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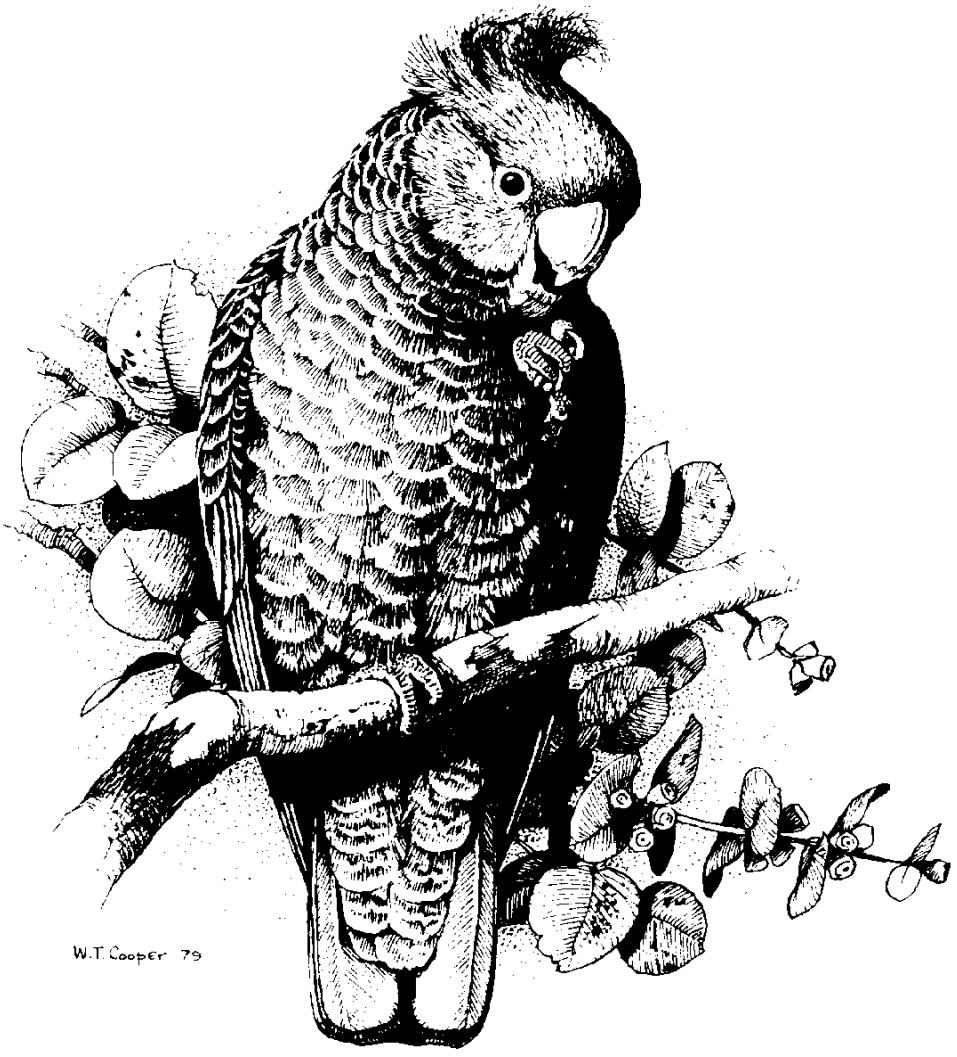

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ARTICLES

Canberra Bird Notes 42(3) (2017): 229-238

SURVEYING LATHAM'S SNIPE IN THE ACT AND SURROUNDING AREAS AUGUST 2016 - MARCH 2017

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Abstract. *The Woodlands and Wetlands Trust, in partnership with the Canberra Ornithologists Group, undertook surveys at a variety of lowland ACT and surrounding NSW wetlands where the Latham's Snipe was known to occur. The survey was part of the broader Latham's Snipe project, which aims to try and gain an understanding of the movements and habitat use of these birds both locally and worldwide. There were 48 wetland sites surveyed by 37 volunteers with 190 observations. We report on the results of the survey and for some sites compare with historical records.*

Background

The Latham's Snipe (*Gallinago hardwickii*) is a trans-equatorial migrant restricted to the East Asian-Australasian Flyway. The species is listed as 'Least Concern' in Australia and protected by various international migratory bird agreements.

Latham's Snipe spends the non-breeding season during the austral summer in Australia between September and March, where it is restricted to the eastern seaboard and as far south as Tasmania. During the boreal summer the Snipe breeds in the northern half of Japan, primarily Hokkaido, the southern half of Sakhalin Island, and the adjacent Russian mainland and Kuril Islands.

The Woodlands and Wetlands Trust, in partnership with the Canberra Ornithologists Group (COG), undertook surveys at a variety of ACT and surrounding NSW wetlands where Latham's Snipe was known to occur. The survey was part of the broader Latham's Snipe project (https://lathamssnipeproject.wordpress.com/), which aims to gain an understanding of the movements and habitat use of this species both locally and worldwide. A small amount of funding was received by the ACT Government to undertake the surveys, but it was largely a volunteer effort.

Identification of survey sites

Sites were initially identified by examining records from COG's database. This database contains records of observations by members of COG dating back to 1981. This examination allowed sites with regular sightings of Latham's Snipe to be identified. In addition, other sites not recorded in the COG database that had been

regularly surveyed in the past (*i.e.* Mark Lintermans *pers. comm.*) were also identified.

The survey was advertised in the newsletter of COG in July 2016, and members volunteered to regularly survey their chosen sites from the COG database list. Not all sites nominated on the list were surveyed, although the majority were. Additional sites were also nominated by volunteers. These sites were included in the survey because Latham's Snipe had been recorded at them previously. Volunteers generally nominated sites that were close to home or sites where they regularly carried out broader bird surveys. Agreeing to participate in the Latham's Snipe survey required a high level of commitment, with monthly surveys being carried out on pre-determined dates. The location of all survey sites is shown in Appendix I.

In general, some sites were known to reliably contain snipe populations whilst others were identified because snipes had been seen once or occasionally. Sites varied a lot and included ponds and dams, large lakes, mud puddles, swamps, river edges and wetland complexes with several ponds.

Survey protocol

Volunteers were asked to visit their nominated site on a set weekend each month between August 2016 and March 2017 (a total of 8 weekends). It was hoped that by prescribing specific dates the chances of double counting would be reduced. Some surveys were undertaken more frequently (*e. g.* weekly surveys at Jerrabomberra Wetlands) but only data collected on the survey weekend were utilised in the analysis.

The chosen survey dates also aligned with the National Snipe surveys that are carried out three times per season around Australia, although one date did not match and a number of volunteers carried out an extra survey on this date to feed into the National database.

Data collected as part of the Canberra Snipe surveys included snipe numbers, name of surveyor(s), the distance the surveyor(s) travelled (kms), available snipe habitat observed, weather conditions (rain, temperature, wind), start and end time and any other relevant observations. In most cases, wetlands were surveyed by a single observer but occasionally two or three people, or a section of an area was covered by different observers. In some cases such as the large urban lakes only those areas with suitable snipe habitat were surveyed.

In virtually all cases the sites consisted of water bodies that could be covered by searching the perimeter of the site, which was important to get a good indication of the numbers present, as snipes respond to temporarily being flushed from their habitat cover. Information was submitted to the authors. All visits, whether Latham's Snipe were observed or not, were submitted through the COG Incidental Records Form, by email or entered into eBird, where a special 'Snipe Survey' page was set up for the project by COG member Alastair Smith. All records were compiled into a table which listed all sites, surveyors and survey records for each month.

Incidental observations were also recorded as part of the Canberra Snipe surveys, but the data were dealt with as additions to the monthly survey data, which were

analysed to try to compare sites each month. Incidental observations provided additional information which has helped to shape future surveys and add to snipe survey records across the ACT and NSW more broadly.

Table 1. The number of surveys and the total number of Latham's Snipe recorded during the designated survey periods at 30 wetland sites within the ACT and local region.

Site Name	No. surveys	Total no. birds
West Belconnen Pond	8	49
Fassifern	8	0
Jaramlee	8	0
Ginninderra Ck	8	5
Giralang Ponds	8	2
Horse Park Drive Wetland	8	64
Jerrabomberra Wetlands	8	96
Fyshwick Sewage Ponds	8	2
Isabella Pond	8	0
Warinna Inlet, LBG	8	0
Aranda Snow Gum	7	0
Maza Pond, Bonner	7	1
Stranger Pond	7	0
Chapman	6	0
Valley Avenue, Crace	6	1
Gungahlin Pond	6	0
Lake Ginninderra	6	0
Yarramundi Reach, LBG	6	0
Horse Park Wetland	5	5
Norgrove Park	5	0
McKellar Pond	4	2
Mulligans Flat Big Dam + small dam	4	21
Uriarra Dam	3	0
584 Norton Road, Wamboin	3	2
Lake Tuggeranong	2	0
Crace Wetland	2	0
Farm Dam, Lakes Road	2	2
Weeroona Drive, Wamboin	2	0
Mulligans Small Dam	1	4
Wamboin (David Cook)	1	0

Although it was a deliberate decision to focus on ACT sites, due to funding and resources, there were a number of sites in NSW which were selected by volunteers as survey sites. There were also a number of incidental records from NSW. These have shown some important snipe habitat sites to be included in future surveys if there are volunteers able and willing to survey them.

In total, there were 48 wetland sites surveyed by 37 volunteers with 190 observations (see Appendix 2). Of these, there were 30 sites surveyed by 26 volunteers over the designated weekends, and 18 sites surveyed by 14 volunteers at other times (referred to as incidental records). The number of times a particular site was surveyed on the designated survey weekends varied, with 13 sites being surveyed on more than six of the eight survey dates (see Table 1).

Sites where Latham's Snipe was recorded over the Designated Weekend

There were 14 sites where snipe were recorded over the designated survey weekends. Incidental records and additional survey effort on the 7th and 8th January to align with the Australian Snipe survey weekend have been omitted from the data if they were also surveyed a week later on the ACT Snipe Survey weekend. If a site was surveyed on the 7th and 8th Jan and not on the 21st or 22nd Jan the data were included.

Differences between wetlands

Sites where high numbers of Latham's Snipe were regularly recorded on survey weekends included Horse Park Drive Wetlands, Jerrabomberra Wetlands and West Belconnen Ponds. Although surveyed over the same weekends, the counts for each wetland varied, as shown in Figure 1.

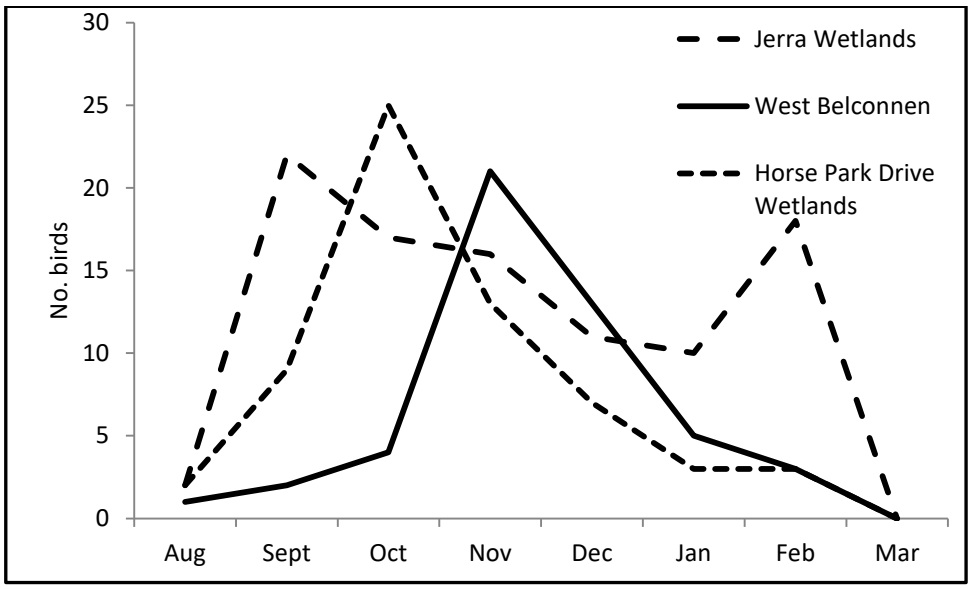

Figure 1. Number of Latham's Snipe observed at three ACT wetlands for each of the eight survey periods between August 2016 and March 2017

At each wetland there were very few birds present in August, presumably because not all the birds had yet arrived from the northern hemisphere. By March, birds had departed from all three areas. In fact, there were no snipes recorded anywhere in the ACT during March, incidentally or otherwise.

Maximum counts for each wetland varied, with the peaks for Jerrabomberra Wetlands, Horse Park Drive Wetland and West Belconnen Ponds occurring in September, October and November respectively. At Jerrabomberra Wetlands numbers declined slowly until January with an increase in numbers in February. At

the Horse Park Drive wetlands, after the peak in October, numbers declined at a steady rate as the wetland dried out. The number of snipe at the West Belconnen Ponds also declined steadily from the peak in November, despite no change in water depth and no apparent development of ideal feeding habitat.

The Environmental Protection and Biodiversity Conservation Act (1999) list the Latham's Snipe as a migratory species protected under international agreement. Any action requires approval if it has, will have, or is likely to have, a significant impact on the listed species. For planning purposes an environmental assessment is required for any wetland that reports numbers in excess of 18 birds. After further work on the status of the species in Australia, the number is to be reduced to 15 birds. Jerrabomberra Wetlands, West Belconnen Ponds and Horse Park Drive Wetlands all exceeded a count of 18 birds on at least one occasion.

Relationship between survey effort and numbers observed

There were 11 wetlands in the ACT that were surveyed regularly and reported Latham's Snipe on at least one of the designated survey weekends. The wetlands differed in size, as indicated by the recorded 'distance travelled'. In general, the larger the wetland, the more birds reported, (R^2= 0.55, p=0.009), see Figure 2. This is not surprising, but the plot highlights that the Horse Park Drive Wetland is an outlier in this context. If the Horse Park Drive Wetlands counts are deleted from the plot the R^2 value increases considerably (R^2= 0.86). In addition, if the regression can be confirmed in subsequent years and with a larger sample, it may be possible, knowing the amount of suitable snipe habitat, to determine the number of snipe using the lowland wetlands in the ACT.

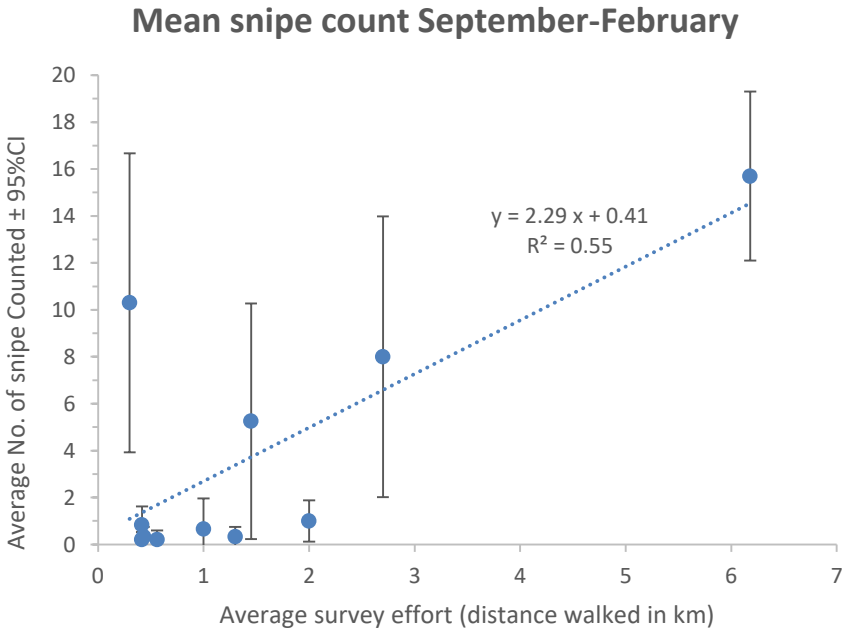

Figure 2. Linear regression of survey effort and number of observed Latham's Snipe for eleven ACT wetlands. Counts for August and March are not included. Birds were still arriving in the area in August and had departed by the March survey.

Sites where Snipe were recorded outside the Designated Weekend

There were 18 sites surveyed outside the designated weekends. The results were regarded as incidental records irrespective of the number of times the wetland was visited (Table 2)

Table 2. The number of surveys and the total number of Latham's Snipes recorded outside the designated survey periods at 18 wetland sites within the ACT and local region.

Site name	No. surveys	Total no. birds
Ginini Flat	3	1
Lakes Road	2	2
Collector Reserve*	2	47
89 Weeroona Drive, Wamboin	2	0
Nursery Swamp	2	1
Guys Cross Farm, Carwoola	1	1
Bonnie Ferguson Cres, Bonner	1	1
Jerrabomberra Ck	1	17
Honeysuckle Bog	1	1
Hoskintown Plain	1	1
Rowes Lagoon	1	1
Lake George, south end	1	30
Forde Pond	1	1
Franklin Pond	1	1
Parkwood horse stables	1	1
Orana Bay, LBG	1	2
Grassy Creek, Boboyan Rd Crossing	1	1
Weston Park	1	2

*Collector Reserve was surveyed once in October and on three occasions in November. On the first visit on 1st November 30 birds were recorded, but by 24th and again on the 25th only 1 and 8 birds were observed respectively. This site warrants further investigation due to the high numbers recorded.

Comparison with historical records

Between 1984-85 and 1999-2000 monthly surveys for Latham's Snipe were conducted on various ACT wetlands (Mark Lintermans, ACT Ranger, *pers. comm.*). The average annual counts for each wetland and for each year surveyed are compared with the average count obtained in 2016-17, see Table 3. The area surveyed at the Jerrabomberra Wetlands involved the Back Waters, Kelly's Swamp, the Peninsula and Shoveler Pond, similar to the earlier surveys.

For the Jerrabomberra Wetlands the 1984-85 to 1999-2000 observations suggest a decrease in numbers between 1993-94 and 1999-2000, while the 2016-17 observations indicate a return to higher numbers, and Mulligans Flat Dam indicates

an increase in numbers since the earlier surveys. At Horse Park Wetlands there have been major changes, with suburbs now virtually surrounding the area, a very different grazing pattern and possible changes to water flow may well be responsible for the reduction in Latham's Snipe numbers.

Table 3. A comparison of Latham's Snipe numbers collected between September and February for four ACT wetlands from 1984-85 to 1999-00 and 2016-17.

Period	Jerrabomberra Wetlands	Horse Park Wetlands	Bonshaw	Mulligans Flat Big Dam
1984-85	5.8			
1985-86	11.8			
1986-87	9.4			
1991-92	8.4			
1992-93	6.6	8.0	3.8	
1993-94	1.2	2.4	4.8	
1994-95	1.0	2.7	9.7	
1995-96	2.0	6.6	4.2	2.6
1996-97	2.2	4.0	7.8	4.0
1997-98	8.0	4.6	10.8	0.2
1998-99	1.2	3.2	7.2	
1999-2000	1.2	3.6	12.2	
2016-17	8.7	1.0	n.s.	5.2

Discussion

Latham's Snipes require a specific over-wintering habitat that varies in time and location. To overcome this problem birds need to be mobile and move between sites as appropriate habitat becomes available.

In the ACT and local region there are two broad habitat types determined by altitude. The highland swamps such as Ginini and Nursery Swamp are situated in difficult terrain, are distant from Canberra and cover a large area. These areas were not covered adequately by the ACT Snipe Survey, and it is doubtful whether the areas can be satisfactorily surveyed by one or two volunteer surveyors. Ideally it would form part of ACT Government works programs, with staff working in the area on a more regular basis and resourced accordingly.

The lowland areas can be separated into three types of wetland: small ephemeral wetlands such as soaks and farm dams; larger ephemeral wetlands which hold enough water to develop appropriate roosting and feeding habitat; and larger urban lakes that do not vary much in water depth but contain suitable roosting habitat and may also on occasions provide suitable feeding habitat.

Tracking from two birds during the 2016-17 survey period and fitted with satellite transmitters at the Jerrabomberra Wetlands, as part of the broader Snipe Project, has shown a high level of local mobility, with birds using the Wetlands as primary roosting and feeding habitat. They were also shown to move around the complexes of water bodies around Jerrabomberra Wetlands, particularly at night when they would venture further afield to make use of ephemeral wetlands (such as flood channels in Canturf and the ponds at the Fyshwick sewage plant), which provided suitable feeding areas.

The ACT Snipe survey indicates that Latham's Snipe are likely to be found occasionally, and in very low numbers, on small ephemeral soaks and farm dams. In general, the large urban lakes do not provide the appropriate habitat although West Belconnen Pond could be an exception. This area appeared to provide suitable daytime roosting habitat but whether the birds remained to feed overnight is unknown. The West Belconnen Pond is unusual for a large urban dam in that it contains a series of islands close to the shore which provide refuges after human disturbance, and the fringing vegetation extends out over the water's edge, in which there may be appropriate feeding opportunities.

The critical wetlands are those large ephemeral wetlands that retain water long enough to develop appropriate roosting habitat yet dry out to provide mud and similar suitable feeding habitat. Jerrabomberra Wetlands, Horse Park Drive Wetlands and possibly Mulligans Flat Big Dam are prime examples. These wetlands and similar areas in NSW such as Rowes Lagoon, Collector Swamp and areas around the southern end of Lake George need to be surveyed into the future to determine annual variation in numbers and to provide information to validate the data shown in Fig. 2.

In terms of the survey effort and resulting data, the surveys were undertaken exclusively by volunteers, and therefore both the effort and results are entirely dependent on the availability of the volunteers who gave up a day per month for 8 months. Designating a day each month, which was necessary to reduce the possibility of double counting the same birds, meant that volunteers were not always available to survey their sites – particularly over the summer holiday period. However, in spite of this, 60% of sites were surveyed on six occasions or more, and many were surveyed on all eight occasions.

This is testimony to the dedication of the COG volunteers and their commitment to the cause, but using this type of approach does not guarantee that any particular site will be surveyed or that the required data will be collected. For example, one important site at Mulligans Flat which is frequented by snipes was only surveyed 4 times due to family commitments, and therefore conclusions cannot be drawn about this site in comparison to the other sites, even though it appears to be important habitat. For some sites, information on habitat and weather were not recorded, although people were good at recording the distance they travelled.

In terms of provision of the data, some people were recording via eBird, others would email directly and some would provide their surveys via the COG database. It was important that this variety of options was made available to the volunteers as they all had different preferences and computer skills. However it also meant that some information was lost in communication (particularly email).

Overall, however, in spite of some challenges, this form of citizen science has proven to work very well for this project due to the sheer number of people and sites involved. The results give a good picture of Latham's Snipe distribution across the ACT for one season, and provide a strong platform to build on for future survey work (along with the Australian Snipe project more broadly). It recognises that the process is not perfect (which could only be achieved by employing a team to carry out the surveys under very strict protocols at great expense) but it is a very good way of collecting a large amount of data at regular intervals.

Accepted 28 October 2017

Appendix 1

Geo-coordinates of 48 wetlands sites surveyed between August 2016 and March 2017 in the ACT and surrounding region.

Site name	Latitude	Longitude
West Belconnen Pond	-35.188	149.016
Fassifern	-35.198	149.010
Jaramlee	-35.203	149.013
Ginninderra Ck*	-35.217	149.083
Giralang Ponds	-35.215	149.088
Horse Park Drive Wetland	-35.177	149.141
Jerrabomberra Wetlands*	-35.310	149.159
Fyshwick Sewage Ponds	-35.315	149.166
Isabella Pond	-35.422	149.081
Warinna Inlet, LBG	-35.303	149.083
Aranda Snow Gum	-35.277	149.082
Maza Pond, Bonner	-35.160	149.146
Stranger Pond	-35..425	149.082
Chapman	-35.347	149.025
Valley Avenue, Crace	-35.187	149.123
Gungahlin Pond*	-35.187	149.190
Lake Ginninderra*	-35.233	149.070
Yarramundi Reach, LBG*	-35.293	149.086
Horse Park Wetland	-35.156	149.130
Norgrove Pond	-35.315	149.148
McKellar Pond	-35.216	149.083
Mulligans Flat Big Dam + small dam*	-35.177	149.164
Uriarra Dam	-35.287	148.913
584 Norton Road, Wamboin	-35.249	149.323
Lake Tuggeranong*	-35.408	149.068
Crace Wetland	-35.201	149.101
Farm Dam, Lakes Road	-35.218	149.409
Weeroona Drive, Wamboin*	-35.226	149.354

Appendix 1 continued

Site name	Latitude	Longitude
Mulligans Small Dam	-35.175	149.166
Wamboyan (David Cook)	-35.227	149.347
Ginini Flat	-35.517	148.782
Lakes Road*	-35.187	149.398
Collector Reserve*	-34.909	149.435
89 Weeroona Drive, Wamboin	-35.242	149.341
Nursery Swamp	-35.665	148.952
Guys Cross Farm, Carwoola*	-35.356	149.304
Bonnie Ferguson Cres, Bonner	-35.167	149.140
Jerrabomberra Ck*	-35.313	149.156
Honeysuckle Bog	-35.579	148.984
Hoskintown Plain*	-35.397	149.402
Rowes Lagoon	-34.899	149.514
Lake George, south end*	-35.187	149.398
Forde Pond*	-35.174	149.143
Franklin Pond*	-35.202	149.142
Parkwood horse stables	-35.215	148.996
Orana Bay, LBG	-35.300	149.101
Grassy Creek, Boboyan Rd Crossing	-35.890	148.983
Weston Park	-35.292	149.094

* Note: general location of wetland sites only.

Appendix 2.

Number of Latham's Snipes recorded each month from August 2016 to March 2017 for 48 wetlands within the ACT and local region.

Site name	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Count	Total
West Belconnen Pond	1	2	4	21	13	5	3	0	8	49
Fassifern	0	0	0	0	0	0	0	0	8	0
Jaramlee	0	0	0	0	0	0	0	0	8	0
Ginninderra Ck	0	0	2	1	0	2	0	0	8	5
Giralang Ponds	0	0	0	0	0	1	1	0	8	2
Horse Park Drive Wetl.	2	9	25	13	7	5	3	0	8	64
Jerrabomberra Wetl.	2	22	17	16	11	10	18	0	8	96
Fyshwick Sewage Ponds	0	0	0	0	1	1	0	0	8	2
Isabella Pond	0	0	0	0	0	0	0	0	8	0
Warinna Inlet, LBG	0	0	0	0	0	0	0	0	8	0
Aranda Snow Gum	0	0		0	0	0	0	0	7	0
Maza Pond, Bonner	0	0	0	0	0	1		0	7	1
Stranger Pond	0	0	0	0	0	0	0		7	0
Chapman	0	0	0	0	0	0			6	0
Valley Avenue, Crace		0	0		0	1	0	0	6	1
Gungahlin Pond	0	0	0	0	0			0	6	0
Lake Ginninderra	0	0	0	0		0	0		6	0
Yarramundi Reach, LBG	0	0	0	0		0		0	6	0
Horse Park Wetland			2	2	0	0	1		5	5
Norgrove Pond	0	0	0	0	0				5	0
McKellar Pond		0			0	2		0	4	2
Mulligans Flat, Big Dam + small dam		0			8	11	2		4	21
Uriarra Dam	0	0	0						3	0
584 Norton Road, Wamboin						1	1	0	3	2
Ginini Flat	0	0	1						3	1
Lake Tuggeranong	0		0						2	0
Crace Wetland	0	0							2	0
Farm Dam, Lakes Road							2	0	2	2
Weeroona Drive, Wamboin							0	0	2	0
Lakes Road					2	0			2	2
Collector Reserve			17	30					2	47
89 Weeroona Drive, Wamboin				0			0		2	0
Nursery Swamp	0	1							2	1
Mulligans Small Dam		4							1	4
Wamboyan (David Cook)		0							1	0

Appendix 2 continued

Site name	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Count	Total
Guys Cross Farm, Carwoola					1				1	1
Bonnie Ferguson Cres, Bonner				1					1	1
Jerrabomberra Ck				17					1	17
Honeysuckle Bog				1					1	1
Hoskintown Plain						1			1	1
Rowes Lagoon						1			1	1
Lake George, south end			30						1	30
Forde Pond							1		1	1
Franklin Pond							1		1	1
Parkwood horse stables								1	1	1
Orana Bay, LBG							2		1	2
Grassy Creek, Boboyan Rd Crossing						1			1	1
Weston Park							2		1	2

Latham's Snipe (*Geoffrey Dabb*)

Canberra Bird Notes 42(3) (2017): 241-244

PREDATION OF MICROBATS BY FALCONS

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In an early chapter of "*How to be a Bad Birdwatcher*" the view is expressed that "The sight of a hobby makes no headlines in the birdwatching world". (Barnes 2004). This report will suggest that this should not be the case.

Microbats are seen every night, for as long as Graeme Clifton (GC) can remember, feeding above a dam on his property in Carwoola NSW. They start to come out as the sun sets. It is usual to see at least six bats. The identity of the species of bat is not known but the authors have been advised (Olsen, *pers comm*) that museum analysis of bat remains in castings of Peregrine Falcons (*Falco peregrinus*), Australian Hobbies (*Falco longipennis*) and Southern Boobook (*Ninox boobook*) in the ACT showed Gould's Wattle Bat (*Chalinolobus gouldii*) to be the prey species. It was unclear if that is because those bats are just common, or easier to catch.

On the evening of 7 May 2017 GC saw a falcon (pointy wingtips) flying over the dam carrying something in its talons and there was an accompanying high pitched squealing from the prey. Initial thoughts were a mouse but then he realised it was likely a bat. The falcon flew to an exposed dead branch. A few minutes later there was a determined new (?) attack on the bats. The falcon missed in three passes but got a kill on the next pass.

The evening of 8 May was overcast and there was no opportunity to silhouette the falcon against the sky. It made two unsuccessful passes and then it wasn't seen again.

As the light was not good and the bird was flying low and fast it was not possible to decide if the bird was a Peregrine Falcon or an Australian Hobby. Both species have excellent vision in low light.

On the evening of 9 May 2017 both authors visited the site and between about 17:05 and 17:30 h they witnessed four kills. Two of them were only a few minutes apart. Clear skies allowed excellent views of the action, but again the birds were silhouetted in fading light and it was not possible to pick up plumage patterns. One kill was directly overhead at probably less than 10 m above the observers.

After a kill the birds flew swiftly to the NE, as shown by the dotted line in the map (see next page), carrying the prey. Another attack typically came after about 5 minutes with the bird coming in along the path shown by the arrowed line in the map, below the level of the trees opposite the dam. After an unsuccessful foray the bird typically circled out to the West (solid line) before attacking again.

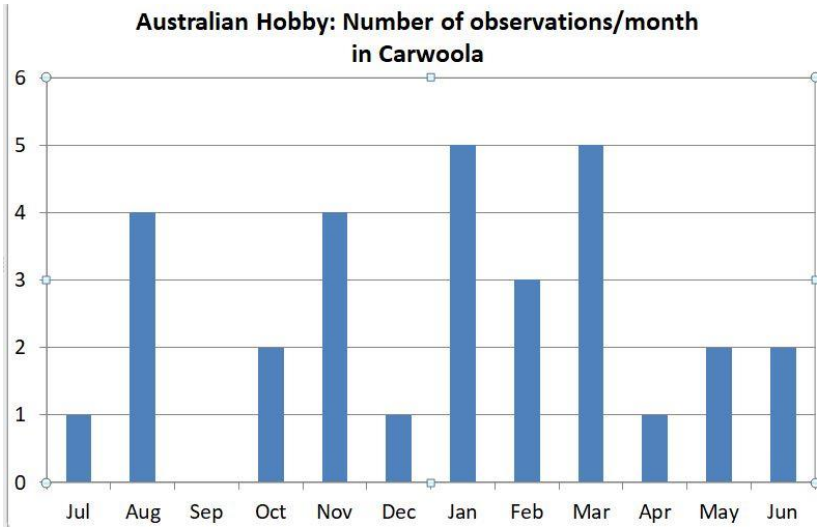
Unsurprisingly the bats tended to disappear for a short while after a kill. The mode of attack was from behind and slightly below.

There could have been two predators as there appeared a notable size difference (which we believe to be explained by one being male and the other larger bird being a female of the same species) between the birds involved in various attacks. As two falcons were not seen at once and the viewing conditions were tricky, that was speculation. However on 10 May GC observed another series of attacks that were clearly made by a bird different to that seen in most observations on the 9th. The bird on the later night had a missing primary and was not very competent: it made eight attacks and missed its prey on each occasion.

It was still difficult to tell which species the birds were. The wings appeared fairly long and fine (suggesting Australian Hobby) but on one attack the bird almost stalled as it took the prey and an impression of a pale lower breast was gained. It also flared its tail. This suggested Peregrine Falcon. Also the bird seemed large for an Australian Hobby: the range of overall length given in Pizzey and Knight for a Peregrine Falcon is 36-47 cm (female larger) and for Australian Hobby 30-35 cm (female larger).

The status of the Australian Hobby is stated in the latest COG Annual Bird Report (COG 2017) as "breeding resident/summer migrant" The species account states: "Hobbies were recorded in 47 weeks, and the relatively fewer winter records (13%), compared with spring 22%, summer 26%, and autumn 40%, supports their partial migratory status". Further, Olsen has indicated (*pers comm.*) that the previous status as a summer migrant may be changing citing an example of an Australian Hobby seen all winter in 2017 near the intersection of Coppins Crossing Rd and William Hovell Drive.

At a local (Carwoola) level, since MB began recording in February 2007, it shows sightings of Hobbies throughout the year, with slightly more in the warmer months (see Fig. below).



During the observation over GC's dam, on paying attention to the flight pattern the wing movements seemed to be more like the "lashing wingbeats" of the Australian Hobby than the "quick and shallow" movement for the Peregrine Falcon described by Pizzey and Knight. The method of attack – running the bats down from behind - again fitted more closely the strategy of the Australian Hobby than the Peregrine Falcon.

Finally the prey list for Peregrine Falcon given in HANZAB (Marchant and Higgins 1993) only mentions bats twice (in a very extensive list) as a minor prey item from a study "near Canberra". The equivalent list for Australian Hobby mentions bats as a far more frequent prey item. *The Australian Bird Guide* (Menkhorst *et al.*) lists bats as a prey item for the Hobby. Olsen (2014) not only lists bats as a prey item for Hobbies but describes the technique observed for hunting them. Pizzey and Knight (2012) also mention that the Australian Hobby "soars at dusk for insects" making the timing of these sightings more probable as being made by Hobbies. Olsen et al (2008) note that the study reported in that paper was the only detailed report on the diet of Hobbies outside the Northern Territory.

On balance it is likely that the falcons were two – perhaps a pair of Australian Hobbies. While Hobbies are not mentioned in the title of this article, perhaps confirming the view of Simon Barnes cited in the first paragraph, observing them in this event made a great impression on both observers.

Acknowledgement

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INVALID EVIDENCE FOR PURPORTED 'COLLAPSE' IN THE NUMBER OF BREEDING LITTLE EAGLES IN THE AUSTRALIAN CAPITAL TERRITORY

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Abstract*. Publications relating to numbers of Little Eagles* (Hieraaetus morphnoides) *breeding in the Australian Capital Territory were reviewed and found to be seriously flawed. Hence, it cannot be ascertained whether the breeding population has declined since the 1980s or not.*

Following repeated scurrilous and misinformed allegations (most recently in Debus 2017, p. 83) relating to the ACT Scientific Committee's supposed 'refusal to consider or recognise the Little Eagle (*Hieraaetus morphnoides*) as qualifying for Endangered status in the ACT' (p. 83), we felt it was time to review the record. One of us (PO) is on the committee and was a party to that determination. The statement is patently untrue, as the Little Eagle's consideration by the ACT Scientific Committee is a matter of public record (ACT Government 2008). The Committee determined on assessment of the limited evidence (which did not include a map, as asserted) that the Vulnerable category should apply. The species is also listed as Vulnerable in New South Wales (NSW; http://www.environment.nsw.gov.au/determinations/littleeagleFD.htm).

Both determinations were made in part because of claims of a 'collapse' in the number of breeding pairs of the species in the ACT between the early 1990s and 2002 and following years, made by Jerry Olsen and colleagues (Olsen and Fuentes 2005, Olsen and Osgood 2006, and subsequent reports in *Canberra Bird Notes* and elsewhere).

These claims rely either on reports of 11 'active nests' (drawn from Olsen 1992, cited in Olsen and Fuentes 2005, p. 143, and elsewhere), or on 13 Little Eagle 'territories' in the ACT (drawn from Taylor and COG 1992, p. 52). By comparing this baseline of 11 or 13 pairs with dedicated annual surveys for the species from 2002, which detected between one and five pairs, a severe decline in the breeding population was proposed (*e.g.* Olsen and Fuentes 2005, Olsen 2014, etc.),

It was suggested that this proposed decline was linked to several factors including land development. Further, these same population estimates were used to bolster suggestions that secondary poisoning from Pindone and not declining rabbit numbers was the cause of the decrease in breeding eagle numbers (Olsen *et al.* 2013a), to propose that competition with and displacement by increasing numbers of Wedge–tailed Eagles were the cause of the collapse (Olsen and Fuentes 2005, Olsen *et al.*

2010, 2013b) and to questioning the reliability of atlas counts to monitor the eagle population (Debus *et al.* 2013).

However, both baseline publications have been interpreted inappropriately. Olsen (1992) did not conduct a survey of Little Eagles across the ACT; the focus of that study was the Peregrine Falcon. Nevertheless, he identified 11 sites with 'active nests' of Little Eagles 'in and near the ACT' over the years 1990–1992 (Olsen and Osgood 2006, Olsen *et al.* 2009). Presenting an aggregation of three years of activity obscures the fact that it is unlikely that each nest site was occupied by an active pair in each of the three years. It is well known that not every pair of Little Eagles breeds each year and that there can be alternative nest sites within an assumed (large) territory (*e.g.* Baker-Gabb 1984; Mallinson *et. al.* 1990; Debus and Ley 2009). Olsen *et al.* 2013c, p. 197, even comment that pairs can use nests as far as 5 km apart in different years. Hence, the baseline of 11 is not comparable with an annual tally, as has been done in Olsen and Fuentes (2005) and subsequent papers on the subject in *Canberra Bird Notes*.

Further, all related publications that present these numbers in graphs show not 11 but 13 pairs in 1991 (e.g., Debus *et al.* 2013, Olsen *et al.* 2013a, c, Olsen 2014 p. 145), which not only exaggerates the proposed reduction in numbers but is a misrepresentation of Taylor and COG (1992) both as to numbers and year. Taylor and COG (1992) was not a dedicated survey, it attempted to cover all bird species across the ACT and netted 13 Little Eagle breeding locations over several years from the late 1980s to 1990 or 1991 (not just the year 1991 or early 1990s as claimed in Olsen and Fuentes 2005 and thereafter in Olsen and colleagues' publications). Aggregation of nest locations over several years can lead to over counting of pairs. Thus, the Taylor and COG survey neither equates to 13 breeding pairs in each of those years from the late 1980s to 1991, nor is it comparable to a dedicated annual survey for the species.

Not only are Olsen and colleagues' baseline figures inappropriate, but their annual tallies are questionable. The same annual tallies are variously reported as 'active pairs', 'active nests' (single bird, pair only or pair with eggs and young) or 'successful' (pair with eggs or young). For example, the same set of annual tallies are labelled 'active nests' in Olsen and Osgood (2006, p. 179) and became 'successful nests' in Olsen 2013c (p. 197); they cannot be both. Moreover, the definition of what constitutes a successful breeding attempt varies between a pair of eagles with eggs or young, and a pair that has fledged at least one young. Terminology used in describing the breeding success needs to be consistent if it is to be reported and subsequently compared with later years or other studies, and 'successful' should only be applied to pairs that have raised at least one chick to fledging (e.g., Steenhof *et al.* 2017). If pairs were known to have had eggs or young, why was the outcome not followed up?

There are numerous other discrepancies between their publications, for instance:

- Numbers vary across publications. For example, for the year 2002, Olsen and Fuentes (2005, p. 143) and Olsen and Osgood (2006, p. 179) table three pairs with eggs or young, whereas Olsen *et al.* (2013c, p. 197 and elsewhere) graph five 'successful nests' for that year.

- Olsen and Fuentes (2005, p. 143) state that there were 'no successful Little Eagle nests in the ACT in 2005', whereas Olsen *et al.* (2013c, p. 197, and elsewhere) graph three 'successful' nests and Olsen and Fuentes (2005, p. 143) and Olsen and Osgood (2006, p. 179) table only two 'active' nests (a pair and a pair with eggs or young) for that year.
- Debus *et al.* (2013) present the annual number of 'active' breeding pairs as occurring one year earlier than other publications, that is, one pair in 2010, rather than 2011, and so on.
- In 2007, there were no 'active nests' (this time defined as having at least one egg or young) among the 11 original pairs, according to the table in Olsen *et al.* 2008 (p. 79), and the survey group 'failed to confirm nesting in 11 1992 territories' (p. 80), so the three new nests reported must have been in territories elsewhere in the ACT and could have been overlooked in previous surveys. If the authors had been consistent, they should have added the three to the total, raising the baseline to 14 pairs in future publications, but they did not.

Not least, despite the implied comprehensiveness in their publications, particularly when Taylor and COG are used as the baseline, Olsen and colleagues did not survey the whole ACT. Indeed, in 2008 they started 'a new survey [to] find all possible Little Eagle territories in the ACT' (Olsen *et al.* 2009, p. 81). Moreover, at least one of the 11 nests documented in 1992 was not in the ACT (Olsen and Fuentes 2005, etc.). Hence, their data are incomplete and too inconsistently collected to give a reliable estimate of the ACT breeding population.

Unfortunately, Olsen and colleagues' questionable studies have entered the recent literature without critical appraisal, even in the face of contrary reports. For example, Walsh and Beranek (2017) cite the studies to make a case for listing the eagle as Endangered in NSW and the purported collapse and its supposed causes have received several airings in *Boobook* (*e.g*. Olsen and Trost 2017). Debus (2017, p. 82), reported an 'ongoing decline' in the ACT breeding population, whereas it is on the record that for the moment the population is 'stable at low levels' (J. Olsen, cited in COG 2016). Lastly, Hermes (2017, p. 78) states that there is 'strong evidence of a rapid decline' in Little Eagle numbers in the Australian high country, even though, according to Debus *et al.* (2013), COG atlas counts show little sign of a decline over the longterm.

In the absence of rigorous data, there is no way to know how many breeding pairs of Little Eagles there were in the ACT historically (in the 1980s–1990s), or since 2002, because Olsen and colleagues' data are confused, incomplete and inconsistent. Hence, there is no evidence for the proposed 'collapse' in breeding numbers of Little Eagles in the ACT. Consequently, all related publications are irretrievably compromised and, most unfortunately, conservation decisions based on the purported decline have been undermined. There is a pressing need for a reliable, scientifically robust study of the status of the eagle in ACT.

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OBSERVATIONS ON THE ROOSTING BEHAVIOUR OF THE RED-RUMPED PARROT IN THE CHAPMAN AREA IV. ROOST SITES AND FLIGHTS FROM JUNE TO NOVEMBER 2017

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Abstract. *Observations made from June to November 2017 add further evidence that the roosting behaviour of Red-rumped Parrots, previously described in Parts I to III, is a year round activity, though numbers and behaviour do vary over time.*

1. Introduction

The three parts previously published describe observations of Red-rumped Parrot (*Psephotus haematonotus*) roosting behaviour in the Chapman/Rivett area. Part I (Holland 2017a) includes detailed 2016 observations on a flight pathway based on Angophora St, Rivett, which had been used since around 2008. Part II (Holland, 2017b) describes three distinct roost sites in 2016 in Chapman, Rivett and Duffy, respectively. Part III (Holland, 2017c) describes increased activity during March to May 2017, involving much higher numbers of birds at the Chapman and two Rivett sites. It also includes the first evidence for a roost site close to the Angophora St flyway, and a modified flight path for the other Rivett roost site, which was shown to intersect and probably merge with the Chapman roost site flyway.

This Part shows that the Chapman and Rivett roost sites were active between Jun and Oct 2017, and describes a new roost site for the Angophora St flyway, which during the winter of 2016 was believed to be only a staging site. It was also associated with different behaviour than described previously. Other different behaviour observed includes much higher numbers feeding on the ground after leaving the roost, particularly at the Chapman site in October.

2. Methodology

This was similar to that described in Parts I to III, but as the main purpose was to confirm that the roost sites or flyways were active, counts were generally carried out over shorter periods than the full counts done on many occasions previously. Descriptions or names of spots and/or the abbreviations for them are the same as in the previous parts.

3. Observations

3.1. Activity associated with the Goodenia St roost and flyway

The main activity recorded at this site is summarised in Table 1. During June and July this involved small numbers (8-15) of birds flushed from the *Photinia* bush adjacent to the staging/roost tree. This was while it was still quite dark, and when flushed by shaking the bush birds were reluctant to fly, often just moving to the

adjacent bare tree. Sometimes there were few or none there, *e. g.* on 8 Jun and 12 Jul, even though the timing was similar.

Table 1. Summary of the main observations associated with the Goodenia St roost from mid-June to early October 2017.

Date	Time (h)	No.	Comments
16 Jun	07:08	10	Flushed from the Goodenia St staging/roost tree *Photinia*, birds very quiet before and scattered, making only soft calls – did not hear again including through Burgan/Tce lane and Darwinia Tce.
20 Jun	07:07	15	Flushed from the above, again scattered with only brief calling.
22 Jun	07:04	10	Flushed from the above, again scattered but with some calling a bit further up the street, nothing in Sollya/Geebung lane *Photinia*.
5 Jul	07:02	8	Flushed from the above, hardly called and went mainly to staging tree where they were very quiet. Nothing in Sollya/Geebung lane *Photinia*
23 Jul	06:56	6	Flushed from staging/roost tree *Photinia*, again reluctant to fly.
	07:15-07:18	14	Gathering top of the large Burgan/Tce lane bare tree (with some still arriving), then flew out over the start of Rafferty St/further to the W, respectively.
28 Jul	06:56	25	Birds were seen coming out of the Sollya/Geebung lane *Photinia*, then also from the Goodenia St staging/roost tree one. Most birds went into the staging tree.
1 Aug	07:04-07:08	35	Many heard in staging/roost tree, including 2 from the Sollya/Geebung lane *Photinia*, flushed when 2 Pied Currawongs came into tree. Most went up street, still a few coming to bare tree at corner of Burgan/Tce lane.
2 Aug	07:11	5	Birds flew over Monkman St to bare tree at edge Nos 5/7.
4 Aug	07:10	30	Birds were moving up from start Burgan Pl mainly to big bare tree mid Burgan/Tce lane (overcast after 25 mm overnight rain).
8 Aug	07:14	10	Several flew to bare tree at 7 Monkman St, followed by 7 flying low up from corner Chauvel Circle to 21 Ordell St trees.
10 Aug	06:50 & 07:05	30	10 birds already in the bare tree next to 1 Sollya Pl, some flew to staging tree where others were gathering (none in adjacent *Photinia*). Later heard in bare tree Burgan/Tce lane, around 8 flew over Darwinia Tce at start of Rafferty St.
12 Aug	07:00	30	In small bare trees Burgan Pl end of Burgan/Tce lane, flew to large bare tree.
17 Aug	07:02-07:03	14	About half on ground at the of front 26 Monkman St, the rest coming through the trees at 21 Ordell St, none heard/seen after.
22 Aug	07:03	12	On lawn front of 26 Monkman St, flew to bare tree, nothing at 21 Ordell St.
27 Aug	06:47	6	On ground or in ash trees at the corner Monkman St/Chauvel Circle
29 Aug	06:43	10	At Tce end of the Burgan/Tce lane, flushed and flew over Tce
1 Oct	06:45	20	10 each at the far end of Burgan/Tce lane/lawn 3 Burgan Pl, flew towards Tce,
2 Oct	07:07	8	4 pairs on corner Chauvel Circle lawn, flew towards 9 Monkman St.
4 Oct	06:17-06:20	20	Heard on approach to Goodenia St staging/roost tree *Photinia*, had to shake fairly vigorously and around 15 came out to surrounding trees, calling but reluctant to fly. Similarly 3 from Sollya/Geebung lane *Photinia*, and 2 up street.

Generally I came through too early to observe any other activity, but this changed from 23 Jul when I passed through a bit later and birds had started to move as they were observed in the Burgan/Tce lane. The number of birds doubled for five subsequent observations at these two spots, with a maximum of 35 on 1 Aug, suggesting roosting at other nearby spots as well.

Activity was generally consistent with previous observations, including the use of the corner of Monkman St/Chauvel Circle (8 and 27 Aug) and the 21 Ordell St trees (17 and 22 Aug), though for the latter they were more usually on the ground diagonally opposite at 26 Monkman St. Note that the 9 Monkman St maple has now been properly identified as a sweetgum *Liquidambar styraciflua* by its leaves and fruit.

Once daylight saving started on 1 Oct, I used this opportunity to confirm that the roost and associated flyway were still active, including one very early visit when birds were still roosting (4 Oct). Note that these observations were made at a time when in 2016, apart from a single observation on 19 Aug, the Goodenia St roost site had not yet been confirmed, though there were low numbers observed in the area from 25 Jun to the end of Oct (maximum of 8 – see Table 3 of Holland 2017b).

3.2. Activity associated with the flyway centred on Angophora St Rivett

The main activity recorded at this site is summarised in Table 2. Based on the 14 Jun observation behaviour was still the same as described in Holland (2017c), but from mid Jul different activity started to be noticed, alerted by one afternoon's of birds around the Rivett shops. A roost site was searched for but not located until 3 Aug when birds were clearly roosting near the bare trees at 67 Woollum Cres, including in a couple of nearby dense Photinias at the front of 63 Woollum Cres - see site 3 of Map 1, note this has been reproduced here as the incorrect key was included in Holland (2017a).

These bare trees had been identified as a staging tree previously as birds had been seen to fly over them on 16 Jun 2016 and were subsequently observed in them many times from 19 Jun to mid Aug (see Tables 1-3 of Holland 2017a). Possibly due to the initial observation (and a similar one on 27 Jun), as well as it being at the far end from where I was taking my observations, I overlooked the possibility that it was also a roost site. Note that it is just over 100 m ESE of the Croton St roost confirmed in May 2017 (Holland, 2017c), but no longer active during this time (see 19 Jul entry in Table 2).

Two further sets of observations on 9 and 14 Aug confirmed this roost site, and also the complex behaviour with birds, at least initially, flying towards the Rivett shops in the opposite direction to previously. A maximum of 40 birds were observed utilising it. However, by mid-August the normal pattern seemed to resume, though in some cases (*e. g.* 20 Aug) movement of a relatively low number of birds through was quite slow and spread out. In the second half of August a switch to birds coming up the Pavonia St side of Angophora St is also evident from the data in Table 2. The maximum number of 50 birds on 28 Aug compares well with the 55 seen on 26 Aug 2016 (Table 3 of Holland, 2017a). However, these were seen on the ground, the only such observation here compared in particular with the Perry Drive/Rafferty St roost below.

Daylight saving allowed further observations and confirmation of activity in the first half of Oct, including the remarkable observation of birds coming through the corner of Mirbelia St/Neale Pl on 4 Oct. This is over 100 m to the E of Map 1, extending the roost flight on the Pavonia St side significantly. It also confirms previous conclusions

that this is the preferred flight path in spring, compared with the Woollum Cres side in winter.

Map 1: Red-rumped Parrot Roost Flyway and Key sites

Key for Sites mentioned in the text: 1 – 28 Angophora St staging tree; 2 – Rivett oval, Retirement Village and shops; 3 – 6/7 Woollum Cres bare trees; 4 – Wool/Tce lane; 5 – Kathner grove; 6 – Ang/Pav lane; 7 – Ang/Wool lane; 8 – Roost site corner of Croton St and Woollum Cres

Finally observations made in mid Oct and mid Nov of birds on the ground in the laneway that runs between Percy Cres and Kathner St Chapman, as well as along the fence of the Chapman horse paddocks, reflect historical observations, which are only briefly dealt with in Holland (2017a, 2009-2010 records at rear 6 Percy Crescent in Table 7). Though not specifically noted, they also reflect observations from mid November 2016 discussed in Section 3.3 of Holland (2017b).

3.3. Activity associated with the roost site and flyway at the corner of Perry Drive/Rafferty St Chapman - intersection of the two flyways

Roosting activity at this site was not checked until 2 Aug, with a complex pattern found that morning. However, subsequent activity to mid Oct summarised in Table 3 found 4 main differences with previous observations:

- Limited use of the 126 staging conifer.
- Most of the roosting seemed to be on either side of the start of Rafferty St (Nos 1-5 and 2-4, respectively - note the mop top Robinias in Perry Dr were bare).
- Many birds were seen coming up the N side of Monkman St rather than between this street and Titheridge Pl as previously observed.
- Birds were often feeding on the ground (maximum of 60 on 19 Aug), in particular in Oct once daylight saving started.

Table 2. Summary of the main observations associated with the Angophora St flyway from mid-July to mid November 2017.

Date	Time (h)	Number	Comments
14 Jun	07:08	15	In 28 Ang tree, at least 6 came from Croton St direction.
14 Jul	16:27-16:37	20	Heard in trees below the Rivett church, birds flew over shops/retirement home across Bangalay St to the rear of the bus stop, from where they could be heard.
17 Jul	7:02-7:06	12	Heard at 42 Woollum Cres, flew from there high to bottom of the street. Then 1 flew high to 28 Ang tree, and around 6 were in there calling a bit.
19 Jul	06:55-07:11	0	Checked all likely bushes round the bus stop and all the way up the path behind it to Croton St, nothing seen/heard, also then past Croton St roost (Holland,2017c), or up Woollum beyond Wool/Tce lane
26 Jul	07:01-07:05	8	Nothing around bus stop but then heard at 67 Woollum bare trees area, including flying back over Rivett shops. Only a couple in 28 Ang tree.
3 Aug	06:51-07:03	20	On arrival some flew into the 67 Woollum Cres bare trees, then two groups were flushed from 2 dense *Photinias* at the front of No 63, mostly to the bare trees, with a few others coming down Woollum. At 06:56 about 8 flew further down towards the Rivett shops, but some were still in bare tree at edge with 49 Ang St. Some further movement and some flew up Ang St around 06:58, but none were in the 28 Ang tree, possibly due to a Pied Currawong in there.
9 Aug	06:52-07:03	40	Lots already out at bottom Woollum Cres, with more coming in from various points, but none flushed from No 63 *Photinias*. By 06:55 birds were spread over 49 Ang St and 67 Woollum Cres bare trees. Birds were quiet with most movement down towards the Rivett shops in small groups, but over 10 were still in a small bare tree close to the rear of 51 Ang at 06:57. None came up Ang or were in 28 Ang tree to 07:01, but 6 quiet in Ang/Pav lane bare tree.
13 Aug	07:04-07:07	10	In trees at the front of 27 and back of 25 Darwinia Tce; some movement between but little through Kathner grove.
14 Aug	06:35-06:52	20	No more than 5 birds flushed from 63 Woollum Cres *Photinias* or from Photinia opposite at No 44. Then at bus stop only single bird high over in Woollum St direction at 06:41, then 2 down and 2 up Angophora St around 06:43. About 15 birds in bare trees 67 Wool/49 Ang around 06:47, some going to Rivett shops etc. Then at 06:49 about 15 flew low up Ang, with around 20 in the 28 Ang tree, about 13 going further up Ang St and some down.
16 Aug	16:10	6	Birds flew back up Angophora St (wrong way!) to 28 Ang tree.
18 Aug	06:54-07:00	30	4 birds flew from 28 Ang tree, then 21 flew in from 06:56, half from Pavonia St side at first, then the rest up from bottom of Woollum Cres, with 4 birds still at 49 Ang St, sun well up at end.

Table 2 continued

Date	Time (h)	Number	Comments
20 Aug	06:43-07:07	25	2 birds at 15 Ang St, nothing in 28 Ang tree until 2 in and out at 06:46 (sun out already), then over 16 in from Pavonia St side at 06:48. One more up Ang St then 2 by call cnr Woollum Cres. Then 4 fast low over 25 Tce at 07:07!
28 Aug	06:47	50	On verge of 15-17 Angophora St, flushed and flew towards Kathner grove
31 Aug	07:01	20	In groups coming high over 12-14 Woollum Cres and up Wool/Tce lane
1 Sep	06:42-06:45	14	4 birds in bare trees 13 Ang St, then around 10 seen/heard including 4 sitting quietly in the 28 Ang tree
2 Oct	06:34-06:49	20	5 in 28 Ang tree, nothing down Ang, but 4 to 28 Ang tree on way back and 14 in from 06:42-06:45, all coming up Pavonia St side. A pair copulated, birds soon left but 2 stayed before flying up and across Ang St, as they all did.
4 Oct	06:30-06:40	34	Heard at the corner Mirabelia St and Nealie Pl Rivett, birds counted coming up former and leaving towards Rivett shops, stopping in not yet fully leaved trees, then 7 on ground top Rivett oval.
6 Oct	06:43-06:52	10	Dark, cloudy, 2+ in trees at the top of Rivett oval, then 8 up Ang St from flowering tree at No 45, but only 3 in 28 Ang tree, flew up Ang St
9 Oct	06:41-06:46	10	8 birds coming up Ang, then 2 in the 28 Ang tree, and 10 (5 pairs, the last from 67 Woollum Cres) up Ang.
14 Oct	06:34-06:36	10	Grey, cloudy, birds in Percy Cres/Kathner St lane, flew to the Kathner St end of the lane but reluctant to move on
10 Nov	06:19-06:22	16	12 birds in Percy Cres/Kathner St lane, reluctant to go far, then 4 at Kathner St/Chapman horse paddocks fence.
13 Nov	06:23-06:27	12	8 birds on ground etc next to Kathner St/Chapman horse paddocks fence, then 4 flying SW along Kathner St.

4. Summary and Discussion

The above expands on previously published roosting behaviour observations made in the Chapman/Rivett area. It confirms that the 3 known roost sites or roost flyways were active Aug and Oct 2017, with maximums of 35 birds at the Goodenia St Rivett roost site on 1 Aug (though 30 regularly in the first half of that month), of 50 birds in the Angophora St flyway on 28 Aug, (with 40 and 30 on 9 and 18 Aug, respectively) and 60 birds at the roost site at the corner of Perry Dr/Rafferty St in Chapman on 19 Aug. This would appear to be more than the upwards of 75 birds estimated for 2016, but lower than the estimate of at least 150 in the first half of 2017 (Holland, 2017c).

Taking into account that they were not complete counts, the numbers in Angophora St seem similar to those made in Aug 2016 (see Table 3 in Holland, 2017a). However, this was at a time when the Perry Dr/Rafferty St roost numbers were well down in 2016 (maximum of 7 in Table 1 of Holland, 2017b), and the Goodenia St roost site had not yet been confirmed, though there were low numbers in the area from July to the end of October (maximum of 8 – see Table 3 of Holland 2017b). Note that on a number of occasions, *e.g.* 2 and 8 Aug as well as 4 Oct, birds were counted at two different sites, providing evidence that the 3 sites were being used at the same time, rather than all the birds using the sites alternately.

Table 3. Summary of the main observations associated with the roost site at the corner of Perry Dr/Rafferty St from August to mid October 2017.

Date	Time (h)	Number*	Comments
2 Aug	07:01-07:05	25	Heard in gums rear of 4 Rafferty St, then in conifer edge of 1/3 Rafferty St. Nothing in 127 Perry Dr conifers but then 8 flew from E side of 122-124 Perry to 126 staging conifer, with similar numbers from rear No 4 to conifers at 1/3 and 5 Rafferty St.
8 Aug	07:02-07:04	21	8 birds coming up Monkman St to bare tree at No 41, then 7 to similar tree at No 43 at 7:04, and then 6 coming up lower down street.
17 Aug	06:51-06:55	30	Around 25 birds moving up from 51 to 45 Monkman St, then another 5 moving along from 43 to 33 Monkman St.
19 Aug	06:51	60	Mainly on lawn/some in trees at 4 Rafferty St (50) and rest at No 2.
27 Aug	06:56	15	Flew up towards Cooleman Ridge from 4 and 5 Rafferty St
30 Aug	06:50	30	Coming up 39-43 Monkman St in 3 even groups (heavy frost)
2 Sep	06:38-06:46	23	Several heard going uphill from start Sorlie Pl (sun well up), then 2 from 1/3 Rafferty conifer and around 10 from 126 Perry staging conifer. Two up when going up zig zag path, then 6 at top of steps flew to end of Titheridge Pl.
3 Oct	06:27-06:35	20	5-6 in conifers bottom of Monkman St, also heard in gums rear 4 Rafferty St, several in small tree at front, then several in 126 staging conifer. On doubling back 12 in trees 2 & 4 Rafferty, then on lawn of No 2.
5 Oct	06:51-07:01	33	3 birds up past 45 Monkman, then 30+ feeding grass verge 126 Perry Drive (stayed there - grey due to high cloud/fog).
10 Oct	06:56	16	Up from 4 Rafferty St lawn to trees, some then going up Monkman St.
15 Oct	06:42-06:56	35	On 2-4 Rafferty St lawns/trees and Nos 1-5 trees, then 1 seen/heard at the top of Monkman St.

In the first half of August a new roost site for the roost flyway centred on Angophora St was discovered at the E end of Woollum Cres, a spot previously recognised only for staging. This was associated with different activity compared with previous observations in 2016 and 2017, with many birds moving, at least at initially, E towards the Rivett shops. However, by mid August the pattern reverted to the more normal one. Also in October a chance sighting obtained evidence for the roost flights originating from much deeper in Rivett.

There were more observations of birds feeding on ground after leaving the roost than previously, especially at the corner of Perry Dr/Rafferty St. Most of the roosting there appeared to be around the start of Rafferty St, with only limited use of the 126 Perry Dr staging conifer. This appears to have been related to the many observations of birds moving up the N side of Monkman St compared with previously between this street and Titheridge Pl.

In summary the further observations made from June to November 2017 provide additional evidence that the roosting behaviour of Red-rumped Parrots described in Parts I to III is a year round activity, though numbers and behaviour vary over time. Though observations for January and February are limited, in particular for 2016 and 2017, I do not propose to gather more information as I now feel that the general behaviour pattern has been well described.

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THE BREEDING SEASON OF WHITE-WINGED TRILLER AND RUFOUS SONGLARK IN THE HIGH-RAINFALL YEAR OF 2016 AT A SITE NEAR CANBERRA

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Abstract. *The period for which White-winged Triller* (Lalage tricolor) *and Rufous Songlark* (Cincloramphus mathewsi) *were present at the Travelling Stock Reserve "Nelanglo" near Gundaroo in the Canberra region is documented for 10 breeding seasons. Both species are breeding summer migrants in the Canberra region. Numbers of both species (displaying males) varied greatly from year to year as did their arrival and departure times. The time to raise a brood amounts to about 60 to 65 days, yet in a number of years the species were present for twice as long (max. 120 days for the triller and 150 days for the songlark) although individual birds may spend only shorter periods in the area. The White-winged Triller can raise two broods in parts of its range; here in the Canberra region it may just be able to produce a replacement clutch should the first brood fail. The Rufous Songlark is not known for being double-brooded. However, if individuals are able to spend extended periods in our region it may indicate a more complex breeding biology.*

1. Introduction

Widespread high rainfall in 2016 over many parts of Australia, notably also in many inland areas, had an impact on the distribution pattern and numbers of many species of birds in the Canberra region. The most obvious and fairly well documented changes were noted with many of our waterbirds (Lenz 2016). However, several landbird species also appeared to be affected (Lenz 2016). In general, wet conditions over spring and summer can influence breeding success of landbirds, either reducing or improving it depending on the species, as examples from our region demonstrate (see Rae 2017 for details).

Further, in 2016 species with their centre of distribution to the West of Canberra either failed to arrive in our area during spring and summer, for example, White-browed Woodswallow (*Artamus superciliosus*) and Masked Woodswallow (*A. personatus*), or they appeared later in the breeding season than normal. White-winged Triller (*Lalage tricolor*) and Rufous Songlark (*Cincloramphus mathewsi*) are examples of the latter group (Lenz 2016).

Numbers of White-winged Trillers and Rufous Songlarks in the Canberra region can vary widely from year to year (see Taylor and Canberra Ornithologists Group 1992; Canberra Ornithologists Group 2015 a, b). In some years they may even fail to come. It is generally believed that if their inland breeding sites have received good rainfall,

most breeding events may occur there, but when inland conditions are poor, birds are more inclined to move eastwards (Higgins *et al.* 2006a, b), and hence these species are then more commonly encountered in and around Canberra.

We followed breeding events of White-winged Trillers and Rufous Songlarks at a Travelling Stock Reserve (TSR) near Gundaroo (TSR 48, "Nelanglo") to the North of Canberra, but within the Canberra Ornithologists Group's Area of Interest (COG's AoI) over the 2016/17 season when both species had arrived relatively late. The question was: would birds still be able to raise a brood when starting late in the season? The 2016/17 observations prompted us to compare our records with those of the eight preceding years and the subsequent 2017/18 season.

2. Study site and methods

Nelanglo covers an area of about 18 ha (Rural Lands Protection Boards 2001). It has a triangular shape and consists of open woodland and larger patches of grassland with only a few scattered trees. To the N and E smaller areas of open woodland join the reserve. Otherwise the reserve presents an island of open woodland within plain grazing country. The site provides breeding habitat for the two species of interest. The area used by both species for breeding and foraging goes beyond the boundaries of the TSR and comprises approximately 30 ha.

The main eucalypts are Red Box (*Eucalyptus polyanthemos*), Yellow Box (*E. melliodora*), Apple Box (*E. bridgesiana*) and Red Stringybark (*E. macrorhyncha*). Kangaroo Grass (*Themeda triandra*) dominates wide swathes of the grassland in the reserve. A small dam is located in the southern part; other dams are also found on surrounding farm land

In more recent years the grazing history of Nelanglo included periodic presence of sheep at a low stocking rate and a number of cattle for a limited period. Currently the site is not grazed by domestic stock. Eastern Grey Kangaroos (*Macropus giganteus*) and the occasional Swamp Wallaby (*Wallabia bicolor*) are making a cautious comeback.

The site has been surveyed by the authors for several years on a regular basis, as a rule once a month outside the breeding season, but more often during the breeding season, although the frequency at that time of year may vary from year to year. Other gaps in monitoring occurred when the authors where absent from Canberra. A survey involves walking a full loop of the site, keeping more to the outer perimeter and the second walk covers mainly the central part of the reserve. Birds of all species seen and heard are recorded with the aim of establishing the approximate number of birds present while at the same time taking care to avoid double-counting. During the breeding season a special effort is made to record all indications of breeding, such as number of singing males, presence of females, nesting behaviour, and presence of dependent young. However, no attempt is made to locate nests. Any nests found are incidental.

When determining the period over which both White-winged Triller and Rufous Songlark were present at the site, it is clear that we cannot say accurately when the first birds arrived or when the last birds departed at the end of the breeding season. For that our visits have been too infrequent. Therefore we used a coarser measure.

We determined whether any relevant observations occurred either at the beginning, middle or end of a given month, *i.e.* each month was divided into three 10-day periods. The resulting patterns are adequate to identify the approximate length of the period of residency (breeding season) in each year and allow for comparisons between years.

3. Results

It remains to be seen to what extent our observations at Nelanglo (which is after all only a small area of suitable habitat) reflect general patterns across COG's AoI as a whole for the two species.

3.1. White-winged Triller

The status of the White-winged Triller in COG's AoI is given as *"*uncommon, breeding summer migrant*"* (Canberra Ornithologists Group 2015a) COG data sheets recording the species from total number. The reporting rate (percentage of COG data sheets recording the species from total number of data sheets) fluctuates widely and ranges from 0.00 to 7.14 for the period 1982 to 2013 (Canberra Ornithologists Group 2015a). A high variability in the number of males was also evident at Nelanglo, with the maximum number of singing males extending from zero to six over the ten-year period (Table 1).

Arrival at the site is highly variable. The time of arrival across the observation period of ten seasons extends from late-September to (early?) mid-December (Table 2). As it turned out, the arrival in (early?) mid-November in 2016 was not exceptionally late. In the 2011/12 season birds arrived as late as (early?) mid-December (Table 2).

Table 1. Number of days (calculated in 10-day blocks) White-winged Trillers and Rufous Songlarks were recorded at Nelanglo and the maximum number of displaying males during ten breeding seasons (see Tables 2, 4 and 5 for details).

Year	White-winged Triller		Rufous Songlark	
	Present no. days	Max. no. displaying males	Present no. days	Max. no. displaying males
08/09	90**	6	150*	6
09/10	120	3	150*	10
10/11	70***	1	130**	6
11/12	40*	3	140*	10
12/13	70***	3 (6#)	120***	12
13/14	90***	6	90*	13 (15#)
14/15	0	0	40*	12
15/16	120	1	110	5
16/17	100*	5	60*	9
17/(18)■	90$	2	20*	2

*: Possibly present for 10 days longer.
**: Possibly present for 20 days longer.
***: Possibly present for much longer; observers unable to schedule regular visits.
#: Temporary increase in the number of males later in the breeding season.
■: See Table 5 and Section 3.3 for details.
$: One pair with young still present at the time this paper was completed.

The last observations, likely of a female with young very close to independence, occurred over a shorter time than the arrivals, from the end of December to the middle of February (Table 2).

Table 2. Period (shaded areas) over which the White-winged Triller was recorded at Nelanglo during ten breeding seasons.
(**B, M, E = B**eginning**, M**iddle and **E**nd of a month).

Year	Sept			Oct			Nov			Dec			Jan			Feb		
	B	**M**	**E**	**B**	**M**	**E**	**B**	**M**	**E**	**B**	**M**	**E**	**B**	**M**	**E**	**B**	**M**	**E**
08/09			?										?					
09/10																	#	
10/11							X	X	X	?								
11/12										?								
12/13		#		X	X	X								X	X			
13/14				X	X	X												
14/15	Species absent																	
15/16																		
16/17			#				?											
17/(18)■																		

#: Outliers, not considered for determining the period.
?: Possibly already/still present (no survey in this 10-day period).
■: See Table 5 and Section 3.3 for details.
X: Observers unable to schedule regular visits.

The time for raising a successful brood in White-winged Trillers amounts to 41-48 days (see Table 3). The time for finding a partner and courtship will most likely extend this period by a number of days. Females may arrive later than the males, and once both sexes are present, the male may chase the female for up to five days before nest-building starts (Higgins *et al.* 2006a). Hence 55 to 60 days may be required for a successful breeding cycle.

Table 3. Length of the time to raise a brood for White-winged Triller and Rufous Songlark (sources: Higgins *et al*. 2006a, b; Dahlem 2017a, b).

Activity in days	White-winged Triller	Rufous Songlark
Nest building	2 – 5	7*
Incubation	14	11
Nestling period	13 – 15	12 – 13
Fledgling to independence	12 – 14	12
Total	**41 - 48**	**42 - 43**

*Not known for Rufous Songlark, but 7 days in the only other Australian species of Songlark, the Brown Songlark, *Cincloramphus crurali* (Magrath *et al*. 2003).

White-winged Trillers are able to raise two broods under favourable conditions, and certainly can lay replacement clutches if the first breeding attempt fails (Higgins *et al.* 2006a). There is only limited relevant information available from COG's AoI. The very late nesting of two pairs at Callum Brae over February/March 2012 (Compston 2012) could indicate a second brood or at least replacement broods after failed nesting attempts.

The relatively late arrival of trillers in mid-November 2016 did not appear to have affected breeding. Four pairs were recorded feeding young in or out of nests. Only in the 2011/12 season when the duration of stay was just 40 (50) days was no brood recorded. Birds still attempted to breed as indicated by a female seen carrying nest material - but by late January trillers had left the area.

3.2. Rufous Songlark

The status of the Rufous Songlark in COG's AoI is described as either "uncommon, breeding summer migrant" (Canberra Ornithologists Group 2015b) or "common, breeding summer migrant" (Canberra Ornithologists Group 2017a). These two assessments probably show that numbers can vary widely between years, as indicated, for example, by the recording rate (percentage of COG data sheets recording the species from total number of data sheets) ranging from 0.00 to 7.76 for the period from 1982 to 2013 (Canberra Ornithologists Group 2015b). At Nelanglo numbers of singing males varied from 5 to 13 (Table 1). The 2017/18 season was unusual; only two males were present for a very short period (see Section 3.3.).

Table 4. Period (shaded areas) over which the Rufous Songlark was recorded at Nelanglo during nine breeding seasons.
(**B, M, E = B**eginning**, M**iddle and **E**nd of a month).

Year	Sep			Oct			Nov			Dec			Jan			Feb			Mar			Apr	
	B	M	E	B	M	E	B	M	E	B	M	E	B	M	E	B	M	E	B	M	E	B	M
08/09			?																				
09/10																		?					
10/11							X	X	X	?													
11/12			?																				
12/13														X	X	X	X	X					
13/14				X	X	X										?							
14/15																		?					
15/16																							
16/17									?							#	#	#					
17/(18)■			?																				

?: Possibly already/still present (no survey in this 10-day period).
#: 1 juvenile staying on (always flushed from same spot; see also text).
■: See Table 5 and Section 3.3. for details.
X: Observers unable to schedule regular visits.

The general pattern for Rufous Songlark at Nelanglo appears to be: arrival between mid-September and early October (Table 4), staying for 110 to about 150 days (Table 1) and departing between mid-January and mid-February (Table 4).

In two seasons the pattern differed (Table 4). In 2010/11 a very late breeding event took place: a female was feeding a fledgling on 1 April; the last sighting of one songlark (a juvenile to judge by its streaky breast) was on 17 April. Adult songlarks usually depart the area by the end of February at the latest although a few young birds may stay longer (see Table 4). In 2016/17 the species arrived late, in early December, and stayed only for two months (Table 4). However, within that short

period dependent young were observed on at least three occasions, and a further female was seen carrying food. On 27 Jan 2017 a total of six birds were recorded (including 2 young birds), but just four days later only a single male could be found. By 5 Feb 2017 the species was no longer present at Nelanglo.

The time required to raise a brood to independence amounts to 42-43 days (Table 3). The total period from arrival of adults to the independence of young is most likely longer. Males appear to arrive before females and establish a territory. Females are attracted to the territory by male song. Up to three weeks may pass from territory establishment to pairing (Ryan 1952). Hence, up to 65 days may pass for the full breeding cycle to be completed.

3.3. The 2017/18 season

By the time this manuscript was completed in December 2017 the breeding season would not have finished. We report the observation available up to late December 2017.

Table 5. Observations of White-winged Trillers and Rufous Songlarks in the 2017/(18) season at Nelanglo.

Date	White-winged Triller		Rufous Songlark	
	Nos.	Comments	Nos.	Comments
6 Sep	0		0	
20 Sep	0		0	
2 Oct	1 male	not in full breeding plumage; singing few times only	2 females	in two small patches of taller old grass
12 Oct	2 pairs	males rather quiet	0	
18 Oct	1 male	male not singing	0	
25 Oct	1 pair	male not singing	2 males	only partial song, no display flight; males in different areas from those occupied by females earlier
1 Nov	2 pairs	males singing, chasing females	0	
15 Nov	1 pair + 1 male	pair nest building; male chases 2nd male	0	
3 Dec	0?	no sightings of birds, (and no display by male)	0	
15 Dec	1 pair	feeding young in nest of 15 Nov; removing faecal sacs; male displaying	0	
22 Dec	1 male	displaying; no sign of female during brief stay	0	
28 Dec	1 female, 2 fledglings	young fed by female in paddocks	0	

The winter and the first month of spring (September) in 2017 were cold and dry in the region (Bureau of Meteorology 2017a, b). As a result, spring growth, especially of the ground vegetation at Nelanglo (and elsewhere in the region) was slowed considerably (and most likely insect activity with it). The first White-winged Triller male on 2 Oct was rather quiet, as were the two males present at later times. Trillers encountered in other areas around Canberra in early spring also did not sing much (M. Lenz, pers. obs.). On 15 Nov one pair was building a nest. A search on 3 Dec failed to find any trillers. If birds were present (and they must have been, see below) they were secretive and the male was not singing and displaying at all. Perhaps trillers are very quiet during the incubation period. But on 15 Dec the same pair was attending to young in its nest: feeding the young and removing faecal sacs. The male was singing frequently. On 22 Dec the male was still displaying in its usual territory; on 28 Dec the female was feeding two well-developed fledglings.

By the time Rufous Songlarks arrived (2 Oct), there were no areas with stands of new grass available to them. The few birds that were seen (Table 5) made do with small patches of last-season grass with some taller stems. The two males present on 25 Oct (and no other sightings of the species during two visits between 2 and 25 Oct) gave only fragments of song and were not engaged in display flights, usually the hallmark of this species in spring. Habitat conditions were clearly not suitable for breeding and all birds had left by the end of October after only brief stays (Table 5). Similarly, the extent of vegetation cover is also important in determining the abundance of Brown Songlarks (Magrath *et al.* 2003).

Only relatively few spring sightings were made in COG's AoI (Holland 2017). It was widely reported that Rufous Songlarks appeared this spring in large numbers in coastal New South Wales. The birds had moved from the interior right across our region to the coast (ABC news report, Virtue 2017). Such movements are well known for Rufous Songlarks in periods of inland drought (Higgins *et al*. 2006b).

4. Discussion

No other summer migrant species in COG's AoI shows such marked variation in numbers from year to year as the White-winged Triller and Rufous Songlark (Taylor and Canberra Ornithologists Group 1992). The observations from Nelanglo fully support this assessment (Table 1).

It is notable that both species were often present at Nelanglo for periods well in excess of the time required to raise a brood, in some years twice as long or more (max. 120 days for the triller, and 150 days for the songlark (see Tables 1 and 3)). But in 2016/17 the Rufous Songlark stayed only for two months and this time proved adequate for several pairs to raise a brood.

The first and last sightings of the species do not give us any indication of how much time individual birds in the population have actually spent at Nelanglo. Individual birds may have spent less time in the area. Males tend to arrive a couple of weeks earlier than females (Higgins *et. a*l. 2006a, b). In the case of the White-winged triller, the male of a pair that has bred successfully will leave the area well before the female and the young (Higgins *et. al.* 2006a). Correspondingly, females may settle in the area later than males, and females with young will stay until the young have

reached independence. Birds that failed to breed (either finding no partner or otherwise unsuccessful in nesting) may not stay for the full period. It is unknown for our area if, or how late into the breeding season, these species are able to produce replacement clutches. Further, judging by the number of singing males, in both species numbers can increase, well after breeding has commenced, indicating movement between areas, at least of males, until late in the breeding season (see Table 1; White-winged Triller 3 Jan 2013; Rufous Songlark 27 Dec 2014).

In general, the site gradually empties of trillers and songlarks as the season progresses. In the case of the White-winged Triller the last birds will be either a female with large dependent young, or one of the independent young. The latest observations are from mid-February. The latest record for breeding trillers in COG's AoI is from the end of March (Compston 2012). Rufous Songlark males can still be found together with females and fledglings right to the end of the fledgling period at Nelanglo, although more often it is just the female staying with its young. An unusually late record of a young bird being fed by an adult (female) is from 1 Apr 2011 at Nelanglo.

In our region several migrant species have a long breeding season, allowing them to raise two broods in a season under favourable conditions, such as the Australian Reedwarbler (Lenz 1989) and the Leaden Flycatcher (M. Lenz pers. obs.). At least they have enough time to start a replacement brood should the first brood fail. Some birds of these two species will more regularly succeed in breeding twice.

While the White-winged Triller is capable of raising two broods in parts of its range (Higgins *et al.* 2006a), it may not be able to do so in in the Canberra region, although the very late broods at Callum Brae reported by Compston (2012) indicate that a more complex breeding pattern is possible.

There are no references indicating that the Rufous Songlark could be double-brooded. But it is a far more secretive species than the White-winged triller and its breeding biology is still poorly understood (Higgins *et al.* 2006b).

A long presence in breeding areas would allow the species to make use of favourable conditions should they arise, although in most years in our area they may only be adequate for a single breeding event and at the most allow for a replacement clutch if need be. On the other hand, notably for the Rufous Songlark, a long presence in our area beyond what is required to raise a brood may indicate a more complex breeding biology.

The other unknown aspect is what birds arriving late in our area (as in 2016) have done prior to that. For example, in the wet year of 2016 White-winged Trillers and Rufous Songlarks were very common in the interior. By October some areas in northern NSW and elsewhere had returned to drought conditions (Lenz 2016). Did birds of these two species attempt to breed in the inland but failed later as conditions turned less favourable, and then moved eastward into our region, where they managed to breed successfully?

The closer one looks into aspects of the biology of our regional birds the more obvious it is how little we know.

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FURTHER OBSERVATIONS OF EASTERN KOEL ADULT AND FLEDGLING BEHAVIOUR IN CHAPMAN/RIVETT DURING THE SUMMER OF 2016-2017

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Abstract. *In three previous papers detailed observations on the behaviour of adult and fledgling Eastern Koels* Eudynamys orientalis *from the Chapman/Rivett area were provided. This paper documents observations made on some further aspects of adult behaviour, as well as on a significantly increased number of fledglings produced during the spring/summer of 2016-2017. These observations provide either support for or add new information to those made previously.*

1. Introduction

For the past three years I have published observations of Eastern Koel *Eudynamys orientalis* (hereafter Koel) fledglings and adult behaviour in Chapman/Rivett (Holland 2014, 2015, 2016). This paper documents some further aspects of adult behaviour, as well as observations on a significantly increased number of fledglings in spring/summer 2016-2017.

2. Methodology

The first fledglings were generally found opportunistically while listening for the characteristic begging call as I was walking my dogs in Chapman/Rivett early in the mornings. With the exception of F5 and F6 which were further away, once they were found I often walked past the spot at least once a day and often twice. During peak times I often did a circuit with binoculars past known "territories".

While the typical ko-el call is well known and recognised, there are various verbal renditions of the alternative male call such as *wirra wirra* and *wurroo wurroo*. In this paper I have preferred *whoa whoa*, which it mostly sounds like to my ears. Similarly there are a number of renditions of the female call, such as *keek keek keek* or *whip whip whip* (which often seems the closest to me), but in this paper I have preferred *kek kek kek*, which seems to be most often used by other authors.

3. Aspects of Adult behaviour

3.1. Adult interactions

I heard my first Eastern Koel calling several times during 22 October 2016, but the next day I followed up an initial whoaing and then ko-eling to the same silky oak (*Grevillea robusta*) at the rear of 46 Croton St Rivett in which I also found my first male the previous season, but about a fortnight later (see Holland, 2016). This male ko-eled only occasionally.

Around 06:30 h on 25 Oct I heard calling, including the female's kek kek kek, much closer to home and followed it to the small Rivett park about 300 m away to the E. By their calls both males and females were moving around there, but the first bird seen was a male which flew past me very low, pursued by a Pied Currawong (*Streptera graculina*), towards a calling female. The female continued to call and move around and then two males could be heard calling (interestingly this was almost all ko-eling compared with the whoaing call usually associated with the presence of conspecifics), before the female was seen flying off at about 06:45 h.

There was very little calling after, but more the next morning and that afternoon two males were ko-eling in the same gum <5 m apart in the Rivett park from 16:53-16:55h. There may have been a female there as well, but it was possibly a Red Wattlebird (*Anthochaera carunculata*, hereafter RWB). Satin Bowerbirds (*Ptilonorhynchus violaceus*), which had a bower close by, were also getting quite excited in the tree.

There was limited calling for the next two days until one, possibly two males were ko-eling in the Rivett park and a male flew out at 17:53 h, whoaing only when flying. Surprisingly, no more calls were then heard for the next 20 days, except for an occasional distant one, until on 18 Nov both male and female calling was traced to the same silky oak at 46 Croton St (see above) at 06:42 h. Here two males and two females in close proximity were moving around only slightly despite two Pied Currawongs seeming to harass them. Both sexes called quite a bit, but less so towards 07:00 h.

This signalled a very active period of Koel calling and flying around. That same afternoon, after hearing both a male and then a female calling in Angophora St Rivett from 17:23 to 17:30 h, birds were heard moving up to Chauvel Circle within my GBS site at 18:15 h. Six birds, at least three females by call, were then seen frantically calling and chasing each other around for about five minutes. Three (two males) returned to my GBS site trees at about 18:45 h, calling a little less frantically for about 5 minutes. Koels continued to be heard nearby, then just after 20:00 h two males and two females were again chasing each other frantically around my GBS site for about five minutes.

This heightened activity continued in a similar fashion, often from before dawn to dusk, until at least 27 Nov, with a maximum of four birds (2 males, 2 females) identified. The birds were often in my GBS site (with records over 8 GBS weeks, compared with only the single sighting in 2015-2016 - see Holland, 2016). But there was much activity also in Rivett in both Woollum Cres and Darwinia Tce on the S side of the laneway that runs between them. There was less activity around the Rivett park mentioned above, and particularly at the SSW end of Casuarina St, despite fledglings being found later at all three spots. As well as RWBs, on three occasions (twice on 20 Nov and on 23 Nov) Noisy Friarbirds (*Philemon corniculatus* - also a known host – see Holland (2017), this issue, p.) were seen to attack/pursue the Koels, as was the potential ACT host the Magpie-lark (*Grallina cyanoleuca*) on one occasion.

From 28 Nov activity lessened, with mostly only a few calls heard during December up till 10 Jan 2017 (we were away 23 Dec to 6 Jan inclusive). Around 06:15 h on 11

Jan at least three females in my GBS site were calling and chasing each other (one might have been a male - see section 3.2 below) until 06:22 h. All of the above activity was before the first fledgling was located on 16 Jan.

At 06:25 h on 31 Jan ko-eling was heard at the top of Monkman St. This ended in a short whoa at 06:27 h, then at least two females were calling and some more whoas between Ordell and the top of Monkman Sts, with birds seen flying around including one female towards Chauvel Circle. This continued at a reduced level until about 06:36 h, when a male seemed to be ko-eling in the Rivett park/12 Themeda Pl direction. However, on arriving home ko-eling could be heard to the S of Chauvel Circle, but with a kek kek kek call closer by with one female seen flying over chased by Australian Magpies (*Gymnorhina tibicens*), and one female calling in a Circle tree. It also flew towards Rivett, then ko-eling came from the Circle tree until around 06:53 h.

This was the only time adult interactions were seen/heard after the first fledgling was found on 16 Jan, and it may also have been an interaction with fledgling F2 (see Section 4.2 below), which was in the general area from 28 Jan to 8 Feb. However, there is no strong evidence for this; F2 and its loud begging call were not observed between 29 Jan and 1 Feb inclusive. However, a male was calling in the area where F2 was observed on 2 Feb.

No more adult interactions were noted after this, and in fact no more adults were seen. A male was only occasionally heard calling briefly until mid-February, and the last male was heard whoaing on 21 Feb in Casuarina St close to F3's "territory".

3.2. Male giving the female call

On the COG E-mail Discussion List (COG chat line), most recently on 21 Jan 2017 in response to a call posted by Steve Wallace, Geoffrey Dabb has noted the possibility of a male giving the female call. He noted that this raised a matter that had not been brought to a conclusion on the chat line, in that Steve's background call was what is usually called "the female call", an insistent kek-kek-kek. He noted that this varies from softly repetitive to an explosive "kuk-kuk-kuk". However, Geoffrey also noted that he has heard and seen that call given by a male bird.

In their detailed discussion of adult koel calls Abernathy and Langmore (2016) reference Geoffrey's observation and also provide further evidence for this, noting that in their studies on one occasion both sexes were producing the "Keek" (as they prefer it) calls.

I have some further evidence to support this, the first being that of the three birds giving this call in my GBS site early on 11 Jan (see above), one, a pursuing bird, looked quite dark and could have been a male. However, there was too much movement to see it clearly, and a male also had whoaed from outside the GBS site, for this to be firm evidence.

On 25 Jan, after a Koel fledgling (F1b - see Table 1 below) had flown away, begging calls in the fig at the rear of 29 Blancoa Pl Rivett were coming from a young Noisy Friarbird (Abernathy – personal communication – has noted that these sound most like Koel fledglings), with two adults in the same fig. (This was a surprise as there

were very few around, and it was my only breeding record for this species that season.) At 06:45 h they flew up into an adjacent small exotic tree and harassed a very dark adult Koel (assumed to be a male though the light was poor under the cloudy conditions), which gave a very harsh deeper rendition of the repeated single-noted "female" kek kek kek call. This happened at least three times; the bird was in an exposed position and could clearly be seen giving the calls, which lasted around 10 seconds each.

On 30 Jan I heard a whoa call in the Rivett park at 17:23 h, then an all dark bird flew to the top of a large eucalypt, kek kek kekking as it flew in. I watched it then whoa until 17:30 h. This all dark bird had a gap in its tail feathers when spread, and I suspect was the same bird as the one at the rear of 29 Blancoa Pl five days earlier.

4. A significant increase in numbers of local Eastern Koel fledglings

4.1. Fledgling F1 complex

Despite all the adult Koel activity in the second half of November 2016 (see section 3.1 above), the first fledgling was not located until 16 Jan 2017. This was in the overgrown garden at the rear of 12 Themeda Pl, adjacent to the N end of the small Rivett park where there had been significant adult activity in October and November (it is also on the S end of the 2015 "F1's" territory - see Holland 2015). This and subsequent observations of fledglings that were possibly the same individual are summarised in Table 1 and their general locations are indicated on Map 1.

Map 1. Locations of Fledgling F1 complex and Fledgling F4 in Rivett.

The morning of 16 Jan was the only time the fledgling F1a was seen, with other observations being aural only. Before (*e.g.* the calling heard on 12 Jan), and after this it was often difficult to distinguish from the begging calls of a number of RWB fledglings in the area. These were the only dependent young positively identified during daily checks (often morning and afternoon) until early on 23 Jan when a Koel

fledgling was observed at the rear of 29-33 Goodenia St about 250 m away to the E. Although labelled fledgling F1b in Table 1, it may have been the same bird due to its similar light colouring. Despite checks there over the following week and longer this fledgling was only briefly seen again on 25 Jan. While RWBs were often close by, no host was confirmed for either Fledgling 1a or 1b, and the Noisy Friarbirds present on 25 Jan (see Section 3.2 above) had their own young so can also be ruled out as hosts.

Despite regular checking at both spots no more Koel fledglings were confirmed for the next week; all the many fledging calls identified were of the RWB. On 1 Feb a fledgling was heard begging in Melia Pl (about 150 m ENE of 12 Themeda Pl and a similar distance ENE from 29-33 Goodenia St). It was followed to the end of Mentha Pl (only around 80 m away from the former), where it was confirmed (see details in Table 1). This fledging has been designated as F1c due to its darker colour, but this could possibly be age-related. It was certainly a strong flier. After finding it in the same area again on 2 Feb, it was later found at or very close to the rear of 12 Themeda Pl until 19 Feb, including being seen fed by a RWB for the first time on 4 Feb.

The 7-day gap in sightings between 5 and 12 Feb raises the possibility that the later fledgling may have been different (thus has been labelled as F1d), though its behaviour, at least initially, was similar, and its location at the rear of 12 Themeda Pl was the same. Further, on 17 and 18 Feb a fledgling was found in the Rivett park about 60 m away, which may have been different as one was lightish and the other darkish (possibly a light effect?).

Table 1 Observations of the Fledgling F1 complex

Date	Time (h)	Comments
Fledgling F1a		
16 Jan	06:45-6:50	Heard begging call at the rear of 12 Themeda Pl, bird flew to the adjacent rear of 11 Themeda Pl, clearly identified as a Koel fledgling. It flew back and then came back again, at least 20 m, so was a strong flier.
	17:45	Heard at the rear of 12 Themeda Pl (probably also heard it here on 12 Jan, a few evenings earlier).
17 Jan	06:30-06:38	Could be heard begging softly rear 12 Themeda Pl, then louder from S end Mentha Pl, but not able to find it.
18 Jan	06:42-06:45	Fledgling heard in Mentha Pl, possibly a Koel, but 2 calls heard rear 12 Themeda Pl and 1 in Themeda/Mentha lane likely RWBs.
Fledgling F1b		
23 Jan	06:39	Fledgling heard behind townhouses 29-33 Goodenia St, found in quite open positions, very light *c.f.* above, and flew well, possibly same bird.
25 Jan	06:42	Begging calls were again heard at the rear 29-33 Goodenia, on approach a light coloured fledgling flew out of fig on the opposite side of the path at the rear of 29 Blancoa Pl. Noisy Friarbirds present – see Section 3.2.
Fledgling F1c		
1 Feb	11:17-11:35	Heard at bottom end of Melia Pl, flew W into Mentha Pl quickly, found at front of Nos 11-13 but then flew over the back where there were RWBs. Fledgling was calling intermittently at first, but was then found after a RWB flew off, other RWBs also flew over and it chased them towards Sollya Pl around 11:35. Fledgling seemed darker though possibly the same as the one seen before.

Table 1 continued

Date	Time (h)	Comments
Fledgling F1c		
2 Feb	17:25-17:35	Heard begging from Mentha/Melia Pl lane, then seen flying chased by 2 Australian Magpies, and a surprisingly dark fledgling found begging in a tree at the rear of 16 Mentha Pl.
3 Feb	17:30-17:35	Heard rear of 12 Themeda Pl and after a while seen including flying to next door and back (11 Themeda Pl as for 16 Jan – see above). Again it looked darkish, with RWBs seeming to harass it.
4 Feb	06:45	Begging fledgling found in fir in the backyard of 11 Themeda Pl, where it was fed by RWBs, other RWBs also close but ignored it.
5 Feb	07:31	Heard then saw darker fledgling rear of 12 Themeda Pl at 07:31, again flew to rear 11 Themeda Pl with other birds in pursuit. Still begging loudly rear 12 Themeda Pl at 09:20.
Fledging F1d?		
12 Feb	17:25	After fledgling seen at 6 Burgan Pl (see Table 3) another heard at rear 12 Themeda Pl where it was found on a lowish perch.
13 Feb	06:55 & 08:10	Begging (bit softer) rear 12 Themeda Pl (could not find), begging more loudly later.
15 Feb	18:07	Heard low and close to rear of 12 Themeda Pl house, did not move much even though RWBs present.
16 Feb	06:50	Rather small dark fledgling seen over path from rear 12 Themeda Pl, fed by RWB.
	17:47	Begging relatively softly rear of 12 Themeda Pl, low and close to the house again.
17 Feb	18:39	Begging relatively softly in gum in Rivett park at rear of 9 Sollya Pl, located lightish bird (= F3?) in open perch, but flew to deciduous tree rear of 16 Mentha Pl from where it could be heard at least 175 m away.
18 Feb	08:37	Heard in Rivett park from sharp end and darkish fledgling located in open position same gum rear of 9 Sollya Pl as on 17 Feb, could be heard well into Themeda/Mentha Pl lane up to 125 m away
19 Feb	06:57	Calling relatively softly rear 12 Themeda Pl and found low down midway to house, RWB still nearby and may have fed.

Map 2. Locations in Rivett of the very mobile Fledgling F2.

Table 2 Observations of the Fledgling F2

Date	Time (h)	Comments
28 Jan	07:57	Begging calls in 10 Chauvel Circle trees traced to a much darker Koel fledgling attended by RWBs. Flew towards Chauvel Circle.
2 Feb	08:15	Very loud begging call was traced to a tree 25 m W of rear edge of 28/30 Circle. A dark fledgling was seen, assumed to be the same as above. Not seen attended by its host, but could be heard begging from over 200 m away, and again about 125 m to the S around 09:50.
5 Feb	-	Owner of 57 Percy Cres (175 m to the W from the 2 Feb record) reported seeing a Koel fledgling in his garden for the past 2-3 days.
6 Feb	08:55-08:57	Nothing calling at 57 Percy from 08:30-08:45 but found dark fledgling begging loudly in a large gum edge of 24-26 Chauvel Circle (275 m E), fed by RWB. Could still hear begging from our back door 150 m away!
	09:50-10:15	Heard from front door and found at 09:55 at 9 Ordell St (200 m away to the SE, 300 m from earlier sighting), flew across street and again a dark individual was seen, RWB nearby. On return still heard from front door.
8 Feb	10:00 & 11.15-11:25	Heard from front door, and then again over an hour later, followed to the rear of 3-5 Ordell St 250 m away (not seen).
	11:55-12:03	Heard again from 64 Darwinia Tce and call traced to large gum edge of 84 Monkman St, nearly 400 m away (possibly moved during checking).
	16:10	Heard from house, begging traced to rear 13-15 Ordell St 225 m away.

4.2. Fledgling F2

Checking of begging calls in my neighbour's back garden at 10 Chauvel Circle on the morning of 28 Jan confirmed a second and clearly different Eastern Koel fledgling (for details see Table 2). This was seen being fed by a RWB host. This was the most mobile and probably the loudest begging Koel fledgling I have encountered to date (Table 2), with observations being made over a range of more than 800 m in a straight line (the locations mentioned are summarised in Map 2). Thus it was probably a relatively advanced fledgling, though it was still fed by its RWB host on 6 Feb before it was last recorded, over much of the day, two days later. It was also the only fledgling for 2016-2017 found in Chapman, as well as the only one in my GBS site.

4.3. Fledgling F3

After hearing begging calls in the area on 1 and 2 Feb (see Table 3), a third Eastern Koel fledgling was confirmed at the SSW end of Casuarina St on the morning of 4 Feb. When first observed it seemed darkish, but all subsequent sightings were of a lighter bird, and I am pretty confident all entries in Table 3 were of the same bird. F3's location is not on any of the Maps in this paper as all sightings were made within the "territory" of fledgling "F3" in 2015 (refer to Map 1 of Holland, 2015). The exception is 12 Feb at 6 Burgan Pl (175 m to the NW) which is also on this Map as "F3"moved several times in that same direction. The fledgling seen here was certainly not the same as that at the rear of 12 Themeda Pl, which could be heard at the same time and was found shortly after (see Table 1).

4.4. Fledgling F4

For several minutes from 06:40 h on the morning of 5 Feb I could clearly hear a Koel fledgling begging from a deciduous tree at the edge of 67 Woollum Crescent/rear of

49 Angophora St Rivett, but could not locate it. It was not calling when I came back with binoculars from 07:38-07:48 h or later at 09:27 h, despite searching the area carefully. It could also not be heard on many subsequent checks past this point (for its location see Map 1) during my regular circuits listening for begging fledglings. I very much doubt it was fledgling F1c, which was seen at 07:31 h and heard at 09:20 h 250 m away (see Table 1 entry for 5 Feb). It is also around 275 m from 29-33 Goodenia S t, and unlikely to have been fledgling F1b, which hadn't been seen since 25 Jan.

Table 3 Observations of the Fledgling F3

Date	Time (h)	Comments
1 Feb	11:07	Heard a possible a fledgling at 4 Casuarina St, but flew to rear of house
2 Feb	06:35	Possibly heard rear 10 Casuarina St, bird flew to the corner with Nelumbo St but couldn't locate.
4 Feb	06:35	Heard Koel fledgling begging quite softly in a small argyle apple on the verge of 6 Casuarina St, RWB flew into feed it and then it followed RWB across the street. Clear view of a darkish one, RWB fed it again.
6 Feb	06:41	Fledgling could be heard calling softly rear 6-8 Casuarina St.
8 Feb	12:10-12:13	Heard soft call and traced to large gum at 11 Casuarina St, fledgling quiet until RWB came to feed, then flew to gum on verge, lightish bird.
10 Feb	06:31	Heard begging loudly and clearly in large gum edge 4-6 Casuarina St.
12 Feb	17:15-17:23	Could not hear at the SSW end of Casuarina St, but then clearly heard from start Burgan Pl, begging fledgling seen on roof at rear 6 Burgan Pl (F1c also heard at same time – see Table 1).
13 Feb	08:05	Heard and then light bird found in casuarina front of 8 Casuarina St, fed by RWB.
16 Feb	06:36	Begging relatively softly but found in large casuarina in front of 8 Casuarina St.
20 Feb	18:43	Heard begging relatively softly in large gum between 4-6 Casuarina St.

Table 4 Observations of the Fledgling F5

Date	Time (h)	Comments
5 Feb	09:35	Fledgling heard (possibly RWB?) low down in dense conifer mid W side of small park between Eugenia St and underpass between 307/311 Hindmarsh Drive (actually in grounds of battle-axe at 43 Eugenia St).
8 Feb	12:35-12:39	Another one (see Table 6 below) found 20 m from above in park closer to Eugenia St, darker, sleeker, and edgier, flew clumsily to trees at front of 47 Eugenia St, reasonable views as fed/attended by RWB.
12 Feb	18:00-18:11	Heard and found in tree at the 47 Eugenia St border with battle-axe at 15 Croton St, flew to other side of latter. Later seen on the edge of 17-19 Croton St from the adjacent laneway.
15 Feb	17:38- 18:00	Begging fledgling traced to 31 Woollum Cres (on spur 150 m from 47 Eugenia St). Bird later moved to large gum at the front verge of 28 Eugenia St (corner block opposite No 47), did not locate and it then flew to trees at the back of 32 Eugenia where it continued to beg.

4.5. Fledgling F5

On 5 Feb a Koel fledgling was suspected by the begging call just off the small park that runs between the NE corner of Eugenia St and the underpass at Hindmarsh Drive. On 8 Feb this was confirmed about 25-30 m away from this earlier observation immediately after another fledgling had been found at 307 Hindmarsh Drive only 60 m away (F6 – see Section 4.6 and Table 5). While these two fledglings

were found very close, it is clear from Tables 4 and 5 that they were different as they could be heard begging at the same time (and on one occasion possibly seen together), or found sequentially. Despite seeming to be a clumsy flier initially, F5 became much more mobile and on 15 Feb it was initially found about halfway towards fledgling F7's (which had just been seen - see Table 6) "territory". From 18 Feb it could not be unequivocally determined whether sightings were of F5 or F7 (see Section 4.8 and Table 7 below). The locations of all the fledglings mentioned above and below are on Map 3.

Map 3. Locations in Rivett of Fledglings F5, F6, F7 and F5/7.

4.6. Fledgling F6

As noted in Table 5 this fledgling was located just before fledgling F5, which had been previously heard nearby, was confirmed. F6 was reasonably mobile and begged loudly, but being off the edge of my usual circuits was only located twice more (see Table 5 and Map 3). I have no evidence to suggest it was one of the mobile fledglings discussed in Section 4.8 and Table 7 below.

4.7. Fledgling F7

Due to the great activity between Woollum Cres and Darwinia Tce on the S side of the laneway that runs between them in the second half of November (see Section 3.1 above) I had been looking for a fledgling in this area, but it was not until 10 Feb that I actually confirmed one. It could not be determined unequivocally from 18 Feb whether the fledglings seen were F5 or F7 (see Section 4.8 and Table 7 below). Note

that all observations in Table 6 and Map 3 were made in the "territory" of 2015's fledgling "F2" (Holland, 2015), very similar to the fledgling found here in 2016 (Holland, 2016).

Table 5 Observations of the Fledgling F6

Date	Time (h)	Comments
8 Feb	12:30-12:35	Begging heard at end of path near underpass and 1 fledgling found in a largish conifer at the front/side of 307 Hindmarsh Drive. RWB came in to feed, accompanied by what looked like another fledgling, possibly the one soon located nearby, see Table 4 and text above.
12 Feb	18:06-18:07	In between observations of F5 (see Table 4) a begging call traced across Hindmarsh Drive to melaleucas on verge of Duffy side, 30 m from the corner of Wyangala St (100 m from above). Darkish one fed by RWB.
18 Feb	08:47	Found darkish fledgling begging very loudly at the top of an argyle apple on the verge opposite 305-307 Hindmarsh Drive, Rivett.

Table 6 Observations of the Fledgling F7

Date	Time (h)	Comments
8 Feb	17:10	Possible Koel fledgling heard on approach in front trees of 6 Woollum Cres, but quiet when close (1 RWB flew off)
9 Feb	06:34	Again soft but typical begging call from big tree at front of 11 Woollum Cres, but stopped when close.
10 Feb	08:22-08:24	Heard and soon found lightish, quite golden fledgling at the top of a large pine at 4 (towards edge of 6) Woollum Cres, stayed there until fed by a RWB.
11 Feb	08:23-08:25	Again heard on approach, found in large argyle apple front of 4 Woollum Cres, then flew well 20 m to large gum at the front of No 6, where it was fed by RWB (looked a bit darker).
15 Feb	17:36	Heard then found (using binoculars) lightish bird in the lower bushes at the front of 12 Woollum Crescent. Another bird then heard and followed up nearby – see 15 Feb entry in Table 4.
16 Feb	18:03-18:08	Heard begging at the rear of 3-5 Woollum Cres to about 18:08, could still hear from close to our house, and again from around 19:45.
17 Feb	06:35	Heard begging quietly rear of 6 Woollum Cres, seemed to grow louder as we went past Eugenia St.

4.8. Either Fledgling F5 or F7 (or both)

A number of observations were made over five days from 18 Feb in which it could not be unequivocally determined whether they were of fledgling F5 or F7 as they were mostly from in between the two "territories" in which these were originally found. However, on two occasions (18 and 19 Feb) two fledglings were seen together, with the initial one actually in the "territory" of F7. Subsequent sightings were then made further E in Woollum Cres, as well as in adjacent spots in both Angophora and Croton Sts, all >125 m from F5's and F7's original territories, and around 200 m from where the closest fledgling F6 had been recorded. Table 7 summarises these observations and Map 3 contains the general locations.

5. Discussion

Compared with previous seasons the adult Eastern Koels were active early in the season. The first female was recorded on 25 October. Except for one heard on 17 Nov 2015 (Holland, 2016), my previous experience is that females usually arrive

much later, often not identified until the first fledglings are found. The females calling and interacting with males, including in the second half of November, again was something I had previously associated with fledglings being present (see Holland 2016 and my earlier papers). As described in Section 3.1, with the exception of that recorded on 31 Jan, all of this activity was before the first fledgling was located on 16 Jan, though the activity on 10 Jan was not long before.

Table 7 Observations of either Fledgling F5 or F7, or both

Date	Time (h)	Comments
18 Feb	08:42	Heard rear of 22 Woollum Cres from lane that runs to Angophora St adjacent to it on E side (possibly a RWB).
	08:52->09:00	Heard rear of 20 Woollum Cres, then from 2 Eugenia St, bird flew across and an intermediate coloured one located in top of the tree at the front of 12 Woollum Cres. It flew to a deciduous tree at the front of No 10, when another was heard in the tree at the front of No 14. Two fledglings then interacted in the tree in No 10, at least up to 09:00, with a RWB feeding at least one. Though I didn't see both at once, the two begging calls were similar and the second bird looked like a Koel rather than a RWB, though the latter could not be completely discounted.
19 Feb	07:55-08:05	Begging appeared to be coming from the rear 22 Woollum Cres, could not locate (including louder begging later), until a fledgling flew across the lane to a deciduous tree in the front of 32 Woollum. Two calls from there, the bird giving softer one was not seen until it flew down Cres, the lightish other one was seen in an open perch, fed twice by RWBs.
	17:17-17:20	Heard then located in tall deciduous tree at the front of 24 Woollum Cres, quite a dark fledgling about halfway up and over gutters of house.
20 Feb	06:36	Fledgling found in deciduous tree at the front of 31 Angophora St, flew across and down street, RWB also near.
	11:30	Begging heard in gums rear of 42 Woollum/41 Angophora St but couldn't hear at 11:33. Wind strong so hearing conditions not ideal.
22 Feb	06:46	Heard and located in large gum on the verge of 3 Croton St. Harassed by a Pied Currawong but didn't move much.

Abernathy and Langmore (2017) have now published information on the hatching and fledging times for the Eastern Koel. In their Sydney and Canberra area study, these were between 14-15 days and 18-22 days, respectively, or a maximum of 37 days from egg laying to fledging.

Thus if egg-laying took place during the very active period in the second half of November, the first fledgling may have been expected very early in Jan. This would be around 10 days before fledgling F1a was found and >30 days before F7 was discovered in Woollum Cres, which was the most active spot at the time - see Section 3.1. While the fledglings I found this year were all relatively advanced, as they had well-developed tails and generally flew well, it would appear that only fledgling F1a, located next to the small Rivett park where there had been less activity, may have resulted from the heightened November activity. This is in line with my previous comments that fledglings are often found in areas of relatively low adult activity (see Section 6.10 of Holland, 2016).

The 2016-2017 Eastern Koel breeding season in my local area of Chapman/Rivett seems to have been very successful compared with the three previous ones, when a

maximum of four fledglings were found (Holland, 2015). This season there were at least six in the unlikely event that the fledgling F1 complex was a single bird and that fledgling F4 was also the same as these. The maximum would be 10 assuming all of these were different, as was at least one fledgling of the two seen together on 18 and 19 Feb (see Table 7), but the more likely figure is 8. In particular, fledglings F1a-F1d were present over a 34-day period, and therefore it is probably unlikely to have been just the one fledgling, though except for F1b they were found at, or close to, the same spot. F1a and F1b were also lighter and quite mobile, which was one of the main reasons they were thought to be the same bird. F1c and F1d were generally darker and present over 19 days but with a gap of a week.

I am reasonably confident that all other fledglings identified in the Tables were different, though I could not be sure which bird I was seeing around Woollum Cres in the last few days during which fledglings were found. It was likely they were either F5 or F7, though it is possible F6 may also have been seen. Compared with 2014-2015, on many more occasions fledglings could not be located in their "territories", similar to my experience in 2015-2016 (Holland, 2016). The most recorded sequentially in one of my circuits was four around noon on 8 February.

Fledglings were found over a 37-day period, slightly longer than the 33 days in 2015 (Holland, 2015). Interestingly, three fledglings were found roughly within the same three "territories" as in 2015, F1 and F3 in the same one as "F1"and "F3" in 2015, and F7 in the same as "F2", which was also used in 2016 (Holland, 2016). The reason for this is not clear, though I suspect it is because all three "territories" are quite bushy, though that used by F3 probably is less so. While it is tempting to speculate that females are coming back to the same spot each year to lay their eggs, without being able to identify them (or even see them in the area around egg-laying time!) I have no evidence for this.

Other fledglings were much more mobile, in particular F2 (the only one located in Chapman), which was observed in different spots over 800 m apart, as well as towards the end F5 and F7.

Red Wattlebirds were the hosts in all cases, though hosts for F1a and F1b were not confirmed. In one case F1b was found in the presence of Noisy Friarbirds feeding their own dependent young. It left quickly and I did not see any interaction, including the very unlikely feeding of F1b.

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Female and male Eastern Koel (*Julie Clark*)

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CHANGING ADULT BEHAVIOUR AND A SIGNIFICANT INCREASE IN EASTERN KOEL BREEDING IN CANBERRA IN THE SUMMER OF 2016-2017

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Abstract. *This paper details the observations made of changing adult Eastern Koel* Eudynamys orientalis *behaviour throughout Canberra during the spring/summer of 2016-2017. This is based on the collection of comments posted on the COG chat line, as well correspondence directly with me. Changes include the much earlier arrival of females and consequent earlier interactions between multiple adult Koels, and an increased number of fledglings (around 60 reported). This evidence is supported by similar observations made in my local area of Chapman/Rivett (see this issue, p.167ff).*

1. Introduction

The first breeding records for the Eastern Koel (*Eudynamys orientalis*) (Koel hereafter) in Canberra were published in 2009 (Lenz et al. 2009). Since that time reports of breeding have steadily increased. For the past three years I have published observations of fledglings and associated adult behaviour in Chapman/Rivett (Holland 2014, 2015, 2016a), as have Darwood (2015) for Flynn and Abernathy and Langmore (2016, 2017) for Canberra. This paper and Holland (2017, this issue) document apparent changing adult Eastern Koel behaviour throughout Canberra and a significant increase in the number of fledglings reported during the spring/summer of 2016-2017.

2. Methodology

Most of the reports of fledglings and adult Koel behaviour for 2016/17 came from the COG E-mail Discussion List (COG chat line), though some were from E-mails directly to me. On 23 Mar 2017, when the increased number of fledglings had become apparent and the possibility of writing a paper for CBN was realised, I made a request on the COG chat line for further observations, to which there was an excellent response. Due to space limitations some of these observations and comments have had to be edited, retaining only the most relevant information. However, despite my own preferences (see Holland 2017, this issue), adult and fledgling Koel calls have been left as indicated by the authors. As far as possible all these communications are acknowledged.

3. Observations

3.1. Early arrival of females and interactive behaviour of multiple adult Koels

September of 2016 was very wet and cool. Yet, the first report of a Koel that I became aware of was on eBird Australia by Alastair Smith in Garran on 1 Oct, followed by a COG chat line report on 8 Oct by Nathanael Coyne of one calling in

Macquarie/Cook. After mid October there were many reports on the COG chat line of Koels arriving throughout the suburbs.

Based on past years I would have expected that most of the reported calls were the familiar ko-eling made by males, but on 23 Oct Christine Darwood posted on the COG chat line that on Wednesday 19 Oct around her place in Flynn a lot of loud keek keek keek calls were heard, and then she saw the bird flying, still keeking loudly. She pointed out that she does not usually notice the female so early. In addition Susanne Gardiner posted on 25 Oct that she was woken up by a female on Friday 21 Oct in Ainslie, and that since then both males and females had been calling nearly every day. The same day Charmian Lawson posted that she could hear a kek kek kek at about 05.30 h some distance away in Holder. Ryu Callaway heard a female calling in Fadden on 24 Oct, and on the afternoon of 25 Oct Barbara Allan saw her first female of the season in Beauchamp St Deakin – it was responding to a male's ko-el call and then flew off to join him. Similarly, I saw my first female on 25 Oct in Rivett/Chapman (see Holland 2017, this issue).

Based on my experience in Rivett/Chapman (see Holland 2017, this issue), it seemed the first half of November was very much quieter. The only postings mid-month for multiple adult Koels interacting came from Geoffrey Dabb on 14 Nov on Rocky Knob in Narrabundah. A female was giving voice persistently, and males were calling from 2 directions. The female was being harried by Noisy Miners (*Manorina melanocephala*) and Pied Currawongs (*Strepera graculina*). In response Daryl King noted that in Melba a female Koel was still around, as were at least two males. Also on 3 Dec David Rosalky reported that there were at least six Koels in his street in Deakin that morning, as well as three or four very noisy and active Koels that evening.

On 31 Dec Geoffrey Dabb reported sustained inter-active excitement in Narrabundah that morning. Persistent kek-keking began well before sunrise, perhaps at 3 am. During and after feeding four males and three females (up to then the most together that I was aware of) were active and noisy in the Brockman-Wylie-Carnegie Sts area. He noted this was where Virginia Abernathy had banded a chick in a Red Wattlebird (*Anthochaera carunculata* RWB hereafter) nest in a street pin-oak. On 2 Jan 2017 Virginia responded that something similar had happened during the 2015-16 season after that Koel nestling had fledged. She witnessed a whole chorus of male and female adults calling together in this same area for perhaps 15 minutes and the fledgling was in the tree where its nest had been. Then the party dispersed and it was quiet.

Previously I have also described increased adult Koel activity in the presence of fledglings (Holland, 2014, 2015, 2016a). A similar event may have occurred in Woollum Cres Rivett last year (Holland, 2016a) when a relatively immobile fledgling was found eight days after significant adult activity began on 20 Jan 2016.

In contrast, most of the interactions between multiple adult Koels reported in the 2016-2017 season occurred before the first fledgling was recorded, similar to my experience in Rivett/Chapman (see Holland 2017, this issue). The only exception came from Steve Wallace who posted on 21 Jan that Koels had been very active in his area (Fraser/Mt Rogers) that month, usually with a female being chased by two

males or two males chasing each other. At the same time he also reported three fledglings (see Table 1).

On the same day Christine Darwood reported from nearby Flynn that she had heard a lot of Koels calling this season, mostly keeks and wirras, and had often seen the male and female or both in her fig tree, and on one occasion she saw a male feed a female. The early morning wake-up calls had been a constant this season, though not often from the fig tree outside the window. On the morning of 21 Jan, loud calling from the fig tree woke her before 05:00 h and later she saw the male Koel hop onto the back of the female, and copulation occurred (such surprisingly late mating was also reported by Stuart Rae – see last entry in Table 3). She noted that ironically this took place to the background music of a young RWB begging.

Finally, on 26 Jan, David Nicholls wrote that the previous afternoon there were six Koels, and two RWBs trying to get rid of them in his huge yellow box (*Eucalyptus mellidora*) in Deakin. There was a good deal of Koel calling (the alternate calls, not ko-el), some extremely loud and a lot of jumping around and excitement. One Koel especially was calling frequently, and stayed in the tree the longest.

4. A significant increase in numbers of reported Eastern Koel fledglings in Canberra

Over the two previous seasons in my monthly columns in the Gang-gang newsletter I kept a tally of the number of Koel fledglings reported both on the COG chat line and directly to me. Virginia Abernathy kept a similar list while completing her Ph D on Koels. We both made requests for such information and kept a cross check on the tallies. My April 2016 column (Holland, 2016b) reported a total of around 28 for 2015-2016, which was said to better the previous year's estimate of 25. However, Holland (2016a) indicates a total of 29 individual Koel fledglings for 2015-2016, and this can be accepted as the final figure.

Despite Virginia having moved on and less effort on my part (at least initially), it became clear about halfway through the 2016-2017 breeding season that the number of reports of Koel fledglings seemed to have significantly increased. This led to my request on the COG chat line for further observations, to which there was an excellent response. This information, together with that posted on the COG chat line and previous E-mails correspondence directly to me, is summarised for each month in Tables 1-3. Note that these tables include the fledglings I recorded in Rivett and Chapman (see Holland 2017, this issue).

A discussion of these results follows these Tables in Section 5.

Table 1 Eastern Koel Fledglings reported in January 2017

Date*	Name	Location	Comments
1-14 Jan	Tina Bromhead	Rivett	Fledgling fed by RWB over this period in her Carbeen St garden. Different from my F1a below as well advanced, based on photo taken mid this period, and >1 km away.
8 Jan	Nathanael Coyne	Macquarie	Reported the "whinnying" of a Koel chick nearby and frantic foraging by RWBs, hopefully not the same parents who had to raise a Koel last season.

Table 1 continued

Date*	Name	Location	Comments
15 Jan	Geoffrey Dabb	Manuka	Flying koel chick begging noisily in Murray Cres Manuka. Audible from 100 m away.
16 Jan	Jenny Smits	Deakin	Fledgling in Lawley St Deakin being fed by a hard-working RWB. A very noisy female Koel was hanging around on Stonehaven Cres past month or two. Males sometimes around.
16 Jan	Jack Holland	Rivett	F1a - see details in Holland (2017, this issue).
16 Jan	Lindell Emerton	Mawson	Fledgling was softly calling for the attention of a nearby RWB in a tree in our driveway - Shackleton Circuit.
21 Jan	Steve Wallace	Mount Rogers	At least three Koels have fledged on the northern slopes of Mount Rogers this month. RWB hosts
22 Jan	Terry Munro	Turner	Found a young Koel calling in Masson St. No RWBs in sight.
23 Jan	Ryu Callaway	Fadden	1 flying fledgling being fed at Fadden pond (RWB host confirmed).
23 Jan	Michael Lenz	Lake Ginninderra	1 Fledgling at Macdermott Pl.
24 Jan	David Rees	Gungahlin	Noisy Juvenile eastern Koel seen in a pin oak at intersection of Phyllis Ashton Circ and James Kirk St (south shore of Yerrabi Pond). It was being fed by a pair of busy RWBs.
25 Jan	Jack Holland	Rivett	F1b - see details in Holland (2017, this issue).
25 Jan	Jack Holland	Yarralumla	Advanced fledgling seen begging loudly at 13 Hamilton Row, no RWBs near. Flew 100 m across to Strahan Row.
25 Jan	Steve Wallace	Giralang	Located two juvenile Koels calling from the same tree near Giralang Pond. They moved separately but followed a similar route to trees near a small fig tree about 100 metres away. At times both of them were in the fig tree. Their begging calls were given asynchronously. At least four adult RWBs were in attendance. It was not possible to determine which fed which juvenile Koel but several times a RWB would fly past one begging Koel to feed the other one.
26 Jan	Michael Lenz	Dickson	1 fledgling near the Dickson Motor Registry,
26 Jan	Mark Clayton	Evatt	Photo taken in MacDowell St by Marion Pfitzner, was with attendant RWBs.
26 Jan	Con Boekel	Giralang	There were two fledglings being fed by RWBs near Giralang Pond on 25 Jan (see Steve Wallace above) and a single fledgling being fed about 0.5 km up the drain from Giralang Pond on 26 Jan - not one of the 25 Jan birds or Kinalung Pl (see 27 Jan entry below), which is around 950 m away.
27 Jan	Margaret Robertson	Giralang	A begging young Koel was calling frequently from gardens around her place in Kinalung Pl Giralang. She had seen two RWBs feeding it. The call is persistent, like a young RWB, but stronger.
28 Jan	Susanne Gardiner	Ainslie	Watched a Koel chick being fed by RWBs.
28 Jan	Jack Holland	Chapman	F2 - see Holland (2017, this issue)
28 Jan	Barbara Allan	Lake Ginninderra	Found fledgling begging loudly in the picnic area on the east of Lake Ginninderra peninsula (about 1 km away from the one that Michael Lenz reported from Macdermott Pl on 26 Jan). RWB fosters. She had seen Koels on the peninsula only a couple of times this season but large numbers of RWBs.

Table 1 continued

Date*	Name	Location	Comments
29 Jan	Richard Jeremy	Palmerston	Had a very robust young Koel outside my place for some time (video and date provided). There were also three others in the neighbourhood, as he could hear them all at the same time. The youngster he did see and hear was fed by a RWB.
30 Jan	David Rees	Yerrabi Pond	One juvenile, northern Amaroo side in casuarinas by lake, being attended by RWBs. Likely the same one as 24 Jan but other side of the lake, 200 m "as the Koel flies".
31 Jan	Ian Baird	O'Connor	Immature fledged Koel being fed by its host parents, a pair of Noisy Friarbirds in his garden at his 15 Fairfax Street. This observation was posted on the Canberra Nature Map at: http://canberra.naturemapr.org/Community/Sighting/3370967
Jan	David Rosalky	Deakin	A begging young in Northcote Cres (>1 km from Lawley St, 16 Jan above) in the second half of January (exact date not recorded). No bird came to feed it. It was calling strongly and he suspected it was a pretty well developed fledgling. Many RWBs in the area, some with their own clutches.
Jan	Martyn Moffat	Curtin	In the week beginning 29 Jan I had two adults and one fledgling in my GBS site.
Jan	Steve Wallace	Mount Rogers/Fraser	Recorded 3 young in one day (see 21 Jan entry above), and at least 2 other young in the area (at least 400 m from the first sightings), but could not be sure these were not the same birds.

*Wherever possible this is the date of the record, if not clear the date of posting on the COG chat line or E-mail to me.

Table 2 Eastern Koel fledglings reported February 2017

Date*	Name	Location	Comments
Jan/Feb	Judy Gillis	Lyneham	1 Koel fed by a RWB at her bird feeder over the month of January and then over February she could hear the Koel "yapping" around the neighbourhood (she lives on the Northbourne Ave side - 2nd possibly = Clayton below).
3 Feb	Michael Lenz	North Lyneham	Found a young Koel in a RWB nest. Tail feathers of the nestling were about 1.5 cm long. Adult Koels have been very noisy for several weeks around this area.
3 Feb	Isobel Crawford	East Dickson	Came almost face to face with a fledgling in a West Wyalong Wattle as I put out the garbage bin.
4 Feb	Jack Holland	Rivett	F3 - see details in Holland (2017, this issue).
4 Feb	Barbara Allan	Lake Ginninderra	The Lake Ginninderra peninsula one (see 28 Jan entry Table 1) was there again, still begging and being fed by RWBs but looked to be fully grown and able to fend for itself. Was in Diddams Close car park, *i.e.* on the W side of the peninsula, about 400 m from the previous sighting.
4 Feb	Mark Clayton	Lyneham	Based on a photograph of a juvenile, probably being fed by RWBs, taken at Goodwin Street near Lyneham High School. Not same as Lenz 3 Feb above, as > 1 km away.
6-7 Feb	Marian Sawer	Hughes	Koel fledgling was being fed by a RWB on a tree on the fence line between 5 and 7 Wisdom Pl.
8 Feb	Jack Holland	Rivett	F5 and F6 - see details Holland (2017, this issue)
8 Feb	Barbara Allan	Page	Noted at COG meeting, finally have fledgling in my garden
10 Feb	Jack Holland	Rivett	F7 - see details Holland (2017, this issue).

Table 2 continued

Date*	Name	Location	Comments
17-18 Feb	Christine Darwood	Flynn	Yesterday and today I have seen my first koel fledgling for the year. Yesterday it was in the fig tree (figs not quite ripe yet), and this morning loud begging from the front garden, easily tracked down to (I presume) the same individual. It is a darker one, with black malar stripes. The begging was a lot louder than that of RWBs, of which I have had at least two over the summer, but only individuals.
18 Feb	Geoff MacVeigh	Watson	In Dobbie Pl. He didn't see any birds with it. On 21 Feb there were reports of two in North Lyneham (see below), but this is in SE Watson, so very likely an additional one.
21 Feb	Michael Lenz	North Lyneham	Found a 2nd young Koel in North Lyneham. The 3 Feb one is still there, but it and its "parents" roam widely. It is very close to independence). The second was still stationary, begging from a dense exotic tree, with RWBs nearby.
21 Feb	Christine Darwood	Jerrabomberra Wetlands	At the Tadorna hide, there were four adult RWBs, one begging RWB, and one begging Koel. The calls were quite different, the RWB begging call a lot thinner, the Koel's louder and with more tone. At times they were in unison, and at times alternating. I think that a juv Koel was also seen there on 4 Feb, but probably not the same bird. I had also seen a male and female Koel "together" there on 3 Jan.
22 Feb	Mark Clayton	Kaleen	A fully fledged juvenile flew over me at my house on Maribyrnong Ave. This bird was quite possibly almost independent and it followed a male that also flew over a minute or so earlier. There have been up to three Koels, but mostly two, in close proximity to my place and I would be fairly certain the bird was raised locally.
23 Feb	Michael Lenz	Lyneham	Young Koel Mouat St/Goodwin St, tail half size. Very recent fledgling so different from 3 Feb one above
Feb	Martyn Moffat	Curtin	A Koel fledgling was being fed by RWBs in the GBS week starting 26 Feb. So a second fledgling in Curtin four weeks later (see end of Table 1), as in my experience fledglings don't stay around being fed for more than about 3 weeks.
22 & 27 Feb	Leo Joseph	Florey Macarthur	We have received two young birds recently in CSIRO Wildlife: one from Florey on 22 Feb and 1 from Macarthur on 27 Feb.

*Wherever possible this is the date of the record, if not clear the date of posting on COG chat line or E-mail to me

5. Discussion

5.1. Changing Eastern Koel behaviour

The observations detailed in Section 3.1 support the view that females arrived much earlier in 2016-2017 than in previous seasons. This early arrival would appear to be related to a number of observers (in particular Christine Darwood in Flynn) noting much less male "ko-el" calling compared with the "wirra/whoa" calls usually attributed to times when conspecifics are present. In addition, on 12 Dec Rosemary Blemings noted that in the past week there had been a surge of Koel activity around mid-Flynn. There were plenty of calls which were usually the "wirra" rather than the "ko-el" call. On 28 Dec she noted much more activity again, remarking that there were *very few* "ko-el" calls. (Curiously, friends in Fraser also noted this.) All calls were of the "whip whip whip" type.

Table 3 Eastern Koel Fledglings reported March 2017

Date*	Name	Location	Comments
9 Mar	Mark Clayton	Kaleen	In Darby Street my wife Kay saw another juvenile Koel, smaller than the bird I saw a week or so ago. It was being harassed by Pied Currawongs and the bird was chased off.
11 Mar	Yarden Oren	Watson	Koel fledgling still being fed by RWBs.
11 Mar	Duncan McCaskill	Giralang	There is still a begging young Koel around my place in Giralang. I haven't seen it being fed for a few days, so I wonder if its hosts have given up on it.
11 Mar	Martin Butterfield	Telopea Park	Had been advised of a RWB feeding a Koel chick on a deck adjacent to Telopea Park. The RWB had raised a brood of its own chicks earlier in the season.
22 Mar	Stuart Rae	Cook/Macquarie	Saw a juvenile Koel cross the road between Cook and Macquarie. There were no fledglings in the garden this year, and the RWBs reared three broods. Koels were around all season, but I think the only female I saw might have arrived a bit late. They were still mating late in the season.

*Wherever possible this is the date of the record, if not clear the date of posting on the COG chat line or E-mail to me.

These observations were supported by Isobel Crawford in East Dickson, who indicated that she had heard fewer individuals calling at night than in earlier years. I assumed she meant "ko-el" calls, based on my Rivett/Chapman experience. However, I note from Section 3.1 that on 31 Dec Geoffrey Dabb heard the female kek-kekking from well before sunrise and Christine Darwood reported that the early morning wake-up calls (mainly keeks and wirras) had been a constant that season.

Alison Rowell, who lives near Isobel, also indicated she thought she had heard more females calling this year, and not so many males, or at least not the persistent calling. Again I assumed she meant the "ko-el" from males advertising for females. She wondered if the sex ratio has been a bit skewed in the past: it would make evolutionary sense for "expendable" males to invade new areas ahead of the more valuable females. She also wondered if males call less if there are more females around, *i.e*. if they are getting responses? Those long nights of constant "ko-ell" calling in previous years could be partly because they got few answers.

Alison's theory is supported by the early arrival of females and the fact that most of the multiple Koel interactions reported in the 2016-2017 season were before the first fledgling was reported, rather than after.

5.2. Fledgling locations and numbers

A summary of the broad locations and numbers in each suburb/location within these broad areas follows (with numbers or range of numbers per suburb in parenthesis):

Belconnen – 22-25: Macquarie, Mt Rogers/Fraser (3-5), Giralang (5), Lake Ginninderra (2-3), Evatt, Page, Flynn, Kaleen (2), Cook/Macquarie, Palmerston (4), Florey.

North Canberra – 12-14: Turner, Dickson (2), Ainslie, O'Connor, Lyneham (4-5), Watson (3-4).

Inner Southside – 17-21: Manuka, Deakin (2), Rivett (6-9), Yarralumla, Mawson, Chapman, Hughes, Jerrabomberra Wetlands (1-2), Telopea Park, Curtin (2).

Tuggeranong – 2: Fadden and Macarthur.

Gungahlin – 1-2: Only from Yerrabi Pond.

None were reported in **Queanbeyan** or elsewhere in surrounding **NSW**.

Adding up the total for each of the broad areas gives a **minimum of 54 and a maximum of 64**. It is difficult to determine the exact total number as there may be some duplication in the tables, though I have tried hard to minimise it. Given the similar methodology of obtaining the numbers outlined above, there were certainly many more Eastern Koel fledglings reported in the 2016-2017 breeding season than in 2015-2016, roughly double the estimate for the latter. However, in both seasons significant underestimates are likely, as I expect many fledglings are overlooked or are simply not reported.

5.3. Further comments on fledglings' location and numbers

As noted, by far the most (close to half) of the fledglings were reported from Belconnen, with North Canberra second given that the Inner Southside comprises three distinct areas, South Canberra, Woden and Weston Creek. The surprise is that there were so few in Tuggeranong. Philip Veerman noted that there had been no Koel breeding close to his home in Kambah this year, in contrast to the last few years. Harvey Perkins noted that his area in Kambah (Gleneagles) does not seem to be favoured by Koels. Despite the increase in records across the region over the years, he still does not get them regularly, only recording them two or three times this season, which he indicated is not atypical for the past eight years. This contrasts with Summerland Circuit (Kambah) in 2009, by which time Koels had been becoming more regular and numerous in that part of the suburb.

On 6 Jan Marnix Zwankhuizen posted on the COG chat line that he heard a Koel calling briefly from Tuggeranong Office Park and 30 minutes later further south east towards Lake Tuggeranong. This was the first time he had heard a Koel around the Tuggeranong Town Centre. Thus there may be fewer Koels, or it may also reflect that there are fewer observers in Tuggeranong, noting that Map 3: Location of Garden Bird Survey Sites in the Annual Bird Report 1 July 2015 to 30 June 2016 (Canberra Ornithologists Group, 2017) reveals that there were only 7 GBS sites in Tuggeranong, all in the NW corner. Koels have certainly been observed much further south, for example Tony Clark's report on 23 Dec of a female Koel which flew into their backyard in Gordon.

It is perhaps less of a surprise that Gungahlin also had very few fledglings reported, since it is a relatively new area where even in the older established suburbs fruit trees may be less mature than in Tuggeranong, which has been fully settled for at least 20 years. In fact David Rees' observations were the only comments I received from Gungahlin. I also note that Map 3 in the 2015-2016 ABR mentioned above shows only three GBS sites in Gungahlin.

The record at the Jerrabomberra Wetlands is also worth noting. On 4 Dec following a COG chat line post (with photo) of a female there by Geoffrey Dabb, Virginia Abernathy responded that she was unaware of any koels being sighted before at the Jerrabomberra Wetlands, or at any nature reserve for that matter. Examination of Table 1 in Abernathy and Langmore (2017) shows this was one of her "No koels" study sites for the 2013-2014 and 2015-2016 breeding seasons. However, in response on 5 Dec Geoffrey posted a diagram of flight paths and confirmed Koel perching/calling sites there for 2013-2016, noting that the core Koel area was the NE corner of the adjacent Causeway area of Kingston.

Virginia did note that they are becoming more and more common each year and may now be expanding into the reserves. She also noted that it would be interesting when/if they ever start extending into the ANBG with so many RWBs breeding there. In this respect it is interesting to note that Lake Ginninderra (and to a lesser extent Yerrabi Pond), was also one of Virginia's "No Koels" sites in 2013-2014 and 2015-2016, but with two or probably three fledglings reported from there in 2016-2017. Therefore Koels do seem to expand from the suburbs into the adjacent areas, though to my knowledge fledglings have not yet been reported at either the ANBG or the ANU (the latter also one of Virginia's "No Koels" sites).

5.4. Comments on other fledgling observations

Despite earlier arrival and greater activity of adult Koels, the first fledgling was not reported until very early in January 2017, over a fortnight later, compared with 14 December for 2015-2016. The last fledgling report was also more than a week earlier (22 Mar compared with 31 March - see Holland, 2016a). Most fledglings were first reported in January, but continued to be recorded throughout February, and with five first reported in March.

Apart from mine in Rivett/Chapman (Holland 2017, this issue), multiple fledglings were reported in close proximity on several other occasions, at Mt Rogers/Fraser, Giralang Pond where two were seen together, and at Palmerston where 3-4 could be heard at the same time. The most I have seen together is three within 30 m of each other (Holland, 2015), while Darwood (2015) also recorded two in her fig tree at the same time.

In well over half, RWBs were confirmed as the host, and I suspect this would have been the case in many more. In all except one case this was confirmed by the fledgling being fed, the exception being the chick present in a RWB nest in North Lyneham on 3 Feb. This is only the fourth time I am aware of this being recorded in Canberra (see Holland 2016c). However, it would appear from Table 1 and the associated text in Abernathy and Langmore (2017) that Virginia Abernathy found 5 parasitised nests in Canberra during her Ph D research, though it is unclear whether these were based on eggs or chicks. I expect one will have been that mentioned above in Section 3.1, which is included in my tally.

The only instance where a different host was identified was the Noisy Friarbird (*Philemon* corniculatus) in O'Connor on 31 Jan. Ian Baird posted this observation, including an image showing the Noisy Friarbird adult feeding the young Koel in response to its repetitive begging call, on Canberra Nature Map at: http://canberra.naturemapr.org/Community/Sighting/3370967. Ian noted that his

garden is very suitable for temporarily harbouring fledgling birds of several different species because is well vegetated with dense vegetation of all heights and ages. This is only the second time this host has been confirmed in the Canberra area. The first was briefly noted in Abernathy and Langmore (2016, 2017).

In a COG chat line post of 5 Dec 2016 Mark Clayton provided further details of this record as follows: Two of the members of his banding team live in the bushland surrounding Queanbeyan, quite a distance from the normal urban area. Their house, built on a fairly steep sloping block, has a large first-floor balcony that almost looks into the canopy of the Eucalyptus polyanthemos, E. macrorhyncha woodland. Eastern Koels are regular visitors to the area (he has heard them in the general area) and several years ago a Noisy Friarbird nested a few metres from the balcony so they were able to watch the friarbirds coming and going. They were most surprised when the juvenile bird in the nest turned out to be a Koel chick.

Apart from being the first record identifying the Noisy Friarbird in the ACT area as the host, this record is a very interesting as it was also one from bushland away from the suburbs where Koels are usually found.

5.5. Was it a good Koel season or not?

Apart from Rivett/Chapman (see Holland 2017, this issue), it seems from the Tables above that Mt Rogers/Fraser had a very good season. Steve Wallace confirmed that he would rate this year (2016-2017) as the most active for the northern slopes of Mt Rogers. The adults were more visible and the number of young he recorded was well up on previous years. However, Dennis Ayliffe indicated that in Fraser (the suburb which surrounds Mt Rogers) there was a lot of calling, the last being heard in the first week in March, but few sightings of either adults or fledglings. Despite her observations noted in Section 3.1, Christine Darwood noted that in neighbouring Flynn she would say it has been a relatively quiet year for Koels, though, as often seems to be the case, she had the last reported male in her fig tree on 28 Mar.

Ian Baird indicated that he would have to say it was a better than average year for Koels at his local patch in O'Connor, because he did not recall observing immature fledgling Koels at his place before. While Koels appeared to be only evident comparatively late in the breeding season, they were much more vocal and much more easily observed than in previous years. However, he qualified this conclusion because he is still working full-time, and normally absent from his home garden during working hours four out five days a week.

Other than Martyn Moffat noting that he thought it was a good year for Koels in Curtin, others were of the view that it had been an average or below average year in their local area. The low number of fledglings (and Koels) in Tuggeranong has already been discussed in Section 5.3 above. In addition Philip Veerman noted less activity of adult Koels nearby in Kambah than in recent years. There had been no noisy collections with only one or two on his GBS chart each week from week 47 to week 9. He hardly saw them at all. Michael Robbins also indicated that his impression was that there had been less Koel activity round Crozier Circuit, Kambah than most years, as he hadn't heard as many. However, he had three or four in the large yellow boxes about 50 m NW of his place one day making quite a racket, he didn't remember ever having that before.

Susanne Gardiner reckoned it was more of an average year in the northern part of Ainslie. Anne Carrick lives in Braddon but regularly walks to Dickson. She noted that in past years she had heard (but only rarely seen) several Koels both from her home, to the east in Ainslie and to the west in Turner/O'Connor, and while walking north to Dickson. In the season just finished she noted that the frequency of these hearings was considerably less, and did not think she heard a single Koel to the north, and only sporadically heard them to the east and west of her house. So in this part of north Canberra, she would say that it has been a poor year for Koels.

These comments are interesting because I have always associated Ainslie as Koel central, possibly because the first fledglings were observed from there (Lenz et al, 2009). It is thus noteworthy that only one fledgling was recorded there in 2016-2017. Terry Munro, who in the past has also had a number of Koel fledglings in or around his garden in Watson (Munro, 2012), did not record any fledglings this season, though in mid- January he would daily hear or see three to five Koels interacting. In addition RWBs had fledged four lots of chicks from nests in front of his house, so he postulated that they may be waking up to what Koels in this location are about. However, as noted from Tables 2 and 3 there were three, possibly four, fledglings reported elsewhere in Watson.

Finally Barbara Allan again only recorded a single fledgling in Page, as for the previous season, compared with at least 8 in 2014-2015 (Holland, 2016a). This was although in the second half of January she noted six family groups of RWBs with begging young within about 200 m from her garden. She too wondered whether maybe the RWBs are learning.

5.6. Calls

A number of observers, in particular Steve Wallace, posted some very interesting comments on Koel calls different from those normally attributed to male and female Koels (see discussion in Holland (2017, this issue). However, space does not allow me to include any discussion on this interesting and increasingly complex subject.

6. Conclusion

The information detailed and discussed above suggests that Eastern Koel activity in Canberra is changing: in 2016-17 females arrived much earlier, and it seems females were more numerous than in the past. As a consequence males gave less prolonged "ko-el" calling at night, and there were many more adult female and male interactions reported earlier in the season. The likely higher number of females also seems to have resulted in an increase in the number of fledglings reported, about double in the 2016-2017 season compared with the year before, most of them with Red Wattlebird hosts, but with the second local example of a Noisy Friarbird host. Despite this some key areas which in the past have had many Koels and fledglings seemed to have experienced reduced activity.

Acknowledgments

My sincere thanks go to everyone (all those named above) who has contributed to my two main data sources, postings on the COG chat line and direct correspondence with me. I am very indebted and grateful to all involved for publishing or providing this information, without which it would not have been possible to put this paper together.

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NOTES

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THE STORY OF A NESTING BOX IN KAMBAH

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In the spring of 2009, Kate Grarock sought assistance from people, in specific suburbs of Canberra, who were interested in participating in her research project (Grarock *et a*l. 2014) to address the question, 'Are invasive species drivers of native species decline or passengers of habitat modification?'. In particular, she was interested in investigating the role of the Common Myna (*Acridotheres tristis*) in this process. Seven suburbs in Canberra were targeted for removal of Common Mynas and seven similar suburbs were identified as controls. Kambah was one of the suburbs chosen for their removal and the author volunteered to host and monitor a nesting box provided by the project, on the nature strip adjoining her property.

A site was chosen four metres up on the trunk of a eucalypt, which was easily visible from the author's lounge room, for ease of reporting. Installation of the nesting box took place 1 Oct 2009. A simple report of any observed activity was submitted monthly to the project team.

Within three weeks of the installation, Common Mynas commenced nest-building in that box. As previously arranged, Kate's team removed the contents of the nest on 11 Nov 2009. Four days later the box was inundated by feral bees (*Apis mellifera*). An apiarist took bees and box away on 24 Nov. That was the end of season 2009-10

In spring of 2010 a new box was installed by Kate's team. This time we bypassed the Common Mynas and went straight to feral bees. Despite contacting several apiarists, none could be found who was interested in removing the new swarm, so for three seasons the box was left unattended, whilst the number of bees slowly dwindled. In the meantime, Kate's project period had ended but efforts by Canberra Indian Myna Action Group (CIMAG) to rid our area of Common Mynas was having a profound effect. None were observed in the author's surrounds for these intervening years.

Early in August of 2014 an Eastern Rosella (*Platycercus eximius*) visited the box, so it was time to repair it and clean it out, as the bees had not been seen for some months. On 13 Aug 2014 a pair of Crimson Rosellas (*Platycercus elegans*), in full adult plumage, were first observed inspecting the box and by 28 Aug the female was spending long periods inside, leaving only when the male stopped by and called her to go off and feed. A camera borrowed from Bill Handke, the President of CIMAG, allowed us to confirm that the nest contained 4 eggs. The Rosellas were constantly harassed by Red Wattlebirds (*Anthochaera carunculata*), who had a nest in a nearby tree. The author was away for most of September. On her return Red Wattlebird chicks were heard in the nearby nest and there was no sign of the Crimson Rosellas.

On inspection, there was evidence of egg remains on the ground and when the nest was checked, there were only remnants of shell in the box. We do not know if these events are directly connected. The Red Wattlebird chicks fledged on 17 Oct and almost simultaneously Eastern Rosella and Crimson Rosella were inspecting the nesting box again. Inspections continued until the end of October, but no other activity was observed for the rest of that breeding season. Still no Common Mynas were seen in the vicinity.

In September 2015 Common Mynas returned and soon started building in the nesting box. In October, five chicks which were well advanced were removed and humanely disposed of by the author, along with the nesting materials. Immediately building recommenced. Progress was closely monitored, with the intention of leaving the current breeding effort in the nest for as long as possible, to minimise the opportunity for this clutch to succeed and for another clutch to be produced before the end of the breeding season. When a chick was observed hanging out of the entrance, it was decided that disposal was urgent. Again five chicks were removed, along with the nesting materials, when both of the adult birds had gone off to gather food. Within hours four Common Mynas were squabbling over the box. It did not take long to resolve the dispute, but it is impossible to know if the previously occupying pair won the argument. Again, frenetic nest-building commenced and in January 2016 a further three chicks were removed. Yet another clutch of two chicks was removed in March 2016. At that time the entrance to the box was taped up, as the author was going away.

During winter of 2016 the nesting box fell down and Common Mynas have not been seen in the vicinity since.

It is interesting to note, that at the home of Philip Veerman, about 200 metres distant, the mynas only used the nest box, which was installed for the same project, for one breeding season. In that instance, the adult female and the clutch of eggs were removed and disposed of by the project team at night. After about two weeks the male found a new female and they recommenced nest-building, but they deserted soon after. Either Crimson Rosellas or Eastern Rosellas have successfully bred in the box each other year, up to and including the 2016-17 breeding season. Arrangements for the 2017-18 year are not yet finalised (pers comm.) with both species still disputing the box daily, at the time of writing.

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VIDEOS OF BIRDS, A VALUABLE SOURCE OF INFORMATION

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Videos are a valuable resource for documenting many aspects of the lives of birds, typically capturing calls, jizz and behaviour. In some cases the value of a video can be enhanced by also extracting data about the birds. This note describes some of my experience extracting these data and encourages others to consider using videos in a similar way.

The ability to watch a video many times, slow the replay and examine it frame by frame allows closer examination of the actions of the birds captured, which permits descriptive and quantitative data to be extracted. Data I have extracted from videos (see examples in Wallace 2013, 2015, 2017) are:

1. Development and behaviour of young including size relative to adults
2. Diving behaviour including timing of the period under water and time between dives
3. Feeding success such as percentage of successful strikes at prey and number of strikes per minute
4. Response to other species such as posture changes, agonistic behaviour and evasion
5. Description of behaviour such as courtship, mating and group dynamics
6. Flight speed.

Timing information is relatively easy to capture, as most computer-based video players can show the elapsed time from the start of the video for each frame. With 25 frames captured per second, times to an accuracy of 0.04 of a second are possible. Many cameras are now capable of much higher frame rates, with 50 frames per second (times to 0.02 of a second) being fairly common and 200 or more frames per second supported by some.

It is fairly obvious how most of the information I have extracted could be obtained by examining a video frame by frame. However, extraction of some information **is** most easily done when specific conditions are met.

Determining the relative size of two birds requires some care. The easiest situation requires both birds to be in the same frame, oriented in the same way to the camera and be the same distance from the camera. Ensuring the birds are the same distance from the camera usually means they need to be standing next to each other. This minimises the mathematics required but it is rare for all these conditions to be met.

Determining flight speed is easiest when the birds fly across the field of view in a straight line and good data on the size of the species are available. The ratio of the size of the bird and the distance covered between frames are used to calculate an

approximate flight speed. The size of the species has to be relatively consistent for this to work. I have used the method on swallows, martins and thornbills. This approach cannot be used for species with long necks which are not extended or those with a large size range (*e.g.* Great Egret). Even when the conditions for determining speed are met, the estimate derived usually has a large range of possible values (mainly resulting from the published size range for the species) and can only be considered an approximation. Even so, there are few estimates of flight speeds of Australian birds, so even a broad range can be useful.

Description of development and behaviour sometimes requires individuals or family groups to be videoed over days or weeks. If the young are mobile, the easiest way to ensure the same birds are being assessed is to use situations where there is only one family group, such as one family on a small pond, or to have an observation point within a defended territory.

While video has many advantages for studying birds there are also weaknesses. Perhaps the greatest weakness is the lack of picture resolution and clarity. Video is designed to convey the sense of movement to the watcher and a series of slightly blurred images can sometimes do this better than sharp ones. In automatic mode, most cameras try to produce the best video rather than the sharpest individual frames. Increasing the shutter speed will improve the sharpness of individual frames but may make the video less watchable. As well as low image sharpness, video frames also have a low resolution relative to photographs. Until relatively recently the highest resolution available on most cameras capable of taking video was two megapixels per frame, a resolution which can limit the information that can be extracted. Recent developments of higher resolution video formats (8 megapixels per frame), available in many video cameras now, have gone some way to addressing this issue. It is, however, still well short of the resolutions and quality achievable with photographs from many cameras. As a result, video may not be the best medium to use for capturing some information, such as plumage details.

The capture of usable video usually requires the birds to be photographable for more than a few seconds, much longer than is required to capture still photographs. This can sometimes limit the situations where video can be used. For data to be extracted from video, even longer sequences are usually required than those used solely for documentation purposes. Often it is not possible to capture the sequences required for analysis.

As I have found while researching articles, there are often gaps in the basic information about our birds, which, in some cases, can be filled using data extracted from videos. Even if information already exists, it is often based on a limited number of studies and extra data can be beneficial to understanding the species.

I encourage more people to take videos documenting the life of birds, and to add to our knowledge by extracting detailed data where this is possible.

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A FLAVISTIC FEMALE RED-RUMPED PARROT

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On 1 Nov 2017 I observed a flavistic female Red-rumped Parrot (*Psephotus haematonatus*) on Hughes Oval (approx. -35.331, 149.087) from 09:05 h onwards.

The bird flew down on to the mown grass along the northern edge of the Oval, called once and began to feed. It was alone. It continued to feed quietly for fifteen minutes or so as I observed it. It was still feeding when I had to leave.

In its plumage all the areas that are normally pale green were a pale yellow colour. The darker areas such as the primaries and the upper surface of the tail were a pale grey with a yellowish wash. The beak was yellow. The eye was dark as in normal members of this species.

Hughes Oval usually has groups of up to 50 Red-rumped Parrots feeding on the mown grass areas in the early to mid-morning period from winter through to early spring. However, by November these flocks are not present as the birds have moved to woodland reserves to breed. There were no other Red-rumped Parrots there that day and the fact that the bird was an adult female and solitary, and at a feeding spot without any other birds, probably indicates she was unmated.

She was extremely noticeable in flight, and hardly less noticeable on the ground against the green grass. However, in unwatered paddocks amongst longer grass she would probably be inconspicuous on the ground. I have not seen this individual before, nor any other plumage abnormality in Red-Rumped Parrots.

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SACRED KINGFISHER INTERACTION WITH GREY BUTCHERBIRD AND PIED CURRAWONGS

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The following observation was made on 7 Nov 2017, at the pond on Tuggeranong Creek:

A Grey Butcherbird (*Cracticus torquatus*) was observed diving down towards the pond several times, and closer inspection of its target revealed a Sacred Kingfisher (*Todiramphus sanctus*) sitting on the water, rather like a small duck. A Pied Currawong (*Strepera graculina*) joined in the attack, and the kingfisher tried a few times to fly away, but was driven back to the water, where it seemed to be quite comfortable. Neither attacker seemed anxious to get wet feet so did not at that stage make contact. After a minute or so the kingfisher flew over to the bank and sat on some dead reeds. An attempt by Sandra Henderson to photograph the kingfisher at that stage resulted in an image of the bird being grabbed by a currawong which appeared out of the reeds! After a brief struggle, the kingfisher flew off, with two currawongs and the butcherbird in pursuit. We did not relocate the birds, so do not know if the kingfisher managed to evade its pursuers.

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AERIAL PREDATION BY AN AUSTRALIAN RAVEN

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On 21st Nov 2017 at approximately 08:15 h, whilst bird surveying on a private property in the central Molonglo Valley, Laura Rayner and I notice a large flock of Galah (*Eolophus roseicapilla*) in the air above an open paddock, wheeling about and very noisy. Amongst the flock was a single, what appeared to be a Black Falcon (*Falco longipennis*). It soon became apparent that the bird was an Australian Raven (*Corvus coronoides*) and that it had its eyes on one particular member of the flock. To the observer the Galah was behaving the same as the rest of the flock and so did not appear injured in any way. After about a minute of continually chasing the one individual the Australian Raven managed to isolate the Galah from the flock. The Galah repeatedly attempted to join the flock but was kept isolated by the Australian Raven. The Raven managed to always be above the Galah and would repeatedly swoop down attacking with tufts of Galah feathers seen falling to the ground. Eventually the Galah, in a valiant attempt to escape, flew very low where the Raven was finally able to drive the Galah to the ground. The Raven immediately started to pluck the body feathers and peck at the body and was then joined by a second Raven who took part in dispatching and consuming the prey. The entire process was observed for about five minutes

Higgins *et al*. (2006) note that the Australian Raven usually takes terrestrial prey such as invertebrates, small vertebrates, lizards and carrion although eggs and fledglings are often taken. The only mention of aerial predation involved prey being forced to the ground in a similar manner to our observation but the prey was small with a Common Starling (*Sturnus vulgaris*) at 80 g, a Blue Bonnet (*Northiella haematogaster*) at 70-100 g and a Noisy Miner (*Manorina melanocephala*) at 70-80 g. The Galah would weigh approximately 330 g and so about half the weight of an Australian Raven.

The Galah was much heavier than previously reported prey items. The behaviour of this particular Raven, by deliberately isolating the individual, and remaining above the prey would suggest that this individual has taken similar large prey items on other occasions.

Reference

Higgins, P.J., J.M. Peters and S.J. Cowling (Eds*) (2006). Handbook of Australian, New Zealand and Antarctic Birds.* Vol. 7: *Boatbill to Starlings*. Oxford University Press, Melbourne.

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Canberra Bird Notes 42(3) (2017): 300-302

IMMATURE BRONZE-CUCKOO BEING FED BY BIRDS OF SEVERAL SPECIES

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On the morning of 21 Nov 2017, I visited Campbell Park–Mt. Ainslie to see the Crimson Chat (*Epthianura tricolor*) that was showing well there (the full bird list for that morning's visit is at https://ebird.org/ebird/australia/view/checklist/S40635687). About 07:00 h, I was returning South on Scotts Track, along the eastern side of Mount Ainslie. By that time it was sunny, the early morning cloud having cleared, and an estimated 16ºC. Bird calls just off-track to the West attracted me to walk about 30 m into the bush to a small clearing (35°16'32.5" S, 149°10'43") with fallen timber, saplings, and a couple of large eucalypts (*Eucalyptus blakelyi*, Blakely's Red Gum).

Over the next 20 min, I watched significant bird activity in the low canopy around the clearing. Total species count for that period, before the group of birds dispersed, was five Weebill (*Smicrornis brevirostris*), four Yellow-rumped Thornbill (*Acanthiza chrysorrhoa*), six Buff-rumped Thornbill (*Acanthiza reguloides*), one Western Gerygone (*Gerygone fusca*), three Varied Sittella (*Daphoenositta chrysoptera*) feeding on fallen timber and in the canopy, one Grey Fantail (*Rhipidura fuliginosa*), two Rufous Whistler (*Pachycephala rufiventris*), five Brown-headed Honeyeater (*Melithreptus brevirostris*) including at least one adult and three less well marked birds, three Dusky Woodswallow (*Artamus cyanopterus*), a single Crimson Rosella (*Platycercus elegans*), and a bronze-cuckoo (*Chalcites* sp.). All species were calling except for the honeyeaters, rosella and bronze-cuckoo. Most active (calling, moving, feeding and interacting) were the thornbills, weebills, gerygone and honeyeaters; the Western Gerygone actively chased one of the Yellow-rumped Thornbill in tight circles, then a few minutes later the roles were reversed.

The bronze-cuckoo was silent for this whole period. It sat within the canopy on an otherwise exposed branch, and moved occasionally to follow the other birds. Its back and wings were bright shiny green on a brown ground, and it had a pale whitish breast with faint barring on the sides towards and under the wings. The head was grey on top, paler below from above the eye downwards, with a dark eye and bill, but no black facial markings or eye line. There was no noticeable rufous on the tail. It was first identified as an immature Shining Bronze-cuckoo (*Chalcites lucidus*) from the extent of green, the unmarked face, and the lack of rufous on its tail, but the minimal barring on the breast suggested immature Horsfield's Bronze-cuckoo (*Ch. basalis*); the bird was entered on eBird as 'bronze-cuckoo sp.', and is here referred to simply as an immature bronze-cuckoo. Both these species of bronze-cuckoo have been studied at Campbell Park (Langmore and Kilner 2007) and both had been reported from the location over previous weeks (eBird records); I had seen and heard an adult Horsfield's Bronze-cuckoo about 300 m away earlier that morning. The association of this immature bronze-cuckoo with thornbills (see below) might be

more consistent with Shining Bronze-cuckoo, as at Campbell Park that species is fostered primarily by thornbills while Horsfield's Bronze-cuckoo is fostered primarily by Superb Fairywren (*Malurus cyaneus*) (Langmore and Kilner 2007).

Initially, the immature bronze-cuckoo was attended by two Yellow-rumped Thornbill, which fed it once. Then, during a one-minute period, the bronze-cuckoo was fed in sequence by a Yellow-rumped Thornbill, a Weebill, and a Grey Fantail. The food brought by the Weebill was a small grub. Over the remaining 15 minutes of observation, the bronze-cuckoo was attended mostly by Yellow-rumped Thornbills but also by Weebills, although feeding was not observed. The bronze-cuckoo was silent the whole time, but fluttered its wings and tail each time that it was fed. No begging behaviour was observed before any feeding event.

There are accounts in the literature of young cuckoos being fed by birds that were not their foster parents. Soler *et al.* (2014) studied fledgling Great Spotted Cuckoo (*Clamator glandarius*) in Spain that were fed by a number of individual European Magpie (*Pica pica*), but found that all non-parental feeding events were by magpies that were also caring for other cuckoo fledglings. Most reported instances of young cuckoos being fed by birds of different species to their foster parents are anecdotal, and appear generally to involve Pallid Cuckoo (now *Heteroscenes pallidus*). For example, Smith (1989) recorded a "young fully grown Pallid Cuckoo … in mottled black and white juvenile plumage" being fed by four passerine species (Hooded Robin *Melanodryas cucullata*; Yellow-tufted Honeyeater *Lichenostomus melanops*; White-plumed Honeyeater, now *Ptilotula penicillatus*; and Rufous Whistler *Pachycephala rufiventris*) over the course of an hour. Smith noted that the cuckoo maintained a continuous begging posture, but did not always use vocal solicitation. Other examples (Sharland 1929; Chaffer 1973; Woodell *et al*. 1989) include cases where the young cuckoo sat on or beside a nest of birds of different species to its foster-parents, and was fed both by that nesting pair and by its foster parents. Sealy and Lorenzana (1997) summarize 67 reports of 13 species of brood-parasitic young, mostly fledglings, being fed by individuals other than their (known or presumed) foster hosts, whether of the same species as the foster hosts or not; they name this 'auxiliary feeding'. Instances involving bronze-cuckoos were listed, but the species of cuckoo is unclear in the two published accounts included by Sealy and Lorenzana (1997) of bronze-cuckoos in Australia being fed by birds of multiple species (Keartland 1906; Gilbert 1939). Auxiliary feeding may be widespread, just not well reported, and it is possible that the high level of mixed-species bird activity at the time of this observation, notable in itself, contributed to the bronze-cuckoo being fed by birds of various species.

Acknowledgements

Thanks to Alastair Smith who suggested that this observation be documented, and to Professor Spencer Sealy, University of Manitoba, for providing copies of his published work. Nomenclature used is from Birdlife Australia's Working List of Australian Birds, version 2.1: http://birdlife.org.au/conservation/science/taxonomy.

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COLUMNIST'S CORNER

Canberra Bird Notes 42(3) (201) 303-307

In this issue: (a) The Great Bird Length Debate; (b) Where the Black-eared Cuckoos are: deconstructing the range maps

Two points are often made about *The Australian Bird Guide*: those concern weight and length, the weight of the volume, that is, a subject I shall leave to one side for the moment. The length issue concerns the decision of the authors to omit an indicative overall length in species descriptions for the reason, among others, that available measurements, from dead specimens, are different from what you see in the field.

There have been murmurs of dissatisfaction with that policy from the reviewers, for example Harvey Perkins in this journal and Richard Noske in the *Australian Book Review*. On the whole, *Stentoreus* agrees with the no-length decision, partly because he has often heard field-guide carrying observers declare 'That bird looks smaller (or larger) than it should.'

As it happens *Stentoreus* has been interested in this subject for some time. You will find more about it than you want to know in 'What bird is that size?*'* (*CBN* 29:2 June 2004).

Helpfully, the *Guide* provides a scale on each page of illustrations that can be used to find out, or get a quick visual impression of, the length (or width or any other dimension) of the main image of each species on the page. Moreover, 'the illustrations and scale bars are based on careful measurements, and therefore provide a reliable indication of size.' Obviously the scale is to be applied to the bird in the posture shown, and not to an imaginary dead bird stretched out on a table.

That procedure seems to work well enough for the foraging Baillon's Crake, which measures a plausible 14cm compared to the (stretched or whatever) length in *HANZAB*: 15 to 18cm. However something seems to have gone wrong on the other page I checked.

This scale method aims to reach a higher level of helpfulness in the plate showing the gannets, where *two* scales are provided, each to be applied according to whether the bird is 'perched' or 'flying'. From these you can quickly calculate that you can expect the length of a 'perched' Australasian Gannet ('standing' might be a better word) to be 137cm and a flying gannet to be an impressive 165cm.

Stentoreus is not confident of his mathematics but even he can see that the pictured flying gannet is, surprisingly, much longer than the provided 1 metre ruler.

More realistically, *HANZAB* can only stretch the species out to '84-91cm'.

.....

This spring we are hearing and seeing relatively high numbers of Pallid Cuckoos. The reporting rate for this species has fluctuated strongly since 1984, with a high of 9% in 1986, 8% in 2001 (quite high for a seasonal visitor) and low of 0.7% in 2014. The reporting trend has not risen in 30 years, in contrast to the Koel, now a common visitor that has clearly expanded its breeding range. With loud far-carrying calls neither of those cuckoos is likely to be overlooked.

On the other hand, the Black-eared Cuckoo is much rarer and more difficult to detect. Steve Wilson wrote the species account in *Birds in the Australian High Country* (1969). Excerpts: 'The bird does not seem to be really common anywhere … In our area it is very rare … It flies low and silently and is not often seen. It spends much time sitting quietly in a low bush'. There have been occasional reports since the first 'recent' report, at Black Mountain in 1968. The label given in Wilson's 1999 book was 'rare non-breeding vagrant', and that still appears on the COG website.

The status of this species in different areas, and its movements, are not well understood. The *HANZAB* account contains these sentences (citations omitted): 'In literature, variously considered migratory ; nomadic …; or probably resident.' 'Considerable variation in occurrence and numbers between years.. .' 'In some areas occur in some years but not in others …'. 'In some areas where normally uncommon or only seen occasionally, common in some years …'. 'Visit some areas in most years ...'. One can only sympathise with the person who had to put that summary together.

Peter Slater's first field guide (1970) broke new ground in a number of respects, including the provision of range maps. Coming before organised atlas surveys, these were to be regarded as approximate, to be corrected in light of better information.

Birds Australia conducted atlas surveys in 1977-1981 (published 1984) and 1998-2002 (published 2003). The first of those was used to produce the intricate BEC range map in *HANZAB* vol. 4.

In the 1986-1989 COG atlas this species was recorded in the ACT on four occasions, leading to its designation as a 'minor species'. This meant that its occurrence was shown on the map devoted to it by red dots in respective grid cells, rather than shaded contoured areas. A difficulty in small-scale distribution maps is that the shading will often include large areas where the species in question has not been recorded (perhaps 'unsuitable habitat', perhaps just not visited) and often will not embrace isolated records (which by definition become 'out of range' records).

According to the 2014-2015 *CBN Annual Bird Report*, Canberra is on the fringe of the BEC range. Therefore the label 'visitor', used in the ABR, is more appropriate than the often misused 'vagrant'.

Now we have the ongoing atlassing made available through eBird. This online facility has the advantage that you can zoom in for detail of records, and sift through locations, seasons and years. It contains many out-of-normal-range records, and many blank spaces.

It is not known whether individual BECs that reach the Canberra area in spring are in search of breeding opportunities or non-breeders. Steve Wilson had noted that in eastern Australia, Black-eared Cuckoos 'concentrate' on the Speckled Warbler as a host species, a preference confirmed by *HANZAB* and other authorities Therefore one would expect that in spring/summer breeding BECs would be where the Speckled Warblers are.

In looking at the attached four examples of range-mapping, you might wonder whether the species has undergone a range-expansion. However, in my view, we simply do not know enough about its distribution and movements. The species can appear throughout its 'range', including southern points, at any time of year, although ACT records have been in spring, perhaps because then the species is more conspicuous.

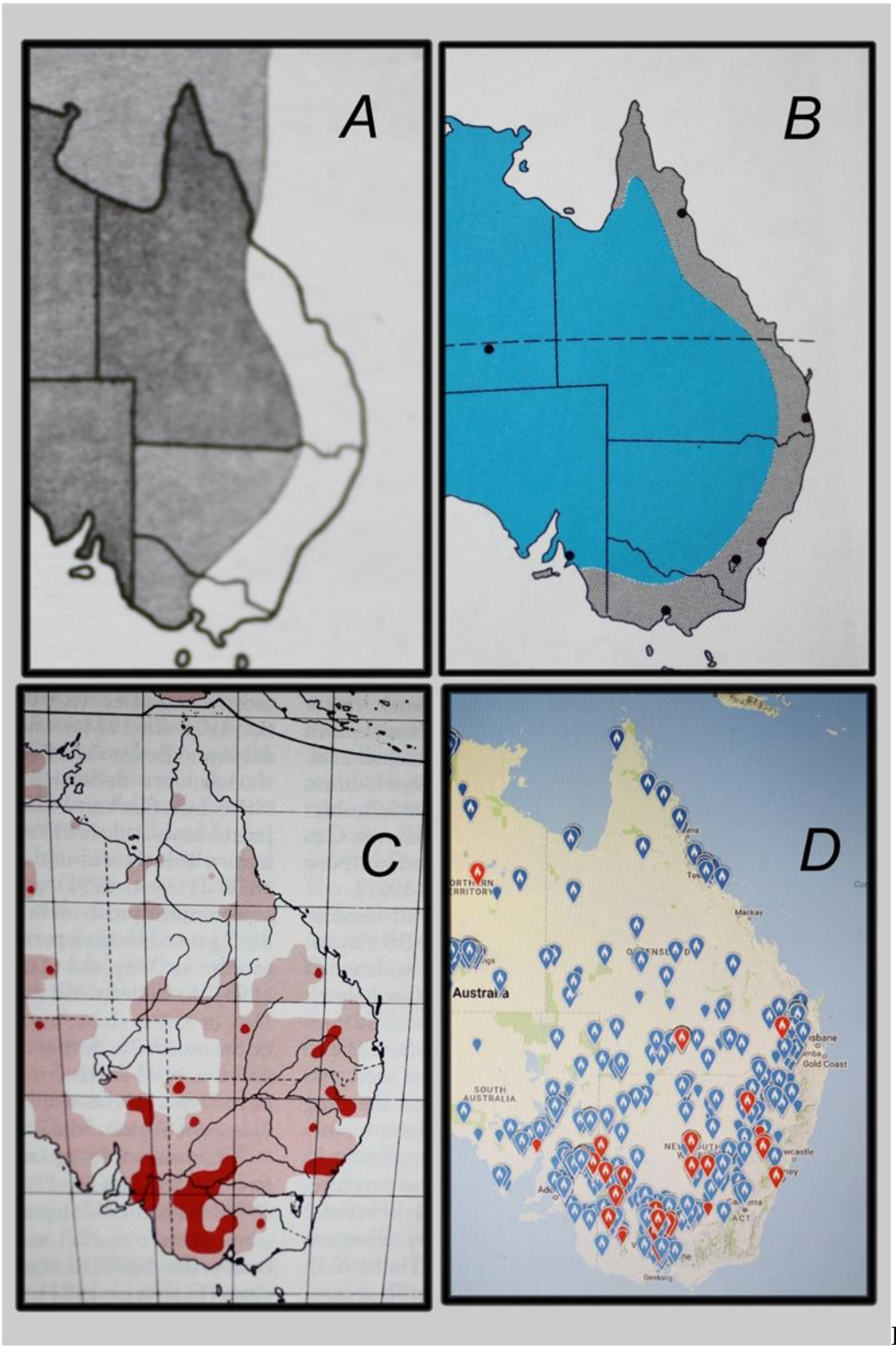
Comments on four range maps for the Black-eared Cuckoo:

A. **1970** *A Field Guide to Australian Birds* vol. 1, Peter Slater. This is an enlargement of an early small-scale map, drawn without the benefit of organised atlassing. The map aims to show that the BEC is absent from much of eastern Australia. The accompanying text reflects the view that the species is found in 'arid wooded parts of the interior'.

B. **1994** *Cuckoos, Nightbirds & Kingfishers of Australia,* a volume in the National Photographic Index of Australian Wildlife series. This map seems to be based not so much on records but on an old idea of the species' core range in arid Australia, although the western range limit has crept a little closer to the ACT. It discounts outlying records in eastern Australia that were published in the 1984 atlas. Surprisingly, it also removes most of western Victoria from the range.

C. **1999** *Handbook of Australian, New Zealand & Antarctic Birds* vol. 4. This map evidently seeks to give effect in 'shading' format to the results of the 1977-1981 atlas project, a difficult task given the patchy reporting of this 'nowhere common' species. The map uses dark red to indicate areas where breeding has been recorded. By contrast with map C, it brings out that south-western Victoria (not usually regarded as 'arid') is an important area for the species. Among the areas with no records is an extensive tract lying between the Hume Highway and the east coast, which includes the ACT.

D. **October 2017** *eBird* online range map summarising records for all years and all seasons. This map is at a similar scale to the other three, and needs some explanation. The flagged points represent single locations where the species was recorded, but might represent more than one record at each such location. Red spots indicate records in the previous 30 days. The map shown here does not take advantage of the available larger scales, where the records are much more widely-spaced than appears at this scale. The eBird reporting confirms the importance of western Victoria to this species. It also tends to show the absence of the species from the area east of the Hume Highway - except for a small number of reports around Canberra.



In

In Canberra, the BEC has been recorded in seven of the years 2000 to 2015, about the same as the Regent Honeyeater. For both species Canberra is an isolated 'hotspot'. This is the 'where the birdwatchers are' effect. However it is clear that both species must occur in a wider adjacent area around Canberra, extending in at least one direction, where there is suitable habitat.

In light of all we now know, how should the range map for the BEC be drawn? That depends on what you want to convey. Certainly, I would think, the range must include Canberra as an eastward continuation of the inland range. Otherwise it makes no sense to say we are on the 'fringe' of the range.

I might add that the eBird maps provide an interesting comparison of the ranges of the cuckoo and its main host species, the Speckled Warbler. However that issue must be left for another day, as this column is already much longer than I had intended.

Stentoreus

Canberra Bird Notes 42(23) (2017): 308-310

Birding in Cyberspace, Canberra Style

Where does one turn for **A Glossary of Bird Terms**? HANZAB contains a number of glossaries, as do field guides, including the fine new CSIRO *Australian Bird Guide* (Menkhorst et al., http://www.publish.csiro.au/book/6520/). Another source, one far more extensive than those, is as you will have expected Wikipedia! Its entry 'Glossary of bird terms,' https://en.wikipedia.org/wiki/Glossary_of_bird_terms ', includes the explanation that:

> *There are thousands of terms that are unique to the study of birds. This glossary makes no attempt to cover them all, concentrating on terms that might be found across descriptions of multiple bird species by bird enthusiasts and ornithologists. Though words that are not unique to birds are also covered, such as 'back' or 'belly', they are defined in relation to other unique features of external bird anatomy, sometimes called 'topography'. As a rule, this glossary does not contain individual entries on any of the approximately 9,700 recognized living individual bird species of the world.*

I have not counted the number of bird terms included, but there are a lot of them, ranging (alphabetically) from 'addled eggs' to 'zygodactylous'. As is usual with Wikipedia, the article is heavily referenced and hyperlinked to other, fuller, Wikipedia entries throughout.

As a check, I looked up 'fledge' and 'fledgling'. This is because, as discussed on the CanberraBirds email distribution list in the past, different authorities—and different birders—use the terms in sometimes divergent ways. Here is what the Wikipedia editors have written:

> *fledge*
>
> *....Also, fledging. The stage in a young bird's life when the feathers and wing muscles are sufficiently developed for flight, or the act of a chick's parents in raising it to that time threshold.[198]*
>
> *fledgling*
>
> *....A juvenile bird during the period it is venturing from or has left the nest and is learning to run and fly; the period immediately after fledging, when a bird is still dependent upon parental care and feeding.[199]*

The parenthetical '198' & '199' are sources. Interestingly, neither is an established ornithological text or reference books (though other entries are sourced thereto). Rather, the sources for these two words are books written for the general birder. That said, this remains a useful glossary of birding terms.

And do recall that, if you have glosses that you consider better than those included, you can become a Wikipedian and edit/update/improve the entries: https://en.wikipedia.org/wiki/Help:Editinghttps://en.wikipedia.org/wiki/Help:Editing

Have you lately been hearing, online, about **Scythebill Software** http://www.scythebill.com/ ?

Its creators explain that:

....Scythebill is a desktop application for birders to keep track of their life lists and birding records. There's plenty of great birdlist software and birding software available today, but:

....Scythebill is free (and will remain so).
....Scythebill is easy-to-use. It takes a few minutes to get started.
....Scythebill is powerful - loads of features, like flipping between the Clements and IOC checklists
....Scythebill is cross-platform - you don't need to lose your list just because you switch from Mac to Windows to Linux.
....Scythebill is open-source, so anyone can contribute to its development.

Some of its impressive features include its 'full eBird/Clements checklist, including all subspecies and groups' and 'IOC World Bird List support, including subspecies and names in 20 languages'. Its data can be readily exported to eBird, and you can import into Scythebill data that you capture in the field using the from eBird app. An intriguing feature—one that overcomes a frustration experienced by some eBird users who have trouble remembering that application's four-letter species' names abbreviations—is Scythebill's 'choose your own abbreviation' facility.

For many years your columnist used a desktop birding data management application (BirdInfo) but switched to eBird Australia when it became available, in part because of the integration of the in-the-field data collection on one's mobile digital device with the fantastic data retrieval capacity of the web browser interface to eBird.

Which brings us to **Bird Quick List Australia**
http://www.productionmedia.com.au/birdquicklist/ . Available for the iPhone and iPad, this is another free bird data management tool. There are USA and UK versions, as well as the Australian one. It is an extremely simple app. All it does is make a list of the species that you enter. No abundance, no geo-coding, just simple lists that you can email or message off to yourself or to others. Apparently, some people find it useful as I have seen it mentioned a number of times recently on birding forums.

I am not sure why people would use software such as Scythebill or Bird Quick List, rather than eBird Australia. If you use either of these applications, or others like them, and would care to review it—or simply share your thoughts on why and how you use them—I am sure that the editor of *CBN* would like to hear from you.

Having mentioned eBird above I can't resist using this column to discuss the biggest birding-in-cyberspace event of the year: the **2017 Global Big Day.** It was conducted on 13 May this year, and run by the folk at the Cornell Lab of Ornithology, the people behind eBird. The organisers set a goal of 4,000 species recorded globally on that day.

You can view the results at http://ebird.org/ebird/globalbigday : 6,636 species reported out of a global total of about 10,000 species, 54,475 checklists submitted via eBird, and 20,390 participants! Australia and its territories were well represented with 519 species reported (a little more than more than half the total), 1,223

checklists submitted and 377 participants. For the ACT there were 109 species reported from the 61 checklists submitted, about one-third of the total number of species on COG's ACT checklist. 'Shorty W' had the largest number of ACT species (87) and the largest number of checklists (7).

The eBird editors wrote:

> *For us, Global Big Day is a celebration of birds. By bringing people together, Global Big Day showcases the great birds from each region—helping bring awareness to birding and conservation regionally and globally. This year (as in previous Global Big Days), the friendly competition in South America continued to evolve as an inspiring story, with four countries topping 1,000 for the single-day tally: Brazil, Ecuador, Peru, and Colombia. In past years Brazil and Peru had always vied for the #1 slot for species totals, and in 2017 we have a new champion: Colombia.*
>
> (source: http://ebird.org/content/ebird/news/gbd17results/)

Something that stands out from these figures is the average number of checklists submitted per participant: globally 2.7 and for Australia 3.2. I do not recognise any ACT and region birders in the lists of the names of the top ten Australian participants by either the number of species reported, nor by the number of checklists submitted. Some of them do appear, however, in the lists of the top 100 birders. Your columnist was flying to Europe that day—were that not the case I may well have appeared somewhere in the league tables!

T. Javanica

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

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

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

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

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

PRESIDENT'S REPORT 2015-16

The period from November 2016 to October 2017 has been a year of continued high membership numbers for COG. This is attributed to the wide range of activities and services offered. Meeting talks continue to be of great variety and interest, and *Canberra Bird Notes* and *Gang-gang* continue to be professionally produced. The excursion program is amazingly regular and diverse and this year included a trip to the Pilliga. However, generally, it has been a steady-as-she-goes year for COG. We have maintained and enhance our very effective collaboration with the ACT Conservation Council and have strengthened our partnership with the Woodlands and Wetlands Trust.

There have been continued, but unfortunately unsuccessful, efforts to develop relationships with ICON Water on the management of the wetlands adjacent to Jerrabomberra Wetlands. Hopefully the 2017-18 committee will have greater success.

While COG remains strong, growing and relevant and continues to do important work across many fields, many of which are described below, there has been difficulty in getting enough committee members to run regular monthly committee meetings. While this has been an inconvenience to Committee members, it has not unduly affected broader operations. It would be nice to have a larger group of committee members to maintain efficient oversight of our activities.

COG Membership

In past two years there has been a healthy increase in the number of members. There are currently 431 individual and family members and 2 organisational members of COG. Last year there were 447. In the previous three years there had been an average of just under 300, which was similar to the decade-long average. The recent increase may have been due to the activities and profile gained during our 50th year celebrations. However, every year there is a regular turnover of membership.

Steve Wilson Medal

The Steve Wilson Medal was inaugurated in 2014 on the occasion of COG's 50th Anniversary. In its third year, in recognition of their meritorious service and significant contribution to COG over a long period the Steve Wilson Medal was presented to Jack Holland and David McDonald. Congratulations to these well-deserved awardees.

The list of all current SWM awardees is:

2014 Grahame Clark
Jenny Bounds

2015 Chris Davey
Barbara Allan

2016 Jack Holland
David McDonald

COG Committee

In 2016-17, COG had 8 members on the Committee and I thank them for their time, effort and patience and their significant contribution to the smooth running of COG. In addition to the President the Committee consisted of

Bill Graham (Secretary),
Lia Battisson (Treasurer),
Jenny Bounds (Conservation Officer),
Chris Davey (Records Management and Survey),
Sue Lashko (Editor of *Gang-gang*, meeting room organizer and Outings Officer),
Paul Fennell (management and oversight of the COG Database),
David McDonald (advice on COG Constitution and policy issues) and

Julian Robinson continued as Website manager in an ex-officio role.

The quorum for a COG committee meeting is six so on occasions we had difficulty getting enough members to Committee meetings.

On behalf of the Committee I would like to extend our thanks to Chris Davey, a long-standing Committee member who is standing down after a long and productive innings.

In addition to Committee members already named many others have contributed in a variety of vital ways.

Jack Holland is responsible for the members' meetings speakers program;
Sandra Henderson manages COG membership and the monthly raffles;
Michael Lenz produces *Canberra Bird Not*es assisted by Kevin Windle;
Duncan McCaskill manages the Garden Bird Survey;
Barbara Allan for the Bird Blitz and the Rarities Panel;
Nicki Taws who is the COG Records Offic*er;*
Gai Neumann assists with *Gang*-gang;
Jaron Bailey is the database manager;
Dianne Davey looks after distribution of publications;
Kathy Walter and John Goldie for managing the sales desk, and
Bruce Lindenmayer (once President) is now the official "tea lady"

Field trips

Once again in 2016-17 COG has run a very comprehensive outings program thanks to Sue Lashko. These trips have been almost every weekend, as well as three mid-week trips to the South Coast and an extended camping trip to the Pilliga and Moree. On behalf of COG members our thanks to Sue.

The monthly Wednesday walks have continued to be very popular and thanks go to Martin Butterfield for organising these.

CanberraBirds email announcement and discussion list

At the end of the year, COG's *CanberraBirds* email announcement and discussion list had 329 subscribers, a similar number to the same time last year. The list, managed by David McDonald, continues to provide a useful forum for people to discuss the birds of the Canberra region, their environments, and COG's activities. New subscribers, including people new to birding who seek support from more experienced birders, are welcome to subscribe.

During the year there were 3,141 emails distributed over the list, an average of about 9 per day. The list manager has commended subscribers for the way they use the list: positively, productively and politely.

Canberra Birds Conservation Fund (CBCF)

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

During the 2017 year the Fund made one grant: 'Bringing back Bush Stone-curlews'. The recipient was the ACT Woodlands and Wetlands Trust (Dr Kate Grarock, Sanctuary Ecologist), and the purpose was to support the purchase of radio transmitters that were attached to the re-introduced Bush Stone-curlews at the Mulligans Flat Nature Reserve. This was done to track their movements within and outside the reserve, providing crucial information on their movements and locations to inform the re-introduction experiment.

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

Surveys

Woodland Project

The COG woodland project quarterly surveys continue as one of the core, long-term surveys which COG members undertake. In the last year, some changes were made to administrative arrangements, and more accurate GPS coordinates were taken/confirmed for all sites. At an appropriate time in the future (and when resources are available), COG expects to undertake further analyses of this data to determine trends in species. There is now more than ten years of data at all the woodland sites. Jenny Bounds is the overall coordinator. Thank you to all involved in this important project, including the individual site coordinators and their helpers who do the surveys.

Surveys

Chris Davey has organised COG survey program again this year. General observations and on-going surveys continue to inform us of the status of birds within the ACT and local region. The surveys include collecting observations for a long-term study at Mulligans Flat/Goorooyarro Nature Reserves by the ANU. This study is now in its 10th year. Also, quarterly surveys at Jerrabomberra Wetlands/Fyshwick Sewage Ponds, the annual 'Blitz', now in its 12th year, and the Superb Lyrebird survey at Tidbinbilla Nature Reserve, conducted since June 2004, have been completed. COG continues to provide volunteers twice a year to the Greening Australia 'K2C' project, now in its 8th year. COG members continue to supply observations to the Latham's Snipe survey, run by the Woodlands and Wetlands Trust.

Conservation

Jenny Bounds has continued another year as Conservation Officer, with support from other Committee members (Chris Davey, David McDonald) on some items. Jenny has represented the interests of birds on several committees/reference groups, including K2C Committee and the National Park Feasibility Reference Group to consider a proposal for grassy woodland reserves to become national parks (this proposal did not proceed). We are keen to recruit more support for COG Committee business, and someone with an interest in conservation who might provide some assistance would be welcome. COG continues to work with the Conservation Council ACT Region and other groups with the aim of achieving good outcomes for bird habitat protection and enhancement.

Highlights this year have been:

- providing comprehensive submissions on the Superb Parrot and Brown Treecreeper (based on COGs records) to support the nomination to the ACT Government of loss of mature hollow bearing eucalypts as a threatening process (a Conservation Council managed project)
- participation in a Biodiversity offsets effectiveness project with other member groups of the Conservation Council, looking at the implementation of offsets in the ACT, and outcomes for biodiversity/birds.

Other submissions/consultations include:

- providing comments on the Draft ACT Migratory Birds Action Plan (in addition to COG data which underpins this plan)
- submission on an EIS exemption application for Molonglo Stage 3 residential development, which would have changed agreed offsets' boundaries and resulted in an inadequate buffer for Kama NR from urban edge effects
- letter to the ACT Government concerning Latham's Snipe habitat on Horse Park Drive next to Forde/Yerrabi Pond, potential impacts from road duplication
- supporting the Red Hill Regenerators in their efforts to protect the Red Hill NR from a rising number of apartment/housing developments around the reserve's edges, including the latest plans for unit development on Federal Golf Course land (which COG has also opposed in the past)
- consultations with Local Land Services, Yass (Jenny Bounds, Michael Lenz, Nick Nicholls), concerning the ongoing conservation management of Nelanglo TSR near Gundaroo (also known as TSR 48)
- providing input to ACT Government Natural Resource Management (NRM) investment plans; this focussed on key habitats for threatened birds (map based data was also provided)
- providing Birdlife Australia with advice regarding conservation issues, bird data and assistance in annual reporting on their Key Biodiversity Areas (KBAs) in COG's area of interest (Aust. Alps, South-west slopes – Superb Parrot, and Lake Bathurst).

The COG website

The COG website continued a steady rise in usage over the year (10% more users and 15% more site visits) reflecting mostly that more people are using the website to access meeting and trips information. The most popular uses this year were: Our Birds (information on bird species found in our region); COG trip information; photo gallery; COG meeting information; Chatline information; Gang-gang newsletter; popular birding spots; online form for joining and renewing; Canberra Bird Notes. Website information is regularly updated by members including Sue Lashko, Jack Holland, David McDonald, Martin Butterfield and Julian Robinson.

I would particularly like to thank Julian Robinson for his ongoing efforts in managing and maintaining the COG Website.

COG Database

As is widely known for decades COG has built up a very valuable set of historic bird databases for the birds in our Area of Interest (AOI). It is also now recognised that large amounts of data on birds in our AOI are now held by organisations outside COG. The challenge of managing the interface between COG's historical databases, contemporary COG data collection and third party organisations remains.

Rarities Panel

I would like to acknowledge the contributions provided by the Rarities Panel consisting of Richard Allen, Jenny Bounds, Grahame Clark, Dick Schodde, Nicki Taws and Barbara Allan (Secretary) for their important work maintaining the integrity of our databases.

Gang-gang

This year we again thank Sue Lashko and Gail Neumann for editing, layout and publishing of our newsletter. Gang-gang is a great source of information and news and members may not be aware of the work that goes into producing the newsletter every month. Many thanks also go to Dianne and Chris Davey and helpers for the distribution of the newsletter and Canberra Bird Notes.

Canberra Bird Notes.

Thanks again go to Michael Lenz for his great work as Editor of the Canberra Bird Notes and all those who have contributed to CBN in 2016-17. CBN is a well-respected and valued source of information about the birds of the Canberra region. Particular appreciation is also due to Paul Fennell, Steve Wallace and their team for their work on the Annual Bird Report.

Monthly meetings

I thank Jack Holland for arranging another interesting year of both local and interstate speakers at the COG monthly meetings in 2016-17. The Group is amazingly well served by the hard work by Jack in the (seemingly) seamless way in which a never-ending range of interesting speakers are found to address our meetings.

Bruce Lindenmayer assiduously provides refreshments that follow the monthly meetings (in the role of "Tea Lady", a badge of honour he proudly wears) and to Sandra Henderson for taking on the responsibility of providing the raffle prizes and selling the tickets. All of these activities add to the enjoyment of the meetings and provide opportunity for members to socialise.

Finally

My personal thanks go to all members who have contributed to COG over the year. This of course includes all committee members but also to those whose contribution may be small but vital. Jobs such as mailing, doing the tea and coffee and editing assistants. Thank you to you all.

Neil Hermes
President, 8 November 2017

THE 2017 RECIPIENT OF THE STEVE WILSON MEDAL

At the 2017 AGM, Michael Lenz was awarded the Steve Wilson Medal following assessment by the Steve Wilson Medal Committee (Neil Hermes, Alison Russel French and Bruce Lindenmayer).

MCHAEL LENZ

Michael joined COG in 1977, and as a scientist with a deep interest in bird surveying and long-term rigorous records, soon found himself involved in these activities. Michael served as COG records officer between 1980 and 1982 and organised bird surveys of Lakes Burley Griffin and Ginninderra for several years.

Most notably, in 1979, Michael initiated monthly surveys of Lake George and in 1980, Lake Bathurst, both of which he has continued to the present day. Patiently, Michael has established and maintained friendly relationships with local landholders, included them in his results and given talks to local landcare and other groups. BirdLife Australia has designated Michael as the "Guardian" for Lake Bathurst, which is one of BLA's regional Key Biodiversity Areas.

Over the years, Michael has promoted the systematic recording of all birds in COG's Area of Interest and in 1980, initiated the Annual Bird Report as a summary of all available observations. Michael also served on sub-committees for the Garden Bird Survey and for the COG ACT Bird Atlas Project.

Currently, Michael continues quarterly COG Woodland surveys at Mt Ainslie, monthly visits to a Travelling Stock Route near Gundaroo, again in co-operation with local landholders and rangers.

Michael has edited *Canberra Bird Notes* for more than five years, including the 50 year Anniversary Edition in 2014, and over the years, has written numerous articles for CBN and given talks at COG meetings.

Michael Lenz has been an outstanding member of COG over several decades and is a most worthy recipient of the 2017 Steve Wilson Medal.

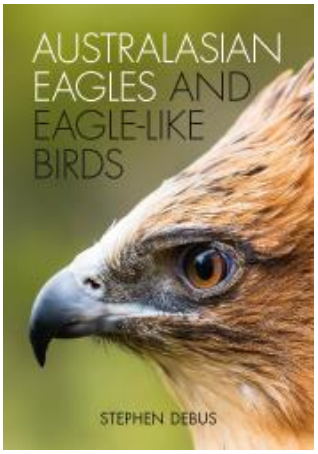
After the presentation of the Steve Wilson Medal on 8 November 2017: (*left to right*) Neil Hermes, Michael Lenz and Bruce Lindenmayer.

BOOK REVIEW

Canberra Bird Notes 42(3) (2017): 318-322

Australasian Eagles and Eagle-like Birds. By Stephen Debus. CSIRO Publishing, Clayton South, ISBN 9781486306923, 189 pp., Paperback, AU $49.95.

Reviewed by PHILIP VEERMAN, Kambah, ACT (pveerman@pcug.org.au)



The stated purpose of this book is to provide new information ("a 25 year update") on ten featured species, to build on the previously available material in Volume 2 of *Handbook of Australian, New Zealand and Antarctic Birds* (*HANZAB*) (1993) for the Australian species and Volume 2 of *Handbook of Birds of the World* (1994) and *Raptors of the World* (2001 & 2005) for the species that do not occur in Australia. Where convenient the sequence of information follows that in *HANZAB*. I wonder how many people there are who would have these three books. Dr Stephen Debus is a skilled writer and expert, with an acknowledged and probably unparalleled involvement with recent raptor research and publication in Australia. The information-gathering is as impressive as would be expected from this author. The book draws its material almost exclusively from published sources and includes a section to guide the reader towards "Other sources of information". I find it curious to have not seen any prior approach by the author to (for example) Birding-Aus, to request additional information in particular of the little-known non-Australian species. I also wonder if the Papua New Guinea bird club could have helped but they don't appear to have that facility.

The basic arrangement of the book is four introductory chapters, then separate chapters on each species, preceded by bird group headers. To me, the biggest value and enjoyment of this book occurred before page 1, in the introduction, which describes current thoughts on relationships of the included birds. That text is presented in a very compact way, requiring a detailed prior knowledge or access to illustrated references on these various raptors (in a worldwide context) to get an impression of the genera involved. So I think that section is deserving of more space.

My first reaction to this book was to ponder the title. It is vague and I find the text struggles to identify the gap it is intended to fill, making it hard to assess its target audience. I wonder what mental gymnastics probably went into choosing the title, although a more appropriate title, e.g. "An update of information on a selection of large raptors of the Australian region", would be unwieldy. I find the choice of species is surprising. It would be difficult to count how many species could fit the description implied by the title. Page xxii lists twenty potential species. I could easily argue that number up or down in the context of the title. It depends on the geographic limits implied by "Australasian", whether it is intended to mean native or endemic and what is acceptable as "eagle-like". Although the front cover suggests the book describes Australasian eagle-like birds, it becomes clear that only Australian "eagle-like birds" are covered. So who could even guess what they are? The choice of

species included is explained but it comes out as laboured and inconsistent. What seems to me to be the real reason is hinted at. I must wonder whether choosing subjects that are mostly so little known will increase or decrease the commercial success of this book. There are few bird observers who have more than limited field knowledge of any but the only three common Australian eagles featured in the book.

I have always thought "Australasia" an odd name, mainly because it excludes Asia. This book's title highlights this issue. In contrast "Eurasia" includes Europe and Asia. Wikipedia gives "Australasia" as being "a region of Oceania that comprises Australia, New Zealand, the island of New Guinea and neighbouring islands in the Pacific Ocean". For this book it was restricted to Melanesia and Australia, thus excluding the several "Australasian" species found only in Wallacea. We also need to exclude New Zealand in this situation. Raptors endemic to Asia, whether eagle-like or not, (e.g. the Philippine Eagle), are not featured in this book. There is only one species featured in the book (the White-bellied Sea-Eagle) that is easily described as being Australasian, although not endemic to Australasia, as it extends well into Asia. Marginally the Wedge-tailed Eagle also is, as it also occurs in PNG. There are other large raptors with an Australasian distribution that are not covered in this book. All the other eight species featured in the book are either Australian or Melanesian but not Australasian.

Because my perception of which species warrant inclusion under the title differed from those that are included, I consulted an independent source. I did an internet ("Google") search on "eagle like birds" to discover there is a website of exactly that name. This suggests that this term is almost pointless in general understanding. The site provides a huge photo gallery, which, at the time of preparing this review (it changes often) includes the front cover of this book and several other bird books, but mainly a predictable range of many avian predators. Most are native to the northern hemisphere. Most of them actually are eagles (rather than eagle-like) and many other raptors (osprey, falcons, buzzards, vultures, etc.), including owls. There is one image of one of the three "eagle-like" species so designated in this book. Strangely, it also includes passerines and non-predatory birds, although I suggest one should assume these are simply errors. The point being that the book's exclusion of some of our raptors as insufficiently eagle-like may be hard for many people to understand.

In addition to seven eagles, the book features three odd Australian hawks: the Black-breasted Buzzard, Square-tailed Kite and Red Goshawk. What they share is not being similarly eagle-like; it is their weirdness and some curiously similar colour patterns. They have never been called "eagles" and were no doubt named for the resemblance of museum specimens to (traditional) buzzards, kites and goshawks. The case is presented (laboured) that these three are "eagle-like" and various others are not. The Red Goshawk is included because of its heavy build and robust feet. After some information about its relationships, it states that it "would thus not be so out of place in this book". In contrast, the small, weak bill and feet of the Square-tailed Kite are mentioned (page xx) but then overlooked and it is included because it has long wings. I recall visiting the Olsens in the early 1990s, when they had a pair of Square-tailed Kites in care. Although wild birds (pers. comm.) they were quite tame in demeanour and would easily allow being handled and stroked by an unfamiliar person (myself included). Close up (facially) they look unlike normal raptors and their light build is also un-eagle-like. The words "chicken-like" were used to describe

them. I think a Square-tailed Kite in flight looks much more like a harrier than an eagle. This book also describes their extreme tameness at the nest. These aspects combined with their minimal sexual dimorphism and the feeding largely on nestling birds are not what would be normally regarded as eagle-like. Jerry Olsen described the Black-breasted Buzzard as having a similar tame demeanour, although it does indeed look aquiline.

The real reason to feature these three species is that they are Australian (not Australasian) endemics, all classed as monotypic genera, so I suspect a simple value judgement was made that they are presumably more interesting than the well-known species groups. Significant new information on these has become available and the author has contributed to this advance, so this provides an impetus. Unlike most omitted species, all three are at best uncommon (to rare) and very little known to the average bird watcher, so they deserve the extra attention. Clearly it is Stephen Debus's prerogative to use his effort in any way he wishes, even though the reader may wish to have information made available in a more equal manner across the range of fauna, independent of the author's background.

Although the Whistling Kite and Brahminy Kite were earlier called Whistling Eagle and Red-backed Sea-Eagle, and one of the most misidentified species pairs is the Whistling Kite and Little Eagle, their resemblance to eagles, in public perception, implied by these two issues, is mentioned and dismissed. The Osprey, Spotted Harrier, Brahminy Kite, Whistling Kite and Black Kite are Australasian birds and at least as eagle-like as the Square-tailed Kite but are not included. The author excluded the Brahminy and Whistling Kites, partly because he had not "done sufficient field research on them" (page x) but the reasons for excluding the others is unclear. There is not however, any clarity on how much field research the author has done on the four Melanesian eagles that are included. The other raptors with an Australasian distribution, the Pacific Baza and two true goshawk species, are not featured and their exclusion is reasonable as they are arguably not big enough to be thought of as "eagle-like".

The only Melanesian species included were the four eagles. In particular, the Honey Buzzard and the relatives of the Red Goshawk were not included. The main reason suggested for the omissions is that there is little or no more new information since the published references. That does not mean that we would not have appreciated having some information. It is inspiring to note that much new information on the New Guinea Harpy Eagle is derived from an honours thesis, by Leo Legra. That must be an interesting story. I was quickly able to obtain this thesis from another on-line contact but unsuccessful in my attempt to make direct contact with Leo to clarify a few points. This species would appear to be very different from what we think of as typical *Aquila* eagle behaviour. It lives within the canopy, sometimes hunts on foot and does not soar. It is little known and needs attention, in contrast to the very well-known (Neotropical) Harpy Eagle and the Philippine Eagle. The Pygmy Eagle, is given its own chapter, because it has been recently split (page xviii), although it was "Previously regarded as a subspecies of the Little Eagle."

HANZAB (and my other reference books) describe the almost worldwide Osprey *Pandion haliaetus* under these names. Since then various other sources list the Australasian populations under new names, the Eastern Osprey *Pandion cristatus*. Dr

Debus's earlier excellent book *Birds of Prey of Australia A Field Guide* (reviewed 2012, *CBN* 37: 235-237) adopted these new names, although the three sentences given there, about the split, are equivocal. The subject book mentions but does not feature the Osprey and only uses the (old) names Osprey and *Pandion haliaetus*. The changes would appear to have been made to comply with the changing official BirdLife Australia species lists over time. This reviewer suggests that this book has missed a great opportunity to add to our knowledge with a description of any differences and a discussion of the issue. Beyond that it would be nice to know whether some years down the track there is more clarification on this.

There is a strong current of concern about how well we know the basic biology of each species and what might be the main conservation issues. The book provides interesting discussions of some questions, in particular the likely role of the talon-grappling spinning dives occasionally observed in the large eagles. The extensive information includes five pages on the food of the Wedge-tailed Eagle. It is hard work to read all that with all the references and punctuation. I suggest a simple data table could have been much easier to read. From the list, we observe that the species has a varied diet. Whilst the book exists to update information, the extensive list of new references provided in this case probably does not expand greatly on what was already known about its diet. It suggests that the list is limited more by what has been observed and published, than what their diet actually is. Similar but shorter lists are given for the diet of other species. For the lesser known species there is a lot of compiled new data covering food, nesting and other aspects.

The book sadly missed an unique opportunity to provide good new painted illustrations of the four Melanesian eagles (to match the calibre of those in *HANZAB*). The only pictures I have of any of them are basic. There are 75 photos, all relevant and nicely placed within the text pages for each species. The small size of some is disappointing, especially when followed by a half or full blank page. Not surprisingly the photos of the Australian species are generally better than those of the Melanesian species and some photos for the Melanesian eagles are the same as can be found in an internet search on these species.

A small problem with being an update is that it misses some basic information. It assumes existing knowledge (this reduces the size of the book). For example, that the Black-breasted Buzzard is known to be among the few birds that use tools (stones to break eggs) is described in *HANZAB* and not repeated here. However, that at least four zoos routinely feature a demonstration of this behaviour (simulated with fake eggs) in their public displays, and that several films of this are now available on the internet, is new information that surely is of interest and would have been well worth mentioning. It will be seen by vastly more people than those who see wild birds.

A long discussion is devoted to the conservation status of the Little Eagle in the Canberra region. Given that this review is in *Canberra Bird Notes*, it is nice to have the attention. Yet since the book is directed to an Australasian (international) readership/audience, so much text focussed on just one species around Canberra could be seen as a strange priority, even though some issues are relevant elsewhere. One of the difficulties in updating information in print is that sometimes it can change quickly. I am sure that, if published a few months later, the book would have included the very surprising new information about the male Little Eagle that was

tracked with a small GPS tracker, revealing that it had travelled to near Daly Waters in the Northern Territory – a flight path of 3,300 kilometres and has now returned to the ACT (press release by Don Fletcher).

The other new information of local interest is that the Square-tailed Kite appears to be increasing its visitations into south-east Australia, mainly for breeding. It may become more than a rare vagrant into the COG Area of Interest.

References are listed separately by species and some books are also listed separately and other books just under the species. That was said to be convenient but I found the split confusing. The sometimes long lists of prey species sometimes include their scientific names (presumably omitting repeat mentions). It would have flowed much easier if there had been a list of all names given, as a separate appendix. The book's index is confusingly inadequate. The ten featured species and the few species occurring just outside the Melanesian region are listed. However all of the many, mentioned but not featured Australian and Melanesian species and all the mentioned non-Australasian species, are not listed in the index.

Given the calibre of the author, this is not a book that I would review with a search for mistakes. I would prefer that the ambiguous use of "decimate" as in "decimation of rabbits", was replaced by specific description of what is intended. It would have been nice to have explained who Gurney and Sanford were, whose name is given to two of the featured birds. Sure this is available elsewhere. That the adult Sanford's Sea-Eagle appears to retain similar plumage colouration of the juvenile would appear to be a notable difference between it and the other sea-eagles, which feature conspicuous patches of white only in the adults. I suggest this as a point worthy of discussion. It could be an adaptation to insular island populations and reduced sexual selection.

The book mentions the symbolic role of eagles in our culture and frequent confusion of identity of our raptors either by bird observers or just in the community. It highlights the odd case of the sea-eagle and misuse of the Bald Eagle in Australian representations (page 2). I have a better example that supports the same point. When the National Aboriginal Community Controlled Health Organisation began, they featured an obvious picture of the Bald Eagle on their logo. I wrote to them in April 2000 pointing out the error. They did subsequently replace it with a Wedge-tailed Eagle.

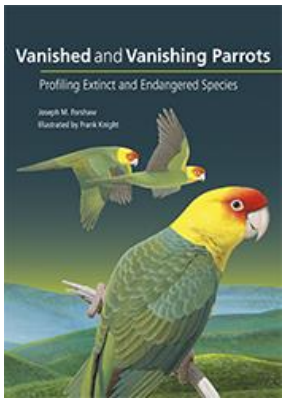
Probably the biggest gap in local ornithological writing derives from the long period over which the seven volumes of *HANZAB* were issued (1990 to 2006). What is now needed is a single supplementary volume that updates (and in some cases corrects) information on all species. This book does this very competently for six species, chosen it seems mainly to match the particular interests and contribution of the author (with four non-Australian species thrown in for good measure). Whilst this may be a good start, if updating information on all species included in *HANZAB* were to be done in this manner of separate books that each address a small number of species, it would be a curious and inefficient method of addressing that deserving need.

The presentation and detail are excellent.

Canberra Bird Notes 42(3) (2017): 323-325

Vanished and Vanishing Parrots: Profiling extinct and endangered species. By Joseph Forshaw and Frank Knight. CSIRO Publishing**,** October 2017**,** ISBN: 9780643096325, 352 pp., Hardback, RRP AU$150.00.

Reviewed by *GEOFFREY DABB, Narrabundah, ACT (gdabb@iinet.net.au)*



As books of this kind go, this is not a very large one, in fact 'sub-coffee-table'. At a mere 1.8kg it is dwarfed by Joe Forshaw's original *Parrots of the World*, at almost 5kg. If you need a catalogue of the world's parrots, you should look for a later (if now smaller) edition of that larger work.

Vanished and Vanishing Parrots (here referred to as 'VVP'), addresses the plight (as the author puts it) of 'one of the most endangered groups of birds'. About 75 kinds of parrot are covered, being those classified as 'extinct', 'critically endangered', and, (42 of them) 'endangered', those being the largest group. A few 'vulnerable' species fill out the coverage.

Those categories follow 'for the most part', the *Illustrated Checklist of the Birds of the World* vol. 1 produced by Handbook of the World and Birdlife International (here 'HBW/BLI').

VVP comes with a long foreword by Noel Snyder, a prominent North American ornithologist and conservationist. This is not the usual foreword but an essay with a lot of information about three neotropical parrots illustrating some 'limiting factors' and the different approaches needed for different species. Snyder's foreword is mentioned as a feature of the book in the Cornell University Press publication notice for their edition. Another bonus feature of the book is the interesting contribution by Walter Boles, which summarises what is known about 'Fossil History of Parrots', clearly a still-unfolding field of inquiry.

As one might expect from Joe Forshaw's standing as a (some might say 'the') leading authority on the world's parrots, the text is clear, informative, authoritative and up-to-date. The comments that this reviewer is able to offer relate to presentation and layout.

As in earlier Forshaw books, the species entries are arranged geographically, under 'Australasian Distribution', 'Afro-Asian Distribution', and 'Neotropical Distribution'. Each species entry covers, as far as relevant: description, distribution, status, habitats, movements, habits, calls, diets and feeding, breeding and eggs.

The maps are clear, and, given the subject, form an important part of the story. Dark red is used for former distribution of extinct species, and orange for present distribution of endangered species. Clearly there are difficulties in making such maps, given patchy reporting of rare species and questions about the reliability of old records. However there is something of a mismatch between the two colour methods with greatly shrunken ranges for some endangered species, *e.g.* the Golden-

shouldered Parrot, compared to restoration of the full presumed former range after extinction of the species (*e.g*. the Paradise Parrot and Carolina Parakeet).
What is missing from the maps is the *former* range of endangered species, although the omission is understandable in view of the difficulty in evaluating old records for all such species. Only for the Night Parrot is there a two-colour map indicating extinction in New South Wales and eastern South Australia, with possible present occurrence in a much wider area of inland Australia. Creating that particular map would have had its difficulties.

In the introduction, Forshaw says that 'in the 1900s we lost four parrots'. But which parrots were they? In turning the pages to find out, one is helped by dark red marginal tabs, matching the map colour, placed alongside the 'extinct' parrots. With the help of those and referring to the historical status notes, we can identify the following three as lost in the 1900s: Paradise Parrot, Carolina Parakeet and Glaucous Macaw.

In search of the fourth, we might note that extinction tabs are placed alongside two subspecies (that is, subspecies in Forshaw's view) of the Red-fronted Parakeet *C. novaezelandiae*. Those are the subspecies of Lord Howe Island and Macquarie Island. Although the IOC list recognises those as full species, it appears from the VVP status notes that both populations fell just short of surviving to 1900.

A red tab is placed beside the Philippine Hanging Parrot *L. philippensis*. However on close reading this appears to be a layout error, and the 'extinct' tab should have been placed against the subspecies *L. p. chrysonotus*.

That brings us to the neotropics. The Sinu Parakeet *P. subandina* has an extinct tab and has not been recorded in its tiny range in a Colombian valley since 1949. However, the IOC list shows this as a subspecies of the Painted Parakeet *P. picta*. Forshaw prefers to follow a revision by Leo Joseph in 2000, which is also accepted by HBW/BLI. That would mean that a new *species* extinction, of *P. subandina*, occurred in the 1900s retrospectively, so to speak. Incidentally HBW/BLI classifies that species as 'possibly extinct'.

For the purpose of conservation priorities some experts, it seems, do not place overriding importance on whether a threatened isolated population is of specific or subspecific rank. Thus in relation to *C. n. cookii* Forshaw says: 'I do not share the view that recognition of the Norfolk Island population as a separate species enhances conservation priorities, for that endangered population is deserving of the highest conservation effort irrespective of its taxonomic status'.

However, others, and perhaps the broader public, might think species are of more importance. Who is to say?

The Frank Knight plates are an attractive feature of the book. They are the more attractive, in my view, for their presentation with full-page backgrounds rather than the stark field-guide style, which can be less satisfying. In some plates here the background aims to be typical or associative: the Norfolk Pines for the Norfolk Island Kaka, termite mounds for the Golden-shouldered Parrot, a lush eastern Polynesian backdrop for the Black-fronted Parakeet, partly eaten figs for Coxen's Fig Parrot.

Some of the plants are drawn with such detail that one wishes some information about the flora in question had been included. Those interesting blue fruits shown

with the Red-throated Lorikeet are one example. Among the evocative landscapes is the steaming volcano behind the pair of Red and Blue Lories, recalling a scene from Hokusai's *One Hundred Views of Mount Fuji*. Surely a particular location was in mind. Given some local knowledge it should be possible to identify it - and also, one would think, the elaborate coastal scene behind the critically endangered western subspecies of the Ground Parrot, which is shown crouching in the beach-side litter.

A reviewer is customarily entitled to a quibble or two. The Orange-bellied Parrots are shown with the dull olive associated with the Blue-winged Parrot rather than the brighter green which, as appears from the many available photos, can help distinguish this species. Perhaps Frank Knight's OBPs are victims of the printing process.

In the Swift Parrot plate the 'juvenile' is shown with what seems to be an unlikely amount of yellow on the forehead. While the juvenile bill colour is certainly faithful to the description in the text ('bill darker brown'), this highlights the puzzling treatment of the bill colour of this species in some books**.**

From experience of transiting Swift Parrot flocks here in Canberra we have clear evidence that bills of adults heading south in spring are beginning to acquire a charcoal suffusion, sometimes appearing almost black. However, post-breeding birds heading north in autumn, including juveniles, have bills of a pale buff-yellow colour rather like the colour of the roasted kernel of a macadamia nut. (In photographs this can look like, to cite the *Naturalist's Color Guide*, 'Pale Pinkish Buff 121D'or 'Chamois 123D'.) The pictures of the Swift Parrot in the recent *Australian Bird Guide* convey that pale colour, but complicate the matter further by adding a rosy tinge to the end of the bill. Can the inconsistency arise because the bills of dead birds in museum collections have become darker since collection?

VVP will become an important reference and has a place in all good libraries. The recommended price of $150 will deter the private buyer who is mainly interested in books with immediate practical use. That leaves the book-buying parrot-fancier and the bird-book collector who likes interesting and attractive books. This book is recommended to members of both those groups.

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RARITIES PANEL NEWS

The most surprising sighting for this report was that of the single male Crimson Chat at Campbell Park, a bird which was subsequently seen and photographed by many. This is an arid-zone species which rarely turns up in our area – in fact the only previous time it was recorded during the life of the Rarities Panel was on 1 Nov 2003, when four chats (two males and two females) were discovered by Joe Forshaw on the northern shoreline of Yerrabi Pond, in Amaroo. The chat had dropped off the "unusuals" list on the grounds that it had not been seen in the previous ten years but will now be reinstated.

Michael Lenz's November 2016 water bird surveys on private property at Lake Bathurst East Basin proved fruitful, with both Banded Lapwing and Little Curlew being recorded, as well as Red-necked Avocet and Pacific Golden Plover, which are reasonably regular in that area but require reporting if seen elsewhere.

While the Scarlet Honeyeater is no longer on the unusuals list, the Panel notes the number of records across the ACT this spring, with up to five in the Botanic Gardens and individual birds elsewhere, including Campbell Park. It is interesting that birds from both the arid zone and from the coastal regions have converged on the ACT this season.

The Panel was unable to endorse two records of possible "firsts" for the ACT since the Panel began its deliberations in 1984. The standard of proof is naturally higher for such records and even if the observers are highly experienced, sometimes they get a poor view of the bird and fail to see crucial identification features. It is always useful to have such accounts to hand, however. Two records are still under consideration.

And the Panel continued its practice of assisting members of the general public who present requests for identification of sometimes surprisingly common species

Barbara Allan (*allanbm@bigpond.net.au*)

ENDORSED LIST 91, DECEMBER 2017

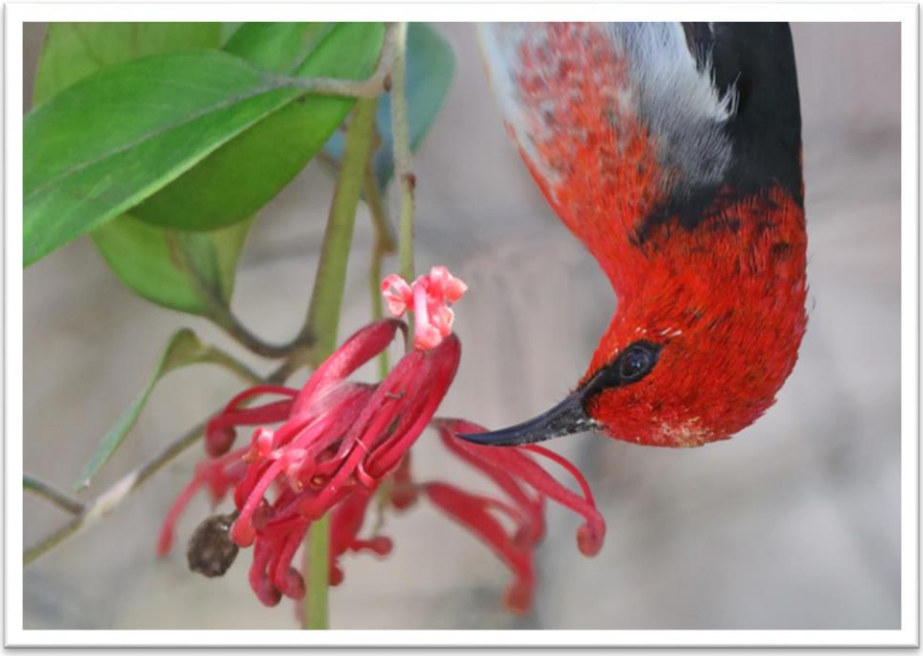
Banded Lapwing *Vanellus tricolor*
21; 30 Nov 2016; M. Lenz; Lake Bathurst East Basin

Little Curlew *Numenius minutus*
1; 30 Nov 2016; M. Lenz; Lake Bathurst East Basin

Little Button-quail *Turnix velox*
1; 7 Dec 2016; M. Lenz; Nelanglo (TSR 48)

Red-backed Kingfisher *Todirampus pyrrhopygia*
1; 26 Sep 2017; K. Bradley; Sunshine Rd, Tennent

Crimson Chat *Epthianura tricolor*
1; 19 Nov 2017; A. Smith; Campbell Park (see photos next page)



Scarlet Honeyeater (*Con Boekel*)

Crimson Chat (left: *Steve Wallace;* right: *Julie Clark*)

Canberra Bird Notes

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

Please submit contributions in *Times New Roman, with 12-point Font Size and 'No Spacing'*.

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Addendum

In the article by J. Olsen, S. Trost and G. Dabb in *Canberra Bird Notes* 42(2) (2017) 134-139, "Little Eagles in the Australian Capital Territory during two breeding seasons: 2015 and 2016", a map of the approximate range of the Strathnairn radio-tagged Little Eagle in the first few weeks since tagging was presented. This map was partly based on the authors' observations and partly adapted from a report by R. Brawata and B. Gruber (2016) "Movements of the Little Eagle (*Hieraaetus morphnoides*) surrounding the proposed Riverview Development Area, Australian Capital Territory", where a full account of the eagle's movements with multiple detailed maps is given. That report was not acknowledged in Olsen *et al.*

This document is publicly available at https://ginninderry.com/wp-content/uploads/2017/03/Movements-of-the-Little-Eagle-surrounding-the-proposed-Riverview-Development-Area-ACT-2016.pdf .

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