyn *et* al. 2010; Martin and Fitzgerald 2005; Phillips *et al*. 2006). It is therefore possible that birds at the front of the NSW invasion wave would have behaved differently to our Newcastle sample. These are aspects of myna behaviour we are currently investigating.

Lastly, our observations provide insight into the close, long-term pair bonding that exists in mynas. Firstly, two birds were captured in the same trap on the racecourse and then held together in an aviary for about five months. They produced a clutch in captivity prior to being accidentally released during a super storm that destroyed part of our facilities (observation numbers 2 and 3). A few months later, they were re-sighted together near the racecourse. Secondly, two others birds trapped at the same time on the racecourse and held in captivity for one month were sighted breeding in a nest box on the racecourse more than a year after their release (observation numbers 5 and 6). These observations lend support to another biological characteristic of Common Mynas: they form behaviourally monogamous, life-long pair bonds (Feare and Craig 1999).

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NUMBERS AND DEPARTURE PATTERN OF WELCOME SWALLOWS AT A ROOST IN KINGSTON, ACT

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Abstract. *At Norgrove Park, Kingston, Welcome Swallows* (Hirundo neoxena) *roosted originally in a stand of sedges. The highest number of swallows recorded was 125 in March 2012. At least from March 2013 onwards Welcome Swallows roosted under the Eyre Street Bridge between Norgrove Park and Kingston Harbour. A maximum of 600 swallows left the roost on 13. Jun 2015, and between 500 to 550 swallows were still present at the site in the first half of August 2015. These are the largest concentrations of Welcome Swallows for the autumn to winter period in COG's Area of Interest recorded to date (COG database). The pattern of departure from the bridge roost was dependent on certain weather conditions. At least after a night with frost, swallows delayed leaving the roost for up to one hour after sunrise (normally they leave at first light). On overcast or foggy mornings swallows departed immediately after emerging from the roost, gained height quickly and disappeared towards their feeding areas. If they emerged from the roost and the sun was shining they all settled on walls, rails and other structures on the western side of Kingston Harbour to soak up warmth from the sun. Final departure was delayed until swallows had warmed up sufficiently.*

1. Introduction

Welcome Swallows (*Hirundo neoxena*) roost communally outside the breeding season like most other members of the swallow family (Hirundinidae) (Beauchamp 1999). The species will use diverse roost sites, although mainly reedy vegetation over water, but also trees, rock faces and man-made structures such as the underside of eaves, bridges and jetties (Higgins *et al.* 2006).

For some time I have been aware that small numbers of Welcome Swallows were roosting at Norgrove Park in Kingston, just to the South of Kingston Harbour. During morning visits they were sometimes seen catching the sun on the tops of sedges at one of the ponds.

Road- and bridgework in recent years at the northern limit of Norgrove Park along Eyre Street, as part of the development of the Kingston Foreshore, resulted in major disturbance to the site. Welcome Swallows may have given up roosting in the sedges during that period. But sometime after completion of the building work and the bridge re-opening, Welcome Swallows were again more noticeable outside the breeding season. They had switched from the sedges to using ledges underneath the Eyre Street Bridge as roost site. This article reports on some autumn and winter counts of roosting swallows and weather-dependent behaviour of the birds at morning departure.

2. Site and timing of visits

Norgrove Park borders the southern end of Kingston Harbour (see Fig. 1). The 1.2 ha area comprises landscaped open spaces and wetlands. The area under water includes shallow wetlands in the southern part and a 3 m deep "eco-pond" that can store treated stormwater run-off at the northern end (ACT Government 2015).

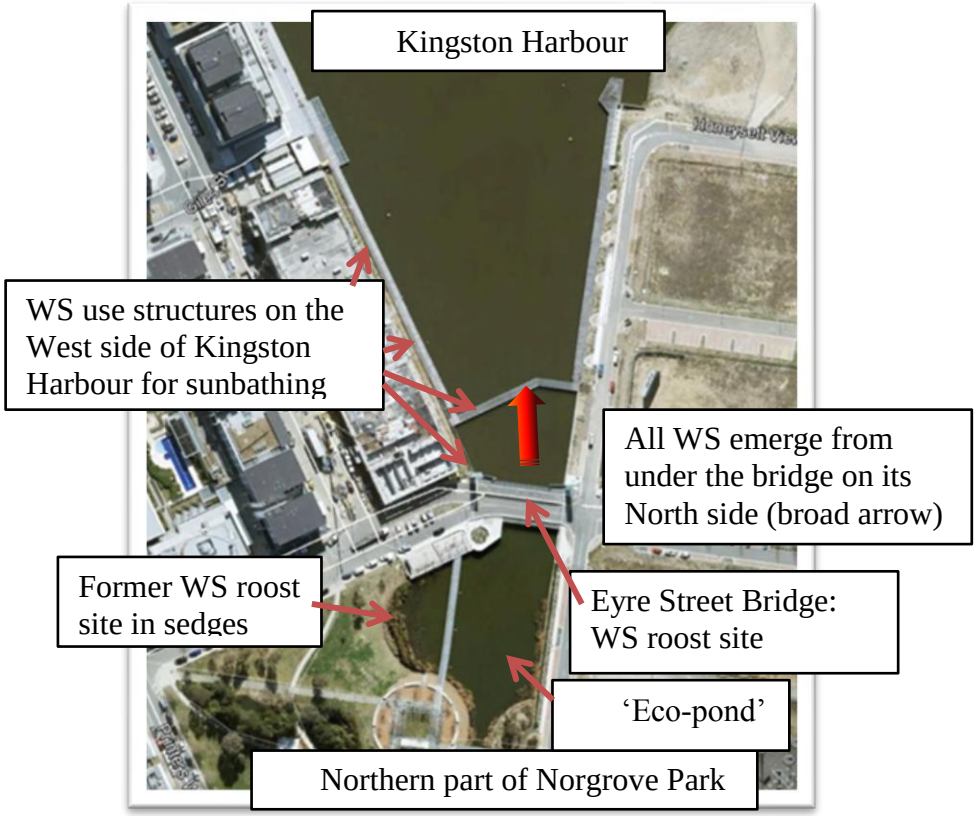

Figure 1. Map of the Norgrove Park and Kingston Harbour site [Google Earth, 8 Sep 2015] used by Welcome Swallows [WS] for roosting.

Other structures close to the bridge on the Kingston Harbour side can also be important to the Welcome Swallows. After emerging from their roost in the morning birds may spend some time on the top of the concrete wall adjoining the bridge on the western side, or may sit along the railings of an angled walkway going across the harbour some 30 to 45 m North of the bridge, or they may sit on the western wooden piers and boardwalk of the harbour (Fig. 1).

On some Saturdays I made brief visits to Norgrove Park, usually anywhere between 07:15 and 08:00h while on my way to other activities. During winter months those times were closer to sunrise, hence closer to the actual departure of the Welcome Swallows. Welcome Swallows usually depart at first light, but in winter departure may be delayed (Higgins *et al.* 2006). However, it was clear that I would get closest to a proper count of the assembled swallows only when my arrival was near the time of sunrise and swallows were not leaving at first light.

3. Observations

3.1. Roost site in reedy vegetation

The sedges (*Baumea articulate*; Jointed Twigrush) in the NW section of the eco-pond were used as a roost by Welcome Swallows. Birds were often seen sitting on sun-exposed stems warming themselves up before departing. The many droppings on the plants also indicated regular use of the site by the swallows. Highest numbers recorded were 125 birds on 17 Mar 2012.

3.2. Roost site under Eyre Street Bridge

From March 2013 onwards Welcome Swallows were again more noticeable at Norgrove Park[1]. For example on 13 Apr 2013 160 and on 27 Apr 2015 220 swallows were sunning themselves along the western boardwalk of the harbour. There were no 'tell-tale' droppings on the sedges, *i.e.* the sedges were no longer used for roosting. The new roost site was the Eyre Street Bridge. At other times between May and July 2014 smaller numbers of swallows were recorded. This does not necessarily mean that swallows were less numerous, but many birds may have already left the roost site by the time I had arrived at Norgrove Park. On 2 Aug 2014 170 swallows were sunning themselves on the concrete wall close to the bridge (Fig. 1).

More records were available for autumn and winter of 2015 than from previous years. However, swallow numbers could vary significantly from one Saturday to the next, even when I had arrived at the site at similar times (Table 1). The highest number recorded was 600 birds on 13 Jun and well over 500 birds in the first half of August (Table 1).

Table 1: Number of Welcome Swallows leaving their roost at Norgrove Park recorded in autumn and winter 2015.

Date (2015)	Sun-rise (h)	Time (min) between sunrise and start of observation	Mini-mum temp. (^{o}C)	Number of Welcome Swallows seen departing from roost	Welcome Swallow behaviour	Sky
11 Apr	06:24	66	6.0	200	sunbathing before depart.	clear
18 Apr	06:29	61	11.2	55	depart quickly	overcast
1 May	06:40	45	4.9	42	depart quickly	overcast
23 May	06:57	28	-2.6	130	sunbathing before depart.	clear
30 May	07:02	23	-2.0	1	swallows must have left prior to my arrival	overcast
6 Jun	07:06	14	-3.9	280	most depart quickly; some later sunbath	overcast/ sunny
13 Jun	07:09	6	-2.1	600	most depart quickly; some later sunbath	overcast/ sunny
8 Aug	06:53	43	-3.0	550	depart quickly	fog
15 Aug	06:45	35	-1.6	515	depart quickly	overcast

3.3. Behaviour of Welcome Swallows after departing from the roost

It was clear that the numbers of swallows recorded were not only dependent on the time of sunrise and how closely to it I arrived at Norgrove Park (compare for example in Table 1 the swallow numbers on 23. and 30. May). As the results in Table 1 indicate, on some mornings

[1] A few pairs of Welcome Swallows also regularly breed at Norgrove Park. They nest under the raised walkway that leads across the 'eco-pond' and possibly at other structures at Kingston Harbour.

swallows came out from under the bridge and disappeared from the site without delay. On other mornings, birds would settle on top of concrete walls (Fig. 2), railings and the boardwalk on the western side of the harbour and soak up the warmth of the sun. Departure from the site became a more drawn out affair.

A key factor that influenced timing of departure and subsequent swallow behaviour was whether the sky was clear or overcast. On mornings with a cloud cover or with fog, swallows may have delayed their departure somewhat, especially with frost at night. But once they came out from under the bridge (always leaving to the North, see Fig. 1), they would fly low over the water, then rise sharply in the air just in front of the walkway about 40m off the bridge, quickly gain height, and may circle a couple of times over the harbour before disappearing in various directions (Table 2).

Figure 2. Welcome Swallows sunbathing on top of a concrete wall after emerging from their roost at the Eyre Street Bridge (*Michael Lenz*).

Table 2. Pattern of departure of Welcome Swallows from their roost on 15 Aug 2015. Period of observation: 7:20 to 8:15 h; sunrise 6:45 h; overcast; number of swallows: 515.

Time (h)	Numbers	Time (h)	Numbers	Comments
07:22	40	07:37	8	all birds departing without delay
07:25	9	07:38	22	
07:28	60	07:40	15	
07:29	7	07:41	7	
07:30	120	07:42	3	
07:31	8	07:43	27	
07:32	20	07:45	6	
07:33	22	07:49	7	
07:34	10	07:51	4	
07:35	19	07:54	80	
07:36	6	07:55	15	
		07:56 to 08:15: no further swallows		

Table 3. Pattern of departure of Welcome Swallows from their roost on the morning of 8 Aug 2015 with fog. Period of observation: 7:36 to 8:15 h; sunrise 6:53 h; number of swallows: 550.

Time	Numbers	Behaviour	Comments
07:40	2	low over water	
07:46	45	depart	
07:48	8	back under bridge	
07:51	45	depart	
07:54	6	back under bridge	
07:55	2	depart	
07:46	450	350 depart, 100 back under bridge	all swallows that were left came out at once, probably due to a disturbance; unusual to come out in one large group (see Table 2)
07:57	57	settling briefly on rail of walkway	
07:59	18	back under bridge	
08:00 to 08:15	varying small numbers	birds on rails, some over water or back under bridge or departing	observer left site at 8:15

In contrast, on sunny days most swallows would settle on structures on the western side of the harbour after coming out from under the bridge and face into the sun for various lengths of time (Fig. 2). Their preference for sunbathing first, notably after frosty nights, before leaving the site became obvious on two occasions. On those mornings the sun was initially hidden behind clouds, but emerged later while swallows were still leaving the roost. Swallows departing under cloud cover disappeared from the site as described above. Those that appeared in the open by the time the sun had broken through the clouds, flew immediately to spots where they could soak up some warmth from the sun (Table 1).

The morning of 8 Aug felt especially cold, with not just frost down to -3^{o}, but also with a layer of fog which lifted to well above 4-storey building height in the morning but did not dissipate within the observation period. Swallows did depart as usual, but some individuals returned after a few minutes and went again under the bridge (Table 3). At some stage, when all remaining swallows (450) came out at once (probably due to some disturbance underneath the bridge [breeding male Black Swan (*Cygnus atratus*) chased away two other swans]) and started to rise up, about 100 birds did not follow and returned to the ledges underneath the bridge. Departure for the 100 or so remaining birds became more drawn out and was not complete 30 min after they had returned to the bridge (Table 3).

4. Discussion

The Welcome Swallow is present all year round in Canberra, although numbers change with season. The movement pattern of this species in our area is still poorly understood (Wilson 1999). Numbers peak in October and April (Wilson 1999; COG 2015). The reporting rate (COG 2015) and abundance (Garden Bird Survey, Veerman 2003) are lowest in June and July.

The more notable is the number of 600 Welcome Swallows in June 2015 and still up to 550 birds in the first half of August 2015 at the Kingston roost. In all cases these are conservative figures since it is not known whether my arrival always coincided with the beginning of departure of birds from the roost.

Further, the June observation exceeds the maxima reported for autumn and winter (March to August) in COG's Area of Interest. Previous highest records include 500 Welcome Swallows at Lake George in May 1989 (M. Lenz) and 270 at the Fyshwick Sewage Ponds in March 2011 (M. Butterfield).

The Kingston roost must have a wide catchment area. A high percentage of swallows spending the cooler time of the year in Canberra are likely to congregate there for the night. Birds usually leave the bridge in groups of varying size (Tables 2 and 3). All departing swallows rise high up in the air and quickly disappear out of sight. This would also indicate that the roost attracts not just birds from nearby areas but many birds may travel some distance between their day time sites and the Kingston roost.

At the end of August 2015 I observed a group of 11 Welcome Swallows in North Lyneham in the late afternoon. Their behaviour was similar to that displayed by Welcome Swallows during mornings in Kingston. Initially they were foraging low over a pond and grassland, but suddenly they rose up high under the clouds and disappeared from the area, no doubt heading for their roost.

It is possible that birds from different source areas stay together for the night and depart together as distinct groups to their feeding grounds (see Tables 2 and 3). But with the possibility that roosts also serve as "information-centres" for locating food sources (Ward and Zahavi 1972), *i.e*. individuals that were less successful in obtaining food the previous day will follow in the morning successful individuals (assuming there are behavioural differences between the two groups), many individuals may move to sites different from the ones of the previous day.

Physical aspects of the bridge would offer important advantages compared to reedy vegetation as roost site: several solid long ledges to settle on, safety from predators, and better protection from the elements with a solid roof overhead.

After cold nights at the roost Welcome Swallows clearly aim to conserve energy as much as possible. Instead of departing at first light, they delay departure to times well past sunrise when temperatures start to rise (Table 2). If they have to face overcast conditions in the morning, their best strategy, once out, seems to be to depart without delay to their feeding grounds (they may get a chance later in the day to benefit from the warming sun if the cloud cover clears). On foggy winter mornings with temperatures probably staying low for longer, as the example of 8 August indicates (Table 3), a good number of birds returned to their roost after a short spell in the open. These may have been birds with low energy reserves. It took more than one hour after sunrise before all birds had finally departed. But on cold mornings with clear sky birds headed for places in the immediate surroundings on the western side of the roost to soak up the warmth of the sun. This appears to be their favourite strategy as indicated by observations on days when the sun was first hidden by clouds and came out only later during the exodus from the roost. The birds leaving without sunshine headed to their feeding grounds without delay. The moment the sun was shining on the area departing

swallows sought places for sunbathing, and postponed the flight to their daytime feeding grounds until sufficiently warmed up.

Acknowledgement

My thanks go to Isobel Crawford for identifying the species of sedge that was used for roosting, to Sue Buckley for providing further information on the vegetation of Norgrove Park and to Steve Wallace for making available the records of maximum numbers of Welcome Swallows for autumn and winter in COG's Area of Interest. The manuscript has benefitted from comments by Jack Holland and Janette Lenz.

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OBSERVATIONS ON THE ROOSTING BEHAVIOUR OF THE MAGPIE-LARK IN CHAPMAN/RIVETT I. SUMMER AND AUTUMN 2015

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Abstract: *Observations on the roosting behaviour of Magpie-larks within a defined area of Darwinia Terrace in Chapman/Rivett during the summer and autumn of 2015 are detailed. This includes the numbers of birds involved in the roost flights as well as the key dates for occupation of, and the numbers of birds in the three main roost sites utilised during this time. Similar observations for winter and spring of 2015 are detailed in Part II (see this issue).*

1. Introduction

Magpie-larks (*Grallina cyanoleuca*) are known to roost communally outside the breeding season, but not much is known about communal roosting by this species for the Canberra region, and no relevant reports are available. This and a second paper (see this issue, p. 255) provide observations and discussion of Magpie-lark roost flights and roosts within and nearby my GBS site around my house in Chapman, close to the border with Rivett. The first paper covers the five months of summer/autumn from January to the end of May, and the second one deals with the subsequent winter/spring period from the beginning of June to October 2015.

The roosting behaviour proved to be quite complex and occurred over a surprisingly long period of more than nine months. Each time it appeared to be over more roost flights were observed, and in particular new roost sites were discovered. In all there were four main phases involving two main roost areas containing a number of identified roost sites (but with other sites suspected or used occasionally by lower numbers of birds), as described below.

2. Observations

2.1. The initial build up

At around 20:00 h on 15 Feb 2015 at least 14 Magpie-larks could be seen flying, in pairs over a period of about 5 minutes, into a very large blue gum in the nature strip off Darwinia Terrace in front of our house. Whether they actually roosted there was unclear as there was movement in and out (and they were impossible to see once inside the tree). The next morning numbers that seemed to be coming out were fewer than had gone in the night before.

Over the previous three weeks there had been noticeable movement of Magpie-larks in my Garden Bird Survey (GBS) site in the first hour or so of the mornings. They seemed to be coming up from Rivett, settling and calling, usually from the wires, for a few minutes, before departing in a westerly direction towards the Chapman horse paddocks. In the last hour or so before sunset they could be seen doing the same but in reverse, and usually in a looser group.

It was late in the evening on 5 Jan 2015 that I first noticed 8 birds on the wires on the far side of the zig zag path to the NNW of our house (Site 1, Map 1), then on the evening of 6 Jan over 6 birds were seen coming through the N part of my GBS site in an easterly direction.

Map 1: Key sites for winter/spring observations of roosting Magpie-larks.

Key for sites mentioned in the text: 1 –52 Tce roost; 2 – Sideroxylon roost; 3 – Lower end of laneway between Chauvel Circle and Percy Crescent; 4 – Melaleucas roost; 5 – 20 Cle roost; 6 – NE side 15-17 Percy Crescent; 7 – 47 Tce roost; 8 – Top Angophora Street

However, it was not until 28 Jan that I observed over 10 birds in the early morning moving in a westerly direction through the N part of my GBS site. Over 6 birds were then regularly seen with maximum numbers of 14 birds early in the morning on 31 Jan and 12 birds at a similar time on 5 Feb, both times on the wires the Rivett side of the underpass which runs under Darwinia Terrace from the zig zag path into Rivett (Site 2, Map 1).

On 13 Feb Magpie-larks were milling around and disputing in the area of the Terrace and zig zag path from about 06:30 to 07:30 h. While a maximum of only 8 birds were seen together, they seemed to be coming and going for much of the time. Later that evening 12 birds were observed on the wires above this path, and 10 were seen there early the next morning.

However, as described above it was the evening of the following day (15 Feb) that I realised that as well as probably observing a pattern of roost flights originating from deeper in Rivett, there were possibly also roosts within my GBS site. So I started watching out for the birds each morning and evening.

Over the next week birds could be seen moving through most mornings and evenings in the same spots as described above, but never more than about 10 together, except for late in the evening of 21 Feb when up to 25 birds gathered on the wires of the zig zag path. This was after a storm had cleared and I expect the birds may have been delayed by the rain and thus more had gathered before they moved to their roost area.

While numbers remained below 10 birds for the next few days, the pattern seemed to change with Magpie-larks also gathering on the wires that cross (and then run behind our house) midway along the straight path that runs from the E to the S of our house (Site 3, Map 1), with 12 birds seen there on the morning of 25 Feb. More birds may have been present before and after this date but numbers were split between the two paths, until the morning of 28 Feb when well over 20 birds were seen moving along the straight path and leaving in a SW direction at the SSW end of it.

Between 06:50 and 06:55 h the following morning (1 Mar) over 30 birds were gathering on the ground and wires of the straight path before flying NW past the back of our house. We were away until 4 March when up to 26 birds were seen doing much the same thing.

2.2. Peak numbers, a roost site confirmed, and its break up

In a further development at about 06:50 h on 6 Mar over 20 birds were seen to gather very quickly on the wires in front of 60 Darwinia Terrace. Within 10 minutes most of these moved W passing over the front of our house and the zig zag path, with very few going to the wires of the straight path.

At 06:45 h on 7 Mar over 60 birds suddenly appeared to gather, call and mill around on the 60 Darwinia Terrace wires, at least 40 of which then moved to wires midway on the straight path. These high numbers were a surprise as there had been no noticeable movement to the former spot the evening before (nor on 5 Mar).

I suspected a roost there and looked that evening but could not find any birds in the 10 m tall gums in the front garden of 60 Darwinia Terrace beside these wires. The next morning (8 Mar) as I walked along the Terrace at 06:40 h over 20 birds suddenly erupted out of a largish (5-7 m tall and of slightly smaller width) hakea bush on ENE edge of this property alongside the drive of 62 Darwinia Terrace. They flew to the wires above, but some also appeared to be coming from other spots making about 30 birds in total. Ten minutes later about 20 birds flew W over our house in the direction of the Chapman horse paddocks, where on following them up at about 07:35 h quite a few were seen and heard calling there.

While that evening after dark I could easily find about 10 birds sitting mostly singly in the hakea (called the hakea roost hereafter – Site 4, Map 1). This was clearly only one of several roosting sites as on the morning of 9 Mar I first saw 14 birds coming over quite high from further down (SE) the Terrace. Others quickly followed and 45 birds gathered on the wires a bit further down (SE) than previously. While some birds may have come from the hakea roost others clearly were coming from other spots, including from across the Terrace.

Between 7:22-7:28 pm that evening I counted 16 birds coming, mainly in singles or pairs, over our house heading E towards the hakea roost area. The next morning 10 Mar over 25 birds had gathered in the area of these wires, but I did not do a full count as I moved towards the Chapman horse paddocks to check where they were going. Between 06:52-06:57 h I observed over 48 birds (in 4 groups, max. 22) move over the lower (ENE) end of the laneway that runs between Chauvel Circle and Percy Crescent (Site 5, Map 1). Some stopped briefly on the wires there but most moved straight through.

We were away that evening and the next day, but on the morning of 12 Mar around 40 Magpie-larks gathered at the same spot, again with some coming from across the Terrace. As I set off to follow them more than 10 birds already flew over our house. I could hear them as I moved towards Kathner Street. Over a 5 minute period (06:55–07:00 h) I saw about 40 birds in a loose straggling flock move through 27-31 Kathner St (this is nearly 400 m in a direct line from our house, Site 6, Map 1). Some stopped there on the wires, more rested briefly in trees, some flew pretty much straight over into the Chapman horse paddocks, and some dropped down to the large verge adjacent to these paddocks. In the evening over 15 birds floated into the NE sea breeze over our house just after 19:00 h, then 6 others 10 minutes later and 3 birds at 19:15 h, making it a total of 24 birds.

At this time I thought a clear pattern had been established, *i.e.* birds roosting in the hakea and other spots close by on either side of the Terrace would move to the wires in front of 60 or 60-62 Darwinia Terrace, and then fly out (only in late February/early March via the mid straight path wires), to the Chapman horse paddocks to feed. The number of birds returning in the evening was also better monitored. The numbers seen in this period are summarised in Table 1. However, this pattern soon changed as also shown in Table 1 and briefly described below, and then became more complex as described in subsequent Sections.

Table 1. Summary of activity while birds were seen at the hakea roost.

Date	Morning numbers, (time (h)) [from hakea roost]	Evening numbers, (time (h)) [seen at roost]
6 Mar	20 (06:50)	None noticed
7 Mar	60[a] (06:45)	None noticed
8 Mar	30 (06:40) [20]	[10 at roost]
9 Mar	45	16 (19:22-19:28)
10 Mar	25+	-
12 Mar[b]	40+ (06:45)	24 (19:00-19:15)
13 Mar	Not counted[c]	27 (18:32-19:30)
14 Mar	<20 (07:05)	22 (19:05->19:20)
15 Mar	<20 (06:57)	16 (from 19:12)
16 Mar	2[d] (06:55)	17(17:30->19:10)

[a] 40+ moved through mid straight path wires
[b] 11 Mar not included as we were away
[c] Dark and windy
[d] 3 at end of Toona Place

The numbers on the wires at the front of 60 Darwinia Terrace that had peaked quickly over a few days soon dropped. The evening of 13 Mar was cloudy and rather dark but over 17 birds came in earlier, mostly to the zig zag path wires, at 18:32 h. Then over 10 arrived an hour later at 19:30 h, making it a total of 27 birds, the highest evening numbers I had seen up to this time, and for the summer/autumn period.

The morning of 14 Mar was also dark and there was hardly any activity until nearly 07:05 h when fewer than 20 birds gathered at the 60 Darwinia Terrace wires and moved towards the horse paddocks over the next 5 minutes. However, activity (10 or so birds) was also noticed along the path leading into Rivett at the end of Toona Place (just outside my GBS, Site 7, Map 1) from about 07:20 h. That evening about 22 birds moved through in a rather scattered fashion between 19:05 and until after 19:20 h.

At 06:57 h on 15 Mar less than 20 birds gathered on the 60 Darwinia Terrace wires, and there seemed to be a different pattern with birds arriving from deeper in Rivett, but in the evening 16 birds moved through our GBS site from 19:12 h, nearly all in pairs. However, the following morning only 2 birds could be seen gathering on these wires, though in the evening 17 birds still moved through in 4 groups from 17:30 to after 19:10 h.

2.3. A second roost site found

However, it was still somewhat unexpected when at 06:57 h on 17 Mar I flushed about 20 birds from two relatively open 6-7 m tall wattles The trees were located on either side of the footpath forming an arch, in the densely planted verge in front of 55 Darwinia Terrace, and

about 50 m away from the hakea roost. These birds were joined by a few others on the wires, mainly from directly across the road in front of 58 Darwinia Terrace. Not much else was seen until 07:05 h. At 07.00 h on 18 Mar a similar number of Magpie-larks were sitting quite high in these wattles. They were then flushed to the same wires. It was dark and stormy, and little other activity was noticed.

That night at least 5 birds could be seen in this new roost site (called the 'wattles roost' from now on – Site 8, Map 1). From 06:55 h on 19 Mar under much better light conditions about 10 birds of the about 25 that had gathered on the 60 Darwinia Terrace wires were seen coming from the wattles roost, including some from the straight path. Interestingly they seemed to move SE, at least initially. At a similar time on 20 Mar many birds had already gathered a bit further SE along Terrace than usual, with some still coming from the wattles roost and a few from the straight path. There was a maximum of 30 birds, most of those seemed to go SW over the house at 60 Darwinia Terrace towards Cooleman Ridge.

At 06:57 h on 21 Mar 35 birds had gathered on the wires that run across the Terrace over the underpass, and on the Rivett side of the road despite the cool and windy (but fine) conditions. On following those up only 12 birds seemed to come through to Kathner Street, including 8 around No 31. They stopped there, including on the opposite verge. However, that afternoon around 20 birds still came through from this direction in small groups from 18:17 to 18:29 h (earlier than usual due to the windy and cloudy conditions).

Table 2. Summary of activity while birds were at the wattles roost.

Day	Total number (time (h)) [from wattles]	Which wires to first	Dispersal (at least initial)	Evening numbers (time (h)) [seen at roost]
17 Mar	25 (06:57) [20]	58 Terrace	?	-
18 Mar	20 (07 00) [20]	58 Terrace	?	[5]
19 Mar	25 (06:55) [10]	60 Terrace	SE	-
20 Mar	30 (06:55) [some]	60-62 Terrace	SW (Cooleman Ridge?)	-
21 Mar	35 (06:57) [?]	Above underpass and on Rivett side	Chapman horse paddocks (HP)	20 (18:17 to 18:29)
22 Mar	25 [20[a]]	Above underpass	-	-
23 Mar	>30 (06:55) [some]	60-62 Terrace	Cooleman Ridge?	-
24 Mar	>20 (>07:00) [20[b]]	?	Similar number at end of Toona Place at 07:24 h	-
25 Mar	35 (06:56) [20+]	Above underpass	?	10+ (18:45 to >19:00 h)
26 Mar	33 (06:56) [12[c]]	25, end Toona Pl, 8 above underpass	Chapman HP	-
27 Mar	20 (07:00) [12[c]]	60-62 Terrace	SE (Cooleman Ridge?)	7 from HP (18:40 to >19:00)
28 Mar	25 (07:00) [some]	Underpass wires	E into Rivett, then 10 to HP	-
29 Mar	Did not check	-	-	[>15, 21:30]
30 Mar	? (>07:00) [10]	6 at 58-60 Terrace (07:05 h)	-	[0]
31 Mar	7 [0]	Scattered	Not clear	6 (18:55) [0]

[a] Slow start due to the cloudy morning, initially half to neighbouring bushes/trees,
[b] Dark and rainy, many to neighbouring bushes/trees
[c] Plus a couple of Common Mynas (*Sturnis tristis)*

Once the wattles roost was discovered there seemed to be a clear pattern for about 14 days between 17 and 29 March, with between 20-35 birds found at the roost or counted on the wires each morning. Most of these appeared to be from the wattles roost, but there were clearly other roost sites as well. The first birds seemed to wake up, call briefly and go to the nearby wires in a rather random fashion, then call again, with others joining them wherever this occurred. Usually they stayed, just for a few minutes. The birds did not necessarily all go to Chapman horse paddocks; some seemed to go towards Cooleman Ridge as well, at least initially, though I never followed them up nor found multiple birds there during the day. However, all birds seen coming in during the evening were from the direction of the Chapman horse paddocks.

This activity is summarised in Table 2. It shows that while the numbers of birds were consistent, their movements once leaving the roost were quite variable. The text below only contains comments when observations differed from that summarised in Table 2.

On the cold and clear morning of 26 Mar I flushed about 12 birds (plus a couple of Common Mynas, *Sturnis tristis*) from the wattles roost. However, they went NE to the wires at the end of Toona Place where a maximum of 25 birds gathered over about 3 minutes, some coming from deeper in Rivett. There were also a maximum of 8 birds during this time on the wires above the underpass, and all birds seemed to fly towards the Chapman horse paddocks.

At around 07:00 h on 28 Mar some birds were already out and others were seen emerging from the wattles roost mainly to the underpass wires across the Terrace. There were a maximum of 25 birds. They initially went down into Rivett, but then 10 flew across to the post at the lower end (ENE) end of the laneway that runs between Chauvel Circle and Percy Crescent. A little later 15 birds were seen on the wide verge opposite about 33 Kathner St.

Around 21:30 h on 29 Mar more than 15 birds were easily seen (lower down than usual) in the wattles roost, but on the morning of 30 Mar, surprisingly I only flushed around 10 from there after 07:00 h. They did not go directly to the wires and there was a maximum of only 6 birds on the 58-60 Terrace wires 5 minutes later, with scattered calling to at least 07:30 h.

2.4. Breakup of the 'wattles roost', a third roost site found but numbers remain low

Despite the clearer morning of 31 Mar there were no birds at the wattles roost (consistent with my checking the night before), and surprisingly a maximum of only 7 birds gathered by 07:08 h, coming from different and unusual directions.

In contrast on 1 Apr a maximum of 8 birds were seen on the 60 Terrace wires from 07:05 h. Other birds could be heard calling to the SE and NW of our house, and around 07:10 h there were 8 birds on the straight path cross wires, at least 2 of them flew off in the direction of Cooleman Ridge.

On the dark morning of 2 Apr there was no action until 07:10 h when 4 birds came from a new roost site in three closely planted exotic ornamental pear trees (5-10 m tall), the sole plantings in the wide verge to the front of 59 Darwinia Terrace. This new site (hereafter called the "exotics roost", Site 9, Map 1) seemed recent as there were no droppings compared with very many under the wattles roost close to 50 m away. In addition, 4 birds seemed to come from the hakea roost almost directly opposite, with a maximum of 10 birds on the wires above, and then 6 birds were seen on the straight path (some seemed to be coming from the SW).

The morning of 3 Apr was even darker, with no activity till 07:15 h when several birds were flushed from the exotic roost, joined by a few more coming from the hakea roost area, with a maximum of 11 on the wires in front of these houses.

The morning of 5 Apr was not so dark, and the first calls were heard about 06:13 h (note this was the first morning after the end of daylight savings) to the NW. There were no birds on the SE Terrace wires but 3 were flushed from the exotics roost at 06:17 h, surprisingly these flew back over the houses and on following up a maximum of 14 birds were observed on the ground and wires at the end of Toona Place, all birds flew W from there. On the morning of 6 Apr at 06:15 h there were only 3 birds on the 60 Terrace wires, 2 of which flew over 59 Terrace where one was flushed from the exotics roost there (plus a couple of Common Mynas). A maximum of 10 birds then gathered at the end of the Toona Place wires.

This lead into a relatively consistent pattern for the first 3 weeks of April, with a lower number of birds counted at or from the roost and on their first gathering (below 10 together from 6 Apr except for a maximum of 16 on the morning of 21 Apr). There was a more consistent pattern in the evening with a maximum of 18 birds on 14 Apr. The timing of the gathering in the morning and the evening return was again dependent on the amount of light. Most of the movement was to and from the Chapman horse paddocks, with very limited movement towards Cooleman Ridge.

Table 3. Summary of activity after birds were first seen at the exotics roost

Day	Total number (time (h)) [from exotics]	To which wires first	Birds at other spots (time (h))	Evening numbers (time (h)) [seen at roost]
1 Apr	8 (07:05) [0]	60 Terrace	8, straight path (07:10)	10 (18:45 – 18:55)
2 Apr	10 (07:10) [4 + 4 hakea]	60 Terrace	6, straight path (07:15)	-
3 Apr	11 (07:15) [several + from hakea]	60 Terrace	-	Few (quite early - dark)
5 Apr[a]	14 (06:17) [3]	End Toona Pl.	-	9, through (>17:35)
6 Apr	3 (06:15) [1[b]]	60 Terrace	10, end Toona Pl.	-
7 Apr	5 (06:20) [?]	60 Terrace	5, end Toona Pl.	8, 60 Tce wires (17:27)
8 Apr	0 (06:25) [0]	-	-	8, 60 Tce (17:30-17:35)
9 Apr	3 (06:15) [-]	Zig zag path	4, straight path (06:20)	4 (from ridge at 17:10)
10 Apr	8 (06:20) [-]	60 Terrace	2 towards ridge, 2 E down Tce. -	-
11 Apr[c]	3 (06:15) [1?]	60 Terrace	10, end Toona Pl, most flew W.	-
14 Apr	-	-	-	18, 60 Terrace (17:20-17:30) (some)
15 Apr	Very few (06:24) [-]	60 Terrace	15, end Toona Pl, most flew W.	-
16 Apr	8 (-)	62 Terrace	1, underpass wires	4
17 Apr[d]	-	-	-	(4)
18 Apr[d]	-	-	-	8, 62 Tce (<17:00)
19 Apr	2 (06:21) [-] + 6(06:30)	60 Terrace	4, end Toona Pl.	-
21 Apr[e]	16 (06:40) [-]	Straight path	-	-

[a] First morning after end of daylight savings (note not checked 4 Apr)
[b] Plus a couple of Common Mynas
[c] Away for the next 3 nights
[d] Only checked afternoons
[e] Not fully check 20 Apr (few observed - windy).

The activity for the first 3 weeks of April is summarised in Table 3, and the text from 7 Apr onwards only covers additional information not summarised in the Table.

On the afternoon of 8 Apr I found over 7 birds present on the verge in Kathner St at 16:30 h, then at 16:45 h 4 were on the wires at the lower (ENE) end of the laneway that runs between Chauvel Circle and Percy Crescent, and then up to 8 birds on SE Terrace wires between 17:30 - 17:35 h. This was one of the very few times before winter (see Part II, this issue, p. 255) that I traced the afternoon reverse path. Another time was the afternoon of 18 Apr, when over 7 birds were seen at the bottom end of the Chauvel Circle and Percy Crescent laneway.

As shown by Table 3 the pattern had clearly become more complex. On the morning of 19 Apr, the first calls came from the NW at 06:21 h, then there were 4 fairly immobile birds on the SE Terrace wires, plus birds were heard gathering at the end of Toona Place wires but only 4 were seen. Some birds were further ESE along the wires that run between the Terrace and Burgan Place, 2 of which flew over and then there were 6 again on the SE Terrace wires, which moved up and then some flew along the Terrace towards the Chapman horse paddocks. All this occurred up to 06:30 h.

The morning of 20 Apr was windy and few birds were observed. So it was a surprise to find 16 quiet birds on the straight path cross wires at 06:40 h on 21 Apr, some of which flew W over Chauvel Circle.

2.5. Back to a more consistent (but different) pattern before breakup

This heralded a period of 21 days when bird numbers increased again. The exotics roost was much more used, and particularly in the afternoons Magpie-larks could regularly be seen dropping into it from the 60-62 Terrace wires. The sharing of this site with an increasing number of Common Mynas towards the end of the period is also of interest. The wattles and (less often) the hakea roosts were also still used intermittently by a small number of Magpie-larks. Again most of the movement was to and from the Chapman horse paddocks, but with occasional movement still seeming to be towards Cooleman Ridge.

These observations are summarised in Table 4

The morning of 22 Apr was clear but very windy and only 4 birds came through our GBS site very close together and moved towards the horse paddocks. There a further 3 were present on wires at the end of Toona Place. Thus it was a surprise to observe 8 birds floating over our GBS site towards the SE Terrace wires at 17:14 h, then another 9 flew in, some of which landed on the zig zag path wires. About 5-7 minutes later around 10 birds were on the SE Terrace wires, at least 8 of which flew in singly or in small groups into the exotics roost. Most could be flushed from here about 15 minutes later, but more than 8 flew back in when I retreated.

The above describes a typical pattern and the ensuing discussion only highlights particular events or those not able to be included in Table 4.

The afternoon of 28 Apr was clear but cool, and I did a special watch from 17:00 h because from the beginning of April the first morning calls often seemed to come from the NW part of our GBS site. While around 15 birds were seen to come in between 5:10 to 5:21 pm, I didn't see any stop around there.

Table 4. Summary of activity while bird numbers were highest at the exotics roost.

Day	Total number (time (h))[a] [from exotics]	To which wires	Birds at other spots (time (h))	Evening numbers (time (h))[a] [to or seen at roost]
22 Apr	4 [-]	Came through	3, end Toona Pl.	17 (from 17:14) [>8]
23 Apr	2 (06:27) [-]	60 Terrace	-	6 at 16:55 [6+, >17:25]
24 Apr	20 (06:30) [some?]	60 Terrace	Some end Toona Pl, 14 straight path 06:35-06:40.	2 (17:25) [6+, 17:40]
25 Apr	13 (06:29) [-]	Came through	-	6 (17:12 [5+, 17:35]
26 Apr	16 quiet (06:30) [-]	60 Terrace	-	6 (17:20) [3 to roost]
27 Apr	12 (06:24) [6]	60 Terrace	14 straight path after (total of 20)	7 (17:20) [all to roost by 5:25]
28 Apr	13 (06:20) [13 flushed + 8 mynas]	60-62 Terrace	Stayed to > 06:30.	8+ (by 17:21) [all to roost by 17:25]
29 Apr	12 (06:28) [-]	60-62 Terrace	2, end Toona Pl, then 14 straight path to 06:34	12 [most to exotics but 1 to wattles roost by 5:23]
30 Apr	20 (06:31) [16[b]]	60 Terrace	4 from Rivett	18 (from 17:12) [3+]
1 May	16 (06:38) [16]	60 Terrace	14+ to straight path at 06:43	4 (17:11 [all to roost by 5:14]
2 May	17 (06:42) [all flushed]	60 Terrace	8 to straight path, gone by 06:46	3 (17:20) [to roost but 10+ flushed at 17:39]
3 May	16 (06:34) [14]	60 Terrace	2 underpass[c], then 7 SE of straight path (06:38)	- [2 wattles, 4+ exotics after dark]
4 May	20 (06:34) [-]	58 Terrace	-	10+ [several exotics, 1 wattles by 18:00]
5 May	18 (06:31) [18[d]]		7, SE of straight path after 06:35	7 at 17:04 [several plus some mynas]
6 May	15 (6:28) [6]	End Toona Pl.	-	Complicated – see text
7 May	22 (06:33) [most, + 15 mynas]	60 Terrace	-	6 (17:11) [4 to exotics + mynas, 1 to wattles]
8 May	22 (06:34) [most[b], + 15 mynas]	60 Terrace	Most to straight path after (some to ridge?) by 06:37.	- [1+ at exotics plus many noisy mynas, 1 at wattles at 17:30]
9 May	20 (6:28) [most[b]]	60 Terrace	3, end Toona Pl., 6 to straight path after	5 (16:58 [unclear at exotics due to very noisy mynas to 17:45, 1 at wattles roost]
10 May	20 (6:36) [several]	60 Terrace	Most to straight path after + 25 mynas up to 06:41	5 [several, but others seemed to be spooked by very noisy mynas]
11 May	<12 (06:38) [4 & 40+ mynas]	60 Terrace	Seemed nervous and most scattered over Rivett	12 after 17:00 [several but again spooked by very noisy mynas]
12 May	4 (6:32) [5[c], mynas still at roost]	60 Terrace and underpass	4 still at these wires at 06:48	3 (17:09) [flew to wattles roost, & 5 later but only 4 could be seen in there]
13 May	12 (6:35- 6:39) [from wattles roost and nearby gums]	62 Terrace	Some milling around (with some coming from further SE)	1 at 17:00 pm [1 wattles roost later], only 3 mynas seen, but not in roost

[a] Timing was usually related to the amount of cloud/wind early mornings or evenings
[b] 1 from wattles roost
[c] Possibly from the wattles roost, as there appeared to be new droppings there?
[d] 1 from wattles roost and 2+ from hakea roost, plus at least 6 Common Mynas of the more than 10 suspected at the exotics roost

On the evening of 4 May 4 birds came over at 17:06 h, but only 1 was at the 60 Terrace wires, then surprisingly 10 were on the ground on the straight path at 17:10 h, these gradually moved SSW along this path by 17:15 h, but most doubled back. However, there were only 5 on the 60 Terrace wires and one was seen go to the exotics roost. There were more birds in there just before 18:00 h, and one at the wattles roost.

At 17:14 h on the evening of 6 May there were 2 birds on the 60 Terrace wires which flew down to the exotics roost. Then surprisingly again there were more than 10 birds on the straight path and wires milling around. But then most Magpie-larks moved towards the exotics roost site. Around 10 birds were flushed from there later before it was dark, they went to the wires, some returned but 4 at least initially went to the hakea roost (1 crossed back). There were also many mynas at the exotics roost, over 10 were flushed across the Terrace, but some returned. There was also 1 bird in the wattles roost.

On the morning of 11 May, the mynas were heard from 06:34 h, but the first 4 Magpie-larks went to the 60 Terrace wires at 06:38 h, others were very reluctant to emerge and scattered, mostly over to Rivett, with possibly less than 12 birds in total. However, there were well over 40 mynas, which also scattered. In the afternoon 6 Magpie-larks were observed flying E over Percy Crescent at 4:47 pm. There were none on the 60 Terrace wires yet at 16:53 h, but 8 came over at 17:00 h, and there were up to 12 birds there after that. A couple went to the exotics roost, but 4 went to the straight path and were seen there at 17:09 h. The mynas were very noisy again, and there was 1 Magpie-lark at the wattles roost.

In the afternoon of 12 May 3 birds were seen on the 60 Terrace wires at 17:09 h. They flew to the wattles roost; they were joined by at least 5 others (but only 4 were seen there later) at 17:11 h. There was a similar number on the grass of the straight path together with over 15 mynas. The exotics roost was not as noisy, possibly because there were fewer mynas.

On the morning of 13 May there were some mynas calling at 06:31 h but from the Chapman side of the Terrace. At 06:35 h first 2 Magpie-larks came from gums on the verge of 57 Terrace. They were joined by about 10 others from here and the wattles roost. At 06:39 h there were about 12 birds on the 62 Terrace wires as well as some milling around (with some coming from further SE). In the evening only 1 Magpie-lark was seen coming high over our house at 17:00 h. There were none on the 60 Terrace wires or calling from 17:09–17:15 h but 1 bird was on the wattles roost later (none seen at other roosts). There were very few mynas also, only 3 were seen on the wires behind 60-62 Terrace at 17:15 h, they flew towards the roost sites but were not found there later.

It is unclear to me what caused the sudden break up of the roost at this site. Magpie-larks may have been troubled by the increasing presence of the very noisy Common Mynas, but as they too deserted this site it may have been a predator. Note that another myna roost site was not found in the area until a few roosted with the Magpie-larks at their new site in July/August (see Part II, this issue, p. 255). My experience from local observations is that mynas change roost sites frequently, indeed these could have been the same birds observed roosting from 15 to 24 Apr in similar numbers at a couple of sites about 150 m away at the SSW end of the straight path and across the road (where Chauvel Circle comes off Monkman Street – Site 10, Map 1).

Table 4 shows that the first mynas were found roosting at the exotics site on the morning of 28 Apr, but then not until the evening of 5 May. Interestingly the leaves at the exotics roost

site had only just started to drop by 12 May, whereas the trees on Monkman St were already quite bare by the time this previous roost site was abandoned, so lack of cover is unlikely to have been the reason.

2.6. Fewer birds and the seeking of alternative roost sites

On the morning of 14 May I confirmed 1 Magpie-lark at the wattles roost but others were not seen or heard nearby from 06:36 to 06:46 h. No mynas were heard calling and only 2 were sitting quietly on the 62 Terrace wires. In the afternoon 2 Magpie-larks were calling on the zig zag wires at 16:49 h, then 2 were on the 60 Terrace wires and flew across the road at 17:04 h but not to the exotics roost. Initially 5, increasing to over 10 birds, were then found from 17:06 to 17:12 h milling around the middle of the straight path. They were then seemingly trying to roost in the wattles at the bottom of our battle-axe drive or the bushes along it (Site 11, Map 1). However, only 1 was then found in a Photinia about 2/3 of the way up our driveway, none were found elsewhere except 1 at the wattles roost.

On the morning of 15 May 1 Magpie-lark was flushed from the Photinia to the pole at the SSE corner of our block (Site 12, Map 1) at 06:36 h; a maximum of 5 birds gathered there, including 1 that came from the NNE (from the wattles roost?). They sat quietly until 06:45 h when 3 moved along the wires at the back of our house, there was limited other calling. In the afternoon there were 2 Magpie-larks on the straight path at 16:47 h, 1 of which flew up Monkman Street. It was quiet then until 16:57 h when 3 birds appeared low (not clear from where) at our SSE corner pole. They milled around and were joined by 2 others coming from the E. The birds again appeared to want to roost in wattles at the bottom of our drive but later were found not in the trees. There was 1 Magpie-lark (possibly a myna) in the Photinia and 2 at the wattles roost at 17:20 h.

The remainder of May was a period of low bird numbers overall, with a rather inconsistent pattern of roost site use, again by low numbers of birds, and only for the first week. This activity is summarised in Table 5, with again some comments following the Table.
On the afternoon of 20 May several birds seemed to be moving E from Kathner St at 16:40 h, but there were none in our GBS site from 16:47 h except for some calling to the NW and 1 bird moving from the 60 Terrace wires to the rear of 61 Terrace.

In the afternoon of 23 May there were 2 birds on the straight path/wires at 17:01 h, which flew over the house at 6 Chauvel towards the Circle where they were joined by another high from the E. Then another bird flew from the Terrace to the wires at the rear of 6 Chauvel wires. At 17:04 h it joined two birds from the front of this place; they were then seen flying high W into the sunset (an interesting reversal of the usual pattern!).

At 17:01 h on 24 May 2 birds were on the pole on the S side of 6 Chauvel, one was seen flying high over the Circle, another bird was disturbed in an *Acacia elata* at the top of our drive at 17:08 h, but was not there at 17:20 h (nor were any at the wattles roost).

Late afternoon on the 28 May there was calling from NW at 16:54 h, then 1 bird was seen on the wires in front of 50 Darwinia Terrace, and one seen and heard calling in the wattle on the 52 Darwinia Terrace drive from 16:55 – >17:00 h. One quiet bird was seen on the 6 Chauvel Circle pole, it then went into the wattles there at 17:04 h. I failed to find the birds (including in the nearby Photinia), at the suspected 52 Terrace drive or the wattles roosts.

Table 5 Summary of activity for second half of May

Day	Max. number (time (h))	Max. number (time (h))	Birds seen at roosts (time(h))
14 May	1, wattles roost (06:36 to 06:46), 2 mynas on wires	2, 60 Tce (17:04), 10+ mid straight path (17:06 – 17:12)	1 Photinia, 1 wattles (17:19)
15 May	1 Photinia roost, 5 pole SSE corner of our block (06:36 – 06:45)	5, 3 birds at our SSE corner pole (16:57) + 2 from E.	1 Photinia (myna?), 2 wattles (17:20 pm)
16 May	1, corner pole (06:46, none in the Photinia earlier)	2 wires behind 60-62 Terrace (16:50), 2 zig zag path (17:11)	None Photinia am, 5 Photinia (17:15), 1 wattles (17:19)
17 May	1 + 1, (06:45) straight path from wattles and Photinia direction, resp.	1 flew to E (17:02), heard only straight path (17:19)	None am or pm
18 May	Heard only	Couldn't check earlier pm -	1 wattles roost at dusk only
19 May	1, to straight path wires from front of 60 Terrace, 2, end Toona Pl (07:06)	Did not check - wet	1 Photinia (06:46 am, flew to SSE corner pole 06:50)
20 May	2, straight path (6:46), 3+ zig zag path (07:30)	1- see text	Nil Photinia am/pm, 1 wattles (17:15)
21 May	3, straight path grass (06:49), 2 zig zag wires (07:20)	3 towards 60 Tce (17:04)	1 from Photinia direction am, 1+ blue gum[a] and 1 wattles pm
22 May	5, straight path grass (06:50), 2 still here 07:45	1 SE GBS site (17:00)	Nil morning or evening
23 May	2, straight path grass, then 3, 10 Chauvel roof (07:10)	3 – see text	Nil morning or evening
24 May	1, flying high W (06:49), 2, zig zag wires (07:06)	2 – see text	Nil morning or evening
25 May	2 Circle to 40 Chauvel, and calling at 06:51, 6, various spots (>07:00)	Did not check	None top drive, morning
26 May	2, 52 Tce wires (06:57)	None seen/heard (>16:50)	Nil
27 May	2, straight path (06:57), calling end Toona Pl after 07:12	1, various	Nil
28 May	1, plus calling - foggy	1, various – see text	Nil wattles/Photinia – see text
29 May	1, straight path grass, 07:00	2, straight path grass (16:47)	Nil 52 Tce[b] (brief call here 17:00) /wattles
30 May	Heard only to >07:30, then 1 zig zag path	1, 52 Terrace drive pole (16:56)	Nil 52 Tce[b] (despite seen moving to roost tree)
31 May	2, NW, see text	Heard only	Nil 52 Tce[b] (called near here)

[a] Only the second use of this roost site (see 15 Feb observation above)
[b] See Part II this issue, p. 255

It was darker with cloud cover but quite cold on the morning of 31 May, the first call was from the NW at 07:01 h. Then 1 bird was seen on the 50 Terrace wires, this flew to join 1 on the 52 Terrace drive pole. Calling was heard from the 52 Terrace drive at 16:55 h but I could not locate any birds in the suspected roost tree (this was confirmed in June – see Part II, this issue, p. 255). No other birds were heard or seen.

The much more varied pattern from 16 May with a low number of birds seen together, including at a roost (maximum of 5 in the morning on 22 May and also 5 at the Photinia roost on 16 May), lead me to conclude that this was the end of the roost flights and roost activity for 2015. In addition there seemed to be at least some birds which didn't leave the area. For

example there were up to 3 birds in the back yard of 58 Terrace on the afternoon of 31 May, though during the peak roosting periods maximal 5 birds were often present in my GBS site during the day. Apart from the birds thought to be roosting at the 52 Tce drive (see Part II, this issue, p. 255), there also seemed to be resident birds at the corner of Monkman and Ordell Streets. The first calls were heard from there at 06:49 h on 23 May, with more calling on 24 May, 2 were seen there around 07:00 h on 27 May, and 3 seen after 07:00 h on 29 May. In both latter cases birds moved SE along Ordell Street. However, enough interesting observations remained to sustain the interest in June. I continued taking notes. After a period a new and major roost area was unexpectedly discovered. It was used during winter and much of spring (see Part II, this issue, p. 255).

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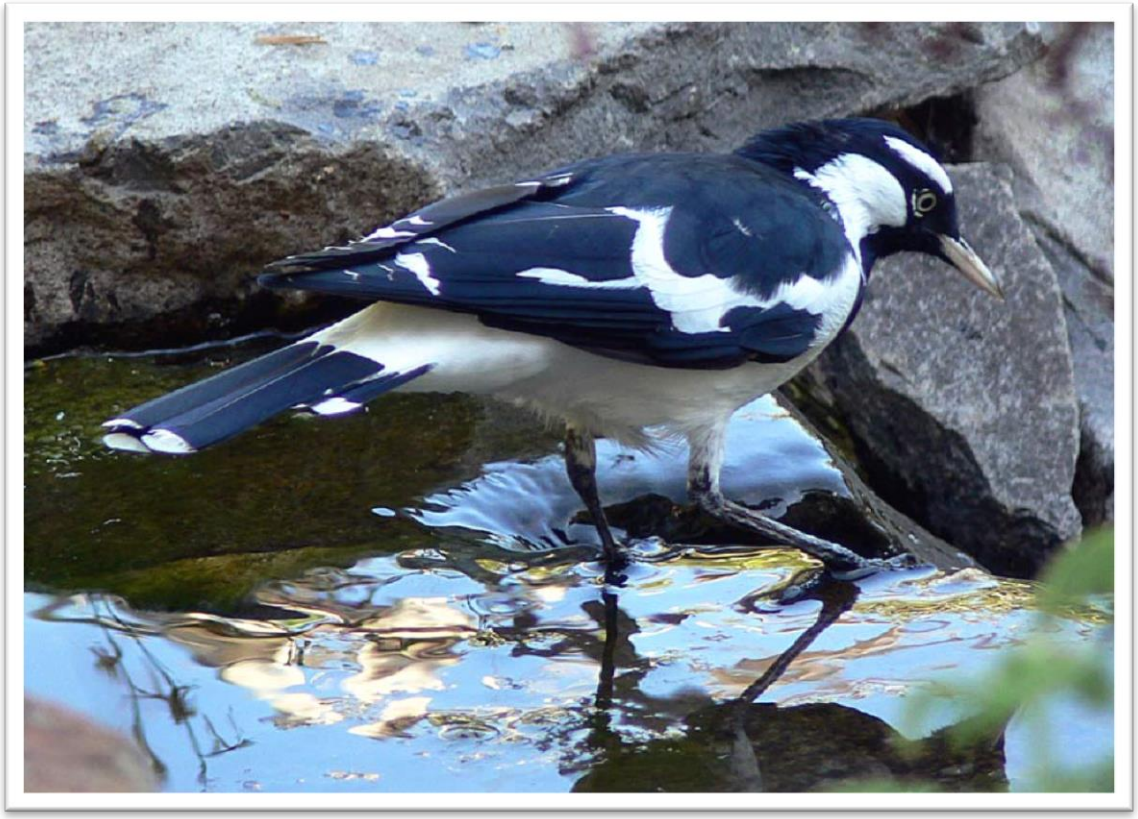

A male Magpie-lark (*Bronwyn King*)

OBSERVATIONS ON THE ROOSTING BEHAVIOUR OF THE MAGPIE-LARK IN CHAPMAN/RIVETT II. WINTER AND SPRING 2015

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Abstract: *Observations on the Magpie-lark roosting behaviour around the lower (ENE) end of the laneway between Chauvel Circle and Percy Crescent Chapman during the winter and spring of 2015 are detailed. This includes the numbers of Magpie-larks involved in the roost flights as well as the key dates for the occupation of, and the numbers of birds in, the 2 main roost sites utilised during this time. Also described is the behaviour of the resident pair present for the whole of this period. These as well as similar observations for the winter and spring of 2015 detailed in Part I (this issue, p.242) are discussed and compared with the literature.*

1. Introduction

As noted at the end of the preceding paper (this issue, p. 242), the low number of Magpie-larks seen together, including at the known roost sites and the much more varied pattern of behaviour from 15 May onwards lead me to conclude that their roost flights and roost activity for 2015 had ended. However, I continued to take notes during June, which lead to some unexpected developments.

2. Observations

For the first week of June numbers stayed low, with no clear suggestion of any roost flights. However, finally I was able to confirm the roost site for the birds that I had often heard calling first in the morning from 1 April and regularly throughout May. On 28 May I had observed 1 bird in the wattle in the 52 Darwinia Terrace driveway until after 17:00 h, but was not able to locate any birds in there later, or on the evenings of 29 - 31 May (see Table 5 and text of Part I, this issue, p. 242).

However, at 16:58 h on 1 Jun there was 1 bird on the pole adjacent to the 52 Terrace driveway, which then moved into the single wattle (10 m tall and 6-8 m wide) over the driveway at 52 Darwinia Terrace. There were also many droppings under the tree, suggesting this site (referred to as the 52 Tce roost from here on – Site 1, Map 1) had been used for roosting for some time. At 16:57 h on 2 Jun there was 1 bird on the wires at 50 Terrace, this was later confirmed at the 52 Tce roost.

No birds could be found there on the evening of 3 Jun, but at 16:55 h on 4 Jun, 1 bird was on the 52 Terrace drive wires. It seemed a bit hesitant to go to the roost, and seemed to try bushes further up (as it was being harassed by an Australian Magpie *Cracticus tibicen*), but at 17:00 h 2 birds were seen trying to settle in the wattle. This was also the case at 17:02 h on 5 Jun, but not at 17:00 h on 7 Jun. It may have been too early, as on 8 Jun birds were calling from there (probably pre-roost) at 17:06-17:08 h, or I could not find them as later observations showed they moved sites within the wattle.

I concluded they were a resident pair as in the mornings they often moved to the zig zag path wires after calling (as they did on a number of occasions in late May – see Table 5, Part I this

issue, p. 252). They also appeared to be defending their territory. At 07:05 h on 4 Jun 2 birds flew in pursuit of each other from these wires high SSW over Chauvel Circle, one bird returned to join another there, both calling. A similar event also occurred at 08:25 h on 8 Jun, and 2 birds were also seen harassing a Collared Sparrowhawk (*Accipiter cirrocephalus*) on these wires around noon on 2 Jun. Much more evidence below proved this to be correct. This pair was found roosting there almost every time I checked up to the end of September when they switched to roost in another wattle across the road. They also frequently challenged other Magpie-larks moving through or trying to roost within their territory.

Map 1. Key sites for winter/spring observations of roosting Magpie-larks.

Key to sites mentioned in the text: 1 –52 Tce roost; 2 – Sideroxylon roost; 3 – Lower end of laneway between Chauvel Circle and Percy Crescent; 4 – Melaleucas roost; 5 – 20 Cle roost; 6 – NE side 15-17 Percy Crescent; 7 – 47 Tce roost; 8 – Top Angophora Street

2.1. Signs of renewed activity

However, after the first week of winter Magpie-lark activity and numbers increased. On the morning of 9 Jun suddenly over 6 birds were on the straight path wires at 08:03 h, 2 of which flew low over behind our house, but 5 stayed on these wires, calling and milling around at least until 08:07 h. At 16:56 h there were 2 birds on our SSE corner pole, 1 flew off over our house calling but the other went silently to the Photinia roost at 16:58 h. Next there were 3 birds on the underpass wires at 17:01 h, a couple flew to the nearby bushes appearing to want to roost there, but at least 3 joined in from the W. Lots of milling around and harassment by Australian Magpies followed, but there were 5 birds at the wattles roost at 17:08 h. Birds were still calling at the 52 Tce roost, and 2 were found roosting high in the wattle at 17:10 h, but birds could not be confirmed roosting in the Photinia.

This was unexpected behaviour as a maximum of 3 birds had been observed together so far in June, and in fact these were higher numbers than seen (including at roost) in the second half of May (see Table 5 as well Map 1 of Part I for descriptions of the locations, this issue, p. 242). However, this appeared to be a random event, as no more than 3 birds were seen the following morning, with no sign of activity around the wattles roost.

Despite up to 3 birds being in the area on 10 Jun from 16:43 h that afternoon, no birds could be found at any of the known roost sites (hakea, wattles, 52 Tce or Photinia), and there was

no more calling from 16:55 to 17:10 h. The following morning, 11 Jun, apart from the usual calling from the 52 Tce roost area from 07:01 to 07:19 h, nothing was seen or heard until 7 birds appeared on the eastern side of my GBS, flying along Darwinia Tce in a SE direction at 07:40 h. Further, there were 2 birds on underpass wires where they stayed for > 5 minutes.

This was the largest group of birds seen together since 14 May, travelling both late and in the reverse direction to the usual morning roost flights. Again this seems to have been a random event. While 4 birds were seen mid-afternoon, later there was activity only at the 52 Tce roost area with 1 bird going to the roost at 17:00 h. On the morning of 12 Jun after the first calls from the 52 Tce roost area at 06:59 to 07:03 h, 3 birds came from there to the zig zag path wires, then 4 birds were seen going W (possibly to the Chapman horse paddocks). There was very little calling in the evening but 2 birds were at a new spot in the 52 Tce roost at 17:01 h.

This pattern of the first calls from the 52 Tce roost area and birds then coming to the zig zag path with only a few seen in my GBS site during the day continued for the next week or so. The 52 Tce roost site was checked on 14 Jun (only 1 bird at 17:05 h), 16 Jun (2 birds already settling at 16:41 h as it was wet), 17 Jun (2 close together at 17:08 h), 18 Jun (2 at 16:59 h) and 19 Jun (only 1 at 17:03 h). At 16:56 h on 20 Jun one was calling here, but waited until 17:01 h to join 1 already at the 52 Tce roost [close together later, plus 3 Crested Pigeons (*Ochyphaps lophotes*) in there from about 16:46 h]. On 21 Jun 1 bird was already on this roost from 17:01–17:06 h, and then 2 birds were there at 17:09 h. There were none at the wattles roost on 19 or 21 June.

The only unexpected observation was calling heard in the N part of my GBS site at 07:08 h on 18 Jun. Four birds were flying high over to the Chapman horse paddocks, one of which returned. Apart from possibly on 12 Jun, this was the only clear sign of the typical morning roost flights since mid-May, but also similar to the behaviour seen on 4 and 8 Jun of the "resident" birds challenging other birds passing through, as described above. The latter was to become typical, including at 16:46 h on 20 Jun when a bird left the 52 Terrace drive wires high over the Terrace to the end Toona Place direction with another bird before returning.

2.2. A second pair roosting and vying for the territory

There was increasing activity in the last week of June with birds in or around the area of the 52 Tce roost often leaving to challenge birds passing through or calling, both at the end of Toona Place and also from the top of Angophora Street. However, around 17:00 h on 23 Jun there was also activity in the bushes and wattles at the front of 47 Darwinia Terrace. On checking 1 bird was calling from a large (around 12 m high and 7 m wide) mugga ironbark (*Eucalyptus sideroxylon*) planted close to the road at the top of the drive.

I suspected this to be a new roost site (hereafter called the sideroxylon roost – Site 2, Map 1). This was confirmed on 25 Jun when after observing some birds chasing each other around 2 of them went into the sideroxylon roost at 07:07 h, taking >5 minutes to settle near the top. The chasing and challenging also often involved movement to and from the lower (ENE) end of the laneway that runs between Chauvel Circle and Percy Crescent (Site 3, Map 1). From there birds came in often low to the sideroxylon roost with surprisingly limited or no challenge once they tried to settle in the roost. This turned out to be a temporary roost site as this activity was observed only until 3 Jul.

An unexpected discovery was of birds flying over at 16:54 h on the evening of 24 Jun with 6 birds seen crossing high over 52 and 51 Terrace into Rivett, the first apparent evening roost flight seen since mid-May. This (renewed?) activity was observed for 7 evenings over the next fortnight, with 12 birds (the most since 12 May) at 16:57 h on 28 Jun flying high over from the laneway direction to at least Toona Place.

The observations made in the afternoons from 22 Jun to 7 Jul are summarised in Table 1, note that from 29 Jun these were made from closer to the lower end of the laneway, whereas previously they were from either side of the Terrace, usually close to the sideroxylon roost site. The only notable morning numbers were recorded at 07:41 h on 29 June with at least 5 birds in the vicinity of our SSE corner pole (see Map 1 of Part I, this issue, p. 242). After this there was generally only a maximum of 3 birds seen away from the morning and evening roost activity.

Table 1. Summary of observations from 23 Jun to 7 Jul (afternoon counts).

Date	Number over to Rivett (time (9))	Sideroxylon roost (time (h) in, settled)	52 Tce roost (time (h) in, settled)
22 Jun	0	0	1/2 (16:47, 17:03)
23 Jun	0	1 not yet settled >17:00	2 settled (16:58, 17:08)
24 Jun	6 (16:54)	0 (2 chasing 17:00 – 17:12)	2 (17:12) + 3 Crested Pigeons)
25 Jun	0	2 after chasing (17:07, 17:13)	1/2 (17:06, 17:13)
26 Jun	4 (16:59)	2 in low (17:03, 17:07, no reaction from 52 Tce roost)	1/2 (16:57, 17:07) + 3 Crested Pigeons)
27 Jun	2 (16:59)	2 in low (17:05, settled quickly, calling only from 52 Tce roost)	2 (17:08 + 2 Crested Pigeons)
28 Jun	12 (9 + 3, 16:57)	2 in low (17:02)[a]	1/2 (17:13, 17:17) + 3 Crested Pigeons)
29 Jun	2 (16:54) + 7 (16:57)	2 from the lower end of laneway (17:01, with no reaction, 17:05)	2 (17:06) + 2 Crested Pigeons)
30 Jun	Did not check	0 up to 17:10	2 (>17:06)
1 Jul	7 (16:57) + 2 (17:02)	2 (in low 17:07, 17:09)	2 in low (17:06, 17:09)
2 Jul	0	1/2 (1 in low 17:04, 2 at 17:07)	1 not yet settled (17:09)
3 Jul	2 (16:58, from laneway)	2 (in low 17:02, 17:07 h)	2 from wires (17:01, 17:08)
4 Jul	3 (17:00)	0 (4 Galahs roosting in tree)	2 from wires (16:53, 17:10)
5 Jul	0	0 (2 Galahs came in at 17:06)	2 via 47 Tce bushes/wires (17:01, 17:08)
6 Jul	2 (16:57)	0	2 from wires[b] (17:02, 17:08)
7 Jul	Away overnight	-	-

[a] Soon chased out - continued until at least 17:13 h with several aborted attempts to settle.
[b] Chased 2 birds down Angophora Street from wires on at top of street beforehand

2.3. A more significant roost site and roost flight activity discovered

On the evening of 8 July I again stood between the Terrace, but closer to the lower (ENE) end of the laneway that runs between Chauvel Circle and Percy Crescent (Site 3,Map 1). There was no activity until 16:49 h when calls came from Kathner St direction, then 4 birds came straight over from at least Percy Crescent to well into Rivett at 17:00 h and another 5 birds dropped onto the laneway wires. The latter had moved into the big garden at 20

Chauvel Circle by 17:02 h, and then another 2 came through low over into Rivett at 17:05 h. At 17:08 h 1 bird moved into the sideroxylon briefly from 47 Tce, then flew back to the laneway, but there was no further calling and I found 2 birds already well settled at 52 Tce roost at 17:10 h.

On the clear and mild morning of 9 Jul 4 birds came from Rivett high over 50 Tce at 07:09 h, but with unexpectedly only a weak call in response from the 52 Tce roost area. That evening I stood even closer to the laneway when similar activity to 8 Jul was noticed, as it was for the next few days However, activity on 12 Jul was much lower (see Table 2).

I was unable to check on 13 Jul except in the evening for the 52 Tce roost, so it was a surprise at 07:09 h on the morning of 14 Jul when at least 12 birds [plus several Common Mynas *Sturnis tristis*)] were observed suddenly rising high from the 20 Chauvel Circle direction over 14 Chauvel, where they turned and went in direction of Chapman horse paddocks. I suspected something had disturbed them from the roost there. That afternoon was cloudy and dark with a very cold wind and at 16:45 h 1 bird was already on the wires at the lower end (ENE) end of the laneway, soon there were up to 7, but in particular milling around the lower (N) corner of 20 Chauvel until 16:52 h. Several birds could then be seen in the densely planted melaleucas (an L-shaped row of around 10 m, maximum of 8 m high and several m wide) in this corner. A couple of Common Starlings (*Sturnis vulgaris*) were heard in there (called the melaleucas roost from now – Site 4, Map 1). Then at 16:59 h two birds went calling to the 52 Terrace drive pole, and very soon to the roost site.

The greater attention paid to this newly discovered area soon revealed the extent and importance of this roost. It was regularly checked only in the afternoons, when birds were counted coming in to the laneway wires, mainly from the Chapman horse paddocks. Birds would arrive in groups of varying size over a period of 5 to >18 min. The timing was dependent on the weather, being much earlier if it was cloudy and dark. In the mornings the first calls were usually from the 52 Tce roost direction. There were rarely more than 2 birds seen in our GBS site during the day.

These details are summarised in Table 2. Note that counts were not always accurate, particularly of the total number of birds. Sometimes the Magpie-larks sat still on the wires, but they often milled around, including going to and from the 20 Chauvel garden or the 17 Percy Crescent garden on the opposite side of the laneway. Estimated numbers going to the 20 Chauvel roost site are listed in Table 2, but these could not be attributed to the melaleucas or elsewhere in the garden as birds often seemed to enter the melaleucas from behind, and they were very hard to estimate once in there due to the density of the foliage. However, I assumed most of the birds were roosting there, as opposed to the different behaviour from 4 Aug. Likewise exact numbers going through to Rivett were hard to establish as some birds often returned. Also the numbers listed for the birds at the 52 Tce roost are generally the last ones for the evening, usually the first (the female when checked) went there much earlier but often the other bird did not go to the roost until all the activity had died down.

Table 2. Summary of observations at the laneway from 8-25 Jul (afternoon counts).

Date	Maximum number on laneway wires (time (h))	Total number (time (h) period seen, to roost)	Number through to Rivett	Birds at 52 Tce roost (time (h))
8 Jul	5 (17:00)	11 (17:00 – 17:05, 5)	6 (4 + 2)	2 (17:10)
9 Jul	7 (16:57)	11 (16:47 – >17:02, 6)	4 (2 + 2)	2 (20:00)
10 Jul	9 (16:56)	13 (16:56 – 17:05, 9+)	0 (2 reverse,	1 (17:10, 2, 21:15)
11 Jul	5+ (17:02)	8 (16:46 - >17:02, 5+[a])	3 (2 + 1)	1 (17:10)
12 Jul	2 (16:54)[b]	2 (<16:54 – 17:04, 0)	0	2 (17:07)
13 Jul	Did not check	-	-	2 (17:20)
14 Jul	7 (16:50)	7 (16:45 – 16:52, 7[b]) but 12+ (07:09)	0	2 (>17:00)
15 Jul	16 (16:52)[b]	16+ (<16:45 - > 17:00)	-	1 (17:03, 1 still out)
16 Jul	12 (16:33)[b]	12+ (<16:33 – 16:53)		2 (17:03)
17 Jul	19 (16:48)[b]	29 (16:44 – 17:02)	4 (1 + 3)	1 (17:06, 1 still out)
18 Jul	20 (16:53)	20 (16:45 - >17:00)	0	2 (17:14)
19 Jul	4[c] (17:04)	4 (17:04)	-	1 (17:07, 0 17:34)
20 Jul	10+ (up to 17:07)	20 (16:51 - >17:07)	1	2 (17:22)
21 Jul	15 (16:57)	18 (<16:47 - >17:00)	1	2 (17:14)
22 Jul	12 (16:42)	14 (<16:37 – 16:45)	-	None by 16:47
23 Jul	Did not count	-	-	2 (17:25)[d]
24 Jul	18 (16:42)	18+ (<16:37 - >16:50, <18)	-	2 (16:10)
25 Jul	34 (16:50)	34+ (<16:37 - >16:53)	3+	2 (17:42)

[a] Plus 3 Common Mynas at 16:44 h.

[b] Plus 6 (12 Jul), 3+ (15 Jul), 10+ (16 and 17 Jul), 15+ (20 Jul) Common Starlings (several in roost 14/ Jul)

[c] Counted from front of 21 Kathner Street from about 16:50 h), 12 seen coming from the horse paddocks over 27-29 Kathner St and 10 along wires behind these houses between 16:56-16:59 h.

[d] Plus 2 Crested Pigeons

2.4. Numbers increased during August

Except for the 29 birds counted on 17 Jul, numbers were relatively stable (≤20) during that month until the apparent increase on 25 Jul. Unfortunately I was away from 26 Jul to 3 Aug, and based on my previous experience (see Part I, this issue, p. 242) was half-expecting the roost to have broken upon my return, but instead numbers had increased and were consistently over 40 for most of August, with a similar but an increasingly drawn out and complex pattern. These are summarised in Table 3. One feature for the first half of August was that birds seemed to be roosting closer to the house at 20 Chauvel Circle (called the 20 Cle roost from here on – Site 5, Map 1) rather than the melaleucas in the N corner. However, despite a number of attempts it was very difficult to see where the birds were roosting due to the high fence and the many bushes, both smaller and larger. I suspected there were a number of different roost sites there. My notes do indicate that from 14 Aug quite a few birds were again dropping in to the melaleucas roost. Birds going through into Rivett also remained very variable, and numbers seen in my GBS site during the day remained low.

There was only one morning count done near the roost area in this period, on the clear and frosty morning of 9 Aug when the first calls were heard from 52 Tce roost direction very early at 06:30 h. Calling at the roost site at 06:37 h was followed by 6+ birds coming to the

laneway wires, plus a similar number on a pole of the wires that run between the battle-axe at 20 Chauvel and the normal blocks at 16 and 18 Chauvel Circle. Then by about 06:40 h around 25 birds were on the laneway wires, with 6 going down to Rivett and a small number going through to the Chapman horse paddocks. There was much milling around of at least 10 birds until about 06:47 h when 3 birds went down to Rivett, and then 4 ESE over my GBS site. At 06:50 h 15 Magpie-larks suddenly left from the 20 Chauvel garden (none from the melaleuca roost except late 4 starlings) going to the horse paddocks followed by most of the 15 still on the laneway wires. From a total of 55 birds (the same as seen there evening before) 42 moved to the horse paddocks, 13 were seen moving in the opposite direction.

Table 3. Summary of observations at the laneway from 4-28 Aug (afternoon counts).

Date	Maximum number laneway wires (time (h))	Total number (time (h) period seen)	Number through to Rivett	Birds at 52 Tce roost (time (h))
4 Aug	40 (16:50)[a]	40 (<16:43 – >17:27 h)	0	2 (17:30 h)
5 Aug	30 (16:57)	30 (16:52 - >17:05)[b]	A few	2 (17:23)
6 Aug	36 (17:02)	55+ (16:52 - >17:10)	0	2 (17:32)
7 Aug	25 (17:04)	60 (16:52 to >17:17)	0	2 (17:32)
8 Aug	25 (17:03)	55 (16:53 - >17:15)	2	2 (17:34)
9 Aug[c]	25 (06:40)	55 (06:37 – >06:51)	9 (6 + 3) from	-
9 Aug	30 (17:03)	52 (17:00 - >17:16)[b]	6+	2 (17:32)
10 Aug	Did not check	-	-	2 (17:28)
11 Aug	25 (?)	50 (16:48 - >17:10)	0	2 (17:39)
12 Aug	Did not check - wet	-	-	-
13 Aug	38 (16:53)	58 (16:39 - >17:09)	20+	2 (17:28)
14 Aug	12 (17:17)	45 (16:50 – 17:30)	3 (1 + 2)	2 (17:33)
15 Aug	Did not check	-	-	2 (17:34)
16 Aug	Limited check	8 (17:08 – 17:14)	0	2 (17:37)
17 Aug	30 (17:09)	51+ (16:54 - >17:20)	-	2 (16:44)
18 Aug	29 (~17:20)	40+ (16:59 – 17:30)	7 (3 + 4)	2 (17:32)
19 Aug	Did not check	-	-	2 (17:38)
20 Aug	25 (17:27)	42+ (17:07 – 17:35)	4 (1 + 3)	2 (17:44)
21 Aug	21 (17:18)	47 (<16:52 - >5:25)	2	2 (17:43)
22 Aug	Limited check	9 (<17:00 - >17:02)	0	2 (17:40)
23 Aug	15 (17:13)	44 (17:04 - >17:25)	4	2 (17:45)
24 Aug	Did not check - wet	-	-	-
25 Aug	Limited check - wet	-	-	2 (17:11)
26 Aug	Limited check	6 (17:02 – 17:06)	1	2 (17:44)
27 Aug	19 (17:08)	60 (<16:49 – 17:28)	0	2 (17:47)
28 Aug	Did not check - wet	-	-	2 (17:49)
2 Sep	13 (17:31, 17:36)	23+ (<17:07 - >17:39)	5	2 (17:53)

[a] Flushed from 20 Chauvel Circle house area when checking melaleucas roost (also 29+ flushed at 17:25 h)
[b] Plus ≤5 Common Starlings (5-9, 13-14 Aug), or 2 Common Mynas (9 Aug)
[c] Morning count

2.5. Numbers drop towards mid-September

Except as detailed for 9 Aug all counts and the roost flight observations in Table 3 above were done in the evening. For a number of reasons, particularly the increasingly long drawn out period over which they came in (often >30 minutes, see Table 3) observations in the mornings became much more ideal. These are summarised in Table 4 (the single afternoon count on 2 Sep has been included in Table 3 above), again almost all birds moved to the Chapman horse paddocks. It was also much easier to establish from where the birds were emerging, but the numbers given for the melaleucas and 20 Cle roosts in Table 4 are still only approximate. Numbers also dropped from the very high ones at the end of August but were still significant by mid-September. First calls were heard still usually from 52 Tce roost, followed by calls from the larger roost usually a few minutes later. Most birds still flew to the horse paddocks, including those coming up from Rivett, except for the "resident" pair.

2.6. Activity more complex but numbers relatively stable second half of September

From mid-September activity became more complex. Instead of the relatively smooth movement of birds leaving the roost and going to the Chapman horse paddocks either directly or via the laneway wires, from 13 Sep activity became more drawn out and included more back and forwards movement to and from Rivett as well as Chauvel Circle at different times.

Table 4. Summary of observations at laneway from 29 Aug – 15 Sep (morning counts).

Date	Maximum number laneway wires (time (h))	Total number (time (h) period seen; [melaleucas/20 Cle roosts]	No. from Rivett	Birds at 52 Tce roost (time (h))
29 Aug	40 (06:17)	63+ (06:13 – >06:26, 40+[a]/20+)	-	2 (17:52)
30 Aug	Did not check	-	-	2 (17:45)
31 Aug	35 (06:18)	38 (06:13 – 06:24, 20/17)	-	2 (17:51)
1 Sep	15 (06:21)	27 (06:10 – 06:26, 13/14)	-	-
2 Sep	14 (06:21)	30 (06:13 – 06:25, 2/28)	-	2 (17:53)
3 Sep	Did not check	-	-	2 (17:54)
4 Sep	21 (06:13)	25 (06:06 – 06:18, 4/21)	-	-
5 Sep	14 (06:14)	17 (06:08 - >06:22, 0[b]/13)	2	2 (17:55)
6 Sep	9 (06:13)	13 (06:12 – 06:19, 0[b]/13)	-	2 (17:57)
7 Sep	18 (06:10)	18 (06:05 – 06:12, 0[b]/18)	-	2 (18:00)
8 Sep	14 (06:10)	20 (06:04 - 06:11, 0/20)	-	2 (18:01)
9 Sep	20 (06:05)	24 (06:04 – 06:11, 0/20)	4	2 (18:02)
10 Sep	2 (06:03)	20 (06:03 – 06:14, 0/16)	4	2 (18:05)
11 Sep	10 (06:00)	21 (05:58 – 06:10, 0[a]/14)	5	-
12 Sep	15 (05:59)	17 (05:53 – 06:00, 0/14)	3	2 (18:07)
13 Sep	6 (06:00)	18 (05:49 – 06:10, 2[a,b]/12)	4	2 (18:06
14 Sep	8 (05:57)	15 (<05:45 – 06:11, 1[a,b]/14)	-	2 (18:13)
15 Sep	9 (05:52 – 05:56)	18 (05:50 – 06:36, 4/8)	6	2 (18:09)

[a] Plus Common Starlings: 18 (29 Aug, left at 06:20 h), 3 (11 Sep, left at 06:09 h; 13 Sep left at 06:06 h; 14 Sep, left at 06:00 h)

[b] Common Mynas and Crimson Rosellas (*Platycercus elegans*) heard in there (2 mynas to wires at 06:17 h, 5 Sep; 3 Crimson Rosellas left roost 6 Sep; 2 mynas left 06:01 h and 2 Crimson Rosellas 06:04 h, plus 1 Willie Wagtail (*Rhipidura leucophrys*) calling from 06:00 h, left 06:10 h, on 7 Sep; 2 Crimson Rosellas left at 05:54 h plus 2 mynas at 06:00 h on 13 Sep; 2 mynas left at 05:58 h on 14 Sep

Quite a few birds did not go through to the horse paddocks (at least not directly) but stopped around the NE side of 15 and 17 Percy Crescent (Site 6, Map 1). Also a few birds seemed to roost in this area, mainly in the wattles around the tennis court on the large battle-axe block

of 17 Percy Crescent on the opposite side of the laneway to 20 Chauvel Circle. These birds were often first to the wires. Also close to the end of the month early morning calling seemed to occur more widely. Observations for the remainder of September are summarised in Table 5.

The changing activity, with much more movement around the laneway/roost sites observed in the second half of September, increased further in October. One interesting observation was the change, on the evening of 1 October, of roost site for the "resident" pair from the 52 Tce roost to one diagonally across the road in a large (10 m high and 8 m wide) wattle over hanging the footpath at 47 Darwinia Terrace about 30 m away (and about 10 m from the sideroxylon roost favoured by the second pair in late June/early July – see above). As noted in Table 5 they were heard calling from here from 05:22 h on 30 September, and they remained there (referred to as the 47 Tce roost from here on – Site 7, Map 1) until early December when they switched back to the 52 Tce roost.

While they were still generally the first to call, calling by other birds seemed more widespread. Usually the Magpie-larks from the 20 Cle/melaleucas roost sites were the last to be heard. Fewer than 10 birds roosted there, declining to less than 5 early in October and then to a single bird mid-month, though total number of birds in the area were still often above 10, at least until 10 Oct. Other species roosting in the melaleucas (mynas, starlings and Crimson Rosellas) were still observed throughout the first half of the month. Birds coming up from Rivett also seemed to come more often to the Darwinia Tce wires to the NNW of the corner with Angophora Street (Site 8, Map 1) and often then continued to trees to the NE side of 15 and 17 Percy Crescent rather than moving to the Chapman horse paddocks (at least directly). This also seemed to be the case for birds from the laneway wires. These observations are summarised in Table 6.

Table 5. Summary of observations at the laneway from 16 – 30 Sep (morning counts).

Date	Max. no. lanew. wires (time (h))	Total numbers. (time (h) period seen) [melaleucas/20 Cle roosts]	No. from Rivett	Birds at 52 Tce roost (time (h))
16 Sep	9 (05:59)	15+ (05:46 – 06:07, 0[a]/10+)	5	1 (18:13)
17 Sep	5 (06:05)	10 (05:54 - >06:05h, 0[a]/<10)	1+	2 (18:11)
18 Sep	5 (5:55)	15 (05:46 – 06:05, 0[a]/11)	2+	2 (18:04)
19 Sep	4 (5:56)	20 (05:43 – 06:06, 0[a]/10+)	6+	2 (18:11)
20 Sep	Did not check	-	-	2 (18:07)
21 Sep	7 (05:45)	15+ (05:38 – 05:56, 0[a]/10)	2+	2 (18:08)
22 Sep	Did not count	15 (05:42 – 06:08, -/-)[b]	No count	1 (18:07)
23 Sep	Did not check	-	-	2 (18:10)
24 Sep	20 (05:47)	34 (05:40 – 05:56 3[a]/17+)	9+	2 (18:11)
25 Sep	16 (05:42)	22 (05:35 – 05:54, 0[a]/15)	6	2 (18:08)
26 Sep	12 (05:42)	19 (05:39 - 05:52, 0[a]/14)	4	1 (18:14 h)
27 Sep	7 (05:40)	23 (05:36 – 0:56, 0[a]/18)	4	2 (05:18, 28/9)
28 Sep	13 (05:34)	15 (05:32? – 05:55, 0/12)	2	Did not check
29 Sep	6 (05:36)	10+ (05:32 -05:55, 0[a]/3)	4	2 (18:14)[c]
30 Sep	11 (06:36)	16 (05:26 – 05:54, 0/10)	5	2 (18:21)

[a] Common Mynas , Common Starlings and Crimson Rosellas in there (2 mynas heard 05:42 h, left later, 2 Crimson Rosellass left 05:45 h; 16 Sep; small numbers of these birds heard and left 17 and 18 Sep; again mynas and starlings 19 Sep; 21/9; 2 Crimson Rosellass leftt 05:32 h, mynas heard 05:37 h and 4 starlings left 05:43 h, 24 Sep; mynas and Crimson Rosellas heard at roost, 25 and 27 Sep; mynas heard at roost 05:32 h, Crimson Rosellas left 05:35 h, Crested Pigeons heard in there and possibly starlings also, 26 SDep; Crimson Rosellas only, 29 Sep

[b] Counted from front of 15 Percy Crescent to see if birds were still going through to horse paddocks

[c] Still settling, not here at 05:18 h 30 Sep, but heard calling from 47 Tce roost site from 5:20 h.

Table 6. Summary of observations at the laneway from 1 – 31 Oct (morning counts).

Date	Max. no. lanew. wires (time (h))	Total numbers, (time (h) period seen) [melaleucas/20 Cle roosts]	No. from Rivett	Birds at 47 Tce roost (time (h))
1 Oct	4 (05:43, 05:49)	10 (05:34 – 06:00, 0[a]/5+)	-	0 (18:20)[b]
2 Oct	7 (05:35)	16 (05:29 – 05:58, 0[a]/9+)	5	2 (18:22)
3 Oct	8 (05:28)	12 (05:26 – 05:5,5 0[a]/7+)	4	2 (18:19)
4 Oct	Did not check	-	-	2 (19:21)[c]
5 Oct	7 (06:37)	9 (06:30 – 06:44, 3[a]/5)	1	2 (19:14)
6 Oct	3 (06:28)	7 (06:21 – 06:40, 0/4)	-	Did not check
7 Oct	4 (06:19)	7 (06:18 – 06:38, 0/4)	2	2 (19:35)
8 Oct	4 (06:32)	7 (06:22 – 06:46, 0[a]/3)	-	2 (19:38)
9 Oct	4 (06:28)	12+ (06:20 – 06:48, 2/2)	8	2 (19:32)
10 Oct	6 (06:37)	12 (06:15 – 06:41, 0[a]/0)	7	2 (19:35)
11 Oct	Did not check	-	-	2 (19:41)
12 Oct	3 (06:21)	8+ (06:13 – 06:33, 0[a]/3)	5	2 (19:34)
13 Oct	Did not check	-	-	2 (19:30)
14 Oct	2 (06:21, 06:28)	3+ (06:13 – 06:38, 0[a]/1)	1	Did not check
15 Oct	Did not check	-	-	2 (19:32)
16 Oct	0	3 (06:16 – 06:21, 0/1)	2	2 (19:32)
30 Oct	Away 17-30 Oct			2 (19:38)
31 Oct	0	4 (05:54 – 06:19, 0/0)	4	2 (19:38)

[a] Mynas heard 05:30 h, 2 out to wires 05:33 h, and 4 starlings to wires 05:51 h, 1 Oct; 2 Crimson Rosellas left roost 05:25 h, 2 mynas 05:33 h and 4 starlings 05:41 h, 2 Oct; mynas only heard early, and 3 starlings left 05:41 h, 3 Oct; 1 myna to wires 06:26 h (also heard), 3 starlings out 05:44 h, 5 Oct; 3 Crimson Rosellas from roost 06:18 h, 2 mynas left 06:21 h, 8 Oct; 2 Crimson Rosellas left 06:13 h, and 1 06:24 h, 10 Oct; 2 Crimson Rosellas left 06:12 h, 12 Oct; crimsons and mynas heard at roost, 14/10.

[b] 2 birds at 52 Tce roost at 05:18 h 1 October, but not found pm and at 47 Tce roost 05:16 h, 2 Oct, 05:13 h, 3 Oct

[c] First day of daylight savings

2.7. Finally all over?

I was away from 17 to 30 Oct and my first opportunity to check on the morning of 31 Oct confirmed no activity at the melaleucas/20 Cle roost sites, though there were still up to 4 birds observed coming and going in the local area including to and from Rivett. Possibly one bird may have moved indirectly to the Chapman horse paddocks. This was also observed on the morning of 11 Nov. Otherwise only a pair of birds (the residents?) was present.

However, on the morning of the first day of summer, 1 Dec, there was no indication of any birds moving through, but the resident pair was still patrolling the area of their rather large "territory" (over 150 x 100 m from the end of Toona Place, almost to the E edge of our GBS site, along Darwinia Terrace midway between Angophora and Kathner Streets and at least 50 m up from the lower end of the laneway - see Map 1). This was also the last morning they were observed at the 47 Tce roost site, as the next time I checked at 20:16 h on 4 Dec they were back at the 52 Tce roost.

I checked again on 20 Dec after observing at least 4 birds, including the resident pair possibly challenging, in my GBS site around 05:50 h, the day before, but this confirmed there was only local movement of around 4 birds. However at 06:17 h on 29 Dec I observed 4 birds coming high over the zig zag path from Rivett towards the Chapman horse paddocks, with 1 bird moving to the path wires and calling and another heard from the 52 Tce roost area, so still some were moving through in December.

3. Discussion

The above and Part I (this issue, p. 242) describe the roosting and roost flight behaviour of the Magpie-lark during 2015 in and around my GBS site in Chapman, which also crosses into the edge of Rivett. While observations have covered the whole year, the main activity was from the end of January to mid-October in two distinct roost areas.

The first was within my GBS site and centred around Darwinia Terrace, on both sides of the street, specifically from Nos 55 to 62. In this area were three main roost sites identified from mid-March to mid-May. Except for the last one, each was utilised by larger numbers of birds for only a short period, though small numbers were found at the other two from time to time. Clearly there were other sites nearby as the maximum number of birds observed on the wires after emerging from their roosts was around 60, compared with never more than 20 seen at the roost, with 48 also counted about 150 m away on their morning roost flight towards the Chapman horse paddocks. This was the main direction of flight, though less often, the majority of the birds were seen moving towards Cooleman Ridge, at least initially. Birds could also be seen returning from the horse paddocks direction to the roost area in the evenings, with always fewer than 30 birds involved.

The second roost area was mostly within the large battle-axe garden of 20 Chauvel Circle, though possibly also on the N edge of the two gardens 16 and 18 Chauvel Circle behind this place. This is just outside the WNW edge of my GBS site. It was discovered in early July and lasted until mid-October, a considerably longer period of just over 3 months. Again it was clear that different sites within the garden were being utilised. Initially birds were counted coming in to the nearby wires during the evening, morning counts were carried out from the end of August. During August from 40 to over 60 birds were regularly counted coming in, or leaving on the few occasions a morning count was done. Again most of the flights were to and from the Chapman horse paddocks, but there was some local movement including of birds coming up or going down to Rivett, always less than 10 except on one occasion when there were over 20. Also very interesting is that during winter to spring few Magpie-larks were observed in the Eastern half of my GBS. Except for the resident pair most of the activity was around the lower end of the laneway or to and from Rivett to the N of my GBS site.

A feature of the second roost area was the roost of the "resident pair" about 75 m away which was discovered early in June. At least one bird could be found roosting there each evening, with the other possibly obscured or more likely not arrived yet. The other, which I had identified as the male, seemed not to do so until all the evening activity at the 20 Chauvel Circle roost site had ceased. At the beginning of October the pair switched roost sites to another wattle about 35 m away, but switched back at the start of December. At the end of 2015 they either moved to an unknown roost or more likely moved away.

They regularly challenged other birds and were defending their territory throughout the second half of 2015. However, there was no indication of any breeding activity up to the end of December. In fact successful breeding of this species in my GBS site has been poor in recent seasons. In 2014 only one record is available of a bird obtaining nesting material on 27 Sep. In previous seasons breeding often failed and broods were lost shortly after young had fledged. The only breeding I confirmed nearby in 2015 was on 24 Nov of a nest with young at the far NNW end of the laneway that runs between Kathner Street and opposite 15 Percy Crescent. I had seen this pair on a number of occasions previously when counting birds coming in from the Chapman horse paddocks and had suspected they were "resident".

I have wondered if I had missed this second roost area in the period of low activity between mid-May and early July when the 20 Chauvel Circle roost area was discovered. I have looked very closely at the notes I kept but can find no evidence, possibly because I did not look regularly in this area until the last week of June when a second pair of Magpie-larks were roosting or attempting to do so near the "resident pair", and also when the first evening roost flight into Rivett for well over a month was observed on 24 Jun. I cannot rule out the possibility that the area was utilised from as early as mid-May, as I only gradually moved my observations towards it until I discovered the melaleucas roost on 8 Jul. However, numbers were much lower ($\leq$20 except for 29 birds on 17 Jul) for more than the first fortnight after this than in August (regularly > 40 to >60 birds). A later utilisation of the site seems the more likely.

Another question is what happened (*i.e.* where did they go between and after) to the upwards of 60 birds that I counted, particularly during August. While as noted above from the beginning of October the early morning calling seemed more widespread (which I concluded was coming from other pairs starting to establish territories), on the limited early morning checking during November to December most of the calling came from the "resident pair". Perhaps all the others were breeding and no longer needed to declare their territories? While birds were still seen and heard in Rivett during this time, there were not any more (probably less) than I had seen during June when I had convinced myself the communal roosting and roost flight activity had finished.

3.1. My earlier records/observations

Except for its extent, the roost flight activity described above did not come as a complete surprise. For quite a long time I had suspected I was seeing Magpie-lark roost flights, mainly based on them coming through early in the mornings and briefly resting on the wires on the Rivett side of the underpass, before flying towards the Chapman horse paddocks. They were also seen returning in the evening quite high as described above and resting briefly, and then seemed to be flying deeper into Rivett. Also quite often, in particular more recently, up to 10 birds would come relatively high over my GBS site towards the horse paddocks, often in pairs with quite a lot of calling, especially by what I took to be the "resident pair", which usually remained once the others had gone over. On several other occasions I recall gatherings at the end of Toona Place Rivett. However, there was never the possibility to follow this up consistently while working compared to being retired.

Steve Wallace has kindly extracted from the COG database my records of 10 or more Magpie-larks, of which the following in Table 6 are the most important. Notes kept of all my records after 1 Jul 2004 (the previous notes were lost in the 18 Jan 2003 bushfires) have allowed some extra comments to be included.

It is interesting that the majority of these were from mid to late February, exactly the time of year when I first realised the extent of these daily roost flights in 2015. Those of 12 Feb 2014 and 19 Jan 2009 are similar to those at the end of Toona Place made in 2015 (but not until mid-March and in particular April - see Table 3 of Part I this issue, p. 242), though in much lower numbers than for 19 Jan 2014. The observations made in the weeks starting 18 and 25 Jun 2010 are also interesting as they were at a time when 4 birds were first seen again going high over to the Chapman horse paddocks at 07:08 h on 18 Jun 2015, and the first 6 birds for well over a month seen moving back to Rivett on the evening of 24 Jun, respectively. However, the observations of large numbers at Rivett Oval in February and June were not checked in 2015 as a possible alternative gathering and feeding area.

Table 6. My historical records of more than 10 Magpie-larks.

Time of occurrence	Place	Number	Comments (from my notes)
GBS – Week starting			
26 Feb 1985	GBS	10	
26 Feb 1989	GBS	18	
19 Feb 1991	GBS	10	
26 Feb 1991	GBS	22	
5 Feb 1992	GBS	11	
18 Jun 2010	GBS	15	Early morning, over zig zag path
25 Jun 2010	GBS	12	Early morning, Terrace/N edge GBS
12 Feb 2014	GBS	10	Early morning, GBS part of more than 16 seen close to the end of Toona Pl.
Other places			
19 Jan 2009	End Toona Place, Rivett	40	05:55 h
18 Feb 2009	Rivett Oval, SW corner	70	07:00 h
19 Jun 2005	Rivett Oval, E side	40	15:00 h

3.2. Comparison with the Literature

HANZAB (Higgins *et al*. 2006) records that there are many reports of mobile flocks of non-breeding Magpie-larks roosting together in trees, particularly outside the breeding season, (they) regularly congregate in flocks of hundreds and, once, (a) flock of 3000 roosted in fig trees. Trees, usually with moderately dense to dense foliage, including eucalypts, figs, mangroves, pines *Pinus*, willow *Salix* and jacaranda are stated to be used. This compares with the hakea, ornamental pear, melaleucas, unknown species (in the garden of 20 Chauvel Circle) and wattles found in my area, with the last being the least dense.

Through the Birdlife Australia library I was able to obtain copies of several key references to confirm and add to the information in HANZAB (Higgins *et al.*, 2006) and to allow comparison with my observations.

Robinson (1947a) recorded that near Coolup in SW Western Australia the non-breeding roosting flock formed about the beginning of May 1944 and consisted of 45-50 birds till the end of July, declined to five in the breeding season (mid-October), and then increased to 80-100 over two sites towards the end of December after the fledglings reached independence. Then numbers declined slowly over January and March 1945 to about 20-30, and remaining at that level until June, when numbers increased again once the first permanent water formed, to a maximum of 60-70 birds during July. There were only 35 left by 30 Jul and numbers further declined to 15 on 12 Aug and 3 by 3 Sep. Owing to a poor 1945 breeding season it was not until January 1946 that birds started to gather at a new roost site (said to be because of territorial behaviour of resident birds). However, they were soon back at one of the original sites by 11 Feb with numbers slowly increasing to over 40 in March 1946.

These are the closest set of observations over a time period and of numbers similar to mine, and while there are some close parallels such as switching of sites there are also some differences in timing which are probably related to different climatic conditions in WA.

Gilbert (1935) also published relevant information during his study of the regional movements of Magpie-larks, noting that this species began to congregate in flocks near the NSW coast from (earliest) 18 Feb, with continual augmentation during March and April swelling the flocks to hundreds of birds. He observed 11 flocks in size ranging from 200 to about 3000 which selected roost trees in suitable places. He found the localities used and the numbers of birds which comprised each flock fairly constant, but that the roosting sites varied. Robinson (1947b) also notes that the roosting site is not permanent, though the same site may be used for several years.

The birds departed from the roosting sites at daybreak to search for food in small parties of up to eight or even more birds. Towards the evening they gathered in parties to set out for their roosting sites and a continual procession of similar sized groups passed over, calling vigorously, until the last birds brought up the rear after sunset. If flying into a strong wind they would come in low, but on calm afternoons at an altitude of two hundred feet (60 m) or so. Towards the middle of July flocks gradually diminished in size, usually at the beginning of August they had vanished. Again many of these observations are similar to mine, except for flock size and the much shorter period (less than six compared with over 9 months).

Hindwood (1935) also published information about Magpie-larks noting that after the breeding season they roost in mangroves near Sydney in companies of up to a hundred or more birds. The birds commence to flock in numbers about December and the maximum is reached in late autumn, with the "camps" breaking up again in July and August to breed, but that even in summer small flocks, probably consisting of unmated birds and young of the year, roost together.

Towards dusk they may be observed in parties of twos and threes, up to a dozen birds arriving at some central spot preparatory to roosting, the heavily foliaged mangrove trees offering ideal spots to roost. He notes that before settling down the entire flock will frequently fly about in a haphazard manner, at a height of a hundred feet (30 m) or so, for a few minutes, and then descend to the roosting place. Assembly trees were often used with the earliest arriving in a leisurely manner about an hour before dusk, but with the late arrivals going directly to the roosting trees, especially if the main flock had already settled.

Again this is similar to my observations including the close to-year-round roosts, with the pre-roosting behaviour similar to the "milling around" behaviour I often observed, except for the use of wires rather than assembly trees. Gilbert (1935) also describes similar evening behaviour of the very large roost at Centennial Park. Robinson (1947b) notes that in the morning birds leaving the roost assembled as a rule in a dead, or almost dead, tree before going off to feed. However, there was no evening assembly tree. Bravery (1970) also notes the morning assembly with flocks of over 300 roosting together in bushy trees in winter leaving about 06:00 h to perch on open trees such as the white cedar, before dispersing to feeding grounds.

Robinson (1947b) notes the time of leaving the roost depends on the amount of light, which is similar to my observations, though in general birds had left the roost by sunrise and the last entered after sunset (but before daybreak and dusk). I also partly agree with his observation that Magpie-larks go to the roost earlier and leave later than most birds, certainly the Australian Magpie was almost always out before the first calls of the "resident pair". However, of the birds also roosting at the 20 Chauvel Circle site, as shown in the footnotes to

Tables 3 and 4 above, only the Crimson Rosellas generally emerged slightly earlier, the Common Mynas about the same time (as they did from the exotics roost both entering and leaving – see Part I this issue, p. 242) and the Common Starlings slightly later. The last named species (and to a lesser extent the mynas) which gathered on the laneway wires pre-roosting also went in at much the same time as the magpie-larks, if towards the end. Only the Crested Pigeons seemed to go into the roost much earlier than the other species.

Robinson (1947b) notes that roosting flocks often call for 20-30 minutes before leaving the roost. However, the birds at the Darwinia Terrace and the 20 Chauvel Circle roost areas often only called briefly before they emerged. In contrast the resident pair, apart from usually being the first to call, often called for more than 5 minutes before leaving the roost, though this was usually before or around the time the other roosting birds emerged, as opposed to after as stated by Robinson (1947b). Further I often saw these birds very close together while roosting compared with never closer than one foot (30 cm, Robinson, 1947b).

Robinson (1947b) also notes that the resident pair changes roost sites, but they will have certain favoured trees in the territory and will roost in the one situation for weeks at a time, and the first bird to go to the roost usually calls to its mate, similar to my observations. However, he notes that the male is much better at settling than the female, which suggests the female is the last to enter. Robinson (1947b) clearly states that the female will often leave the roost before the male. From a few observations it appeared the male was last to come to roost after all other activity died down, and I assumed was also the first to leave to challenge other birds moving through. However, this needs confirmation, especially as Robinson (1947a) notes that resident (mated) females are the more aggressive during the non-breeding season.

Acknowledgements

I would like to thank Steve Wallace for providing the information from the COG database, Lachlan Garland from the Birdlife Australia Library for providing the relevant papers from the back issues of Emu, and Michael Lenz for providing constructive and detailed comments on these two articles.

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NOTES

ARE SOUTHERN BOOBOOKS DECLINING?

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The most recent BirdLife Australia State of Australia's Birds reported that Southern Boobooks *Ninox novaeseelandiae* had declined throughout most of BirdLife's reporting period. Despite high variability year to year, by 2013 Boobooks had decreased to low levels, with average reporting rates of only between 1 and 3 per cent. They were declining across all but one of the regions in Australia (BirdLife Australia 2015).

Assessments of changes in owl numbers can be tricky because most observers are not seeing, watching and counting the owls; they are listening to owls calling at night. A number of variables such as weather, new owls coming into an area, or breeding status of a pair can determine whether owls call or stay silent (Olsen *et al*. 2002). The owls might be on a territory but not calling, so they are invisible to the person doing the bird survey. However researchers can check the numbers of owls heard calling in surveys against another measure of abundance: the number of breeding pairs they actually find and see in an area. Since 1993 we have been checking Southern Boobook territories in an area comprising the Aranda Bushland, Black Mountain, and Bruce Ridge. There were, on average, about 9 pairs breeding in this area each year. We haven't been able to check these territories carefully in the past few years but we did carefully search the area in December 2014-January 2015, a good time to find adults with nestlings or fledged young. We found only one breeding pair. So our results mirror what BirdLife Australia found. Our Canberra Boobook numbers had collapsed, at least in the 2014-2015 breeding season compared to the average number of pairs 1993 to about 2010. We will search these territories again in the 2015-2016 season to see if this is a real trend or just a blip, but we would be interested in any ideas COG members have about the reason for the possible decline of Boobooks in the ACT and across Australia.

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This Southern Boobook territory on Black Mountain was abandoned in the 2014-2015 season (*Jerry Olsen*).

SOUTHERN BOOBOOKS - A HOOT OF A TALE*

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When we first moved into our house in Hughes 30 years ago, we often heard the 'mopoke' call of an owl through our bedroom window. We live near the Red Hill reserve and have a leafy and overgrown garden which has always been popular with birds, especially at nesting time. Over the years, though, the 'mopoke' sound had almost disappeared, so imagine our delight one afternoon in December 2014, just before Christmas, when we spied two owls staring at us, rather disdainfully, from one of the pin-oak trees outside our bedroom. We identified them as adult Southern Boobooks, or Mopokes as I had always known them. Sadly, the next day they were gone. We forgot all about them and, then, an amazing thing happened.

Three Southern Boobooks (two young with an adult) in the Hughes garden, Jan 2015 (*Annette Lacey*).

On Saturday, January 17, our neighbour, Pat, whose property shares a boundary with ours, called to tell us that she had just spotted three 'baby owls' in the cotoneaster bushes that

* The COG database contains only few breeding records for the Southern Boobook from the ACT. Breeding was reported in only four of the last 11 years, most recently in Nov 2012 [CBN 38 (2013), p.42]. Further, in light of a general decline of this owl (see Olsen and Trost, this issue, p. 270), the Hughes report of a successful brood is of interest. In 2015/16 another brood was successfully raised: 1 adult and 2 young were present in the same Hughes garden in mid January 2016 (Annette Lacey). *The Editor*.

border the lane beside our house. This lane leads to the battle-axe block, which fronts the Red Hill reserve. We rushed up the lane and there nestled together, well back but clearly to see, were three gorgeous boobooks. We noticed that one was larger and the two smaller ones were quite fluffy with very few chest markings. They stared at us indignantly. They were not very pleased to have been spotted. The news spread and, all day, neighbours with small children, fingers to lips, tiptoed up the lane. Occasionally there were whispers of 'Hoot'. We thought they were advanced toddlers to know the owls' call but, apparently, it is the name of a toddler TV hero, an owl called 'Hoot'. That night I recorded proudly in my diary: 'Three baby owls in the lane'. I was later to learn that the largest owl was probably the mother. Boobooks make good parents and the mother usually stays with her young. Dad is usually not too far away and helps with the feeding of the babies, as we were later to discover.

The next day, a disappointed Pat called to tell us that the owls were gone. We all felt badly that we might have scared them away – too many toddlers, perhaps. Or too many adult photographers! My husband, Mike, had found an article on Southern Boobooks which suggested a family of new owls might have up to three daytime roosting places, so we decided to look around our back garden, which has much pittosporum and ivy, as well as the cotoneaster. Sure enough, three little faces with round yellow eyes peered indignantly at us from the pittosporum bushes along our back fence. On Monday, they were gone and, although we searched, we could not find their third hiding place.

The smaller of the two young Southern Boobooks, *Hoot* (*Robin Bedding*).

On Tuesday, they were back in the lane, all three. But the next day, the owl family were joined by another adult owl. We assumed that it was the father. They spread themselves out – Mum and the Dad in one pittosporum tree, the two babies next door in the second

pittosporum. The smallest owl, everyone's favourite, by now known as *Hoot*, was to stay with us for the longest time.

The mother and two baby owls made themselves at home in the garden and seemed disinclined to budge. On January 30, a flock of Noisy Miners flew at the pittosporum bushes, shrieking and scolding, but the owls did not move. They didn't seem bothered by all the fuss. They never called out or made any noise at all, even when we came close. On the 31st, the mother owl and her babies were all in the cotoneaster bush in the lane. The babies' pale creamy breast feathers were fluffed against the cold day. They seemed a little bigger.

The owls alternated between the lane, our back garden and their secret place for about ten days. Then one owl seemed to separate itself from the others. Each day we would find two owls in our bushes, while the other owl chose to stay in the cotoneaster bush in the lane. On February 5, this owl was gone. We were not sure if this was the mother or the larger sibling. We didn't see the two larger birds again.

The two smaller birds took up residence in our back garden. Each morning we would wander up the path to the pittosporum and two little faces would give us a disdainful glare. We had several more little visitors to see Hoot; our dog, Blossom, took a fancy to the owls and lay quietly under their tree all day, but they seemed unfazed. Then, on the 16th February, the larger bird of the two, possibly Mum, was no longer there. *Hoot* was left on his own.

I recorded the rest of the days he was there sharing our garden, from the 16th to the 21st. On Saturday, the 21st, we went to the coast for a few days. When we returned on the 23rd, Hoot was not there, but happily, the next morning he was back. He stayed for three more days. He was getting bigger and the spotted markings on his chest were a lovely golden brown. We guessed it would not be long before he left. On Friday, the 27th, I recorded 'No owls today'. *Hoot* was gone, but we felt privileged to have shared our garden with these beautiful birds.

One late afternoon about two weeks later, I was enjoying a coffee in the garden when a movement caught my eye. Flying silently, serenely across the garden was a large, graceful bird. As it disappeared into the dusk, I realised it was an owl. I like to think it was *Hoot*, letting us know he was still around.

I looked around our wilderness, eyed the mountain of leaves soon to come bucketing down on me in the first autumn fall, and thought about their other role – home and haven to lots of little creatures who need leaf and shrubby shelters to raise and protect their young. A possum and a Blue Tongue live here. A pair of Gang Gangs and a pair of King Parrots visit each year. Cockatoos make a messy meal of deodar cones, Rosellas nest in the ivy and this year, Superb Fairy Wrens nested and raised their babies near our terrace. Two Magpies have fed their offspring here for years, Red Wattlebirds hang from the camellias, and a family of kookaburras claim this as part of their wider territory. In summer, a gang of 'green' Satin Bowerbirds take regular baths in Blossom's water bowl! And now, a family of Southern Boobooks have felt safe here for a while.

So perhaps, on reflection, I won't encourage Mike to wield the shears quite so mercilessly this year.

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HOW WEDGE-TAILED EAGLES DEALT WITH THEIR NEST BEING FLOODED ON COTTER DAM

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Wedge-tailed Eagles (*Aquila audax*) have nested for many years on the shore of Cotter Dam, so they had a potential problem when the new dam wall was built and waters rose and submerged their nest and nest tree. What did they do?

After the 2012 nest was completely submerged, the eagles moved in 2013 to a new spot on the new shoreline and built another nest and watched the waters rising around them. They fledged a single young from this nest in 2013. This nest tree too was submerged by the rising water level so the eagles built another nest in 2014. This nest was 1.2 km upstream from the previous 2013 nest site. The new nest was about 1m in diameter and around 1m in depth, and about 3.5 m above the water. At the new location on the new expanded shoreline the pair had a single young in November 2014 as water rose towards the lip of the nest. This made it easy for us to access the nest by boat and climb it. We measured, banded (ABBBS band and colour-band) the single young (see photo below). The waters have stayed at the same level in 2015 as they were in 2014 and the eagles may still use the old 2014 nest. We will keep you posted as to their success in 2015 and please keep an eye out for Wedge-tailed Eagles with coloured, numbered leg bands.

The young Wedge-tailed Eagle from the Cotter Dam nest is banded and measured.

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A RADIO-TAGGED LITTLE EAGLE

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In November 2014 we colour-banded and radio-tagged the nestling Little Eagle (*Hieraaetus morphnoides*) from the nest near Strathnairn (see Olsen *et al.* 2015, this issue). After the eagle fledged on 13 Dec 2014 TL and ST followed the eagle from a safe distance for about two months until the juvenile dispersed early in March 2015.

Nestling Little Eagle in early November 2015, before it was colour-banded and radio-tagged.

At first the eagle spent most of the time roosting in trees, and had favourite day roosts and night roosts, moving further and further from the nest. He gradually spent more of each day flying, and by early January his flying skills were well developed and he was soaring, using thermals to gain height. We saw the fledgling attempt hunting on 3 occasions but saw no kills.

We saw the parents deliver prey on several days during the post-fledging period. The last known food delivery was on 26 Feb 2015 when the fledgling was about 76 days old. This prey delivery happened 3.57 km north of the nest tree. This was also the furthest he was

tracked away from the nest before he was unable to be tracked because he ranged beyond the 1.5 km distance that we could detect his radio signal. We could not find him by walking or checking point locations by vehicle.

Debus (2011) states that Little Eagles are dependent on their parents for at least 2 months. The Strathnairn juvenile appeared to be independent at 80 days old. After this we saw no more deliveries so the adults either stopped feeding him or prey deliveries were reduced. The adults were not seen after 26 Feb 2015, they seemed to have left the nest area. (The adults returned on 9 Augt 2015 (Rosemary Blemings personal communication).

From the foraging behaviour of the adults and ranging behaviour of the juvenile we gained some idea of the foraging area used by this pair. The housing development planned for Strathnairn will destroy the foraging area used by this pair and possibly cause the abandonment of yet another Little Eagle territory in the ACT. We plan to write a more detailed paper on the fledgling's behaviour and home range at a later date.

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A SUMMER OF PAINTED HONEYEATERS

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Hoskinstown Painted Honeyeaters

During the summer of 2013-14 Painted Honeyeaters, *Grantiella picta,* visited the small valley where we live at Hoskinstown(T16). In early November I heard unfamiliar bird calls. Soon I identified the mystery calls as those of Painted Honeyeaters. By the end of November 2013 I could hear the calls coming from six separate locations each some distance apart but within an area of 80 acres. The Painted Honeyeaters appeared to be favouring mistletoe in Brittle Gums, *Eucalyptus mannifera*.

As my field guides referred to Painted Honeyeaters as rare or uncommon and it looked as if there were six breeding sites I kept my distance from the birds. Eventually I saw a young bird being fed by an adult in early December.
The last recorded sighting of these birds was in mid-January. They had left the area by mid-February 2014.

COG records of Painted Honeyeaters

The COG database contains 114 entrees for Painted Honeyeaters. Some of those entries appear to be multiple entries for the same bird(s). The highest number reported were 12 at Gunning (N03) in November 2002. An estimated 6 breeding sites at Mulligans Flat (M11) were also reported in November 2002. Most reports are of 1-4 birds from scattered rural locations with the occasional sighting in town. There are reported sightings each of the years during 2002 –2009 and 2012- 2015.

There are 11 breeding records. Six of those appear to be separate breeding events. Two were at Gundaroo (O05) TSR48 in November of 2004 and 2009. The remaining 4 are in the 2014 bird year at Stoney Creek (G14), Uriarra (G13), Hoskinstown (T16) and Molonglo River (I13). There was clearly an influx of Painted Honeyeaters during the 2002-03 season. There was clearly another influx of Painted Honeyeaters in the 2013-14 season. Painted Honeyeaters bred regularly in the River She-Oaks along the Murrumbidigee River in the COG area of interest during the 1950s (Wilson 1999). Sightings there in later years are only of birds passing through (Lenz and Dabb 2003)

I am aware of four articles in CBN that refer directly to them (see below). Those articles are interesting for those wishing to gain a greater knowledge of Painted Honeyeaters in our area. They include useful sets references. A comment on Painted Honeyeaters appears in COG's Annual Bird Report of CBN each year.

Where would they come from?

Painted Honeyeaters are dependent on mistletoe berries, nectar and insects. They occupy the open woodland regions of northern and eastern Australia dispersing north in the winter and retracting to the south-east in the summer breeding season. They have a stronghold immediately west of the ACT. It is conceivable that some would disperse to the ACT region in poorer times. They are listed as 'Vulnerable' in the ACT and NSW and 'Threatened' in Victoria.

Birds come and go as they please to our home on the edge of the forest at Hoskinstown but our summer of Painted Honeyeaters is one we shall always remember.

Thanks to Steve Wallace for kindly providing the COG database entries for the Painted Honeyeater.

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COLUMNIST'S CORNER

Canberra: World Cockatoo Capital

As Australia has more cockatoos than anywhere else - in species and numbers - the World Capital must be somewhere in this country. There is a strong case that the national capital is also the World Cockatoo Capital.

The 13 Australian species are spread across the continent, and Tasmania, some widely, some with a limited range. Some species have expanded their range since European settlement and, apparently, increased in numbers. The three of significance locally in that regard are the Sulphur-crested Cockatoo, Little Corella, and Galah. All the local species, with the exception of the Glossy Black-Cockatoo, have found that exotic plants offer new food sources in the suburbs.

A concurrence of species, seven seems to be the maximum, can be found at some localities in south-eastern Australia. Canberra is one of those.

The local list of seven is:

Sulphur-crested Cockatoo (*Cacatua galerita*)
Little Corella (*Cacatua sanguinea*)
Long-billed Corella (*Cacatua tenuirostris*)
Galah (*Eolophus roseicapillus*)
Gang-gang Cockatoo (*Callocephalon fimbriatum*)
Yellow-tailed Black-Cockatoo (*Calytorhynchus funereus*)
Glossy Black-Cockatoo (*Calyptorhynchus lathami*)

A Gang-gang feeding on hawthorn berries in a Griffith street; a Glossy Black-Cockatoo feeding on* Allocasuarina *seeds on Mount Ainslie; a pair of nesting Long-billed Corellas in Campbell Park.

There is a reasonable claim that Canberra has 8 cockatoo species. In Steve Wilson's *Birds of the ACT – Two Centuries of Change* (Canberra Ornithologists Group 1999), the Major

Mitchell's Cockatoo (*Lophochroa leadbeateri*) is given as 'a rare vagrant' by reason of a small number of records in the 1960s. These days, wild Major Mitchells are not seen east of about Temora, and the occasional single sighting is usually attributed to an aviary escape. Gregory Mathews' 1943 list for the ACT gave the Red-tailed Black-Cockatoo as 'common' in the 'country', this no doubt being an error, as Steve Wilson suggests, the records probably referring to Glossies.

Among regional bird lists that claim the same 7 species as Canberra are the lists for the Eurobodalla Shire and the Hunter Bird Observer Club. Can the Long-billed Corella be claimed for a locality where the species is of entirely cage-bird origin? While some of Canberra's long-bills might represent a similar pocket of escaped or released birds, it seems likely that some individuals that appear here with the winter cockatoo influx have reached us as outriders from natural populations in the Riverina or northern Victoria.

To be a serious contender as a cockatoo centre a town or city must have a number of species within its boundaries. Ranking might then depend on relative abundance and the extent to which the community embraces its cockatoos. In Canberra, the seven cockatoo species can be found within the suburban limits, and surely there is no place where cockatoos are so woven into the town fabric as they are here.

Traffic hazard: a flock of more than 100 cockatoos is attracted to pin-oak acorns in a suburban street.

The obvious (and intrusive) example of abundant presence is the Sulphur-crested Cockatoo (SCC). Nesting pairs are common in suburban parks with old eucalypts. However, in winter the residents are joined by large numbers of non-breeding visitors. Flocks typically of 20 to 50, sometimes many more, occur throughout the inner suburbs. The number of flocks indicates an influx overall of several thousands. Typically they feed on nature strips on fallen acorns from pin-oak plantings, sometimes on roots of flat-weeds or seed-heads. Pedestrians can pass within a few metres of feeding flocks without disturbing them. Casualties are not unusual as commuting vehicles speed through low-flying flocks. However, Canberra's cockatoo rating must not rely solely on its numbers of this species as in several other centres

it has also increased, to the point of pest status. Most Canberrans do not regard cockatoos as pests: they have other things to worry about.

It was only a few years ago that Little Corellas were regarded as escaped cage-birds in the ACT. Now, a small population that breeds in Canberra's woodlands is far outnumbered by an influx in the colder months that parallels that of the SCCs. Sometimes both species intermingle in suburban streets. Occasionally hundreds of wintering corellas feed on the broad median strips of Canberra's wider thoroughfares and recently some large flocks have persisted into summer. However, fair-minded Canberrans will concede some inland towns have more intrusive flocks of this particular species, and for longer: Longreach, for example. Canberra's corellas are like its politicians; some here year-round, many more in season.
A few long-bills, occasional breeders here, can sometimes be found among the ground-feeding Littles. A small group of hybrids inhabits the Bowen Park area by Lake Burley Griffin.

The frequent appearances in the Canberra suburbs of Yellow-tailed Blacks is usually attributed to the destruction of pine plantations in the fires of February 2003. Certainly flocks of up to 100 made an appearance later that year, and existing pine plantations remain the local stronghold of the species. However, they are visiting food-seekers in gardens, especially on banksia cones, and to suburban woodland parks, sometimes attacking acacia limbs in search of grubs. The greatest numbers of yellow-tails arrive after the breeding season and are sometimes accompanied by begging young.

By contrast, the Glossy Black-Cockatoo is only an occasional visitor from the wooded country some kilometres to the east, its appearance no doubt depending on fruiting of the *Allocasuarina* species on which it relies. The pattern of occurrence was discussed by Steve Holliday in Canberra Bird Notes 29 (4), following a recorded breeding at Mt Ainslie in 2004. However the period of relatively frequent sightings ended in 2008. It is still reported, but less frequently.

The Galah, one of Australia's most successful species, is believed to have exploded out of its semi-arid homeland as a result of land clearing for agriculture. The advance was particularly rapid in the 1950s and 1960s. Today it can be found on coastal beaches mingling with flocks of terns and seagulls. Now a very common Canberra bird, the large winter flocks can include local breeders and non-breeding visitors.

And then there is the Gang-gang. Here I must make an exception to my rule to avoid use the word 'iconic', the primary meaning of which, in my Macquarie, is 'relating to or of the nature of an icon, portrait or image'. Gang-gang images are everywhere you look in the nation's capital. It is the faunal emblem of the ACT, the only Australian jurisdiction to adopt a cockatoo for that purpose. It appears in the logo of the ACT's parks and environment department. A Gang-gang drawing by William Cooper is a logo of the local bird society (COG), and 'Gang-gang' is the title of its newsletter.

'Gang-gang' is the name of a regular column in *The Canberra Times*, which has been adorned by various graphic attempts to represent the species. That column itself has drawn attention to the choice of male Gang-gang images as street-surface art in the Canberra CBD.
Yet another Gang-gang logo is used by the ACT's elite team of orienteers, which competes nationally, often successfully, as the 'Canberra Cockatoos'. The team badge, with a stylised

pair of Gang-gangs, an outline map of the ACT, and the 'Canberra Cockatoos' inscription, has been registered as an official trademark by the ACT Orienteering Association.

The Gang-gang can be found year-round somewhere in Canberra, although numbers are lower in the warmer months when breeding takes place in the wetter forest country. It often feeds in street trees. It is an engaging bird when seen at close range when its conversational growling seems directed to the human bystander as much as to its companions.

Stentoreus

Birding in Cyberspace, Canberra Style

In the early days of the internet and digital books there was discussion about the possibility that they would replace books printed on paper. That does not seem to be the case, as evidenced (in part) by the fine **Birders' Library website** www.birderslibrary.com/ . It is a beauty. Its author is Grant McCreary, and he describes himself as being 'a bird bookaholic'. Grant established the site in 2006 with the aim of providing information on new birding books and particularly, providing reviews of them in a timely manner. At the time of writing, October 2015, there were 216 book reviews on the website, and the author seems to keep them very much up-to-date.

The books listed and reviewed for the August—October 2015 period are *Birds and Animals of Australia's Top End: Darwin, Kakadu, Katherine, and Kununurra* by Nick Leseberg and Iain Campbell, *American Birding Association Field Guide to Birds of California* by Alvaro Jaramillo and Brian E. Small, *Birding for the Curious: The Easiest Way for Anyone to Explore the Incredible World of Birds* by Nate Swick, *Behind the Binoculars: Interviews with Acclaimed Birdwatchers* by Mark Avery and Keith Betton, *Birds of South America: Passerines* by Ber van Perlo, *The Living Bird: 100 Years of Listening to Nature* by The Cornell Lab of Ornithology and Gerrit Vyn, *Peterson Reference Guide to Owls of North America and the Caribbean* by Scott Weidensaul and *The Lanner Falcon* by Giovanni Leonardi.

Also of interest is the section 'Bird Apps of the World-A List of All Field Guide Apps for Apple and Android Devices'. Listed there under 'worldwide' is the useful 'BirdsEye Bird Finding Guide'. Grant then lists most of the apps covering particular regions, all with links to the iTunes and Google Play download sources, and some have links to reviews. Currently Grant includes seven apps for North America, three for South America, two for Europe generally, one for northern Europe, five for Britain and Ireland, six for Asia, five for Africa, two for Australia and one for New Zealand.

This site is an excellent source for lovers of bird books and people who use smart phone versions of field guides.

May 9th, 2015, was the first **Global Big Day**. This amazing event was organised by the Cornell Lab of Ornithology, the academic and administrative powerhouse behind eBird, in conjunction with partners around the world including our own Eremaea eBird. An article in the summer 2015 issue of *Living Bird* magazine highlights the significance of this event:

> On Saturday, May 9, 2015, we learned at once how big this world is and also how small and connected it becomes when we work closely with partners. The first-ever Global Big Day achieved a birding milestone at a scale that is frankly humbling. Who knew that 6,065 species, or 60 percent of the world's birds, could be detected and entered into eBird on a single day? http://www.allaboutbirds.org/view-from-sapsucker-woods-the-first-ever-global-big-day/ .

By the time all the data were in the Global Big Day eBird database, it covered 6,088 species and 44,173 checklists submitted by 14,060 participants. It is reported that 'The network of eBirders on the Global Big Day spanned each of the 7 continents, covering over 130 countries to submit a grand total of over 800,000 bird observations. Among the 6013 species, no fewer than 1250 (21%) were found by a single party. This more than anything demonstrates the substantial impact that individuals can have when birding in undercovered areas. Thanks to everyone who got out on May 9th to find the special and endemic birds in your region': http://ebird.org/content/ebird/news/gbd2015sum/#_ga=1.174159655.441712515.1443500137 .

The Australian coverage was just fair, in my estimation. We had 214 participants, 711 checklists and 494 species. Perhaps we will be able to promote the next Global Big Day more thoroughly, with more Australian participation, and more of our endemic birds added to the global total?

As regular readers will have long observed, this column is unashamedly devoted to the use of the internet, and modern digital technology, in birding. Your columnist is generally an early adopter of innovations of this type. However, famous British birder and former entertainer, **Bill Oddie, is not so sure about these innovations**. After a period away from the public eye, experiencing and recovering from severe mental illness, Bill has returned to birding and writing and has recently published another delightful, highly recommended, book on the topic: *Unplucked: columns, blogs and musings* (Bloomsbury, London, 2015). His chapter 4, titled 'New-fangled birding', deals with the matter of digital birding technology rather directly. I trust that readers will forgive me (and Bill) for this longish quotation (pp. 27-9, emphases in original):

> *'When I were a lad, we didn't have binoculars. We had to make do with two toilet rolls and an elastic band.'*
> *'And if you wanted a telescope, you carved one out of a marrow.'*
>
> ...The truth is that, having been out of the loop...for a year or two, I have only recently re-emerged into the current birding scene. I chose to dive in the deep end by going on a trip to Guatemala, where the birds were almost totally unfamiliar, and the forests dauntingly dense. My first day out, I floundered.
>
> ...I realised that I was about to get my first demonstration of birding in the digital age. This is how it works.
>
> The first requirement is physical. You need to be strong enough to carry binoculars, a telescope on a sturdy tripod, hooked over one shoulder, and a huge backpack, containing all manner of digital gear—soon to be revealed—and a laser pen. Yes, one of those things some twerp tried to blind Ronaldo with, or dazzle Andy Murray. I had regarded it as a weapon, until I went birding in Guatemala.

More than once I watched the routine spring into action. It went like this.

1: someone spots a little brown bird. But 2: no one knows what it is. While 3: I can't even see it. So 4: somebody points the laser pen, and a red or green dot flits up and down a huge tree until it hovers and stops. Pen man announces 5: 'The bird is 6 inches above the light.' Which, 6, it is. But what is it? Then 7: strong man steps forward, with digital camera fitted with a lens as big as a bazooka. The bird is tiny and nearly half a mile away, and yet the camera clicks and whirrs. Next 8: we all peer at the screen. A brown speck is just about visible, until 9: the digital zoom is activated, and the image magnifies so rapidly it is as if the bird is charging straight at us. Magnified to ultra-close-up, we can now see every stripe, streak and feather margin. The cameraman is even able to calculate the length of the wing! Until 10, an identification is mooted: 'Probably Yellow-bellied Flycatcher'. By now, at least three smartphone screens are touch-scrolling through Flycatchers of Central America, while a nearby iPod broadcasts a wispy snatch of virtual birdsong, at which the non-virtual bird flies closer and joins in, and 'probably' becomes 'definitely'.

Yellow-bellied Flycatcher. Tick.

So, is it progress? Or is it 'cheating'? Or do you miss the days of toilet rolls and marrow? I do.

Thanks Bill, perhaps our readers will share their answers to your questions?

T. Javanica

This column is available online at http://canberrabirds.org.au/publications/canberra-bird-notes/. There you can access the web sites mentioned here by clicking on the hyperlinks.

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

To join (subscribe to) the *CanberraBirds* email discussion list, send an email message to canberrabirds-subscribe@canberrabirds.org.au. The subject line and body of the email can be empty.

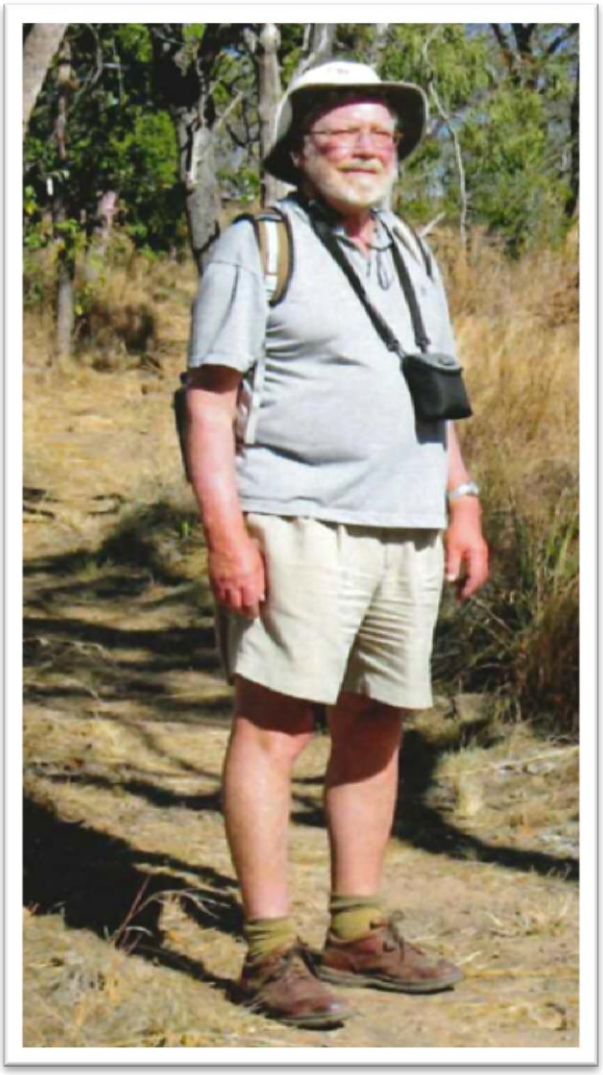
To unsubscribe, either permanently or temporarily, send an email message to canberrabirds-unsubscribe@canberrabirds.org.au. If you wish to re-subscribe after being unsubscribed temporarily, simply follow the 'subscribe' instructions above.

The *CanberraBirds* list's searchable archive is at http://bioacoustics.cse.unsw.edu.au/archives/html/canberrabirds.

VALE DAVID PURCHASE (26 November 1934 – 27 October 2015)

Extract of the Farewell speech for David Purchase given by Neil Hermes at the funeral

… I was greatly honoured by David's family to be invited to share with you today, some of my thoughts and memories of the wonderfully productive and considerate life that was David Purchase. I acknowledge the words from Ian Wingett who has been able to talk more fully of David's family life and David's long and happy marriage to Shirley who sadly left him, and us, only last year. For Grahame Clark and others present who knew David better than I, I hope I can be respectful of your memories as well as share with you some of mine.



Lives are lived in many parts, and the David Purchase I knew was the passionate ornithologist, bird recorder, editor, wordsmith, bird club companion and eager sharer of information with young people.

For me, David was one of a rare and envied breed; he had been to the sub-Antarctic and done research on Macquarie Island. To me he was, therefore, a scientific hero. Despite the fact that I was 20 years his junior, David Purchase was always to me, Dave. Other CSIRO heavies were Dr. this or Mr. that but it was a mark of David that to me, and to many of my young birding mates, he was always Dave. …

Dave came to Canberra as a young man in 1957. In his own words (in an article in Canberra bird notes) he says "although Canberra was established in 1908 as the nation's capital, its development had been desultory up until 1957". This quote says as much about Dave's enthusiasm for the richness of the English language, and the choice of words, as it does about early Canberra. When I first read Dave's words I had to look up the meaning of desultory – it of course means "lacking a plan, purpose, or enthusiasm" - such an apt expression for the early scatter of houses that greeted Dave in those "pre-lake" days. And of course, Dave had found the perfect description for his new home …

As a bird bander from 1970, I knew Dave professionally as the secretary of the Australian bird and bat banding scheme. For us Dave **was** the bird and bat banding scheme. However, it was through Dave's contributions through COG that I really got to know [him]. I knew Dave in the earliest years of the Canberra Ornithologist Group (or COG) then known as the RAOU branch. Dave was in Macquarie Island when COG was formed in 1964 and became actively

involved in 1967. I joined in 1970 as 16 year old. The fledgling club started a journal in 1968 - Canberra bird notes - and Dave was its first editor.

Ten years later, I was editor and as always found Dave's advice and encouragement sound and freely given. I remember he once quoted to me the 17th century Welsh-born English poet, George Herbert "good words are worth much, and cost little." Dave, the word smith, returned as editor of CBN for a decade in the 1990s.

Last year, in Dave's eightieth year, COG celebrated its 50th anniversary. There were a lot of different activities and one was the production of an anniversary edition of the CBN. Knowing Dave was [a] great keeper of records; in late 2013 my wife and I made a special visit to Dave and Shirley. Dave and I planned his writing of the early history of COG from 1964. He worked on that piece for a year and the article is now the centrepiece of the 1964-2014 CBN 50th anniversary issue. This contribution is a wonderful legacy to Dave's attention to detail, wordcraft and meticulous record keeping. The article and the issue are significant historic records in the life of Canberra and its birds.

In 1981 COG began a study of garden birds. Dave and I discussed the design of the scheme in the dining room of [their home]. The study has now run across Canberra every year since. Uniquely, Dave and Shirley recorded the birds daily in their garden since 1981. I guess, 5 Orchard Place, Melba is one of the best known and documented bird places of anywhere in Australia.

For me, Dave was the passionate ornithologist, bird recorder, editor, bird club companion and eager sharer of information with young people. Dave loved words. I hope these words [today] do credit to a life well lived.

It is a mark of Dave's life-long passion that his family have elected to have donations in respect of Dave's passing to be made to the Canberra Birds conservation fund

Vale Dave

Neil Hermes
Canberra
3 November 2015

PRESIDENT'S REPORT 2014-15

The period from December 2014 to November 2015 has been a busy one for COG. Together with all our usual activities, COG has been formally recognized for its significant contribution to conservation efforts in the ACT region that have benefitted our birds. This has built on the success of COG's 50th Anniversary held in 2014.

COG Committee

COG has been very well-served by a dedicated and enthusiastic Committee and I would like to take this opportunity to thank the 11 members of the 2014-15 Committee for all their efforts. The Executive consisted of Neil Hermes as Vice-president, Alan Thomas as Secretary and Lia Battisson as Treasurer. Jenny Bounds continued as Conservation Officer, Chris Davey was responsible for surveys, Sue Lashko continued as editor of Gang-gang, meeting-room organizer and Outings Officer, Julian Robinson managed the Website, Julie McGuiness took on the task of managing COG storage issues, and Bruce Lindenmayer and Stuart Rae supported the Committee across a range of issues.

Particular thanks are due to two Committee members who are standing down - Alan Thomas, who is retiring as Committee Secretary, and Stuart Rae as member of the Committee. Both have been stalwart supporters of and contributors to the Committee.

As well as Committee members, we have been well served by a number of other members who have provided invaluable service to COG: Jack Holland who is responsible for the members' meetings speakers program, Michael Lenz for Canberra Bird Notes, Duncan McCaskill for the Garden Bird Survey, Barbara Allan for the Bird Blitz and the Rarities Panel, Nicki Taws who is the COG Records Officer, and Kathy Walter and John Goldie for managing the sales desk. A particular vote of thanks goes to Paul Fennell for managing the COG database. Paul has now stood down from this role and we thank Paul for all his efforts and valuable contribution over many years to this important area of COG business.

COG Membership

There are currently 273 members of COG with 73 new members joining during the year. To all our members, you are a vital part of our organisation and your support for COG is very much appreciated.

Special Recognition of COG

COG has received special recognition through 2015 in the following awards:

Keep Australia Beautiful – Sustainable Cities Award 2015

COG was an entrant in the ACT Keep Australia Beautiful – Sustainable Cities Award in the Nature Conservation Category and was awarded winner in both the category and as outright winner for the ACT Award. This is a significant recognition of the valuable role that COG plays in the conservation of ACT region birds and our winning this ACT award was quite unexpected.

Special thanks are due to Alan Thomas and Neil Hermes who worked on the Submission with me and to all those COG members and representatives of other organisations with which we work, for their participation in the judging day held with the National Judge on 21 October 2015 when we were able to showcase COG and its activities.

We are now in the judging for the National Award and this will be announced on the night of 13 November in Brisbane.

Postscript: COG was awarded the Keep Australia Beautiful – Sustainable Cities National Award for Environmental Education in recognition of our 50 years of working to gather and dissemination of information on birds in the ACT and region. The summary para of the judgment states:

"For over 50 years the Canberra Ornithologists Group (COG) has played a key role in environmental conservation and education in the ACT. This community based organisation of volunteers has had a significant impact on environmental outcomes. Science based and collaborative in its approach COG has influenced conservation policy, planning and practice in the ACT.

In summary, for over 50 years COG has proven to be a credible, authoritative, independent and collaborative organisation that has made a significant contribution to conservation outcomes in the ACT. COG is not just about watching birds – they have demonstrated an enviable contribution to scientific knowledge, environmental education and care for the environment."

ACT Conservation Council Environment Awards 2015

COG was invited to make a submission to the Act Conservation Council for consideration of an environmental award in a Group Category for making a significant contribution to protecting the environment. COG was the winner of this category as announced at the Act Conservation Council Spring Mingle on 30 October 2015.

COG works closely with the Act Conservation Council on a range of issues affecting our birds and such recognition for the effort COG contributes on a wide range of matters to assist the ACT Conservation Council in protecting our birds and their habitats is very welcome.

2015 Winners of the Steve Wilson Award

BARBARA ALLAN

Barbara joined COG in the 1980s. Barbara was tea lady and storer of COG goods for many years and she was editor of Gang-gang 1989-1994. Barbara was editor of the Canberra Bird Notes with Harvey Perkins from 1999 to 2007. Barbara was COG secretary 2003-2006.

One of the many behind the scenes jobs undertaken by Barbara for many years was organising speakers for meetings for many years, from at least from 1993, until that role was taken over by Jack Holland.

A major contribution by Barbara has been the introduction and management of COG's bird blitz which she began in 2005. She has so far coordinated the Blitz up to the 2015 event.

Another backroom task happily undertaken by Barbara has been the entry of data for the Blitz and Garden Bird Surveys. She has been a writer for the Annual Bird Report for many years and secretary of COG's Rarities Panel since 1998.

CHRIS DAVEY

Chris has been an active member of COG since joining in the early 1970s. He well remembers the first meeting he attended at CSIRO Land and Water with about 15 members present.

Since then Chris has been involved with COG on various committee positions. Of late he re-joined the committee in 2005/6, Vice-president 2006/7, President 2007/8-2011/12 and Vice-president 2012/13.

The surveys that he has initiated or helped with the design of include the long-running COG Woodland Bird Survey, initiated collaboration with surveys for CSIRO and ANU, bird surveys on Lord Howe Island and a series of surveys involving the Superb Parrot for the ACT Government. In addition, he has involved COG in surveys at the Jerrabomberra Wetlands and Fyshwick Sewage Ponds to better inform the Woodlands and Wetlands Trust and the Canberra Airport Authority.

Chris has on many occasions represented COG at the Bird Interest Group Network (BIGnet), has been a long-serving member of the Records Management sub-committee and recently

was the Project Coordinator for the year-long Gang-gang Citizen Science survey initiated to celebrate COG's 50th Year.'

Congratulations to both Barbara and Chris for their great contribution to COG over many years.

After the presentation of the Steve Wilson Medals on 11 Nov 2015: (*left to right*), front row: Chris Davey and Barbara Allan; back row: Alison Russel-French, Neil Hermes and Bruce Lindemayer.

Working with other Organisations

Over the period December 2014 to November 2015 COG has worked with a number of other organisations on bird-related issues including:

The ACT Conservation Council

COG continued its long standing collaboration with the Conservation Council in relation to a range of planning and development matters which impact on bird habitats and movement corridors, Molonglo Valley and West Belconnen being the main ones. COG continues to support the Council in its efforts to progress cat containment across the ACT; while the ACT has declared new development areas on a site by site basis, progress has been slow at the political level in relation to retro-fitting suburbs next to high priority conservation reserves (eg Casey near Kinleyside, Harrison near Mulligans/Goorooyarroo), and a broader phased-in program.

The Woodlands and Wetlands Trust

COG continues to support the reintroduction project of the Bush Stone-curlew at Mulligans Flat Woodlands Sanctuary run by the Woodlands and Wetlands Trust. Both financial and volunteer support has been provided by COG. It is wonderful that some members have been able to record the birds within the Sanctuary.

BIGnet

COG participated in the12 April meeting of BIGnet Bird interest groups in NSW) held in Megalong in the Blue Mountains and hosted by the Blue Mountains Bird Observers. Jenny Bounds attended the meeting on behalf of COG. Chris Davey and Neil Hermes attended on behalf of COG the September BIGnet meeting held on 5-6 September at the Central Coast Wetlands at Tuggerah, NSW. COG and BIGnet work on a number of issues relating to the conservation of birds and their habitat.

The COG website

The revitalised COG website continues to attract increasing usage. I would like to thank Julian Robinson for his ongoing efforts in maintaining the Website.
Average usage rose from 200 visits a day at the beginning of the (financial) year to 260 a day at the end of the year. This reflects increasing use of the website as a primary source of information about COG and its activities, including for administrative and archival information.

The COG Database – the past, present and future

On 19 September 2015, about twenty COG members with a particular interest in the collection, recording, management and distribution of COG's significant and important databases were invited to attend a workshop. The workshop was convened by Vice President Neil Hermes.

The group included many COG Committee members without database backgrounds. They used the workshop as opportunity to understand the challenges facing COG and its management of databases. The core message was that the world has completely changed from a paper-based/analogue one to device/digital one and this has major implications for COG's role as a data manager and publisher.

The group noted that there was a time from the 1960s when COG was virtually the only source of bird information in the COG area of interest (AOI - ACT plus region including Goulburn, Bredbo, Captains Flat and Wee Jasper.) COG had the ability to set rules to assure the quality of the all data. COG also largely determined how and when the data was published or released.

The world has now moved on and COG's role has changed.

A number of challenges will need to be addressed by future COG Committees including the costs of maintaining databases, changing databases formats, archiving, the wide range of other recording platforms available to COG and non-COG members to record bird information in the COG AOI. The future management of historical data will also be a priority as will be the management of surveys using non-standard survey methods. Dealing with the

fact that future bird data for Canberra, depending on source, will be of variable quality, will be a new challenge.
Bird watchers now have many data recording platforms to choose from for private and public data purposes. These platforms are changing rapidly with eBird one of the fastest growing at present. Birdlife Australia has indicated it will be releasing a new data portal in 2016.

None of these issues have simple or singular resolutions. The new 2016 Committee will need to continue the process of addressing the issues raised in the workshop. I would like to thank Neil Hermes, Steve Wallace, Michael Robbins, Chris Davey, Paul Fennell and Julian Robinson for all their work on the database.

Conservation

Jenny Bounds has continued as Conservation Officer this year, with input on some matters by Chris Davey and myself. The main achievements/issues this year are as follows:

Nomination of the Scarlet Robin

COG's nomination of the Scarlet Robin as a 'vulnerable' species in the ACT was accepted by the ACT Government. The nomination was supported by analyses of the COG Woodland Project data.

ACT Woodland Restoration Program

COG provided input to the ACT Woodland Restoration Program, on particular areas to enhance bird habitat (e.g. Jerrabomberra West and Callum Brae reserves). COG has also provided input, including bird lists, to the draft management plans for offsets sites in Gungahlin (Kinleyside and Throsby). COG is represented (by Jenny) in a working group to develop the expanded Mulligans Flat Sanctuary in the Throsby neck.

Travelling Stock Route (TSR) 48 near Gunning

COG recently wrote to the Local Land Services in Yass regarding the values of TSR 48 near Gunning, a site of long standing interest to COG with records of 13 NSW listed bird species, including Painted Honeyeater and Superb Parrot (both listed by the Commonwealth). Of particular concern is that TSRs across NSW are facing new management arrangements with possible long-term grazing leases, and bird groups are worried that the change from low-level, intermittent grazing will impact on the habitat values for birds. COG also sent a submission in response to the draft State Planning Framework for NSW TSRs, which significantly under-emphasizes conservation/environmental values. Other NSW bird groups within the BIGnet network are also putting in submissions on this important matter for bird habitats in NSW.

Register of Environmental Organisations

COG put in a submission to the Inquiry into the administration and transparency of the Register of Environmental Organisations. COG highlighted the importance of its conservation fund (tax-deductible donations) to assist on- ground field and research work on birds, and the need for such funds to be able to continue.

Phase 1 development of the new suburb of Throsby

As this report is prepared, the ACT Government has cleared mature eucalypts to make way for phase 1 of the new suburb of Throsby (abutting Mulligans Flat and Goorooyaroo Nature Rreserves), notwithstanding that a nest with Superb Parrot young has recently been found in a tree within the proposed development area. COG has made representations to the ACT

Conservator of Flora and Fauna, and has asked for a stay until the breeding season is over. COG has opposed urban development immediately adjacent to the Throsby Ridge Superb Parrot nesting colony, due to factors such as loss of mature trees across the landscape and the need for a reasonable buffer from urban edge related impacts. We remain concerned about the future of the Throsby breeding site and the pressures from a closer urban edge.

Surveys and record management

The period October 2014 to November 2015 has been a very busy one for COG survey efforts. These are a very important part of COG's work and enhance our credibility as a valued source of reliable data and information about birds in the ACT and surrounding region.

Many thanks to all those COG members who have contributed to the 50th Anniversary Bird of the Year Project- Gang-gang Cockatoo which ended in March 2015. Results are still being analysed with presentations so far given to the Friends of the Australian National Botanic Gardens and at a Citizen Science Forum held in Canberra in July.

Woodland Bird Monitoring Project

Our long running survey at 15 locations (142 monitoring points) is now in its 21st year at Mulligans Flat, and a milestone has just been reached with 10 years data at Kama NR, the last location to be added to the project. There is now 10 years or more survey data at all sites. Next year, discussions should start about doing a major data analysis. Jenny Bounds coordinates the project with input from Alison Rowell, Nicki Taws and Chris Davey. The project would not be possible without the commitment of the team of site coordinators and their helpers who do the surveys four times a year, so thanks are due to all involved.

Garden Bird Survey

The Canberra Garden Bird Survey completed its 34th year of continuous operation, with charts completed for about 65 sites. Thanks to all the observers and thanks to Anne Hall and Barbara Allan for assistance with data entry.

Mulligans Flat/Goorooyaroo Surveys

The ANU survey that is conducted at Mulligans Flat/Goorooyaroo twice yearly in Spring and Autumn involves COG members assisting in data collection. This year a Black-eared Cuckoo was recorded in the survey at Mulligans Flat.

The COG Blitz

The Blitz was run in 2015 for the 10th year, in the weekend of 24-25 October, with Barbara Allan yet again managing this most valuable of surveys. From Barbara's interim report, she is expecting it to be a most successful blitz. Some 167 bird species were recorded, with 66 breeding. Particular highlights include so far: the Powerful Owl (Turner), Cicadabird (Old Boboyan Rd), Bush Stone-curlew (Mulligans), Black-eared Cuckoo (Mulligans), White-fronted Chat (Nth Weston ponds), Crescent Honeyeater (Bendora Ck) and Hooded Robin (Glendale). Our thanks are due to Barbara for her sterling efforts in making the Blitz both a valuable survey and source of enjoyment for all who enjoy bird watching.

Waterbird Surveys at Lake George and Lake Bathurst

On behalf of COG, Michael Lenz, currently with the support of Peter Milburn, Kevin Windle, Julienne Kamprad, Terry Bell and Terry Munro, is continuing with the surveys of these lakes (Lake George surveyed since 1979, Lake Bathurst since 1980). Both lakes are significant drought refuge areas for waterbirds and are hence of more than just regional importance.

Kosciuszko to Coast (K2C) bird surveys

Nicki Taws has again been responsible for running the COG contribution to the Kosciuszko to Coast (K2C) bird surveys in April and again in October covering 23 properties in the area between Williamsdale and Bredbo.

Other projects that COG has been involved with includes the annual Superb Lyrebird survey at Tidbinbilla Nature Reserve, quarterly bird surveys at the Jerrabomberra Wetlands run on behalf of the Woodlands and Wetlands Trust and providing input to the Common Myna control project at Mulligans Flat Nature Reserve run by the Canberra Indian Myna Action Group (CIMAG).

Records Management

Essential support for the COG database is provided by the Records Officer, Nicki Taws, while data entry continues to be performed by Tony Harding and many others. The Rarities Panel, consisting of Richard Allen, Jenny Bounds, Grahame Clark, Dick Schodde and Nicki Taws, with Barbara Allan as secretary, continues to vet unusual records.

Canberra Nature Map'

COG has become a partner in the web-based project 'Canberra Nature Map'. The Map originally intended to document and map local plants but this has now been extended to encompass fauna, including birds. At this stage the project is still under development but we view the site as a means of providing information to the general public on the birds of the local region using records from the COG database.

Outings

Once again COG has been able to run a very comprehensive outings program in 2014-15 and I would like to thank Sue Lashko for her efforts in making this a great success for the year.

Thirty-eight field trips were held with an increased number of mid-week trips being a popular addition to the programme. We birded on foot and by bus, boat and bike. Special thanks must go to members who volunteered to lead outings, including those who have done so for many years.

In addition to the scheduled outings, the ad hoc group who has organised the Wednesday walks has once again operated most successfully and has managed to attract a most enthusiastic and intrepid group of followers with outings taking place each month of the year, notwithstanding some very testing weather conditions. On behalf of COG members our thanks to Martin Butterfield, Michael Robbins and others for organising these events.

Gang-gang

Our particular thanks go to Sue Lashko and Gail Neumann for their excellent efforts in the editing, layout and publishing of our newsletter. Gang-gang is a great source of information and news and members may not be aware of the work that goes into producing the newsletter every month. I would like to thank Dianne Davey for her efforts with the distribution of the newsletter and Canberra Bird Notes.

We are looking for someone to write a regular column and/or members to write occasional columns on bird related topics - a favourite species or family, a favourite birding spot, a recent trip or some other item of interest to members. Please let Sue Lashko know if you would like to exercise your writing skills and add to the interesting contributions in Gang-gang.

Communications and Publications

Canberra Bird Notes.

Michael Lenz, Editor of the Canberra Bird Notes, did a wonderful job with the Special Edition of the Canberra Notes celebrating our 50th Year. It is a great reflection over COG's 50 years and a source of valuable information for newer members of COG about our history. I would like to thank Michael for his work as Editor of this edition and Volume 40 (June 2015) and all those who have contributed to CBN over the past year. Particular appreciation is also due to Paul Fennell and Steve Wallace for their work on the Annual Bird Report.

CanberraBirds email announcement and discussion list

At the end of the year the CanberraBirds email announcement and discussion list had 310 subscribers, a 14 percent increase on the same time last year. The list, managed by David McDonald, continues to provide a useful forum for people to discuss the birds of the Canberra region, their environments, and COG's activities. New subscribers, including people new to birding who seek support from more experienced birders, are welcome to subscribe. During the year there were approximately 4,600 emails distributed over the list, an average of about 12 per day, twice the number distributed last year.

Monthly meetings

I would like to thank Jack Holland for arranging another most interesting year of both local and interstate speakers at the COG monthly meetings in 2014-15. The calibre of speakers that we are privileged to hear makes the members' meetings a pleasure to attend. It is highly informative to hear from a range of students and the research work that they are doing on birds.

Our appreciation to all those who have assisted with the provision of the refreshments that follow the monthly meetings, and to Sandra Henderson for taking on the responsibility of providing the raffle prizes and selling the tickets. All of these add to the enjoyment of the occasions and provide opportunity for members to socialise.

Canberra Birds Conservation Fund (CBCF)

The Fund, established in the year 2000, is a tax deductible gift recipient, and members and friends of COG are encouraged to donate to it. During the year, the Fund provided support to one project that contributed to the achievement of its conservation objectives.

The grant, the fourteenth since the inception of the Fund, was made to Ms Virginia Abernathy. It supported the second year of her doctoral research at ANU into the rate of coevolution between the Pacific Koel and its hosts.

The Committee of Management of the Fund (Dr Penny Olsen, Geoffrey Dabb and David McDonald) invites enquiries from people seeking financial support for projects that are consistent with its environmental objectives. Although almost all the projects funded to date have been academic research, the Fund can support any projects that encourage interest in, and develop knowledge of, the birds of the Canberra region; promote and co-ordinate the study of birds; and/or promote the conservation of native birds and their habitats in the Canberra region. COG members are encouraged to promote the Canberra Birds Conservation Fund, encouraging friends and businesses alike to make tax-deductible donations to it in the interests of the birds of the Canberra region, and their environments.

Summary

I would like to extend a very sincere thank-you to all those who have actively contributed over the year to COG. 2014-15 has been a busy and productive year and one that has seen COG recognised for its effectiveness as an organisation dedicated to the conservation and enjoyment of birds. Particular thanks to all who have assisted me in my role as President over the year.

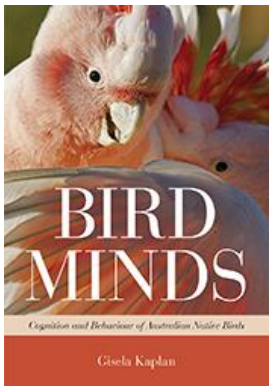
Looking forward to reporting on COG matters in the coming year, we will be advised about the Sustainable Cities National Awards and how COG fares. We will also be able to report on the ongoing work needed on the COG database, our involvement with the Canberra Nature Map, and the award of the Steve Wilson Medal for 2015 and the forthcoming AGM.

Alison Russell-French
President
9 November 2015

BOOK REVIEW

Bird Minds: Cognition and Behaviour of Australian Native Birds. By Gisela Kaplan
CSIRO Publishing, Melbourne: August 2015; ISBN 9781486300181, Paperback,
RRP AU $45.00

Reviewed by *ALISO TURNER, Yarralumla, ACT (ms.alison.turner@gmail.com)*



The other day I stood watching the male of a pair of Gang Gangs vigorously pruning all the small shoots from an outgrowth on an old gum tree on Stirling ridge. Suddenly he stopped, jumped up, and landed triumphantly on the one remaining shoot. An excellent perch on which to undertake his impending fatherhood duties, perhaps? I was impressed at his capacity to have the vision of the perch that could be, to plan and carefully prune all the shoots except the critical one. This bird definitely was smart.

Gisela Kaplan's book ***'Bird Minds'*** had done exactly what I would hope it would achieve, enhanced my birdwatching forays by improving my insights into how and why birds behave as they do. To see their activities as not always just instinctive or random but the consequence of intelligence and cognitive ability.

I was intrigued even from the Preface. I didn't know that birds evolved alongside the dinosaurs in Gondwana, the land mass origins of Australia, and survived the mass extinction. Some radiated out to eventually populate the land masses of Eurasia and North America. Thus Australia is the cradle of most birds and perhaps not unsurprisingly, Australian birds defy some of the Northern hemisphere centric theories of bird behaviour.

Bird Minds is a book that nicely combines the best scientific rigor with stories of bird behaviours that we can all appreciate. While Kaplan is a top scientist, her personal empathy for birds shines through. Kaplan uses her broad knowledge of human and animal neurology to enhance the interpretation of bird behaviours, and this adds a further dimension to the book.

Kaplan takes us chapter by chapter through groups of behaviours. You will learn that Australian birds cooperate and defend each other, and exceptional ones go fishing by throwing breadcrumbs in the water, extract poisonous parts from prey and use tools to crack open eggshells and mussels. Kookaburras without offspring will adopt orphaned young, magpies play hide and seek, some parrots are lifelong learners, starlings get depressed and kookaburras get angry. While White–winged Choughs are innovative and very cooperative, they can turn into 'street gangs', even stealing youngsters from other groups. Crows and ravens rank amongst the most intelligent birds and even amongst the smartest animals generally. They have been shown to be on a par with the great apes and, quite often, their performance is at a level of 3-5 year old children. The book describes other complex behaviours such as grieving, deception, mimicry, problem solving and the use of tools.

Kaplan reflects on the interactions between birds and the Australian environment, particularly in respect to evolution and how birds have responded to it. It is interesting to note that Australian birds are far more bonded, cooperative and longer lived than their northern hemisphere cousins, possibly as a result of their longer evolution in a harsher environment.

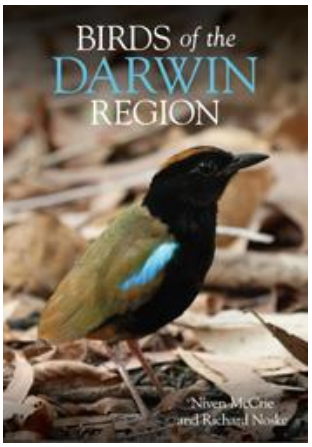
Bird Minds is the first attempt to shine a critical and scientific light on the cognitive behaviour of Australian land birds. Kaplan convincingly demonstrates that native birds express a wide variety of emotions, show extraordinary abilities to solve problems, cooperate and make substantial commitments of time and effort in order to raise their offspring. It is brimmed full of references (37 pages worth!) plus a good 'bird by bird' table of what behaviours have been observed. Kaplan supports her commentary about bird behaviours with a solid evidence base – but also adds (and suitably qualifies) further anecdotal observations and thoughts about how behaviours might be interpreted. This book must surely represent a monumental effort by Kaplan to bring together much of her own research, and that of many others, into a thoroughly comprehensive and authoritative standard work on the working of birds minds.

This book would appeal most to those with a scientific bent, whether you are a birder with a curiosity about how birds behave, a life scientist or just interested in behaviours and neurology across the animal kingdom. If this is you, this book will keep you intrigued for hours. For birders with less scientific interest, the book may still be of interest, but you might want to gloss over some of the more technical discussions (noting there is a good glossary), although most of the book can be followed without too much effort and should well hold your atention.

Kaplan's book certainly does what she sets out to do, it *"shows convincingly that Australian birds have a life and mind of their own, having staked a claim to this continent long before humans evolved or set foot on it"*.

Birds of the Darwin Region. By Niven McCrie and Richard Noske.
CSIRO Publishing, Melbourne, September 2015, ISBN 9781486300341, Paperback, 464 pages. RRP AU $79.95.

Reviewed by MICHAEL LENZ, Lyneham, ACT (michael.lenz.birds@gmail.com)



Darwin is a popular destination for many bird watchers, including COG members, and often the starting point from which to explore other areas of the Top End and further afield. Apart from joining guided tours, in more recent times the self-exploring birdwatcher could access the detailed guide by Niven McCrie and James Watson (2003, 1st ed., 2006 2nd ed) *Finding Birds in Darwin, Kakadu and the Top End.* (NT Birding, Casuarina).

Now Niven McCrie and Richard Noske, a well-known researcher of the bird fauna of the wet/dry tropics and the mangal (mangrove) biota of northern Australia and beyond, have combined their efforts to produce a detailed account of the avifauna of the Darwin region (an area of ca. 800 qkm as defined in the book). The species accounts are based on thousands of surveys, a database of 120 000 records and a critical review of published observations and latest research on the biology of the species (over 500 references!).

Introductory chapters cover the history of ornithology in the Darwin region, climate, the avifauna (composition by broad habitat categories; also 19% of species are vagrants, the latter an important factor for birders visiting the Top End) and its responses to extreme seasonality,

movements and breeding season, and habitat types. A feature of the Darwin region is that diverse habitats are in close proximity to each other, and often intermingled, resulting in the presence of many species over relatively short distances.

This book gives every visitor to the region an excellent overview, not just of the distribution of species and the changes to their seasonal relative abundance, but also gives important information about the biology of the birds in this region, notably their ecology, breeding biology and movement. The list of 323 recorded species includes 258 regularly occurring ones. Also mentioned are 10 unconfirmed species. Common and scientific names and the sequence of species follow the World Bird List (v5.1) of the IOC (International Ornithological Committee).

At the beginning of each species account a brief profile is given, including the global range, habitats and status in the Darwin area and the Top End, and, where applicable, the breeding season. The detailed accounts include a colour photo, a distribution map (a grid system with different-sized dots to indicate the reporting rate/survey effort), and a graph of the seasonal distribution and relative abundance (monthly reporting rates), with wet and dry season represented by a different colour.

The writing is free of heavy scientific jargon, highly informative and reads very well. Latest research on the biology of species is incorporated. My favourite species accounts are those of the nine cuckoos, although it is very easy to find many other fascinating species accounts in the book.

What makes this "local" avifauna" book so highly recommendable is not only the sheer wealth of information presented in a very accessible form, but that species are not just considered at local level, but are viewed as part of the Top End and wider wet/dry tropics avifauna.

This book can be recommended to anyone wanting to do birdwatching in Australia's tropics, and more specifically if you go to the Top End it will greatly help in planning the timing of your trip to maximise the chances to see your "target species". But for anyone with a more general interest in in the biology of the birds of tropical Australia, then this is a book you need to read.

RARITIES PANEL NEWS

Over the second half of 2015 the panel received 12 records and after consideration was able to endorse 10 of them. Of particular interest was the White-cheeked Honeyeater, seen by many at Jerrabomberra Wetlands NR in December. It was only a matter of time till this common coastal species turned up in the ACT. It will now be added to the ACT "unusuals" list. It will be of interest to see whether this bird is the first of many, or a one-off. It can be distinguished from the more common New Holland Honeyeater primarily by the extensive white cheek patches on the sides of a black head.

Having been dropped from the "unusuals" list at its 2013 revision on the grounds that the species had not been recorded in over ten years, the Bar-shouldered Dove confounded us by reappearing in Flynn in December. The Panel did not come to an opinion about whether the bird was wild, or an escape. The species has been recorded both coastally, and to our west.
The Blue-faced Honeyeater is an occasional and relatively unmistakeable visitor to our region and occurs commonly to our north and west. The records listed here presumably relate to the same individual or pair. The Red-whiskered Bulbul on the other hand is an introduced species, common in the Sydney region, which we do not want to encourage here.

ENDORSED LIST 87, DECEMBER 2015-JANUARY 2016

Red-whiskered Bulbul (*Pycnonotis jocosus*)

1; 21 Sep 2015; Sascha McCann; Ferdinand St, Campbell

Bar-shouldered Dove (*Geopelia humeralis*)

1; 10-18 Dec 2015; Christine Darwood; Meiklejohn Place, Flynn

Blue-faced Honeyeater (*Entomyzon cyanotis*)

1; 12 Oct 2015; Denise Kay; Hoskins St, Hall

1; 28 Nov 2015; Geoff McVeigh; Higginbotham St, Watson

2; 6 Dec 2015; Helen Fallow; Hall show grounds

1; 13 Dec 2015; Alison Rowell; SE of Hall show grounds

White-cheeked Honeyeater (*Phylidonyris niger*)

1; 10 Dec 2015; Brian Deans; Jerrabomberra Wetlands NR

1; 13 Dec 2015; Peter Milburn; Jerrabombera Wetlands NR

Also:

The many records of the Red-backed Kingfisher at Curtin, first spotted by Richard Allen.

This kingfisher was dropped from the unusuals list in the 2013 revision, on "frequency of sightings" grounds, though it is still "uncommon" in the ACT. The White-headed Pigeon was also dropped on the same grounds earlier.

Red-backed Kingfisher (*Todiramphus pyrrhopygia*)

1; 9 Oct 2015; Richard Allen; North Curtin Horse paddocks

White-headed Pigeon (*Columba leucomela*)

1; 2 Aug 2015; Andrew Nicholls; Gilmore Place Queanbeyan

Bar-shouldered Dove in Flynn (*Christine Darwood*), see Rarities Panel News, p. 302

Blue-faced Honeyeater (*Geoffrey Dabb*)

Contents continued from outside back cover

Canberra Bird Notes

Canberra Bird Notes is published three times a year by the Canberra Ornithologists Group Inc. and is edited by Michael Lenz. Major articles of up to 5000 words are welcome on matters relating to the status, distribution, behaviour or identification of birds in the Australian Capital Territory and surrounding region. Please discuss any proposed major contribution in advance. Shorter notes, book reviews and other contributions are also encouraged. All contributions should be sent to one of those email addresses:

CBN@canberrabirds.org.au or michael.lenz.birds@gmail.com

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

CANBERRA BIRD NOTES 40 (3) DECEMBER 2015

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