

## New Chums Road, Brindabella Ranges, Australian Capital Territory

(Supplementary Data)

**Aim:** To compare species presence, recapture rates and frequency of capture, utilising two data sets (1961–1963 and 2007–2009) from a long-term bird banding study at New Chums Road, Brindabella Ranges, Australian Capital Territory (ACT).

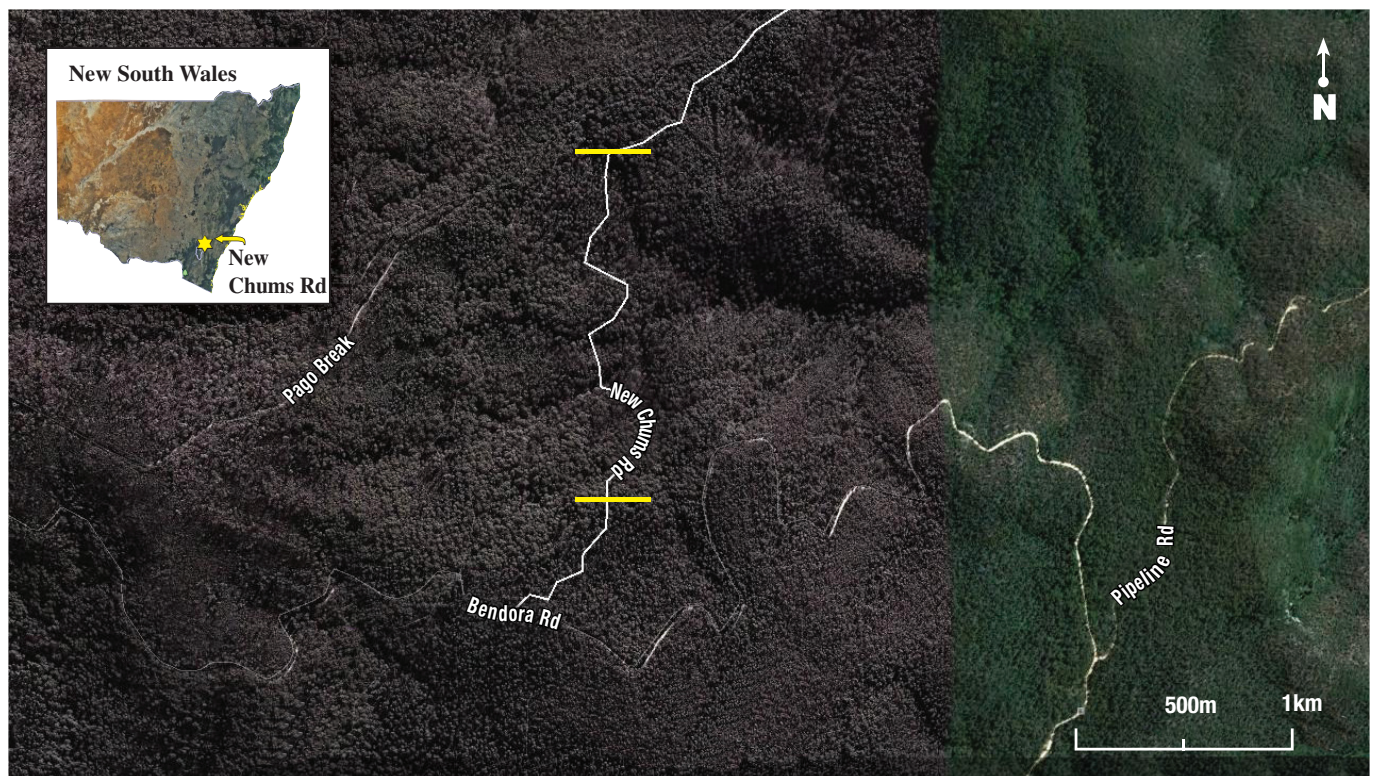
**Location:** 35°23'14"S; 148°49'58"E. New Chums Road is a short (less than 3 km) management-only access track, now classed as *dormant*, within Namadgi National Park (Fig. 1).

**Description:** Namadgi National Park, which is situated 40 kilometres southwest of Canberra, covers an area of approximately 1058 square kilometres. This equates to approximately 46 percent of the total land area of the ACT. New Chums Road is situated on the eastern side of the Brindabella Range and it is relatively well-protected from the prevailing drier westerly winds. The track closely follows the 1050-metre elevation contour from start to end, winding through deep wet gullies and more open northern facing slopes (Fig. 1). The vegetation at the site has been described in Lamm and Wilson (1966), and more recently by CSIRO botanists (J. Stol and M. Doherty, unpub. data). It is classified as a Tall Open Forest community, dominated by Brown Barrel *Eucalyptus fastigata* and Ribbon Gum *E. viminalis* and a range of ferns in the gullies (Soft Tree-fern *Dicksonia antarctica* and Mother Shield

Fern *Polystichum proliferum*). Dominant understory species include Silver Wattle *Acacia dealbata subsp. alpina*, Snow Daisy Bush *Olearia stellulata*, Dogwood *Pomaderris apetala*, Dolly Bush *Cassinia aculeate* and Blanket Bush *Bedfordia aborescens* and falls into the vegetation class 'Southern Escarpment Wet Sclerophyll Forest' as described by Keith (2004). Rainfall at the site is seasonal, with more rain falling during the winter months and an average of approximately 1140 millimetres per year. Since the second phase of the study began in November 2007, annual rainfall at the site had fallen below the normal average, with none of the creeks described in Lamm and Wilson (1966) flowing for lengthy periods of time. Snowfall in the colder months is common; however, it does not remain on the ground for more than a few days. Since the wildfire of 2003 considerable regrowth has occurred, resulting in extremely dense understorey and mid-storey vegetation.

**Status:** Namadgi National Park was gazetted in 1984 with extensions added in 1991.

**Duration of Project:** Previous banding was carried out from 1961 to 1982. The current project commenced in 2007 and is on-going.



**Figure 1.** New Chums Road, Brindabella Ranges, Australian Capital Territory. Bars across road indicate the northern and southernmost extent of net positions. Satellite Image courtesy of Google Earth

**Previous Records:** In 1961 a long-term bird banding study was established at New Chums Road. Banding continued at the site with approximately 16 trips per year until 1982. Between 1961 and 1963 complementary incidental observational bird surveys were conducted during banding visits to the site. Data relating to species presence and persistence at the site, along with detailed records relating to arrival and departure dates for migrants in addition to the effect of fire on the avifauna of the region were recorded, and subsequently published in Wilson (1965a,b; 1967; 1994 a,b; 1995), Lamm and Wilson (1966), Horey and Wilson (1971), Stokes (1975 a,b), and Tidemann *et al.* (1988). No further work was foreseen when the project ended in 1982.

## METHODS

According to Lamm and Wilson (1966), Horey and Wilson (1971) and Tidemann *et al.* (1988) the nets for the previous study were normally set at fixed locations, with an average of 18 nets per trip and opened to an effective height of 1.8 metres. The Brindabella Banding Group newsletter (July, 1974 unpub.) prescribes net lengths for each net site. This provides a total net length of 219 metres per trip (five 9 m nets, ten 12 m nets and three 18 m nets). Tidemann *et al.* (1988) note that netting commenced at first light and ceased around midday. We have taken this as an average of six hours mistnetting per trip. As shown in Horey and Wilson (1971) every effort was made to maintain consistency of all aspects of mistnetting (net location and number of nets, net length and mesh size, and duration of netting). Given this, we have assumed the net lengths presented in the Brindabella Banding Group Newsletter (July, 1974) were based on those used during the period 1961 to 1963. As the trips were only for one day and given that the site is close to Canberra, trips were rescheduled if bad weather was predicted (Brindabella Banding Group newsletter, unpub.).

Horey and Wilson (1971) provide a breakdown of trips by financial year. For the above period, 1960–61,  $n=2$ ; 1961–62,  $n=13$ , 1962–63,  $n=13$ ; 1963–64,  $n=11$ ; netting commenced in April 1961 and ended in December 1963. However, 11 trips were presented for the 1963–1964 financial year. Some of these trips must have occurred during the 1964 calendar year (which is outside of the scope of this paper). As Tidemann *et al.* (1988) state that monthly trips were planned, we assumed one trip per month from the start of the 1963–1964 financial year, until December (i.e. six trips). The total number of trips is therefore by financial year equal to 34 (2+13+13+6). The final day was excluded from the analysis (Lamm and Wilson 1966) hence the total number of trips is 33.

Since recommencing banding at the site in November 2007, 10 banding trips were undertaken up until June 2009. These trips consisted of a total of 36 banding sessions (Table 1). Considerable effort was made to position mist nets at fixed, numbered locations, as close as possible to the original net lanes used between 1961 and 1963, and also to use similar sized nets at those locations. The topography of the site, coupled with the fact that nets were mostly positioned on New Chums Road itself, greatly facilitated finding the original net locations as did the site map published in Horey and Wilson (1971, fig. 2). At some net sites permanent tags (numbered metal markers attached to mature trees), or a series of nails embedded in trees (used instead of poles to hold up mist nets) were found. This enabled us to fine-tune the spatial arrangement of our nets and in most cases position them within a few metres of the original net locations. As with the earlier phase of the study, mist nets of either 9, 12 or 18 metres in length, with a mesh size of 32 millimetres were erected. Our banding schedule involved six trips to the site each year (a banding trip every two months). During a trip up to four mistnetting sessions (depending on available resources and weather) were undertaken over three days; two ‘pm’ (afternoon) and two ‘am’ (morning) sessions. On Day 1, nets were opened in the afternoon and closed just before dusk (Session 1). On Day 2, nets were opened before dawn and closed just before dusk (Sessions 2 and 3). On Day 3, nets were opened just before dawn and closed at approximately noon when all nets were removed from the site (Session 4). There could possibly be a slight reduction in the capture rate over the 3-day period due to net familiarity and thus avoidance. Careful note was taken of the length and opening and closing times for all nets on all trips. Incidental observational records were compiled of all birds seen and/or heard at the site during each trip (Appendix 1).

Captured birds were placed in cloth bags and had their net location and time of capture recorded. Birds were then taken to a central banding location and placed inside a vehicle so as to provide shelter from the elements. Birds were processed in chronological order based on capture time, with smaller, more sensitive species such as the Brown Thornbill *Acanthiza pusilla* given priority. Each bird captured was banded on the right leg with a metal band provided by the Australian Bird and Bat Banding Scheme (ABBBS). Data were recorded on band number, species, sex, age, breeding condition (e.g. presence or absence of a brood patch), tail length, wing length, total head-bill length and moult status of wing and tail feathers. The taking of morphometric measurements followed that described in Lowe (1989) and Rogers *et al.* (1986). All birds were released at the banding station. Capture and release times were also recorded to monitor how long each bird was held.

**Table 1**

Mistnetting effort and capture rates, New Chums Road study area, November 2007 to June 2009.

	Nov 2007	Feb 2008	Apr 2008	Jun 2008	Aug 2008	Oct 2008	Jan 2009	Feb 2009	Apr 2009	Jun 2009	Totals
Number of sessions	4	3	4	3	3	4	4	4	4	3	36
Hours open	17.3	13.3	15.8	11.8	12	17.5	18	17.5	15.5	9.8	148.5
Length of nets (m)	274	241	201	283	232	140	235	283	311	290	Av. = 249
Number birds banded	104	49	93	52	16	77	130	167	123	33	844
Capture rate	2.19	1.53	2.93	1.56	0.57	3.14	3.07	3.37	2.55	1.16	2.28

Capture rates were calculated as the number of birds captured per 100 metres of net per hour. The total number banded only includes the initial capture of each individual.

Recapture rates were calculated by dividing the number of recaptured individuals, excluding those caught more than once within the same trip (i.e. within trip recapture events) by the total number banded and is presented as a percentage.

## RESULTS AND DISCUSSION

During 1961–63, 1720 birds, representing 35 species were banded plus 426 recaptures. During the 21-year period covered by the full extent of the previous study (1961–1979), 15 137 banding plus recapture events were recorded, comprising 10 540 individual birds from 52 species (Tidemann *et al.* 1988).

During the current investigation (2007–2009) 844 individual banded birds were banded representing 29 species, with 264 recaptures. A total of 54 species was recorded as present at the site (Appendix 1). However, no bird banded during the original study has been recaptured since banding recommenced. After such a prolonged period of time between study periods the chance of finding any of the original study birds alive was extremely low. This would suggest a complete population turnover.

### *Changes to vegetation*

During the 48 years since banding first began at New Chums Road a number of important events have shaped the vegetation of the site. The end of logging operations in the area circa 1961 had a major impact upon the vegetation of the study site. Wilson (1994) notes that the combination of logging debris and steep slope made walking towards the line of nets extremely difficult during their first trips in 1961. Today little evidence of logging activity in the area is present, with no sign of logging debris on the ground. The influence of logging on vegetation structure and complexity is well documented (Bunnell *et al.* 1994; Crawford *et al.* 1981; Hagar *et al.* 1995; Stuart-Smith *et al.* 2006). It is likely that the removal of harvestable timber opened up both the understorey and canopy layers and these changes in vegetation structure may have resulted in changes to the avian community (Macarthur and Macarthur 1961; Wilson 1974).

The gazettement of Namadgi National Park in 1984 ensured the forest remained relatively undisturbed by human activities. However, stochastic events such as wildfire have played a part in changing the vegetation of the site. Several wildfires were documented at the site during the original study. Stokes (1975a) states that a fire in December 1972 caused severe to complete defoliation of all layers of vegetation in most areas and burnt out approximately 70 percent of the net lanes. The most recent wildfire occurred in January 2003, burning most of the National Park. The intensity of this wildfire was such that much of the over-storey was killed, and left very few unburnt refugia to which the fauna could retreat. Although quantitative vegetation assessments were not taken during the original study, it is apparent that post-fire regeneration has led to an extremely dense low to mid-storey (0.5 to 4 m) that was not present at the site in the earlier (61–63) study (Wilson, pers. comm.).

### *Changes to avian fauna*

Despite the intense wildfire that burnt most of the site in 2003, the majority of bird species banded during the earlier study (1961–1963) were still present at the site (Appendix 2). However, seven species banded during the original New Chums Road study were not banded during the later study – Wonga Pigeon *Leucosarcia picata*, Australian Owlet-nightjar *Aegotheles cristatus*, Crimson Rosella *Platycercus elegans*, Fan-tailed Cuckoo *Cacomantis flabelliformis*, Laughing Kookaburra *Dacelo novaeguineae*, Brown-headed Honeyeater and Eastern Whipbird *Psophodes olivaceus* – although, all these species apart from the Brown-headed Honeyeater were sighted. One species, the Superb Fairy-wren *Malurus cyaneus*, captured during the new study, was not recorded during the 1961–1963 study, either during observational surveys or mistnetting (Lamm and Wilson 1966).

Similarities in species composition several years post-wildfire have been reported previously (Stuart-Smith *et al.* 2006), and are in contrast to the changes in species composition found by Egan *et al.* (1997) in a long-term banding study within a Box-Ironbark Woodland at Longneck Lagoon, N.S.W.. These species (with the exception of Brown-headed Honeyeater) are at the upper size limit of birds readily captured in mist nets, and with the exception of the Eastern Whipbird were not caught in large numbers during the original study. As such, it is perhaps not surprising they have not been caught during the time frame of the current study, although they have been recorded as present during observational surveys (Appendix 1). Of these, the Australian Owlet-nightjar is unlikely to be captured as nets are no longer opened before sunrise (as was the case in the earlier study).

### *Capture rates*

From 1961 to 1963, 1720 birds were banded with an overall capture rate of 3.97.

During 2007–2009, 844 (excluding retraps) individual birds were banded, resulting in an overall capture rate of 2.28 (Table 1). Capture rates peaked in late summer, with 3.37 in February 2009 and dropped to a low during winter, with a capture rate of 0.57 in August 2008 (Table 1). During the period November 2007 to June 2009, Brown Thornbills (21 %) were the most commonly banded species, followed by the Striated Thornbill *A. lineata* (20 %), White-browed Scrubwren *Sericornis frontalis* (18 %), White-naped Honeyeater *Melithreptus lunatus* (5 %) and Rufous Fantail *Rhipidura rufifrons* (5 %) (Table 2). Capture rates for individual species banded are presented in Appendix 2. These range from 0.003 for species such as the Shining Bronze Cuckoo *Chalcites lucidus*, Pink Robin *Petroica rodinogaster* and Bassian Thrush *Zoothera lunulata* that have been rarely caught, to 0.481 for the most commonly captured species; Brown Thornbill.

Consistent with findings in Lamm and Wilson (1966), our capture data indicate a high degree of seasonality in the bird community present at the study site (Appendix 3). The Pink Robin remains the only winter visitor to the site (data pooled for observational and banding results, Appendix 1 and 3), whilst several species are only present during the summer months. The Golden Whistler *Pachycephala pectoralis* however, appears to be only a partial migrant, with some birds remaining at the site during winter. Over the relatively short timeframe this project has been underway we would caution against solely using such banding data to determine a complete composition of the avian community at the site. Many species are not readily captured

**Table 2**

Percentage recapture of species for which more than 20 individuals were banded during this study compared to those from Lamm and Wilson (1966), excluding within trip recaptures.

Species		Number of individuals banded		Number of individuals recaptured		% Recapture	
		1961-63	2007-09	1961-63	2007-09	1961-63	2007-09
Pilotbird	<i>Pycnoptilus floccosus</i>	26	4	6	0	23	0
White-browed Scrubwren	<i>Sericornis frontalis</i>	269	153	104	89	38	58
Striated Thornbill	<i>Acanthiza lineata</i>	103	173	30	71	29	41
Brown Thornbill	<i>Acanthiza pusilla</i>	206	178	56	75	27	42
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	45	6	10	0	22	0
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	116	30	23	1	20	3
White-eared Honeyeater	<i>Lichenostomus leucotis</i>	33	26	5	0	15	0
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>	77	13	10	0	13	0
White-naped Honeyeater	<i>Melithreptus lunatus</i>	105	45	23	0	22	0
Golden Whistler	<i>Pachycephala pectoralis</i>	108	29	30	2	28	7
Rufous Fantail	<i>Rhipidura rufifrons</i>	45	39	8	6	18	15
Grey Fantail	<i>Rhipidura albiscapa</i>	91	26	10	0	11	0
Flame Robin	<i>Petroica phoenicea</i>	35	15	5	0	14	0
Rose Robin	<i>Petroica rosea</i>	54	12	17	0	32	0
Eastern Yellow Robin	<i>Eopsaltria australis</i>	111	25	39	10	35	40
Silvereye	<i>Zosterops lateralis</i>	85	30	8	3	10	10
Bassian Thrush	<i>Zoothera lunulata</i>	59	1	12	0	20	0
Red-browed Finch	<i>Neochmia temporalis</i>	38	8	5	0	13	0

**Table 3**

Species for which more than 20 individuals were banded during this study. % = percentage of the total number of birds trapped in each study.

Species		%	
		1961 – 1963	2007 – 2009
White-browed Scrubwren	<i>Sericornis frontalis</i>	15.6	18.1
Brown Thornbill	<i>Acanthiza pusilla</i>	12.0	21.1
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	6.7	3.6
Eastern Yellow Robin	<i>Eopsaltria australis</i>	6.5	3.0
Golden Whistler	<i>Pachycephala pectoralis</i>	6.3	3.4
White-naped Honeyeater	<i>Melithreptus lunatus</i>	6.1	5.3
Striated Thornbill	<i>Acanthiza lineata</i>	6.0	20.5
Grey Fantail	<i>Rhipidura albiscapa</i>	5.3	3.1
Silvereye	<i>Zosterops lateralis</i>	4.9	3.6
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>	4.5	0
Bassian Thrush	<i>Zoothera lunulata</i>	3.4	0
Rose Robin	<i>Petroica rosea</i>	3.1	0
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	2.6	0
Rufous Fantail	<i>Rhipidura rufifrons</i>	2.6	4.6
Red-browed Finch	<i>Neochmia temporalis</i>	2.2	0
Flame Robin	<i>Petroica phoenicea</i>	2.0	0
White-eared Honeyeater	<i>Lichenostomus leucotis</i>	1.9	3.1
Pilotbird	<i>Pycnoptilus floccosus</i>	1.5	0

in mist nets (e.g. due to size or behaviour) and thus would not be represented in any census only using this technique. Such differences are apparent between the species composition described in Appendix 3 (banding data) and Appendix 1 (observational data). In addition, seasonality may influence behavioural changes in some species, making them more or less likely to be encountered in mist nets at different times of the year.

Whilst the species composition of birds present at the site between the two studies is similar, changes to the most commonly captured species are apparent between the two data sets (Table 3). Capture frequency of ground foraging species such as the

Eastern Yellow Robin *Eopsaltria australis* have reduced. The Eastern Yellow Robin is no longer among the ten most frequently encountered species, replaced by an arboreal specialist, the Rufous Fantail. The White-browed Scrubwren, which was the most commonly encountered species during the original study at New Chums Road, has now dropped to third most frequently banded species (Table 3). It is probable that the change in vegetation structure has led to a decrease in the abundance of ground foraging specialists at the site (Appendix 2). All robin species found at the site, along with species such as Bassian Thrush, Eastern Whipbird, Pilotbird *Pycnoptilus floccosus* and Wonga Pigeon have decreased in banding rate (Appendix 2).

### Recapture rates

Recapture rates for species for which more than twenty individuals were banded in 1961–63 are presented in Table 2. Recapture rates for resident species during 2007–09 (Table 2) range from 58 percent for the White-browed Scrubwren (third most commonly banded species) to seven percent for the Golden Whistler (resident or partial migrant). Recapture rates for three migratory species range from 15 percent for the Rufous Fantail, to 3 percent for the Yellow-faced Honeyeater *Lichenostomus chrysops*. For three species, White-eared Honeyeater *Lichenostomus leucotis*, White-naped Honeyeater and Grey Fantail *Rhipidura albiscapa*, no bird was recaptured after being banded, despite having between 26 and 45 individuals banded (Table 2).

Despite changes to the rate with which species were captured, the recapture rate of commonly encountered species has remained relatively constant between the two time periods, e.g., Rufous Fantail, Eastern Yellow Robin and Silvereye (Table 2) or increased for commonly encountered resident species such as White-browed Scrubwren, Striated Thornbill and Brown Thornbill. Although our data set is relatively small this result suggests that for these species changes to capture rates are reflecting real changes in species abundance and not due to changes in ‘capture likelihood’.

Given the nature of the site and the dramatic changes that have occurred to the vegetation since the fires of 2003, changes to species abundance were not unexpected. It is likely that these changes were due to a combination of effects resulting from population recovery and vegetation change post-fire, although this deserves further monitoring.

### ACKNOWLEDGEMENTS

This project would not have been possible without the support of a wide range of people. We were fortunate enough to meet and have informative discussions with some of the original researchers – thanks particularly to Steve Wilson. The Canberra community and Australian avian research is so much the poorer for his recent passing. Thanks to the ACT PCS staff, particularly Michael Maconachie and Bob Burdick, for providing on-going support, advice and accommodation. Thanks to Leo Joseph from the ANWC for providing resources and equipment and Margaret Cawsey for her patience with the database. Thanks to Jacqui Stol and Michael Doherty for the vegetation survey work. We thank Nick Nicholls and Erik Doerr for their comments on a previous draft of this manuscript, and special thanks to John Farrell for his editorial advice. Last but not least, thanks to all the CSIRO staff, friends and family who have generously and voluntarily given their time and effort – it is much appreciated.

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## Appendix 1

Species banded and sighted/heard at New Chums Road by season. (Nov 07–Jun 09)

Species		Autumn	Winter	Spring	Summer
Bar-shouldered Dove	<i>Geopelia humeralis</i>				
Wonga Pigeon	<i>Leucosarcia melanoleuca</i>				
Australian Owllet-nightjar	<i>Aegotheles cristatus</i>				
Yellow-tailed Black Cockatoo	<i>Calyptorhynchus funereus</i>				
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>				
Sulphur-Crested Cockatoo	<i>Cacatua galerita</i>				
Australian King Parrot	<i>Alisterus scapularis</i>				
Crimson Rosella	<i>Platycercus elegans</i>				
Horsefield's Bronze-cuckoo	<i>Chalcites basalis</i>				
Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>				
Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>				
Brush Cuckoo	<i>Cacomantis variolosus</i>				
Southern Boobook	<i>Ninox boobook</i>				
Laughing Kookaburra	<i>Dacelo novaeguineae</i>				
Superb Lyrebird	<i>Menura novaehollandiae</i>				
White-throated Treecreeper	<i>Cormobates leucophaea</i>				
Red-browed Treecreeper	<i>Climacteris erythroptis</i>				
Satin Bowerbird	<i>Ptilonorhynchus violaceus</i>				
Superb Fairy-wren	<i>Malurus cyaneus</i>				
Pilotbird	<i>Pycnoptilus floccosus</i>				
White-browed Scrubwren	<i>Sericornis frontalis</i>				
Striated Thornbill	<i>Acanthiza lineata</i>				
Brown Thornbill	<i>Acanthiza pusilla</i>				
Spotted Pardalote	<i>Pardalotus punctatus</i>				
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>				
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>				
White-eared Honeyeater	<i>Lichenostomus leucotis</i>				
Red Wattlebird	<i>Anthochaera carunculata</i>				
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>				
White-naped Honeyeater	<i>Melithreptus lunatus</i>				
Noisy Friarbird	<i>Philemon corniculatus</i>				
Eastern Whipbird	<i>Psophodes olivaceus</i>				
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>				
Cicadabird	<i>Coracina tenuirostris</i>				
Crested Shrike-tit	<i>Falcunculus frontatus</i>				
Olive Whistler	<i>Pachycephala olivacea</i>				
Golden Whistler	<i>Pachycephala pectoralis</i>				
Rufous Whistler	<i>Pachycephala rufiventris</i>				
Grey Shrike-thrush	<i>Colluricincla harmonica</i>				
Grey Butcherbird	<i>Cracticus torquatus</i>				
Pied Currawong	<i>Strepera graculina</i>				
Grey Currawong	<i>Strepera versicolor</i>				
Rufous Fantail	<i>Rhipidura rufifrons</i>				
Grey Fantail	<i>Rhipidura albiscapa</i>				
Australian Raven	<i>Corvus coronoides</i>				
Satin Flycatcher	<i>Myiagra cyanoleuca</i>				
Scarlet Robin	<i>Petroica boodang</i>				
Flame Robin	<i>Petroica phoenicea</i>				
Rose Robin	<i>Petroica rosea</i>				
Pink Robin	<i>Petroica rodinogaster</i>				
Eastern Yellow Robin	<i>Eopsaltria australis</i>				
Silvereye	<i>Zosterops lateralis</i>				
Bassian Thrush	<i>Zoothera lunulata</i>				
Red-browed Finch	<i>Neochmia temporalis</i>				

### Appendix 2

Number and capture rates (number of birds trapped per 100m per hour of net erected) of birds banded (excluding retraps) at New Chums Road from 1961 to 1963, and 2007 to 2009.

Species		Banded 1961 to 1963	Banded 2007 to 2009	Captures rates (1961 to 1963)	Captures rates (2007 to 2009)
Wonga Pigeon	<i>Leucosarcia melanoleuca</i>	1	0	0.002	
Australian Owllet-nightjar	<i>Aegotheles cristatus</i>	2	0	0.005	
Crimson Rosella	<i>Platycercus elegans</i>	3	0	0.007	
Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>	5	1	0.012	0.003
Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	3	0	0.007	
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	2	0	0.005	
White-throated Treecreeper	<i>Cornobates leucophaea</i>	11	9	0.025	0.024
Red-browed Treecreeper	<i>Climacteris erythroptus</i>	8	4	0.018	0.011
Superb Fairy-wren	<i>Malurus cyaneus</i>	0	1	0.000	0.003
Pilotbird	<i>Pycnoptilus floccosus</i>	26	4	0.060	0.011
White-browed Scrubwren	<i>Sericornis frontalis</i>	269	153	0.620	0.414
Striated Thornbill	<i>Acanthiza lineata</i>	103	173	0.238	0.468
Brown Thornbill	<i>Acanthiza pusilla</i>	206	178	0.475	0.481
Spotted Pardalote	<i>Pardalotus punctatus</i>	8	5	0.018	0.014
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	45	6	0.104	0.016
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>	116	30	0.268	0.081
White-eared Honeyeater	<i>Lichenostomus leucotis</i>	33	26	0.076	0.070
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>	77	13	0.178	0.035
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>	6	0	0.014	
White-naped Honeyeater	<i>Melithreptus lunatus</i>	105	45	0.242	0.122
Eastern Whipbird	<i>Psophodes olivaceus</i>	12	0	0.028	
Crested Shrike-tit	<i>Falcunculus frontatus</i>	2	2	0.005	0.005
Olive Whistler	<i>Pachycephala olivacea</i>	18	4	0.042	0.011
Golden Whistler	<i>Pachycephala pectoralis</i>	108	29	0.249	0.078
Rufous Whistler	<i>Pachycephala rufiventris</i>	9	2	0.021	0.005
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	17	1	0.039	0.003
Pied Currawong	<i>Strepera graculina</i>	1	1	0.002	0.003
Rufous Fantail	<i>Rhipidura rufifrons</i>	45	39	0.104	0.105
Grey Fantail	<i>Rhipidura albiscapa</i>	91	26	0.210	0.070
Flame Robin	<i>Petroica phoenicea</i>	35	15	0.081	0.041
Rose Robin	<i>Petroica rosea</i>	54	12	0.125	0.032
Pink Robin	<i>Petroica rodinogaster</i>	6	1	0.014	0.003
Eastern Yellow Robin	<i>Eopsaltria australis</i>	111	25	0.256	0.068
Silvereye	<i>Zosterops lateralis</i>	85	30	0.196	0.081
Bassian Thrush	<i>Zoothera lunulata</i>	59	1	0.136	0.003
Red-browed Finch	<i>Neochmia temporalis</i>	38	8	0.088	0.022

### Appendix 3

Average capture rates of banded species (excluding retraps) by season (no. of birds caught/100m of net/hour) November 2007 to June 2009.

Species		Autumn	Winter	Spring	Summer
Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>			0.03	
White-throated Treecreeper	<i>Cormobates leucophaea</i>	0.12	0.07	0.08	0.02
Red-browed Treecreeper	<i>Climacteris erythroptera</i>	0.05		0.06	
Superb Fairy-wren	<i>Malurus cyaneus</i>		0.03		
Pilotbird	<i>Pycnoptilus floccosus</i>	0.05			0.10
White-browed Scrubwren	<i>Sericornis frontalis</i>	1.54	2.10	1.36	2.21
Striated Thornbill	<i>Acanthiza lineata</i>	3.63	1.47	0.78	0.99
Brown Thornbill	<i>Acanthiza pusilla</i>	1.84	2.77	0.72	2.13
Spotted Pardalote	<i>Pardalotus punctatus</i>			0.06	0.07
Eastern Spinebill	<i>Acanthorhynchus tenuirostris</i>	0.05		0.11	
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>			0.42	0.41
White-eared Honeyeater	<i>Lichenostomus leucotis</i>	0.15	0.07		0.44
Crescent Honeyeater	<i>Phylidonyris pyrrhoptera</i>	0.05	0.13		0.22
White-naped Honeyeater	<i>Melithreptus lunatus</i>			0.17	0.97
Crested Shrike-tit	<i>Falcunculus frontatus</i>		0.07		
Olive Whistler	<i>Pachycephala olivacea</i>	0.05	0.03		0.05
Golden Whistler	<i>Pachycephala pectoralis</i>		0.03	0.56	0.29
Rufous Whistler	<i>Pachycephala rufiventris</i>			0.06	
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	0.02			
Pied Currawong	<i>Strepera graculina</i>			0.03	
Rufous Fantail	<i>Rhipidura rufifrons</i>			0.22	0.97
Grey Fantail	<i>Rhipidura albiscapa</i>			0.39	0.32
Flame Robin	<i>Petroica phoenicea</i>	0.05		0.08	0.34
Rose Robin	<i>Petroica rosea</i>		0.03	0.19	0.15
Pink Robin	<i>Petroica rodinogaster</i>		0.03		
Eastern Yellow Robin	<i>Eopsaltria australis</i>	0.17	0.23	0.19	0.36
Silvereye	<i>Zosterops lateralis</i>	0.17		0.53	0.39
Bassian Thrush	<i>Zoothera lunulata</i>			0.03	
Red-browed Finch	<i>Neochmia temporalis</i>			0.11	0.10