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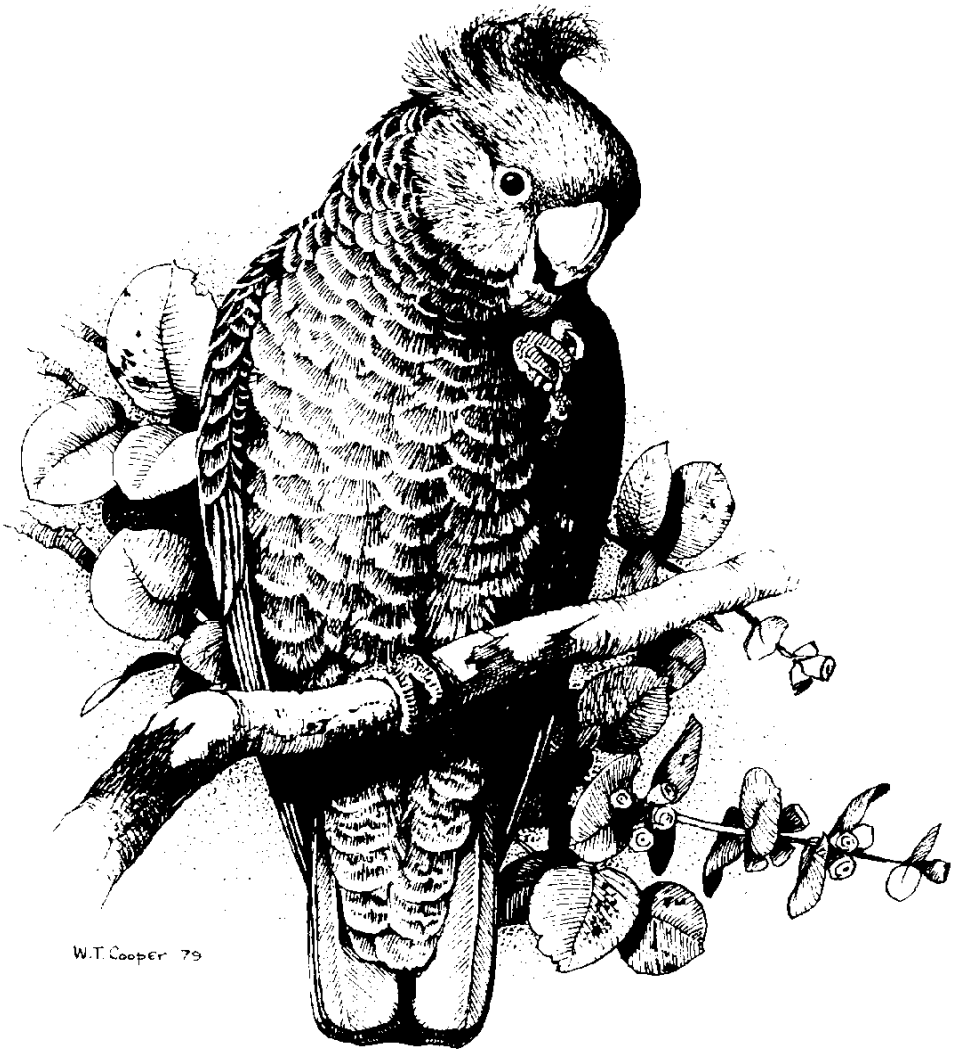


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# *ARTICLES*

## AUSTRALIAN SPOTTED CRAKES BREEDING IN FORDE, CANBERRA

BILL GRAHAM[A] AND JULIE CLARK[B]

[A]*29 Clancy McKenna Cres., Bonner, ACT 2914*
[B]*4 Tarrabool Street, Amaroo, ACT 2914*

***Abstract:*** *Little is known of the breeding biology of the Australian Spotted Crake* (Porzana fluminea) *and there has only been one recorded breeding in COG's AOI prior to 2014. On 13 November 2014 a brood of 3 Australian Spotted Crake chicks was sighted and again on 7 January 2015 a second brood of a single chick was observed at the same site in Forde, Gungahlin. This is an area where wetlands have been created by the ACT Government to slow water runoff and reduce nutrients and silt going into Yerrabi Pond. Shallow moving water and dense beds of bulrushes* (Typha domingensis) *and other water plants have created an ideal habitat for the Crakes. A footbridge over the wetland and cycle paths along either side of the creek provided ideal observation sites. Both broods of small, black downy chicks were frequently observed and photographed during their development until they could no longer be found – a period in excess of 50 days. Adult feeding and supervision of the young, as well as independent foraging, feeding, bathing and preening were observed and documented. The size of the breeding territory was estimated at 750m$^2$. The current status of the Australian Spotted Crake in COG's AOI is discussed.*

### Introduction

There have been no major studies of Australian Spotted Crake (*Porzana fluminea*) and there is hardly any information available on breeding (Marchant and Higgins 1993). Before 2014, the only breeding record in the ACT was in December 1990 of an adult with five chicks at the Point Hut silt trap in Gordon reported by Jack Holland (Taylor and COG 1992). The next record was of an adult with three black downy young on 13 Nov 2014 below the footbridge near Hibberd Cres., Forde in Gungahlin (Graham). A second breeding was witnessed at the same site of an adult with one black downy young on 7 Jan 2015 (Clark). After the first report was put on the COG chatline, many COG members visited the site. Photographs, video and sound recordings were made that followed the young moving from juvenile to adult plumage. Steve Wallace, David Rees, Geoffrey Dabb and Julie Clark posted these on the chatline (see also Wallace 2015, this issue of CBN).

### Location

The site was within the basin that drains East Bonner, West Forde and North Mulligans Flat NP (about 450 hectares). The runoff collects in a drain that runs the length of Mulligans Flat Rd. to Horse Park Drive on the Forde side. Water from the Bonner side collects in two ponds on the other side of the road, i.e. water from two sources converges on this site. Wetlands were created in Gungahlin to slow water runoff and reduce nutrients and silt going into Yerrabi Pond. They include ponds, swales and causeways which were landscaped with edge zone plants and groundcovers. Both suburbs have been developed in stages and the last plantings (above the bridge) were about 3 years ago. In that time dense beds of bulrushes (*Typha domingensis*) and other water plants have matured, thus creating suitable habitat for

the crakes. Below the bridge there are extensive beds of *Typha* which have been there longer. They are so dense that sightings of crakes are difficult.

Prior to the 2014 breeding there were only two other sightings in the West Forde/East Bonner Basin; both at the pond at Bill Ferguson Circuit, Bonner with 2 birds on 23 Jan 2013 and 1 bird on 25 May 2014. Both sightings occurred on a concrete spillway coming from a large covered drain where runoff went into the pond. The birds darted into cover as the observers approached.

**Observations**

The territory size of the breeding pair was estimated by the distances flown and places the crakes were using. They flew or were sighted in a 12m wide strip 30m north and 30m south of the bridge (about 720m$^2$). The main observations were on two concrete causeways. The upper one (17x12m) had wetland plants growing in silt that provided cover when the crakes were feeding. The lower causeway was smaller (7x12m) and below a spillway. It consisted of bare concrete with a dense wall of *Typha* blocking the southern end. There were strips of plant cover on each side of the shallow pool. The first sighting of the young was in the south east corner beside cover. On early morning visits the crakes always emerged from a gap in the SE corner, so it is assumed that the nest had been located deeper inside the *Typha*. The shallow pool provided food for the crakes and good viewing for observers on the bridge.

The bridge had a lot of traffic with walkers, runners, bikes and dogs which meant the crakes were used to people. The Australian Spotted Crake is described as 'another rather furtive species' (Wilson 1999), and although initial emergence from cover is tentative, if the observer is quiet, the Forde birds will move about freely in the open. These are the boldest of crakes when feeding (Marchant *et al* 1993). Other members of the Rallidae; Spotless Crake (*Porzana tabuensis*), Buff-banded Rail (*Gallirallus philippensis*) and Lewin's Rail (*Lewinia pectoralis*) were sighted less often and did not seem to occupy the open areas in the way that the Australian Spotted Crakes did.

**Table 1: Observations of 1st brood of Australian Spotted Crakes at Hibberd Cres, Forde: 13 Nov 2014 – 20 Feb 2015.**

| **Observation of Australian Spotted Crakes - Hibberd Cres, Forde** | |
|---|---|
| **Date** | **1st Brood (three chicks) - First sighted 13 Nov 2014** |
| 13 Nov 2014 | Adult and 3 downy chicks staying near adult, being fed SE corner |
| 14 Nov 2014 | 7.47 - Adult feeding in water and vegetation - SE corner.<br>7.54 - Chicks occasionally seen in vegetation.<br>7.56 - 3 chicks emerged, with adult, into shallow water, partly feeding themselves, but mostly fed by adult.<br>8.51 - Adult feeding at edge of vegetation then moved into vegetation, swapping places with other adult who fed for several minutes.<br>9.03 - 3 chicks appeared, being fed by adult and wandering around in shallow water for 6 minutes feeding themselves. |
| 15 Nov 2014 | 10.20 - Adult feeding and bathing. Adult then fed one chick.<br>10.35 - Adult feeding, brief view of one chick in vegetation.<br>10.44 - Chicks appeared, with all 3 feeding, and adult nearby, occasionally feeding them. |
| 18 Nov 2014 | 2 adults and 2 juveniles seen |

*Table 1 continued*

| Date | 1st Brood (three chicks) - First sighted 13 Nov 2014 |
|---|---|
| 25 Nov 2014 | 11.42 - Adult feeding in water (3 minutes of observation = 3 min)). |
| 27 Nov 2014 | 16.29 – 1 chick seen briefly - feeding in water. |
| 28 Nov 2014 | 2 adults and 2 juveniles |
| 3 Dec 2014 | 1 adult and 2 juveniles<br>10.04 - Adult feeding in water and vegetation (2 min). |
| 9 Dec 2014 | Adults copulating |
| 13 Dec 2014 | 16.14 - Adult feeding in water and vegetation.<br>16.16 - Juvenile appeared after adult's departure, feeding in water, departing, then 2nd juvenile appeared and fed in water (11 min).<br>17.39 - Adult feeding approx. 70m NE along creek (at next causeway) in vicinity of Buff-banded Rail. (11 min). |
| 14 Dec 2014 | 14.45 - Juvenile bathing and preening (9 min). |
| 15 Dec 2014 | 16.21 - Juvenile preening (9 min). |
| 20 Dec 2014 | 17.19 - Adult feeding in open on gravel verge of creek.<br>17.20 - 2 juveniles feeding in water, with one then bathing and preening.<br>17.32 – 3rd juvenile feeding in water.<br>17.34 - 2 juveniles feeding together, with adult feeding separately (10 min).<br>18.06 - Juvenile feeding and then all 3 feeding independently (10 min). |
| 21 Dec 2014 | 7.20 - Juvenile on SW concrete bank. Adult appeared, followed by 2nd juvenile.<br>7.38 - Adult chased juvenile.<br>7.39 - Juvenile bathing, shaking feathers, preening below spillway.<br>16.37 - Adult and juvenile observed -both feeding independently in water (3 min).<br>16.55 - 2 juveniles feeding together some of the time; adult feeding separately (15 min). |
| 22 Dec 2014 | 7.57 - Adult feeding in the water - lower level.<br>8.02 -Juvenile feeding near vegetation - upper level.<br>8.22 - Juvenile feeding on spillway.<br>8.35 - Adult and 2 juveniles all feeding on lower level; 2 juveniles usually together.<br>Lewin's Rail in the vicinity briefly and Spotless Crake also seen (13 min).<br>18.16 - Adult feeding on upper level for 2 min.<br>18.26 - Adult feeding at top of paved area near vegetation - two minutes. |
| 23 Dec 2014 | 9.04 - Juvenile feeding in moving water for 2 min. |
| 24 Dec 2014 | 16.46 - Juvenile feeding in water. Two Buff-banded Rails in vicinity (2 min). |
| 28 Dec 2014 | 16.41 - Juvenile observed briefly feeding in water. |
| 29 Dec 2014 | 14.06 - Adult feeding in water and vegetation - moved from upper area to lower one and disappeared into vegetation( 6 min). |
| 30 Dec 2014 | 8.23 - Adult feeding alone - upper level; 2 juveniles chasing one another around vegetation;<br>3rd juvenile feeding in vegetation, but did not come out into open- lower level.<br>16.21 - Juvenile observed briefly - feeding near footbridge.<br>16.41 - Adults feeding in shallow water - upper level (14 min). |

*Table 1 continued*

| Date | 1st Brood (three chicks) - First sighted 13 Nov 2014 |
|---|---|
| 31 Dec 2014 | 15.42 - Adult bathing and preening (4 min) - lower level.<br>16.30 - Adult feeding - lower level and 2nd adult feeding upper level (50min). |
| 1 Jan 2015 | 17.25 – Adults bathed – separate areas. 2 juveniles chased one another. All feeding individually (33 min). This was the last time the juveniles were observed. |
| 2 Jan 2015 | 8.29 - 2 adults feeding separately…. One first then 2nd one appeared and 1st disappeared in same direction - lower SE corner of vegetation (15min).<br>9.46 - Brief view of adult bathing.<br>18.31 - Adult wading in deeper water and feeding, head often right under water (9 min).<br>18.50 - Adult feeding. |
| 4 Jan 2015 | 6.43 - Each adult appeared separately and on several occasions seen carrying food into vegetation - lower level, western corner, away from path (22 min).<br>7.29 - Adult feeding - lower level - brief observation.<br>16.35 - Adult feeding - lower level (2 min). |
| 5 Jan 2015 | 17.01 - 2 adults feeding in fairly close proximity - upper level (25 min). |
| 6 Jan 2015 | 16.58 - Adult feeding in water and edge of vegetation - lower level (6 min). |

**Table 2. Observations of 2nd brood of Australian Spotted Crakes at Hibberd Cres, Forde: 7 Jan 2015 to 7 Mar 2015**

| Date | 2nd Brood (one chick) - First sighted 07 Jan 2015 |
|---|---|
| 7 Jan 2015 | 8.06 - Initially both adults feeding and then one chick appeared with an adult – lower level SE corner. One chick seen on moving in and out of vegetation (8 min).<br>8.58 - Adult observed briefly, feeding chick- SE corner. |
| 8 Jan 2015 | 16.32 - Adult feeding. No chick sighted (8 min). |
| 9 Jan 2015 | 15.31 - Crakes had moved to upper level after heavy overnight rain. Adult feeding and then chick appeared briefly, partially hidden by vegetation. 2nd adult emerged to feed itself and chick which then moved about in vegetation while adult sat preening for some time (40 min). |
| 10 Jan 2015 | 14.04 - Adult and chick feeding, with adult also feeding chick, in vegetation, partially concealed. Second adult also out feeding at times, away from others (10 min). |
| 13 Jan 2015 | 13.18 Both adults and chick mostly feeding separately in water, under footbridge. Each adult fed chick on occasions and seemed to be checking on it (40 min). |
| 15 Jan 2015 | 9.03 - Adult feeding in water. It returned to reeds and 2nd adult emerged with chick. They moved to upper level, swimming part-way, to feed in water and vegetation (17 min). |
| 20 Jan 2015 | 14.54 - Both adults feeding at different times and simultaneously in separate locations.<br>Chick not seen (20min). |
| 26 Jan 2015 | 15.45 - Adult feeding - upper level (20 min). |

*Table 2 continued*

| Date | 2nd Brood (one chick) - First sighted 07 Jan 2015 |
|---|---|
| 28 Jan 2015 | 16.28 - Adult feeding - lower level (8 min).<br>16.54 - Both adults feeding together - upper level (20 min). |
| **29 Jan 2015** | 16.56 - Both adults and juvenile seen at different times feeding separately. Juvenile upper level vegetation, near the rear path - out of adult sight (20 min). |
| 15 Feb 2015 | 16.49 - Both adults and juvenile seen upper level, near rear path, together and separately. Spotless Crake present. All sunning and preening, partially hidden by reeds (45 min). |
| 18 Feb 2015 | COG Walk - Adult and juvenile seen upper level, vocalising and keeping within cover. |
| 20 Feb 2015 | 7.30 - Adult observed feeding (11 min). |
| 5 Mar 2015 | 17.48 - Feeding in water and vegetation. Spotless Crake and Buff-banded Rail present (14 min). |
| 7 Mar 2015 | 16.29 - Feeding in the water and swimming (19 min). |

The chicks were partially feeding themselves from first sighting, but were also fed by adults. After about 7 days the chicks were feeding independently, but an adult was still in close proximity for at least the first 14 days, after which the chicks were quite independent. In the first brood it was common to see two juveniles together, feeding, bathing and chasing one another. All three young were not seen together as often.

The three juveniles of the first brood were last seen on January 1, 2015 – six days prior to the appearance of the second brood. This raises several questions: Do the juveniles disperse and fend for themselves at a certain age or after a second breeding by the adults? Are they driven out by the adults or is it just a natural process to move on to a new territory?

**Australian Spotted Crake with chick, Forde, 14 Nov 2014 (*Julie Clark*)**

**Juvenile Australian Spotted Crake, Forde, 13 Dec 2014 (*Julie Clark*)**

The Australian Spotted Crakes have been observed sharing their territory with Spotless Crakes and Buff-banded Rails. Indeed, on numerous occasions all three species were observed feeding simultaneously in close proximity. Lewin's Rails have also been observed in the area.

**Discussion**

The COG data base contains the following number of records for the Australian Spotted Crake over a 32 year period: From 1980-89; 1-5 records in six years, from 1990-99; 1-9 records in seven years, 2000-09; 4-31 records in eight years, 2010-2014; 11-69 records in four years. From 1980- 1999 most ACT records were from Jerrabomberra Wetland Nature Reserve (JWNR) and outside the ACT at Lakes George and Bathurst. From 2000-2009 most records were from JWNR. From 2010 to the present a new trend has emerged. More reports have come from Namadgi Nature Reserve (pond at the Visitors Centre) and West Belconnen (Dunlop Ponds and Parkwood). However, Gungahlin has reported a notable increase from six different sites.

There are a few historic records indicating Australian Spotted Crakes have occurred each month. These records are insufficient to indicate yet that the species overwinters here.

Over the last 32 years, most records were of 1 or 2 birds. Two larger counts resulted from different methods or circumstances; 8 birds were banded in Jan/Feby 1964 when Lake Burley Griffin was filling (Wilson unpublished banding data). While Kelly's Swamp was drying up on 20 Jan 1984, 12 were observed (Wilson 1999) and 25 on 28 Jan 1985 (Graham Barwell).

We do not know yet the true status of the Australian Spotted Crake in Canberra. As more suburbs are being developed and wetlands increase, then new habitats become available. Some of these new areas provide better opportunities to study this normally quite elusive species. If the current trend of expansion into new areas continues, then a revision of the status of the Australian Spotted Crake may be due.

**Acknowledgements**

We would like to thank Paul Fennell for supplying information from the COG database and the photographers, Steve Wallace, David Rees and Geoffrey Dabb for providing a steady stream of images over the period of the study. Special thanks go to Michael Lenz and Steve Wallace for their encouragement and sound advice.

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**Adult and juvenile Australian Spotted Crake (left) and Spotless Crake (right), Forde, 15 Feb 2015 (*Julie Clark*)**

# OBSERVATIONS ON THE DEVELOPMENT OF THE AUSTRALIAN SPOTTED CRAKE

STEPHEN WALLACE

*202 Tillyard Drive, Fraser ACT*

***Abstract:*** *A wild brood of three Australian Spotted Crakes* (Porzana fluminea) *was observed over 40 days. Their development is described and supported with videos and photographs. As no other age related data on the development of young Australian Spotted Crakes could be located, comparisons are made to the development of other species in the* Porzana *and* Zapornia *genera. The time between broods is estimated at 57 days.*

Regular sightings of breeding Australian Spotted Crakes (*Porzana fluminea*) in Forde ACT presented an opportunity to record the development of the young. Videos were recorded at intervals over a period of forty days and these, combined with some notes made at the time, are the main source of the observations presented here. Extracts from the videos have been loaded onto a web site (The Internet Bird Collection). The web addresses of the videos are included in the references. These videos show some development and behaviour not described below. Some observations by Bill Graham and Julie Clark are also included (see also Graham and Clark 2015, this issue of CBN).

Bill Graham first reported downy young on the morning of 13 Nov 2014 (**Day 1**). I visited that afternoon and located three chicks which I estimated were not long out of the nest based on their behaviour and colouration (see video Wallace 2014a):

Their timid nature when walking into the water (they did not follow the adults far into the water);

One of them was unsteady on its feet;

The glossy green colour on the head was clearly visible.

This assessment was reinforced on the following morning (**Day 2**) when the three young did not show any unsteadiness and they followed the adults nearly everywhere they went, including into deeper water (see video Wallace 2014b). On the first day of observation at least two of the young birds also made sudden bounding movements (visible on the video) which were not seen on later days. The young were begging on the first day, flapping their wings and sometimes crouching down on their metatarsi at the same time. They also pecked at the ground but it was not clear if they actually fed themselves.

**Figure 1. Young on day 2 showing white areas on the beak, pink at the base of the beak and glossy green down on the head.**

Two white areas, which appeared to be joined by a narrow white line, were visible on the beak. The distal one is assumed to be the egg tooth. A pink area at the base of the beak was also visible (see Fig. 1).

**Day 3.** On 15 November, Julie Clark took photos of

the three chicks. They were still covered in black down with the green gloss still visible on the head, but some brown areas could be seen through the down. The remnant of the egg tooth was still visible on all three chicks.

**Day 6.** I did not locate the young at my next visit on 19 Nov but they were seen by Bill Graham.

**Day 9**. At my next visit on 22 Nov, the young had grown considerably, with feathers over the whole body. I was unable to see any noticeable difference in the development and behaviour of the three chicks. Down was present only in patches, most obviously on the tail, down the centre of the rump and on the head and wings. Some areas of down were also visible on the back and side of the neck. The wings were feathered, but down was still present along the wing where the flight feathers would appear. This level of development only 9 days after they were first seen raises questions about the age of the chicks when first observed (see discussion for details). The young were feeding independently but an adult also fed them with what looked like a worm (see video Wallace 2014c). This was the last time I saw an adult feed the young. The egg tooth was not visible. A single white sub terminal marking was visible on the beak, on both the upper and lower mandible. The tail was still very small and undeveloped. The beak was grey but there was an area on the upper mandible (above and behind the nostril) which showed light pink and was particularly obvious when the sun was behind and shone through it.

**Day 15**. On 28 Nov, the only sign of down was a small amount on and under the tail. The tail was starting to grow but was still very small. However, the distinctive white pattern under the tail was visible when the tail was flicked. (see video Wallace 2015a). The flight feathers were visible but small. A single white area was still visible near the distal end of the beak but not as obvious as on day 9.

**Day 17**. On 30 Nov, one of the young was seen standing next to the female after she made two single note calls. Initially the chick was pecked on the head but then they both preened and, at one point, the female briefly preened the chick.

**Day 18**. On 1 Dec only a few filaments of down could be seen on the tail. Tail feathers had developed further, with the small white area under the tail clearly visible. The flight feathers had grown enough that they were used on a couple of occasions to assist with fast running. The iris was brown with a slight hint of red. Legs green. A small white area was visible near the tip of the beak, although it was not conspicuous. A small pink area was still present near the base of the upper mandible. The only chick observed was pecked when it begged for food from the male.

The adults were displaying (chasing each other at a pace through the vegetation and particularly in a circle around one clump) but did not seem concerned by the presence of one of the young. Mating was not observed, but the state of the female's plumage, after the display, indicated that it had occurred.

**Day 26**. On 9 Dec, Bill Graham saw the adults copulating.

**Day 27**. On 10 Dec two young were observed feeding together. There was no sign of down and the tail was longer, approaching the proportions of the adult. The eye had a slight reddish tint but the colour was not as obvious as in the adult. The beak was greyish and there was no

distinguishing colour at the base of the upper mandible. The feathers under the body and throat were less brown and the plumage pattern at the side was becoming more like the adult. Legs were green. (see video Wallace 2105b).

The male was seen chasing the female. This ended in thick vegetation and there is a reasonable possibility that copulation occurred. Although copulation was not seen, the male tried to mount before they entered the vegetation and the female's back, just in front of the tail, was dishevelled when she emerged. (see video Wallace 2015d).

**Day 40**. On 23 Dec the eye colour showed more red but still not the red of an adult. The base of the upper mandible was still not obviously red but a slight reddish orange area was showing near the face and part way along the top of the beak. The beak was a grey green colour with a green area, similar in colour to the adult beak, on the lower mandible nearest the face. The tail appeared fully grown and was longer than the female's, which seemed to be reduced in length, possibly as a result of her mating activity. The bird was well on its way out of juvenile plumage, with the chest clearly becoming the grey of the adult and pin feathers showing (see video Wallace 2015c).

**Day 55**. The female was photographed by Julie Clark with a single, down covered chick on 7 January, 28 days after the mating display was last observed on day 27. Six days later, some brown feathering was showing through the down (a little more advanced than day 3 of the first brood). By day 9 (15 Jan) the chick was largely feathered, but still with a large amount of down, far more than day 9 of the first brood. This indicates that this second brood was located 1 to 2 days earlier than the first. Using this approximation, it is estimated that there was about 57 days between the two broods.

**Bare parts**

Marchant and Higgins included descriptions of the bare parts of the downy young, juvenile and immature. Tables 1 to 3 compare these descriptions to the observations of the Forde birds.

**Table 1. Bare parts of the downy young compared to description in Marchant and Higgins (1993).**

| Bare part | Marchant and Higgins | Forde birds (day 1 and 2) |
|---|---|---|
| Beak | Black with red base and white egg tooth; pale olive hue of the juvenile begins to spread from the centre of bill before all down is lost. | Black with a pink base to the upper mandible. A double white area (egg tooth plus white marking?) on the upper mandible. |
| Legs and feet | Feet, dark olive-green or blue-black. | Black. |
| Eye | Iris black, surrounded by a ring of blue-black skin. | Iris black, ring around eye not obvious from videos but may have been present. |

**Table 2. Juvenile bare parts compared to description in Marchant and Higgins (1993).**

| Bare part | Marchant and Higgins | Forde birds (day 9 to 27) |
|---|---|---|
| Beak | Younger individuals (including birds still growing juvenile wing): pale greyish olive with dark grey culmen and tip. Lose red base before wing fully grown.<br>Older individuals: similar to adult but base of culmen not swollen, yellowish brown with buff-yellow margin. | Day 9 - grey but there was an area on the upper mandible (above and behind the nostril) which showed light pink and was particularly obvious when the sun was behind and shone through it. A single white sub terminal marking was visible on the beak, on both the upper and lower mandible.<br>Day 18 – grey black. A small white area was visible near the tip of the beak, although it was not conspicuous. A small pink area was still present near the base of the upper mandible<br>Day 27 - greyish with no pink area at the base of the upper mandible. |
| Legs and feet | As adult. | Day 9 – greyish.<br>Day 18 - green but not as bright as adult<br>Day 27 – green but not as bright as adult. |
| Eye | Iris, brown to dark brown; may become red in some before the juvenile plumage lost. | Day 9 – Iris brown.<br>Day 18 – Iris brown with a slight hint of red<br>Day 27 – Iris, slight reddish tint but the colour was not as obvious as in the adult. |

**Measurements**

The size of the chicks was estimated by measuring the length of some key structures relative to the size of the adult female. While this does not provide absolute measurements, it does provide a way of assessing the growth, albeit with limited accuracy. The adult female was chosen as she appeared in more of the videos. Even though she was in the videos, it was not always possible to determine these measurements as it required both her and the chick to be the same distance from the camera and parallel to each other. The tail could not be included until it was more than a down covered ‘stump’. The tail was measured from the lowest point of the white feathering under the tail to the tip.

**Table 3. Immature bare parts compared to description in Marchant and Higgins (1993).**

| Bare part | Marchant and Higgins | Forde birds (day 40) |
|---|---|---|
| Beak | Similar to adult. Unknown if any develop vivid red base of some adult males but there are photographs of a bird with unswollen orange-red base to culmen. | Grey green colour with a green area, similar in colour to the adults beak, on the lower mandible nearest the face. The base of the upper mandible was still not obviously red but a slight reddish orange area was showing near the face and part way along the top of the beak. |
| Legs and Feet | Similar to adult. | Similar to adult but not as bright. |
| Eye | Similar to adult. | Iris more red then juvenile but still not the red of an adult |

**Table 4. The relative size of the chicks compared to the adult female**. A range indicates that more than one measurement was made, with the variability a result of the method used and not necessarily the variation between the chicks (the same chick may have been measured each time).

| Day | Tarsus | Toe - central | Beak | Tail |
|---|---|---|---|---|
| 1 | 70-75% | 68-73% | 44-50% | |
| 9 | | | 78-80% | |
| 27 | 100% | | | 120%[#] |

[#]Female had lost the longest feathers of the tail, possibly due to mating.

## Discussion

I could not locate any references describing the development of Australian Spotted Crake chicks. While there are descriptions of plumages, these are not able to be related to the age of the bird. The Handbook of Birds of the World (Taylor 1996a), which was last updated on 23 Nov 2014, does not contain a description of the plumage development by age. Marchant and Higgins (1993) provide some information on plumage differences but not the timeline for these changes.

Until a recent review of the genus *Porzana*, more detailed accounts of some of the other Australian species in the same genus were available. The review moved Spotless Crake and Baillon's Crake to the genus *Zapornia* (*Z. tabuensis, Z. pusilla*), a change reflected in the latest Birdlife International list (Birdlife International 2014). Of the species remaining in the genus *Porzana*, only the Sora (*P. carolina*), a bird of the Americas, has detailed documentation of its growth and development (Kaufmann 1987). Despite the taxonomic change, the discussion below includes comparison to some of the species now in the genus *Zapornia*.

Kaufmann (1987) included descriptions of plumage development and behaviour of both wild and captive Sora, and graphs of the development of the tarsus and the weight of two hand-raised young. The tarsus of the Sora was 38-44% of its final length at hatching, and reached full size by day 24-29 (3.4-4.1 weeks). Weight of the two captive birds was still increasing on day 35 (5 weeks). Juvenile plumage began to emerge in the Sora at 2.5 weeks with the ventral tract fully emerged by 3.5 weeks. The alar and caudal tracts were the last to develop, emerging in the 3rd to 4th weeks. In wild Sora, begging (crouching on the metatarsi while flapping their wings) began at 3 days old and the adults continued to feed their young for 3 weeks.

Heinroth (1967) provided photographs of the Little Crake (*Zapornia parva*) at 2, 4, 13, 20 and 40 days after hatching (hatching was day 0 in Heinroth whereas Kaufmann recorded hatching as day 1). Within 2 days the bird was eating well. At 2 weeks of age feathers of the small plumage started to appear. At 3 weeks of age the first wing feather was 10 mm long including attached down. At day 28 this wing feather was 25mm long and by day 40 62mm long.

Comparing the observations of Kaufmann (1987) to those of the crakes at Forde indicates that the chicks were possibly two weeks old when first seen, if the growth patterns are similar to the Sora. This is based on the juvenile plumage starting to be visible on Day 3 (2.5 weeks in Sora) and the tarsus length being 70-75% of the adult female at Day 1 (day 13-15 in the Sora). Unfortunately no other alignment points with Kaufmann's data could be determined using the tarsus because the next measurement of the Forde birds was on day 27, when it was the same size as the adult female. The development of the caudal tract started about day 15, which is not unlike the Sora if the starting age of the Forde birds was one to two weeks. Feeding of the young continued for three weeks in the Sora and was observed on day 9 at Forde. If the behaviour is similar, it would age the Forde young at about 12 days when first found.

Heinroth's photo of a 4 day old chick is very similar to that of the Forde chicks when located. However, if as Heinroth found, feather development started at 2 weeks (15 days in Kaufmann numbering) then this would put the Forde chicks at about 12 days old when located. This is close to the estimate using the Sora growth data (12-15 days). However, Heinroth's photo of the Little Crake chick at 13 days looks much more developed than the Forde chicks when found.

Despite this fairly consistent aging when compared to the growth of the Sora and Little Crake (12-15 days old when first seen), the behaviour of the Forde chicks on day 1 indicated that they were not 12 days old. On day 1, they stayed close to the bank, did not follow the adults far into the water and one was obviously unsteady on its feet. The next day all three chicks followed their parents across the pond and showed no unsteadiness on their feet. Kaufmann found that the Sora chicks, if undisturbed, did not leave the nest for the first 3-4 days, but he did not describe their steadiness after leaving the nest. Hadden (1972) reported that Spotless Crake chicks in New Zealand stayed in the nest for 24-48 hours if undisturbed. If the unsteadiness is an indication that the bird is not long out of the nest, then the Forde chicks would be 3-4 days old when first seen. Their begging behaviour also indicates they were at least 3 days old, when compared to the time begging started in the Sora.

For the Sora, Kaufmann (1987) reported that the egg tooth was "gradually incorporated into the tip of the upper mandible during the 2nd week**".** This would suggest that the Forde birds

were in their first week when located as the egg tooth was clearly visible and there was no sign of the egg tooth on Day 9.
Studies of the Spotless Crake (Marchant and Higgins 1993) indicate the replacement of the down begins about day 15. This again points to the Forde chicks being about 12 days old when first seen. Like the Spotted Crake (*Porzana porzana*) (Taylor 1996c), the Forde chicks did not lose the green gloss of the down on the head before it was shed. This is not consistent with the description for the Australian Spotted Crake in Marchant and Higgins which states:

*In older birds, down fades to a dark brown …*

Bonan (2013), in a summary of the Rallidae family, states:

*The chicks' legs and feet grow rapidly, reaching full size before the rest of the body; in contrast, the growth of the wings is generally much retarded. The first body feathers begin to appear after 6-15 days, usually about 7; the tail develops quite late in the sequence, and the down on the head and neck is often the last to be replaced*

Given the behaviour of the Forde chicks and the statement by Bonan (2013) that body feathers usually start to appear about day 7 in the Rallidae, perhaps the Forde chicks were only about 4 days old and recently out of the nest when first located. The presence of the egg tooth on days 1 and 2 but not day 9 appears to supports this estimate. However, the specific data for the Sora and the Little Crake are at the later end of Bonan's range for the start of feather development and suggest that the use of Bonan's average of 7 days may not be appropriate.
As crakes are reported as staying in the nest until all the chicks hatch, the second brood of only one chick may have left the nest earlier than the first brood.

The age of the chicks when first located will only be resolved if an active nest can be found and the chicks development followed from hatching.

The key points are:

It is not possible to age the Forde chicks precisely. The data from other species of crake suggests they were between 3 and 15 days old when first observed.
The chicks go from fully down covered but starting feather development, to having down only on the tail in 12 days. The tail, while visible at the 12th day of feather development, is small and underdeveloped. The delayed development of the tail is similar to other Rallidae species. The chicks were starting to lose the brown colour on the throat and chest on day 27 with the change to immature plumage well advanced by day 40.
Tables 1 to 3 document the changes in the bare parts. The pink area visible on the beak from day 1 to day 15 may be worthy of closer investigation.
From the point where the down starts to be replaced, the Australian Spotted Crake chicks developed quickly, in a very similar way to the Sora and Little Crake. There is insufficient information on the development of other Australian crakes to draw comparisons.
The young were still present when the second brood was commenced about 57 days after the first.
It is possible to compare the state of development of other broods to those of the Forde chicks (as was done for the second brood).

**Figures 2 to 6. Development of Australian Spotted Crake chicks. Photos taken from video on day 1, 9, 15, 27 and 40, where day 1 is the day they were found.**

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# BIRDS OF "CARWOOLA"

MARTIN BUTTERFIELD

*101 Whiskers Creek Rd, Carwoola NSW 2620*

## 1. Purpose of exercise

When we moved to Carwoola in January 2007 I was pleased to find a regular article in the local news letter "Stoney Creek Gazette" reporting on plants in flower in the area. I thought that the readership of the Gazette might be interested in a similar column on birds. The editors agreed with me and I began compiling a brief report on the birds I had seen each month.


**Figure 1. The author at work (as seen by *Wild Cattle Productions*).**

The initial reports were effectively just a list of what I – and eventually others - had seen in the area in the previous month but gradually included some commentary, varying according to what I thought would be of interest to readers at the time. This occasionally included some references to material in my blog, and when it became necessary to reduce the size of the printed Gazette I reduced the hard copy to a very brief summary of highlights and created a special blog for the detail.

The objective of the exercise remains to inform local residents of what is happening with birds in the area, and to encourage them to take an interest in this aspect of the natural environment.
I maintain an ACCESS database of species recorded each month, but not recording abundance or number of reports.

This reflects:

- the relatively *ad-hoc* nature of reports;

- a recognition that most people do not wish to commit to making detailed reports but are happy to note unusual sightings; and
- that extra precision is not necessary for the objectives of the study.

Of course, more formal reports to the COG Atlas system or eBird (see below) contain full detail.

## 2. Metadata

*2.1. What is the survey area?*

The area covered by the reports is effectively the catchment area of the Gazette. This includes the localities of Carwoola (both Queanbeyan and Palerang components), Hoskinstown, Forbes Creek and Primrose Valley and is illustrated in the sketch map below.


**Figure 2. Sketch map of the study area.**

No part of Tallaganda National Park or State Forest is included. The edge of those areas is the Eastern edge of the survey area. The Northern edge is effectively a ridge parallel to Briars –Sharrow Road and Captains Flat Road. The Western boundary of the study area is the top of the Queanbeyan escarpment meaning that most of Cuumbeun Nature Reserve is in the area, as are Yanununbeyan State Conservation Area and Nature Reserve which form the Southern end of the area.

Other than reports from residents (see below) on their properties and forays into the public reserves most of the birding is done from roads, either while driving, jogging or cycling.

*2.2. Key attributes*

Most of the area is above the 750m contour line with some high points above 1000m. This means it is 200-400m higher than Central Canberra. This often results in cooler temperatures in the study area, and the Hoskinstown Plain (hereafter 'the Plain') is effectively a large frost hollow.

Other than the public Reserves the Northern half of the area is rural residential, with most blocks varying from 4Ha to 25Ha in size. Most of the Southern half of the area is contained in a few much larger commercial properties.

**Figure 3. The "neck" on the Hoskinstown Plain.**

A particularly interesting phenomenon occurs in the Plain where woodland approaches the frost hollow from both sides.

This narrowing of the treeless area has been the source of several sightings of unusual species, and seems to reproduce the 'point' phenomenon in which migrating birds cluster at a point of land, before moving across water. In this case it might form a connection between Tallaganda to the East and Yanununbeyan to the West. (Unfortunately the observer who owned the property concerned has died so it no longer gets daily attention, although parts of the area are visited approximately once a month.)

There are many small farm dams on the properties in the area and it is bisected by the Molonglo River. There are however very few large water bodies. The best example, and the only near-permanent one, is a lagoon on Foxlow Station which can only be looked into from a road some 400m away.

In the past much of the Hoskinstown Plain was a swamp but in recent years most of the area has been much drier: when one swampy area (on private property) flooded in 2011-12 it provided an extraordinary range of observations, described under case studies below. Unfortunately it has been dry since.

*2.3. Observer effort*

For the first year or so the reports were entirely my own observations. Since then a variable number of other observers have reported, with their efforts ranging from regular completion of an EXCEL spreadsheet to ad-hoc reports of unusual or exciting single species sightings. This does mean that results from month to month can be very variable. It is particularly the case in July when many/all of the regular observers have gone away for most of the month.

Between us we cover examples of all the major habitat types, at least over the course of a year.

## 3. Relationship with other data collections

I and another observer maintain COG Garden Bird Survey sheets for our home patches, data from which are included in the monthly reports.

As the data is compiled on a monthly basis and only covers presence/absence the material in my database is not suitable for incorporating in either the COG data system or Eremaea/eBird. However specific surveys within the area do get submitted as with any other observations to whichever of those systems the observer prefers. In addition when a particularly interesting sighting is made by another resident I encourage them to submit an *ad-hoc* report to one of the systems (or in some cases make the submission on their behalf).

While the monthly time frame could be accommodated by the Atlas of Living Australia, the area is approximately 25km North-South and 16km east-West making it too coarse an area to be useful in the Atlas. The same comment applies to the Atlas of NSW Wildlife.

## 4. Comments on number of species observed

### *4.1. Species occurring*

In the eight years in which this project has been going 188 species have been recorded at least once in the study area. The number of species seen and added each calendar year is summarised in Table 1.

**Table 1. Number of species observed and number of species added for each calendar year.**

| Year | No. species | Notes | Additional species | Cumulative |
|---|---|---|---|---|
| **2007** | 106 | Only one reporter | 106 | 106 |
| **2008** | 116 | | 19 | 125 |
| **2009** | 137 | | 19 | 144 |
| **2010** | 146 | | 17 | 161 |
| **2011** | 141 | Low for unknown reasons | 5 | 166 |
| **2012** | 150 | | 11 | 177 |
| **2013** | 153 | | 7 | 184 |
| **2014** | 150 | | 2 | 186 |
| **2015** | 120 | To end March | 2 | 188 |

The pattern for the number of species added each year is shown in Fig. 4.

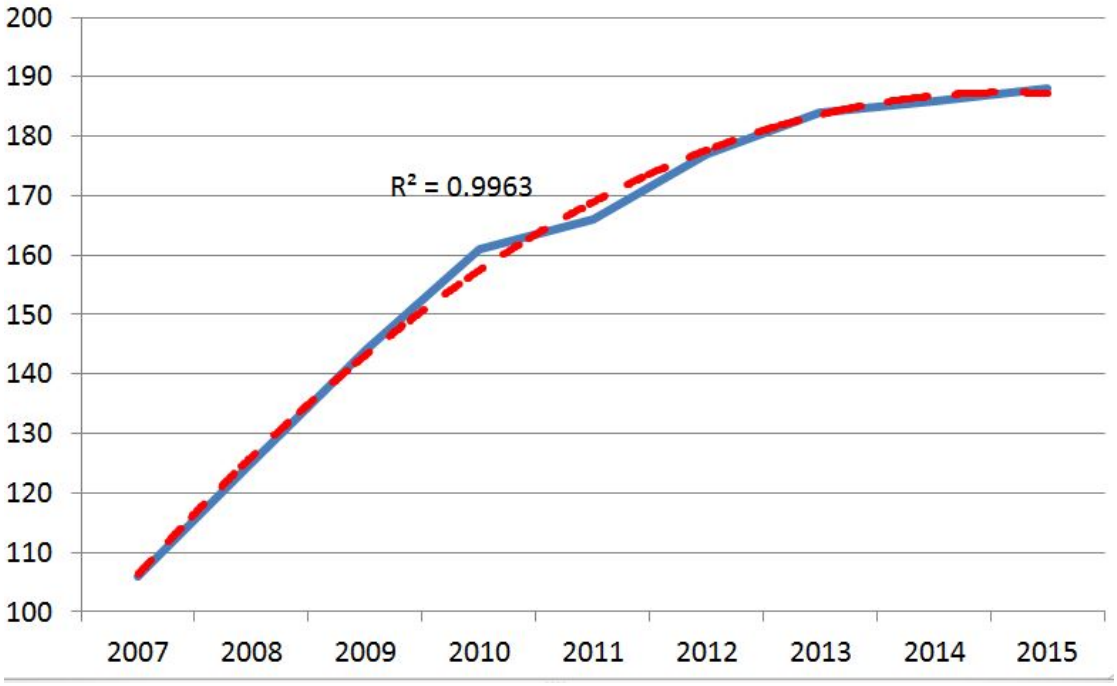


**Figure 2. Cumulative number of species recorded in study area.**

As indicated by the value of $R^2$ the series of cumulative number of species recorded is a good fit to the quadratic trend function represented by the red dashes. The overall shape of the trend line is similar to many representations of time series of observations, with a declining marginal rate.

Again the value for 2011 is below expectations: possibly the low rainfall from March to October dissuaded 'marginal' species from arriving in the area.

**Table 2. Number of species recorded undertaking breeding activity for calendar half years.**

| Breeding season | Observation Year | Number of species |
|---|---|---|
| **2009-10** | 2009 | 28 |
| | 2010 | 16 |
| **2010-11** | 2010 | 36 |
| | 2011 | 30 |
| **2011-12** | 2011 | 40 |
| | 2012 | 27 |
| **2012-13** | 2012 | 43 |
| | 2013 | 16 |
| **2013-14** | 2013 | 44 |
| | 2014 | 10 |
| **2014-15** | 2014 | 36 |
| | 2015 | 12 |

*4.2. Species breeding*

Commencing in 2009 I began recording birds breeding in the area, using the COG set of breeding events and codes. I also added in breeding records from my GBS Chart for 2007 and 2008, mainly because the data was "just sitting there".

In total 90 species have been recorded undertaking some form of breeding activity in the area.

I have recorded species coded to both the calendar year in which breeding was observed and the financial year, which for most species gives a better break between the peak periods of breeding activity. The number of species recorded in each half year is shown in Table 2.

The high number of species reported in the first half of calendar 2011 (i.e. the second half of breeding season 2010-11) caused me to re-examine the data. Nearly all the records in that period were of dependent young so it appears that the very good rains of October 2010 to February 2011 encouraged a number of species to fit in a second brood. Looking at the results for each complete breeding season, 2010-11 does not stand out from the subsequent seasons (Table 3).

**Table 3. Number of species recorded undertaking breeding activity for each breeding season.**

| Breeding season | Number of species |
|---|---|
| **2009-10** | 37 |
| **2010-11** | 50 |
| **2011-12** | 51 |
| **2012-13** | 49 |
| **2013-14** | 47 |
| **2014-15** | 41 |

Given that the breeding season for 2014-15 is essentially complete at the time of writing I believe the low result for that year reflects the unavailability of an observer, who is particularly good at spotting breeding activity, in the first half of that season.

In terms of breeding activities, the number of species and number records relating to various codes is shown in Table 4. The codes shown are those used by COG as standard.

**Table 4. Number and percentage of records for each type of breeding activity.**
[Code: di = display; co = copulation; ih = inspecting hollow; nb = nest building; ne = nest with eggs; on = bird on nest; ny = nest with young; cf = carrying food; dy = dependent young]

| Code | Species | Records | % records |
|---|---|---|---|
| **di** | 16 | 27 | 4.86 |
| **co** | 4 | 4 | 0.72 |
| **ih** | 7 | 11 | 1.98 |
| **nb** | 28 | 61 | 10.99 |
| **ne** | 6 | 9 | 1.62 |
| **on** | 38 | 90 | 16.22 |
| **ny** | 29 | 99 | 17.84 |
| **cf** | 12 | 12 | 2.16 |
| **dy** | 64 | 242 | 43.60 |

As expected the most common code (43.6% of records) is for Dependent Young (dy). By way of contrast the equivalent percentage for the Garden Bird Survey is 59%. I suspect the difference may reflect the fact that most of the regular observers in this project are either retired or work from their properties in the area (and thus spent a higher proportion of their time on the study sites).

## 5. Features of the Carwoola avifauna relative to the ACT

### *5.1. Impact of elevation*

Due to the increased elevation of the area it could be expected that events such as commencement of breeding or arrival of migrants will be delayed by about two weeks compared to urban Canberra. Investigating that hypothesis is beyond the scope of this report, but may be covered by a separate report.

*5.2. Status of birds*

The matter of whether a bird is "officially unusual" is a major minefield and subject to change over time. For this report I have used a code in an historic table which splits birds into three status groups equivalent to the terms 'common', 'uncommon' and' rare' used in the COG Annual Bird report. While possibly out of date it is I believe sufficient for this purpose. The status of the 188 species recorded in Carwoola is shown in Table 5.

**Table 5. Number of species and average number of months recorded x frequency status.**

| Status | Number of species | Average number of months reported |
|---|---|---|
| **Common** | 127 | 57.8 |
| **Uncommon** | 52 | 16.0 |
| **Rare** | 10 | 2.4 |

The project has been operating for 97 months and thus the common birds average out being recorded in somewhat more the half the months, while the rare species have only been recorded infrequently. A happy situation of expectations being met by reality!

5.2.1. Common COG AOI species

Nineteen species have been reported in every month of the project. They are marked with a hash mark (#) in Appendix 1. All of these are rated as "common" in the COG status.

There are 14 species with a COG status of "common" which have only been reported less than 10 months (which I consider makes them at least uncommon) in Carwoola. It is possible to regard them in several groups:

Birds of forests: While a good proportion of the area is covered with woodland, there is little forest. Wonga Pigeon (*Leucosarcia picata*); Superb Lyrebird (*Menura novaehollandiae*); Satin Flycatcher (*Myiagra cyanoleuca*).

Waterbirds: The absence of large water bodies has been noted above. Australian Pelican (*Pelecanus conspicillatus*); Silver Gull (*Chroicocephalus novaehollandiae*); Eastern Great Egret (*Ardea modesta*). The third of these species, recorded in only 6 months, offers an interesting contrast with the White-necked Heron (*Ardea pacifica*), recorded in 47 months. Possibly this reflects the differing diets with the Egret preferring fish and the Heron preferring other small aquatic and terrestrial animals (Marchant and Higgins 1990).

Relatively infrequently reported in COG area: Yellow-billed Spoonbill (*Platalea flavipes*); Restless Flycatcher (*Myiagra inquieta* (from chatline commentary appears to have been recorded more frequently in the AOI in 2015); Rose Robin *(Petroica rosea*); Brown Treecreeper (*Climacteris picumnus*); Fuscous Honeyeater (*Lichenostomus fuscus*); and Yellow-tufted Honeyeater (*Lichenostomus melanops*). The Annual Bird report for 2012-13 (COG 2014) ranks species by number of records in the year: none of this group was in the top 120.

Not yet invaded Carwoola; Spotted Dove (*Streptopelia chinensis*); Little Corella (*Cacatua sanguinea*). Observations of the Corella in Carwoola have increased in 2014-15).

5.2.2. Uncommon COG AOI species

I have identified 8 species which are possibly more common in Carwoola (being seen in more than 30 months) than implied by their COG status of uncommon.

Three of these are perhaps marginal over-achievers. I mainly identify Western Gerygone (*Gerygone fusca*: reported in 34 months) by call and may have over-represented the species. Speckled Warbler (*Chthonicola sagittata*: also 34 months) is seen very irregularly in Carwoola but when seen is often as a pair suggesting breeding activity in the area. Southern Whiteface (*Aphelocephala leucopsis*: 47 months) has become much harder to find in recent years despite checking previous hotspots.

However there is no doubt that the remaining 5 species are more common in Carwoola than in the overall COG AOI . These are:

Grey Butcherbird (*Cracticus torquatus*), 97 months – very common throughout the area, and very young birds are frequently seen being fed in Spring, although no nest has yet been found.

Little Raven (*Corvus mellori*), 97 months very common on the Plain, at times in flocks >100 birds. In the surrounding more wooded areas they are not so frequent or numerous.

Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*), 96 months – very common, feeding in *Pinus radiata* windbreaks.

Diamond Firetail (*Stagonopleura guttata*), 70 months – very common in or near hawthorn thickets especially on the Plain.

Eurasian Skylark (*Alauda arvensis*), 63 months – but I am sure they are always present on the Plain – they just don't sing for a few months each year, and are hard to identify when grounded.)

5.2.3. Rare species

As shown above there are 10 species with a COG status of rare. Nine of the species have been recorded only on the Plain – an interesting fact which requires some further thought.

Three of these (Scarlet Honeyeater *Myzomela sanguinolenta*, Black-eared Cuckoo *Chalcites osculans* and Scaly-breasted Lorikeet *Trichoglossus chlorolepidotus*) have only been reported from the 'neck' site on the Plain. The Lorikeet was considered an escapee.

Plumed Whistling Ducks (*Dendrocygna eytoni*) have become regular at sites in Bungendore but have only been recorded once – very recently in 2015 - on the Plain.

The appearance of Banded Lapwing (*Vanellus tricolor*), Australian Painted Snipe (*Rostratula australis*) and Painted Honeyeater (*Grantiella picta*) all coincided with a year of increased sightings of these species elsewhere in the COG Area of Interest (AOI). The Banded Lapwings (2012- 13) invaded a Lucerne crop with up to 45 birds present: despite continued growing of Lucerne the species has not reappeared. In 2013 it was becoming 'usual' to see Painted Snipe in Kelly's Swamp but to flush two birds from a paddock full of Hereford cattle was truly surreal.

**Figure 3. Australian Painted Snipe on the Hoskinstown Plain (*Garry Moffit*).**

The Painted Honeyeaters bred in a GBS site at Hoskinstown in 2013-14 but have not returned.

Two other species are simply rare in both Carwoola and the AOI. Horsfield's Bushlark (*Mirafra javanica*) may well be not recorded due to its preference for rank grass on the roadsides of the Plain where it is overlooked, especially as the quiet song is mainly sung early in the morning. The single flock of Zebra Finches (*Taeniopygia guttata*) were seen in a period of strong westerly wind.

The final species, Masked Woodswallow (*Artamus personatus*), could be considered as at the margin for a status of rare in the AOI, although they are less frequently seen in both areas than White-browed Woodswallows (*Artamus superciliosus*).

## 6. Case studies

### *6.1. The Swamp on the Plain* [1]

I have referred above to an ephemeral swap on the Plain. The presence of water - and waterbirds – in the swamp was noticed in about March 2012 following 2 months of very heavy rain. At its greatest extent the water covered about 10 ha.

While the water was present the swamp was notable for the presence of a number of species in larger than usual numbers and several others which are not common in Carwoola.

As noted above, White-necked Heron are frequently reported as individual birds but for a period there were up to 20 birds present in this swamp, with a similar number of White-faced herons (*Egretta novaehollandiae*). Similarly Black-winged Stilt (*Himantopus himantopus*) are seen irregularly, but not in numbers such as the 35 seen in this location on 29 October 2012! Eurasian Coot (*Fulica atra*) numbers peaked at an estimated 100 birds

[1] For additional commentary see http://carwoolabirds.blogspot.com.au/2013/01/glossy-ibis-on-plain.html and http://carwoolabirds.blogspot.com.au/2012/10/a-swampy-day.html

**Figure 4. A selection of birds on the "Swamp" (Foxlow Lagoon) (*Martin Butterfield*)**

Hoary-headed Grebes (*Poliocephalus poliocephalus*) were added to the area list here, with up to 20 birds. 2 Glossy Ibis (*Plegadis falcinellus*) were the first (and so far only) reports for the area. Single Eastern Great Egret and Yellow-billed Spoonbill seen in this event were also the first for the area.

Of course, commoner species were also present including 100 each of Pacific Black Ducks (*Anas superciliosa*) and Grey Teal (*Anas gracilis*), 10 Australasian Shoveler (*Anas rhynchotis*), 20 Hardhead (*Aythya australis*) and a family of 5 Black Swans (*Cygnus atratus*). Although Australian Wood Duck (*Chenonetta jubata*) are common in the area generally, this habitat was not favoured by them: they were recorded infrequently and in small numbers.

The water had more or less completely gone by mid 2013, leaving a mass of reeds and other vegetation. While doubtless the area was still enjoyed by the resident Tiger Snakes (*Notechis scutatus*) the birds had all departed.

*6.2. Raptors*

Carwoola has very good diversity of both diurnal and nocturnal raptors. Following a sighting of a Black Kite (*Milvus migrans*) in 2014, all diurnal raptors (except Eastern Osprey *Pandion cristatus*) listed in the Annual Bird Report for 2012/13 have been sighted in the area. All four Owls listed in the report, and Tawny Frogmouth (*Podargus strigoides*) and Australian Owlet-nightjar (*Aegotheles cristatus*) have been sighted (or, more frequently in the latter case, heard).

Six species in this group have been recorded breeding in the area.

Highlights of records of this group have been:

Frequent sightings of 1-3 Spotted Harriers (*Circus assimilis*) on the Plain, especially in wetter periods. The group of 3 included one apparently juvenile bird, but no nest site has been located.

**Figure 5. Flock of Black-shouldered Kites, Carwoola 2011 (*John Bisset).***

Spotted Harrier hunting with Black Falcon (*Falco subniger*) possibly cooperatively, although one observer described the Falcon as 'bullying' the Harrier;

Large numbers of Black-shouldered Kite (*Elanus axillaris*) up to 16 birds[2] in a single tree –all checked carefully to ensure it was this species) and Brown Falcon (*Falco berigora* possibly 20 individuals perched on and hunting from fence posts around one paddock) were seen during a mouse plague on the Plain in 2011 (Bisset 20120).

Up to 4 Eastern Barn Owls (*Tyto javanica*) were seen hunting along Plains Rd in one drive following the end of a mouse plague 'further West'. The Hawthorns along that road provided convenient roost sites for the owls.

*6.3. Eastern Yellow Robin*

The basic situation of the Eastern Yellow Robin (*Eopsaltria australis*) in our region is stated by Wilson (1999): "The stronghold of this species is the moist forest of the western ranges but it occurs in smaller numbers wherever there is dense vegetation in wet gullies and along watercourses." A prime example of the latter habitat is given by the Australian National Botanical Gardens (ANBG): it is almost impossible for an alert birder to visit ANBG without seeing or hearing this species.

**Table 6. Number of months the Eastern Yellow Robin has been recorded in each year.**

| Year | No. months |
|---|---|
| 2007 | 1 |
| 2008 | 2 |
| 2009 | 2 |
| 2010 | 4 |
| 2011 | 10 |
| 2012 | 10 |
| 2013 | 10 |
| 2014 | 11 |
| 2015 | 3 |

However references to "moist gullies" do not immediately conjure up an image of the Grassy Box woodland (at best) of Carwoola. For the first three years of the project it was hardly recorded, and I think the few sightings made were in the more densely vegetated areas of Yanununbeyan SCA.

Then starting in September 2010 a member of the species was reported from a property in Widgiewa Rd (about 1km up Whiskers Creek from our property. In December 2010 I recorded a single bird in a clump of dense Cypress at our house.

I have recorded 1 or 2 birds most months since then (there is no discernible pattern in the missing months).

[2] http://franmart.blogspot.com.au/2011/09/large-flock-of-black-shouldered-kites.html

In December 2013 I observed a bird carrying food, and in December 2014 4 birds were present in the Cypress, but no exchange of food was seen. However I am confident that they are now breeding in the dense foliage of the Cypresses.

I am not sure whether it is possible to extrapolate from this observation and generalise about the benefits of small islands of habitat-type as a basis for range expansion.

*6.4. Tawny Frogmouth*

I have reported several times (e. g. Butterfield 2011) on my observations of a pair of Tawny Frogmouths which reside and breed in our garden and a summary of observations follows. (In passing, I have no way of knowing if they are the same birds but as they use the same daytime roosts year after year it seems sensible that at least one of the pair is the same bird.) I have also sighted other members of this species on more distant parts of our property, and several other observers in other parts of the study area have reported sightings of the species from time to time.

As I have become more familiar with their habits I have had greater success in locating the birds – Typically I find the male on about 75% of days on which I am home and of these about 25% are when he is brooding (and thus guaranteed to be on the nest). The female tends to be a little more of a free spirit although on 90% of the days when located (outside the breeding period) the two birds are snuggled together. When they have had 'a domestic' and are roosting separately I have found them up to 70m apart.

They have been very successful in breeding raising 2 chicks to independence 6 years out of 7. In the other year one chick fell out of the nest and died before it was discovered.

I have now found them using 33 different daytime roost sites within my GBS site. They have roosted in ornamental Hazels and Elms and *Acacia dealbata*. The two nest sites have been *Eucalyptus meliodora* (5 years) and *E. macrorhyncha* (2 years) and those species have been their preferred daytime roosts with occasional visits to *E. mannifera*.

While not an extensive survey, such as those reported by Kaplan (1977) or blogged by Stuart Rae, hopefully the daily observations, made possible by my being retired, contribute somewhat to an understanding of the species.

*6.5. Introduced species*

I have used this heading to refer to a group of six species native to Europe or Asia found in the ACT and Carwoola. In terms of their perception by many birders they could be described as "pest species'. Notes on each species follow.

Spotted Dove: This species is becoming increasingly common in the ACT, but has only been reported 3 times in Carwoola. It is unclear to me why the species is not recorded more often in the study area as Crested Pigeons have spread here as readily as elsewhere in the COG AOI; and

I believe the Spotted Dove has self-introduced to the ACT and must therefore have bridged over the gap to other populations.

House Sparrow (*Passer domesticus*): A species in world-wide decline, which is still in the top 10 in terms of abundance in the GBS. While reported in 94/97 months most observations are very close to housing, usually properties with fed stock such as horses.

Common Myna (*Sturnus tristis*): The species continues to decline in the Canberra area (GBS rank in the high teens) and has not thus far become established in the Carwoola area. It has only been recorded in 17/97 months and again mainly associated with fed livestock.

Common Starling (*Sturnus vulgaris*): Numbers are declining in Canberra, but still very common in Carwoola (seen every month), but more so on the Plain than in the wooded areas (although an area of very old *Eucalyptus mannifera* on the edge of the Plain provides many nest hollows well used by this and other species). Common Starlings are often sighted in huge flocks especially when the Hawthorns are in fruit.

Common Blackbird (*Turdus merula*): Quite common, being seen in 82 months. It seems to prefer areas close to houses with dense garden plantings.

European Goldfinch (*Carduelis carduelis*): Quite common, being seen in 87 months. The species appeared to be in decline in the area, only being reported in 8 months in 2010. That may have been a response to the drought as it has since recovered and is reported nearly every month. A broadly similar pattern is evident for the COGAOI (although the current reporting rate is still well below the levels achieved in the "Atlas years" of the late 1980s.)

**Summary**

This review of my records has shown considerable similarity between the avifauna of the Carwoola area and rest of the COG AOI. Given the small number of observers and the relatively brief time frame of this project I believe that having at least one record for 188 species is a good result. Noting those constraints and the lack of some habitats in the area, recording approximately 150 species per year compares satisfactorily with the record of 241 species recorded in the COGAOI in 2012-13 (COG 2014).

Most of the noticeable differences can be attributed to differences in habitat including absence of forested areas. Within the Carwoola data there is an apparent relationship to weather, especially for the waterbirds group, reflecting the ephemeral nature of larger waterbodies.

As might be expected in compiling the report I have gained insights to what has been recorded over the period. In particular the analysis has emphasised the number of species for which the grassland, both native and introduced, of the Hoskinstown Plain is an important location. Another important factor has been the fact that many people in the area spend a relatively high proportion of their time "out on the block" and report on the birds seen. In contrast some parts of the AOI get no visits in a year (at least not from people prepared to put in a record of the birds seen).

It would be good to have more data so as to be able to analyse the birds of the area more rigorously (for example: to compare the birds seen in reserves with those on the rural residential blocks with those on the commercial properties). That isn't the case and so it is hoped this overview has given a summary of the situation as it has been observed.

**Acknowledgements**

To provide a level of privacy for observers I do not attribute names in my reports. However I offer my thanks for the contributions to this project by the observers and landholders in Captains Flat Rd, Hoskinstown (Plain and village); Knox Close, Pony Place, Radcliffe Circuit, Walga Close, Wanna Wanna Rd and Widgiewa Rd.

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**Appendix 1.**

**Complete list of species recorded in Carwoola; February 2007 – April 2015.**

The species marked with a hash (#) are those recorded in every month.

| | | |
|---|---|---|
| Emu | Australian Owlet-nightjar | Collared Sparrowhawk |
| Stubble Quail | White-throated Needletail | Grey Goshawk |
| Brown Quail | Fork-tailed Swift | Spotted Harrier |
| Plumed Whistling Duck | Darter | Swamp Harrier |
| Musk Duck | Little Pied Cormorant | Wedge-tailed Eagle |
| Freckled Duck | Great Cormorant | Little Eagle |
| Black Swan | Little Black Cormorant | Nankeen Kestrel |
| Australian Shelduck | Australian Pelican | Brown Falcon |
| # Australian Wood Duck | White-necked Heron | Australian Hobby |
| Pink-eared Duck | Great Egret | Black Falcon |
| Australasian Shoveler | Intermediate Egret | Peregrine Falcon |
| Grey Teal | Cattle Egret | Purple Swamphen |
| Chestnut Teal | White-faced Heron | Australian Spotted Crake |
| Pacific Black Duck | Nankeen Night Heron | Spotless Crake |
| Hardhead | Glossy Ibis | Dusky Moorhen |
| Australasian Grebe | Australian White Ibis | Eurasian Coot |
| Hoary-headed Grebe | Straw-necked Ibis | Black-winged Stilt |
| Rock Dove | Royal Spoonbill | Black-fronted Dotterel |
| Spotted Dove | Yellow-billed Spoonbill | Red-kneed Dotterel |
| Common Bronzewing | Black-shouldered Kite | Banded Lapwing |
| Crested Pigeon | Whistling Kite | Masked Lapwing |
| Wonga Pigeon | Black Kite | Painted Snipe |
| Tawny Frogmouth | Brown Goshawk | Latham's Snipe |

*Appendix 1 continued*

| | | |
|---|---|---|
| Painted button-quail | Chestnut-rumped Heathwren | # Pied Currawong |
| Whiskered Tern | Speckled Warbler | Grey Currawong |
| Silver Gull | Weebill | Rufous Fantail |
| Glossy Black-Cockatoo | Western Gerygone | Grey Fantail |
| Yellow-tail. Black-Cockatoo | White-throated Gerygone | # Willie Wagtail |
| Gang-gang Cockatoo | Striated Thornbill | # Australian Raven |
| # Galah | Yellow Thornbill | # Little Raven |
| Little Corella | # Yellow-rumped Thornbill | Leaden Flycatcher |
| # Sulphur-crested Cockatoo | Buff-rumped Thornbill | Satin Flycatcher |
| Scaly-breasted Lorikeet | Brown Thornbill | Restless Flycatcher |
| Australian King-Parrot | Southern Whiteface | # Magpie-lark |
| Superb Parrot | Spotted Pardalote | White-winged Chough |
| # Galah | Striated Pardalote | Jacky Winter |
| Little Corella | Eastern Spinebill | Scarlet Robin |
| # Sulphur-crested Cockatoo | Yellow-faced Honeyeater | Red-capped Robin |
| Scaly-breasted Lorikeet | # White-eared Honeyeater | Flame Robin |
| Australian King-Parrot | Yellow-tufted honeyeater | Rose Robin |
| Superb Parrot | Fuscous Honeyeater | Hooded Robin |
| # Crimson Rosella | White-plumed Honeyeater | Eastern Yellow Robin |
| # Eastern Rosella | # Noisy Miner | Horsfield’s Bushlark |
| Red-rumped Parrot | Red Wattlebird | Eurasian Skylark |
| Australian Koel | Scarlet Honeyeater | Golden-headed Cisticola |
| Channel-billed Cuckoo | Crescent Honeyeater | Australian Reed-Warbler |
| Horsfield's Bronze-Cuckoo | New Holland Honeyeater | Rufous Songlark |
| Black-eared Cuckoo | Brown-headed Honeyeater | Brown Songlark |
| Shining Bronze-Cuckoo | White-naped Honeyeater | Silvereye |
| Pallid Cuckoo | Noisy Friarbird | # Welcome Swallow |
| Fan-tailed Cuckoo | Painted Honeyeater | Fairy Martin |
| Brush Cuckoo | Spotted Quail-thrush | Tree Martin |
| Powerful Owl | Varied Sittella | Common Blackbird |
| Barking Owl | Black-faced Cuckoo-shrike | # Common Starling |
| Southern Boobook | White-winged Triller | Common Myna |
| Eastern Barn Owl | Golden Whistler | Mistletoebird |
| # Laughing Kookaburra | Rufous Whistler | Zebra Finch |
| Rainbow Bee-eater | Grey Shrike-thrush | Double-barred Finch |
| Dollarbird | Olive-backed Oriole | Red-browed Finch |
| # White-throated Treecreeper | Masked Woodswallow | Diamond Firetail |
| Brown Treecreeper | White-browed Woodswallow | House Sparrow |
| Satin Bowerbird | Dusky Woodswallow | Australasian Pipit |
| Superb Fairy-wren | # Grey Butcherbird | European Goldfinch |
| White-browed Scrubwren | # Australian Magpie | |

# FURTHER OBSERVATIONS OF EASTERN KOEL FLEDGLINGS IN RIVETT DURING THE SUMMER OF 2015

JACK HOLLAND

*8 Chauvel Circle Chapman ACT 2611*

***Abstract:*** *Observations on four Eastern Koel fledglings in Rivett are detailed. Key dates are given for the three fledglings that stayed within their "territory" for a considerable time. As well as observations on fledgling behaviour and mobility, and of fledglings in close proximity with each other and/or with adult Eastern Koels are described. These observations are discussed and compared with the literature.*

## 1. Introduction

Last year I published observations of three Eastern Koel (*Eudynamys orientalis*) fledglings (Holland 2014) in Chapman/Rivett. This report documents further observations from early 2015 on at least four fledglings, this time all seen in Rivett. The observations from both years are discussed in more detail and compared to the literature.

## 2. Key dates for three fledglings

### *2.1. First fledgling (F1)*

At 7:00 am on 20 Jan 2015 my attention was drawn to what I thought was a rather loud begging fledgling Red Wattlebird (*Anthochaera carunculata*). However, almost immediately I saw a parent Red Wattlebird several times feeding a bird larger than itself in an open position.

Once I fetched my binoculars the fledgling proved much less willing to show itself, begging constantly from within a dense exotic tree. However, after about 20 minutes it emerged and then flew to an open perch in a gum tree 30-40 m away, from which it was very easy to confirm as an Eastern Koel fledgling, probably a bit older I than first thought given it flew well and had a well formed tail.

These observations were made from the laneway between Themeda and Mentha Places Rivett, at the rear and front of 10 Mentha Place, respectively. This fledgling was the first in my local area for the year, and only the second observation of a young Eastern Koel in Canberra that I was aware of for the 2014-2015 breeding season.

At first its presence was checked about every second day, but then daily as the other fledglings described below were discovered, and with a few exceptions (see Table 1) it could readily be found. The last time a fledgling was seen here was at 16:30 on 14 Feb, when it could first be heard begging quite loudly in the big gum at the SSE end of the laneway, from which it flew to the NNW end (to where it splits into a small triangular park) and was observed there. This is a period of 25 days, though as noted below it is not clear as to whether the same bird was observed throughout this time. As the last day it was seen being fed was 4 Feb (except for the fledgling seen on 13 February slightly out of its usual "territory" at the rear of 16 Mentha Place) later observations could have been of the now "independent" but still begging and "territory bound" fledgling. Alternatively at least some

of the observations could have been of one of the other fledglings seen in or close to this "territory" on and after 10 Feb.

*2.2. Second fledgling (F2)*

At 6:40 am on 3 Feb 2015 I was able to confirm a second Eastern Koel fledgling that I had heard there briefly the previous day. It was seen in the leafy front gardens of the houses at 10 and 12 Woollum Crescent Rivett, towards the end of this street closest to Darwinia Terrace. At 7:30 am it was fed by a Red Wattlebird in a large bush at the front of 7 Woollum Crescent, across and a bit further up the street from where I had first found it. Again its tail was well formed.

While this was only 200 m away (as the Koel flies) from F1, they were clearly different as 5 minutes later I could locate F1 still calling from the same dense exotic tree where I had found it on 20 January.

Except for the dates listed in Table 1, F2 was able to be found every day it was looked for. It was last heard at 7:45 am on 22 February calling softly and then seen briefly, still appearing to be fed by a Red Wattlebird, high in a large conifer close to the front driveway of 14 Woollum Crescent. This is an 18 day period, and I'm confident I was observing the same fledgling as I saw it within a very restricted area (see Map 1), and there was no apparent interaction with the other fledglings.

*2.3. Third fledgling (F3 )*

At 7 am on the 7 Feb 2015 I heard a Koel begging in the front gardens of 6 and 8 Casuarina Street Rivett. I was able to confirm both the fledgling and its host Red Wattlebird. When I came back at 7:30 am for a better look it had crossed the road and was easily seen (including the well-formed tail) calling in an exposed perch in a planted gum, and again being fed, at the corner with Goodenia Street.

The site was also at the top end of the street close to Darwinia Terrace, and slightly under 300 m from F1, but as F3 was much lighter-coloured particularly around the head I was certain it was different even though I was not able to find F1 shortly after (at the time this was last seen 5 Feb, but I did not search for it on 6 Feb).

On checking each subsequent day F3 could be found every time within a very restricted area in which it was initially found. After not being located for 4 days, a fledgling (I am not fully confident it was F3) was last seen at 7:45 am on 19 February calling slowly in a large gum at the front of 11 Casuarina Street, from which it flew to a silky oak at the rear of 13 Casuarina Street. Despite my initial conclusion that it appeared to be relatively young due to its lighter colour based on Stuart Rae's observations (Rae 2015, see Fig. 1), this is a shorter period of 13 days. As described below it seemed to be the most mobile of the three fledglings and thus probably older than initially thought. In support, one of Christine Darwood's fledglings (Darwood 2015) was also much lighter and maintained this colour over the 6 weeks she observed it in her garden. It is possible that F3 was the still begging fledgling seen on 21 February at the rear of 3 Sollya Place, about mid-way to the "territory" of F1, though this bird appeared quite a bit darker and more like F4 (see below).

**Figure 1. Light-coloured young Eastern Koel fledgling in a Hawker garden (*Stuart Rae*), see Rae (2015).**

**Figure 2. A second darker-coloured older Eastern Koel fledgling in same Hawker garden (*Stuart Rae*), see Rae (2015).**

Table 1 gives a summary of the dates of the initial finding of each of these fledglings, as well as the last dates seen, and the number of days observed. No further fledglings were seen after these dates despite regular checking of each area up to early March.

**Table 1. Key dates for the three fledglings.**

| Fledgling | First seen | Last seen | No of days seen (of total) | Not found on |
|---|---|---|---|---|
| F1 | 20 Jan | 14 Feb | 17 (25) | 30/1, 7/2, 8/2* |
| F2 | 3 Feb | 22 Feb | 15 (18) | 4/2, 18/2, 21/2 |
| F3 | 7 Feb | 19 Feb** | 8 (13) | 12/2, 16-18/2 |

*The two day gap on 7 & 8 February (note not looked for on 6 Feb) raises the possibility that from 9 Feb it was a different fledgling, see discussion in text above and below.
**May have been a different fledgling on this final day, e.g. F4

## 3. Fledgling "Territories"

As described below all three fledglings were nearly always first found each day within a very restricted area (see Map 1), as they were last year, but with some notable exceptions as described in the next section.

**Map 1. Eastern Koel fledgling "Territories" (rectangles) and other sites (crosses) where fledglings were seen.**

### *3.1. First fledgling (F1)*

This bird was always found closely within the confines of the laneway between Themeda and Mentha Places, and often in or very close to the exotic tree in which it was first discovered. It also seemed to favour the bushy rear garden of 12 Themeda Place, which backs onto the rather uneven base of the slightly greater than 1 hectare triangular park at the SSE end of where this laneway opens up. As noted above on one occasion towards the end of the observation period a fledgling was found in a gum to the rear of 16 Mentha Place on the other side of this laneway opening (this may have been a different fledgling e.g. F4, as it was still

being fed). The furthest it was seen fly (after being fed in its original tree) was to a tree on the NW corner of 2 Mentha Place about 100 metres away. This was on 1 February while it was still relatively young, and interestingly was the same tree as a male was calling from a very open position on the evening of 30 January, one of the few occasions I was not able to locate the fledgling (see Table 1). Otherwise it was always located within a rough rectangle measuring about 100 x 50 m.

### *3.2. Second fledgling (F2)*

With one exception F2 was always located within similar confines, ranging from 7 Woollum Crescent where it was first fully identified (see above) to the largish gum trees behind 21 and 23 Woollum Crescent, a distance of about 150 m but within a narrow width. A favourite place was in the small fig trees alongside the Woollum Crescent driveway of 1 Eugenia Street, the opposite side of the road from where it was first found. It was located here 6 times, including on each morning from 8-11 February. It appeared to be eating figs, but was also fed here by the host. The only time it was located outside of this rectangle was on 6 February, when at 7:20 am it could be heard begging in a dense medium size conifer on the S corner of 5 Angophora St, slightly less than 100 m away, from which it flew back towards its "territory".

### *3.3. Third fledgling (F3)*

This fledgling was always first located within an even narrower corridor, comprising of 6-8 Casuarina Street and across the road as described above, and further N to the trees on the verges of 11 to 15, as well as those in the backyards of 11 and 13 Casuarina Street, roughly a rectangle of 100 m long and less than 50 m wide. However, it seemed much more mobile and as described below on 3 occasions it was seen flying more than 100 m towards F1's "territory".

## 4. Sightings outside of "Territories", including in company with other fledglings

All of these observations involved the third fledgling (F3), and at least a fourth fledgling (F4).

1. On 10 Feb at 8:30 am I found F3 by its quite loud begging. It had moved down the street to a large gum in the front yard of 13 Casuarina Street, from where it soon flew over the house and beyond. I walked around into Goodenia Street thinking it would be in the back of the houses there, which it was by its call, but as I approached it flew over the road and into the sharp end of the triangular park described above. At the same time another bird flew into a large gum in the backyard of 6 Burgan Place, where its call and open position allowed me to identify it as an adult female. After about a minute this bird flew NE giving its characteristic *kek kek kek* call, being pursued by a Red Wattlebird. However, a male may also have been present because as it alighted I also heard a brief *wirra wirra* (or *whoa whoa* to my ears – note HANZAB (Higgins, 1999) calls it *wurroo wurroo* as well as giving several other variants). This is also an example of adults and fledglings being close together as described below.

I could still hear the begging call a bit further on but when I arrived I was astounded to find 2 fledglings within 10 metres of each other, both begging. One was in the garden of 24 Burgan Place, the other in a gum tree just outside this in the park. The much louder one then flew about 30 metres to the rear of 12 Themeda Place, into the edge of the "territory" of my original fledgling (F1). When I went to check it, I could hear another softer call a little

further on, and found a third fledgling in the tree next to the one where I originally found F1. I then checked back where I had seen the two fledglings, and found the second one still there, but it soon flew to join the louder begging one. When I left after about 10 minutes there were still three fledglings calling within 30 metres of each other. That afternoon I could still hear loud begging at the rear of 12 Themeda Place at 17:30 but I didn't investigate further.

It posed the question which fledgling was which, and I suspected the louder begger was the Casuarina Street one (F3), which possibly also had the lighter crown, though I didn't get a good look. Of the other two I suspect my original (F1) fledgling was the last one found of the three, given how "sedentary" that bird had been. I therefore labelled the third fledgling F4.

One of them certainly was not the Woollum Crescent fledgling (F2) as within 10 minutes of leaving the above three I found it still calling quietly from the same fig trees as it had been the past two mornings. Thus a total of four fledglings were present that morning, three close together and another just over 200 m away.

2. On Friday 13 Feb at 6:20 am I heard begging calls from the large blue gum at the front of 15 Casuarina Street. I initially located a very dark bird which seemed to be begging, but this may have been the nearby fledgling that I located after this bird flew off over the back of the house. It may have been a female, or possibly a male; another male was calling about 200 m to the east. I then found a light-coloured fledgling in this tree, saw it fed and it too flew off over the back of the houses. At 6:30 I located a very light-coloured bird, possibly the same as above (F3), begging in the laneway between Sollya and Geebung Places, and moving on found a darker fledgling (F1?) calling quite loudly and also fed by a Red Wattlebird to the east of the laneway of my original one (just outside the rear of 16 Mentha Place as mentioned above).

3. At 4:23 pm on 14 February I heard the fledgling F3 in a gum at 6 Casuarina Street, and saw a light-coloured bird fly over to Goodenia Street and along it (a male also called briefly). I could hear the fledgling at the corner of Burgan Place, but when there I could hear a fledgling in Themeda/Mentha Places laneway. This was also begging quite loudly, and was the last time I located a fledgling (probably F1?) in this area.

**5. Adult Koels observed close to fledglings and/or their "Territories".**

Two of the above examples involved adult Eastern Koels found close to fledglings, and a further two examples are outlined below.

1. At 7:00 am on 21 Jan 2015 (the day after it was found) F1 was still begging in the same exotic tree, but a male Koel was also calling as I approached. The latter seemed to do an almost complete circuit and then landed in some small to medium trees about 100 m away in the laneway between Toona and Themeda Places. When I located it at 7:05 am a female Koel flew through, making the *kek kek kek* call. I did not see any contact with the male, which then flew out of the tree pursued by a Red Wattlebird.

While the two adult birds were probably never closer than 100 m from F1, this much more obvious presence when fledglings are around correlates with my observations last year (Holland 2014).

2. On 23 February when I was in the Mentha/Themeda Places laneway I heard a male calling. This was from the Angophora St direction, and from the same area I then heard a

loud answering *kek kek kek* from at least one, probably two females. They seemed to be very excited but were quite mobile so I could not catch up with them until I found them within/nearby the large conifer 14 Woollum Crescent where I had last seen the fledgling F2 the day before (see above, as discussed below this may still have been present). The male bird briefly seen seemed to have a bulging red eye, then 3 birds flew out roughly ENE along Woollum Crescent, the male *wirra wirraing/whoa whoaing*, the other two *kek kekking* and thus assumed to be females..

## 6. Discussion

My 2014 observations on Koel fledglings were presented without discussion (Holland 2014). I now feel it useful to compare and contrast my two years of observations with that of the literature. As there seems to be little easily accessible information on the Red Wattlebird as host, most of this information has been taken from the article outlining the first breeding records of the Eastern Koel in Canberra (Lenz *et al*, 2009).

### *6.1. Observation period of fledglings*

This year my first fledgling was observed on 20 January with the last one recorded on 22 February, which is slightly earlier and later, respectively, than last year's dates of 23 January and 17 Feb. This also corresponds well with the dates of 21 Jan and 14 Feb for the five fledglings seen in the 2008-2009 breeding season (Lenz, et al, 2009).

Notably the period is also very close to when the Eastern Koel departed from my local area this season, with the last call heard on 28 February, very similar to last year, and to the 2008-2009 season timing in Lenz *et al* (2009). However, this is based on calls and silent birds may still have been present. Koels stayed until at least mid-March in other areas of Canberra, with Darwood (2015) recording her last male on 18 Mar and her last fledgling on 25 Mar 2015 in her Flynn garden.

### *6.2. Time fledgling remains in its "Territory"*

As noted in Table 1 the longest a fledgling was observed within its "territory" was 25 days, though it is not certain that this was always the same one. This compares with 26 days for the one in my GBS site in 2014 (Holland 2014), though after this year's experiences I now can't be absolutely certain it was always the same fledgling. However, this does compare well with 18 and 17 days, respectively, for two of the fledglings in Lenz *et al* (2009), though again from reading the text I'm not fully certain that all the observations were of the same one.

Daryl King posted on the COG chat line on 10 Mar that a juvenile Koel had stayed in their Melba garden since 16 Feb, so for at least 23 days, and similar to my maximum 2014 and 2015 times.

Based on Figbird hosts (Higgins, 1999) records that one fledgling remained near the nest for about 10 days after leaving it and remained in the general area for about a month, and also that young appear to stay in the nesting area for about a month after adults begin their northwards migration. For Magpie-lark hosts fledglings continued to be fed for 3-4 weeks before the fledglings leave the area. Higgins (1999) records the fledgling to independence period to be at least 28 days for the Figbird. Therefore none of the above times would appear to be remarkable.

*6.3. Detectability of Koel fledglings/possible confusion with fledglings of other species*

The key to finding Koel fledglings is through their begging call, which once you become familiar with is easy to recognise. Higgins (1999) notes that in the nests of Figbirds the begging call is given persistently soon after hatching, and is louder and more constant than that of nestling Figbirds, and that they continue to give the begging call after fledging.

HANZAB gives a representation of the begging call of fledged juveniles as a loud continual series of sharp trills and squeaks, somewhat like *wheeet-oop-wheeet-wheeet-wheeet-oop*, seemingly uttered at random, and occasionally interspersed with high-pitched screeches and a flapping of wings. However, this does not represent the begging call I have consistently heard and may be of an independent fledgling. All of my observations have been of the same call which possibly changes slightly and certainly becomes louder when the host arrives with food. However, except for the silent independent fledgling seen in my GBS in Feb 2014 all of my observations have been of begging birds. In contrast, Darwood (2015) observed at least one independent fledgling in her garden in 2015, which gave a range of calls different from the begging one also present.

Terry Munro, one of the few persons who have recorded Koel nestlings in Canberra, indicates (Munro 2012) that its begging call was a quiet raspy trill unlike the *bzzt bzzt* of a Red Wattlebird chick. However, once it was out of the nest it was the typical loud *weeop*. Lenz *et al* (2009) describes the begging call of one of their fledglings as similar to those of both the Red Wattlebird and Noisy Miner (*Manorina melanocephala*), but not exactly the same as either of them, and it seemed louder and sharper than that of the former's usual begging call and perhaps less persistent. The begging call of another fledgling was said to sound similar to that of young Noisy Friarbirds (*Philomenon corniculatus*), but was sharper and more frequent.

I find it difficult to give representations of calls but I noted previously (Holland 2014) that on many occasions in 2014 I heard a call that was somewhat similar to that of the begging Koel fledgling (which I then best described as similar to that of a Little Friarbird (*Philemon citreogularis*)), only to discover that it was being made by the large almost independent Red Wattlebird fledgling in my GBS site. In late Jan 2015 the begging call of the loud and quite advanced Red Wattlebird fledgling in my GBS site again fooled me many times into thinking it may be a fledgling Koel. I could not help wondering if the similarity of the calls is another factor causing the host bird to feed it but can find no evidence in the literature.

Another call that has fooled me a number of times, at least initially, for a begging Koel fledgling is the slow warning call of the Common Blackbird (*Turdus merula*). Higgins *et al* (2006) describes this as a repeated *pook pook* or *kop kop* to alert young to the presence of a terrestrial predator.

*6.4. Red Wattlebird as hosts*

For the 2014-2015 summer breeding season I was aware of at least 25 individual Koel fledglings reported either on the COG E-mail Discussion List ("COG chat line") or privately to me, with all known hosts being the Red Wattlebird (note some hosts were not identified). However, as these include my four, three in Christine Darwood's Flynn garden, and with Barbara Allan recording at least eight in Page, I suspect this is an underestimate with many more not reported or not even having been identified, despite their very loud begging call which should be readily detected (see above).

For the past couple of years I have been monitoring reports of Koel fledglings and as far as I am aware in all cases the identified host has been the Red Wattlebird, as they were in the first breeding records of the Eastern Koel in Canberra (Lenz *et al*, 2009).

HANZAB (Higgins, 1999) contains limited information on the Red Wattlebird as a host, with most of the information on hosts being for the Magpie-lark (*Grallina cyanoleuca*) and Australasian Figbird (*Sphecotheres vieillotti*). This may be because the Red Wattlebird has only relatively recently been recognised as a host with Brooker and Brooker (1989) noting "W. Boles (in litt.) regards *Anthochaera carrunculata* as the usual host in Sydney. We found no egg record for this association but all records of parasitism (ROP) were quite recent (since 1978). H. Bell (in Blakers *et al*, 1984) found that *A. carrunculata* has extended its breeding range to Sydney since the turn of the century. If *A. carrunculata* proves to be a biological host, this would represent a recent innovative change in host choice by the Koel.".

Virginia Abernathy (personal communication) indicated that Brooker and Brooker kept a website that listed all their known records of parasitism by all the Australian cuckoos up to 2005. She noted it had several listings of Red Wattlebirds as hosts of Koels after they became more commonly used. However, this website is no longer available as it is not being maintained.

Other potential hosts in Canberra are the Magpie-lark and the Noisy Friarbird, but to my knowledge neither of these has ever been positively recorded as the host. Virginia Abernathy, who is studying Koels, has confirmed (personal communication) that she has never found either of these potential host species used in Canberra. Brooker and Brooker (1989) found friarbird (*Philemon*) species the most frequently recorded host with 40% of 196 recorded parasitised nests or feedings of fledglings. However, only 16% were Noisy Friarbirds compared with 18% Magpie-larks.

I expect the latter to be the more likely alternative host in Canberra as it is (certainly in my local area) the more common breeder than the Noisy Friarbird which has been relatively scarce in recent years. Based on the data available from the COG database (http://canberrabirds.org.au/birds/ ) the Magpie-lark also has the longer breeding season of the two (and likely has more broods), thus possibly providing more opportunities for the Koel to parasitise. Barbara Allan (personal communication) saw two apparent attempts by Koels to parasitise Magpie-lark nests this season, but both fledged Magpie-lark young.

*6.5. Timing in relation to the Red Wattlebird breeding season*

It is clear from the COG database (http://canberrabirds.org.au/birds/ ) that the Red Wattlebird also has a very long breeding season, with nest building reported from July to March and dependent young in all months except July. By the time the Eastern Koel arrives in Canberra during October, many are probably already well into their breeding cycle including second broods and it is too late for the Koel to first establish itself and then to parasitise. Hence Eastern Koels seem to parasitise Red Wattlebirds quite late in their breeding season, with my initial fledgling first seen on 20 January only the second I was aware of reported for the 2014-2015 breeding season. The first was reported in Page by Barbara Allan on the COG chat line on 21 December 2014. She estimated egg laying must have occurred very shortly after their arrival (the first calls were heard on 24 Oct). Barbara has also previously reported observing Koel fledglings around the New Year.

Another factor which may lead to Red Wattlebirds being the favoured hosts to Koels late in their long breeding season is my observations that they seem to get worn out and may be much more susceptible to parasitism. For example by about mid-January the Red Wattlebird territories in my area seemed to have broken down almost completely. While they were still feeding dependent young in my GBS site, they were also letting other birds in without any or only limited defence, such that in the space of a couple of weeks many small species such as fairy-wrens, brown thornbills, scrubwrens, silvereyes and spinebills returned, whereas before that every bird was aggressively chased away. Another possible factor may be the relative lack of flowering plant food sources for the Red Wattlebird to defend in mid-summer.

In the 2014-2015 breeding season I had Red Wattlebird dependent young in my garden continuously since September, at least 3 broods, and at one time two together with one in front and the other at the back of the house. It's also interesting that the end of the Red Wattlebird breeding season in my area was very close to when the Koels seemed to depart, with the last Red Wattlebird fledgling seen being fed at the rear of 9 Toona Place on 6 March 2015.

*6.6. Interaction with other Red Wattlebirds feeding their own young*

Also interesting was the large number of Red Wattlebirds in Rivett at the time of my observations of the above fledglings. There were at least 6 adults regularly close to F1, often in the large gum at the SSE end of the laneway, and including being observed feeding young of their own, sometimes in the same tree as F1. This happened in 2014 as well. However, in both cases with fledgling Koels around there seemed to be little aggressive interaction with each other except for a bit of scolding. Darwood (2015) has also had begging (and being fed) young Red Wattlebirds in her Flynn garden at the same time as Koel fledglings. Barbara Allan (personal communication) has also observed both fledgling Koels and fledgling Red Wattlebirds in the same tree, fed by apparently different Red Wattlebirds.

Lenz *et al* (2009) note Red Wattlebirds are very territorial during the breeding season and are aggressive to conspecifics. They further note all pairs they observed with a Koel fledgling sooner rather than later moved well beyond normal territory boundaries. They postulated food requirements of the cuckoo must clearly exceed those of a wattlebird set of fledglings and cannot be met within the territory of a pair. However, towards the end of the breeding season, some of the aggressive interactions between neighbours may have ceased, or at least declined in intensity. The pairs with a young cuckoo clearly strayed into other territories, and with an ever-growing cuckoo would in fact have had to pass several Red Wattlebird territories based on territory mapping of breeding birds in Ainslie in 2008-09 (M. Lenz, unpubl.).

Lenz *et al* (2009) further add that the relatively late timing of laying by the Koel female may ensure better growth and survival of its young, since the hosts could cover a wider area in search of adequate amounts of food without the distractions and energetic cost of too many aggressive encounters with other wattlebirds.

While my observations support Lenz *et al* (2009) in respect of the breaking down of Red Wattlebird territories towards the end of their breeding season, they provide only limited evidence for the need to cover a wider territory to find enough food to feed the Koel fledglings since all feeding events both in 2015 (as well as in 2014) were observed within the narrowly defined fledgling "territories" noted above.

While I have not been able to find information on the size of the territory in which Red Wattlebirds feed their own young, as mentioned above during 2015 I had two different Red Wattlebirds broods being fed in my GBS site at the same time. A GBS site is based on a radius of 100 m (roughly 3.1 ha), but the Red Wattlebird dependent young only seemed to be in a small part of this area, at the front and back of my house, in particular when they were still young. My estimate is that these were somewhat smaller than the Koel fledgling "territories" noted above. Further, in both years there were periods when no parent host was in attendance for 10-15 minutes, and on a number of occasions the Red Wattlebird hosts were seen to fly in from a reasonable distance, supporting that they may have had to venture outside of their normal territory.

*6.7. Impact on Red Wattlebird breeding success*

Based on my observations that there were many Red Wattlebirds in Rivett, including feeding their own young, it appears that there was a limited impact overall on Red Wattlebird breeding success. Barbara Allan (personal communication) also noted that in Page in 2015 there were large numbers of adult Red Wattlebirds, so she concluded the Koel's strike rate isn't that "flash" despite the at least 8 fledglings she observed. Lenz *et al* (2009) note that the 2008-2009 breeding season when the first Koel breeding in Canberra was recorded appeared to have been particularly good for this honeyeater, not only in Ainslie but also in other inner suburbs.

*6.8. Two or more fledglings close together*

In the 2013/14 breeding season the "territories" of two fledglings were close but the fledglings did not actually seem to interact (Holland, 2014). In 2015 the three "territories" were within 200-300 metres of each other, and while there was no evidence that there was any interaction between the most western one (F2) and the middle one (F1), the third, most eastern, fledgling (F3) flew towards F1's "territory" on several occasions. As noted above on 10 February there were three begging fledglings within 30 m of each other, with two of them separated only by a number of metres in two different spots.

Darwood (2015) also observed two fledglings in her Flynn garden a number of times. However, on one day three young were present as she saw two fledglings in her fig tree, but at the same time could hear another one begging from the front garden.

On 5 Feb 2015 Stuart Rae posted a link on the COG chat line to his blogspot (Rae 2015) where he discussed his observations of two fledglings concurrently in his Hawker garden, each fed by a different pair of Red Wattlebirds. Due to its much lighter colour one fledgling (Fig. 1) was estimated to be around a fortnight younger (unfortunately it is not possible to check from the photos whether its tail was well-formed) than the other one (Fig. 2).

On the other hand Barbara Allan (personal communication) has never seen two or more fledglings together despite observing at least 8 fledglings in Page during the 2014-2015 breeding season, though they were sometimes in close proximity.

Higgins (1999) does not contain any information on instances of fledglings being observed together. Lenz *et al* (2009) also does not, but note that three of the four young Koels from Ainslie fledged within a very small area around the Ainslie shops with 300-400 metres only between locations, similar to my observations both in 2014 and 2015.

Rae (2015) posed the question whether the Koel chicks were both from eggs laid by the same female, and "had it duped two local pairs of Red Wattlebirds?"

Given the closeness of the fledglings in Rivett/Chapman both last and this year, I had been also wondering whether the same female had laid all the eggs, since the three territories were roughly along a 500 metre slightly dog-legged line. Despite adult Koel activity from before Christmas seeming higher than in 2014, I never saw or heard more than one male in the area this year. However, there could well have been two or more males present based on the fact that the calling males seemed to be pretty mobile. My experience is that female Koels are generally harder to detect, though they were seen locally more times in 2015 than previously, including the two seen together on 23 Feb (see above). Darwood (2015) also saw at least 2 males and 2 females in her garden together, which supports that more than one female may be laying the eggs, even though the parasitised nests are close together.

*6.9. Adult Koels in or near a fledgling "Territory".*

Last year I noted that adult Koel activity in or close to my GBS site seemed to be greater when Koel fledglings were present (Holland 2014). I have observed (see above) a number of times when adult Koels and fledglings were close together, possibly interacting. For example, on 23 Feb they were seen in the same tree where I had last observed fledgling (F2) the day before (and it may still have been present). I have been wondering why this occurs, in particular why they continue to call when their offspring has fledged in contrast to other local cuckoos. Barbara Allan's (private communication) theory is that they have to imprint the "proper" call on the chicks before they migrate.

Interestingly adult males were still heard calling the next day, 24 Feb, but after that only a brief call was heard on the morning of 28 Feb, so it is clear they were about to depart. While there were no further records of fledgling Koels after this incident, last year at least one independent fledgling stayed around quietly for at least a week after it was last seen being fed (Holland 2014). So fledglings could still have been present in Rivett but not detected for some time, even though a continued similar level of searching up to early March failed to find them. Darwood (2015) also observed independent juveniles as well as adults and begging fledglings together in her Flynn garden.

Higgins (1999) notes that for most of one day one pair of adult Koels were observed in the same tree as a recently hatched nestling Koel in the nest of a Helmeted Friarbird (*Philemon buceroides*), and that adult Koels and Friarbirds engaged in frequent conflict. Also at the nest of a Noisy Friarbird with a nestling Koel, a male Koel was said to spend each night near the nest.

HANZAB does not appear to contain any information about Koel adults and fledglings in close proximity. Lenz *et al* (2009) also does not contain any such observations. However, on 10 March Daryl King noted on the COG chat line that they had an adult male Koel visit their Melba garden briefly the day before, calling several times ("*whirra*" call). The juvenile (which had been present since 16 Feb and usually begged constantly) sat quietly in a nearby tree while the adult was present.

### *6.10. Timing of egg laying*

In 2014 adult Koel activity was quite low prior to finding the two fledglings in/adjacent to my GBS site. In contrast in 2015, after a quiet four weeks, Koel activity in Rivett (mainly based on calling) increased from about mid-December. The best link to possible egg laying was for the second fledgling (F2) where I had recorded a very vocal male Eastern Koel on 3 Jan 2015, first in a group of large trees on the verge of 6 Woolum Crescent, and then flying to the trees at the rear of 21 Woollum Crescent, which spans the "territory" where F2 was subsequently observed.

It is tempting to speculate this was around the time an egg was laid. Unfortunately HANZAB (Higgins, 1999) only contains information on the incubation and fledgling period for the Magpie-lark and Figbird hosts. For these the incubation period is 16 and 15 days respectively, though Higgins (1999) does note that the chick usually hatches the same time as the eggs of the host, which for the Red Wattlebird ranges from 14-21 days (Higgins, Peter and Steel, 2001). Virginia Abernathy (personal communication) indicates that in her studies she consistently found the Red Wattlebird incubation time to be 15-16 days.

HANZAB (Higgins 1999) also does not give information on the time from Koel hatching to fledging for the above two species, but again it is likely to be similar to that of the Red Wattlebird host of 14-20 days (Higgins, Peter and Steel, 2001). Virginia Abernathy (personal communication) indicates that according to her studies Red Wattlebird chicks take at least 18-20 days to fledge. Thus the 31 day time elapsed seems reasonable only at the lower end of these ranges. The Australian Museum web site (http://australianmuseum.net.au/eastern-koel) says time in the nest is 35 days but it is not clear which host and cites no reference, but would also support that the above 31 day period is too short.

Further, it is not known how old F2 was when first observed, it was probably at least a few days to over a week out of the nest as it had a well-formed tail and flew reasonably well. Virginia Abernathy (personal communication) indicates that Koels have very short tails after first fledgling and tend to stay inconspicuous until they can fly better, which is also my experience. Thus it seems clear that the loud calling male on 3 Jan 2015 was unlikely to have been related to an egg laying event from which F2 hatched.

Lenz *et al* (2009) has some very interesting discussion on the link between egg laying and adult Koel activity. As noted above three of the four young Koels fledged within a very small area around the Ainslie shops with 300-400 metres only between locations. This area was well outside the core area from which the male Koel regularly called. Lenz *et al* (2009) pose that in this core area potential hosts may have higher levels of awareness and may be more vigilant, hence reducing the chances for the female to lay its eggs into host nests.

They further suggest that if the female Koel moves beyond the regular male territory boundaries where hosts may be more naïve, chances of placing its eggs into host nests may increase. Indeed, walking the core area of the male territory at the time when young were discovered around the Ainslie shops did not yield any positive records. The only exception was that the first young recorded was found within the core area. However, they note their observations were still far too limited to draw definite conclusions. Despite this they suggest it could mean that, in the future, wherever a Koel territory in Canberra has both sexes present, the area to be searched for cuckoo fledglings has to be wider than that delineated just by male calls.

My observations in 2015, and in particular in 2014, provide further support for this theory. Further Terry Munro posted on the COG chat line on 3 Feb 2015 that he had not had too much Koel activity round his place in Watson this year, but suddenly found a begging fledgling in his garden. As noted above he had a Koel chick in a Red Wattlebird nest in his garden (Munro 2012) when several Koels were heard on a regular basis close by. Further evidence comes from posts of other chat line subscribers who appeared to seem surprised to suddenly have a fledgling Koel move into their gardens, suggestive of limited adult activity in their area.

## 7. Conclusions

The above details observations on four Eastern Koel fledglings in Rivett during January – February 2015 and compares them with the available literature. This includes observations of fledglings in close proximity with each other and/or with adult Eastern Koels. The former appears to be the first time this has been reported, and despite Darwood's (2015) additional observations from her Flynn garden in the accompanying paper, I think there is still much to learn about Koel fledglings and the response of both adult Koels and their hosts.

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**Red Wattlebird, to date the only confirmed host for the Eastern Koel (*David Cook*)**

# OBSERVATIONS OF EASTERN KOELS IN FLYNN DURING THE EARLY MONTHS OF 2015

CHRISTINE DARWOOD

*christine_d@virginbroadband.com.au*

***Abstract:*** *A fruiting fig tree proved to be a great attraction to a number of Koels this summer. At least seven individual birds were seen and heard, and it was a good opportunity to observe their calls, behaviours and interactions. A few "new" calls were noted, particularly from the juvenile birds. Apart from a male feeding a female in January, there were no friendly, and at best only tolerant, physical interactions between the Koels.*

## 1. Introduction

For the past few years I have seen and heard Eastern Koels (*Eudynamys orientalis*) in and around my Flynn garden during the summer months. During Feb 2015 for the first time I saw and heard a begging juvenile. This paper endeavours to record some of my observations of the Koels in my garden during January, February and March of 2015.

My garden has a mixture of natives and exotics, including several fruit trees. A fig tree in the back garden is visible from the lounge room, and in past years, along with Red Wattlebirds (RWB) (*Anthochaera carunculata*), Silvereyes (*Zosterops lateralis*), Pied Currawongs (*Strepera graculina*) and other species. Koels have been seen feeding in it when the figs are ripe. There is usually an early ripening and a late ripening of the figs, and there are generally ripe figs on the tree up until the end of March.

Eastern Koels in the ACT, in all known cases, have only successfully parasitised the nests of Red Wattlebirds (Lenz *et al* 2009; Holland 2015, this issue).

The Koel calls with which I was familiar are the male's "*koel*" call (described in Higgins (1999) as "c*oo-ee*", and in the Birds of Australia eGuide (Morcombe 2011) as "*koo-eel*", "*quow-eel*" or "*coo ee*"), the female's "*keek keek keek*" call (described in Higgins (1999) as "*keek*", and by Morcombe (2011) as "*quieek*" or "*keek*"), and the male's "*wirra wirra wirra*" call (described in Higgins (1999) as "*wurroo*", and by Morcombe (2011) as "*quowil-quoil-quoil-quoil-quoi*" or "*coo ee*"). Any other calls which I have heard over these months I have tried to describe in this paper.

A begging juvenile Koel was first seen and heard on 4 Feb, and over the next few weeks I observed at least three individual juvenile birds, though possibly only one was begging and being fed by RWB at that time. The last Koel (a juvenile) was seen on 25 Mar, which ties in with the end of ripe figs.

There were also at least two male and two female adult Koels seen and heard in the garden during this time.

## 2. The Observations

*11 Jan 2015*

During the morning I heard a male "*koel-ing*". Later I heard a softer "*wirra wirra*", and wondered if there may be a female around, based on the theory that the male uses the "*wirra wirra*" call in the presence of conspecifics (Higgins 1999). And then I saw a female, in the plum tree, where she sat for at least 15 minutes before going into the fig tree. It was some time later that I saw the male, and then realised the female was still there too. The female did not call at all that I heard that day.

A little later I observed (and photographed) an interesting interaction, the male was feeding the female with a piece of fig (see Fig. 1).

**Fig. 1. Male Eastern Koel feeding female with a piece of fig (*Christine Darwood*)**

*13 Jan 2015*

In the morning I heard the female calling "*keek keek*". A little later I saw the male in the fig tree. Then the female called, and immediately he responded with the "*wirra wirra wirra*" call. Again, as soon as the first "*keek*" sounded, he started to "*wirra wirra wirra*". This happened a few times. Then no call from the female, and the male which I could still see, made one (relatively quiet) "*koel*" call. Then another "*keek*" was heard, and the male responded immediately with "*wirra wirra wirra*".

*14 Jan 2015*

During the morning I heard the three more common Koel calls. The RWBs in my garden were very active and noisy.

In the evening, a sudden loud call from the fig tree, "*keeu-keeu-keeu-keeu-keeu*", each *keeu* descending, but each *ke* on the same note. I had not heard that call before but it is possibly a variation on the "*keek keek*" call.

I looked out to see a male and a female Koel in the fig tree, and the male was hopping around the tree apparently in pursuit of the female, but then got distracted by an open fig, and went and ate that, and the female disappeared from view.

*20 to 26 Jan 2015*

One morning during the past week I heard the usual "*wirra wirra*" call, just that on its own, from where I was at the back of the house. I then went around to the front of the house, and from there I could hear a faint "*keek keek keek*" in between the "wirra" calls - so just hadn't been able to hear it from the back of the house.

On another day I heard a "*wirra wirra wirra*", followed almost immediately by (I presume the same bird) another "*wirra wirra wirra*", but higher pitch, and sounding more "intense", then followed immediately by a "*wir wir wir*", again getting higher in pitch, and the last "*wir*" sounding more like a screech.

*27 Jan 2015*

In the morning I woke up to a "*wirra wirra wirra*", which sounded fairly close. I could not hear any "*keeks*", but after a couple of iterations I could make out another "*wirra wirra wirra*" in the distance. They seemed to interweave or alternate for a few minutes. A little later I did hear a "*keek keek*".

There was a lull in ripening of figs at this time, so I was not seeing the birds in the fig tree.

*4 Feb 2015*

A begging juvenile was heard in the back garden, and eventually located quite high up but easily identified by its beautiful and distinct patterns. It had a good length tail, but still a few centimetres shorter than an adult bird would have. It was in the shadows, and I could not determine any specific identifying features, so am not sure if this is one of the birds observed at later dates. It stayed only a few minutes, before flying away, and was no longer heard.

*13 Feb 2015*

A juvenile Koel was heard and seen in a eucalypt tree in my front garden, begging continually. It also had a tail shorter than an adult, it had mostly creamy white underparts with thin dark chevrons, and its head was a creamy rufous colour. I do not believe that this was the same bird as seen on 4 Feb 2015, but will refer to this bird as J1. The call sounded similar to, but louder than the begging call of an almost fully grown young RWB, and sounded something like "*hwip hwip hwip*".

*18 Feb 2015*

A juvenile Koel was seen and heard in the fig tree, and was fed by a RWB. I am certain that this was J1, but noted that it had a thin black mark down the centre of the back of its head. Its tail was not full length, and it had a clean beak.

*20 Feb 2015*

J1 was seen and heard in the fig tree, and I noticed it had some fig on its beak (Fig. 2). This indicates that it had fed itself fig.

*21 Feb 2015*

J1 was seen in the fig tree, feeding itself fig, and also seen begging and flapping its wings, and whistling and squealing.

*23 Feb 2015*

A distinctly different juvenile Koel, J2, was seen in the fig tree. It had a black shadowy line down the front of its breast and a small area of yellowish/buff colouration on its flanks. Also a male with a very short tail was seen.

Another point of interest, today a juvenile RWB was seen in the vicinity of the juvenile Koel. There was no apparent animosity between the two birds.

*24 Feb 2015*

J2 was seen again in the fig tree, it had a little fig on its beak. Its tail appeared longer, and the bird appeared thinner than J1.

*14 to 26 Feb 2015*

I have heard a juvenile Koel (J1) begging for several hours each day in or near my garden. I have seen it being fed by a RWB, and sometimes there have been a few RWBs around, but more often it is on its own and one RWB not too far away. Pied Currawongs have "moved in" on it a couple of times, and the RWB has come to its defence.

**Fig. 2. Juvenile Koel (J1) with fig flesh on and around its beak (*Christine Darwood*)**

Each day I have also heard a male and a female Koel calling with the "*wirra wirra*" and "*keek keek*" calls. I have not heard the "*koel*" call at all. Many days I have seen male, female and juvenile birds.

A couple of times I have seen a juvenile Koel in the fig tree in the back garden, not calling, but trying to feed itself, once unsuccessful (could not open a fig) and once successful (fig already open).

I have also seen a juvenile begging in the fig tree, and the RWB fed it fig.

There are at least two distinct juvenile birds (J1 and J2), but to date I have not seen nor heard more than one bird at one time. At least one of the juveniles (J2) has a black mark in the centre of its head, and its tail appears as long as an adult's.

Interestingly the male has a very short tail. It is less than 1/3 the length of the young Koel's tail.

Another point of interest is that a juvenile RWB has also been coming into the garden. One day it hopped over to the fig tree, but the female Koel was there and chased it away. I have not heard it call, but did see an adult bird feed it today. Instances of RWBs feeding their own young in the vicinity of RWBs feeding Koel young has also been observed by Holland (2014, 2015).

*27 Feb 2015*

In the morning I could hear J1 begging from outside in the back garden. It took a while to locate the bird, but I did that when two RWBs came to feed it. But just at that moment another juvenile Koel (J3) arrived on the scene (Fig. 2). One followed the other into the fig tree, and they had a brief but aggressive meeting, and then J1 flew off, leaving J3 to eat figs on its own. I note here that although J1, J2 and J3 were all distinct individuals it was not always possible to see them well enough to positively identify them. J3, like J2, had yellowish/buff areas on its flanks, but also had two solid black lines down each side of its throat from below the beak (malar stripes). J3 also had a small amount of fig on its beak.

*28 Feb 2015*

During the morning I was jolted by two very loud "*keek keek keek*" calls from the fig tree (which is just outside the window), and looked out to see a female and a juvenile about two feet apart. Then an adult RWB flew into the tree. Both Koels flew off, and minutes later I could hear J1 begging from the front garden, and I then heard it get fed, and saw the RWB fly off. A few minutes later I looked out to see two juvenile Koels in the fig tree, and could still hear J1 begging from the front garden. It appeared that one of the young Koels scared the other one off, and then went about feeding itself fig. Then, interestingly, the young RWB arrived, and it and the young Koel were perched very close together for a few seconds, and did not seem at all worried by each other.

Later in the afternoon, a male Koel appeared, and was seen a few times during the afternoon. It had a long tail, so was not the one which had been seen several times during the past week. At some point in the afternoon I heard two females "*keek keek-ing*" and one male "*wirra wirra-ing*". So a total of at least six Koels were seen or heard during the day!

**Fig. 3. Two juvenile Eastern Koels together in a fig tree** (see text for details)
**(*Christine Darwood*)**

*1 Mar 2015*

In the morning, initially J1 was begging in the front yard, and another juvenile was in the fig tree. A bit later I heard the "*wirra wirra*" call, and soon saw the male with the long tail.

Then J1 arrived in the back yard, and flew into the fig tree. In between begging, it pecked at a fig, and managed to open it. For a short while it pecked at the fig, still begging, then five minutes of quiet as it demolished the fig. It then flew to the nearby plum tree and made just occasional quiet begging calls, until ten minutes later, the begging increased, and two RWBs appeared and fed it in succession. It continued begging for a few minutes then flew off toward the front of the house.

A little later a male was sitting quietly in the fig tree, and nearby J3 was eating figs, and making a sound a bit like the beginnings of a kettle whistle when it is about to boil. At the same time the begging juvenile was still heard from the front yard.

*2 Mar 2015*

Quite early in the morning a "*wirra wirra*" was heard, later J1was heard begging at various times through the day.

Male (long tail) was seen sitting quietly in fig tree at various times through the day, and at one point a quiet juvenile was seen eating figs very close to the male. The young bird was making a soft whistling call (like when a whistling kettle is about to boil, but also similar to the excited squeals made as a begging young is fed).

*3 Mar 2015*

Early morning again I heard a "*wirra wirra*", and also J1was heard begging from the front garden. Later in the day J1 could still be heard begging. At dusk it flew off with another bird, probably the RWB but I didn't get a good view.

*4 Mar 2015*

J1 was heard begging on and off throughout the day from the front garden. There were still ripe figs on the tree, and a juvenile Koel was also seen feeding itself at one point in the afternoon.

Then I thought I could hear the whistling call (of the juvenile) described earlier, and looked out, and I could see a male (long tail) in the fig tree.

As I watched him, he called, a completely new call, a soft and high pitched "*pip pip pip pip pip*". Then he quietly ate fig for a while. Suddenly it called, "*wirra wirra wirra, wirra wirra wirra*", and there was another male (short tail, but longer than last week). The short tailed Koel flew at the long tailed one, and it (long tail) flew away. Short tail then ate figs for a little while before disappearing.

Just before sunset, J1 was in the back yard, and the RWB nearby.

Two young RWBs (one begging) were also seen during the day.

*5 Mar 2015*

Early in the morning, I heard J1 begging from the front garden, and a male calling "*wirra wirra wirra*".

Later the (short tail) male was seen in the fig tree, occasionally eating, but mostly just sitting quietly. It flew off when seven Pied Currawongs arrived.

J3 suddenly arrived in the plum tree calling strongly "*wik wik wik wik wik wik*", but disappeared again quickly. Again a slightly different call, and the first time I have heard such a strong call from a juvenile bird.

Then, the short tailed male arrived back into the fig tree (where there were also Common Mynas, Silvereyes, RWB and a Blackbird).

*6 Mar 2015*

Early morning a male Koel was heard calling "*wirra wirra wirra*".

*7 Mar 2015*

The juvenile Koel with malar stripes (J3) was seen, and a male was briefly heard giving the "*koel*" call (first time for quite a while I had heard the "*koel*" call).

*8 Mar 2015*

In the early morning a male was heard briefly calling the "*koel*" call, and later the male with a short tail (now growing) and the long tailed male were seen nearby to each other. Also J1 was heard begging from the front garden, while J3 was seen in the fig tree at the same time.

*9 Mar 2015*

In the early morning the "*koel*" call was heard briefly.

At one point a (man-made) alarm went off somewhere, and I heard two birds "*wirra wirra*".

Later I saw the two males fly into the fig tree, but short tail turned around and sent the other one off.

A bit later I heard the "*whistling*" call again, and saw J3 land in the fig tree. It sat there "*whistling*" for a short while, then one of the males appeared, and it (J3) flew to a nearby tree (I managed to get a short video of this). Both sat silently, but out in the open, about 4-5 m apart for at least 10 mins. Then I heard whistling again, and looked out and saw two juvenile birds. One flew off, and the other went into the fig tree.

At least 4 individual Koels were seen today, including J3, and I noticed that the yellowish patches on the flanks, appeared to be larger. No begging was heard today.

I have not observed any behaviour which looked like bonding between the Koels, and I have not seen or heard a female for more than a week. Also, the short-tail male definitely appears to be "top dog", and its tail has grown some.

*10 Mar 2015*

Five individuals were seen during the day, including a female! J1 was still "*whistling*", and later gave a "*wik wik*" call, possibly an alarm call. It also had lots of dried fig caked onto its face/beak. I also saw it (J1) chase away a Common Myna (*Sturnus tristis*) in order to get to an open fig, and noticed that its tail still does not appear to be as long as the tail of J3.

*11 Mar 2015*

Four individuals were seen during the day, a male, a female, and two juveniles. A male and female were also heard to "*keek keek keek*" and "*wirra wirra wirra*" together. The two juveniles were initially together in the fig tree.

J1 was also seen and heard giving the "*wik wik wik wik wik*" (alarm?) call as it flew off.

*12 Mar 2015*

Today only one juvenile Koel was seen, though I was not around a lot during the day.

*16 to 19 Mar 2015*

After four days away, I was not sure if the Koels would still be around. However, I saw J1 on the 16th, 17th, 18th and today. It had a huge blob of dried fig all over its beak, but seemed fine. No calling was heard at all.

On 18 Mar I also saw a male Koel. This turned out to be the last sighting of an adult Koel in my garden this season.

*24 Mar 2015*

After another four days away, I was very surprised to see J1 in the fig tree!

*25 Mar 2015*

Today was the last sighting of a juvenile Koel (J1). There were only a few figs left, so this could be one reason for its departure.

## 3. Discussion

### *3.1. The Juveniles*

A begging juvenile Koel was first seen and heard on 4 Feb. This bird had a shorter tail than adult birds I have seen, but was quite high up and partially hidden in a eucalypt just outside my back fence. I could not see its colouring well therefore, but it appeared a little darker than the bird I saw begging in later days. It flew off after only a few minutes.

A begging juvenile Koel was seen and heard in the front garden on 13 Feb. This bird (J1) had creamy white underparts, and a creamy rufous head with no black on the head, thus appearing to be pale. A pale bird which I believe was always J1, was seen often over subsequent days and weeks, but was usually heard from the front garden, and later seen in the fig tree both being fed, and feeding itself. Over the 41 day period during which it was seen, J1's tail grew longer, and a black line appeared in the centre of its crown, but it retained its light colour. One of Jack Holland's fledglings was also noticeably lighter-coloured (Holland 2015).

Two distinctly different and darker juveniles (J2 and J3) were also seen in the fig tree on many occasions. J3 had two thick black malar stripes from its beak down each side of its throat to the chest, which appeared to get longer over the 13 days that it was seen, and the area of buff/yellowish colouring on its flanks also increased. This bird was often seen feeding itself fig, and did not get a lot of dried fig on its beak as the J1 did.

Initially J1 basically sat in one spot giving its begging call constantly. At times when I was watching it I could hear a RWB contact call nearby. On one occasion some Pied Currawongs appeared to be threatening the Koel and the RWB chased them off. On a couple of occasions when I was nearby, the Koel flew off with or following a RWB. The RWB appeared to feed it something very small, and usually at least 10 minutes in between feeding. On at least one occasion two RWBs fed the Koel in close succession, and on one occasion a RWB fed it with a piece of fig.

Once J1 had worked out that it could feed itself on fig (see 20 Feb 2015), it did so, but then went on begging. It did not seem to clean off its beak, and subsequently was seen with large globs of dried fig around its beak. The last day on which I heard the begging call of the juvenile Koel was on 5 March (so it was heard begging for 24 days), after this at least two juveniles were heard making the whistling call.

Although two juveniles were seen in close proximity in the fig tree on a couple of occasions, the only interactions between them were aggressive, and one would eventually fly away. Little is known in general of interactions between juvenile Koels, and Holland (2015)

discusses the lack of records of juveniles being seen together, though his own observations are predominantly of fledglings which were still dependant on their hosts.

Aggression was also seen by the juvenile Koels toward other birds eating figs (e.g. Common Mynas) but no aggression was seen toward RWBs, either adult or juvenile.

### *3.2. Calls*

#### 3.2.1. Adult birds

I observed the males giving the known "*koel*" and "*wirra wirra*" type calls. Also a new call, I observed a male give a soft and high pitched "*pip pip pip pip pip*" on 4 Mar.

I observed the females giving the known "*keek keek keek*" type calls.

I also heard an adult Koel call slightly differently, on 14 Jan "*keeu-keeu-keeu-keeu-keeu*", each *keeu* descending, but each *ke* on the same note.

#### 3.2.2. Young birds

I observed three types of calls from the young birds.

Firstly the begging call, which I would describe as something like "*hwip hwip hwip*" with ascending pitch. It sounds similar to, but perhaps stronger than, the begging call of the older RWB fledglings. On most of the occasions that I observed the juvenile get fed, the begging call would get louder and faster on the approach of the RWB, and become almost a whistle as the food got close.

Secondly, a kind of whistle was heard (and seen being given) on a number of occasions. It sounded a little like the start of the whistle of an old kettle, and also like the excited call just as a begging juvenile got fed. Possibly this whistling call takes over from the begging call, so the whistling bird is the "just weaned" bird.

Thirdly (possibly an alarm call?), a sharp loud call which sounded like "*wik wik wik*", which was heard on two separate occasions from the older juveniles.

### *3.3. Interactions*

Despite hoping to find some bonding between adults and weaned juveniles, I soon had the impression that the only reason they were in relatively close proximity was because of the fig food source. Occasionally there would be two Koels in the fig tree at the same time, but either they were unaware of each other's presence (there were usually several other birds of a variety of species present at the same time), or they would tolerate each other at a distance.
On a number of occasions I observed one Koel chase another from the tree, including a male chasing away a juvenile.

The notable exception to this was a "courting" couple. An adult male and female were seen together in the fig tree on 11 and 12 Feb. On one occasion the male offered the female a piece of fig which she took from him.

I would often hear males and females interacting vocally, right up until 11 Mar, with the "*keek keek keek*" and "*wirra wirra wirra*" calls. I noticed on many occasions that the "*wirra wirra*" calls were a response to "*keek keek*" calls, but it did not appear to be exclusively a response to the call of the female. In fact I observed the "*wirra wirra*" call being given when

there was just another male, and also when there was a juvenile present, supporting the assertion in Higgins (1999) that this call is given in the presence of conspecifics.

*3.4. Other Interesting Observations*

1. A male was observed with a very short tail on 26 Feb.
2. As well as RWBs feeding a young Koel, RWBs have concurrently been seen in the garden with and feeding begging RWB young on 28 Feb.
3. I rarely observed any aggression between RWBs and Koels. The only exception was when an adult female Koel chased off a RWB from the fig tree on 26 Feb.
4. Two males responded to a man-made alarm with "*wirra wirra wirra*" calls on 9 Mar.

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*Accepted 31 May 2015*

# NOMINATION OF A VULNERABLE SPECIES TO THE ACT FLORA AND FAUNA COMMITTEE

# SCARLET ROBIN

## Introduction

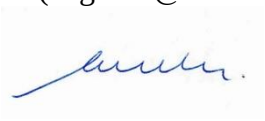
The Scarlet Robin (*Petroica boodang*) was declared a 'vulnerable' species under ACT legislation on 12 May 2015 by the ACTs Minister for the Environment. COG nominated the Scarlet Robin to the ACT Flora and Fauna Committee in May 2013, based on a long-term declining trend in abundance of the species, from analysis of COGs Woodland Bird Monitoring Project data. In 2014, results from a recently completed PhD study on woodland birds by Laura Rayner at the Australian National University were submitted to support COGs previous results; Dr Rayner's study was based on COG woodland project data, including additional years of data. Although showing a long-term declining trend, the Scarlet Robin is still recorded in sufficient numbers to enable statistical analysis of survey data to be undertaken. However, the trend appears to be following the similar decline of the Hooded Robin which has all but disappeared from peri-urban woodlands.

The COG nomination of the Scarlet Robin as a threatened ('vulnerable') species in the ACT is included here for the information of COG members and other CBN readers. Jenny Bounds researched and drafted the nomination, with advice from Chris Davey.

*For enquiries contact Jenny Bounds: cogcons@canberrabirds.org.au*

## a) Name, address and signature of nominator

Nominator: Jenny Bounds, for Canberra Ornithologists Group
Address: PO Box 301, Civic Square, ACT 2608
Contact: 1. Jenny Bounds, Conservation Officer; Phone 02 62887802
2. Alison Russell-French, President; Phone 0419264702
(cogcons@canberrabirds.org.au)

Signature:  Date: 26 April 2013

## b) Nominated item

Category of nomination: Vulnerable species.

Scientific name: *Petroica boodang (Lesson 1838)* (Christidis & Boles 2008)
[Formerly named *Petroica multicolor* (Gmelin 1789)]

*Note: This is a re-nomination of this species to the Committee, first nominated by COG in November 2002. Relevant text/material from the 2002 submission is included in this new nomination, together with more recent/current information.*

## c) Description

### Family

Petroicidae - Robins

### General appearance

The Scarlet Robin (*Petroica boodang*) is one of three red-breasted Robins in Australia, the others being the Flame Robin (*Petroica phoenicea*) and the Red-capped Robin (*Petroica goodenovii*) (Christidis & Boles 2008). Scarlet Robins are around 11.5cm to 13.5cm in length and 13 grams in weight. Scarlet Robins have bold red, black and white plumage in the males and overall brownish plumage in the females (Higgins & Peter 2002).

The adult male has a black head, neck and upperparts, a black upper breast/throat, a scarlet-red breast sharply demarked from the black throat, otherwise whitish underparts, with a white frontal patch above the beak, bold white markings on the wings and white edges to the tail (Higgins & Peter 2002).

The adult female is dark brown to grey on the top and sides of the head and neck, with a prominent white frontal patch and narrow partial white eye-ring, a brown-grey upper body, off-white underparts with an orange-red wash on the breast, and buff-white wing markings. Immatures are similar to the female. There is no seasonal variation in plumage, however, there are slight geographical variations in plumage (Higgins & Peter 2002).

The Scarlet Robin is distinguished from the Flame Robin, another red-breasted robin found in the ACT region, on plumage colour and is slightly smaller than the Flame Robin. The male Flame Robin has greyish upperparts, and a bright flame red (orange) breast which extends right up the throat to the bill. Female Flame Robins are brownish with usually no reddish/orange wash on the breast. Flame Robins have a smaller white mark over the bill than Scarlet Robins (Higgins & Peter 2002).

Red-capped Robins are uncommon in the ACT, being more associated with the drier inland areas. Red-caped Robins are similar in shape to Scarlet Robins but smaller and thinner. Red-capped Robin adult males have a large, scarlet-red forecap and breast, and adult females usually a dull reddish wash on the forehead, broadly distinguishing them from the other two red-breasted robins (Higgins & Peter 2002).

### Habitat

The Scarlet Robin favours eucalyptus forest or woodland with an open understorey, avoiding the densest forests and the drier regions to the north and west of the Dividing Range. Scarlet Robins are found generally in woodlands and open forest habitats, and can also be found in pine forests, parklands, orchards, golf courses and gardens. In autumn/winter, they can disperse to more open but sheltered habitats, including peri urban situations. (Pizzey & Knight 1997; Higgins & Peter 2002).

Scarlet Robins occur over a wide area in the ACT, in eucalyptus woodland and open forest habitats, and even small remnants of woodland with suitable understorey can be utilised by a pair of the birds. In the ACT region, Scarlet Robins favour open forests and woodlands

during the breeding season, mostly at middle altitudes, and usually descend to nearby open valleys in autumn and winter. Immatures are known to disperse. COG records over more than 25 years and numerous reports in COGs publication *Canberra Bird Notes,* confirm this general movement pattern of Scarlet Robins in the Canberra region, of a partial altitudinal migrant, although there are said to be a few exceptions (Pizzey & Knight 1997; Wilson 1999;COG Databases).

Scarlet Robins are uncommon in the denser, wet forests of the Brindabella Ranges and Cotter catchment, and don't usually occur in open paddocks where no trees remain (Taylor & COG 1992). In Canberra, they can occur around peri-urban suburban gardens in the cooler months, particularly areas close to wooded nature parks and reserves with green strips leading into the suburb, for example in Chapman near Coolemon Ridge (COG 2000; Jack Holland pers comm).

Findings from the COG woodland bird monitoring project since 1995 (a systematic long-term survey), suggest there is a strong correlation of Scarlet Robins with COG woodland monitoring sites which have a mid-structure vegetation layer, *viz* denser understorey, shrubs and eucalypt growth. A recent analysis by COG of bird occupancy and habitat changes at the six foundation locations of the woodland bird monitoring project, concluded that reduction of or loss of shrub cover correlated with a decrease in occupancy of the species at those sites (Taws *et al* 2011; Bounds *et al* 2010).

The New Atlas of Australian Birds, which reported on two national data collections and studies undertaken in the periods 1977-81 and 1998-2002, indicated that the Scarlet Robin is more common at sites with native grasses than in sites with non-native grasses. Abundant logs and coarse woody debris are also important structural components of the Scarlet Robin's habitat (Barrett *et al* 2003; Higgins and Peter 2002).

**Behaviour**

Scarlet Robins are generally quiet and unobtrusive, solitary, or found in pairs or family parties. Scarlet Robins forage for invertebrates, mainly insects and grubs. Scarlet Robins are terrestrial and arboreal, foraging on or near the ground especially in the cooler months, and on branches and trunks of shrubs and trees. Like most of the robins, they forage mostly by perch hunting (sit and wait), pouncing from low perches on to the ground to collect insects from the grass and leaf litter, and also by sallying into the air or at substrates such as foliage bark or trunks of trees (Frith 1984; Higgins & Peter 2002).

The Scarlet Robin's song (to advertise ownership of or defend territory or to attract a mate) is described as a cheery, tinkling warble of six notes; they also make scolding calls, sharp trills, and ticking/clicking sounds (Higgins & Peter 2002).

## d) Distribution

Scarlet Robins are distributed in south-eastern and south-western Australia and in Tasmania. There are three sub-species of the Scarlet Robin recognised, the form in the SE of Australia (*P. boodang boodang*), the form in the SW of Western Australia (*P. boodang campbelli*) and the form in Tasmania/Flinders Island and other eastern Bass Strait islands (*P. boodang leggi*). A closely related species, Pacific Robin (*Petroica multicolour*), occurs on Norfolk Island

(mainly inhabiting native rainforest) and other south-western Pacific Ocean islands (Schodde & Mason 1999).

In the literature, Scarlet Robins are mainly considered resident or sedentary with some local seasonal movements, including altitudinal movement from higher ranges breeding sites to lowland sites (woodlands and more open areas) in autumn-winter (Higgins & Peter 2002).

In south-eastern Australia, Scarlet Robins occur broadly from the Eyre Peninsula in South Australia to the Darling Downs of south-eastern Queensland. The species is confined to areas south of 25 degrees latitude and from the east coast across the Dividing Range to the limits of the western slopes (Frith 1984; Blakers *et al* 1984; Pizzey & Knight 1997; Higgins & Peter 2000).

In the ACT in 1992, when COG undertook its ACT Bird Atlas study, the Scarlet Robin was regarded as widespread in suitable habitat, but least likely to be found in the wetter mountains of the south-west or the suburban areas (Taylor & COG 1992).

COG records in the ACT indicate there is a strong seasonal effect with occupancy rates at sites highest in autumn/winter. Birds are believed to move from higher elevations such as the forested foothills of the ranges to lower altitude open valleys and woodlands, including some nature parks around Canberra suburbs. (Frith 1984, Taylor & COG 1992; Cunningham 2003; Bounds *et al* 2010). Although Scarlet Robins are known to move between dense forest, open forest and grassland habitats seasonally, the exact nature of movements locally is not known, although north-south migration appears unlikely in the Canberra area (Frith 1984).

In the ACT, the most recent surveys by COG have been carried out for the New Atlas of Australian Birds (1998-2002) and for the COG Woodland Bird Monitoring Project (1995-2012 and ongoing). The latter project involves seasonal monitoring at 15 locations in reserves and non-reserve lands (142 monitoring points); these locations are largely in woodland corridors abutting or close to the Canberra urban fringe and some are in the Molonglo and Naas Valleys (Bounds *et al* 2010).

The Scarlet Robin is likely to be found in more wooded habitats than the Flame Robin. Woodlands containing Red Stringybark (*Eucalyptus macroryncha*) are preferred such as those at The Pinnacle and dry ridges at Mulligans Flat, as well as the more fertile woodlands of Yellow Box and Blakely's Redgum, the mountain woodlands around Glendale and Yankee Hat in Namadgi NP and in open, shrubby habitats in the Lower Cotter (COG November 2002; COG Databases).

A number of the reserves in the Canberra Nature Park system provide suitable habitat for Scarlet Robins, and records of the species include Red Hill, Callum Brae, Kama, The Pinnacle, Mulligans Flat and Goorooyarroo reserves, although the numbers of birds around at any time appear to be related to the seasons (COG Databases).

At some locations around Canberra, Scarlet Robins are recorded throughout the year. At Mulligan's Flat NR, for example, although there are Scarlet Robins observed throughout the year, observations are higher in winter suggesting that some birds do move into these sheltered woodland and open forest locations (J Bounds pers obs; COG Databases). Scarlet Robins are also observed year round at woodland patches in the Jerrabomberra Valley, such

as Callum Brae NR, but not in the numbers as at Mulligan's Flat (J Bounds pers obs; COG Databases).

## e) Threats

Threats to the Scarlet Robin include historical habitat clearing and degradation, overgrazing, reduction of size of remnant patches, fragmentation and isolation of patches, reduction in structural complexity of habitat, reduction of native ground cover in favour of exotic grasses, and predation by over-abundant populations of Pied Currawong (*Streptera graculina*) in addition to other native and exotic predators such as feral cats (*Felis cattus*) (NSW Scientific Committee 2010).

## f) Criteria satisfied and the reasons why

### 2.2 Species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the medium-term future, as demonstrated by:

### 2.2.1 Current serious decline in population or distribution from evidence based on

#### 2.2.1.1 Direct observation, including comparison of historical and current records

Since 1995, when COG first commenced a systematic study of bird abundance in ACT woodlands, statistical analyses of data from the Woodland Bird Monitoring Project (first in Mulligans Flat NR and then extended across the ACTs woodlands), have pointed to declines in occupancy of the Scarlet Robin (Cunningham 2003; Cunningham & Rowell 2006; Bounds *et al* 2007; Bounds *et al* 2010).

The COG Woodland Bird Monitoring Project focuses on woodlands in the key woodland corridors identified in the ACT Government's Action Plan 27, the Lowland Woodland Conservation Strategy (ACT Government 2004). "Occupancy" in the context of the Woodland Bird Monitoring Project's statistical analyses, (or the term "probability of occupancy"), describes the recording of a bird's presence (formerly referred to as "probability of detection") (Bounds *et al* 2007).

When COG nominated the Scarlet Robin to the Committee in 2002, the COG Woodland Bird Monitoring Project was in its infancy. A preliminary analysis referred to in that nomination, had looked at data over the four years from 1998 to 2001, including data from Mulligans Flat NR surveys from 1995 to 2001. This first statistical analysis of project data indicated a significant decline in occupancy rate of Scarlet Robin over the period 1995 to 2001 (Cunningham 2003). This was prior to possible impacts being felt from the decade of drier weather conditions which started in the early 2000s.

In the 2002 nomination, reference was also made to data and analyses coming out of the national Bird Atlas Project of Birds Australia (The New Atlas of Australian Birds). This project compared observations collected around Australia, including by COG members in the ACT region, from two periods, Atlas 1 (records from 1977-1981) and Atlas 2 (records from 1998-2002) and resulted in a publication in 2003 (Barrett *et al* 2003).

The 2002 nomination included comments from that New Atlas Project as follows:

> *"In the South Eastern Highlands region, the Scarlet Robin declined in reporting rate in the 20 years between Atlas 1 and Atlas 2 by 54% (see Table 1). Nationally, the decline in reporting rate was also large (34%) but not as severe as in the SEH region.*
>
> *Map 2 shows the distribution of the Scarlet Robin in the ACT region from Atlas and Woodland records over the last four years. When compared with other declining species, the Scarlet Robin can still be found over a wide area of the region, however the magnitude and latitude of the species' decline is of great concern.*
>
> *A preliminary analysis of data from the Woodland Bird Monitoring Project over the last four years, plus data from Mulligans Flat surveys since 1995, indicate a significant and ongoing decline in the probability of detection of Scarlet Robins (Cunningham in press)." (COG November 2002*

Over the years since 2002, additional sites have been added to the COG Woodland Bird Monitoring Project. There are now fifteen (15) locations with 142 monitoring points (sites), with very good representation of sites from the key woodlands and woodland corridors in the ACT (Bounds *et al* 2010).

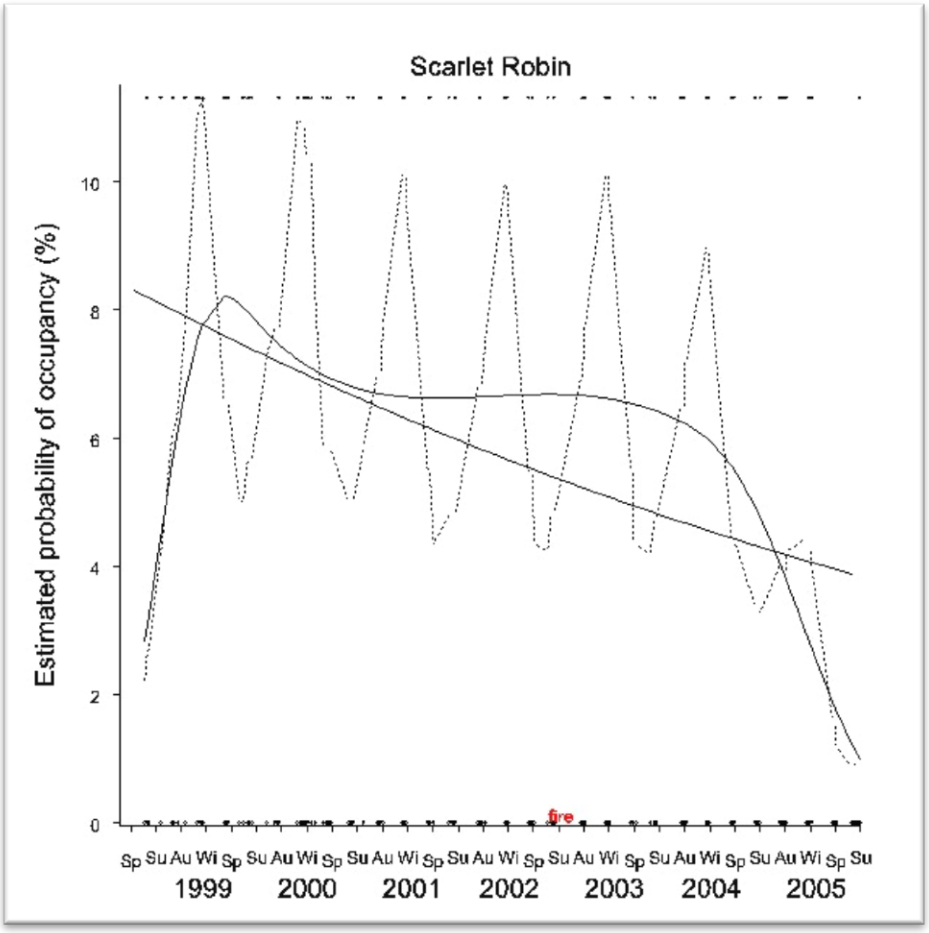



**Figure A – Occupancy trend of Scarlet Robin 1998 to 2005** (explanations, see next page).

Explanation of **Figure A** (see previous page):

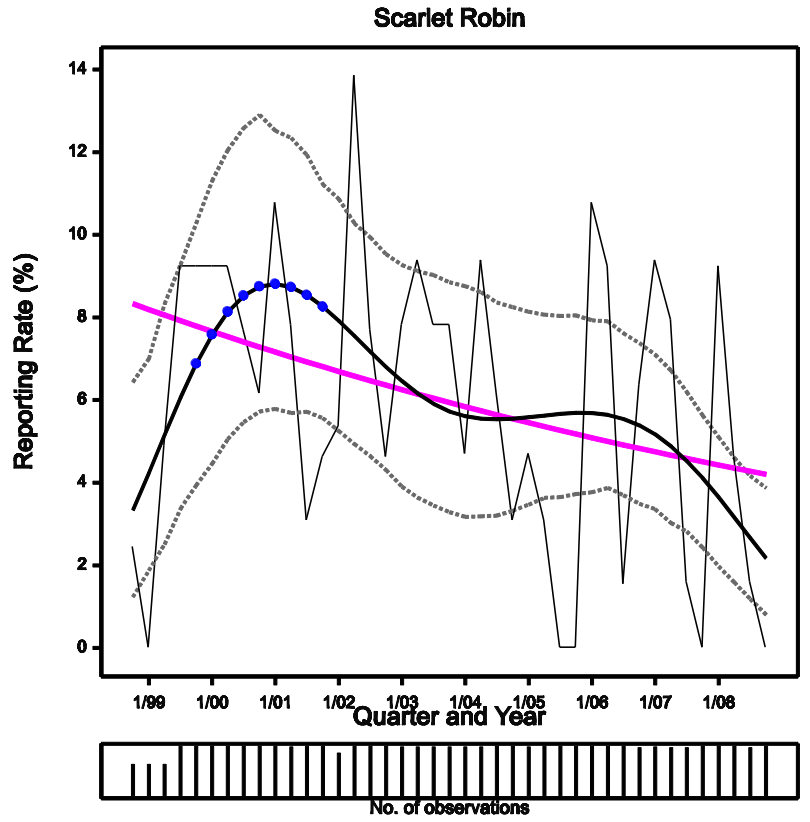
- the straight line is the smoothed trend showing the decline in occupancy
- the dotted line is the smoothed trend including seasonal component (occupancy higher in cooler months)
- the curved line is the linear trend
- the 2003 Canberra bushfire event is indicated as "fire" (red in colour); it should be noted that only a couple of the woodland sites, in the Naas Valley near Mt Tennant, were near the bushfires and lightly burnt in those fires (Bounds *et al* 2010).

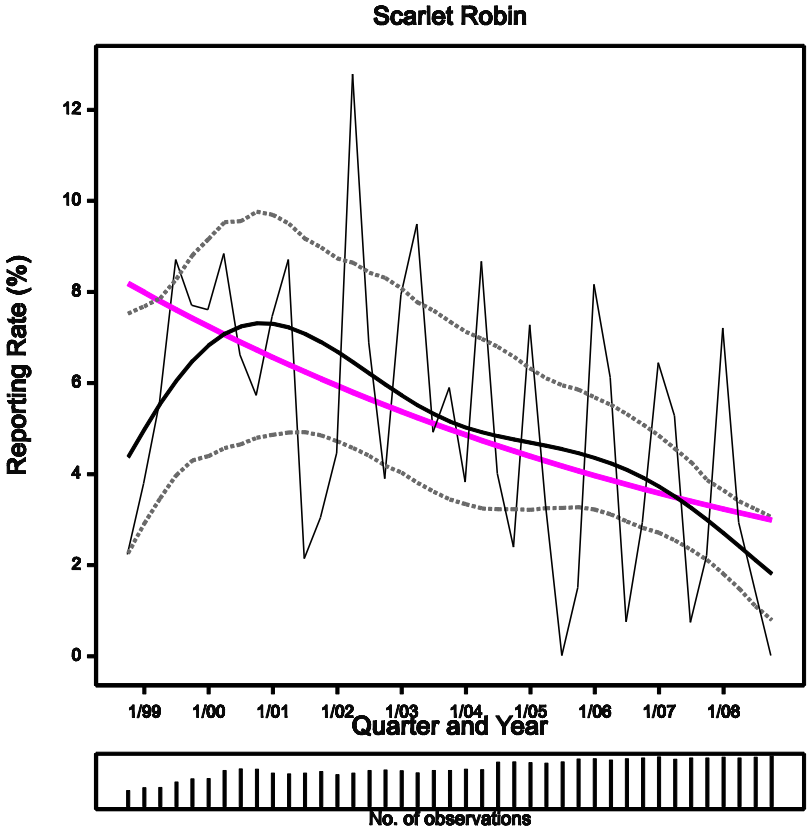
By 2006, a statistical analysis of data collected from 1998 to 2005 showed a moderate occupancy rate of the Scarlet Robin at woodland monitoring sites, however, a worrying, steady decline in occupancy, with a sharper decline in 2005 was noted (Bounds et al 2007).

The most recent analyses of Woodland Monitoring Project data shows a strong declining trend for Scarlet Robin at sites with 10 years data (6 locations, 65 monitoring points), and all Project sites (15 locations, 142 monitoring points) (Bounds *et al* 2010). This is regarded as a very robust dataset, as data has been collected in a systematic way through regular surveys at sites over an extended period of time. There is overall strong evidence of a decline in Scarlet Robin which can be regarded as a long term trend (Bounds *et al* 2010).

**Figures B and C** (next page), show the trend for Scarlet Robin at the COG 10 year sites and all sites from the 10 year analysis exercise. The thick straight line (pink line in colour) represents the pattern in reporting rate (decline). See **Appendix 2** for an explanation of the trend graphs in Figures B and C.

Supporting the data analyses results, there is anecdotal evidence from some ACT sites. The Red Hill Regenerators (a Parkcare Group working in Red Hill Nature Reserve in central Canberra) report that Scarlet Robins have declined in the reserve over the years, only occasionally being seen in recent years compared to sightings on most visits in the past (M Mulvaney pers comm.). At Mulligans Flat, monitored for birds for more than 20 years, Scarlet Robins used to be more commonly observed than they are now (J Bounds pers obs).




**Top Figure A: Occupancy trends from10 year sites 1998-2008 (65 monitoring points).**
**Bottom Figure B: Occupancy trends from all sites 1998-2008 (142 monitoring points).**

In 2011, COG undertook a pilot data analysis at the 10 year woodland monitoring sites, to look at habitat and bird relationships. Changes in bird occupancy were modelled against a habitat index compiled for the years 2003 and 2010. Significant changes which had a direct relationship with the Scarlet Robin were a decrease in shrub cover and decline in eucalypt canopy health (thinning) from 2003 to 2010. The Scarlet Robin decreased significantly in occupancy with these changes. A number of other birds, primarily small insectivorous birds, also decreased in occupancy relating to changes in habitat features. Extended drier conditions and grazing pressures over the period are thought to have been influencing factors (Taws *et al* 2011).

Regionally, to the north of Canberra, a bird monitoring program, the Cowra Woodland Birds Program, is undertaken by Birdlife Australia (previously Birds Australia). In 2007, six years of data at 97 sites was analysed. The analysis was undertaken by the same statistician who has analysed the COG Woodland Project data (Ross Cunningham), using similar statistical methods as those applied to the analyses of the COG dataset. There were insufficient records to determine a trend for the Scarlet Robin, although the woodland-dependent suite of birds (which includes the Scarlet Robin) was noted as significantly declining in bird species richness and abundance (Reid & Cunningham 2008; Cowra Woodland Birds Program Committee 2009).

In 2010, the Scarlet Robin was listed as a vulnerable species under NSW legislation following a determination by the NSW Scientific Committee (NSW Scientific Committee 2010). See **Appendix 1** for the full text of the final determination taken from the NSW Government, Office of Environment and Heritage website. The determination by the NSW Scientific Committee included the following:

"4. In recent decades the Scarlet Robin is believed to have undergone a moderate reduction in population size in NSW based on comparative evidence from broadscale surveys. The Scarlet Robin was recorded in 43 one-degree grids in NSW during the first national bird atlas in 1977-81 at mostly moderate to high reporting rates (Blakers *et al.* 1984). In the second national bird atlas of 1998-2002 it was recorded in 37 one-degree grids at mostly low reporting rates (Barrett *et al.* 2003). Its index of abundance (reporting rate) declined significantly by 55% in NSW and 31% nationally over the 20 years between the two atlases (Barrett *et al*. 2003, 2007). Assuming a linear decline this is equivalent to a state wide decline of 45% of 3 generation (15 years) the time frame recommended by IUCN (2008) for estimating population change. Declines of more than 20% were recorded in the robin's core NSW bioregions (NSW North Coast, New England Tableland, Nandewar, Sydney Basin, South East Corner, South Eastern Highlands and NSW South Western Slopes) (Barrett *et al.* 2003, 2007). The robin was not less likely to be detected in Atlas 2 versus Atlas 1 due to the different survey methods used (Barrett *et al.* 2003) and therefore comparison of the two atlases is unlikely to be significantly affected by survey bias.

7. The Scarlet Robin *Petroica boodang* (Lesson 1838) is eligible to be listed as a Vulnerable species as, in the opinion of the Scientific Committee, it is facing a high risk of extinction in New South Wales in the medium-term future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation* 2002:

**Clause 14**

The species has undergone, is observed, estimated, inferred or reasonably suspected to have undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:

(c) a moderate reduction in population size,

based on:

(d) an index of abundance appropriate to the taxon." (NSW Scientific Committee 2010).
An officer of the NSW Office of Environment and Heritage, working out of the Queanbeyan Regional Office on biodiversity conservation issues (eg threatened species and conservation management on private properties), has provided the following comments based on his extensive field work in the immediate region east of the ACT in the last 30 years:

"My observations of robins in the Bungendore – Lake George region confirms their overall decline, and supports the listing of these species in NSW as vulnerable. Both species of red-breasted robins (Scarlet and Flame) have seen a clear decline around Bungendore in the last 30 years. I have regularly kept detailed records for all bird species seen in this region over the last 30 years and the robins have been conspicuous decliners (along with other species, particularly Red-browed Finch and Speckled Warbler). Although I have not entered the bulk of the records onto the NSW BioNet, nor have I done any formal analysis, the rate of decline of these species is unequivocal. For example, when I first started recording all species systematically, robins (both red-breasted species) were regularly encountered throughout every winter. Scarlet Robin was also regularly seen in spring at Brooks Hill Reserve, south-east of Bungendore. To highlight the decline, I give an example of my specific experience of several years ago, during the last years of the drought, when I made an effort to record any robins that I saw in the Bungendore – Lake George district for that winter period. I failed to see any robins over that winter - 2010 I believe it was" (R. Rehwinkel pers. comm).

#### 2.2.1.3 serious decline in quality and quantity of habitat

A major impact on the Scarlet Robin in its lowland range is likely to be loss and degradation of its grassy woodland habitat. In the ACT region, there may be as little as 3-4% of the original extent of the Yellow Box/ Red Gum Grassy Woodland remaining in a natural state (ACT Government 1999). The White Box woodlands in adjacent NSW may be reduced to less than 0.01% of original extent (Prober and Thiele 1995).

Primarily, this loss of habitat is the result of clearing for agriculture and grazing, but in the ACT there is the additional pressure of clearing the lowlands for urban development. The Scarlet Robin can still be found in large reserve areas such as Mulligans Flat, however the ongoing encroachment of the suburbs destroys winter feeding habitat and may impact on the ability of the young to disperse to new territories (COG November 2002).

Outside the urban areas of Canberra, the small amount of remaining woodland habitat, including in Canberra's reserve areas, is fragmented and often degraded. Continuous grazing by stock and other herbivores prevents tree regeneration, introduces weeds, alters the natural composition of the understorey and contributes to dieback of existing trees. Pasture improvement replaces much of the native grasses and forbs with exotic species and contributes to dieback. The extended dry period in the last decade is possibly another factor exacerbating other influences. (COG November 2002; Cooper, OCSE 2011)

Rural tree dieback is widespread in agricultural regions, and one of the major woodland species in the ACT region, *Eucalyptus blakelyi*, is particularly affected. The continual cycles of canopy defoliation and eventual death of mature trees results in a decline in the quality of feeding and breeding substrates, and reduces the abundance and diversity of woodland bird species (Ford 1985, Er 1997).

The Scarlet Robin nests usually 1-3 metres above the ground and, therefore, requires structural elements of habitat (shrubs, small trees, tree trunks) at this height. It also requires perching points (logs, rocks, low branches, shrubs) at this height range from which to detect and hunt prey. The loss of understorey structure, and collection of standing and fallen timber for firewood in woodland remnants removes nesting and feeding opportunities for the species (Pizzey & Knight 1997; COG November 2002).

The Scarlet Robin preys mainly on insects on the ground, and it is the quality of ground habitat that may be a critical factor in supporting the invertebrate prey of the species. It is possible that the loss of native ground cover species and ground habitat complexity (litter, logs etc.), or the use of pesticides may all have impacted on the Scarlet Robin (COG November 2002).

Grazing pressures and soil disturbance from herbivores (kangaroos, rabbits, sheep, cattle), and clearance of native vegetation for various reasons including prescribed burning and fire events in Canberra's various nature reserves, have been identified by the Commissioner for Sustainability and the Environment in a 2011 report, as contributing negatively to the condition of a significant percentage of Canberra's reserves, a number of which have been found to be in less than satisfactory condition (Cooper, OCSE 2011).

The ACT Government has measures for bushfire fuel reduction to protect assets under a Strategic Bushfire Management Plan 2009 and associated Bushfire Operational Plans (ACT Government 2009). This includes measures such as slashing grass and shrub re-growth and controlled burns to remove understorey and ground layer plants and litters. These plans do not necessarily take into account different vegetation types or whether it is native or exotic. Fire events, including operational burns, have been assessed as having major impacts in 14% of Canberra's reserves and minor impacts in 31% of reserves (Cooper, OCSE 2011). Measures such as burning and slashing shrubs and tall grasses, is likely to have an impact in terms of removing mid-storey vegetation layers and simplifying habitat, and thus making it unsuitable for the Scarlet Robin

The Determination by the NSW Scientific Committee made the following comment regarding habitat related issues:
"5. The Scarlet Robin is sensitive to habitat degradation (Watson *et al.* 2001, 2003; Radford *et al.* 2005; Radford and Bennett 2007), and overgrazing (Olsen *et al.* 2005). For instance, its occurrence (presence/absence) is positively associated with patch size and components of habitat complexity including increasing tree canopy cover, shrub cover, ground cover, logs, fallen branches and litter (Watson *et al.* 2003). In a comparison of intensively surveyed woodland sites stratified by habitat attributes and land-use category (Barrett *et al.* 2003), the Scarlet Robin was found to be (a) less common in isolated patches of 30 ha or less where there was no tree cover within 200 m and less than 20% cover within 1 km; (b) less common in sites surrounded by cattle grazing; (c) absent from sites surrounded by cereal cropping; (d) more common as time increased since removal of grazing; and (e) more common in sites with native versus exotic grasses if ungrazed for more than 10 years. Nest sites, food sources and

foraging substrates, such as standing dead timber, logs and coarse woody debris, are susceptible to depletion by grazing, firewood collection and 'tidying up' of rough pasture (*e.g.* Recher *et al.* 2002). Core bioregions in the Scarlet Robin's NSW range (New England Tableland, Nandewar, NSW South Western Slopes and South Eastern Highlands) are 53-84% cleared and moderately to highly stressed (landscape stress factor 3-6 out of 6) (Morgan 2000; Barrett *et al.* 2007). 'Clearing of native vegetation' and 'Removal of dead wood and dead trees' are listed as Key Threatening Processes under the NSW *Threatened Species Conservation Act* 1995. Over-abundant populations of Pied Currawong *Strepera graculina*, supported by exotic berry-producing shrubs, may be a potentially severe threat to the Scarlet Robin's breeding productivity (Debus 2006c), exacerbated by other native and exotic predators." (NSW Scientific Committee 2010)

#### 2.2.1.5 serious threats from herbivores, predators, parasites, pathogens or competitors

The Scarlet Robin may now experience higher predation losses on nests due to increased numbers of predators, particularly the Pied Currawong (Major *et al* 1996, Leach 1996). In the ACT the Pied Currawong has increased in numbers, and has changed its annual pattern of movement (Taylor and COG 1992, COG 2000). The proliferation of exotic fruit-bearing woody weeds in the suburbs and adjacent reserves has resulted in a proportion of the Pied Currawong population remaining in the lowlands to breed, whereas previously there was almost complete migration to the ranges, away from lowland woodland habitats. The Pied Currawong is a highly effective predator of small birds, particularly eggs and nestlings. In fragmented and degraded habitats where the overstorey is suffering dieback and there is little understorey or regeneration, there is less cover for secure nesting sites, increasing the probability of nest predation (Leach 1996; Major *et al* 1996; COG 2000; Taylor & COG 2002; COG November 2002).

The native Noisy Miner (*Manorina melanocephala*) is a colonial species which aggressively excludes other bird species from its territory, particularly smaller woodland and forest birds. Some jurisdictions are considering the Noisy Miner as a threatening process. There are a number of studies which indicate that the presence of the Noisy Miner in woodland and forest exacerbates the problems facing small woodland birds which have already suffered significant habitat loss and degradation (Dow 1977; Grey *et al* 1997; Grey et al 1998; Piper and Catterall 2003; Clarke and Oldland 2007).

The reporting rate of the Noisy Miner increased by 10% Australia-wide between the two national Atlas Periods (Blakers *et al* 1984; Barrett *et al* 2003). Analyses from the COG Woodland Bird Monitoring Project show strong long-term evidence of increase in occupancy of the Noisy Miner in the ACTs woodlands (Bounds *et al* 2010). An analysis of COG Woodland Bird Monitoring project data also looked at changes in bird occupancy with habitat changes at 10 year sites between the years 2003 and 2010; this showed that the Scarlet Robin decreased in occupancy with a decrease in shrub cover between those years, while the Noisy Miner increased significantly with the habitat change, the decrease in shrub cover (Taws *et al* 2011).

## Discussion

In November 2002, COG submitted to the ACT Flora and Fauna Committee, nominations of several woodland-dependent birds, including the Scarlet Robin, for listing as vulnerable species (COG November 2002). The nomination of Scarlet Robin was not accepted,

presumably on the basis that clear evidence of longer term decline of the species was not demonstrated at that time. The nomination was based on an exercise which considered information available/published up to that time and the assessment of experienced observers. In particular, that exercise took account of data collected during two projects, the New Atlas of Australian Birds (1998-2001) and the original Atlas (1979-1981), projects run by the national, non-government organisation Birdlife Australia (formerly Birds Australia), representing one of the largest and most comprehensive databases of any wildlife in the world.

A statistical analysis of change in reporting rates for individual species between the new and the old Atlas was conducted for Birds Australia by statistician Ross Cunningham (Statwise P/L). Patterns of change were also examined to assess whether they were consistent across IBRA regions (Interim Biogeographical Regionalisation of Australia). The reporting rate was adjusted for differences in survey effort between the two atlasses and between IBRA regions. The relevant IBRA region was the South Eastern Highlands (SEH) which includes the ACT and the wider COG area of interest. All data collected by COG in and around the ACT during the new Atlas was included in the analysis.

Since 1998, COG has established a long-term bird monitoring project in grassy woodlands around Canberra (COG Woodland Bird Monitoring Project), with the aim to collect data to determine long-term trends. There are now 15 project locations, with 142 monitoring points, most of these in Yellow Box-Red Gum woodland, with a few in dry forest contiguous with grassy woodland. Over the years since 1998, periodical statistical analyses of project data using robust statistical methods have been undertaken.

In 2011, 10 years of project data was examined from the six foundation locations (65 sites) in the Project, which includes data from 24 sites at Mulligans Flat (regarded as an important area for Scarlet Robins, especially in the colder months). The 10 years of data is considered to provide evidence based, long-term trends for a number of species including the Scarlet Robin.

**Conclusion and Recommendation**

In conclusion, there is now a strong, evidence-based, long-term trend of significant decline of the Scarlet Robin. This trend first emerged more than two decades ago in a comparison of two Atlas studies, 1998-2000, and 1979-1981 over the South Eastern Highlands region (Barrett *et al* 2003). This decline is strongly confirmed through results from several statistical analyses of data over the last decade from a long-term study, the COG Woodland Bird Monitoring Project (details referred to above). There is local anecdotal evidence from some areas monitored by the same individuals over many years to support the results from the statistical analyses, and the Scarlet Robin has been listed in NSW as a vulnerable species.

COG recommends that the Committee make a recommendation to the relevant Minister, for the declaration and management of the Scarlet Robin as a "vulnerable" species under the *Nature Conservation Act 1980*.

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**Personal communications/Personal Observations**

Jenny Bounds: a non-professional ornithologist, member of COG, former President of COG; has surveyed birds at Mulligans Flat NR for 25 years, as well as other sites in the ACT and region, including several locations in the COG Woodland Bird Monitoring Project; has drafted nominations to the Flora and Fauna Committee for several species, Painted Honeyeater, Little Eagle and Glossy Black-Cockatoo.

Dr Jack Holland: a non-professional ornithologist, member of COG and former President of COG.

Dr Michael Mulvaney, ACT Government ecologist; Parkcare volunteer/coordinator with Red Hill Regenerators for many years.

Rainer Rehwinkel: NSW government employee in the Biodiversity Conservation Section, Office of Environment and Heritage, NSW Department of Premier and Cabinet, Queanbeyan NSW Office. Has a long time interest in birds and extensive knowledge of native plants.

**Male Scarlet Robin with fledglings (*Graham Stephinson*)**

**APPENDIX 1**

## From NSW Government Office of Environment and Heritage website:

http://www.environment.nsw.gov.au/determinations/scarletrobinFD.htm

**"Scarlet Robin Petroica boodang (Lesson 1838) - vulnerable species listing**

**NSW Scientific Committee - final determination**

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the Scarlet Robin *Petroica boodang* (Lesson 1838) as a VULNERABLE SPECIES in Part 1 of Schedule 2 of the Act. Listing of Vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. The Scarlet Robin *Petroica boodang* (Lesson 1838) is a small (13 cm) songbird with black upperparts and chin, red breast, white lower belly, a large white forehead spot, and white flashes in the wings and tail. The female is brown with a large white forehead spot, dull brick-red breast, and white flashes in the wings and tail. The male Flame Robin *Petroica phoenicea* is similar but has dark grey upperparts, orange-red underparts from chin to belly, and a small white forehead spot, while the female has a brown chest.

2. The Scarlet Robin is found in south-eastern Australia (extreme south-east Queensland to Tasmania, western Victoria and south-east South Australia) and south-west Western Australia. In NSW it occupies open forests and woodlands from the coast to the inland slopes (Higgins and Peter 2002). Some dispersing birds may appear in autumn or winter on the eastern fringe of the inland plains.

3. The Scarlet Robin breeds in drier eucalypt forests and temperate woodlands, often on ridges and slopes, within an open understorey of shrubs and grasses and sometimes in open areas. Abundant logs and coarse woody debris are important structural components of its habitat. In autumn and winter it migrates to more open habitats such as grassy open woodland or paddocks with scattered trees. It forages from low perches, feeding on invertebrates taken from the ground, tree trunks, logs and other coarse woody debris. The Scarlet Robin builds an open cup nest of plant fibres and cobwebs, sited in the fork of tree (often a dead branch in a live tree, or in a dead tree or shrub) which is usually more than 2 m above the ground (Higgins and Peter 2002; Debus 2006a,b). Generation length is estimated as 5 years based on the congeneric Flame Robin (Garnett and Crowley 2000).

4. In recent decades the Scarlet Robin is believed to have undergone a moderate reduction in population size in NSW based on comparative evidence from broadscale surveys. The Scarlet Robin was recorded in 43 one-degree grids in NSW during the first national bird atlas in 1977-81 at mostly moderate to high reporting rates (Blakers *et al.* 1984). In the second national bird atlas of 1998-2002 it was recorded in 37 one-degree grids at mostly low reporting rates (Barrett *et al.* 2003). Its index of abundance (reporting rate) declined significantly by 55% in NSW and 31% nationally over the 20 years between the two atlases (Barrett *et al*. 2003, 2007). Assuming a linear decline this is equivalent to a state wide decline of 45% of 3 generation (15 years) the time frame recommended by IUCN (2008) for estimating population change. Declines of more than 20% were recorded in the robin's core

NSW bioregions (NSW North Coast, New England Tableland, Nandewar, Sydney Basin, South East Corner, South Eastern Highlands and NSW South Western Slopes) (Barrett *et al.* 2003, 2007). The robin was not less likely to be detected in Atlas 2 versus Atlas 1 due to the different survey methods used (Barrett *et al.* 2003) and therefore comparison of the two atlases is unlikely to be significantly affected by survey bias.

5. The Scarlet Robin is sensitive to habitat degradation (Watson *et al.* 2001, 2003; Radford *et al.* 2005; Radford and Bennett 2007), and overgrazing (Olsen *et al.* 2005). For instance, its occurrence (presence/absence) is positively associated with patch size and components of habitat complexity including increasing tree canopy cover, shrub cover, ground cover, logs, fallen branches and litter (Watson *et al.* 2003). In a comparison of intensively surveyed woodland sites stratified by habitat attributes and land-use category (Barrett *et al.* 2003), the Scarlet Robin was found to be (a) less common in isolated patches of 30 ha or less where there was no tree cover within 200 m and less than 20% cover within 1 km; (b) less common in sites surrounded by cattle grazing; (c) absent from sites surrounded by cereal cropping; (d) more common as time increased since removal of grazing; and (e) more common in sites with native versus exotic grasses if ungrazed for more than 10 years. Nest sites, food sources and foraging substrates, such as standing dead timber, logs and coarse woody debris, are susceptible to depletion by grazing, firewood collection and 'tidying up' of rough pasture (*e.g.* Recher *et al.* 2002). Core bioregions in the Scarlet Robin's NSW range (New England Tableland, Nandewar, NSW South Western Slopes and South Eastern Highlands) are 53-84% cleared and moderately to highly stressed (landscape stress factor 3-6 out of 6) (Morgan 2000; Barrett *et al.* 2007). 'Clearing of native vegetation' and 'Removal of dead wood and dead trees' are listed as Key Threatening Processes under the NSW *Threatened Species Conservation Act* 1995. Over-abundant populations of Pied Currawong *Strepera graculina*, supported by exotic berry-producing shrubs, may be a potentially severe threat to the Scarlet Robin's breeding productivity (Debus 2006c), exacerbated by other native and exotic predators.

6. The Scarlet Robin *Petroica boodang* (Lesson 1838) is not eligible to be listed as an Endangered or Critically Endangered species.

7. The Scarlet Robin *Petroica boodang* (Lesson 1838) is eligible to be listed as a Vulnerable species as, in the opinion of the Scientific Committee, it is facing a high risk of extinction in New South Wales in the medium-term future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation* 2002:

**Clause 14**

The species has undergone, is observed, estimated, inferred or reasonably suspected to have undergone or is likely to undergo within a time frame appropriate to the life cycle and habitat characteristics of the taxon:

(c) a moderate reduction in population size,

based on:

(d) an index of abundance appropriate to the taxon.

Dr Richard Major

Chairperson

Scientific Committee

Proposed Gazettal date: 12/02/10

Exhibition period: 12/02/10 – 09/04/10

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Page last updated: 28 February 2011"

## APPENDIX 2

### Figures B and C - Explanation of Trend Graphs
### The Ten-Year Analysis (December 1998 to December 2008)

The results are presented graphically for individual species as follows:

1. the actual pattern in the reporting rate over time is plotted as a black line (usually highly variable).
2. the 'smooth fit', represented as a smooth black line, obtained by fitting a regression spline.
3. the 5th and 95th percentiles, are represented by dotted lines.
4. a linear fit, i.e. a smoothing spline of order 1, is shown in pink. If it is statistically significant (in the upper or lower 5th percentile) it is highlighted as a bold, thick line.
5. 'significant' change points: blue indicates deceleration of the smooth curve, that is, a slowing in the rate of change; and green indicates acceleration, that is, an increase in the rate of change.
6. the sub-graph, a rug plot, shows the relative sample size for each month, which is related to the precision of estimates at each month and is provided as an additional aid to interpretation (Bounds *et al* 2010).

Note: the steep line at the start of graphs reflects that there were fewer sites for the first few observations; if a bird occurred less often on these sites there is a confounding between site and time.

# *NOTES*

## WHITE-WINGED CHOUGH's APPEASEMENT BEHAVIOUR TOWARDS AUSTRALIAN MAGPIES

JOHN LEONARD

*calyptorhynchus@gmail.com*

At around noon on 5 Dec 2011 I observed a party of four White-winged Choughs (*Corcorax melanorhamphos*) flapping and gliding across Eddison Park, Woden and landing near the fence between the Park and Woden Cemetery (approx. -35.342752, 149.090892). Here they began foraging along a tan-bark covered border. Almost immediately they were swooped by a pair of adult Australian Magpies (*Cracticus tibicen*) and they cowered under bushes and next to a fence. The Magpies landed and one swaggered up to a Chough. The Chough ran forwards in a low submissive posture and quickly swept an area in front of the Magpie free of tanbark with its beak, the Magpie then began picking over this area. The female Magpie then did exactly the same thing to another Chough with the same result. For a few minutes the Magpies and Choughs foraged alongside each other, the Choughs didn't sweep any more areas for the Magpies, but the Magpies were following the Choughs and foraging in the areas they had just cleared. After a while the Choughs slunk away under some low bushes where the Magpies didn't follow. The whole interaction last only 2 – 3 minutes.

My interpretation was that the Choughs were attempting to appease the Magpies, in order to allow them to stay longer in the area and make an orderly retreat. The way in which the Chough engaged in this behaviour indicated to me this was a behaviour they had used before and which they anticipated would appease the Magpies, as it did.

*Accepted 8 April 2015*

# UNUSUAL FEEDING BEHAVIOUR OF YELLOW-FACED HONEYEATERTS

MARTIN BUTTERFIELD

*101 Whiskers Creek Road, Carwoola, NSW 2620*

On 8 Apr 2015, at about 11am I observed from my car a flock of at least 20 Yellow-faced Honeyeaters (*Lichenostomus chrysops*) feeding on the ground. The most obvious group were feeding on the surface of our clay/rock drive. Others were foraging in fallen pine needles. From time to time the birds flew up into the *Pinus radiata* fringing the drive.

Approximately 12 Grey Fantails (*Rhipidura albiscapa*) were behaving in a broadly similar manner.

Looking through binoculars I could not identify what was being consumed. I returned on foot approximately 30 minutes later and a similar scene was evident. I searched the bare ground where they had been feeding but could not identify any obvious insects, other than a few small ants of unknown species. A large number of Silvereyes (*Zosterops lateralis*) were calling from, and moving through the canopy but not coming to the ground.

My wife drove through the area at approximately 12:30pm and observed the feeding still occurring. I went by at approximately 3pm and there was no sign of the birds.

HANZAB (Higgins et al 2001) comments that it is unusual for the honeyeaters to feed from the ground. In the description of foodstuffs one report mentions *Formidicae* as a minor element.

There have been two examples of unusual insects located in this area in the past 3 months. Giant Willow Aphids (*Tuberolachnus salignus)* have infested some willow trees (Salix sp.) on Whiskers Creek about 70m from the feeding site. However they have not been sighted in the pines. Some of the pines have been the focus of swarms of small flies, but the swarms had not been evident in the recent wet conditions and the flies – neither living nor dead - were not evident on the ground. Thus I discount both of those as prey items.

The date of observation is in the period when Yellow-faced Honeyeaters migrate out of the mountains to the West of Canberra. Our property is not on a major migration route but groups of up to 20 of the species had been seen nearby "moving with purpose" earlier on 8 April. It is thus possible that a migrating flock had rested in the pines and noted a food source not visible to this observer. They then seized the opportunity to feed before moving on.

Following my report of this observation to the COG chatline other observers reported sighting Yellow-faced Honeyeaters feeding in/on Urn Heath *Melicrus urceolatus*. While these shrubs are low, this does not, in my view constitute feeding on the ground. However on 23 Apr I observed 3 Yellow-faced Honeyeaters foraging on our lawn in the company of a family of Superb Blue Wrens (*Malurus cyaneus*).

## Reference

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*Accepted 25 April 2015*

**Yellow-faced Honeyeater (*Geoffrey Dabb*)**

# WEEBILL ROOSTING BEHAVIOUR

STEVE HOLLIDAY AND PRUE BUCKLEY

*90 Duffy St, Ainslie, ACT, 2602*

On 26 April 2015, at about 1720 hours, we were walking on the western slopes of the Mount Ainslie Nature Reserve, near the water reservoir uphill from the Foveaux St entrance. It was about 10 minutes before sunset, and conditions were cold and gloomy. We noticed a Weebill (*Smicrornis brevirostris*) fly into a medium-sized Black Wattle (*Acacia mearnsii*) where it joined at least four others already perched on a thin branch. A short time later another bird joined them. They were huddled together in a line, so closely packed that we couldn't determine if there were six individuals or seven. The branch was about 4.5 metres up and had a fair covering of foliage above it. Attempts to photograph the event were unsuccessful due to the poor light.

According to HANZAB, the only published information on Weebill roosting behaviour is a 1935 record of recently fledged birds returning to their nest to roost (Higgins & Peter 2002).

## Reference

Higgins, P. J. and Peter, J. M. (Senior Eds.) (2002) *Handbook of Australian, New Zealand and Antarctic birds.* Vol. 6, Oxford University Press, Melbourne.

*Accepted 14 May 2015*

**Weebill (*David Cook*)**

# FEASTING RAVENS

SANDRA HENDERSON

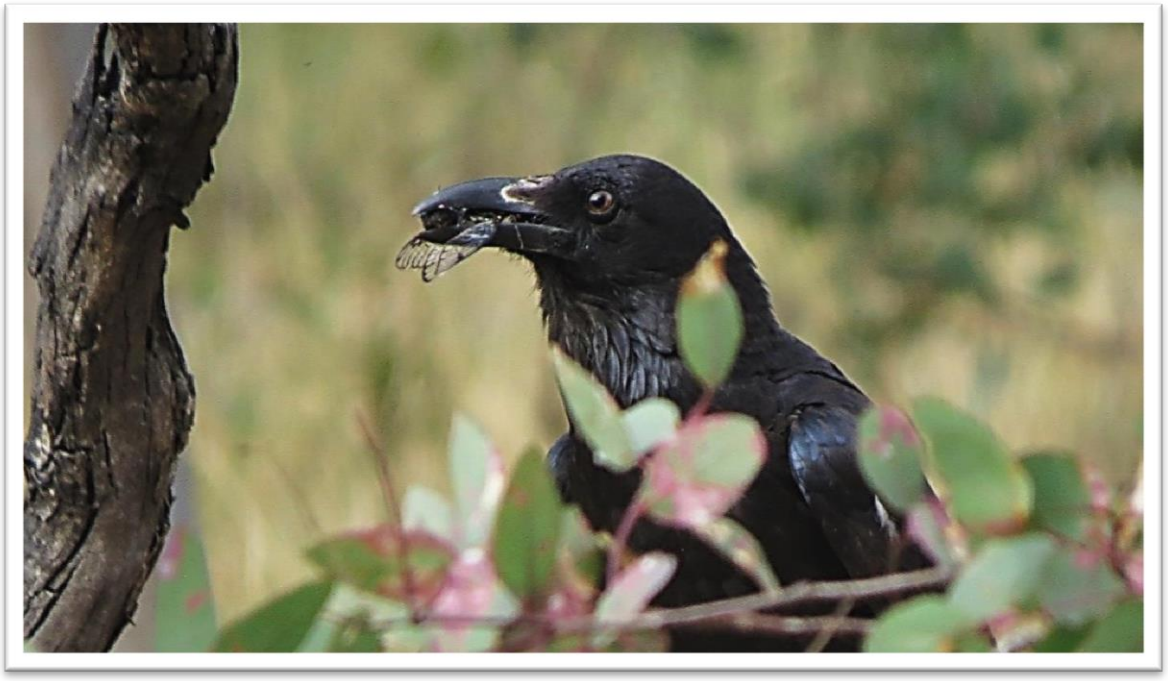
*shirmax2931@gmail.com*

In November 2014 a quite extraordinary gathering of ravens occurred at Callum Brae reserve on Narrabundah Lane, to take advantage of the hatching of cicadas. Most of the birds were Australian Ravens (*Corvus coronoides*), but about ten per cent were Little Ravens *(Corvus mellori*). The noise from the flocks of ravens was heard from the main gate of the reserve, and the largest concentrations were in the centre of the reserve, although smaller groups were active throughout the wooded areas. I counted up to 16 birds in a single tree, but there were many hundreds in total. In many years of visiting Callum Brae I have never seen such numbers of ravens. Quite a number were observed sitting on branches or on the ground with cicadas in their beaks.

Not unexpectedly, there were also several dozen Straw-necked Ibis in the reserve. I have not seen those eating cicadas in the past, but have often observed them in numbers when grasshoppers are plentiful.

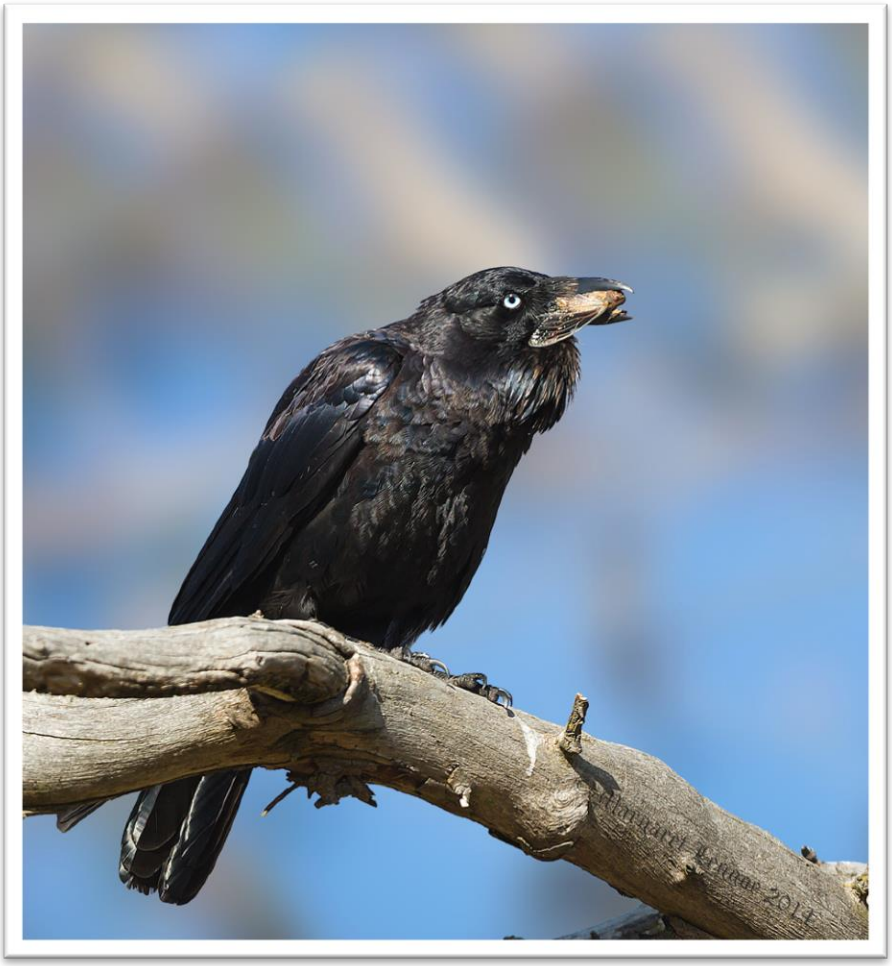
Large flocks of birds are not at all unusual when food is plentiful – but it is quite something to see birds which are often solitary gathering in huge numbers.

*Accepted 5 May 2015*



**Australian Raven with cicada, November 2014 (*Sandra Henderson*).**

**Australian Ravens at Callum Brae, November 2014 (*Sandra Henderson*).**



**Australian Raven with cicada (*Margaret Leggoe*)**

# *COLUMNIST'S CORNER*

## *On Hating Birds*

So, by a narrow margin the Superb Fairy-wren turns out to be Australia's most loved bird, but which is the most hated?

The Bible may be an unfashionable starting point, but it does give guidance on which birds are 'detestable' (or, variously, 'unclean' or 'an abomination'). These include vultures, hawks, ravens, herons, storks and cormorants. It has been suggested the biblical blacklisting has contributed to the Double-crested Cormorant being 'perhaps the most hated bird in America'. There are other reasons, though. It is ugly, eats a lot of fish, and its nesting sites can be a bit smelly. (There is much more about this in a recent book, The Double-crested Cormorant: Plight of a Feathered Pariah, by Linda Wires.)

In Australia, one of the main reasons for bird-hate is economic loss, real or reputed. In 1995, a committee of the Victorian Parliament tabled a report of nearly 200 pages on 'Problems in Victoria caused by Long-billed Corellas, Sulphur-crested Cockatoos and Galahs'. As you might imagine, this recommended a list of stern counter-measures aimed at reducing the perceived 'problems'. Today, Long-billed Corellas are feathered pariahs in parts of Victoria, even if they are only re-asserting their former range.

There is no denying that resurgent corellas, apart from their economic impact, can be pretty noisy. Complaints about them have come from hardy bush residents as far afield as Longreach, western Queensland.

In suburban Canberra, breaches of personal noise thresholds have created their own list of disliked species: strident cockatoos, monotonously advertising koels, braying peacocks, and the seasonally nagging young of galahs and other cockatoos.

Recent surveys in the UK found that 'seagulls' were the most hated birds followed by pigeons and (European) magpies. Ravens, rooks and crows came next because they were 'eerie looking' and a reminder of horror films. No doubt the 1963 Hitchcock fantasy The Birds has something to answer for there. Some rural dwellers had problems with pheasants, which were blamed for causing traffic accidents. Sparrows were eighth on the list because they were 'dull-looking'.

With the gulls, apparently the main problem is the relatively large Herring Gull which has taken to roof-resting in large numbers causing a noise problem not only by loud calling but by its – wait for it – "heavy footsteps". They also cause damage to roofing material.

The concept of a 'pest' takes matters a little beyond personal aversion. To be a 'pest', one would think, requires some kind of demonstrable offensive quality beyond merely a beady unattractive eye. A supplier of bird-repelling devices gives this list of Australia's 'Major Pest Bird Species':

Feral Pigeon, Sparrow, Swallow, Starling, Australian White Ibis, Magpie, Silver Gull, Rainbow Lorikeet, Sulphur-crested Cockatoo, Indian Myna, Australian Raven, Torresian Crow.

A further 11 species are listed as candidates for 'deterrence' by the advertised repeller. Of the total list of 23, only 5 are introduced. On the other hand 8 are in the parrot/cockatoo grouping. The offensive qualities seem to be messy habits, noise or destructive feeding behaviour.

However, when it comes to serious hating more complex factors are at work. Popular attitudes depend on a curious mix of fact, folklore, gossip and ill-considered media offerings. In 2004 the ABC Wildwatch program conducted a survey to find a recipient for the 'Pest of Australia' award. The results were presented in graphic format. The result: 'The Indian Myna was a clear winner against other contenders, such as the Cane Toad and the Feral Cat.'

The response to the question 'What is the most significant pest/problem?' returned the following hierarchy:
1 Indian Myna; 2 Cane Toad; 3 Cockroach; 4 European Wasp; 5 Feral Cat; 6 Fox; 7 Starling; 8 Rabbit; 9 Lantana; 10 Noisy Miner.

The myna also headed the list of the top five perceived to be 'increasing in number':
1 Myna; 2 Rabbit; 3 European Wasp; 4 Starling; 5 Blackbird.

And, even more surprisingly, for the 'Pest/Problem that needs more control' the rankings were:
1 Myna; 2 Feral Cat; 3 Cane Toad; 4 European Wasp; 5 Other feral grasses; 6 Lantana; 7 Bridal Creeper; 8 European Carp; 9 Starling; 10 Fox.

The conclusion was that the consistently high ranking of the myna from various perspectives 'only highlights the worrying presence of this serious pest'.

What has happened is that a familiar suburban annoyance, thriving as it does in impoverished built-up habitats, has come to be perceived as the most serious environmental pest across the Australian landscape. Adverse publicity has no doubt fanned strong feelings on the matter.

Seeds of distaste for the unfortunate myna have been effectively sown. The Bible, as I remember, also has something to say about sowing the wind and reaping the whirlwind.

To put it mildly, something has gone wrong with our priorities and hence in the directing of our control efforts. Haters can choose where to deploy their personal bird-repelling devices, but they are poor environmental strategists.

***Stentoreus***

## *Birding in Cyberspace, Canberra Style*

Have you ever experienced surprise when you realise that something with which you are totally familiar, and use a great deal, is not known at all to someone else? And when you tell them about it, it is to them a fantastic revelation meeting a need that they had long felt but didn't realise could be readily met? The **National Library of Australia's Trove** http://trove.nla.gov.au/ falls into this category. I use it a lot, both for work and personal interests, and am surprised that many people are not aware of it.

Trove is an online resource where, at the time of writing, you can 'Find and get over 422,011,245 Australian and online resources: books, images, historic newspapers, maps, music, archives and more', to quote the website. As I am writing, on a Sunday morning, I note that there have been 17,856 searches in Trove this hour, and so far there have been 48,212 newspaper text corrections today. Newspaper text corrections, you might wonder? This is a facility by which members of the public can read online the digitised issues of old newspapers, and correct the errors that have been introduced through digitisation. I have made many hundreds of corrections of reports that are relevant to my family history in newspapers dating back to the 1800s.

And yes, Trove contains wonderful resources about birds. You might care to do a simple search, such as putting in a species' name and seeing the first time that it was mentioned in the resources available through that source. Or perhaps your interest is in how Canberra people interacted with birds here in the bush capital 62 years ago. In Trove, at http://trove.nla.gov.au/ndp/del/article/2890217 , is the Saturday 5 September 1953 issue of the *Canberra Times*. On page 2 we read:

*Canberra Birds On Rampage*

> Spring is having its effect on more birds than the crow at Turner.
> Reports indicate that a crow at Red Hill will have a hard job trying to hatch a dozen golf balls he took at the home of Mr. Frank Jeffery at Wickham Crescent yeserday (*sic*). Mr. Jeffery was practising on his lawn with 24 balls and left them for half an hour when he drove to Manuka. Half of them were gone when he returned.
> A few minutes afterwards a large crow flew on to a stake in the yard and looked for the remaining balls.
>
> A neighbour recently lost eggs from his fowl yard, possibly taken by the same crow.
> Every year golfers in Canberra lose golf balls to crows. The remedy is usually to shoot a crow and hang it where other birds can see it.
>
> Some courses in Sydney tie a golf ball to the ground and ring it with rabbit traps.
> Fish pond owners in Canberra have had reason to curse kookaburras in recent weeks after their fish have been taken.
>
> More serious are the attacks that eagle hawks are making on lambs and ewes on the property of Mr. H. McCormack, at Tuggeranong.
>
> For several days Mr. McCormack has been trying to catch the birds, without success.
> He is using a caged white rooster ringed with rabbit traps to capture the birds, which have wing spreads up to six feet.
>
> Several other properties are having seasonal trouble with foxes.

It seems that Canberra people took a rather different approach to animal cruelty in those days than they do now!

**Eremaea eBird** http://ebird.org/content/australia is now widely accepted as the most prominent and useful way for birders to record their observations; share them with other birders; make them available for research; and, for those who are so inclined, to compare their various totals with those of other contributors to the database. It is also extremely valuable for people wishing to know what birds have been observed in recent days in a particular locality that one may be interested in visiting or, if one is keen to observe a particular species, one can easily use eBird to identify at what locality is it is most frequently seen at any particular time of the year.

One of the beauties of the resource is that data can be downloaded for local use. Relatively small amounts can be downloaded directly from the website and larger dumps, that require data extraction by the eBird staff, can be requested and are delivered without charge at short notice. Which brings us to the **Canberra Ornithologists Group's flagship publication, its Annual Bird Report (ABR)** http://canberrabirds.org.au/publications/canberra-bird-notes/ edited by Paul Fennell. The ABR covering the 2013-14 year was published in May 2015. It includes, at page 3, the following fascinating statement: '2014 marks some sort of watershed in data submission for the COG area of interest, (COG AoI), in that, this is the first year that there are more data sheets provided from non-COG sources (BLA, Eremaea and eBird Australia) than COG sources: 2212 COG and 2497 non-COG sheets.' It goes on to state that the average number of sightings per sheet is now 16.1, a significant increase on earlier years.

People familiar with the data submitted to Eremaea eBird covering the Canberra region are confident that most of the increase in data has come from the huge uptake of eBird locally. Furthermore, given that most of the contributions are full surveys rather than incidental observations of what the ABR editor refers to as 'interesting birds', the increase in quality data is probably being largely driven by people who are using eBird. Perhaps it is time for COG to abandon its long-out-of-date online COG Atlas and follow the example of others by using Eremaea eBird as a tool for collating and storing Bird observation for our area, and downloading those data annually for use in drafting the ABR?

Some of the people who are leading contributors to Eremaea eBird are hard-core twitchers and listers. As well as having their lists available at eBird, they report their observations of rarities to the **Birdlife Australia Rarities Committee (BARC)**
http://www.tonypalliser.com/barc/barc-home.html .
The Committee's functions are:
1. To receive submissions and to provide an informed, discerning and impartial appraisal of the subject records of birds rare in Australia or it's (*sic*) Territories.
2. To maintain an archival record of submissions to the BARC.
3. To publish regularly the decisions of the BARC.
4. To maintain a Review List of those species which the Committee will treat.
5. The Committee is responsible solely to Birds Australia Council for its operations.
6. The function of the Committee is to accept or not accept records submitted to it. It does not reject records and its decisions are not binding on any person.

Valuable resources found at BARC's website include an Index of Case Summaries, the Current Review List, Rarity Photographs, their Unusual Record Report Form, Guidance on

How to Submit a Record, Committee Rules, the Australian IOC Checklist and their Unsubstantiated Records List.

The chair of the Committee is Tony Palliser. He maintains a separate webpage **Birders Totals** http://www.tonypalliser.com/totals.html described thus: 'A fun page devoted to those that wish to record their totals within our region. If you wish your total to be added simply email your tally to tonyp@bigpond.net.au'. The Australian totals listed there are based on the IOC taxonomy. At the time of writing, 89 top birders are listed, all of them having observed over 600 species in Australia out of the 927 on BARC's current Australian list. Mike Carter is at the top of the league table, with 862 species, including 823 on the mainland. Canberra region birders whose names I recognise include Noel Luff, Hazel Wright, Allan Wright and Alastair Smith.

One of the characteristics of birding in Australia and, indeed, here in the Canberra region, is our limited access to the mobile phone networks. It is hard to believe, but true, that there are many places within, say, 20 km of Black Mountain where mobile phones are not able to access any of the networks. Considering that people are increasingly relying on mobile phones, what happens when we are out of range? Here we turn to what may become acknowledged as a really significant innovation: as one report put it '**Gadget turns iPhone into satellite phone**'. The satellite phone manufacturer Thuraya has produced the SatSleeve http://www.satsleeve.com.au/ . You simply clip your smartphone into the sleeve and it becomes a satellite phone. Get a SatSleeve and a sat phone contract and, no matter where you are when you have a great birding experience, you can call people to share the news!

***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.

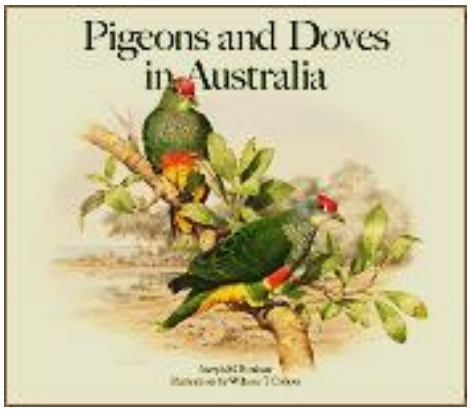
Details on how to subscribe to *Birding-Aus*, the Australian birding email discussion list, are on the web at http://www.birding-aus.org/ . A comprehensive searchable archive of the messages that have been posted to the list is at: http://bioacoustics.cse.unsw.edu.au/archives/html/birding-aus.

To join the *CanberraBirds* email discussion list, send an email message with the word 'subscribe' in the subject line to canberrabirds-subscribe@canberrabirds.org.au. The list's searchable archive is at http://bioacoustics.cse.unsw.edu.au/archives/html/canberrabirds.

# *BOOK REVIEW*

**Pigeons and Doves in Australia**. **By Joseph M. Forshaw, illustrations by William T. Cooper**. CSIRO Publishing, Melbourne, 2015, ISBN 9780643096332. Hardback, AU $185.00.

*Reviewed by STEVE HOLLIDAY, Ainslie, ACT*




The latest in over 40 years of collaborations between author and illustrator, this is a magnificent production. Sadly, it will also be the last as Bill Cooper passed away while I was writing this review. It is a fitting memorial to someone who has made such a huge contribution to both art and science.

Over the years Forshaw and Cooper have produced a series of high quality works that include Parrots of the World (1973), Birds of Paradise and Bowerbirds (1977), Australian Parrots (1981), Kingfishers and related birds (1983-1994), Turacos (1997) and Cockatoos (2001).

As a schoolboy I would pour over the copy of Parrots of the World in my local library, absorbing the text and maps, and gazing longingly at the paintings, dreaming of the day when I might see some of these wonders for myself. Of course, a few of the illustrations showed species I was already familiar with, but macaws from South America and lorikeets from the Moluccas seemed so much more beguiling. Later I came to appreciate this and other Cooper and Forshaw collaborations for their meticulous scientific detail as well as their beautiful presentation.

As noted by Stephen Davies in his foreword and Forshaw in the preface, this book has an important predecessor in Harry Frith's Pigeons and Doves of Australia (1983). The aim of the present volume is to update and expand Frith's work. This it does with great success. Unlike the earlier book, taxa from Australia's island territories are covered, including a couple of poorly known extinct forms.

The plates are well up to Cooper's extremely high standards, with his usual eye-catching attention to detail. As well as the meticulously painted birds, the plants and other substrates on which they perch and the backgrounds showing typical habitat are wonderfully detailed, warranting close and repeated inspection. As well there are smaller illustrations interspersed throughout the species accounts, both in colour and black-and-white, which show such details as subspecific variation, aged-related plumage differences, underwing and tail patterns, display postures and other behaviours. Cooper's life and art has been the subject of television documentaries such as "Birdman - the art of William T. Cooper", which aired recently on the ABC. There is also Penny Olsen's excellent biography, published in 2014. Besides Cooper's illustrations there are also several reproductions of the work of George Raper dating from the 1790s; some of surviving species such as Common Bronzewing, another of the extinct Lord Howe Island form of the White-throated Pigeon. Sadly no specimens were ever preserved of this once common bird. Another long extinct species, the Norfolk Island Ground-Dove, is represented by a 1788 drawing by John Hunter. Again, there are no known specimens. The Wonga Pigeon account includes a Watling painting of the species from 1791.

The text is a treasure-trove of information on every aspect of pigeon and dove life. If visiting a new part of the country with potential for columbids you have never seen before, you would benefit greatly from reading and absorbing the text for the relevant species in this book. The literature has been thoroughly searched, with many quotes from early explorers and scientists to illustrate particular points. Accounts of the now extinct forms from Norfolk and Lord Howe Island make for depressing reading. As well as incorporating the wide field and avicultural experience of author and illustrator, the text also includes personal communications from other experts.

The main part of the book begins with a preface and a useful plan that outlines what is to be covered in each section that follows. A long introduction then provides a fine overview of Australian pigeon and dove biology with sections on taxonomy, distribution and habitat preferences, movements, social behaviour, feeding and drinking, vocalisation, courtship and mating, nesting and conservation. This is followed by a chapter on pigeons and doves in aviculture.

The bulk of the book consists of detailed accounts of every pigeon and dove species regularly recorded from Australia. Each account contains sections on other names (including colloquial names such as Bubbly Mary for the Wompoo Fruit-Dove), a detailed description of plumage and soft parts, distribution, subspecies (where relevant), general notes (covering habitat and status, movements and social behaviour), field notes (including diet and feeding, and calls), courtship and mating, nesting and aviary notes. These are enhanced by tables for some species which summarise food (e.g. crop contents, species of fruit and other plants eaten) and banding data. As well as extinct island forms, two species restricted to Torres Strait islands are covered (Collared Imperial-Pigeon, Orange-bellied Fruit-Dove). There is an appendix with a brief text and colour illustration for each of the five known species that have occurred in Australian territory as vagrants. Then follows a very useful gazetteer (more books of this kind should have one), eleven pages of references and a detailed index.
Although the book is quite expensive I think it is well worth the cost. The illustrations are simply wonderful and they are perfectly complemented by the detailed, highly-readable text. The oblong format may concern some but I think it really suits the design of Cooper's plates. Essential reading for anyone with a particular interest in Australian pigeons and warmly recommended to those with a love of birds, art and beautiful books.

**Further reading**

Cooper, W. T. (2012) *Capturing the Essence — Techniques for Bird Artists.* CSIRO Publishing, Melbourne.

Frith, H. J. (1982) *Pigeons and doves of Australia*. Rigby Publishers, Adelaide.

Olsen, P. (2014). *An Eye for Nature — The Life and Art of William T. Cooper*. National Library of Australia, Canberra.

# *RARITIES PANEL NEWS*

There has not been much unusual bird activity reported to the Panel in recent months. The White-winged Black Tern below is presumably the same bird as endorsed in the previous report, while the Singing Honeyeater became so widely reported and photographed at the West Belconnen Ponds that it almost escaped formal endorsement. It is interesting to speculate whether it is the same bird as the one which frequented the AIS ponds in the month before. Its normal distribution is well inland of the ACT and the 2014 records are only the fourth to be registered here.

The Black-eared Cuckoo has not been formally reported for some time in the ACT or broader region. The most recent endorsed records come from 2009-2010 in O'Connor and Hoskinstown. As it is a species of the dry inland, and as the inland dries out further, it may well reappear in our region in the coming months.

The Panel has received a few requests for information from the general public in recent times. There has been particular interest in the "odd" waterfowl appearing in local ponds, many of which seem to be Muscovy Duck (*Cairina moschate*) domestic hybrids. "Blue" parrots have also turned up. They are often a blue mutation of the Crimson Rosella and are not particularly uncommon in the wild.

## Endorsed list 86, June 2015

**White-winged Black Tern** *Chlidonias leucopterus*

1; 3 Dec 2014; Julienne Kamprad; Lake Bathurst East Basin

**Black-eared Cuckoo** *Chalcites osculans*

1; 29 Nov-1 Dec 2014; Steve Holliday; Duffy St, Ainslie

**Singing Honeyeater** *Lichenostomus virescens*

1; 1 Jan – 18 Feb 2014; Roger Curnow; West Belconnen Pond

## 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

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