canberra bird notes

ISSN 0314-8211

Volume 35
Number 3
December 2010

Registered by Australia Post – Publication No. NBH 0255

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A SCHIZOCHROISTIC AUSTRALIAN WOOD DUCK *CHENONETTA JUBATA*

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Abstract: *While aberrant plumage in birds has been extensively studied in North America and Europe, very little is known of the frequency and causes of aberrant plumage in Australian birds. Many factors including genetics, diet, disease, injury and age have been suggested to play a role in the development of aberrant plumages. Here we describe an adult female Australian Wood Duck showing complete lack of brown pigment and we suggest that this "grey" form of Australian Wood Duck is a case of schizochroism where phaeomelanin has been completely lost.*

Introduction

Plumage coloration in birds is the result of the deposition of a combination of pigments in the feathers. The most common pigments are melanins that give rise to black and brown colours (McGraw 2006b). Two types of melanin have been described in birds: eumelanin (black) and phaeomelanin (brown) (McGraw 2006b). Carotenoids are another common pigment that give rise to yellows, oranges and reds (McGraw 2006a). Parrots are unique in that they do not incorporate carotenoids into their plumage and instead synthesise a different type of yellow, orange and red pigments called psittacofulvins (Stradi et al. 2001, Völker 1937). In contrast to the previously mentioned colours, blues are the result of scattering of light by structural properties of the feathers and greens are simply a combination of pigment and structural properties of the feathers (Dyck 1976). If, for some reason, either pigment or structural components are deficient, plumage aberration will result.

Plumage aberrations are not uncommon in wild birds (Buchanan and Parkes 1948, Graefe and Hollander 1945, Hudon et al. 1996), but, for reasons that are unclear, have been rarely reported in Australia (e.g. Cleere 2002, McGill 1946, Milligan 1905). Most of the literature on aberrant plumages focuses on albinism, the complete loss of all pigments in both plumage and skin, and leucism, the complete loss of all pigment for the whole or part of the plumage but not from soft parts (Deane 1876, Gross 1965, Sage 1963). In contrast, schizochroistic birds will present aberrant coloured plumage due to the loss of one pigment (e.g. Peregrine Falcon, *Falco peregrinus*; Ellis et al. 2002). Few cases of schizochroism have been published (e.g. Williams 1964,

Ellis et al. 2002, van Grouw 2006). The various types of schizochroism are usually named based on the pigment that is lost. Thus a non-eumelaninc schizochroistic bird will have lost eumelanin.

While most of these plumage aberrations have a genetic basis, diet, age, disease, and injury have also been implicated (Buckley 1969, Sage 1962). The frequency of plumage aberrations is highly variable between species, being very rare in some (e.g. 1:146,000 leucistic Chinstrap Penguins *Pygocelis antarctica*; Forrest & Naveen 2000) and common in others (e.g. >40% leucistic Brewer's Blackbird *Euphagus cyanocephalus*; Edson 1928). Within species, important variation can also occur between populations (Bensch et al. 2000, Ellegren et al. 1997, Rollin 1953).

Here we describe an aberrant plumage in the Australian Wood Duck *Chenonetta jubata* and postulate on the cause of the aberration

Observation

An adult female Australian Wood Duck was observed on Sullivan's Creek (35º17'S, 149º07'E) on the Australian National University Campus in Canberra, Australia on September 30, 2009. The individual presented clear female plumage patterns, including the darker head with white stripes both above and below the eye, and lower neck, chest and flanks white spotted on a grey background. However, the plumage on the individual was subdued in colour and completely dichromatic (Figure 1). Only light grey pigment was present, with brown pigment completely absent, as noticed in the head, breast, wings, back and tail (Table 1). Interestingly, the legs and bill were a light pink colour, distinctly different from the dark legs and bill of a typical Australian Wood Duck. Overall, these combined factors of subdued, dichromatic plumage indicated a significant pigment deficiency in the entire body.

Figure 1. Aberrant plumaged adult female Australian Wood Duck *Chenonetta jubata* with a normally plumaged female in the background.

Discussion

We have described a new plumage aberration in Australian Wood Duck that to our knowledge has not been previously described. The lack of any brown pigment in the feathers of the female Australian Wood Duck suggests that it represent a typical case of schizochroism where the phaeomelanin has been lost. Loss of phaeomelanin gives rise to grey plumage while loss of eumelanin gives rise to fawn plumage (Harrison 1963a). Schizochroism is well known by bird breeders and schizochroisitic variants of aviary species like Budgerigars

Table 1. – Comparison of body feature colours between a normally pigmented adult female Australian Wood Duck *Chenonetta jubata* and the observed schizochroistic individual.

	Phenotype	
Feature	**Normal**	**Schizochroistic**
Head and Neck	Brown with white line above and below eye.	Grey with white line above and below eye.
Chin and throat	Brown flecked white.	Grey flecked white.
Upperwing	Grey, black primaries.	Grey, light grey primaries.
Breast and flanks	Brown spotted white.	Grey spotted white.
Tail	Black; undertail white.	Dark grey; undertail white.
Bill	Brownish-grey to dark grey.	Pink.
Feet and legs	Brownish-grey to grey.	Pinkish-white.

Melopsittacus undulatus and Canaries *Serinus canarius* have been described (Harrison 1963b). In waterfowl, schizochroistic strains of American Wood Duck *Aix sponsa* (Delacour 1959) and White-cheeked Pintail *Anas bahamensis* (Delacour 1956) have been selected by breeders and established in captivity. In contrast, wild examples of schizochroism are rarer. This may be due to hypo-pigmented feathers being less resistant to wear and to decreased crypsis of the plumage that may result in higher predation risk (Goodwin 1959). In the wild, schizochroism has been reported in a few species (Harrison 1963a; Harrison 1963b), but in waterfowl it has only been reported in Northern Mallard *Anas platyrhynchos* (Harrison 1963a) and Cinnamon Teal *Anas cyanoptera* (D.A. Cohen in McGregor 1900). The observed grey colour of the female Wood Duck suggests that it was caused by loss of phaeomelanin. Thus, we propose that the female Wood Duck grey plumage was a naturally occurring example of non-phaeomelanic schizochroism.

From studies of schizochroism in captivity, it is known that both non-eumelanic and non-phaeomelanic schizochroism are recessive. While loss of eumelanin seems to be sex-linked, loss of phaeomelanin is not (Harrison 1963a). Therefore, grey morphs are much rarer than fawn morphs and female fawn morphs are more common than males. One interesting trait of the female Wood Duck phenotype was its pink legs and bill. Changes in bare parts colour bare parts have been observed in other schizochroistic birds. For example, while juvenile wild-type Zebra Finches *Taeniopygia guttata* have dark bills, juvenile fawn variants have pale-orange bills (Immelmann 1985) and non-melanic schozochroistic Bohemian Waxwing *Bombycilla garrulus* have pale buff rather than black legs and bill (Harrison 1965). This suggests that unlike leucism that is caused by a mutation that prevents pigments being incorporated into the feathers (Buckley 1969), non-melanic schizochroism may be caused by mutation that prevents synthesis of a specific type of melanin.

Acknowledgements

Funding for this project, in the form of a Victoria University Research Fellowship, was provided to PJG by the Research Division, the School of Engineering and Science and the Institute for Sustainability and Innovation of Victoria University. Funding to DAP was provided by a Holsworth Wildlife Research Endowment.

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A STATISTICAL ANALYSIS OF TRENDS IN OCCUPANCY RATES OF WOODLAND BIRDS IN THE ACT, DECEMBER 1998 TO DECEMBER 2008: THE TEN-YEAR DATA ANALYSIS

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Abstract: *Since 1995, the Canberra Ornithologists Group (COG) has undertaken systematic surveys of bird abundance at a number of monitoring locations in grassy woodlands in the Australian Capital Territory (ACT), particularly locations on the peri-urban fringe, and including conservation reserves and rural leaseholds. These surveys first commenced at Mulligan's Flat in 1995, then a grazing leasehold. An additional five survey locations were added in 1998, and progressively more locations have been added up to 2005. Fifteen survey locations with 142 monitoring sites now comprise the Project. Surveys are undertaken seasonally, four times a year, using point counts within a plot of 50 metres radius. Data collected between 1998 and 2008 has been statistically analysed for a number of species of birds. Data has been analysed separately for the fifteen ongoing monitoring locations, and the six foundation locations for which there is now ten years of data.*

The longitudinal trends in occupancy rate were calculated for 55 species (34 woodland-dependent, 21 non-woodland) reported in more than 1% of the 2567 surveys at the ten-year sites:

- *15 species (9 woodland-dependent) showed some evidence of a declining trend over the ten years*
- *25 species (17 woodland-dependent) showed no overall change, and*
- *15 species (8 woodland-dependent) showed an increasing trend.*

A strong pattern to emerge for some species, was a non-linear trend with two peaks, the first in 2000-01 and again in 2006-07, regardless of whether the overall straight-line trend for the species was an increase, decrease or no change. Two composite indices (species richness and relative abundance) were applied to all species together, then separately for woodland-dependent and non-woodland species. Species richness at the ten-year sites showed a definite low point in 2003 but with little overall change over the ten years. Relative abundance graphs for the ten-year sites were more linear with a slight low point in 2003 but again, little overall change.

This report also includes climatic data over the ten years' period and commentary on the results from two other projects in the region, the Cowra Woodland Birds Program and Greening Australia's Birdwatch Surveys (both in the region to the north of the ACT)

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Background

The Woodland Project undertaken by the Canberra Ornithologists Group (COG) commenced in 1998, with six locations in grassy (Yellow Box/Red Gum) woodland. Twenty-four sites in the Mulligan's Flat Nature Reserve, of several habitat types including grassy woodland, had previously been surveyed by COG since June 1995.

Mulligan's Flat NR with five new survey locations, Mt Majura Nature Reserve, Red Hill Nature Reserve, Gooroo (then a grazed leasehold adjacent to Mulligan's Flat), Symonston (then grazed leaseholds in the Jerrabomberra Valley) and Castle Hill (private grazed land north of Tharwa at the head of the Naas Valley) form the foundation locations for the Woodland Project, which now have data from ten years of surveys.

Since 1998, more locations have progressively been added to the Woodland Project. A small number of sites at some locations have been lost for various reasons. One location was withdrawn (Lambrigg) and replaced with another in the Naas Valley a few kilometres south of Tharwa (Naas). As well, some surveys were discontinued for a period at one location (Majura Field Firing Range) due to security access issues.

As at the end of 2009, there are 142 current sites at 15 locations in the Woodland Project, and they include agricultural (grazing) leasehold properties as well as reserve areas and quasi conservation areas. Some locations have seen a change in land tenure since the surveys began, as previously grazed leasehold or ACT government managed blocks with agisted grazing have been brought within the ACT's reserve system. The locations and their history are summarized in more detail in Table 1.

The locations are essentially in large remnants of the former woodland landscape of the ACT, in the Yellow Box/Red Gum Grassy Woodland community, a plant community listed as threatened under the ACT's Nature Conservation Act 1980 (Environment ACT 1999). These locations are largely in the peri-urban area of Canberra, within three main woodland corridors identified in the ACT's strategy for managing and conserving this community, 'Action Plan 27: Woodlands for Wildlife; ACT Lowland Woodland Conservation Strategy'. It should be noted that much of the fertile land which was previously grassy woodland is now urbanised (Environment ACT 2004).

In broad terms, the aims of the Woodland Project are:

- To measure the abundance of birds at grassy woodland locations in the ACT,
- To establish a survey design for monitoring the abundance of birds and hence assess the effectiveness of the ACT land reservation system in conserving birds species which occur in these areas, and
- To provide recommendations for management (Cunningham 2003).

At December 2008, ten years of data were available from the six foundation locations, as well as data collected for shorter periods of time from the other

locations surveyed. In previous analyses (Cunningham 2003, Cunningham and Rowell 2006, Bounds et al. 2007), data from all sites were combined regardless of the length of survey time. In this report, in addition to analysis of data from all sites, the 'ten-year' dataset was analysed separately to remove the confounding effect of adding or removing sites.

This report presents the results of the two analyses, with a focus on the results from the ten-year dataset. In addition, this report consolidates previously published Project reports and more recent information, to give a comprehensive summary history of the Woodland Project.

Published Reports

The first report from the Woodland Project was published in 2003 as 'A statistical assessment of the status and trends of woodland birds in the ACT: A report to Canberra Ornithologists Group (COG)' (Cunningham 2003). The principal objective was to examine long-term, inter-year and intra-year temporal patterns and identify site factors relating to bird occurrence. This report gave some valuable insights into changes in abundance and distribution for a selection of woodland bird species, including species listed as vulnerable in the ACT under the Nature Conservation Act 1980, and several other species of interest.

The report, 'Canberra Ornithologists Group Woodland Bird Survey Progress Report, 2000 to 2003', published in April 2004, provided a progress report for the Project, and included relevant factual information to 2004, reference to records from surveys for the period 2000 to 2002 and location maps (Rowell 2004).

The report 'A Statistical Analysis of Trends in Detection Rates of Woodland Birds in the ACT, 1998 to 2004', published in 2006, provided the first comprehensive statistical analysis and longitudinal trends for a range of bird species. Analysis was undertaken of 63 species in the woodland data set that appeared in more than 1% of the 147 surveys at 132 sites in 13 locations between September 1998 and June 2004 (Cunningham and Rowell 2006).

A further analysis of Woodland Project data was undertaken in 2006 with the report 'A Statistical Analysis of Trends in Occupancy Rates of Woodland Birds in the ACT December 1998 to December 2005', published in February 2007. This analysis was of 64 species in the woodland data set that appeared in more than 1% of surveys, plus a further 6 species of interest that occurred in less than 1% of surveys, from 142 sites in 15 locations. An additional analysis was undertaken of data at the Mulligan's Flat NR and Gooroo north locations to see what results occurred when two large, adjacent areas were compared; some differences in trends were noted for some species, but this exercise was of a preliminary nature only. The same statistical methods were used for the 1998 to 2005 analysis, as for the 1998 to 2004 analysis (Bounds et al. 2007).

Methods

Survey Sites

In this report, the term location is used to describe the particular geographic area/location where the survey sites are located; in previous reports 'locations' have generally been referred to as 'sites'. The term 'site' in this report refers to the area surveyed within a location. Locations are allocated a 3 letter code name which is used in the database. See Appendix 4 map of survey locations and sites.

Sites within a location are circular with a 50 metres radius, (c. 0.8 hectares). At most locations on public land, the centre point has been marked with a star picket (or wooden post at Mulligan's Flat NR), however, not all sites at all locations have had fixed markers installed. Flagging tape has been used at some sites to mark the centre point. However, coordinators are very familiar with their areas and survey the same plots consistently. GPS locations were recorded (originally as AGD datum, but now converted to WGS84).

The number of sites varies across the different locations from 24 sites at one of the largest woodland patches (Mulligan's Flat NR), to 6 sites (Naas Valley). The original project design had 9 sites at each location (categorized into three different structures, low, medium and high), but this has not been possible at some small woodland patches.

When surveys first commenced at the Mulligan's Flat NR in 1995, sites were surveyed for 15 minutes and an additional (fifth) survey was undertaken in the spring breeding season, in early November. When the Woodland Project was established in 1998, the survey methods at Mulligan's Flat were changed and brought into line, to make the data compatible (Rowell 2004).

Each location has a coordinator who undertakes the surveys themselves or with the assistance of other members of COG. For the most part throughout the Woodland Project, surveys at the various locations have been undertaken by the same coordinators or regular group of individuals. A few locations have changed coordinators, but there has been a significant commitment by the majority of location coordinators and survey participants who have been with the Woodland Project from its inception. This is seen as one factor underpinning the statistical strength of the data.

Ten-year Sites

For the ten-year data analysis, data has been drawn from 65 sites at six locations where surveys have been undertaken continuously for ten years from December 1998 to December 2008. These locations are:

- Mulligan's Flat Nature Reserve (24 sites)
- Goorooyarroo Nature Reserve (north) (9 sites)
- Mt Majura Nature Reserve (9 sites)
- Red Hill Nature Reserve (9 sites)
- Symonston in Jerrabomberra Valley (rural lease and nature reserve) (5 sites), and
- Castle Hill (rural lease near Tharwa) (9 sites).

The ten-year analysis includes only 5 of the Symonston sites, that is, the sites which have been surveyed continuously in the period (see location history for further details regarding sites). Three of the 5 sites are in Callum Brae NR and the other two are on a leasehold nearby.

It should be noted that surveys commenced at Mulligan's Flat NR in June 1995, which means there is now 15 years of data for that location in the database. By December 2010, three additional locations will have ten years of data; Newline, Tuggeranong Hill and Hall/Gold Creek.

Bird Surveys

Surveys of bird abundance have been carried out throughout the Woodland Project on a seasonal basis with four surveys each year. The period over which each quarterly survey is to be carried out has varied, however, in 2003 it was standardized to a 9-days period with 2 weekends, at the end of March, June and September and the end of November/beginning of December. There is flexibility for a survey to be undertaken within a week either side of the survey period where it is not possible to do the survey within the standard period.

Surveys are carried out in the early part of the morning, with a 10 minute observation period at each site. Bird abundance (for species seen and heard) is recorded on a data sheet for each site. Only the bird data within the 50 metres site is statistically analysed. Bird abundance (for species seen and heard) is also recorded outside the site, within a 100 metres limit (that is 50 to 100 metres from the centre of the site). The area outside the site where birds are recorded was refined from June 2003, to be more precise instead of 'within the same habitat' (Rowell 2004).

Table 1: Survey location history (this table updates a similar table of location history in Rowell 2004).

Location (Code)	Co-ordinator*	Tenure	First surveyed	Description and comments
Campbell Park (CAM)	Michael Lenz	Nature Reserve and Defence Land	June 2003	South-eastern part of Mt Ainslie-Mt Majura Nature Reserve on the footslopes above the Majura Valley, and Dept. Defence land around Campbell Park offices. Not grazed. 5 sites 3, 6, 7, 8, 9 are in nature reserve; 4 sites, 1, 2, 4, 5 are on Defence land. 9 sites
Castle Hill (CAS)	David McDonald	Rural lease	Sept 1998	In a woodland area north of Tharwa Village near the landmark Castle Hill. Intermittently grazed by sheep or cattle. Significant thinning of the woodland trees (particularly Blakely's Red Gum re-growth) and the understorey over the decade of the survey, with dieback occurring in some eucalypts (possibly due to drought & natural mortality). Well-preserved native grassland patches. 9 sites

Location (Code)	Co-ordinator*	Tenure	First surveyed	Description and comments
Gooroo North (GOO)	Nicki Taws	Rural lease, became Nature Reserve in early 2004	Sept 1998	Northern half of what is now Goorooyarroo NR. Has had pasture improvement in some places in the past, but has high quality patches of woodland, secondary grassland, and regenerating woodland. ANU Woodland Research Experiment site. In 2007, a large number of eucalypt logs were put in the reserve in woodland plots, to increase the amount of fallen timber and improve habitat complexity. 9 sites
Gooroo South (GOS)	Steve Holliday (Jenny Bounds co-coordinator 2004-2007) David and Kathy Cook regularly do some surveys.	Rural leases, became Nature Reserve in early 2004	April 2004	Southern half of what is now Goorooyarroo NR. More hilly and cleared than northern area. While leasehold, cleared and overgrazed in places, especially the very southern parts, and drought affected when it became reserve. ANU Woodland Research Experiment site. In 2007, a large number of eucalypt logs were put in the reserve in woodland plots, to increase the amount of fallen timber and improve habitat complexity. Site 3 is within a kangaroo exclusion fence erected in 2007. 9 sites
Hall/Gold Creek (HAL)	Alison Rowell (Malcolm Fyfe June 2000-June 2003 Nicki Taws March 2004-March 2006) Gail Neumann & Daryl Beaumont survey 2 sites at Hall Common	Rural lease Public common attached to Hall Village (2 sites)	June 2000	Gold Creek lease within a general area of leasehold land known as Kinlyside, and adjacent to the expanding suburb of Casey to the east. Well managed rural lease, generally grazed conservatively with few EG kangaroos; good quality native ground cover, YBRG grassy woodland and dry forest, with high conservation values. Parts of Gold Creek lease are proposed for nature reserve in future, with parts in an overlaying conservation lease, allowing grazing for bushfire management in the buffer area adjacent to Casey. 7 sites on Gold Creek 2 sites in Hall Common
Kama (KAA)	Chris Davey	ACT Government owned block, nature reserve from early 2009	Oct 2005	In the central Molonglo Valley, on a south facing slope with deep soils adjacent to Molonglo River. Surrounded by rural leases, and part of a corridor through to Black Mountain; major roadway William Hovell Drive to the east. High quality YBRG woodland. History of grazing on agistment basis to 2008. 9 sites
Jerrabomberra (JER)	Jenny Bounds	Rural lease, became Nature Reserve 2005	Sept 2005	In the Jerrabomberra Valley, a woodland patch within the Jerrabomberra Grasslands Nature Reserve; surrounded by rural leaseholds and the grasslands. Has not been grazed since 2006. A kangaroo exclusion fence

Location (Code)	Co-ordinator*	Tenure	First surveyed	Description and comments
				was erected around the adjacent grasslands area in spring 2009, and passes close to site 2. 7 sites
Lambrigg (LAM)	Nicki Taws	Rural lease	Dec 2001	Woodland on leasehold near the Murrumbidgee River north of Tharwa. Sites 1, 2, and 9 withdrawn after Dec 2001 survey (access to lease withdrawn). New sites 10-12 first surveyed in September 2002. All sites (3-8, 10-12) burnt (moderate to hot burn) in Jan 2003 bushfires. Access to the lease area was withdrawn after Mar 2003 survey. Location no longer surveyed.
Majura Field Firing Range (MJF)	Paul Fennell	Commonwealth Dept. Defence land	Sept 1998	Within the large woodland complex of the Majura Field Firing Range, originally10 sites surveyed, not all woodland, and spread over large area of the Range. Since 2004, 8 woodland sites have been surveyed, with 2 others in dry forest community on the high ridge discontinued. Surveys not undertaken between 1999 and 2003 due to security/access restrictions. A kangaroo exclusion fence was erected around the adjacent natural temperate grasslands area in 2008 to protect them from overgrazing by EG kangaroos, and some culling of EG kangaroos occurred in the woodland in 2008/09. 8 sites
Mt Majura (MAJ)	Kathy Walter & John Goldie (Anthony Overs 1998- March 2001; Isobel Crawford June 2001 to March 2004)	Nature Reserve and buffer between houses and reserve	Sept 1998	Woodland in north-western corner of the Mt Majura Nature Reserve. Sites 8 & 9 are in a buffer area between houses and the reserve, which is managed as part of the reserve. 9 sites
Mulligan's Flat (MUL)	Jenny Bounds	Nature Reserve	June 1995	Large woodland and dry forest nature reserve bordering NSW, which connects to Goorooyarroo NR in the south-east corner. Survey methodology changed in 1998 to match Woodland Project. ANU Woodland Research Experiment site. In 2007, a large number of eucalypt logs were put in the reserve in woodland plots, to increase the amount of fallen timber and improve habitat complexity. Predator proof fence completed in June 2009; all but one COG site is within the fenced area –site 10 in dry forest at northern end of the western ridge. Sites 6, 7, 8 and 21, 22 are within kangaroo exclusion fences erected in 2007. 24 sites, not all woodland, some dry forest and open woodland/grassland.

Location (Code)	Co-ordinator*	Tenure	First surveyed	Description and comments
Naas (NAS)	Julie McGuiness	Rural lease	August 2004	Woodland on grazed leasehold near Mt Tennant in northern Naas Valley. Some sites lightly burnt in January 2003 bushfires. 6 sites
Newline Quarry(NLN)	Sue Lashko (Jenny Bounds 2000-2007)	Commonwealth and ACT Government owned	July 2000	Woodland at the southern end of a large corridor which includes Mulligan's Flat & Goorooyarroo nature reserves and Majura Field Firing Range. Most of the area owned by Department of Defence, with ACT Government owning small area at the Quarry end. Some industrial uses past and present including builders' waste dump and ammunition storage. Agistment grazing by sheep and cattle. Some pasture improvement in some paddocks. Front paddocks are the best quality woodland. 9 sites
Red Hill (RED)	Harvey Perkins	Nature Reserve	Sept 1998	Woodland within the Red Hill NR, part of a complex of remnant woodland in central Canberra almost completely surrounded by urban areas. 8 sites burnt or part-burnt, light to moderate burns, December 2001. 9 sites
Symonston (SYM)	Jenny Bounds (Geoffrey Dabb 1998- 2007)	Nature Reserve and rural lease. Callum Brae became reserve in 2006	Sept 1998	Woodland within the same broad woodland complex in central Canberra as Red Hill. Partly isolated, with light industrial uses/developments nearby, eg quarry, waste recycling centre, government offices. Sites 1-9 set up originally in 3 different grazed areas within the Mugga Mugga/Callum Brae woodland complex. 15 different sites have been surveyed over the years, with some replacing others for various reasons. • Sites 1-3 in Callum Brae lease, now Nature Reserve have been surveyed since 1998 • Sites 4-6 in a riding school lease off Mugga Lane have been surveyed since 1998 • Sites 7-9 near Mugga Lane/Long Gully Road corner surveyed first year only (not regarded as endangered community) and replaced by 10-12 in East O'Malley woodland from Sep 2000 • Sites 10-12 in East O'Malley lost to housing in 2003 and replaced by 3 new sites in Callum Brae NR, 14-16 • At 2009, 6 sites in Callum Brae NR and 3 sites in the riding school/leasehold off Mugga Lane are current. Callum Brae sites were generally lightly grazed prior to

Location (Code)	Co-ordinator*	Tenure	First surveyed	Description and comments
				becoming reserve, but not grazed since 2006. Riding School site has horses grazing. 9 sites
Tuggeranong Hill (TUG)	Lia Battisson (J McGuiness 2000-Dec 2004; A Ford Mar 2005-June 2006)	Nature Reserve, hills/ridge/buffer area	Sept 2000	Woodland on hillslopes in the Tuggeranong Hill NR, at the southern end of urban Canberra. Two sites, 8 and 9 cleared for housing between June and Sep 2001 surveys, not replaced. 7 sites

Environmental Data

Habitat Assessments

As part of the Woodland Project, habitat assessments have been undertaken at all sites when surveys commenced, and re-assessments have been done following significant events, such as fire (for example, at Red Hill NR sites after December 2001 fires). A data sheet was developed for habitat complexity which provides for a score based on various habitat attributes/features. Attributes assessed include tree canopy cover, eucalypt regeneration, number of tree species, tree health, shrub layer, ground layer density, stumps and fallen logs/branches, tree hollows and number of mistletoes (Cunningham and Rowell 2006).

The habitat assessment was designed so a low total score reflected a structurally simple or uniform habitat and a high total score represented complex and varied habitat. However, sites with similar scores may be different structurally, and the components of the score are regarded as more important than the total (Cunningham and Rowell 2006).

Habitat structure records have been recorded in an Excel spread sheet. Additionally, photographs of each site have been taken at the same time as habitat assessments; these have been recorded at 0, 120 and 180 degrees from north (Cunningham and Rowell 2006).

Habitat Analysis at Ten-year Locations

In late spring/summer 2009/10, habitat re-assessments were carried out by Alison Rowell, environmental consultant, at the six ten-year locations, with a view to undertaking a further statistical analysis of bird data and habitat data, for a number of species of interest.

The species selected for this exercise are Scarlet Robin (strong declining trend), White-plumed Honeyeater (declining trend), Grey-shrike Thrush (declining trend), Speckled Warbler (increasing trend).

The statistical analysis is expected to be undertaken by statistician Ross Cunningham, using a best estimate of trend at the beginning and end of a period coinciding with the habitat assessments (for example, using a 12 months period of four surveys). A report is expected to be published later in 2010.

It is noted that in 2009, the ACT Government developed a draft management plan in response to a

marked increase in numbers of Eastern Grey Kangaroos overgrazing parks and reserves. As this Plan is implemented in future years, with measures to control the numbers of kangaroos, it is anticipated that grazing pressure/impacts will change.

Climatic Data

Rainfall data, monthly actual and long-term average, were obtained from the Bureau of Meteorology website, 'Climate Data Online' (www.bom.gov.au/climate), for the Canberra Airport weather station. See Figures 1 and 2 for graphs based on this data.

Statistical Analyses

Data analysis throughout the Woodland Project has been undertaken by Ross Cunningham (Statwise P/L and also Adjunct Professor, Fenner School, Australian National University).

Data were exported from the Access database in which COG stores the Woodland survey data, into Excel spreadsheet format. The Woodland survey began in September 1998, however the dataset needs to start and end with the same season to reduce the effect of strong seasonal variation on the linear trend, evident in detection rates of some species (Cunningham and Rowell 2006). Hence the current analyses use data from December. 1998 to December 2008.

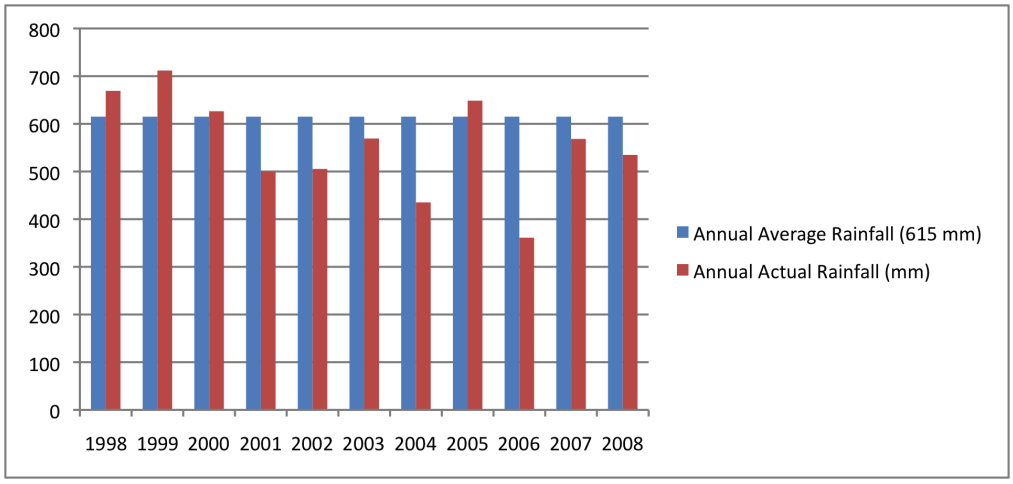

Figure 1: Comparison of annual average rainfall and annual actual rainfall (mm) based on Bureau of Meteorology figures at Canberra Airport.

The main objective of the Project is to monitor woodland birds, so waterbird species were removed from the dataset analysed and the remaining 119 landbirds were designated either as 'woodland-dependent' or non-woodland species (sensu Reid and Cunningham 2008) based on their dependence on larger, relatively intact woodland habitat. Data were checked to ensure that 'true-zero' observations were included, that is, those surveys in which no birds were observed. All data were converted to presence/absence.

The same analyses were applied to two datasets; the 'ten-year sites' dataset containing all data from the 65 sites surveyed continuously from December 1998 to December 2008, and the 'all sites' dataset which included the data for the same period from all 161 sites.

Longitudinal trends for individual bird species

Reporting rates for individual species were used to model longitudinal trends for those species which were recorded in more than 1% of surveys. The reporting rate is the number of surveys in which a species was recorded out of the total number of surveys for that season. The methods used to produce the graphical results are detailed in Cunningham and Olsen (2009).

Composite indices for 'woodland' and 'non-woodland' birds

Woodland birds as a group have attracted much interest because of the clearance or modification of much of their habitat, and the threatened status of several woodland bird species. To determine the long-term trend in the ACT for woodland-dependent birds as a whole, two composite indices were developed. These indices measure the expected number of species per random site (species richness) and the geometric mean of the odds ratio (relative abundance), following the methods in Cunningham and Olsen (2009). The indices were calculated for each of three groups of birds; all landbird species, woodland- dependent species and non-woodland species.

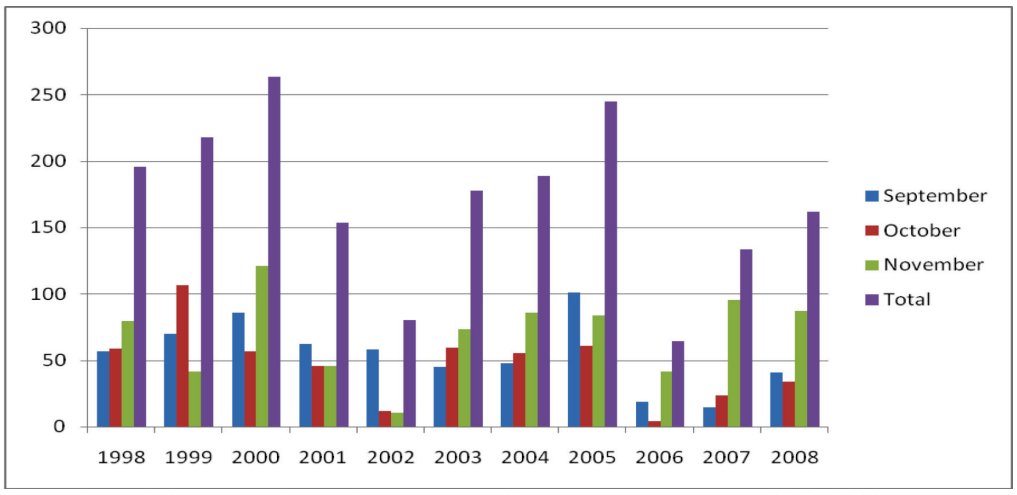

Figure 2: Rainfall (mm) in spring months (September-November, 1998-2008) based on Bureau of Meteorology figures at Canberra Airport.

Results

Climatic Data

The years which comprise the ten-year analysis, 1998 to 2008, have been notable by below average annual rainfall in most years, including reduced spring rainfall, a factor which influences successful bird breeding. Figures 1 and 2 show the annual and spring months rainfall.

Years of above average annual rainfall are the first three years of the period, 1998 to 2000, and the year 2005 which had a third more than the average spring rainfall.

Below average annual rainfall has been a feature of the years since 2000, with seven of the eight years since 2000 having actual rainfall below the average annual rainfall, and four of those years with annual rainfall well below the average (2001, 2002, 2004, 2006).

In most years since 2000, generally there has also been more variable rainfall in the spring months (compared with the long-term averages):

- In 2001, spring rainfall just less than average and falling fairly consistently over the spring months
- In 2002, just over the average rainfall fell in September, but very little rain in the following two months (22mm versus the average 126mm total for those months)
- In 2003, spring rainfall was around the average across the months
- In 2004, spring rainfall was similar to 2003, but higher in November
- In 2005, spring rainfall (as well as the annual) well exceeded the average
- The 2006 spring months were the driest of the period, with only 36% of the average spring rainfall and very low in the months of September/October, and only 59% of the annual average rainfall for the year
- The 2007 spring months were the second driest of the period, with low rainfall in September/October and 30% more than average in November
- In 2008 spring rainfall was below average but the best since 2005, most falling in November.

The spring of 2005 was notable for very good rainfall in the Canberra region, after four years of below average annual rainfall. The 648mm rainfall for 2005 was above the long-term average (622mm), but notably the spring rains were very good (100mm in September followed by 145mm over October/November). These are critical breeding months for many birds. That year added a good breeding year to the previous dataset, after several poor breeding seasons. Reporting rates for some species which were declining or uncertain to 2004, showed some increase in 2005. This appeared to affect both resident species (eg. Eastern Rosella, Red-rumped Parrot) and migrants (eg. Dusky Woodswallow, Mistletoebird, Olive-backed Oriole) (Bounds et al. 2007).

Bird Surveys

For the 1998-2004 data analysis and associated report, Cunningham and Rowell (2006) used the term 'detection' for describing the recording of a bird's presence, and all graphs showed the 'probability of detection'. For the 1998-2005 analysis and associated report, in line with contemporary literature, the term 'occupancy' was used in the report. The 'probability of occupancy' is the likelihood that the species is present; the assumption being that the detection of a species, given it is present, is high and the same for all species. The terms 'occupancy' and 'probability of occupancy' continue to be used with respect to data analyses.

The Ten-year sites dataset and All sites dataset

The ten-year sites were treated to a separate analysis because the dataset was considered to be of higher quality for assessing long-term trends. At these sites surveys have been undertaken regularly each quarter, with very few gaps (Figure 3). Many observers have consistently surveyed the same sites, sometimes for the whole period of the Project, which minimizes observer differences at those sites. With ten years of surveys, the data can now be considered to be showing long-term trends.

The All-sites dataset includes the Ten-year sites, but also includes data from sites that were started at a later date, sites that have been discontinued and sites with gaps in the survey history (Figure 4).

Changes to the suite of sites which are surveyed can affect the reporting rate and therefore the apparent trend. For example, if a location is added which hosts a large population of Common Starlings the reporting rate will rise and the trend line will show an increase, suggesting that Common Starlings are increasing across all sites. Alternatively, if a location where Dusky Woodswallow are regularly reported is discontinued, the reporting rate will decrease and the trend for the woodswallow will show a decline.

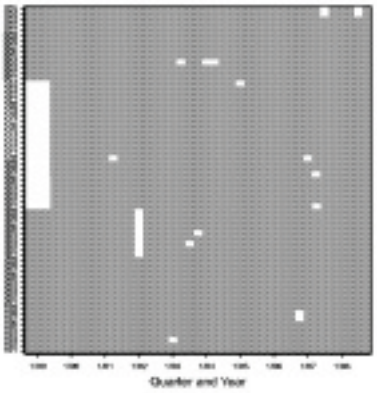

Figure 3: Graph of site surveys over time for the Ten-year sites. A gap indicates no survey was undertaken (or for the first surveys in 1998 at Mulligan's Flat, the data were not available). Survey site numbers are on the Y axis.

Longitudinal trends for individual bird species

The longitudinal trends in occupancy rate were calculated for 62 species (39 woodland, 23 non-woodland) reported in more than 1% of the 4467 surveys at All sites. Seven of these species (Brown Goshawk, Nankeen Kestrel, Dollarbird, Brown Treecreeper, White-winged Triller, Welcome Swallow and Diamond Firetail) were reported at less than 1% of the 2567 surveys at Ten-year sites, leaving 55

species (34 woodland, 21 non-woodland) in the analysis of this dataset. The statistics on the linear trend and confidence intervals for these species are given in Table 5. The table shows the results from the two datasets for comparison.

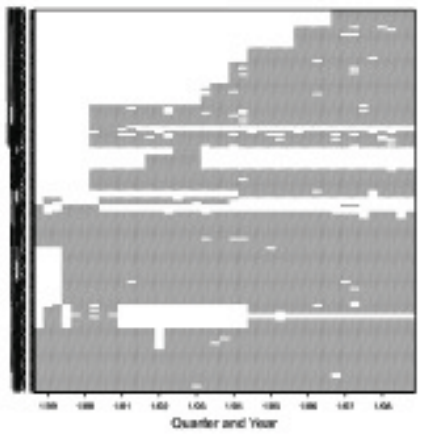

Figure 4: Graph of site surveys over time for All sites. A gap indicates no survey was undertaken. Survey site numbers are on the Y axis.

Graphs showing the data with various representations of trends for Ten-year sites and All sites are given at Appendix 1. An example of the graphical results is shown in Figure 5. The graphs show:

1. The actual reporting rate (thin black line),
2. A line fitted to smooth over the seasonal and short-term variations in reporting rate (thick black line),
3. Confidence intervals (5th and 95th percentile) to indicate precision and therefore significance of the trend line (dotted grey line),
4. A straight line fitted to the data (pink, thickened if statistically significant), and
5. Significant change points, that is, points in time where the rate of change in the trend line is accelerating indicating a positive change shown by green dots, or blue dots indicating a slowing down (a negative change).

The graphs in Appendix 1 are presented so that for each species the results for the Ten-year sites and All sites lie next to each other. For many species, the reporting rates and trend lines from both datasets show similar patterns, for example, Crested Pigeon, Sulphur-crested Cockatoo and Superb Fairy-wren. For some species, there are differences in confidence limits and level of significance (eg. Common Bronzewing and Galah), or the shape of the smoothed line (eg. Australian Magpie, Magpie-lark). For only two species, Common Starling and Common Myna, the graphs differ markedly between the two datasets.

Table 6 and Table 7 focus on results from the Ten-year sites only as it is the more complete and robust dataset. Table 6 provides a description of the trends and comment on occupancy levels for each species in a similar format to the table in Cunningham and Rowell (2006), but follows the revised taxonomic order of Christidis and Boles (2008).

A classification of species' trends based on a visual interpretation of the individual graphs is shown in Table 7. Of the 15 species showing some evidence of a declining trend, nine were woodland-dependent. Twenty-five species (17 woodland-dependent) showed no overall change, and 15 species (eight woodland-dependent) showed an increasing trend.

A strong pattern to emerge for some species, was a non-linear trend with two peaks, the first in 2000-01 and again in 2006-07, regardless of whether the overall straight-line trend for the species was an increase, decrease or no change (see Table 2). Nine of the 12 species showing this pattern were woodland-dependent species. Interestingly, the reverse pattern (low points in 2000-01 and 2006-07) was shown by three species; Pied Currawong, Australian Raven and White-winged Chough.

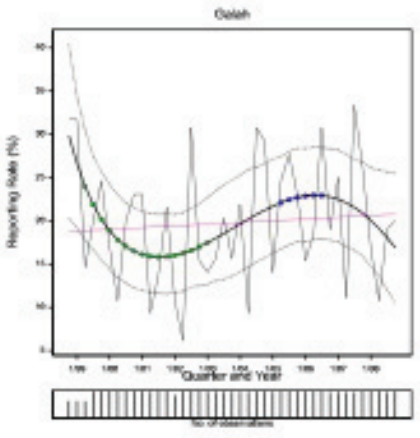

Figure 5: An example of the trend graph for an individual species, the Galah at Ten-year sites.

Composite indices for 'woodland' and 'non-woodland' birds

The two composite indices were applied to all species together then separately for woodland-dependent and non-woodland species, for both datasets. The six graphs for each index show a trend line, associated confidence intervals, and significant change points; green where the rate of change in the trend line is accelerating (a positive change) and blue where it is slowing down (a negative change).

Species richness

Species richness graphs are shown in Appendix 2. Results from the Ten-year sites show a definite low point in species richness during 2003. For woodland birds there were also two peaks, in 2000-01 and 2006-07, similar to the individual graphs for several woodland species. The graphs for All sites show a low point earlier than the Ten-year sites, in 2001-02, but the graph for woodland birds at All sites is mostly a steady line without the peaks and troughs for the Ten-year sites.

Relative abundance

The graphs of relative abundance are shown in Appendix 3. The trend lines are much straighter in these graphs than those for species richness. A low point is still apparent in 2003 from the Ten-year data, however the graph for woodland birds barely shows this and is almost linear with a very slight downward trend. The results from All sites again show a low point in 2001-02, although not the woodland birds, and all three graphs show a slightly increasing trend.

Cowra Woodland Birds Program Data Analysis

To the north of the ACT in the Cowra region, a monitoring program focused on woodland birds was commenced by Birds Australia in 2001. This Program was in response to local landholders' concerns about noticeable declines in local woodland birds. Like the COG Project, bird surveys are undertaken by volunteers on a seasonal basis, although the seasonal survey timings vary between the two projects.

Table 2: Species showing non-linear trend with two peaks (2000-1 and 2006-7) based on Ten-year sites (*= woodland-dependent species).

Evidence for and direction of change	Species
Weak, decrease	*Eastern Spinebill
No change	*White-throated Treecreeper *Striated Thornbill *Buff-rumped Thornbill *Brown Thornbill *Grey Butcherbird
Weak, increase	Australian King Parrot *Speckled Warbler
Strong, increase	*Spotted Pardalote Striated Pardalote Noisy Miner *Brown-headed Honeyeater

In 2007, using six (6) years data, a statistical analysis of the Cowra dataset was undertaken by statistician Ross Cunningham using similar statistical methods as those applied to the analysis of the COG dataset. 97 sites which had been surveyed at least once over the course of the study were included in the analysis, with some new sites having been added in recent years (Cowra Woodland Birds Program Committee 2009, Reid and Cunningham 2008).

The analysis focussed on individual species as a well as 'woodland-dependent species' and 'non-woodland species'. The analysis found significant declines in bird species richness and abundance for both groups of birds, woodland and non-woodland species (Cowra Woodland Birds Program Committee 2009, Reid and Cunningham 2008).

For non-woodland birds, both species richness and abundance tracked recent rainfall trends and fluctuated greatly, albeit with an overall significant decline. A cautious conclusion from the Cowra analysis is that this group of species "tracks those food resources associated with rainfall and those resources that are generated by significant rainfall events, and that these resources are probably associated with agricultural production (and weeds) across the entire landscape" (Reid 2009, Cowra Woodland Birds Program Committee 2009; Reid & Cunningham 2008).

Unlike non-woodland birds, for the woodland-dependent birds group there was no increase in the middle of the survey period when rainfall increased. Rather they showed steady declines in species richness and abundance over the six years' survey, declining sharply over the last two years of the survey. Woodland-dependent species of birds in the Cowra study are assumed to be heavily reliant on resources within native vegetation remnants. The report noted that the "pervasive decline in woodland bird species is serious cause for concern" and that "habitat condition in the woodland remnants continues to degrade" (Reid 2009, Cowra

Table 3: Comparison of linear trends in COG Woodland Project and Cowra Woodland Birds Program for species of interest.

Bird species	COG Woodland Project Ten-year sites	COG Woodland Project All sites	Cowra WB Project
Speckled Warbler	Increase	Increase	Stable
Weebill	Increase	Increase	Increase
Buff-rumped Thornbill	Stable	Stable	Increase
Spotted Pardalote	Increase	Increase	Decline
Striated Pardalote	Increase	Increase	Decline
White-plumed Honeyeater #	Decline	Decline?	Decline?
White-winged Triller	Insufficient records to determine trend	Stable	Insufficient records to determine trend
Crested Shrike-tit	Insufficient records to determine trend	Insufficient records to determine trend	Decline
Rufous Whistler	Stable	Stable	Stable
Dusky Woodswallow	Decline?	Stable	Decline
Grey Fantail	Decline	Decline	Decline?
Willie Wagtail #	Decline	Stable	Stable
Restless Flycatcher	Insufficient records to determine trend	Insufficient records to determine trend	Decline?
Jacky Winter	Insufficient records to determine trend	Insufficient records to determine trend	Decline?
Scarlet Robin	Decline	Decline	Insufficient records to determine trend
Hooded Robin	Insufficient records to determine trend	Insufficient records to determine trend	Insufficient records to determine trend
Diamond Firetail	Insufficient records to determine trend	Stable	Decline

Woodland Birds Program Committee 2009, Reid and Cunningham 2008).

This information in relation to the Cowra Woodland Birds Program has been included in the COG ten-year analysis report, for general interest given its location within the broader region to the north of the ACT. The two projects show different results, both in the proportions of woodland and non-woodland species that are declining and increasing, and in their identities, even allowing for the subtle differences in avifaunal composition between the two project areas (Reid 2009). The two indices for woodland birds from the COG ten-year data do not show a decline to the same extent as the Cowra woodland bird indices. The COG graph for species richness (Appendix 2) shows fluctuations, with the lowest point in 2003 and a general increase since. The relative abundance graph (Appendix 3) shows only a very slight downward trend.

Factors which may be relevant to these differences include:

- The Cowra Project analysis has only six years data, and not for all their sites; the COG analysis covers ten years over 65 sites continuously surveyed
- The Cowra sites vary considerably in habitat type,

whereas COGs sites are mostly in woodland (except for a few sites in dry forest patches contiguous with woodland at one location, Mulligan's Flat)

- The survey methodology used is different: Cowra: 2 hectare plot, 20 minute search; COG: 0.8ha, 50 metres radius circle plot, 10 minute search (abundance of each species is recorded for both projects)
- Unlike the COG sites which are clearly defined plots, Cowra sites are not marked and the limits of the survey area may be ambiguous
- Although the survey areas are relatively close (circa 200km apart), they are in distinctly different landscapes and Canberra is at a higher altitude. The Cowra sites are largely situated on productive mixed farms within a substantially cleared agricultural and grazing landscape, whereas the ACT locations are mostly in peri-urban reserve or quasi conservation areas, and on rural leaseholds which have some grazing activities (not intensive cropping etc activity as around Cowra)
- For mobile species, changes in the indices in one district (eg the ACT), may be due to more extreme conditions in another (eg south-west slopes).

Table 4: Comparison of COG Woodland Project linear trends with Greening Australia's Birdwatch project, significant differences in probability of occurrence between the two survey periods

Bird species	GA Birdwatch	COG Woodland Project Ten-year sites	COG Woodland Project All sites
Common Bronzewing	Increase	Increase?	Increase
Crested Pigeon#	Increase	Increase	Increase
Galah#	Increase	Stable	Increase
Sulphur-crested Cockatoo#	Increase	Increase	Increase
Superb Parrot	Increase	Insufficient records to determine trend	Insufficient records to determine trend
Red-rumped Parrot#	Increase	Stable	Stable
Superb Fairy-wren	Decrease	Decline	Decline
Speckled Warbler	n.s.	Increase	Increase
Weebill	Increase	Increase	Increase
Buff-rumped Thornbill	n.s.	Stable	Stable
Brown Thornbill	Decrease	Stable	Stable
Southern Whiteface	Increase	Insufficient records to determine trend	Insufficient records to determine trend
Spotted Pardalote	Increase	Increase	Increase
Striated Pardalote#	n.s.	Increase	Increase
White-plumed Honeyeater #	n.s.	Decline	Decline?
Noisy Miner#	Increase	Increase	Increase
Red Wattlebird#	Increase	Increase	Increase
Noisy Friarbird	Increase	Stable	Increase
White-winged Triller	n.s.	Insufficient records to	Stable

Bird species	GA Birdwatch	COG Woodland Project Ten-year sites	COG Woodland Project All sites
		determine trend	
Crested Shrike-tit	n.s.	Insufficient records to determine trend	Insufficient records to determine trend
Rufous Whistler	n.s	Stable	Stable
Dusky Woodswallow	n.s.	Decline?	Stable
Australian Magpie#	Increase	Stable	Stable
Grey Currawong	Decrease	Decline	Decline
Grey Fantail	n.s.	Decline	Decline
Willie Wagtail #	n.s.	Decline	Stable
Restless Flycatcher	n.s.	Insufficient records to determine trend	Insufficient records to determine trend
Leaden Flycatcher	Decrease	Stable	Stable
Magpie-lark#	Increase	Stable	Increase
Jacky Winter	Insufficient records to determine trend	Insufficient records to determine trend	Insufficient records to determine trend
Scarlet Robin	Increase	Decline	Decline
Red-capped Robin	Increase	Insufficient records to determine trend	Insufficient records to determine trend
Hooded Robin	n.s.	Insufficient records to determine trend	Insufficient records to determine trend
Silvereye	Decrease	Decline	Decline
Red-browed Finch	Decrease	Insufficient records to determine trend	Insufficient records to determine trend
Diamond Firetail	Increase	Insufficient records to determine trend	Stable

Birdwatch Surveys - Greening Australia

Greening Australia Capital Region has been monitoring birds in 134 sites across the ACT region over the last ten years through the 'Birdwatch' Project. The main aim of the project is to monitor birds' use of re-vegetated habitat on farms so the majority of sites (70%) are in planted native vegetation, with the remaining sites in remnant woodlands and a few in paddocks.

Two intensive surveys of the sites have been undertaken, in 2000-01 and 2008-09. The data cannot be analysed to produce species' trends as there are only two points in time. However the difference in species' probability of occupancy in the two surveys has been analysed for species occurring in more than 2% of surveys. Of the 79 species, only eight showed a significant decline in probability of occupancy in the second survey, while 18 showed an increase. Species richness in the revegetated sites, but not remnant sites, had increased significantly in the second survey. The increase in probability of occurrence for many species may be a result of the rapidly changing revegetated habitat in comparison to the more static habitat of remnant woodlands. How birds use these sites (movement corridors or breeding habitat) is not known, as this was not part of either study (COG or Greening Australia).

The species for which there was a significant difference between the two survey periods, and some other species of interest are listed in Table 4, with a comparison against the trends from the COG Project.

Table 5: Linear trend and confidence limits for Ten-year sites and All sites (*= woodland-dependent species).

	Ten year Sites					All Sites				
	Species	**Evidence of**	**Upper bound**	**Linear trend**	**Lower bound**	**Upper bound**	**Linear trend**	**Lower bound**	**Evidence of**	**Species**
*	Common Bronzewing		0.0340	0.0173	-0.0014	0.0328	0.0181	0.0041	**Increase**	Common Bronzewing
	Crested Pigeon	**Increase**	0.0755	0.0561	0.0430	0.0555	0.0423	0.0314	**Increase**	**Crested Pigeon**
*	Brown Goshawk					0.0771	0.0432	0.0116	**Increase**	Brown Goshawk
	Nankeen Kestrel					0.0274	-0.0076	-0.0439		Nankeen Kestrel
	Ganggang Cockatoo	**Increase**	0.0440	0.0222	0.0087	0.0227	0.0052	-0.0099		Ganggang Cockatoo
	Galah		0.0112	0.0031	-0.0046	0.0181	0.0107	0.0039	**Increase**	**Galah**
	Sulphur-crested Cockatoo	**Increase**	0.0234	0.0152	0.0065	0.0249	0.0165	0.0092	**Increase**	**Sulphur-crested Cockatoo**
	Australian King Parrot		0.0438	0.0176	-0.0052	0.0430	0.0195	-0.0004		Australian King Parrot
*	Crimson Rosella		0.0002	-0.0051	-0.0114	0.0095	0.0039	-0.0016		Crimson Rosella
	Eastern Rosella		0.0077	0.0014	-0.0049	0.0163	0.0100	0.0040	**Increase**	**Eastern Rosella**
	Red-rumped Parrot		0.0092	-0.0170	-0.0409	0.0219	0.0041	-0.0109		Red-rumped Parrot
*	Laughing Kookaburra		0.0146	-0.0019	-0.0205	0.0240	0.0116	-0.0001		Laughing Kookaburra
*	Sacred Kingfisher		0.0395	0.0157	-0.0117	0.0562	0.0330	0.0113	**Increase**	**Sacred Kingfisher**
*	Dollarbird					0.0289	0.0077	-0.0139		Dollarbird
*	White-throated Treecreeper		0.0059	-0.0043	-0.0147	-0.0082	-0.0185	-0.0286	**Decrease**	**White-throated Treecreeper**
*	Brown Treecreeper					0.0215	-0.0022	-0.0286		Brown Treecreeper
*	**Superb Fairy-wren**	**Decrease**	-0.0090	-0.0206	-0.0328	-0.0027	-0.0121	-0.0212	**Decrease**	**Superb Fairy-wren**
*	Speckled Warbler		0.0287	0.0132	-0.0044	0.0269	0.0130	0.0007	**Increase**	Speckled Warbler
*	**Weebill**	**Increase**	0.0214	0.0133	0.0054	0.0260	0.0186	0.0115	**Increase**	**Weebill**
*	Western Gerygone		0.0237	0.0074	-0.0085	0.0209	0.0045	-0.0088		Western Gerygone
*	White-throated Gerygone		0.0047	-0.0105	-0.0268	0.0071	-0.0068	-0.0190		White-throated Gerygone
*	Striated Thornbill		0.0022	-0.0065	-0.0149	-0.0044	-0.0120	-0.0187	**Decrease**	**Striated Thornbill**
	Yellow-rumped Thornbill		0.0181	0.0057	-0.0084	0.0181	0.0091	0.0001	**Increase**	**Yellow-rumped Thornbill**
*	Buff-rumped Thornbill		0.0022	-0.0055	-0.0139	0.0001	-0.0071	-0.0144		Buff-rumped Thornbill
*	Brown Thornbill		0.0119	-0.0088	-0.0291	0.0072	-0.0107	-0.0298		Brown Thornbill
*	**Spotted Pardalote**	**Increase**	0.0258	0.0173	0.0089	0.0190	0.0120	0.0048	**Increase**	**Spotted Pardalote**
	Striated Pardalote	**Increase**	0.0186	0.0108	0.0032	0.0282	0.0225	0.0167	**Increase**	**Striated Pardalote**
*	Eastern Spinebill		0.0103	-0.0113	-0.0356	0.0088	-0.0092	-0.0282		Eastern Spinebill
*	**Yellow-faced Honeyeater**	**Increase**	0.0228	0.0131	0.0044	0.0238	0.0169	0.0091	**Increase**	**Yellow-faced Honeyeater**
*	White-eared Honeyeater		0.0271	0.0019	-0.0193	0.0273	0.0067	-0.0123		White-eared Honeyeater

	Ten year Sites					All Sites				
	White-plumed Honeyeater	**Decrease**	-0.0080	-0.0184	-0.0328	0.0098	-0.0035	-0.0145		White-plumed Honeyeater
	Noisy Miner	**Increase**	0.0320	0.0194	0.0110	0.0347	0.0230	0.0140	**Increase**	**Noisy Miner**
	Red Wattlebird		0.0110	-0.0011	-0.0131	0.0194	0.0092	-0.0013		Red Wattlebird
*	**Brown-headed Honeyeater**	**Increase**	0.0427	0.0267	0.0098	0.0352	0.0204	0.0086	**Increase**	**Brown-headed Honeyeater**
*	White-naped Honeyeater		0.0257	-0.0032	-0.0329	0.0410	0.0192	-0.0018		White-naped Honeyeater
*	Noisy Friarbird		0.0121	0.0025	-0.0076	0.0176	0.0087	0.0001	**Increase**	**Noisy Friarbird**
*	Varied Sittella		0.0457	0.0188	-0.0035	0.0307	0.0124	-0.0044		Varied Sittella
	Black-faced Cuckoo-shrike	**Decrease**	-0.0054	-0.0169	-0.0281	0.0016	-0.0063	-0.0152		Black-faced Cuckoo-shrike
*	White-winged Triller					0.0283	0.0072	-0.0122		White-winged Triller
*	Golden Whistler		0.0142	-0.0012	-0.0151	0.0028	-0.0068	-0.0172		Golden Whistler
*	Rufous Whistler		0.0100	0.0019	-0.0062	0.0123	0.0046	-0.0029		Rufous Whistler
*	Grey Shrike-thrush		0.0021	-0.0138	-0.0323	-0.0011	-0.0151	-0.0297	**Decrease**	**Grey Shrike-thrush**
*	Olive-backed Oriole		0.0176	0.0005	-0.0195	0.0186	0.0030	-0.0134		Olive-backed Oriole
*	Dusky Woodswallow		0.0118	-0.0187	-0.0524	0.0257	0.0058	-0.0145		Dusky Woodswallow
*	Grey Butcherbird		0.0156	0.0017	-0.0113	0.0212	0.0060	-0.0068		Grey Butcherbird
	Australian Magpie		0.0004	-0.0063	-0.0129	0.0060	0.0005	-0.0052		Australian Magpie
	Pied Currawong		0.0134	0.0067	-0.0005	0.0078	0.0008	-0.0063		Pied Currawong
*	**Grey Currawong**	**Decrease**	-0.0320	-0.0515	-0.0746	-0.0249	-0.0452	-0.0649	**Decrease**	**Grey Currawong**
*	**Grey Fantail**	**Decrease**	-0.0008	-0.0082	-0.0159	0.0001	-0.0069	-0.0133		Grey Fantail
	Willie Wagtail	**Decrease**	-0.0029	-0.0189	-0.0413	0.0186	0.0025	-0.0112		Willie Wagtail
	Australian Raven	**Increase**	0.0314	0.0185	0.0071	0.0286	0.0202	0.0116	**Increase**	**Australian Raven**
*	Leaden Flycatcher		0.0152	-0.0085	-0.0337	0.0070	-0.0086	-0.0262		Leaden Flycatcher
	Magpie-lark		0.0129	0.0003	-0.0093	0.0340	0.0184	0.0066	**Increase**	**Magpie-lark**
*	**White-winged Chough**	**Increase**	0.0348	0.0193	0.0030	0.0320	0.0185	0.0055	**Increase**	**White-winged Chough**
*	**Scarlet Robin**	**Decrease**	-0.0053	-0.0182	-0.0320	-0.0159	-0.0265	-0.0374	**Decrease**	**Scarlet Robin**
*	**Silvereye**	**Decrease**	-0.0056	-0.0173	-0.0296	-0.0061	-0.0180	-0.0303	**Decrease**	**Silvereye**
	Welcome Swallow					0.0007	-0.0173	-0.0390		Welcome Swallow
*	**Tree Martin**	**Decrease**	-0.0248	-0.0442	-0.0734	0.0036	-0.0123	-0.0269		Tree Martin
	Common Myna	**Decrease**	-0.0195	-0.0457	-0.0679	0.0217	0.0014	-0.0182		Common Myna
	Common Starling	**Decrease**	-0.0076	-0.0236	-0.0484	0.0174	0.0092	0.0001	**Increase**	**Common Starling**
	Mistletoebird		0.0099	-0.0053	-0.0202	0.0057	-0.0033	-0.0118		Mistletoebird
*	Diamond Firetail					0.0415	0.0115	-0.0142		Diamond Firetail

Table 6: Description of trend lines and confidence limits for Ten-year sites (*= woodland-dependent species).

Ten year Sites						Description of trend
	Species	**Evidence of**	**Upper bound**	**Linear trend**	**Lower bound**	
*	Common Bronzewing		0.0340	0.0173	-0.0014	Low occupancy. Overall gradual increase with decreasing trend in last two years.
	Crested Pigeon	**Increase**	0.0755	0.0561	0.0430	Strong evidence of increase. Greatest increase from 2006 onwards.
	Ganggang Cockatoo	**Increase**	0.0440	0.0222	0.0087	Low occupancy. Strong evidence of increase.
	Galah		0.0112	0.0031	-0.0046	High occupancy. Non-linear trend. Lowest occupancy in 2001 increasing until Autumn 2006, decreasing since.
	Sulphur-crested Cockatoo	**Increase**	0.0234	0.0152	0.0065	Moderate occupancy. Strong evidence of increase.
	Australian King Parrot		0.0438	0.0176	-0.0052	Low occupancy. Non-linear trend with two main peaks, in Autumn 2001 and Autumn 2007.
*	Crimson Rosella		0.0002	-0.0051	-0.0114	High occupancy. Weak evidence of a gradual decrease.
	Eastern Rosella		0.0077	0.0014	-0.0049	High occupancy. No change
	Red-rumped Parrot		0.0092	-0.0170	-0.0409	Low occupancy. Non-linear trend, highest in Autumn 2006, decreasing since.
*	Laughing Kookaburra		0.0146	-0.0019	-0.0205	Low occupancy. No change.
*	Sacred Kingfisher		0.0395	0.0157	-0.0117	Low occupancy. No change until increase in 2007.
*	White-throated Treecreeper		0.0059	-0.0043	-0.0147	Moderate occupancy. Non-linear trend with two main peaks, in Autumn 2001and Summer 2006, decreasing since.
*	**Superb Fairy-wren**	**Decrease**	-0.0090	-0.0206	-0.0328	Moderate occupancy. Strong evidence of decrease.
*	Speckled Warbler		0.0287	0.0132	-0.0044	Low occupancy. Non-linear trend with two slight peaks in Spring 2001 and Spring 2007.
*	**Weebill**	**Increase**	0.0214	0.0133	0.0054	High occupancy. Strong evidence of increase. Highest peak in Winter 2006 with decrease since.

Ten year Sites						Description of trend
*	Western Gerygone		0.0237	0.0074	-0.0085	Low occupancy. No change.
*	White-throated Gerygone		0.0047	-0.0105	-0.0268	Moderate occupancy. No change.
*	Striated Thornbill		0.0022	-0.0065	-0.0149	Moderate occupancy. Non-linear trend with two slight peaks, in Autumn 2001and Autumn 2006, decreasing since.
	Yellow-rumped Thornbill		0.0181	0.0057	-0.0084	Low occupancy. Little change until Autumn 2006, increasing since.
*	Buff-rumped Thornbill		0.0022	-0.0055	-0.0139	Moderate occupancy. Non-linear trend. Main peak in Spring 2000, slight peak in Spring 2007.
*	Brown Thornbill		0.0119	-0.0088	-0.0291	Low occupancy. Non-linear trend with two main peaks, in Autumn 2000 and Spring 2007.
*	**Spotted Pardalote**	**Increase**	0.0258	0.0173	0.0089	Moderate occupancy. Non-linear trend. Slight peak in Spring 2000, main peak in Autumn 2007, overall increase.
	Striated Pardalote	**Increase**	0.0186	0.0108	0.0032	High occupancy. Non-linear trend. Slight peak in Spring 2000, main peak in Autumn 2008, overall increase.
*	Eastern Spinebill		0.0103	-0.0113	-0.0356	Low occupancy. Non-linear trend main peak in Autumn 2001, slight peak in Spring 2007.
*	**Yellow-faced Honeyeater**	**Increase**	0.0228	0.0131	0.0044	Moderate occupancy. Increasing trend.
*	White-eared Honeyeater		0.0271	0.0019	-0.0193	Low occupancy. No change.
	White-plumed Honeyeater	**Decrease**	-0.0080	-0.0184	-0.0328	Low occupancy. Decreasing until Winter 2003, increasing to peak in Spring 2006, overall decrease.
	Noisy Miner	**Increase**	0.0320	0.0194	0.0110	Moderate occupancy. Strong evidence of increase.
	Red Wattlebird		0.0110	-0.0011	-0.0131	Moderate occupancy. Decreasing until Winter 2002, no change then increasing since Autumn 2006. Overall no change.

Ten year Sites						Description of trend
*	**Brown-headed Honeyeater**	**Increase**	0.0427	0.0267	0.0098	Low occupancy. Strong evidence of increase.
*	White-naped Honeyeater		0.0257	-0.0032	-0.0329	Low occupancy. No change.
*	Noisy Friarbird		0.0121	0.0025	-0.0076	Moderate occupancy. Decreasing until Winter 2002, no change then increasing since Autumn 2006. Overall no change.
*	Varied Sittella		0.0457	0.0188	-0.0035	Low occupancy. Weak evidence of increase.
	Black-faced Cuckoo-shrike	**Decrease**	-0.0054	-0.0169	-0.0281	Moderate occupancy. Decreasing until Winter 2004. Slight increase since, but overall decrease.
*	Golden Whistler		0.0142	-0.0012	-0.0151	Low occupancy. Non-linear trend with main peak in Winter 2003.
*	Rufous Whistler		0.0100	0.0019	-0.0062	High occupancy. No change.
*	Grey Shrike-thrush		0.0021	-0.0138	-0.0323	Low occupancy. Non-linear trend with main peak in Autumn 2002, decreasing since.
*	Olive-backed Oriole		0.0176	0.0005	-0.0195	Low occupancy. No change.
*	Dusky Woodswallow		0.0118	-0.0187	-0.0524	Low occupancy. No change.
*	Grey Butcherbird		0.0156	0.0017	-0.0113	Low occupancy. Non-linear trend with two main peaks, in Autumn 2001 and Winter 2007.
	Australian Magpie		0.0004	-0.0063	-0.0129	High occupancy. No change.
	Pied Currawong		0.0134	0.0067	-0.0005	Moderate occupancy. Slight peak in Autumn 2004
*	**Grey Currawong**	**Decrease**	-0.0320	-0.0515	-0.0746	Low occupancy. Strong evidence of a decline.
*	**Grey Fantail**	**Decrease**	-0.0008	-0.0082	-0.0159	High occupancy. Strong evidence of gradual decline.
	Willie Wagtail	**Decrease**	-0.0029	-0.0189	-0.0413	Low occupancy. Strong evidence of gradual decline.
	Australian Raven	**Increase**	0.0314	0.0185	0.0071	Low occupancy. Nnon-linear. Lowest in Spring 2000, increasing to a peak in Spring 2004, then more gradual increase.

Ten year Sites						Description of trend
*	Leaden Flycatcher		0.0152	-0.0085	-0.0337	Low occupancy. Decreasing until Winter 2001, no change then increasing since Spring 2006. Overall no change.
	Magpie-lark		0.0129	0.0003	-0.0093	Low occupancy. No change.
*	**White-winged Chough**	**Increase**	0.0348	0.0193	0.0030	Low occupancy. Strong evidence of increase.
*	**Scarlet Robin**	**Decrease**	-0.0053	-0.0182	-0.0320	Low occupancy. Non-linear trend with peak in Winter 2001. Overall strong evidence of a decline.
*	**Silvereye**	**Decrease**	-0.0056	-0.0173	-0.0296	Low occupancy. Non-linear trend with peak in Autumn 2001. Overall strong evidence of a decline.
*	**Tree Martin**	**Decrease**	-0.0248	-0.0442	-0.0734	Low occupancy. Strong evidence of a decline.
	Common Starling	**Decrease**	-0.0076	-0.0236	-0.0484	Moderate occupancy. Non-linear. Decreasing until Spring 2003. Slight increase to Autumn 2007, but overall decrease.
	Common Myna	**Decrease**	-0.0195	-0.0457	-0.0679	Low occupancy. Strong evidence of a decline.
	Mistletoebird		0.0099	-0.0053	-0.0202	Moderate occupancy. No change.

Table 7: Classification of species' trend lines based on data from Ten-year sites (*= woodland-dependent species).

Decrease			**No change**			**Increase**		
Strong evidence	**Weak evidence**		**Linear trend**	**Non-linear trend**		**Weak evidence**		**Strong evidence**
		2 peaks 2000-1 & 2006-7			**2 peaks 2000-1 & 2006-7**	**2 peaks 2000-1 & 2006-7**		
*Superb Fairy-wren	Red-rumped Parrot	*Eastern Spinebill	*Crimson Rosella	Galah	*White-throated Treecreeper	Australian King Parrot	*Common Bronzewing	Crested Pigeon
White-plumed Honeyeater (peak in Spr '06)	*Grey Shrike-thrush		Eastern Rosella	*Sacred Kingfisher	*Striated Thornbill	*Speckled Warbler	*Varied Sittella	Gang-gang Cockatoo (peak in Aut '07)
Black-faced Cuckoo-shrike	*Dusky Woodswallow		*Laughing Kookaburra	Yellow-rumped Thornbill	*Buff-rumped Thornbill			Sulphur-crested Cockatoo
*Grey Currawong			*Western Gerygone	Red Wattlebird	*Brown Thornbill			*Weebill (peak in Wint '06)
*Grey Fantail			*White-throated Gerygone	*Noisy Friarbird	*Grey Butcherbird			*Spotted Pardalote (2 peaks)
Willie Wagtail			*White-eared Honeyeater	*Golden Whistler				Striated Pardalote (2 peaks)
*Scarlet Robin			*White-naped Honeyeater	Pied Currawong				*Yellow-faced Honeyeater
*Silvereye			*Rufous Whistler	*Leaden Flycatcher				Noisy Miner (2 peaks)
*Tree Martin			*Olive-backed Oriole					*Brown-headed Honeyeater
Common Myna			Australian Magpie					Australian Raven
Common Starling			Magpie-lark					*White-winged Chough
			Mistletoebird					

Discussion

The ten years of data collected by the COG Woodland Project can now be considered to be showing long-term trends for birds at 65 sites in the ACT. The number of species with a generally increasing trend (15) is the same as those with a decreasing trend, with 25 species showing an overall stable trend. It can be seen from the trend graphs that the reporting rate for many species fluctuates greatly between years, and straight-line trends are rare. It is essential to continue the monitoring program to determine whether these fluctuations are due to short term effects or are part of an overall trend.

In the Cowra Woodland Birds Program, the indices of species richness and abundance for all three groups of birds (all landbirds, woodland-dependent and non-woodland) showed overall declining trends. The indices for the non-woodland birds, although declining overall, showed correlations with rainfall.

In the COG Project's Ten-year results, the two indices for each of the three groups of birds are somewhat different to the Cowra Project's. All of them share a roughly similar pattern of a low point in 2003, the middle of the survey period, with high points towards either end. A number of individual species graphs show this pattern of a trough in 2003 with peaks either side in 2000-01 and 2006-07.

Rainfall in 2002, particularly spring rainfall, was well below average which is likely to have affected bird numbers in 2003. Also the 2003 bushfires in the southern and western parts of the ACT, although not impacting directly on the woodland sites, may have had a major effect on species richness and abundance through that year.

In 2005, there was above average rainfall and very good spring rainfall which produced a good breeding season and improved trends for some species which had declined to 2004 (Bounds et al. 2007). However, the years 2006 and 2007 were poor rainfall years, the driest years in the analysis period. It may be that the influence of a successful breeding season in 2005 helped sustain bird numbers through the poor seasons of 2006-07. More detailed analysis of these questions is beyond the scope of this report.

Threatened Birds and Species of Interest

Determining trends for ACT listed threatened birds and other bird species of interest is an important outcome of the Woodland Project. However, there are significant problems in obtaining clear trends for some species, due to the low abundance of these species. The problem of detecting clear population trends for a number of bird species of interest which are recorded in low numbers is ongoing, and has been commented on in previous Project reports (Cunningham and Rowell 2006).

Birds which are in this category include:

- Hooded Robin (ACT 'vulnerable' species)
- Brown Treecreeper (ACT 'vulnerable' species)

- Diamond Firetail # (NSW 'vulnerable' species)
- Jacky Winter
- Crested Shrike-tit #
- Flame Robin #.

Species marked with # were nominated by COG to the ACT Flora and Fauna Committee for listing as ACT 'vulnerable' species around seven years ago. Those nominations drew largely on information in the general COG database as well as anecdotal information. The nominations were unsuccessful, however, those species were allocated a working category, 'insufficiently known species' by the Flora and Fauna Committee (2005).

The same problem of determining trends for low abundance species has been noted by the Cowra Woodland Birds Program. That Program has concluded that increasing the number of sites monitored including more sites with species of interest in occupation (generally higher quality habitat sites), plus a longer survey period is required to accumulate sufficient observations (Reid 2009, Cowra Woodland Birds Program Committee 2009).

In relation to the COG Woodland Project, Cunningham and Rowell (2006) noted that more targeted surveys appeared to be needed for such species, and the wider COG data base might assist in adding more sites to the survey (Cunningham and Rowell 2006). The issue was also discussed in the report for the data analysis to the end of 2005 (Bounds et al. 2007).

An attempt was made some years ago to identify sites in the general COG database with threatened and declining species and to have COG members survey sites twice a year. However, this proved difficult to coordinate and sustain, and to ensure regular surveys occurred etc. It may be possible to use the general COG dataset to see if trends can be detected for some species, but this would be a major task and would require resourcing/funding. It should be noted that the collection of general COG data is not generally systematic, (i.e. surveys repeated over time at the same site). Such an exercise using general COG data, therefore, may not provide adequate evidence of trends (Bounds et al. 2007).

It is noted that the Woodland Project is probably at its maximum in terms of the locations and sites which can be coordinated and monitored four times a year by volunteers with resources available, and, therefore, adding more sites to the Woodland Project would not appear to be feasible (Bounds et al. 2007).

Hooded Robin

Of the threatened species listed in the ACT, Hooded Robin is obviously a species of ongoing concern. This is a resident, territorial species. In the Woodland Project, occupancy rates for Hooded Robin are low and irregular, and small groups of this species are found in only a few Woodland Project locations (Bounds 2006).

Project data analysed up to 2005 showed a clear decreasing linear trend for this species, with a significant decrease in occupancy rate from 2004

to 2005 (Cunningham and Rowell 2006, Bounds et al. 2007). In the most recent analysis, with an additional three years of data to the end of 2008, Hooded Robin occupancy has declined below the level required for statistical analysis.

In a study in the local region in the late 1990s, the Hooded Robin was found to be the most 'sensitive' or demanding species, requiring structurally complex habitat patches greater than 100 hectares, that are within about 1000 metres of other patches (Freudenberger 1999).

This may be a factor which partly explains what is occurring on the ground in the ACT. There is evidence that Hooded Robins in some peri-urban locations are disappearing. It is noted that the pair of Hooded Robins at the Gold Creek leasehold north of Hall Village appears to have become extinct there, having not been recorded since 2004 (Bounds 2006, COG database). In the last five years, urban development has come closer to that location from the east, with the suburb of Casey now within about 800 metres, with an overall reduced amount of open woodland within the landscape (J. Bounds pers. obs).

At Mulligan's Flat NR, Hooded Robins territories have declined over the years, and in recent years only an area on the eastern side of the reserve has regularly recorded the species, a territory in possibly an optimum habitat patch. Six birds in a group with young birds were recorded in October 2005, a year which had good rainfall during the spring breeding period. This is the largest number of birds in one group recorded at the reserve (J. Bounds pers. obs., COG database).

Hooded Robins have not been recorded at the usual COG monitoring sites in the Mulligan's Flat patch since April 2009 when a pair was observed. Hooded Robins were not recorded at all during the ANU spring bird surveys in September 2009, nor were they recorded during the COG October 2009 Blitz, despite thorough searching of the usual territory (J. Bounds pers. obs.). In spring 2009, a pair of Hooded Robins was known to be breeding in the northern part of Goorooyarroo NR, and a male Hooded Robin only was recorded in the same area as recently as April 2010 (N. Taws pers. obs., J. Bounds pers. obs., COG database).

While the two reserves, Mulligan's Flat and Goorooyarroo, are large at around 1500 hectares in total, they are disconnected from woodland patches in NSW to the north of the ACT, and urban related pressures on the other borders of the reserves are increasing. Only time will tell if the Mulligan's Flat group of Hooded Robins has persisted or indeed if the family group at Goorooyarroo NR survive in the long-term.

Scarlet Robin

The trend for the Scarlet Robin shows a steady decline from 1998 to 2004 then a sharper decline in 2005. In the most recent analysis, Scarlet Robin shows a strong declining trend in the analyses of both the Ten-year sites and All sites.

Scarlet Robins favour open forests and woodlands during the breeding season,

mostly at middle altitudes, descending to open valleys in autumn and winter generally, and immatures are known to disperse. COG records confirm this pattern (a partial altitudinal migrant) but there are a few exceptions (Wilson 1999).

At some locations, Scarlet Robins are recorded throughout the year. .At Mulligan's Flat NR, for example, although there are Scarlet Robins observed throughout the year, observations are higher in winter suggesting that some birds do move into these sheltered woodland and open forest locations (J Bounds pers obs). Scarlet Robins are also observed year round at woodland patches in the Jerrabomberra Valley, such as Callum Brae NR, but not in the numbers as at Mulligan's Flat (J Bounds pers obs; COG database).

The Scarlet Robin was nominated (unsuccessfully) by COG for listing in the ACT around seven years ago. In light of the trend in the latest data analysis, this species should be (re) nominated for listing as a vulnerable species. The Scarlet Robin has recently been listed as a 'vulnerable' species in NSW (DECCW website).

It is noted that the Red-capped Robin, a species which occurs in dry woodland and scrub of much of inland Australia, appears to have become more established in the ACT in the last decade, with more regular observations and breeding reported from some locations, eg. Mulligan's Flat NR and Goorooyarroo NR. Historically, the Red-capped Robin was regarded as a 'rare breeding visitor', possibly irruptive in drier periods, and not considered to be a permanent resident (Wilson 1999). In 1976, the species was noted as rare on the southern tablelands but appears to be increasing in numbers (Frith 1976). It may be that the recent trends are indicative of changing environmental conditions and climate change factors, which are also influencing the Scarlet Robin.

Diamond Firetail

The latest data analysis does not assist in providing clear trends for this seed-eating species, which is possibly locally nomadic following seeding grasses. Diamond Firetails are generally low in abundance in the Woodland Project. While a statistical analysis and graph has been possible across all locations, occupancy of the species at the ten-year locations has declined below the level required for analysis. More years of data may assist in providing a clearer indication of trend for this species.

It is known that Diamond Firetails are observed regularly, and at times in reasonable numbers, at some Woodland Project locations which are not included in the ten-year analysis, such as Callum Brae NR, Kama and the Naas Valley location. Diamond Firetails are known to occur outside the Woodland Project locations, such as in and around the Murrumbidgee River corridor. The species was recorded in high numbers in some areas cleared of pines, immediately post the January 2003 bushfires, such as Narrabundah Hill near Weston Creek, and regular records continue from the general area including the Stromlo Forest Park and Coolemon

Ridge (J Bounds pers obs; COG database).

The occurrence of Diamond Firetails at some locations may be influenced by grazing, especially where high numbers of Eastern Grey Kangaroos are present. Diamond Firetails have been absent from Mulligan's Flat NR for more than ten years, an area known to have had heavy grazing pressure from kangaroos in the last decade or so. There are a few, more recent records of the species from Goorooyarroo NR, especially the southern part of the reserve (COG database). It is noted that Double-barred Finches, another seed-eater, have also been absent from Mulligan's Flat NR for at least 10 years (J Bounds pers obs; COG database).

Recommendations

1. Continue surveys.

The longer the time series, the more powerful become the data for the inference of trends. This is particularly important as the impacts from factors such as climate change may not be readily apparent for many years, indeed decades.

2. Nominate the Scarlet Robin for listing as a threatened (vulnerable) species in ACT, given the strong declining trend over the ten years.

Scarlet Robins are still recorded in reasonable numbers in the Woodland Project. It is important to nominate significantly declining species as soon as clear trends over a reasonable time are apparent, given the difficulty in determining trends once a species has declined to very low levels of abundance. In the last Project report (Bounds et al. 2007), the worrying steady decline of Scarlet Robin from 1998 to 2004 was noted, and the species has continued to decline steadily. The Scarlet Robin was previously nominated (unsuccessfully) by COG, but without the robust statistical data of ten years of systematic surveys now available.

3.(a) Instal star pickets and ID tags at the sites in locations on public land which do not have permanent markers (Mt Majura NR, Campbell Park, some sites at Red Hill NR).

Over time, most of the locations on public land have had markers installed at sites. Most recently, having marked sites at some locations has proven to be particularly useful for other purposes such as research studies, which have also been able to use the COG woodland dataset, eg. a PhD study on grazing in reserves. It is timely to mark the remaining locations in 2010.

(b) Investigate the replacement of the aluminium tags on pickets with a more enduring tag.

Some of the light aluminium tags with project details and site numbers have been lost from pickets (eg cockatoos chew them) or have become difficult to read. Discussion with ACT Government (TAMS) might be a useful start.

4. Await and then review the outcomes and recommendations from Alison Rowell's forthcoming analysis

and report on bird habitat relationships for several species of interest.

Environmental information relating to individual sites such as habitat, landscape attributes and grazing pressure may provide an important context in better understanding the trends for particular species and their conservation requirements. This can be of use in considering habitat enhancements and habitat restoration activities to improve habitat for birds.

5. Undertake a major data analysis in 2016.

All locations in the Woodland Project will have ten years of data at the end of 2015. An application for grant funds should be considered at an appropriate time, possibly in the first half of 2015 for the 2015/2016 year, to fund the statistical and other analysis and the writing and production of a comprehensive report.

6. Consider, at an appropriate time and subject to resources/funding, an analysis of data for Mulligan's Flat NR (24 sites) and Goorooyarroo NR (18 sites).

The Predator proof fence at Mulligan's Flat NR was completed in 2009. It would be of interest to see if there are changes in trends since the fence and other experimental management interventions (addition of logs, grazing management) were put in place. Such an analysis could be done as part of a major analysis of all data in 2016, or earlier depending on the recovery. Discussions with the ANU Research team undertaking the experimental research should occur before proceeding.

Appendices

The following Appendices are available for viewing and download from the Canberra Ornithologists Group website at the following link: http://canberrabirds.org.au/ConservingWoodlandBirds/WoodlandBirdMonitoring.htm

- *Appendix 1: Trend Graphs (http://canberrabirds.org.au/ConservingWoodlandBirds/Appendix%201%20Trend%20Graphs.pdf)*
- *Appendix 2: Species Richness (http://canberrabirds.org.au/ConservingWoodlandBirds/Appendix%202%20Species%20Richness.pdf)*
- *Appendix 3: Relative Abundance (http://canberrabirds.org.au/ConservingWoodlandBirds/Appendix%203%20Relative%20abundance.pdf)*
- *Appendix 4: Map of Survey Locations & Sites (http://canberrabirds.org.au/ConservingWoodlandBirds/Appendix%204%20Map%20of%20Woodland%20Locations%20&%20Sites.pdf)*

Acknowledgements

COG acknowledges the assistance provided by the ACT Government throughout the Woodland Project, particularly from staff in the Department of Territories and Municipal Services (TAMS). This includes provision of grant funding, as well as facilitating access to survey sites in areas under TAMS control.

COG thanks the Commonwealth Department of Defence and the staff in their environmental management office, for facilitating access to the Majura Field Firing Range and Newline location.

COG is grateful to several landholders who allow access to woodland patches on their leaseholds for bird surveys. For privacy reasons, the names are not included. COG is indebted to the location coordinators and others (past and current) who undertake surveys regularly, many of whom have been involved in the Woodland Project since its inception.

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STATUS OF THE BANDED LAPWING *VANELLUS TRICOLOR* IN THE AUSTRALIAN CAPITAL TERRITORY

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Abstract: *This article reviews the status of Banded Lapwings in the ACT and provides recent observations of breeding by a pair in the ACT in 2009.*

Status in the ACT and region

Wilson (1999) rated Banded Lapwings as never having been 'particularly numerous' in the ACT and, by 1999 as 'presumed extinct in the ACT'. However, Taylor and Canberra Ornithologists Group (1992) rated Banded Lapwings as a 'rare breeding visitor'. The Canberra Ornithologists Group (COG) Annotated Checklist of the Birds of the Australian Capital Territory (COG web site) has recently been modified to:'rare breeding vagrant.'

In the ACT there have been occasional records in widely scattered locations since 1974. The COG database lists five sightings (Table 1).

The last breeding record in the ACT was at Gungahlin in 1982 (Davey, 1987).

Banded Lapwings are recorded regularly in small numbers at Lake Bathurst and/or Lake George. Lake Bathurst is about 70km and Lake George about 40km from Canberra. In some years birds are present throughout the year but in other years they are present for only part of the year. The records include breeding observations (Taylor and Canberra Ornithologists Group, 1992).

Banded Lapwings were recorded more frequently in the past in the ACT (Wilson 1999). These records petered out until Wilson rated them as 'presumed extinct' in the ACT. The movements of Banded Lapwings within their range are not fully understood, and their presence or absence in a district is to some extent unpredictable (Marchant and Higgins, 1993). There is a recent general recent decline of the species. For example, there is a 39% reduction in the reporting rate between the first Atlas of Australian Birds (Blakers et al., 1984) and the New Atlas of Australian Birds (Barrett et al., 2003).

Recent observations in the ACT

On 1 October 2009, a pair of Banded Lapwings was heard mobbing an Australian Raven. Eventually, the birds returned to earth and one settled on the ground while the other bird moved around up to 40m from the sitting bird. The viewing location was from inside the Mulligan's Flat Nature Reserve. The nest site was about 250 metres inside a private leaseholder's land. The geo-coordinates of the nest was estimated subsequently, using Google Earth, as 35^0 10' 50.49"/ 149^0 09' 51.20". The suburb of Harrison was visible to the west and noise of constant traffic along Horse Park Drive was audible. At around 5.00 pm

on the same date the one of pair was again sitting on the ground in the same spot as earlier, confirming that a breeding attempt was underway.

On 2 October two pairs of birds observed. One bird of the first pair was incubating. The partner spent time chasing away a second pair.

On 7 October, the incubating bird was noted turning around on the nest, half squatting and looking into the nest. It was assumed at the time that a chick might have been hatching.

On 8 October, a single chick was observed feeding in the grass up to two metres from the sitting bird. From time to time the chick sought, and received, shelter under the incubating bird. This behaviour continued the following day.

On 9 October the nest was deserted and there were four chicks and two adults. A second pair was observed to the south of the breeding pair.

On 17 October the first pair was still present within their territory, with one chick. The second pair appeared to be occupying a territory adjacent to, and to the south of the first pair. The second pair was showing signs of being interested in a particular location within their territory.

On 2 November the first pair was still with their chick. They were within their original territory and were feeding among a flock of Common Starlings which, in turn, were feeding near grazing sheep – apparently profiting by disturbed insects. quite near a flock of sheep. Despite an extensive and intensive search of their original territory, and of adjacent areas, the second pair was not recorded. Nor were they recorded subsequently.

On 12 December there were still three birds within their original territory. This is the last record for the chick.

On 20 January 2010 two adults and three young chicks were observed in the same territory. It is believed that this indicates that the first pair were engaged in a second breeding attempt.

On 17 February, two adults and three well-grown chicks observed.

On 24 February, no birds were sighted (Alison Mackerras, pers. comm.).

On 15 March, despite a thorough search of the territories and adjacent areas, no birds were recorded.

The habitat was a paddock with some improved pasture (mainly Subterranean clover *Trifolium subterraneum*, some areas of Spear Grass *Austrostipa spp.*, with scattered mature paddock trees). The nest site was on a low rise. The grass in the area of the nest was very short, interspersed with occasional tussocks. The area was being used as a lambing paddock and, when incubation was in progress, grazing sheep were keeping the pasture cropped close to the ground. Later there were areas where Spear Grass was seeding. The nest was well out in the open.

The birds shared incubating duties. Changeovers were observed on four occasions. On the first three occasions,

changeovers resulted in the relieving bird taking over incubation duties. The last changeover observed occurred away from the nest when the chicks were sheltering under one parent and were subsequently exchanged with the other parent.

While incubating, the birds did not respond by mobbing to near flights (less than 150 metres and sometimes directly overhead the nest) of: Wedge-tailed Eagle, Hobby, Nankeen Kestrel, Brown Falcon, Black-faced Cuckoo-shrike, Common Starling, Magpie-lark, Noisy Miner, Pallid Cuckoo, Eastern Rosella, Galah, Sulphur-crested Cockatoos. Australian Ravens always elicited a mobbing response. Australian Magpies did so sometimes. Common Starlings and Magpie-larks when feeding on the ground within five metres of the nest did not elicit a mobbing response. Similarly, grazing sheep approached to within five metres of the nest without eliciting a response. The Lapwings landed within a minute or so after mobbing behaviour stopped. Once guarding chicks, the adults mobbed both Australian Ravens and a Nankeen Kestrel.
The incubating birds withstood several thunderstorms and heavy rain.

The non-incubating bird was generally around 50-75 metres from the incubating bird. However, at times, the non-incubating bird was up to 200 metres from the nest.

Banded Lapwings are gregarious, except during the breeding season (Marchant and Higgins, 1993). On 2 October a second pair of Banded Lapwing was observed. Both individuals of the second pair made repeated attempts to approach either the 'guard' bird or the incubating bird. In each case they were harassed, sometimes by rushes on foot, sometimes by aerial attack, by one of the resident pair. The intruding pair often lay low in the grass when an attack was initiated, sometimes ran off, and sometimes took to the air, flying a short distance off. This behaviour was observed for about two hours at the end of which the new pair took to the air, flying northwards over Mulligan's Flat Nature Reserve.

Table 1: COG database records of sightings of Banded Lapwing *Vanellus tricolor* for the ACT since 1974.

Date	Number	Location
24/11/1974	1	Kelly's Swamp/Jerrabomberra Wetlands
01/02/1990	1	Mt. Waniassa
19/08/1990	1	Upper & Lower Stranger and Point Hut Ponds
26/02/1998	4	Jerrabomberra Wetlands, Fyshwick
26/01/2000	present	Mulligans Flat Nature Reserve

Discussion

The onset of breeding timing fits comfortably within the established historical parameters for the ACT from August to November (Wilson, 1999). However, the second set of chicks extends the known breeding season.

The pattern of observations appears to show that Banded Lapwing tend to avoid mobbing behaviour. The lack of mobbing response to all four raptor species that came near the nest site, while it contained eggs, was marked. It seems that there may be a greater survival value in not calling attention to themselves than there is in engaging in mobbing behaviour.

Other observations confirmed what is already known of the Banded Lapwing. It is not gregarious during nesting time. Both sexes participate in incubation. The chosen habitat is consistent with that described elsewhere. Four is a normal clutch size.

Despite being a medium-sized bird which prefers open habitats, the Banded Lapwing may be under-reported. When the birds were motionless and facing away from the observer, they were difficult to pick up. Once lost sight of, the incubating bird was particularly difficult to find if it was facing away from the observer. On the other hand, when birds face the observer, the large area of white with the contrasting black band is much more readily observable.

Fox baiting programs in the Mulligans Flat Reserve may well have contributed to the Banded Lapwing's breeding success.

The sighting of the Banded Lapwings raises the issue of status. When does a species become locally, or regionally, 'extinct'? The difficulty is compounded when, as with the Banded Lapwing, the species is mobile and is a regular seasonal visitor to locations within about 60 kilometres of the ACT (COG Annual Bird Report 2010). The area in which the Banded Lapwings were recorded is private leasehold land and, as far as is known, had not been surveyed for birds previously. The Banded Lapwings may have been returning to this area in small numbers for years without it being known.

The preferred habitat, apparently never plentiful in the ACT, is decreasing rapidly in extent as it is replaced by suburbs. Unlike the Masked Lapwing *Vanellus novaehollandiae*, which breeds readily in urban spaces, the Banded Lapwing does not breed in urban parts of the ACT.

The nest site is on land earmarked for the future suburb of Throsby.

Acknowledgements

Thanks to Chris Davey who commented on the manuscript and provided useful background information, Paul Fennell who provided the COG database printout, and Barbara Allan who assisted with access to the literature.

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TAWNY FROGMOUTHS IN CARWOOLA: THE 2010 EXPERIENCE

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Abstract: *This article presents some aspects of the roosting and breeding behaviour of a pair of Tawny Frogmouths* Podargus strigoides *at our house in Carwoola and has been previously described (Butterfield 2010). This note reports on observations in 2010 with emphasis on:*

1. *Usage and attributes of the chosen roosts;*
2. *Records of timing of breeding available for the 2010 season; and*
3. *Speculation as to whether a different female was present in 2010 than the 2 earlier years.*

Usage and attributes of the chosen roosts

There were few observations of Tawny Frogmouths at this site in Carwoola, NSW from the fledging of the 2009 brood (on 14 November 2009) until a single bird was seen on 23 February 2010. From its size and lack of tawny colouration this was taken to be a male bird (and, on grounds of site fidelity, presumed to be the male bird from the family of previous years). On 29 March 2010 two birds were located close together and were clearly a male and a female. From that date efforts were made to locate the birds each day.

From the start of recording until the start of the brooding period (157 days) the observer was absent on 26 days and the birds were not found on 24 days (18% of days on which observations were made). During this period, when one bird was located the other was also able to be found (on 2 occasions they were in different trees). Seven roost trees were used in this period and in six cases the same branch was used every time. Roosting in the seventh case – named 'favourite tree' – involved two sites as discussed below in considering of the female's behaviour.

During the brooding period (62 days) the male was located every day, spending the daylight roosting period on the nest. The female was not located on 7 days (*cf.* 3 days absent in 2009) and occupied 2 roost sites not used in the pre-brooding period. It is possible this was due to bad weather or she was avoiding the Pied Currawongs *Strepera graculina*, which nest immediately above the frogmouth nest, and were being more obnoxious than usual at that time.

The location of the sites relative to our house and the nest tree (Icon 1) are shown in Figure 1. Some attributes and measures of utilisation of the various sites are indicated in Table 1.

The most surprising component of these observations was the use of the Acacia roost (Site 7, Fig. 1) by the female during the brooding period. Received wisdom is that she moves closer to the nest site as brooding proceeds (which was the case in 2009). To find her

Table 1: Attributes of various roost sites used by the Tawny Frogmouths at Carwoola in 2010. Figure 1 shows the physical location of each site.

Code	Distance from nest (m)	Type of tree	Comment	% of roosts			
				Non brood		Brood	
				Male	Female	Male	Female
1	0	*Euc. meliodora*	Nest tree	0	0	100	0
2	28	*Euc. meliodora*	Was favourite site in 2009	29	27	0	2
3	38	*Euc. meliodora*	Not used in 2009	22	23	0	8
4	50	*Euc. meliodora*	Not used in 2009	41	42	0	20
5	40	*Euc. meliodora*		3	3	0	2
6	10	*Euc. meliodora*, covered by *Acacia* sp.	Not used in 2009	1	1	0	47
7	60	*Acacia dealbata*		1	1	0	2
8	30	*Euc. meliodora*	Not used in 2009	4	4	0	0
A	10	*Euc. meliodora*	Lower in site 6	0	0	0	6
B	8	Twisted hazel	Tree nearly dead	0	0	0	10

appear at a known roost some 60m from the nest in the middle of the brooding period was indeed surprising. A nearby dam is well supplied with frogs and possibly she had been hunting there overnight. Some support for this hypothesis was gained on 26 October when an adult bird (sex not identified) was seen perched on a tree halfway between the nest and roost Site 7 with a frog in its mouth. Shortly thereafter an adult – presumably the frog-catcher - was feeding the chicks in the nest.

The birds appeared more 'skittish' than in 2009. In the earlier year they spent many consecutive days in the 'favourite tree'. In contrast in 2010 they rarely spent more than 4 days consecutively in the same roost. This coincides with the experience reported by Kaplan (2007)

Timing of Breeding Events in 2010

The nest site is exactly the same as used in 2008 and 2009. Table 2 summarises the dates of key events. The demographic border events are shown in bold.

HANZAB (Higgins et al. 2009) notes that the birds "do not rotate on the nest". On 1 October the male bird was restless moving from facing North to facing South approximately hourly. This would support my belief that hatching occurred that day.

The observations indicate 16 days to build the nest ; 28 days for incubation;

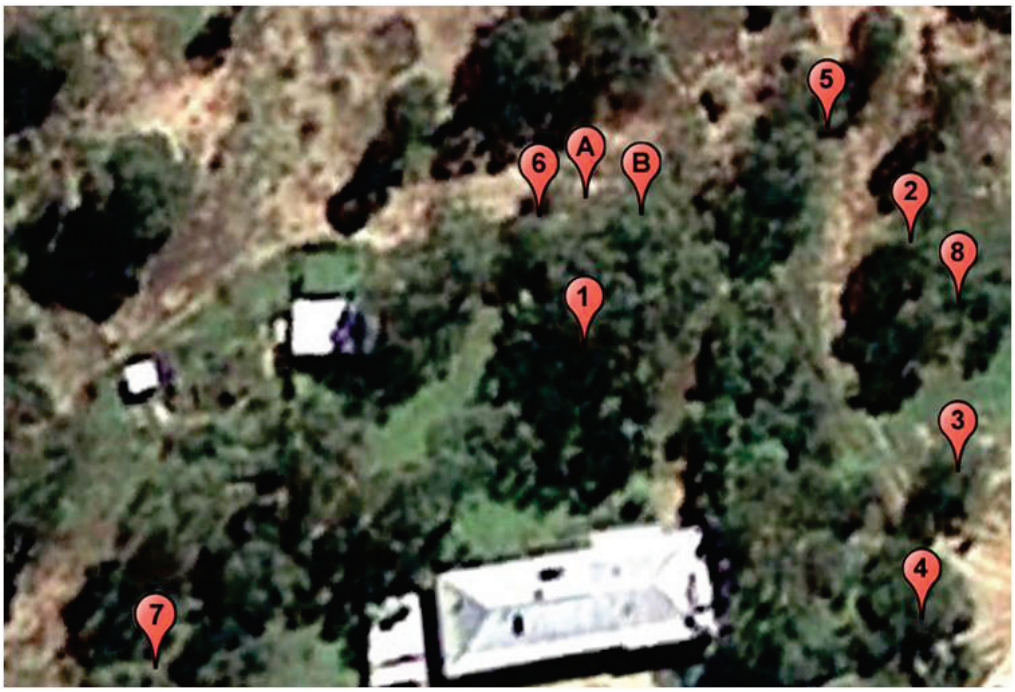

Figure 1: Location of Tawny Frogmouth roost sites at Carwoola in 2010. Table 1 presents an explanation of the codes used in this figure.

and 35 days for brooding. The latter data fall within the range with the values given in HANZAB (Higgins et al. 1999) although the length of incubation is at the lower end of periods stated and the length of brooding at the high end (this may indicate some doubt regarding the inferred date of first hatching, but the chick sighted on 4 October appeared very vigorous to be "fresh from the egg).

Although the date of hatching was not known for 2009 the total period from start of brooding to the nest being vacated (63 days) in 2010 is considerably shorter that the 71 days recorded in 2009. Butterfield (2010) notes that the period in the earlier year appeared unduly long when compared to the periods quoted in HANZAB. It is possible that the very wet season in 2010 led to an abundance of prey (for example, the local frogs were significantly noisier in 2010 than 2009) and thus more rapid development of the chicks. It is possibly significant that on 5 November 2009 (9 days before fledging) one of the chicks appeared on the branch on which the nest was located but approximately 1 m from the nest. Had the chicks fledged on that date the period of incubation and brooding would have been almost identical to that of 2010. Three days after leaving the nest the male adult and two chicks were discovered roosting on a post and rail fence close to Roost B; the female was in Site 5 (Fig. 1). On the following morning they were all in Site 7 (Fig. 1) in the 'traditional' formation with the female

approximately 2 m away from the other three individuals.

Identity of the female bird

I noted above that the first sighting was of a single, probably male, bird. This was followed a few days later by hearing an "ooming" call which has been hypothesized as relating to establishing territory courtship. These observations led me to speculate that the female from 2009 was no longer in the area. Two birds were first located on 30 March, snuggled together on the Acacia roost (Site 7, Fig. 1). During the period covered by this report there were some differences from the behaviour of the birds in 2009 which may suggest that a new female (at least) was present. The behaviour of the male bird was rather more consistent with earlier years, and the re-use of the nest would suggest that it was not an entirely new pair.

The most significant of these was that in 24% of observations prior to brooding the pair were not snuggled together but sitting some distance apart, and in 10% of these cases were in different trees. In 2009 they showed great fidelity to the favourite roost (Site 2, Fig. 1) – although they were only observed for the month of August – and they were always snuggled together. The 'distancing' was most frequent in the 28 occasions when both birds used Site 2: in 17 such cases (40%) the male was approximately 3m above the female.

Further differences were:

- The female's use of more remote roosts (Site 4 and as noted above, particularly Site 7, Fig. 1) during the brooding period; and
- The female remaining in Roost A the morning after fledging, rather than leaving with the rest of the family, as was assumed to happen in 2009.

Overall Summary

A much greater range of roosts sites were found in 2010 than in previous years. This may indicate greater learning by the observer: the birds still have somewhere(s) that I have not found.

Table 2: Key breeding events for the Tawny Frogmouths at Carwoola in 2010. Demographic border events are shown in bold.

Date	Event	Comment
17 August	**First noticed new material added to nest.**	This continued on and off until male first started sitting
2 September	**Male sitting in nest**	
1 October	**Male very restless all day**	I took this to indicate first hatching .(see below)
4 October	1 Chick clearly seen	Possibly reinforces view of hatching 1/10/2010
12 October	2 Chicks seen clearly	
29 October	Nest vacated	

The breeding season was a success with 2 chicks being raised. A comparison of the length of the period of nest occupation in 2010 with that in 2009 suggested that fledging was significantly delayed in 2009.

Without the birds being banded or wing-tagged it is not possible to determine if the female is the same bird as in 2009 but differences in behaviour suggest not.

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Figure 2. Two Tawny Frogmouth chicks and the adult male on a post and rail fence on 8 November 2010.

CENTRAL CANBERRA GANG-GANG CENSUS: 1ST AUGUST 2010

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Background

A census of the central Gang-gang population was arranged for Sunday 1 August 2010, from 11am-12pm. The idea originated in an online disagreement between two Canberra bird-watchers over the size of the winter Gang-gang population in central Canberra: one participant favouring a low figure of 50 birds, the other a high figure of 250.

The winter population of Gang-gangs in urban Canberra is well-known (COG 2010, Veerman 2002). What has hitherto been lacking is absolute measure of the population derived from a Census on a particular day (rather than from surveys such the Garden Bird Survey which has a monthly time-frame for reporting).

Methods

The time of day was chosen from knowledge of Gang-gang and other cockatoo behaviour; it was anticipated that at this time the Gang-gangs would be feeding in groups and not flying around. This would help to eliminate duplicate counting of birds.

Observers were recruited from the Canberrabirds.org.au email list and selected or were assigned areas to survey during the Census period. Central Canberra was designated as the likely number of volunteers was not anticipated to be large enough to cover a wider area and Central Canberra is thought to have a more concentrated population of Gang-gangs than other urban areas of the ACT (Veerman 2002).

The following areas were surveyed during the Census:

1. NW O'Connor, O'Connor Ridge
2. Suburban Turner
3. Suburban Ainslie
4. Mt Majura fringes
5. CSIRO Black Mountain area
6. ANU Campus
7. Australian National Botanic Gardens
8. Campbell
9. Commonwealth Park
10. Black Mountain Peninsula
11. Weston Park
12. Parliamentary Triangle
13. Telopea Park
14. Narrabundah eastern boundaries
15. Suburban Forrest (north-eastern Red Hill)
16. Suburban central Griffith
17. Narrabundah/Griffith suburb
18. Southern Red Hill
19. Northern Red Hill and Deakin
20. North-western Red Hill

Had more volunteers been available they would have been assigned to successive suburbs further out from the centre.

Observers were asked to move around in their area for the hour, noting groups of Gang-gangs, their location, and their composition (male/female/immature male). Observers were also asked to note

Gang-gangs heard calling but not seen, and Gang-gangs flying (with time and direction, to help eliminate duplicate reporting).

Results

The morning of 1 August 2010 saw a cold front crossing the ACT; before the Census period and up until 11.45 there were cold gusty north-westerly winds blowing, and in addition at 11.45 rain began to fall. These were not ideal observing conditions.

All areas surveyed during the Census recorded nil returns except for Commonwealth Park, where 9 birds were observed (4 males and 5 females), and Griffith (Flinders Way), where 3 birds were observed flying over.

In addition 3 birds were observed flying over Forrest shortly after the Census period (these may have been the same birds observed earlier over Flinders Way).

Discussion

12 Gang-gangs observed in the entire central Canberra area supports the lower figure (50 birds) suggested as the winter population of Gang-gangs in central Canberra. However, anecdotal evidence suggests a higher number of birds are present in the area in winter (including the author's daily experience of Gang-gangs in the Hughes area). In the poor weather conditions it is likely that Gang-gangs were sheltering in dense foliage (as with the Commonwealth Park birds) and so escaped detection.

In addition to the Census a householder in Lyons (the next suburb to the west of Hughes (off the bottom of the left-hand corner of the map, Fig. 1), who has reported large numbers of Gang-gangs at their house was asked to note any Gang-gangs present during the Census hour. The householder in Lyons recorded 13 Gang-gangs during Census hour (4 adult males, 4 adult females, 4 immature males and 1 immature female).

Another consideration that might explain the low numbers of Gang-gangs recorded on this Census is that the Garden Bird Survey indicates an earlier peak of abundance for Gang-gangs in the Canberra urban areas, in April and May (Veerman 2002).

The Gang-gang is not a well-studied species and reference works such as HANZAB do not provide overall measures of abundance. The winter concentration of Gang-gangs in central Canberra (and over the wider Canberra urban area) is well-known and is the only significant winter concentration in or near a major urban centre (Barrett *et al* 2003). If monitoring of this population by census is undertaken long-term it is likely that useful data on the population level locally can be gained. The 2010 Census provides a baseline for further data. It is hoped that this Census can be repeated annually. To test the later winter dispersal hypothesis it would be a good idea if the Census were held earlier in the winter, around late May.

Thanks to all observers: Shaun Bagley, Terry Bell, Elizabeth Compston, Isobel Crawford, Geoffrey Dabb, Lindell Dabb, Felicia Fletcher, Tony Howard, Charmian Lawson, Tony Lawson, Oliver Leonard,

Sylvius Leonard, Alison Mackerras, Duncan McCaskill, Terry Munro, Rob Parnell, George Preston, Jenny Rees, Julian Robinson, David Rosalky, Roslind Walcott, Wendy Whitham, and anyone whose name I have inadvertently omitted.

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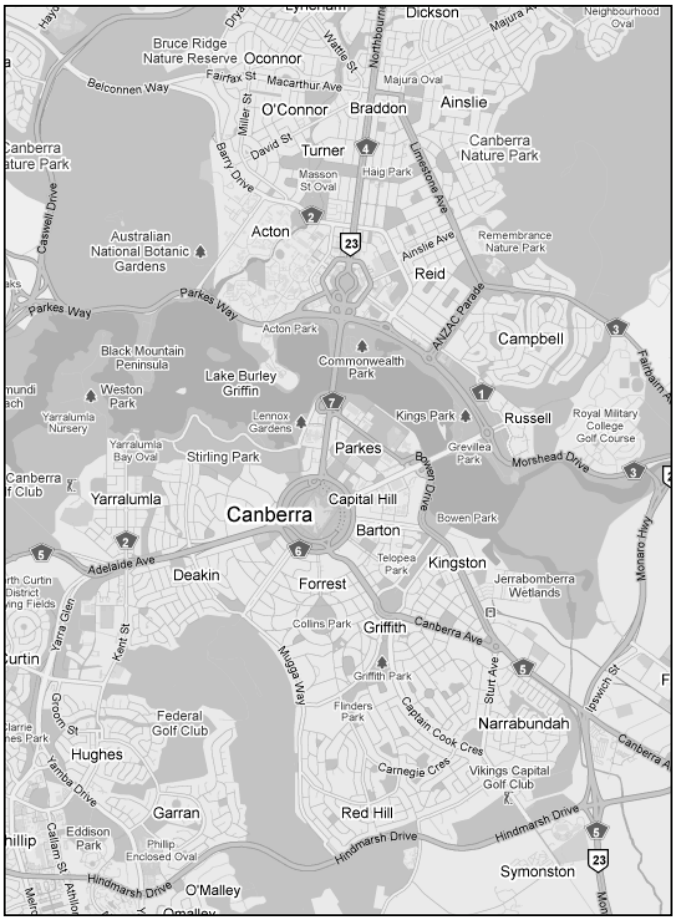

Figure 1. Map of Central Canberra (courtesy of Google Earth™)

THE DISTRIBUTION, ABUNDANCE AND BREEDING STATUS OF THE SUPERB PARROT *POLYTELIS SWAINSONII* DURING THE 2009-10 BREEDING SEASON, GUNGAHLIN, ACT.

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Background

The Superb Parrot (*Polytelis swainsonii*) is a listed threatened species under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* and as such must be considered in any development application. Within the ACT the species is declared vulnerable under the ACT's *Nature Conservation Act 1980* and is regarded as a non-breeding summer migrant restricted to the north western area of the ACT, in particular the area around Mt. Rogers in the suburb of Fraser.

The most significant threat to the Superb Parrot is widespread clearing, degradation and fragmentation of box woodland throughout the species' range, especially breeding and foraging habitats, and corridors of vegetation used for regular movements (Webster 1988). Until recently, the nearest known breeding location was from the area of Captains Hill along the Wallaroo Road, NSW (35^{o} 09' 04" S, 149^{o} 01' 30" E), (Davey, 1997).

Martin (1996) produced a survey questionnaire and conducted a road survey within the Wallaroo Road area of Yarrowlumla Shire, NSW and provided an estimate of the number of potential Superb Parrot nesting trees.

Within the ACT, Davey (2002) reported on bird observations from Mulligan's Flat Nature Reserve between 1995 and 2000 and noted a single observation of a Superb Parrot and of an individual inspecting hollows nearby the Reserve in 1996-97.

An unprecedented number of Superb Parrots, including many dependent young, were observed in the northern Belconnen suburbs over the summer of 2005-06 (Lashko 2006). The species was recorded from 10 Belconnen suburbs and was present from early December with small numbers remaining through to February. Records from the Canberra Ornithologists Group's (COG) database indicate that this influx has continued. Associated with this summer influx, the birds appeared to be arriving earlier and departing later with records in early September to late March, and with dependent but begging young now often observed.

With an increase in sightings at Mulligan's Flat / Goorooyarroo Nature Reserves and reports of breeding in the adjacent suburb of Harrison, there was a strong possibility that breeding may now be occurring within the potentially suitable habitat to be found in areas reserved for urban development within the Gungahlin area. It is unknown why there has been a change in the occurrence and distribution of the Superb Parrot within the ACT or whether this change

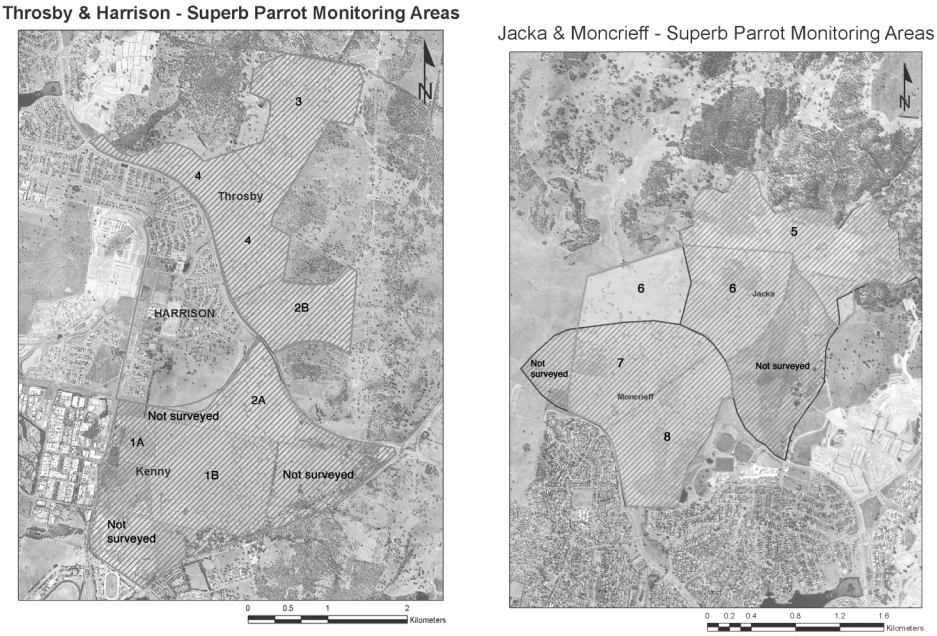

Figure 1. Superb Parrot survey areas in the proposed suburbs of Kenny, Throsby, Jacka and Moncrieff.

will be temporary or permanent. It cannot be assumed that the influx is due to an increase in their abundance.

The aim of the present survey was to document the distribution and breeding status of Superb Parrots during the 2009-10 breeding season within and surrounding the proposed suburbs of Kenny, Throsby, Jacka, Moncrieff and Kinlyside.

Methods

Members of the Canberra Ornithologists Group (COG) were advised of the survey and were asked to report to the COG Discussion List (Chat-line) any observations on the birds. Although it is recognised that this information is of limited use due to inconsistencies in observations, the lack of nil observations etc, it is possible to gain a general impression of where birds were located over urban Canberra and of their behaviour. Additional information was obtained from the ANU and from ACT Government rangers on sightings from Mulligan's Flat and Goorooyarroo Nature Reserves.

For the purpose of the monthly breeding surveys the suburbs were sub-divided to facilitate ease of access and to ensure adequate coverage. Team 1 covered the majority of Kenny (areas 1a and 1b) whilst team 2 covered the remainder of Kenny (area 2a) and part of Throsby (area 2b) (Fig. 1). Team 3 was assigned to area 3 and team 4 to area 4, both in Throsby (Fig. 1). Teams 5 and 6 covered areas 5 and 6 in Jacka whilst teams 7 and 8 covered areas 7 and 8 in Moncrieff (Fig. 1). Observers were assigned to different teams for each survey. A

dedicated team with prior knowledge of the area (through COG's regular woodland surveys) was assigned to Kinlyside.

Survey teams of COG members searched areas covered by the proposed suburbs over the mornings of 12 September, 17 October, 14 November and 12 December 2009 (Table 1). All areas were covered on the four occasions except for Throsby (areas 2b, 3 and 4) and a section of Kenny (area 2a) (Fig. 1) when lambing prevented access for the September survey. In addition to the four bird surveys, a reconnaissance trip of Throsby area 4 was carried out on 10 October 2009 (Fig. 1). Surveys started one hour after sunrise and continued until the individual teams were satisfied that their designated area had been adequately covered; usually taking 3-4 hours. All team members were familiar with the Superb Parrot and at least one member of each team was familiar with the calls.

On all occasions, the locations of any Super Parrots were recorded on an aerial photo of the area and details of behaviour noted. Many observers had trouble identifying specific trees from aerial photographs and just indicated the general area of the observation. It is, therefore, not possible to provide an accurate geo-location for all observations but the coordinates do indicate the general areas of interest.

Due to the preliminary nature of the survey and limited resources, it was not possible to determine successful breeding with any accuracy. It was not possible to return to specific areas to confirm observations and no attempt was made to examine in detail any of the possible nesting sites. Rather, the definitions of breeding indicates an intention to breed and includes the following observations; females observed entering or exiting hollows, copulations, aggressive interactions between pairs with a potential nest hollow near by and a male 'on station' indicated by the presence of a lone male perching quietly in a tree occasionally making a soft call and with a possible nest hollow in the same tree.

Table 1. Estimated number of Superb Parrots recorded during bird surveys within proposed suburbs of Gungahlin, ACT

Suburb	Area	Survey dates			
		12-Sep	17-Oct	14-Nov	12-Dec
Kenny	1a	0	0	0	0
Kenny	1b	0	0	0	1
Kenny	2a	No survey	0	0	0
Throsby	2b	No survey	12+	8	20
Throsby	3	No survey	10	14	19
Throsby	4	No survey	23	8	2
Jacka	5	0	0	0	0
Jacka	6	0	0	0	0
Moncrieff	7	0	0	0	0
Moncrieff	8	0	0	0	0
Kinlyside	9	0	0	0	0

As well as noting the location and behaviour of individual Superb Parrots, observers involved in the monthly surveys also recorded the estimated abundance of all other bird species within the proposed suburbs. All data were recorded on a COG Observation Data Sheet and subsequently transcribed to the COG database.

In addition to the monthly surveys, trees within the proposed suburbs, excluding Kinlyside, were assessed for tree hollows. All assessment was conducted by Chris Davey. The results are not reported here but the locations and behaviour of any Superb Parrots seen were recorded and are reported.

Results and Discussion

Superb Parrot survey

According to email postings to the COG Discussion List, the Superb Parrot returned to the Canberra area in 2009 around early September with the first report at Belconnen Golf Course on 1 September. By mid-September birds had been reported from Mulligan's Flat, Macquarie, flying over William Slim Drive, Harrison and Mt Rogers. The birds had returned approximately two weeks before the first survey scheduled for 12 September 2009.

The estimated number of Superb Parrots observed in each survey area is shown in Table 1 with the number observed during the tree surveys shown in Table 2. It should be noted that it is possible birds were double counting when estimating numbers as they flew through areas that were being counted simultaneously.

There were no signs of Superb Parrots during any of the bird or tree surveys in the proposed suburbs of Jacka, Moncrieff and Kinlyside. Apart from a single observation of one bird flying over the area on 12 December, no Superb Parrots were reported from Kenny.

In retrospect, it is unfortunate that permission was not granted to survey Throsby during the September period because from October onwards Superb Parrots were reported from two distinct locations and may well have been present a month earlier.

In area 2b (south Throsby) Superb Parrots were recorded on all visits with pairs interacting over tree hollows, and possible nests at three locations (sites 1, 2 and 3) (Table 3 and Fig. 2). By early November, there were indications of breeding at six additional locations (sites 8, 9, 10, 11, 12, 13) and juveniles being observed in mid-December. There was much movement between south Throsby and Harrison.

In area 3 (north Throsby) birds were observed flying back and forth from area 4 (west Throsby) with an increase in numbers due to the presence of juvenile begging birds recorded in mid-December (Tables 1 and 2). In mid-October, in addition to birds inspecting tree hollows, signs of breeding were observed at sites 5 and 6 (Table 3 and Fig. 2). On 2 November during the tree survey, signs of breeding were observed at sites 5 and 7. In mid-December there was still a nest at site 7 with the female visible and sitting as well as begging young within the area. There

Table 2. Estimated number of Superb Parrots recorded during tree surveys within proposed suburbs of Gungahlin, ACT (* 3 individuals seen in October 2010).

Suburb	Area	Survey date	No. Superb Parrots
Kenny	1a	26-Oct	0
Kenny	1b	27-Oct	0
Kenny	2a	31-Oct	0
Throsby	2b	4 and 9 Nov	12, 13
Throsby	3	2-Nov	7 or 8
Throsby	4	10-Nov	0*
Jacka	5	No survey	
Jacka	6	14-Dec	0
Moncrieff	7	19-Dec	0
Moncrieff	8	24-Nov	0
Kinlyside	9	No survey	

was much movement between north Throsby, west Throsby and Harrison.

In area 4 (west Throsby) during mid-October birds were observed flying to the 'Big Dam' at Mulligan's Flat and back and forth from areas 2b (south Throsby) and area 3 (north Throsby) and from the suburb of Harrison. Signs of a possible breeding event was observed at site 14 with a male observed 'on station' calling softly presumably to a female in the hollow (Table 3 and Fig. 2). By November and subsequently December, the number of birds recorded flying over area 4 was much reduced (Tables 1 and 2).

By mid-October the minimum number of birds using the Throsby area was approximately 20 individuals, although this figure was difficult to estimate due to the amount of Superb Parrot movement in the area. By mid-December, by which time the birds were more localised and with juveniles, there was approximately 40 individuals using the area.

In addition to the surveyed suburbs, there are eight other locations of interest recorded. For many years Mt. Rogers (35 ^{o} 11' 51.56" S, 149 ^{o} 03' 17.43" E) has been known as a site where birds are reported first in the ACT and where adults and begging young go to feed post breeding. This pattern was repeated in 2009 with the first report received on 12th September and birds still present up to late November. The greatest number reported was of 50 individuals on 13th September.

Over the spring and summer months the area between and including the Kama Nature Reserve and north-east to Pine Ridge farm, otherwise known as Central Molonglo (35 ^{o} 14' 48.94" S, 149 ^{o} 00' 48.84" E), was regularly visited by Chris Davey for a study on the vulnerable Brown Treecreeper (*Climacteris picumnus*). The Superb Parrot was first recorded in the area on 28 September 2009, and from then on until late January 2010 birds were found scattered throughput the area.

Table 3. Location and date of observations for 16 possible breeding sites within the proposed suburb of Throsby and surrounds, ACT.

Suburb	Site	Date	Latitude	Longitude	Observations
South Throsby	1	17-Oct-09	35.193969	149.170633	female in and out hollow
South Throsby	2	17-Oct-09	35.195658	149.173159	male on station
South Throsby	3	14-Nov-09	35.194081	149.169883	female enter hollow
South Throsby	4	14-Nov-09	35.194439	149.169283	attempt copulation
South Throsby	8	4-Nov-09	35.197056	149.170220	pair sit quiet next to hollow
South Throsby	9	4-Nov-09	35.195256	149.170620	male on station
South Throsby	10	4-Nov-09	35.195017	149.171568	male on station
South Throsby	11	4-Nov-09	35.195087	149.171225	male on station
South Throsby	12	4-Nov-09	35.194702	149.170949	male on station
South Throsby	13	4-Nov-09	35.196860	149.169085	possible nest
South Throsby		12-Dec-09			adults with begging young, in/out hollows
North Throsby	5	4-Feb-00	35.182229	149.167792	male look in hollow, call to female in hollow
North Throsby	6	17-Oct-09	35.178410	149.169778	male on station
North Throsby	5	2-Nov-09			v likely sp hollow
North Throsby	7	2-Nov-09	35.182219	149.166678	female seen on nest
North Throsby	7	14-Nov-09			female flushed off nest
North Throsby	7	12-Dec-09			flushed from nest site
North Throsby		12-Dec-09			adults with begging young in general area
West Throsby	14	17-Oct-09	35.191164	149.169992	male possibly on station
West Throsby		12-Dec-09			adults with begging young in general area
Mulligan's Flat	MF1	3-Nov-09	35.176472	149.162028	on station and female into hollow
Mulligan's Flat	MF2	3-Nov-09	35.176389	149.163333	possibly on station
Harrison	H		35.195537	149.155296	
Harrison School	HS		35.200901	149.153093	
Franklin Woods	FW		35.203436	149.147210	
BL	BL		35.180580	149.164416	

By early October 2009 the sex ratio appeared to be 1 female to every 5 males with much hollow inspecting and aggressive interactions. By the end of December flocks including begging juveniles were seen. There is no doubt that the Superb Parrot used the Central Molonglo area for breeding during the 2009-10 season.

The Gungaderra Creek starts near the neck joining Mulligan's Flat and Goorooyarroo Nature Reserves and flows west through the proposed suburb of Throsby, under Horse Park Drive, through the suburb of Harrison, passing north of the Harrison School and Franklin Woods and then continuing through the Gungaderra Grassland Reserve, under the Barton Highway to flow through Kaleen and finally to join the Ginninderra Creek. In previous years, a pair of Superb Parrots had been reported breeding at the Harrison School site (35 ^{o} 11' 50.77" S, 149 ^{o} 09' 35.23" E) (Fig. 2) and observations between mid-September and mid November confirmed that this happened again during 2009-10. The male was frequently observed 'on station' between 6 October and 2 November. Interestingly, the pair would always depart the area flying in a north-easterly direction, not up Gungaderra Creek, possibly to the south Throsby area from which birds had been observed flying in a westerly direction.

During a walk along the Gungaderra Creek, from where it travels under Horse Park Drive to where it flows north of the Harrison School on 24 October, at least six males were noticed flying either up or down stream with a male being recorded 'on station' in a Blakely's Red Gum (*E. blakelyi*) in the Harrison Park at 35 ^{o} 11' 43.93" S, 149 ^{o} 09' 19.06" E (Fig. 2) in an area reserved for 'Future Residential Development- Land Development Agency'. At the same time and in the same area a second male was noted to be 'on station'.

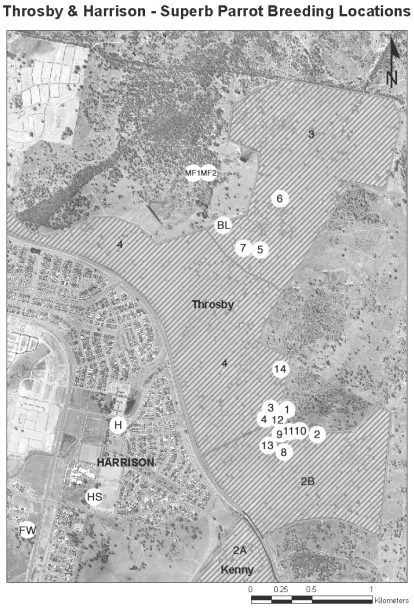

Figure 2. Superb Parrot breeding locations.

On 21 October, during a visit to the Franklin Woods (35 ^{o} 12' 12.37" S, 149 ^{o} 08' 49.96" E) (Fig. 2), two females and five to six males were seen. Although no signs of breeding were observed there are appropriate nesting sites in the area. When observing the pair at the Harrison School, on occasions birds were noticed flying in an north-east direction from the area of the Franklin Woods possibly to the south Throsby area and *vice versa*.

Regular observations from CSIRO Sustainable Ecosystems by Chris Davey (35 º 13' 10.83" S, 149 º 07' 27.67"E) indicated a daily back and forth north-east/ south-west pattern of movement over the site. Associated observations posted to the COG email Discussion list suggested that the birds were flying to and from the Kaleen district playing fields and ovals. Up to 22 birds were reported, and were regularly observed feeding on the ground suggesting a possible passage of birds to the playing fields from the Throsby, Harrison, Franklin Woods area. Both males and females were first noted flying over the site from early-September in flocks of up to nine birds but from late September onwards the passage consisted of single males until by early November an increase in the number of birds was observed passing through. By mid-December the passage had ceased and on 16 December adults and young were seen feeding in acacias along Bellenden Street.

The Gungaderra Creek, therefore, appears to be an important area for the Superb Parrot linking north Throsby to Harrison and Franklin and then via CSIRO to Kaleen. It will be interesting to see how the birds continue to use the area with the continuing development of Harrison and Franklin. In addition, there appears to be traffic from the south Throsby area directly across the suburb of Harrison to the Harrison School area and the Franklin Woods.

Despite a frequent presence of Rangers from Parks and Conservation and frequent trips by COG members, there were few sightings from the Mulligan's Flat Nature Reserve. Birds were reported flying between north Throsby and the 'Big Dam' but the only report of birds breeding from within the Reserve was of a pair interested in a hollow at 35 º 10' 35 .09" S, 149 º 09' 43.09" E, site MF1 (Fig. 2) with a single male possibly 'on station' at site MF2 on the same day.

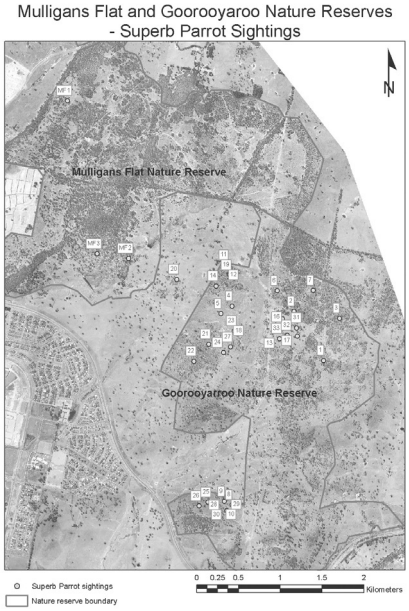

Figure 3. ANU Superb Parrot sightings within Mulligan's Flat and Goorooyarroo Nature Reserves, October 2009.

A pair was observed breeding in a hollow at 35 º 11' 59.55" S, 149 º 11' 11.70" E (S. Holliday *pers. comm.*) at Goorooyarroo Nature Reserve 2 years previously but despite frequent visits has not been seen since.

Over the period 13-21 October 2009 members from the Fenner School of Environment and Society, Australian National University, with the help of

members from the Canberra Ornithologists Group, conducted their annual bird survey of both Mulligan's Flat and Goorooyarroo Nature Reserves. Observations are taken from standard points within the Reserves for 10 minute periods with each point being surveyed twice during the survey. Behaviour was not recorded. There were 39 records of Superb Parrots of which only three were from Mulligan's Flat with the remainder from Goorooyarroo Nature Reserve (Fig. 3). Observations appear to suggest that the birds were primarily using two areas within the Reserve, at an area south of south Throsby and again in an area east of north Throsby.

There were nine postings to the COG email Discussion list in September, a similar number in October and November then rising to 28 in December and then 6 in January with a single reported observation in February. These observations emphasise the increase in the number of Superb Parrot after the emergence of young in December. Reports were received from 16 suburbs north of the Molonglo River and two from the south. The most distance posting was of birds reported from Hoskinstown and along the Captains Flat Road during late November/ early December.

Other bird observations

During the course of the survey there were 106 bird species recorded from the area. Not surprisingly due to differences in tree cover and area size the number of species varied between the different suburbs. Kinlyside (area 9) had the greatest species richness with 80 species (see Appendix). Sixteen percent of species were seen in all survey areas whilst 47 percent were seen in three or less of the survey areas. Two species of interest were of breeding observations on the Banded Lapwing (*Vanellus tricolor*) and the Fairy Martin (*Petrochelidon ariel*).

In early October 2009, a pair of Banded Lapwing was observed just outside the Mulligan's Flat Sanctuary fence on leased land grazed by sheep within the Throsby area, site BL (Fig. 2). One was sitting on a nest and subsequent observations confirmed the successful hatching of 3 chicks. At the same time a second pair was observed in the same area but it was not possible to confirm a breeding event. By early November the first pair was still present but with a single chick only. It is unknown whether the chick fledged but subsequent observations confirmed that this pair laid a second clutch and on 20 January two adults and three chicks were observed in the same area as the first nest. These sightings are reported in Canberra Bird Notes (Boekel, 2010).

Summary of bird observations

Ad hoc observations on the behaviour of the Superb Parrots, including observations on the sex ratio at various stages of the breeding season, indicate that the birds arrive in the ACT at the start of September, egg laying starts in the third week of September with young appearing approximately 60 days later towards the end of November. The adults and young then spread throughout northern urban Canberra and leave the ACT from the middle of January onwards. This routine is similar to that reported by

Davey (1997) from observations of birds around Murrumbateman, NSW.

Despite four bird surveys over five areas in Jacka, Moncrieff and Kinlyside and four areas covered in Jacka and Moncrieff tree surveying, no Superb Parrots were found. Attention was paid to an additional three areas in Jacka that had been sown to oats- a favoured food item of the Superb Parrot, but again there were no sightings. At Kenny three areas were searched on three occasions during the bird surveys and three areas were covered for the tree survey but on one occasion only was a single Superb Parrot seen and that was flying over the area towards south Throsby.

Within the proposed suburb of Throsby there appears to be two areas in which breeding was observed. In north Throsby a female was observed sitting on a nest and subsequently flushed from the site on several occasions whilst most of the other breeding observations were of males 'on station'. Gungaderra Creek appears to be an important route for birds to travel from the area into Harrison and beyond, apparently to feed in suburban trees and from the herb layer at various ovals and other open-spaced grassy areas.

The area to the south of the breeding sites in south Throsby within the Goorooyarroo Nature Reserve needs to be examined in more detail to determine whether breeding occurs in the area. When possible, and if resources allow, the most appropriate way of using behaviour as a means of assessing breeding is to frequently revisit the area to confirm observations and if possible to record changes in behaviour by the adults as breeding progresses. Infrequent observations can therefore only provide an indication that birds are breeding or intend to breed in an area.

The findings from the survey conducted during the 2009-10 breeding season should be regarded as preliminary and should be repeated next year with greater emphasis to confirm breeding by repeated frequent observations in those areas of Throsby in which there were indications of breeding in 2009.

Including the Superb Parrot, one hundred and six (106) bird species were recorded from the survey area. The Superb Parrot, Varied Sittella (D*aphoenositta chrysoptera*) and the White-winged Triller (L*alage sueurii*) are all ACT listed threatened species whilst the Speckled Warbler (*Chthonicola sagittata*) and Diamond Firetail (*Stagonopleura guttata*) are regarded as species of concern in the ACT and as threatened within New South Wales. The Dusky Woodswallow (A*rtamus cyanopterus*) and the Jacky Winter (*Microeca fascinans*) are also regarded as species of concern within the ACT.

With regard to breeding by two species of interest mentioned earlier, breeding by the Fairy Martin is now, unfortunately, a rare event in the ACT whilst the Banded Lapwing has not been reported breeding in the ACT since 1982 (Davey 1987). Wilson (1999) rated Banded Lapwings as never having been 'particularly numerous' in the ACT and by 1999 as 'presumed extinct in the ACT'.

However, Taylor and Canberra Ornithologists Group (1992) rated Banded Lapwings as a 'rare breeding visitor'. The Canberra Ornithologists Group (COG) Annotated Checklist of the Birds of the Australian Capital Territory (COG web site) has recently been modified to: 'rare breeding vagrant'.

The Throsby area may benefit the Banded Lapwing with the proximity of the 'Big Dam' at Mulligan's Flat Nature Reserve and possibly protection from foxes (*Vulpes vulpes*) due to the baiting activity around the Reserve. For two pairs to be recorded, one of which bred twice, this is a significant observation.

The survey has identified two locations within the proposed suburb of Throsby used by the Superb Parrot for nesting during the 2009-10 breeding season. This valuable information will allow appropriate management and suburb design decisions to be made. Superb Parrots were also present and possibly breeding within the Central Molonglo area and so there is every possibility that they could also be present and nesting within East Molonglo. This area also needs to be assessed for the presence of nesting Superb Parrots before further development approval is granted.

Acknowledgements

I would like to thank Sharon Lane (Manager Research and Planning, Dept. of Territories and Municipal Services) and Chloe Elvy (Senior Project Manager, Land Development Agency) for initial discussions that led to the survey. To Ms. Elvy for producing the prints of aerial photos of the area and to Greg Baines and Emma Cook (Research and Planning, Dept. of Territories and Municipal Services) for producing the Figures.

In addition, I would like to thanks Dr. Adrian Manning, Fenner School of Environment and Society, ANU for allowing access to data and to Paul Carmody (Elm Grove), Alan Pattinson (Horse Park), John Starr (Kinlyside) and Frank Kaveney for allowing access to their land.

Finally I would like to thank the 26 members of the Canberra Ornithologists Group for participating in the bird surveys.

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Appendix

The number of surveys recorded for each of 106 bird species.

Survey area	**1a/**	**2a/**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Number of surveys	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**No. of sites**
Stubble Quail	1									1
Australian Wood Duck	3	2	3	3	3	4	2	1	4	9
Grey Teal	2	3				3			2	4
Pacific Black Duck	3	1	2	2	1			2	3	7
Hardhead	1								1	2
Australasian Grebe	2	2				1	1	1	3	6
Rock Dove								2		1
Common Bronzewing	1		1		1				1	4
Crested Pigeon	3	2	2	3	2		3		4	7
Little Pied Cormorant	2	1	1	1						4
White-necked Heron			1					1	1	3
White-faced Heron	1	1	3	3		1	1	1	1	8
Australian White Ibis	2	1						1		3
Straw-necked Ibis			1	1	1	2	1	3		6
Black-shouldered Kite	1							1		2
Brown Goshawk	1	1					1	1	2	5
Collared Sparrowhawk									1	1
Wedge-tailed Eagle	3	1	1							3
Nankeen Kestrel	3	3	2	2	3	1	4	2	2	9
Brown Falcon	1	1	3			3	1	2		6
Australian Hobby	1				1		1			3
Peregrine Falcon									1	1

Survey area	**1a/**	**2a/**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Number of surveys	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**No. of sites**
Black-winged Stilt	1									1
Black-fronted Dotteral						1				1
Banded Lapwing**			3							1
Masked Lapwing	3		2	3				1	1	5
Yellow-tailed Black-Cockatoo			1							1
Galah	4	3	3	3	4	4	4	4	4	9
Little Corella		3		1	1	2	3	2		6
Sulphur-crested Cockatoo	4	3	3	3	4	4	4	4	4	9
Australian King-Parrot	2								1	2
Superb Parrot	2	3	3	2						4
Crimson Rosella	4	3	1	3	4	4	4	4	4	9
Eastern Rosella	4	3	3	3	3	4	4	4	4	9
Red-rumped Parrot	4	3	3	3	2	3	4	4	4	9
Horsfield's Bronze-Cuckoo	1				2	1	1		3	5
Shining Bronze-cuckoo									1	1
Pallid Cuckoo	1	2	2		3	1	2	1	4	8
Fan-tailed Cuckoo					1				1	2
Laughing Kookaburra	1	1			3	1	3	2	4	7
Sacred Kingfisher	1		1						3	3
Dollarbird						1	1		1	3
White-throated Treecreeper					4				4	2
Superb Fairy-wren	3	1			3			3	4	5
Speckled Warbler					2				4	2
Weebill	4	2	2		4	1	2	3	4	8
Western Gerygony			2	1	1		2	1	4	6
White-throated Gerygony				1	4	3	1	2	3	6

Survey area	**1a/**	**2a/**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Number of surveys	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	**No. of sites**
Striated Thornbill		1		2	2	2		2	3	6
Yellow-rumped Thornbill	3	3	2	3	4	2	3	4	4	9
Buff-rumped Thornbill		1			3		2	2	4	5
Yellow Thornbill	1				1					2
Brown Thornbill					3					1
Southern Whiteface					1	2		1	3	4
Spotted Pardalote	1		1		4	2	1		1	6
Striated Pardalote	4	2	3	3	4	4	4	3	4	9
Eastern Spinebill					1					1
Yellow-faced Honeyeater					4	1	1	1	3	5
White-eared Honeyeater									2	1
White-plumed Honeyeater							1	1	2	3
Noisy Miner	3	3	3	3			4	4	3	7
Red Wattlebird	4	1		1	4	1	2	2	4	8
Brown-headed Honeyeater	1	1					1		3	4
White-naped Honeyeater					1				1	2
Noisy Friarbird	3	3	1	3	2	1	1	4	3	9
Varied Sittella	1	2				1	1		2	5
Black-faced Cuckoo-shrike	4	3	2	2	4	2	2	4	4	9
White-winged Triller	1	1	1	2		2	2	1	2	8
Golden Whistler									3	1
Rufous Whistler		2	2		4	3	1	2	4	7
Grey Shrike-thrush			2		2				4	3
Olive-backed Oriole	1								3	2
Dusky Woodswallow				2		3	2	3	2	5
Pied Butcherbird							1		1	2

Survey area	**1a/**	**2a/**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total No. of sites**
Number of surveys	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	
Grey Butcherbird	1		2						3	3
Australian Magpie	4	3	3	3	4	4	4	4	4	9
Pied Currawong	3	2		1	3				4	5
Grey Currawong									1	1
Grey Fantail	2	2	1	1	4	3	3	4	4	9
Willie Wagtail	2	2	3	3	2	4	4	4	3	9
Australian Raven	4	3	3	3	4	4	4	4	4	9
Little Raven	1		1		1					3
Leaden Flycatcher					2				3	2
Magpie-lark	3	2	3	3	2	1	4	4	4	9
White-winged Chough	1				4	1	2	1	4	6
Jacky Winter						1				1
Scarlet Robin									4	1
Red-capped Robin					2				1	2
Eurasian Skylark	3							1		2
Australian Reed-Warbler								2		1
Rufous Songlark	1	2			1	2	1	2	2	7
Brown Songlark						1	2			2
Silvereye	1					1			1	3
Welcome Swallow	3	1	1	1	1		1		3	7
Fairy Martin**		1			4				1	3
Tree Martin	4	3	2	3		4	3	4	2	8
Common Blackbird	1								1	2
Common Starling	4	3	3	3	4	4	4	4	4	9
Common Myna	4	3	1	2	3		3	3	1	8
Mistletoebird			1						4	2

Survey area	**1a/**	**2a/**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total No. of sites**
Number of surveys	**4**	**3**	**3**	**3**	**4**	**4**	**4**	**4**	**4**	
Double-barred Finch									2	1
Red-browed Finch	1									1
Diamond Firetail						1			3	2
House Sparrow					1		1			2
Australasian Pipit	4			2	1	4			2	5
Common Goldfinch	1					1				2
Number of species	**64**	**47**	**45**	**37**	**56**	**48**	**51**	**51**	**80**	
Total number of species	**106**									

ODD OBS

Observations of unexpected feeding behaviour of Dusky Woodswallows over the winter of 2010.

Since the fires of January 2003, perhaps because I wander a bit more widely these days, the Dusky Woodswallow *Artamus cyanopterus* has been much more frequently observed in my local patch of north-west Chapman/Cooleman Ridge and the southern part of the former pine plantation of Narrabundah Hill to the west of Duffy. While the habitat for the former appears to have changed only marginally, that for the latter site is very different from pre-fires, with the removal of the tall pines leaving only the few residual eucalypts, and with some pine regrowth over time. Initially, the woodswallows9 would arrive in September and October and leave again in late January/February post-breeding, but in recent years they have been less numerous in spring/early summer, with bigger numbers in late summer/early autumn preparatory to their migration out of the ACT for the winter period. For the past two seasons they have stayed on into late April/early May. In fact, last season they were hardly seen until April 2010, when the main group of up to 20 was mostly seen in the south-west corner of the former pine forest, often grouped together on the high voltage wires that cut through this corner.

During this time, the only winter records were from 8-13 July 2007 of a group of up to eight birds hawking low from trees on the slopes of Cooleman Ridge behind the houses off Percy Crescent, Chapman. It was, therefore, a surprise when at 16:40 on 12 June 2010 as I was watching a pair of Restless Flycatchers *Myiagra inquieta* preparing to roost in a tree about 10 metres south-west of the dam at the end of Kathner St, Chapman, that my attention was drawn to at least 20 woodswallows circling and calling a couple of hundred metres overhead. They seemed to be drifting north-north-east, but suddenly all dived down into a large eucalypt on the other side of the dam. They conveniently sat high on the dead branches allowing me to confirm 22 Dusky Woodswallows. While I didn't stay to check, I suspected they would roost in the area as I had disturbed a similar number early on the morning of 9 April doing so nearby, when they were so reluctant to move they immediately dived into the adjacent tree.

On 13 June, the Dusky Woodswallows were observed doing much the same thing at the same time as the previous day. I only saw about 10 this time, as they suddenly came over and then descended about 300 metres to the SE of the dam. I thought this was very unusual behaviour for the time of year, as when I've previously seen them in winter they're usually hawking quite low. It seemed more like the migration behaviour in April/early May, when they drift over high above. I expected they were hawking high and then returning to roost at a similar spot each night. It was amazing how they appeared so quickly; I had been in the area for at least 15 minutes looking up when suddenly they were there.

At 16:40 on 4 July , as I was tracking down Restless Flycatchers at this same spot, I again heard woodswallows overhead, seeing about three of them circling high (at least 100 metres above tree top level) to the south-east. As they disappeared quickly I suspected they may have landed higher on the ridge itself, about 250 metres to the south-east. Indeed, following this up at 16:55 I located about seven birds in a loose group mostly in the inner branches (about 1-2 m in) of a gum tree at the top of the rise where the track that runs behind the houses all the length of Chapman flattens out (GPS co-ordinates 35° 21' 07" S, 149° 01' 28" E). Suddenly this increased to 17 birds as they left this tree and formed a cluster at the base of a large, upright, dead bit of mistletoe in the adjacent tree less than 10 metres away, where they settled somewhat nervously for a couple of minutes. I suspected I was disturbing them as they suddenly left and alighted rather agitatedly on exposed perches nearby, so I left.

While I hadn't seen them in the intervening period, I now suspected they'd been present in the area for the past month or so, but spent the day hawking away from the area, including possibly surprisingly high, before using the area to roost overnight.

I wasn't able to locate them again despite being up there the three evenings of the next weekend, and also early morning a couple of times. However, during the COG 'Winter Birds bus trip' on 18 July a maximum of eight Dusky Woodswallows were observed circling very high (possibly as high as 500 m) over Cooleman Ridge just before 3 pm. To me this was another piece in the puzzle of winter sightings, and I now had more evidence for my suspicions that they spent the day circling and feeding up high (it beggars belief that there are sufficient insects at such heights in winter) and then drop down just before sunset to roost wherever they happen to be. This is the time I had been observing them, when they are close enough to hear them call and see with the naked eye as they descend.

During June and July, the only time I saw this species away from the pre-sunset period was the observation of a single bird perched on a dead branch high in a tree near the Kathner Street dam at about 14:00 on 17 July.

I also did not see woodswallows in other areas of my local patch during these two months, including the former pine forest on Narrabundah Hill, though I didn't visit this area close to sunset. However, through late May to July, Dan and Beth Mantle (pers. comm.) noted small numbers of Dusky Woodswallows (up to 15 birds) in the south-west corner of this former pine forest during irregular walks through the area. These observations were all made in the late afternoon and were either of birds flying and calling at several hundred metres height or settled on the high voltage wires. These wires are considerably higher from the ground than any of the surrounding trees and as such would provide a high vantage spot, pre-roost gathering site or an unusually open roost location. The observers did not stay to nightfall to see if the birds

remained on the wires or moved to roost nearby.

While the high circling and calling is consistent with my observations, such a high roosting site would be in clear distinction to the sites chosen on Cooleman Ridge through the same period of time. However, due to their open nature and 25-30 metres height, I believe the wires themselves are unlikely to be a roost site based on the detailed discussion in HANZAB (2006), which mainly lists parts of trees (including the butt of a mistletoe as described above), with the heights of roost sites from about 1.5 to 25 metres from the ground. It is more likely to have been a pre-roosting assembling point, as also well summarised in HANZAB (2006). The nearby pylon (GPS 35° 20' 38" S, 149° 00' 55" E), which contains a number of features which would offer more shelter, would seem a more likely site, noting there are few suitable trees within 200 metres.

Rowley (2000) describes pre-roosting behaviour similar to the above in the one local study (at Geary's Gap) I have been able to find. The description in Chapman (2000) also closely mirrors my observations, including the swift and sudden descent from feeding, and that a close approach (<25 metres) to the cluster while it is still light enough will result in the whole group bursting out spontaneously. By contrast, there is little information on the feeding behaviour of the Dusky Woodswallow during winter in the ACT, indeed my understanding is that the species has only recently (within the last 10 years) been observed to overwinter here. Certainly I found the consistent observation made about feeding so high very surprising. It is tempting to speculate that this may be a reason the species has been overlooked previously in winter, but I expect the warmer winters are also contributing.

For the remainder of July and August 2010 I did not see this species again on Cooleman Ridge, perhaps due to the progressively later sunsets. However, Jean Casburn reported on the COG chat line 14 Dusky Woodswallows huddled together against strong winds at 11:30 on 1 August on Narrabundah Hill (this diurnal clustering is also described in HANZAB, 2006). I saw three of them for the first time in the SW corner mid afternoon on 14 August 2010, typically hawking low from the fence. A similar number was also seen round 8:00 on 28 August, hawking low amongst regrowth about 200 metres in from the middle of the western fence line, and at 14:00 on 3 September at least half a dozen were observed in the north-west corner behaving similarly. All of my observations during August could well have been of newly arrived summer migrants.

That the 2010 winter was certainly unusual was clearly demonstrated by Geoffrey Dabb's survey of summer visitor species overwintering. Apart from the woodswallows, the Black-faced Cuckoo-Shrike *Coracina novaehollandiae* was also regularly observed in this area, and was particularly conspicuous in the second half of July when up to eight birds could often be seen together on NW Cooleman Ridge prior to sunset, and were also suspected of roosting there.

Together with the Grey Fantail *Rhipidura albiscarpa*, these birds were more numerous than they had been over the previous spring/summer period.

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Domesticity in the Grey Shrike-thrush *Colluricincla harmonica*.

The Grey Shrike-thrush is well named and prized for its harmonious call; I'm sure its melodious song is easy on the ear for all COG observers. It is an active and inquisitive bird, even nosey, in its interactions with people and seems quite relaxed to live in the immediate vicinity of human activity.

We live in Carwoola, COG cell P16. For the last five years we have been fortunate to have a pair of Grey Shrike-thrushes nesting and raising their young in close proximity to our home. For two of those years they nested on the front verandah of our house where we could follow their progress closely through a window. For the last three years they have nested in our garage (separate from, but close to, the house).

In 2006 & 2007, the verandah years, they built a nest of bark shreds in an empty pot-plant holder (circular cross-section) located in a pot-plant stand, about 950mm off the ground (we had no dog or cat at the time.) The same nest was used in both years. Each year, there were three eggs, of which two hatched, the young successfully reared until eventually leaving the nest & fluttering around the garden.

In 2008, the pair re-located to our garage, which was usually kept closed. The adults entered via a narrow gap in the structure between the roof and the sidewall. The garage has a fixed-pane window and a few translucent corrugated sheets in the roof so that the interior light is rather subdued, if not dim, when the roller door is closed,

The nest was made in a plastic 'odds-and-ends' box (rectilinear shape, dimensions 160mm x 160mm x 130mm) located about 1500mm from the floor (Figure 1). Despite the shape of the nest box, the nest structure was a normal circular shape and was again constructed of shredded bark. One curiosity was that the box used was red in colour; next to it was an identical blue box, which was ignored for all three years.

Figure 1. Adult Grey Shrike-thrush, with prey item, on the red next box.

In 2008, there were three eggs in the garage nest. There were again only two hatchlings, the third egg disappearing after 3 or 4 days. When fledged, the nestlings left through the door when it was opened.

In 2009, much the same happened – same nest in same red box. However, a major difference was that the pair nested twice. Both the first and second nesting had three eggs each and produced two hatchlings each time. The parents fed the young mainly with spiders (species unknown). The accompanying photo (due to Martin Butterfield) shows the almost fully-fledged youngsters of the second nesting clamouring for the spider on offer.

During these five nestings, the adult birds seemed to be fairly relaxed with our proximity and our normal comings & goings. We were able to approach the nest, inspect (without touching) either eggs or progeny without causing problems for the adults. They calmly resumed their positions when we left the nest site.

In the spring of 2010, the Grey Shrike-thrush pair returned to the nest site in the garage (Figure 2). Because I had established that my relationship with them appeared to be non-threatening, I resolved to make more detailed observations. On some days, I disturbed the adult on the nest to check for eggs or hatchlings both morning and evening. I noticed the sitting adult seemed to get used to my routine and would let me approach to less than a metre before leaving the nest. He/she returned promptly when I left.

Figure 2: Two Grey Shrike-thrush chicks in the red nesting box in October 2010.

I won't provide the fine details of my observations for Spring 2010. However, the salient points are:

- 4 September 2010 – first egg.
- 7 September 2010 – second egg; no third egg was laid.
- 25 September 2010 – two small hatchlings, perhaps 24 hours old.
- 12 September 2010 – both fledglings left nest & were seen fluttering at window.

As of time of writing (November 6 2010), there has been no second nesting.

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Kleptoparasitism by Brown Falcon on Collared Sparrowhawk

On 2 April 2010 I was birding in a garden on the outskirts of Bungendore, NSW when I noticed a small raptor approaching rapidly across the paddocks "hedge-hopping" fences and keeping within two metres of the ground. At first I thought it was contour hunting in order to flush prey. However, as it neared the house, it banked sharply and entered a large Pepper Tree *Shinus molle*. I inched forward and focussed my binoculars on the little raptor through a gap in the foliage and identified a male Collared Sparrowhawk *Accipiter cirrhocephalus* holding a Silvereye *Zosterops lateralis* against a branch. The hawk appeared agitated, leaning forward and glancing continually from side to side.

A moment later a Brown Falcon *Falco berigora* arrived above the tree and hovered clumsily – just as the field guides describe. Immediately, the sparrowhawk broke cover and fled across the paddocks, still keeping low and rising over fences. The falcon gave chase but remained 5 metres above the ground which gave it an advantage in speed as it didn't have to avoid low obstacles. After some 50 metres it was directly above the hawk and lowering towards it. When the latter was about one metre from the ground it dropped the Silvereye and accelerated up and away.

The falcon wheeled round, landed and held the silvereye under one foot while tearing at it with its bill. A few moments later it flew to a power pole overlooking the road where it remained for twenty minutes. The silvereye had been eviscerated and most of the pectoral flesh stripped away. Not much remained except the head, wings and scattered plumage. Judging by the yellow gape I believe the victim was an immature bird.

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Communicating with Common Ravens

I've long been interested in reports of wild creatures spontaneously approaching humans. Sometimes there appears to be an apparent reason for such behaviour, as in the case of a seabird that reportedly came ashore in a Victorian estuary with a fishhook imbedded in its bill and approached people on the beach. The hook was removed and the bird swam away.

Fascination increases however when there's no clear reason – at least initially – for such behaviour. I recently came across two such instances involving Common Ravens *Corvis corax* when reading about the activities of Jim Nollman, a pioneer in the field of communication between species and founder of *Interspecies Communication*, an organization dedicated to the promoting of dialogue between humans and wild animals.

One summer, during the 1990s, when Nollman was camped on the Mackenzie River Delta in northern Canada researching communications between Beluga Whales *Delphinapterous leucas* and humans, a Common Raven *Corvus corax* glided across the long Arctic plain and alighted a metre from where he was sitting. The bird stood perusing Nollman for several seconds before issuing forth with a series of croaks and squawks which he describes as "... a whispery, soothing tone meant only for my ears."

Ever eager to communicate with wild creatures, Nollman delves into his backpack and retrieves a small bamboo Jew's harp carved by an Ainu craftsman on the Japanese island of Honshu and begins to play. He tells us, "the harp *Boing, bo...boing, boing, boing, boing,* in syncopated four-four time." The raven moves closer to him and starts croaking, a sound generated deep inside the gullet that reminds Nollman of, "a house cat from a parallel universe that purrs its contentment two octaves below, and at half the speed of a normal house cat." Bird and man continue their jam session for twenty minutes, apparently a veritable eternity in the annals of interspecies communication , which evolved "to sound like a didgeridoo accompanying an overture singer from Tuva." Nollman concludes that the bond is now sealed and takes a long walk across the vast uninhabited plain of the delta.

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COLUMNISTS' CORNER

Go Gerygones! - the curious attraction of avian sporting labels

Why is there a local netball team that calls itself the 'Canberra Darters'? The name stems from the heyday of birdie sporting labels when all the teams in the main national netball competition had to be named, for some reason, for birds. Thus we had, at one time or other: Adelaide Ravens, Adelaide Thunderbirds, Melbourne Kestrels, Melbourne Phoenix, Perth Orioles, Queensland Firebirds, Sydney Sandpipers, and Sydney Swifts.

At one time we also had the 'Hunter Jaegers', a clever invention since 'jaeger' is itself a (originally German) word for a hunter as well as a kind of skua. I suppose 'Darters' is a reasonable choice for a Canberra netball team. Netballers certainly dart around quite a lot. The Darters were not included in the major competition as restructured in 2007, but continue to play on in another one against non-birdie opponents.

One wonders about the aptness of some of the other names. The reason for 'Perth Orioles' is not apparent, as no orioles are found anywhere near Perth. Perhaps someone was a fan of the well-known US baseball team, the Baltimore Orioles. That team has the distinction of bearing the full name of a North American bird species, the colourful 'Baltimore Oriole'. Two other major league teams with a passerine orientation are the Toronto Blue Jays and the St Louis Cardinals.
Bird-aware Baltimore also has a football team, the 'Ravens', the name being chosen after extensive polling and alluding to the famous poem by Edgar Allan Poe, an admired son of the city of Baltimore. Unsurprisingly, other US pro football teams favour raptorial mascots: Philadelphia Eagles, Atlanta Falcons and Seattle Seahawks.

One of the more interesting bird mascots in that country is the Jayhawk of the University of Kansas. The original Jayhawk was a kind of folklore creation, like the bunyip, and was adopted by Kansans as a symbol of the anti-slavery movement before the civil war. It was said to combine the qualities of the blue jay and the sparrowhawk (the latter being the popular name for the American Kestrel).

The main Australian football teams in this country have long-established alternative names. Any team with black-and-white colours is likely to be called 'the Magpies', the best-known being Collingwood, a widely-supported Victorian team. Unfortunately, its motto is *Floreat pica*, meaning 'May the (only distantly related) magpies of the northern hemisphere prosper'.

Alliteration was presumably the reason for the naming of the Hawthorn Hawks, an improvement on the previous 'Hawthorn Mayflowers'. The South Melbourne Swans adopted that name in the 1930s, because, some have suggested, they had a number of players from Western Australia. A more likely reason, given the swan's distinctly non-black colour, was the number of white swans on Albert Park

lake near the South Melbourne home oval. At that time ornamental white swans were more common in Australia than they are now, the intermittent lake in Ballarat having a number of them. The Swans took their mascot with them to their new Sydney base where it seems to be firmly entrenched in the present name of the team.

Not a lot of thought seems to have been given to the hasty naming of the West Coast Eagles, the given reason being that 'the wedge-tailed eagle is the state's largest bird of prey'. While that statement is true enough, it does not manage to convey any reason for the naming of the football team.

As for the Adelaide Crows, one can only wonder why anyone, least of all Crow-*eaters*, would choose such a name. Moreover, the inland Little Crow does not quite reach Adelaide, so one wonders whether it was really the Australian Raven they had in mind. From that viewpoint the netballing Ravens, no doubt choosing their name because of the 'Crows' connection, were rather more on the ball in a biogeographical sense.

In the ACT AFL competition, half the teams have bird names, albeit unoriginal ones: Belconnen Magpies, Tuggeranong Hawks, and Sydney Swans Reserves.

The main Australian rugby league competition has a 'Sea Eagles' (Manly-Warringah) and 'Roosters' (originally Eastern Suburbs, who adopted that logo in the 1960s, probably in imitation of the French national team). The competition no longer has a 'Magpies' or a 'Seagulls'. Nobody much wants to be a Seagull. The Gold Coast dropped their seagull nickname, as did Geelong, the VFL team, many years ago, being happier as 'the Cats'.

Apart from the French, two national rugby league teams have bird names: the Kiwis (New Zealand) and the Kumuls (Papua New Guinea), both being respective national symbols. A kumul is a bird of paradise in Melanesian pidgin.

Soccer-team nicknames are optional. Soccer has not, to the same degree as other football varieties, been into mascots, at least those of the prancing, cheer-leading kind. However the Nigerian national team has out-eagled the NFL's Philadelphia and the AFL's West Coast, by claiming the name of 'Super Eagles'. Back in Canberra, a soccer team claims the nickname 'White Eagles', from its Serbian affinities.

Although they have seen off quite a bit of it, Australians are fond of their distinctive fauna. Having given sporting recognition to kangaroos and wallabies, they have now adopted 'Kookaburras' as the name of the national men's hockey team. The emu has a gangly, non-athletic bearing, and this might have been the reason it was overlooked for national sporting honours. However a local orienteering club is known as the 'Weston Emus'.

Nor can I find any team called 'Lyrebirds', although 'Lyrebird', like 'Kookaburra', is a trade name for certain sporting equipment.

One might have expected the Gang-gang to be used more by and in the ACT. However Canberra's elite orienteering squad, which competes nationally with some success, is known as the 'Canberra Cockatoos' and has a Gang-gang-like logo.

Despite the sporty ring of the name suggested at the beginning of these musings, I can find no sporting team that is actually known as 'the Gerygones'. Surely there is some body of competitors out there that would be proud to adopt that title. Maybe a choir, even? I can imagine: 'The event began with the singing of the national anthem by the Canberra Gerygones'.

Stentoreus

Birding in Cyberspace, Canberra Style

'What was the structure of our forests and woodlands prior to European settlement? It's a frequently asked question.' Thus commences a fascinating article titled 'Pre-European wood lands and forests: a walk in the park or a slog through a thicket?' published in the November 2010 issue of ***Decision Point*, the online newsletter of the Applied Environmental Decision Analysis research hub (AEDA)**. The article deals with the contested issue about what was the nature of Australian landscape prior to European encroachment upon it, and what are the implications of the answer for how we manage contemporary landscapes and plan into the future. While this topic is of inherent interest to birders its relevance to this column's mandate is that *Decision Point* is an example of the huge number and variety of free online newsletters available to those of us interested in birds and their environment. You can subscribe at http://www.aeda.edu.au/news .

In earlier columns I have referred to a huge explosion of interest in **electronic books aka ebooks**: books that are available in digital formats as well as, or instead of, in print formats. Amazon's Kindle bookstore http://tinyurl.com/2aktc4x has around half a million titles listed and, as I have indicated before, some of these deal with birding. Apple has recently announced that its ebook library has come online. It is called iBooks http://www.apple.com/ipad/features/ibooks.html and the titles of your choice can be downloaded (upon payment) for reading on the iPad. Apple describes it this way:

> *You'll find tens of thousands of titles on the iBookstore, and more arrive every day. The iBooks app uses the ePub format—the most popular open book format in the world. Its universal structure makes it easy for publishers to create iBooks versions of your favorite (sic) reads. And you can find free ePub titles using your Mac or PC and sync them to the iBooks app on your iPad with iTunes.*

The app also works with pdfs which is a great boon for people who have accumulated a substantial library of documents in that format.

But usefully ebooks for birders are found not only in these large libraries that are commercially linked to the

hardware sold by the owners of the libraries, particularly Amazon for the Kindle and Apple for the iPad. We can purchase ebooks from the various publishers themselves, although it is important to note the formats in which they are sold to ensure that the formats are compatible with your reading device, whether it be a handheld device or a netbook, laptop or desktop computer. One example that our Editor recently brought to my attention is CSIRO Publishing. Many readers will be familiar with their online bookstore at which we can purchase their printed books http://www.publish.csiro.au/pid/5665.htm but some titles are also available as ebooks through 'eBooks.com, the digital bookstore'. An example is the popular title *Tawny Frogmouth* edited by Gisela Kaplan, $29.95 plus freight from CSIRO Publishing for the print version (http://www.publish.csiro.au/pid/5665.htm) or $25.95 from eBooks.com for the pdf version (http://www.ebooks.com/ebooks/book_display.asp?IID=314295). Another very popular title available there is Kaplan's *Australian Magpie: Biology and Behaviour of an Unusual Songbird*. Indeed, at the time of writing, eBooks.com had some 58 birding titles listed, covering a wide range of ornithological interests.

Some readers may wonder, though, at the small difference in price between the print and digital versions of these books. Considering that the marginal cost of the digital version is close to zero, one wonders if this is actually a viable marketing approach? Is contrasts markedly with Amazon's Kindle bookshop pricing, for example, where the ebooks are usually one-third or less of the price of the corresponding print versions. I imagine that some readers are willing to pay, for the ebook version, a price similar to the print version owing to the ease of portability of the former: great for plane travel! Others might say that, if I have to pay a similar price, I'd prefer the print version owing to my love of the touch and feel of 'real' books!

Three years ago this column drew attention to the then new initiative of Birds Australia, the Australasian Wader Studies Group and the Commonwealth Government's Caring for Our Country program called **Shorebirds 2020**. It is a wonderful initiative through which volunteer observers are monitoring the shorebirds across Australia. Apparently the data that have already been produced through this program are being used to support submissions for the conservation of critical bird habitats for species that are under threat, globally. Up-to-date information about Shorebirds 2020 can be found in its newsletter, online at http://www.shorebirds.org.au .

Of special interest there is the part of the site labelled 'Learning Resources'. This is the place to visit if you are one of the many birders who say 'I can't identify waders, they all look the same to me!'. It explains that:

> *Many people shy away from the fascinating world of shorebirds because they seem difficult to identify. This presentation will take you through the basics of identifying all of the commonly*

encountered migratory (and some resident) shorebirds which can be found on Australian wetlands.

What follows are a Flash presentation, a PowerPoint presentation and pdf files, including 'Shorebird Identification Tips', which cover key identification features, comparisons with similar shorebird species and images of shorebirds in flight.

It is also possible to request (through the site) hard copies of the identification resources, including an excellent CD and identification sheets, a set of six which includes illustrations of all the common migratory and resident shorebird species in Australia. They are designed to be taken into the field to assist with shorebird identification.

I understand that the funding for this program will come to an end soon, so people interested in accessing its resources may care to attend to it sooner rather than later.

COG has embarked on in an initiative to upgrade its website www.canberrabirds.org.au . While your columnist does not know what the new website will look like, I suggest that its developers give consideration to including one or more **birders' blogs** at the site. A USA example of what such a blog may look like is http://birderblog.com . Did you ask what is a blog? It is defined at the wonderful WordNet web site http://wordnetweb.princeton.edu as 'a shared on-line journal where people can post diary entries about their personal experiences and hobbies'. The term is a contraction of 'web log'.

Perhaps some readers will volunteer to write for a blog on the revamped website, sharing with readers their ongoing birding experiences in Canberra's area of concern, and beyond?

The previous column drew attention to one of the most important Australian web-based natural history initiatives in recent years, the **Atlas of Living Australia (ALA)** http://www.ala.org.au . It was formally launched on 18 November by Innovation Minister Senator Kim Carr. Hhis media release is at http://minister.innovation.gov.au/carr/Pages/default.aspx - click on 'Opening Our Eyes to Australia's Natural Heritage'. The media release points out that the ALA web site '…already holds over 23 million records on the distribution of Australia's fauna and flora, in addition to maps, images and literature. Members of the public can help to build the database by contributing local photographs and information'.

Birds feature prominently in the Atlas (with shorebirds featured on its home page at the time of writing) and I presume that the data are drawn from Birds Australia's Birdata resource http://www.birdata.com.au .

Clicking on the tab 'Explore' and then 'Your area' enables you to enter your address or postcode, select the range (1, 5 or 10 kilometres from that point) and the type of data on which you are interested selecting from animals, mammals, birds, reptiles, amphibians, fish, insects, plants, fungi, chromista, protozoa and bacteria. As a trial, I requested a list of the birds found

within a 10 km radius of the postcode 2600 which I believe is Civic. 283 bird species were listed. This is quite interesting, as the current list of species identified in the ACT stands at 286. The Atlas of Living Australia will become increasingly valuable as additional data sets are included. I urge you to bookmark this site and return to it regularly to benefit from its ongoing enhancements. To keep up-to-date with its development you can subscribe to the ALA's email newsletter: see the link on ALA's home page.

Have you been keeping up with developments in the use of new technology at the **National Library of Australia,** especially its **eResources**? Using your keyboard, pop around to the Library at http://www.nla.gov.au and click on the 'eResources' link at the top-right of the page, or go there directly http://www.nla.gov.au/app/eresources/ . There the first thing you will see is a tutorial: 'Not sure how eResources works? Watch our screencast'. In summary, this facility is used '…to locate indexes, full-text ejournals, websites and guides available through the National Library of Australia on a range of topics'. The resources are in three categories. The first is freely available resources: Websites freely available to anyone over the internet. The second is licenced resources: databases available by logging in with your library card, and the third is onsite resources: resources available only inside the Library building, you have to visit it in person.

What's there? Heaps! For example, I use it regularly to search the Oxford English Dictionary and Oxford Reference Online. Are you familiar with the later resource? It is described this way:

> *Oxford Reference Online covers the following subjects in a single cross-searchable resource: language (dictionaries, grammar, abbreviations, proverbs); general reference (quotations, English place names, first names, world encyclopedia); art and architecture; classics; history; literature; military history; mythology and folklore; performing arts; politics and social sciences; religion and philosophy; economics and business; law; biological sciences; computing; earth and environmental sciences; food and drink; medicine; physical sciences and mathematics.*
>
> *Major reference works which are searchable in this collection include: The Australian Oxford Dictionary, The Oxford Companion to Australian History, Oxford Dictionary of Art, Who's Who in the Classical World, Dictionary of Ecology, Dictionary of Computing, Dictionary of British History, Who's Who in the Twentieth Century, Dictionary of World History, Oxford Companion to American Literature, Oxford Companion to Shakespeare, Concise Medical Dictionary, Oxford Companion to Music and Oxford Dictionary of Quotations.*

There is little need, nowadays, to purchase reference books, given the availability of such a wealth of resources made available to us free of charge through our National Library.

How refreshing it is to see our tax payments being used by the Commonwealth Government, through the NLA, to provide such an amazing service to the Australian public!

Another of the National Library's invaluable resources is PANDORA http://pandora.nla.gov.au/ . It is described this way:

> *PANDORA, Australia's Web Archive, is a growing collection of Australian online publications, established initially by the National Library of Australia in 1996, and now built in collaboration with nine other Australian libraries and cultural collecting organisations. The name, PANDORA, is an acronym that encapsulates our mission: Preserving and Accessing Networked Documentary Resources of Australia.*

So, it is a perpetual archive of web sites, acknowledging the fact that they change over time, many disappear, and with it important parts of Australian culture. What's that got to do with birds and birding? Well, among the Australian web sites captured, indexed and archived is COG's very own Canberra Birds web site http://canberrabirds.org.au/ . PANDORA is capturing and archiving its contents on 3 November each year, commencing in 2006.

T. javanica

This column is available online at http://cbn.canberrabirds.org.au/. There you can access the web sites mentioned in the column by clicking on the hyperlinks in the online version of *CBN*.

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

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

PRESIDENT'S REPORT FOR 2009-10

It is with pleasure that I present my third President's Report covering the period October 2009 to October 2010, that is, over the last 13 months.

Forward Plan

As in the past the Committee's activities have been guided by the Forward Plan. The plan was revisited in mid-November, covers the period 2009 to 2011 and takes into account core COG objectives recognising two categories of tasks; major and minor. Major projects are likely to need more man-power and/or money to come to fruition whilst the minor tasks need only modest resources.

Of the major tasks progress has occurred on various fronts:

Republish a revised 'Birds of Canberra Gardens'. This major task has been finalised. Although available for the Christmas sales period the book was officially launched by the Chief Minister on 16th February 2010. I am delighted to say that the book is selling well. The Manager of the Botanical Bookshop at the Australian National Botanic Gardens reports that it has been the best selling book of the year! To date sales have not yet exceeded publication costs but we hope that this will occur in 2011.

Production of a new 2 CD set of Bird Calls of the ACT region. As reported in the last President's Report there has again been little progress with this project. Recently, a bird recording workshop was organised and attended by four members. A major change in approach was decided upon whereby instead of recording species and then producing a CD, calls recorded by members would be made available on the COG website as they come to hand, and from this a CD set could eventually be produced. It is hoped that this approach will encourage those interested to participate in this project.

Undertake a scoping study to examine the feasibility of updating the ACT Bird Atlas. It is recognised that it will not be possible to repeat the *ad hoc* approach followed for the data collecting of the first Atlas published in 1992. It has also been recognised that a more systematic approach is needed in order to make statements on the changes in the status of birds in the ACT. An important consideration is to determine what the data collected since 1992 can tell us. Given that 20% of records last year were collected during the 'Blitz' weekend in October it is pertinent to ask if it would be possible to produce an Atlas of the birds of the ACT based on a series of 'Blitz' weekends run at different times of the year. Nick Nicholls and Barbara Allan continue to examine this possibility using data collected over the past five surveys.

Provide on-going financial support to the Mulligans Flat/ Goorooyarroo ecological community research project. Grants provided in 2009 from COG and from the Canberra Birds Conservation Fund have been used to fund equipment required for the successful 2009 release of 43 translocated Brown treecreepers into

the Reserves. We look forward to hearing about the outcomes of the project. COG members continue to survey the two Reserves thus providing valuable information for the ANU, Fenner School, Ecological Restoration Project.

Develop sets of display material. No progress has been made in this area over the past year. Instead, this item has become integrated into the project to examine the feasibility of redesigning the COG website (see below).

Birds Australia Campout- April 2011. A sub-committee has been formed to organise the event, exploratory trips have been made and approval has been given by Bush Heritage Australia to base the Campout on their property 'Scottsdale, just north of Bredbo, NSW.

Of the smaller tasks:

Bird Routes brochures No 1 is now available and judging by the number remaining from the first print run this has been a most valuable addition to information provided by COG. Bird Routes No. 2 covering Black Mountain to Callum Brae will be available shortly. Many thanks to Sue Lashko for running this project.

A sub-committee has been set up to examine the feasibility of updating the COG website. Beth Mantle has been the main driver for this project . We are now at the stage of calling for tenders to provide the basic framework for the new web platform. There will be no changes to the COG E-mail Discussion List (Chat-line) but it is envisaged that there will be new facilities available. Although listed as a minor task this has now been updated as a major consideration for COG with the project continuing into the next year.

COG continues to support the initiatives of the Canberra Indian Myna Action Group (CIMAG) to reduce populations of the Indian Myna. In particular, we continue to support their website and COG members continue to help in the surveys required by the on-going Ph.D. project into the impacts of the Indian Myna. It is of interest to note that the Garden Bird Survey again indicates a continuing decline in numbers.

Committee

I would like to take this opportunity to thank the 2009-10 Committee. Unfortunately we were again unsuccessful in filling the role of Vice-president. Sandra Henderson, as Secretary, has completed her third year whilst Lyn Rees is unable to continue in her role as Treasurer. I would like to acknowledge the large amount of work that Lyn has been able to put into this position over the last two years and I wish to thank her very much for all her efforts. Many of the other members of the Committee have all been involved in other roles essential to the running of the Group. Jenny Bounds continued as Conservation Officer, Sue Lashko as Editor of Gang-gang and Meeting Room arranger, Beth Mantle on the Sales Desk and finally to Lia Battisson, Tony Lawson, Michael Robbins, Con Boekel, Dan Mantle and David Rees who have all at various times been involved with the many additional jobs that appear to pop-up

from nowhere. My thanks to them all for their efforts and for making the President's job that much easier.

Conservation

The many items of conservation concern have this year been dealt with by a sub-committee consisting of Jenny Bounds, Con Boekel, Michael Robbins and myself. COG has had an input into many issues including the following:

Submission of an application to declare the Glossy Black-Cockatoo a 'Vulnerable' species in the ACT. Jenny, in particular, put a considerable amount of work into this application. I was very pleased to see that the species was declared threatened in the ACT by the Minister on 22nd October 2010. Advice has been provided to the ACT Government on the strategic planting of Drooping She-oak in Canberra Nature Parks and elsewhere and we are delighted that the International Arboretum has planted out a block of this critical food specifically for the Glossy Black-Cockatoo.

COG provided a submission to the Commissioner of Sustainability and the Environment on the Canberra Nature Park, Molonglo River Corridor and Googong Foreshore and on the proposed Urban Forest Renewal Program. During February, COG, in association with the Commissioner's office ran a one-day forum and workshop at CSIRO Sustainable Ecosystems to discuss these issues.

In December COG provided a submission concerning the removal of the Kingston Foreshore Electrical Sub-station to a preferred location north of the present Jerrabomberra Wetlands car park. COG has objected to the recommended location but is happy with the proposed removal of the electrical pylons in the area. We await final decisions on this issue.

Silver Gull breeding and the restoration of habitat on Spinnaker Island, LBG involving discussions with the National Capital Authority and 'RiverSmart'.

Submission on the re-alignment of the King's Highway.

Provided a submission on the Draft Molonglo Valley Strategic Assessment called for in April 2010.

In June 2010, COG was invited to apply for positions on the Interim Boards of Management for the Mulligan's Flat Sanctuary and for the Jerrabomberra Wetlands. I am pleased to announce that COG is now represented on both Interim Boards.

Provided a submission on the Draft Tidbinbilla Plan of Management.

COG was again represented at the two-day Bird Interest Group Network (BIGnet) meetings held in mid-April 2010 in Sydney and attended by Jenny Bounds and again in September 2010 in Wyong and attended by Con Boekel.

Outings

Once again COG has been able to run a very comprehensive outings program. Unfortunately, Matthew Frawley had to resign from the position of Outings Officer in late February for personal reasons. Matthew was responsible for setting up the 2010 program. I would like to thank both Matthew and Dan Mantle

who subsequently took on this very important role.

In addition, to the scheduled outings the *ad hoc* group of 'Wednesday Walkers' has once again operated most successfully and have managed to attract a most enthusiastic group of followers. Not including the Wednesday outings, there have been 30 outings this last year. Of these, ten have been outside the local region ranging from birding around Ulladulla, Nangar National Park,on a private property 'Spring Forest' near Cowra, Booderee National Park, a pelagic trip from Eden, Oolambeyan National Park, Little Forest Plateau Ulladulla, Monga National Park, Croajingalong National Park, and a weekend in the Goulburn area. Six specific purpose outings including the Blitz, Nest workshop, Bush Birds for beginners, Waterbirds for Beginners and the Winter Birding by Bus have again been run. There have been outings to five of the local nature reserves with the remainder of the outings to local hot spots. I would like to thank the many organisers and leaders and those who write up the trip reports for Gang-gang.

Communications and Publications

Gang-gang. Many thanks to Greg Ramsey and Sue Lashko who have continued with editing and publishing our newsletter. Also, I would like to thank Judy Collett and helpers for the mailing of the newsletter. After over five years of being responsible for the mailing of the newsletter and Canberra Bird Notes, Judy has decided to stand down. I am delighted that Brian Fair has been able to take on this responsibility. I would particularly like to again thank Jack Holland, Ian Fraser and Martin Butterfield for their regular contributions.

Canberra Bird Notes. This year there have been three editions of CBN produced by Anthony Overs as Editor. After nine issues of CBN Anthony has, due to work pressures, had to stand down. I am delighted that Beth Mantle has put her hand up to take over the position for the December 2010 (Volume 35 Number 3) issue. Major publication items included the 2008-09 Annual Bird Report and articles on a survey of Indian Mynas around Murrumbateman, examining the relationships between GBS site bird data and Google Earth derived environmental data, raptors in the ACT, effects of trapping on Indian Mynas, nesting by Tawny Frogmouths, the 2009 'Blitz' and an article on honeyeater movements. I would again like to thank *Tyto javanica* and *Stentoreus* for their regular contributions over the past year.

Annual Bird Report. Paul Fennell was responsible for the 2008-09 ABR published in Volume 35, March 2010 Canberra Bird Notes. Thanks to the ABR compilers Barbara Allan, Dan Mantle, Con Boekel, Steve Holliday, David McDonald, Ian McMahon, Harvey Perkins, David Purchase and Nicki Taws with each contributor, as usual, responsible for a group or groups of species.

Website. David Cook continues to provide an excellent website. Over the year there have been 139,834 visits to the site, a reduction of 5% over the

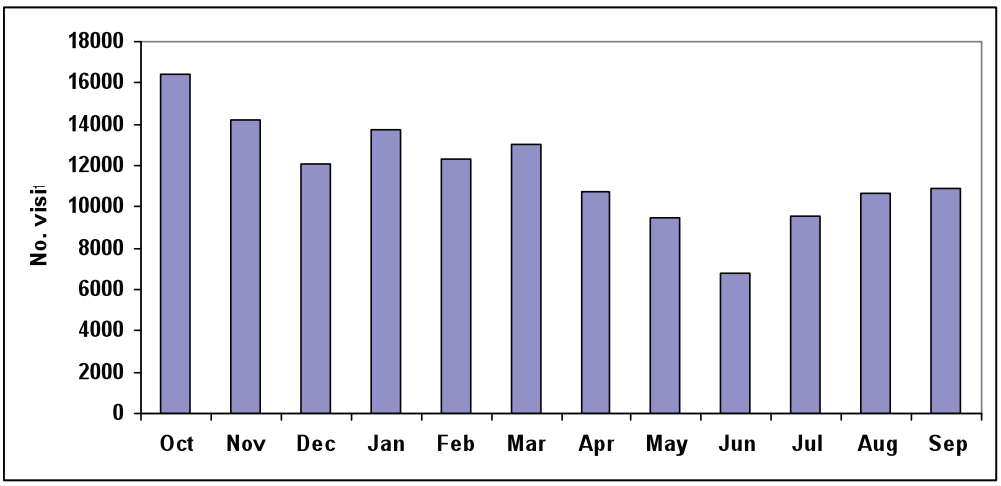

Figure 1. Number of visits to the COG website from October 2009 to September 2010.

previous year. Overall there has been a reduction in traffic to the Canberrabirds and Photo Gallery pages and an increase to the Canberra Bird Notes, Birds of Canberra Gardens and to the Canberra Indian Myna Action Group pages. Over the past 12 months the highest amount of traffic occurred in October 2009 and the lowest in June 2010

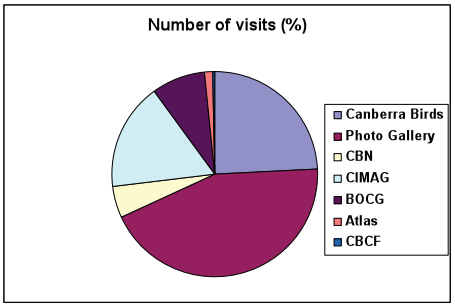

Figure 2: Number of visits to specific COG website pages (expressed as a percentage of the total).

Discussion list and email announcements. COG's Email Discussion Forum 'Canberrabirds' continues to be managed by David McDonald. The membership to the list stands at 243, an increase of one from the previous year. The Discussion Forum or 'chat-line' is an excellent forum for the latest sightings, points of interest and provides an invaluable starting point for those wishing to discuss their unusual sightings. Unfortunately, a down-side of the Forum is the large number of bird sightings reported that do not get entered to the COG database.

Surveys and record management

Surveys undertaken by COG members over the past year include the continuation of the woodland surveys at 15 sites across the ACT that documents species in the threatened Yellow-Box/Red Gum Grassy Woodlands. Dr. Ross Cunningham of Statwise Pty Ltd. was contracted to analyse the data which now includes records for over 10 years from many sites. A report titled 'A Statistical Analysis of Trends in Occupancy Rates of Woodland Birds in the ACT 1998-2008. The Ten-year Data Analysis' has been completed. The Report, written by Jenny Bounds,

Nicki Taws and Ross Cunningham, with input from Alison Rowell, has been provided to the ACT Government. The project continues to be run by a management group comprising, Jenny Bounds, Nicki Taws Alison Rowell and myself with data entry by Helen Mason.

A survey of possible breeding habitat for the threatened Superb Parrot in the proposed Gungahlin suburbs of Kenny, Jacka, Moncrieff, Throsby and Kinlyside was completed with help from 26 COG members. A report titled 'Report on the distribution, abundance and breeding status of the Superb Parrot (*Polytelis swainsonii*) during the 2009-10 breeding season, Gungahlin, ACT' was compiled by Chris Davey and provided to the ACT Government. The Superb Lyrebird survey at Tidbinbilla Nature Reserve was run for the seventh year, as usual on the third weekend in June.

The GBS is now in its 30th year. Martin Butterfield continues to manage the project providing feedback through regular items of interest in Gang-gang. Kay Hahne and Anne Hall continue to enter the GBS data, via the new data input program. Many thanks to all. Over the past 12 months there were seven requests for data. A new print run of GBS charts was required for the 2010-11 year and Martin took the opportunity to reorder the more common species listed on the charts to reflect the ever changing pattern of garden birds in the ACT.

The Blitz was run again for the fifth year in late October. Many thanks to Barbara Allan for all the hard work she puts into this project and to the many surveyors.

Up to 21 COG members were involved in the inaugural K2C bird surveys in April and again in October covering 23 properties in the area between Williamsdale in the north to Bredbo in the south. It is envisaged that COG will continue to contribute to this long-term study.

COG was invited to participate in the annual Bird Observation and Conservation Australia (BOCA) Forum held in Leeton in mid-September. I would like to thank Nicki Taws for attending and presenting information on the importance of COG bird surveys to government decision making in the ACT.

The COG database continues to expand with 535,883 observations from 34,855 datasheets in the General Observations database, with 2726 sheets added during the year; 65% entered on-line. The databases continue to be managed by Paul Fennell and Martin Butterfield. Essential support for the COG database is provided through the Records Management Team and the Rarities Panel. I would again like to acknowledge the contributions provided by Nicki Taws as Records Officer, Tony Harding and many others for data entry and to the members of the Rarities Panel consisting of Richard Allan, Jenny Bounds, Grahame Clark, Dick Schodde, Nicki Taws and Barbara Allan (Secretary), all who have offered to continue in their various roles. Over the past 12 months there were five requests for data.

Records of observations collected since February 1985 from the ANU Women's Club have now been processed and 1040 datasheets have now been added to the COG database. The data collected over 23 years consist of species recorded in 15 hand-written diaries during monthly visits to many spots throughout the ACT and local region.

Monthly meetings

Jack Holland has again been responsible for a most successful and varied program of speakers. We have been provided with presentations on the identification of various local species and we have heard about various research projects including the work at Mulligan's Flat and Goorooyarroo Nature Reserves, and the Molonglo Valley, a garden bird project, an update on the recent taxonomic work from the Australian National Wildlife Collection, a Ph.D. project on the Australian Owlet-nightjar, how birds communicate about danger, the Eclectus Parrot and the Carnaby's Black-Cockatoo. We were provided with presentations on the birds of Sweden, the Yellow Sea and southern Peru and we experienced a whimsical tour of the birds of Europe. We heard about the value of Google Earth, the birds of the Iron Range, experiences of a pelagic trip and a review of the COG Blitz. Finally, we were provided with our first father/son evening with Bruce and David Lindenmayer providing details on how to identify thornbills and work in the Victorian wet forest. My thanks to all of the presenters for giving of their time and expertise.

A continuing feature of the monthly meeting is the Sales Desk. The Desk this year has again been managed by Beth Mantle with much help from Dan Mantle. Many thanks to them both for providing such a valuable service to COG members.

With Anthony Overs unable to continue as CBN editor, Beth has undertaken to take on this role. At the end of the financial year she handed over the responsibility of the Sales Desk to Roy Harvey, with help from Anne Holmes, who kindly offered to again take on the role after 12 months away from Canberra.

I would once again like to thank Julienne Kampad with occasional assistance from Lia Battisson who have worked quietly behind the scenes to provide the refreshments after the monthly meetings and to Sandra Henderson for taking on the responsibility of providing the raffle prizes and selling the tickets.

Canberra Birds Conservation Fund (CBCF)

There have been 390 visits to the CBCF web page this past 12 months. This is a small reduction from the previous year. During the year a grant of $1,000 was provided for research into parental provisioning calls to nesting scrubwrens with money being used to purchase components for manufacturing robotic nestlings. A grant of $1,500 was awarded for research into a project titled 'The reduction in the body size of Australian birds as a response to climate change'. The Fund continues to be managed by David McDonald with a Committee of Management

consisting of David, Geoffrey Dabb and Penny Olsen.

Summary

In summary, 2009-10 has been a busy year for COG with numbers static at just over 305 members. I believe though that our audience is much greater as free public access is provided both to the Chat-line and, via the COG website, to facilities such as Gang-gang, CBN and the Photo gallery.

Outings and meetings continue to be the most popular activities with conservation issues continuing to be an area of increased activity.

I note from last year's President's Report that there was a summary of where COG was heading for the 2009-10 year and I am pleased to report that a tick can be placed alongside all proposed activities.

But what for the 2010-11 year?

- As in the past the committee will review the COG Forward Plan. Suggestions are always welcome from the membership but as usual items can only progress given the financial and more importantly personnel inputs required.

- Hopefully progress will have been made on the redesign of the COG website thus offering new avenues and opportunities for COG membership participation.

- The committee looks forward to running the Birds Australia Campout in April 2011 and we urge as many COG members as possible to participate in the various activities yet to be arranged.

- Financially we continue to hold our heads above water and it is of interest to note that in this regard the small bird groups are progressing better than the larger national organisations. We will need to continue to watch the space concerning the likely BOCA/Birds Australia merger and whether our continuing affiliation with BOCA will provide advantages to COG membership.

- Finally, we will continue to provide support to those activities that are important to the membership.

COG in our own way is a very active volunteer organisation on the Canberra scene and as in the past I have reason to thank the many individuals who have worked tirelessly in their various ways to provide services to members. Finally, I would again like to thank the 2009-10 Committee for all their hard work and to thank you all for your support over the past year.

Chris Davey
COG President
10th November 2010

RARITIES PANEL NEWS

A modest haul of one, on this occasion – a Spiny-cheeked Honeyeater. This is a relatively common largish and distinctive honeyeater of the more arid zones of Australia, but one which finds its way to the ACT occasionally. It was most recently recorded in February 2010 at Mt Ainslie by Michael Lenz. Prior to that there were endorsed records from Emu Ridge and Sutton Rd in September 2004; and from Ginninderra Creek in November 2003. This record is surprising as it is the most southerly reported for our area and a long way from the species' preferred habitat.

ENDORSED LIST 77, November 2010

Spiny-cheeked Honeyeater *Acanthagenys rufogularis*

1; 17 Oct 2010; Steve Holliday; Baroona Rd, 7.5 km S of Michelago

Also reported, though no longer on the "unusuals" list as more than ten records of presumably different individuals of the species have been endorsed by the Rarities Panel:

Channel-billed Cuckoo *Scythrops novaehollandiae*

1; 30 Oct 2010; John Brannan & Sue Mathews; The Pinnacle NR, Hawker, GrI13.

1; 30 Oct 2010; Jack Holland; Cooleman Ridge NR

There were other anecdotal reports of presumably the same bird on the same day. This is another species which is beginning to be recorded in most years. Single birds have been noted in spring or early summer in five of the past six years. Often it is the loud and distinctive call (described memorably by one listener as a "bubbling trumpet") which alerts one to their presence.

Swift Parrots too have been recorded this year, recently at Lake Tuggeranong and Cook, on their southward migration and in May on the Barton Highway on their northward migration. They too have been dropped from the "unusuals" list as they are now occurring fairly reliably in flowering eucalypts on each migration.

Canberra Bird Notes is published three times a year by the Canberra Ornithologists Group Inc, and is edited by Beth Mantle. Major articles of up to 5000 words are welcomed on matters relating to the distribution, identification or behaviour of birds in the Australian Capital Territory and surrounding region. Please discuss any proposed major contribution in advance. Shorter notes, book reviews or correspondence are also encouraged. All contributions should be sent to cbn@canberrabirds.org.au.

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

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