Distribution, abundance and breeding status of the Superb Parrot (*Polytelis swainsonii*) during the 2013-14 breeding season, Throsby Ridge, ACT



Prepared for the Canberra Ornithologists Group (COG)

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Summary

The area known as Throsby Ridge, situated between Mulligan's Flat/Goorooyarroo Nature Reserves to the north and bounded by Horse Park Drive to the south was surveyed for Superb Parrots over four periods between mid-October and mid-December 2013. This survey repeats surveys of the area conducted by members of the Canberra Ornithologists Group during the 2009-10, 2010-11 and 2012-13 breeding seasons.

As with previous surveys breeding behaviours of the Superb Parrot were observed within the upper section of the Ridge. There were no records of breeding behaviours within an area of the Ridge designated for urban development. Breeding activities were similar to previous years with an estimated 8-10 possible breeding pairs. The number of Superb Parrots flying over the area to Goorooyarroo Nature Reserve and beyond was not as marked as in previous years.

Similar to previous years, feeding was seldom recorded within the area despite a large flowering event of most Eucalyptus species. There were no signs of successful breeding with no begging young observed.

The number of interactions between Superb Parrots and nesting competitors was less than in the previous season, yet the abundance of competitors within the area was similar with the main competitor being the Crimson Rosella and the Eastern Rosella. The Common Myna was observed over a wider area than previously, possibly due to the presence of short grass and cattle, neither of which occurred in previous surveys.

A total of 49 bird species was recorded including three ACT listed threatened species; Superb Parrot, White-winged Triller and Varied Sittella.

To assess the possible impact of urban development on the Superb Parrot within the Throsby Ridge area, it is recommended that annual surveys are conducted both during and after the construction phase within the area designated as Detailed Study Area B, under a similar survey protocol to that described in this report.

Introduction

In the ACT the Superb Parrot is protected under section 21 of the ACT Nature Conservation Act 1980 and under the Federal Environment Protection and Biodiversity Conservation Act, 1999. Under both Acts the species is listed as Vulnerable. Both the Action Plan for the Superb Parrot under the Nature Conservation Act (ACT Government, 1999) and the Recovery Plan under the EPBC Act outline the threats, major conservation objectives and intended management actions.

Before 2005 the species was regarded as a 'rare visitor' in the ACT, see Canberra Ornithologists Group Annotated List http://canberrabirds.org.au/CheckList.htm but an influx in 2005 (Lashko, 2006), which has continued to date, has resulted in the species breeding in various locations in the ACT, in particular in the Mulligans Flat/ Goorooyarroo Nature Reserves and the Throsby area, Gungahlin in the north and in the central Molonglo Valley situated between the Molonglo River and the suburbs of Belconnen. It is possible that Superb Parrots used trees for breeding in the suburb of Harrison before the trees were cleared.

Because of concern about development in north Gungahlin, due to the lack of detail about the breeding distribution of the Superb Parrot within the area, the ACT Government approached the Canberra Ornithologists Group (COG) to conduct surveys in the area, see Davey 2010, 2011, 2013.

By September 2013 a determination had been made on more detailed planning for the suburb of Throsby; an area between the Mulligans Flat/ Goorooyarroo Nature Reserves to the north and bounded by Horse Park Drive to the south. An area known as Throsby Ridge, see Davey 2013, which had been surveyed in 2009-10 and again in 2010-11, was designated as urban development with an area set aside as a protection zone and delineated by a boundary such that no development would occur within 100m of an assumed Superb Parrot breeding location, see Umwelt 2013.

In mid-September 2013 the ACT Government again approached COG to resurvey Throsby Ridge where previous surveys had located a small population of breeding Superb Parrots. Concern had previously been expressed about the possibility of indirect impacts on the Superb Parrot breeding at Throsby Ridge, in particular caused by the proximity of urban development, Davey 2013. The 2012-13 survey of the area included an assessment against which the indirect threats to the Superb Parrot by hollow-nesting competitors could be compared before and after the development of Throsby.

The aims of the present survey were to

- Compare the breeding activity of the Superb Parrot at Throsby Ridge with previous years
- Confirm that Superb Parrots were not breeding in the area designated as urban development
- Repeat an assessment of hollow-nesting competitors and compare with the previous year.

To gain an understanding of what breeding activity may be occurring in the wider Throsby area, away from Throsby Ridge, Dr Michael Mulvaney and Mr Ian Baird of ACT Environment and Sustainable Development Directorate (ESDD) surveyed the proposed Throsby development area, the Throsby Neck and East Throsby offset areas and that part of Goorooyarroo Nature Reserve that is within 500m of either of the offset areas. Only the edges of the Throsby Ridge study area were inspected as this area was extensively surveyed by COG. The information from this survey is included to provide a more complete analysis of the 2013-14 breeding season, see Appendix I.

Methods

The study was undertaken for the Land Development Agency (LDA) and was in accordance with the following:

1. Survey of the Throsby Ridge Area will be once in mid-October, once in early November, once in mid to late November and once in early to mid-December (unless otherwise agreed);

2. Where deemed necessary on each of these four occasions survey will occur on two consecutive days.

3. All eucalypt trees within the study areas with a diameter greater than 30cm will be inspected and any Superb Parrot sightings and breeding activity recorded. Breeding activity can include any of the following:

    - A reluctance by either sex to leave the vicinity of a tree with suitable hollow nearby;
    - female or male observed entering or leaving a hollow;
    - copulation;
    - aggressive interactions between pairs with a potential nest hollow nearby;
    - a male 'on station' indicated by the presence of a lone bird perched quietly in a tree occasionally making a soft call with a possible nest hollow in the same or nearby tree; and
    - the feeding by adult birds of young with very short tails and limited capacity of flight with a possible breeding hollow in the same or nearby tree.

4. Within the core breeding area the number of birds displaying breeding activity will be recorded for the Common (Indian) Myna, Crimson Rosella, Eastern Rosella, Galah, Red-rumped Parrot and any corella species. An estimate of the abundance of these species within the core breeding area will be provided.

5. Within the core breeding area the frequency of interactions between Superb Parrots and hollow nesting competitors will be recorded for each morning of inspection.

6. The core breeding area will be intensively surveyed on foot by members walking up and down or by zigzagging across the designated area. A minimum of twenty five hours of survey must be undertaken.

7. In the report COG will document observed breeding behavioural characteristics including whether the species is observed outside of the survey area. A GPS locational reading will be recorded for all possible breeding sites.

8. The GPS location and direction of flight of any birds seen flying over, from or into the core breeding area will be provided.

9. The consultant will, to as far as possible, extract the data from the 2012-2013 season that relates to the core breeding area. Notes on the precision of this extraction will be provided.

In addition, the location of any ACT threatened bird observed during the survey will be recorded and any breeding activity noted. These birds include the Brown Treecreeper, Hooded Robin, White-winged Triller, Varied Sittella, Painted Honeyeater and Regent Honeyeater.

For the purpose of the survey the study area was divided into two sections, an area to the south designated for urban development and an area to the north designated as Detailed Study Area A. In mid-November after two surveys had been completed it was realised that two trees designated as possible breeding sites were incorrectly recorded in Table 3 in the 2010-11 Superb Parrot report, the location for Photo 8 should read 35^0 11' 39.7" 149^0 10' 8.7" whilst Photo 9 should read 35^0 11' 44.9" 149^0 10' 5.8", see Davey, 2011. This allowed the boundary to be redrawn, therefore reducing the size of Detailed Study Area A with the smaller area referred to as Detailed Study Area B, see Map 1.



Map 1. Survey areas and transects within the Throsby Ridge study area.

In 2012-13 the study area was covered by zig-zagging across the site. Although no specific transects were set out the number of paths across the area were the same for the 2012-13 and the 2013-14 survey. For the latter survey it was decided to set out permanent transect locations for better repeatability in future years, see Map 1 and Appendix II. The survey area was marked out with 13 transects, each transect starting and ending at a designated waypoint, with each transect approximately 80 m apart starting at waypoint 1 and ending at waypoints 26, the total length of the 13 transects was 8.7 km.

The study area was surveyed over four periods, three weeks apart. For the first two periods the survey was on a single day, for the final two surveys repeated observations on Superb Parrots and nesting competitors activity was recorded on a second day, see Table 1.

Table 1. Survey dates for the 2013-14 Superb Parrot survey at Throsby Ridge, Gungahlin

Date	Superb Parrots	Competitors	All species
16-Oct-13	y	y	y
7-Nov-13	y	y	y
27-Nov-13	y	y	y
28-Nov-13	y	y	
17-Dec-13	y	y	
18-Dec-13	y	y	y

For each period the breeding activity of Superb Parrots and nest competitors was noted and a geo-location taken of the area. In addition, the abundance of all other bird species was noted. Observers worked in pairs, one observer recording breeding activity the other recording the abundance of other species.

For the 2012-13 survey the number of species, other than Superb Parrots or breeding competitors, was recorded in the Throsby Ridge study area with no geo-locations taken. The definition of breeding activity for nest competitors was the same as that for Superb Parrots with the addition of territorial disputes.

During the 2013-14 survey the abundance of species other than Superb Parrots or breeding competitors was noted if the sightings were within the propose urban development area or within Detailed Survey Area A. Sightings within the Detailed Survey Area A and Detailed Survey Area B were not differentiated and no geo-locations taken. As with the 2012-13 survey, observations on the Superb Parrots and the assumed breeding sites of nest competitors were given a geo-location. It is, therefore, possible to compare the frequency of interactions between Superb Parrots and their competitors and the breeding activity of competitors within Detailed Survey Area B for the two survey periods, but it is not possible to compare the frequency of other species.

All effort was made to record activity within transects and not double count, but, with birds flying back and forth, some degree of double counting was inevitable. The abundance counts are therefore best regarded as an index for comparison.

As with previous surveys, the number of Superb Parrots using the study area was assessed. With individuals flying into and out of Harrison; some to the conservation area, other to Goorooyaroo and possibly beyond this was difficult. The estimate therefore was based on the maximum number of individuals using the area at any one time. Those individuals flying through the area were not regarded as 'using' the area.

As with previous years, the area was used for the lambing and grazing of sheep and surveys could not commence until the end of the lambing season in late September. In addition, cattle were also grazing the area and the grass height was much lower than on previous occasions.

There were 50 person hours involved in the field surveys. All surveys were conducted by the author and one other member of COG. All bird names are taken after Christidis and Boles (2008) and all photographs were taken by the author.

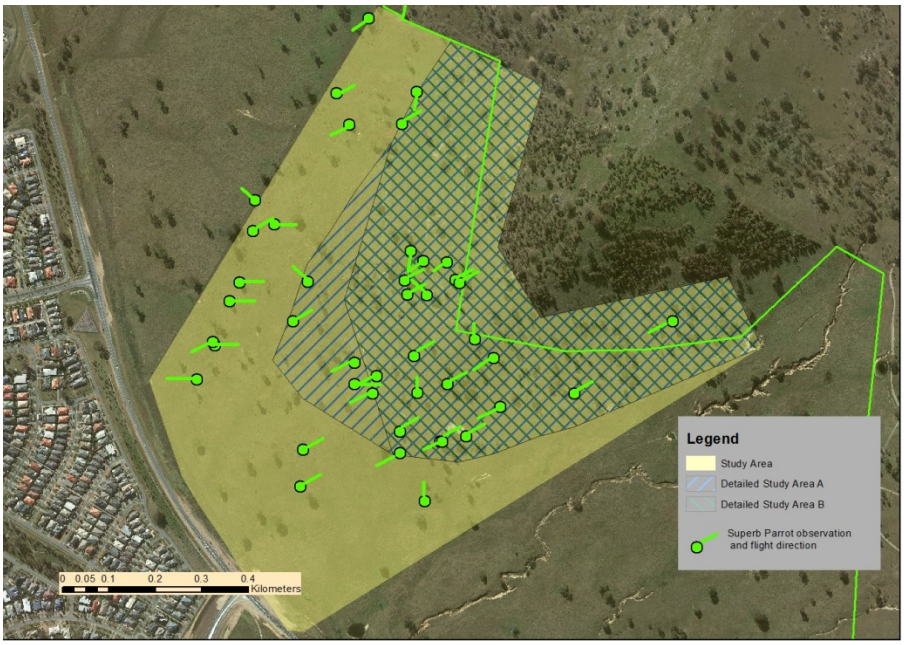
Results and discussion

Superb Parrots

Movement patterns

As in previous years virtually all movement consisted of birds flying into or departing the study area to Harrison, see Map 2. Similar to previous years there were only occasional indications that the Superb Parrots were feeding within the Throsby Ridge area. The number of birds flying over the area to Goorooyarroo or beyond was limited and not as marked as in previous years.

Movements within the area were similar to previous years. Typically birds would land, having flown in from Harrison, perch or chase each other or interact with other bird species and on occasions enter or defend tree hollows. In most cases, after a while the birds would then return to Harrison crossing Horse Park Drive. Unlike previous years there was a major flowering event of Yellow Box (*Eucalyptus melliodora*), Blakely's Red Gum (*E. blakelyi*), Scribbly Gum (*E. rossii*) and Broad-leaved Peppermint (*E. dives*) in the area but there was virtually no feeding seen on site.



Map 2. Location and flight direction of Superb Parrots over the Throsby Ridge study area during the 2013-14 breeding season. The flights between trees and within the general area are not shown.

Breeding observations

From six visits there were 18 records of birds showing signs of an intention to breed with seven repeat observations from three sites, see Table 2 and Appendix III for photos

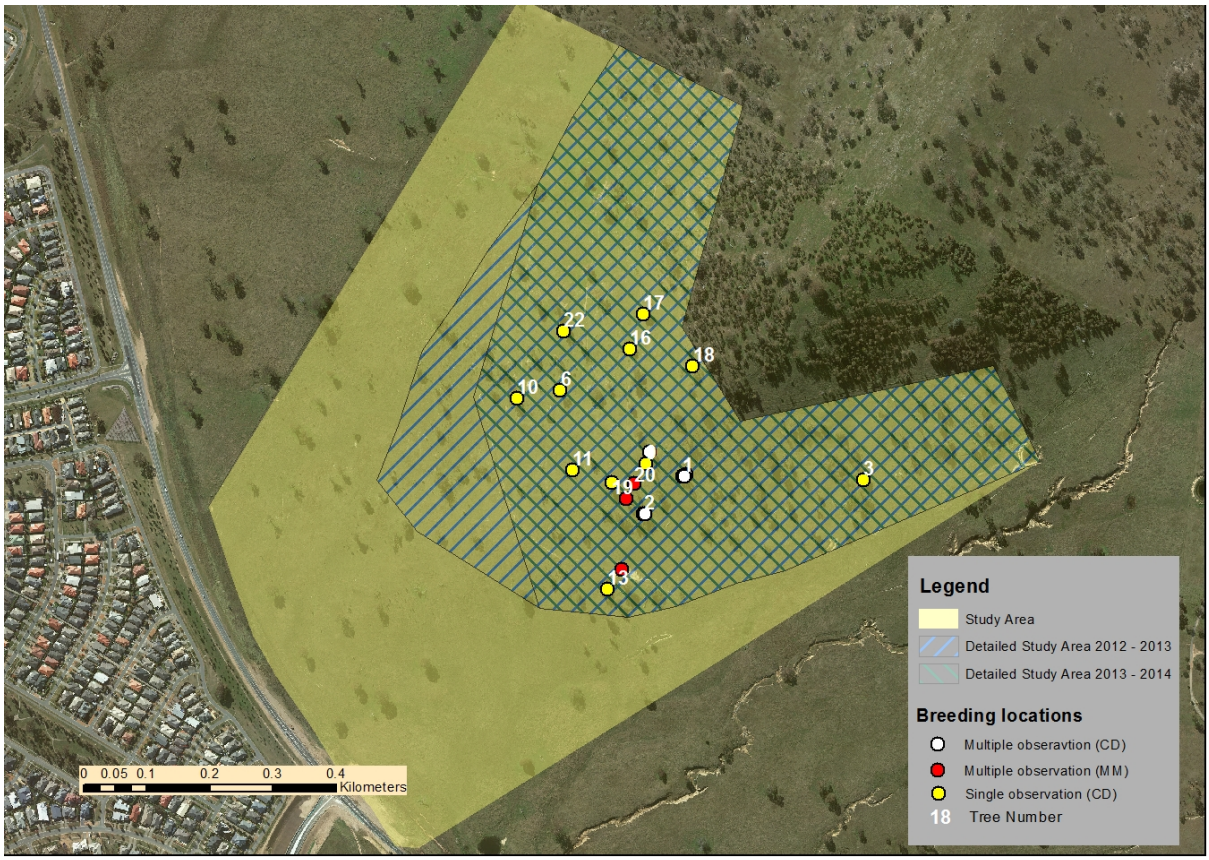
Table 2. Date of observation, location of tree species and observed behaviour of 14 possible breeding sites at Throsby Ridge and of 3 possible breeding sites within the wider Throsby area, Gungahlin, ACT. Numbers in brackets refer to photo numbers in Map 3 and Appendix III.

Date	Number	Location		Eastings	Northings	Tree type	Comments
7-Nov-13	1	55	H	697604	6103045	E. rossii	Territorial (# 2)
17-Dec-13	15	55	H	697606	6103045		Territorial
27-Nov-13	9	55	H	697666	6103105	E. rossii	(# 1)
28-Nov-13	14	55	H	697671	6103108		Leaving hollow
18-Dec-13	17	55	H	697668	6103105		On station
27-Nov-13	10	55	H	697614	6103143	E. rossii	Hollow inspect (# 7)
18-Dec-13	18	55	H	697614	6103143		Into hollow
7-Nov-13	2	55	H	697952	6103099	E. rossii	On station (#3)
27-Nov-13	3	55	H	697546	6102926	E. rossii	Hollow inspect (# 13)
27-Nov-13	4	55	H	697492	6103115	dead	Hollow inspect (# 11)
27-Nov-13	5	55	H	697479	6103334	E. rossii	Hollow inspect (# 22)
27-Nov-13	6	55	H	697472	6103242	E. rossii	Territorial (# 6)
27-Nov-13	7	55	H	697608	6103125	E. rossii	Hollow inspect (# 9)
27-Nov-13	8	55	H	697554	6103095	E. rossii	Hollow inspect (# 14)
27-Nov-13	11	55	H	697603	6103362	E. rossii	On station (# 17)
28-Nov-13	12	55	H	697403	6103228	E. blakelyi	Territorial (# 10)
28-Nov-13	13	55	H	697582	6103307	E. rossii	On station (# 16)
17-Dec-13	16	55	H	697682	6103280	E. rossii	Into hollow (# 18)

Date	Number	Location		Eastings	Northings	Tree type	Comments
21-Oct-13	19	55	H	697576	6103070	E. rossii	Hollow inspect (# 19)
21-Oct-13	23	55	H	697576	6103070		In/Out hollow
18-Nov-13	34	55	H	697589	6103094	E. rossi	Hollow inspect (# 20)
18-Nov-13	31	55	H	697576	6102884	E. rossii	Hollow inspect (# 21a/b)

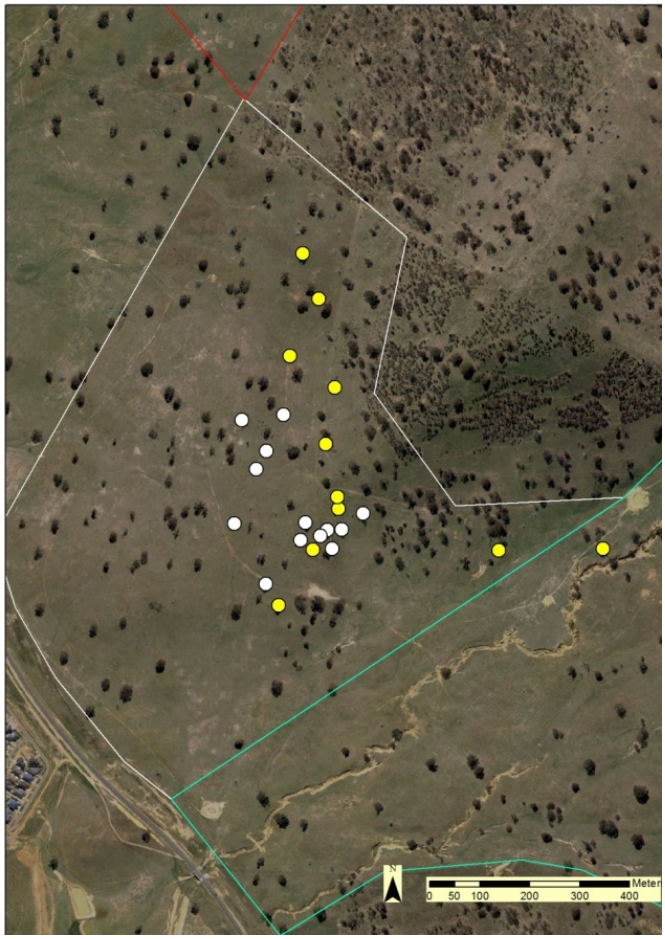
Note: Location provide by ESDD for site number 31 in Table 2 is approximately 20m from two trees both of which are E. rossii. The first tree is shown in photo #21a and is at location 55 H 697547 6102884, the second tree is shown in photo #21b and is at location 55 H 697566 6102906.

All observations were restricted to Detailed Survey Area B with no observations from the proposed urban development section, see Map 3.



Map 3. Location of 14 possible breeding sites recorded during the Throsby Ridge survey (white and yellow dots) and 3 sites (red dots) recorded during the wider Throsby area survey. Numbers refer to photo numbers.

During the2012-13 survey of Throsby Ridge there were 15 visits to the area with 50 records of birds showing an indication to breed. The more frequent visits allowed multiple observations at the same location with 39 records based around 13 trees with the remaining eleven records of single observations, see Map 4; a reprint from the 2012-13 report (Davey, 2013). Given the difference in the frequency of visits there were a similar number of breeding observations per visit for both breeding seasons with an estimated 8-10 possible breeding pairs.



Map 4. Location of 13 trees with multiple observations (white dots) and 11 trees with single observations (yellow dots) at Throsby Ridge, 2012-13.

Including observations from the ESDD survey the most frequently recorded breeding behaviour was of hollow inspecting and birds on station (n=14). There were four locations where Superb Parrots were seen entering or leaving a tree hollow.

As with the previous year, there were no observations of successful breeding. On no occasion were juvenile birds or begging young seen or heard in the area, however, due to the infrequent observations, a lack of records does not necessarily indicate that breeding was unsuccessful. Feeding at the site was very rarely seen and on emergence adults could well take their young to feed elsewhere, possibly into the suburbs (C. Davey *pers obs.*). The first recorded begging calls from young Superb Parrots in the Canberra suburbs was on 27 November (*C. Davey pers obs*).

During a quick visit to the area on 17th January to take photographs there were 5-7 Superb Parrots still in the area.

Interactions with nest competitors

The species most likely at Throsby Ridge to compete with the Superb Parrot for nesting resources are the Galah *Eolophus roseicapillus*, Little Corella *Cacatua sanguinea,* Crimson

Rosella *Platycercus elegans*, Eastern Rosella *P. eximius,* Red-rumped Parrot *Psephotus haematonotus* and Common Myna *Sturnus tristis*. Common Starlings *Sturnus vulgaris* were very common in the area and were not regarded as nest competitors because they appear to use smaller hollow entrances whilst the Sulphur-crested Cockatoo uses a hollow entrance larger that would be used by Superb Parrots.

Within the Throsby Ridge area, the number of competing species was estimated whilst transecting across the site. The data may be regarded as a relative index for comparison rather than as an indication of numbers. A record of the number of aggressive interactions between Superb Parrots and nesting competitors was recorded both within the study area and within Detailed Study Area B, see Table 3 and 4.

Table 3. Estimated number of Superb Parrots on each day of a survey period, estimated number of competitors on day of count of other species, total number of observed interactions between Superb Parrots and competitors, total number of competitor breeding observations and the total number of hours spent within the study area at Throsby Ridge.

TOTAL	Superb Parrot	Little Corella	Galah	Crimson Rosella	Eastern Rosella	Red-rumped Parrot	Common Myna	Time (hours)
16-Oct-13								
Number	17	3	11	43	24	14	9	5
Interactions		0	0	0	0	0	0	
Breeding		1	1	11	8	1	3	
7-Nov-13								
Number	48	2	33	42	42	13	3	5
Interactions		0	0	1	0	0	0	
Breeding		1	3	5	6	4	2	
27-Nov-13								
Number	38	4	29	44	49	25	8	5
Interactions		0	0	0	1	0	0	
Breeding		1	3	7	5	5	2	
28-Nov-13								
Number	28	n/a	n/a	n/a	n/a	n/a	n/a	5
Interactions		0	0	1	0	0	0	
Breeding		0	1	5	2	1	2	
17-Dec-13								
Number	20	n/a	n/a	n/a	n/a	n/a	n/a	5
Interactions		0	0	2	1	0	0	
Breeding		0	1	5	1	2	0	
18-Oct-13								
Number	22	1	16	18	14	3	4	5
Interactions		0	0	0	0	0	0	
Breeding		0	0	4	0	1	2	

Table 4. Estimated number of Superb Parrots on each day of a survey period, estimated number of competitors on day of count of other species, total number of observed interactions between Superb Parrots and competitors and total number of competitor breeding observations within the Detailed Study Area B, Throsby Ridge.

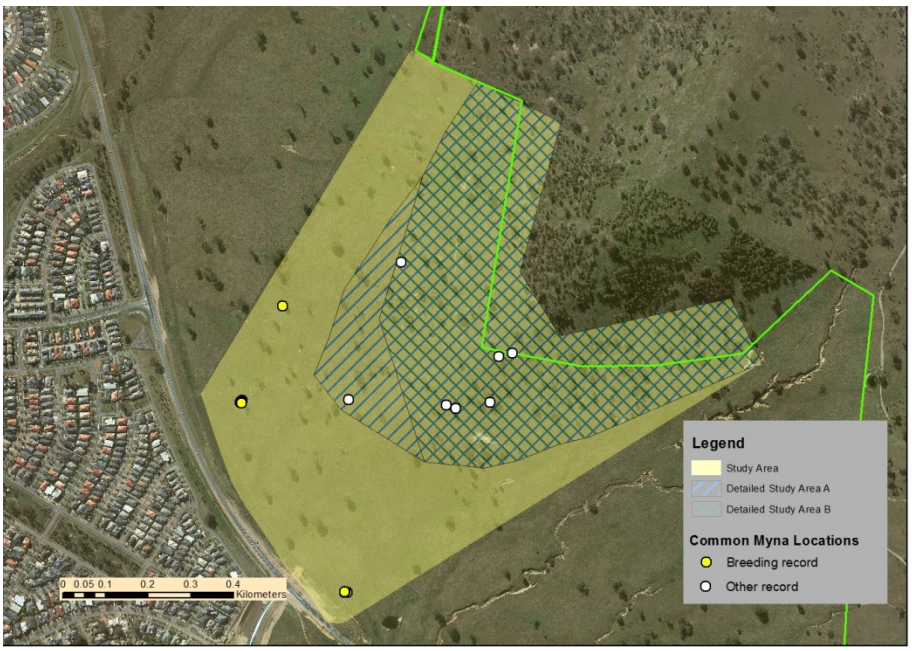
INSIDE	Superb Parrot	Little Corella	Galah	Crimson Rosella	Eastern Rosella	Red-rumped Parrot	Common Myna
16-Oct-13							
Number	12	3	7	30	20	8	2
Interactions		0	0	0	0	0	0
Breeding		1	0	8	7	1	0
7-Nov-13							
Number	16	2	15	27	38	6	0
Interactions		0	0	1	0	0	0
Breeding		1	1	2	5	3	0
27-Nov-13							
Number	15	1	27	32	39	19	2
Interactions		0	0	0	1	0	0
Breeding		1	2	7	5	3	0
28-Nov-13							
Number	13	n/a	n/a	n/a	n/a	n/a	n/a
Interactions		0	0	1	0	0	0
Breeding		0	1	4	1	1	0
17-Dec-13							
Number	13	n/a	n/a	n/a	n/a	n/a	n/a
Interactions		0	0	2	1	0	0
Breeding		0	1	5	1	1	0
18-Dec-13							
Number	12	1	11	14	9	1	0
Interactions		0	0	0	0	0	0
Breeding		0	0	4	0	0	0

Table 3 allows comparison with Table 3, p 15, see Davey, 2013 which, apart from Superb Parrot numbers concern the study area, whilst Table 4 provided information relevant to Detailed Study Area B and is provided as a bench mark for comparison with future surveys.

The number of Superb Parrots recorded in and over the study area varied reaching a peak in early November and then slowly declining, see Table 3. Within the Detailed Study Area B the numbers were lower but remained similar throughout the survey period. This difference would be due to a similar number of birds in Detailed Study Area B throughout, with a reduction in the number of birds flying through and over the study area. Compared with 2012-13, the numbers within the northern section of the study area were similar or slightly lower for the 2013-14 breeding season. The number of interactions between the

Superb Parrot and nesting competitors was much less in 2013-14 than the previous season yet numbers of competitors within the area was similar. Again, the main competitors appear to be the Crimson Rosella and the Eastern Rosella. Breeding behaviour was observed in all competing species with the most frequently recorded behaviours from the Crimson Rosella and the Eastern Rosella.

In the case of the Common Myna, breeding behaviour was recorded at the edge of the Ridge bordering Horse Park Drive, see Map 5, but birds were also recorded feeding on the ground amongst cattle. It is probable that cattle in the area and the short grass encouraged the Common Myna to move further into the area to feed on disturbed invertebrates.



Map 5. Location of observations of Common Myna at Throsby Ridge, Gungahlin, ACT.

Other bird species

Forty-nine bird species were recorded within the study area, see Table 5. This compares with 73 the previous year which covered a larger area and a greater number of surveys. Apart from the Superb Parrot, the White-winged Triller, *Lalage sueurii* and the Varied Sittella, *Daphoenositta chrysoptera* were the only other threatened species recorded. Of the 49 species, 20 were only recorded within Detailed Study Area A, this included the White-winged Triller and the Varied Sittella with three never recorded within Detailed Study Area A. One species, the Common Myna was more frequently recorded outside Detailed Study Area A whilst nine species were more likely to be recorded within Detailed Study Area A than in the proposed development area. The remaining 16 showed no particular preference.

Species not recorded in 2012-13 include the Red-capped Robin *Petroica goodenovii*, White-browed Woodswallow *Artamus superciliosus,* Varied Sittella, Shining Bronze-cuckoo *Chalcites lucidus*, Tawny Frogmouth (breeding) *Podargus strigoides* and Little Raven *Corvus mellori*; all, apart from the Little Raven, were restricted to Detailed Study Area A.

Table 5. Bird species and dates of observation during the 2013-14 survey at Throsby Ridge, Gungahlin, ACT. Numbers labelled as 'Total' refer to the entire study area. 'Percentage inside' is the number observed within Detailed Study Area A.

Bold, threatened species

Survey date	16-Oct		7 - Nov		27-Nov		18-Dec	
	Total	% inside	Total	% inside	Total	% inside	Total	% inside
Australian Wood Duck							10	0.00
Crested Pigeon	1	100.00	1	0.00	2	100.00	2	0.00
Tawny Frogmouth					4	100.00		
White-faced Heron			1	100.00	1	0.00	2	100.00
Australian White Ibis			1	100.00				
Straw-necked Ibis	200	0.00	4	0.00				
Brown Falcon					1	100.00		
Wedge-tailed Eagle					1	100.00		
Nankeen Kestrel	1	100.00	1	100.00	1	100.00	4	100.00
Masked Lapwing			2	100.00				
Galah	11	63.64	33	45.45	29	93.10	16	68.75
Long-billed Corella					1	100.00		
Little Corella	3	100.00	2	100.00	4	25.00	1	100.00
Sulphur-crested Cockatoo	10	50.00	21	80.95	24	83.33	29	55.17
Superb Parrot	17	82.35	48	68.75	38	57.89	22	77.27
Crimson Rosella	43	69.77	42	64.29	44	72.73	18	77.78
Eastern Rosella	24	83.33	42	90.48	49	79.59	14	64.29
Red-rumped Parrot	14	57.14	13	46.15	25	76.00	3	33.33
Palid Cuckoo	1	100.00	1	100.00	1	0.00		
Shining Bronze-cuckoo					1	100.00		
Weebill			4	75.00	12	100.00	6	100.00
White-throated Gerygone	1	100.00	1	100.00	1	100.00		
Yellow-rumped Thornbill	8	0.00	8	0.00	15	73.33	25	100.00
Buff-rumped Thornbill	4	0.00	9	44.44			4	100.00
Southern Whiteface			2	100.00			2	100.00
Spotted Pardalote							2	100.00
Striated Pardalote	15	66.67	30	50.00	24	87.50	25	92.00
Noisy Miner	4	25.00	3	33.33	4	100.00	10	60.00
Red Wattlebird	4	50.00						
Noisy Friarbird	10	0.00	4	0.00	4	50.00	1	100.00
Varied Sittella			2	100.00				

Black-faced Cuckoo-shrike	1	100.00	2	50.00	5	100.00	1	0.00
White-winged Triller			2	100.00	11	100.00	1	100.00
Rufous Whistler	1	100.00	2	100.00				
Grey Shrike-thrush			1	100.00				
White-browed Woodswallow					51	100.00	2	100.00
Australian Magpie	10	80.00	19	78.95	19	52.63	19	57.89
Grey Fantail	1	100.00	6	100.00	2	100.00	1	100.00
Willie Wagtail	1	100.00	2	100.00	1	100.00		
Australian Raven	3	0.00	5	80.00	6	16.67	9	77.78
Little Raven	8	0.00	8	100.00				
Magpie Lark	2	100.00	1	0.00			3	100.00
Red-capped Robin							1	100.00
Welcome Swallow	2	0.00	2	0.00				
Tree Martin	10	100.00	16	75.00	18	88.89	33	87.88
Common Starling	85	70.59	55	41.82	119	73.95	77	32.47
Common Myna	9	22.22	3	0.00	8	25.00	4	0.00
Mistletoebird	1	100.00	1	100.00			4	100.00
Australasian Pipit	1	0.00	2	0.00			1	100.00

Recommendations

Recommendation 1

Surveys should be conducted within Detailed Study Area B in a similar manner to that of 2013-14. The same transect lines should be surveyed over four periods between mid-October and mid-December, each period over two consecutive days.

Recommendation 2

The location and frequency of all nesting behaviours of the Superb Parrot and the frequency of breeding behaviours of competitors and their interactions with Superb Parrots should be noted. These data can then be compared with Table 4 in this report. Although of interest, it would not be necessary to enumerate the abundance of all species other than Superb Parrots and their nest competitors.

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References

Christidis, L. and Boles, W. (2008). Systematics and taxonomy of Australian Birds. CSIRO.

Davey, C. (2010). Report on the distribution, abundance and breeding status of the Superb Parrot *(Polytelis swainsonii)* during the 2009-10 breeding season, Gungahlin ACT. Prepared for the Canberra Ornithologists Group.

Davey, C. (2011) Report on the distribution, abundance and breeding status of the Superb Parrot *(Polytelis swainsonii)* during the 2010-11 breeding season, Gungahlin ACT. Prepared for the Canberra Ornithologists Group.

Davey, C. (2013). Report on the distribution, abundance and breeding status of the Superb Parrot *(Polytelis swainsonii)* during the 2012-13 breeding season, Throsby Neck, Throsby Ridge and East Throsby, ACT. Prepared for the Canberra Ornithologists Group.

Lashko, S. (2006). A Superb Summer: An influx of Superb Parrots into Belconnen in 2005-06. *Canberra Bird Notes* 31: 142-146.

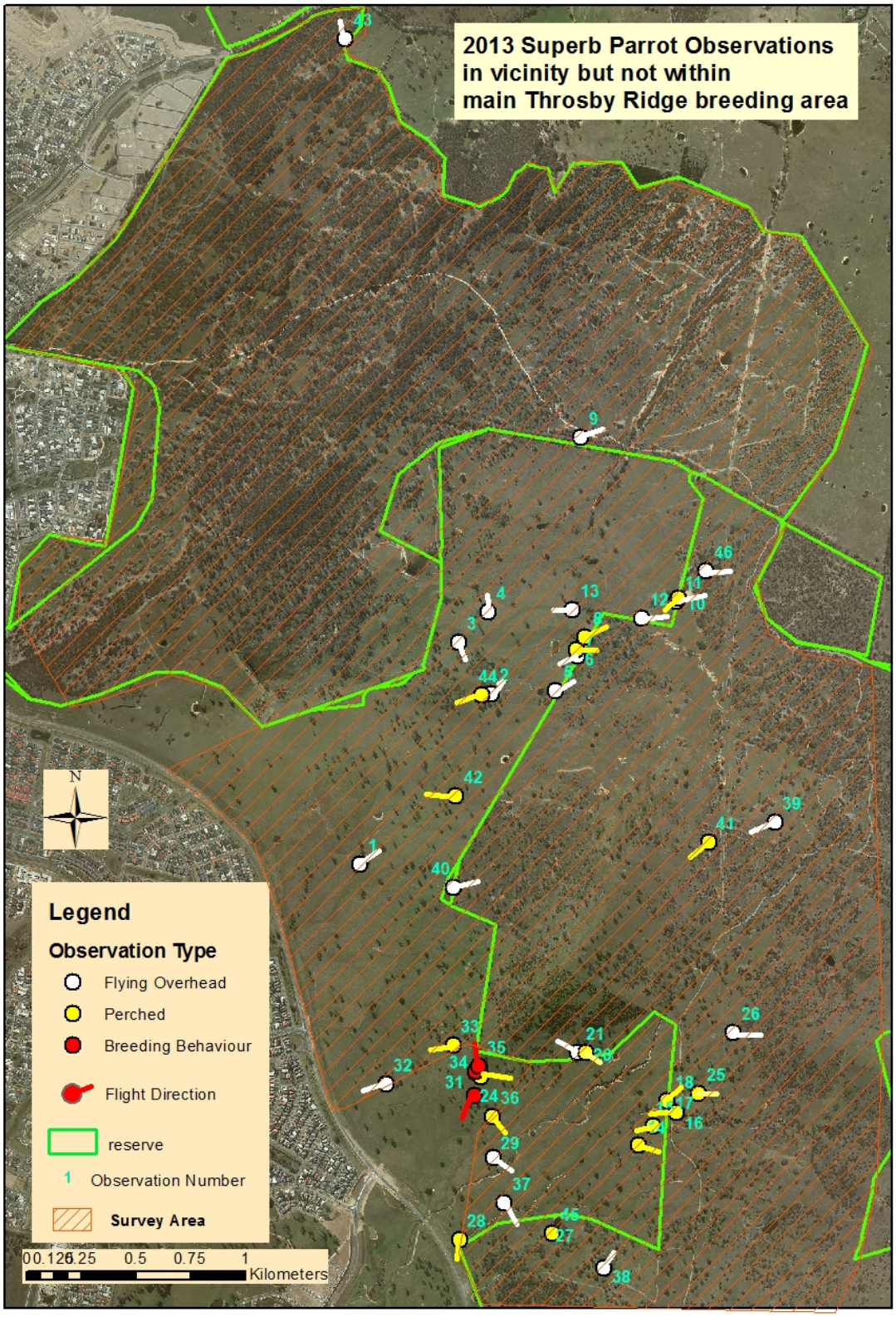
Umwelt (2013). Gungahlin Strategic Assessment Biodiversity Plan. ACT Economic Development Directorate and Umwelt (Australia) Pty Ltd.

Appendix I. Summary of Superb Parrot survey in the wider Throsby area, October-November 2013.

All eucalypt trees within the survey area with diameter greater than 30cm were inspected and any Superb Parrot sightings and breeding activity recorded. The areas were inspected twice either on 18 or 21 October 2013 and then again on either the 18 or 22 of November 2013. Four observations of breeding activity see Table 1 and Map 1, 18 observations of birds perching and 18 observations of birds flying overhead were made. The direction in which birds were flying, or moved after perching was recorded. The breeding observations were either within or close to the Throsby Ridge area. The only records within the proposed development area were two separate birds flying overhead. Most of the observations were made in the offset areas. In addition, Jenny Bounds provided five records of Superb Parrot activity observed during bird survey at ANU WG108 survey point in Goorooyarroo on 22 October 2013, or the Mulligan's Flat bio-blitz on 26-27 October 2013, or the Mulligan's Flat COG woodland survey on 1 December 2013 or the Goorooyarroo COG woodland survey on 8 December 2013. Josh Wellington provided one recorded of Superb Parrots flying overhead, observed while he was undertaking a reptile survey on 20 November 2011, within Goorooyarroo.

Table 1. Breeding records of Superb Parrots observed during the ESDD surveys within the wider Throsby area. Observers: Dr. Michael Mulvaney (MM) and Ian Baird (IB).

ID	Birds Observed	Location		X	Y	Behaviour	Date	Observer
19	1 male + 1 female pair same birds	55	H	697576	6103070	flew in from neighbouring tree. In tree for 5 minutes female inspected one hollow and entered another for a short time. Female tail in good non-tattered condition **Observed breeding behaviour**	21/10/2013	MM
23	1 Male (same as above) + 1 female	55	H	697576	6103070	Male flew in from neighbouring tree enetered hollow - female and male shortly emerged from hollow. Male fed female. **Nest Tree**	21/10/2013	MM
31	1 male + 1 female pair	55	H	697576	6102884	Pair returned calling continuously. The female bird gave an alarm call before alighting and both perched in tree overhead. One bird inspected a hollow. **Nest Tree**	18/11/2013	IB
34	4 brds, 1 female, 3 imm.	55	H	697589	6103094	Perched in Red Gum, tree had many dead limbs and hollows. Female inspected a hollow. Superb parrots quarrelsome, chased pair of eastern rosellas away **Nest Tree**	18/11/2013	IB



Map 1. Location of observations and flying direction of Superb Parrots observed during the ESDD survey from the wider Throsby area.

Appendix II. Location and distance of 13 transects at Throsby Ridge, Gungahlin, ACT.

Waypoint	Location		Easting	Northing	Transect number	Length (m)
1	55	H	697307	6102539	1	
2	55	H	696945	6103099	1	660
3	55	H	696968	6103148	2	
4	55	H	697378	6102565	2	710
5	55	H	697453	6102622	3	
6	55	H	697013	6103208	3	730
7	55	H	697047	6103266	4	
8	55	H	697512	6102683	4	740
9	55	H	697576	6102715	5	
10	55	H	697091	6103336	5	770
11	55	H	697142	6103443	6	
12	55	H	697656	6102778	6	830
13	55	H	697708	6102811	7	
14	55	H	697197	6103522	7	860
15	55	H	697244	6103613	8	
16	55	H	697788	6102883	8	900
17	55	H	697854	6102919	9	
18	55	H	697677	6103139	9	280
19	55	H	697599	6103399	10	
20	55	H	697304	6103698	10	410
21	55	H	697339	6103775	11	
22	55	H	697626	6103584	11	340
23	55	H	697699	6103702	12	
24	55	H	698190	6103223	12	1070
25	55	H	698172	6103106	13	
26	55	H	697786	6103053	13	390

Appendix III. Photos of trees in which breeding behaviour was observed at the Throsby Ridge study area, Gungahlin, ACT.



Picture 2



Picture 1



Picture 7



Picture 3



Picture 13



Picture 11



Picture 22



Picture 6



Picture 9



Picture 14



Picture 17



Picture 10



Picture 16



Picture 18



Picture 19



Picture 20



Picture 21a



Picture 21b