

## **B.5 2014 SUPERB PARROT FLIGHT PATH MAPPING SURVEYS**

NGH Environmental (2015a).



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Dear Richard,

**YASS VALLEY WIND FARM – SUPERB PARROT 2014 SPRING SURVEY RESULTS**

This letter is an updated summary and supporting documentation of the methods employed and results obtained for the 2014 Spring Survey of Superb Parrots conducted at the Yass Valley Wind Farm site from the 24 - 27 November 2014. Included with this letter are maps detailing the survey locations and the survey results, provided at **Attachment A, B and C** respectively.

The Superb Parrot surveys described in this letter were completed in order to document local movement patterns in relation to proposed turbine sites, including high use flight paths, habitat use across the site and flight height data. These surveys were specifically undertaken to meet the requirements of the audit undertaken by NGH Environmental in October 2014, and as per our commitments included in our proposal to you dated 7 November 2014.

If you have any questions regarding the information presented, please do not hesitate to contact me.

Yours sincerely,

Nick Graham-Higgs  
Director

# SURVEY METHODOLOGY

The survey design and data collection were conducted according to methodology included in our proposal to you of 7 November 2014, and described further below for your reference.

## Survey method

Superb parrot transect survey methods, as used at the Rye Park Wind Farm (developed in collaboration with OEH) would be used as follows:

### *Location of Surveys*

- The transects proposed will target areas of potential habitat within or near to the proposed impact areas at the Coppabella precinct. The location of the transects are provided at **Attachments B and C**.
- The areas targeted for survey would include both low and higher quality habitat. Site selection has been prioritised to capture the following:
  - Typical Superb Parrot habitat (i.e. Box Gum Woodland, Derived Grassland and pasture with scattered tree habitat), while also surveying some 'atypical habitat' (i.e. dry grass forest);
  - Larger remnant habitat with good connectivity in proposed impact areas;
  - Areas where Superb Parrots have previously been recorded;
  - Sites along the length of the wind farm, but also near turbines;
  - Sites to the west of the wind farm near known records and in closer proximity to potential foraging grounds (cropping paddocks)
  - To allow some sites to be surveyed to the west and east of a turbine simultaneously.

### *Survey method*

- A 1 km transect will be walked for each survey. The 1 km transect line will be walked in 1 hour, counting any Superb Parrots within 250m in front and perpendicular to the transect line as per the method detailed by OEH (pers. comm. Damon Oliver, September 2013). Refer to Attachment D for full methodology details.
- All transect surveys will be conducted from sunrise until no later than 10 am.
- Where possible, transect surveys will be undertaken simultaneously either side of the same ridge where turbines are proposed.
- General bird utilisation surveys will be undertaken at turbine sites on ridge tops near to transect survey locations. Where possible, utilisation and transect surveys will be undertaken generally within the same area and at the same time to cross-reference data to determine if birds observed down-slope were also observed higher on the ridges to determine local movements and potential flight paths.
- Opportunistic surveys and/or sightings of birds will be recorded, including notes on habitat use and flight patterns (where possible).
- If Superb Parrots are observed regularly in any area or a potential flight path becomes apparent as a result of transect surveys, further flight path mapping surveys will be conducted in these areas with the intent to record movement, regularly used flyways, and flight height.
  - A team of observers will be stationed along the potential flight path at the same time to record movement. It is anticipated team members would be approximately 250m apart; however spacing will be dependent on terrain and distance of visibility.

- Flight path mapping surveys would be undertaken from sunrise until no later than 10am and again in the afternoon at 2 pm to sunset. These surveys were conducted after the initial (17) population monitoring transect surveys were completed; however, if parrots were detected opportunistically outside of the timed transect surveys, or outside of the site during general movement around the properties, then notes were collected on the movement patterns (where possible) and included in the results summaries provided in Table 1.
- In addition to the targeted surveys for the Superb Parrot, as per our proposal, anecdotal records will also be collected for all other bird species observed within or very near to the site. The findings of these additional survey records are presented in **Attachment E** including the number of times each species was recorded (from a total possible 21 independent survey events, as well as opportunistic records made whilst travelling about the study area.

#### **Survey timing and effort**

- Surveys were undertaken in late Spring, from the 25<sup>th</sup> and 27<sup>th</sup> of November 2014 inclusive.
- A total of 17 x 1 km transects at 1 (person) hour each were undertaken. Note that transects were undertaken by 2 people, starting at either end of the 1km transect, and taking 0.5 hours each to reach the mid-point. Transects were (predominantly) undertaken by 6 people in 3 teams of 2 people.
- A total of 4 Flight Path Mapping Surveys (labelled Sites 1 to 4 in the accompanying maps, and described in Table 2) were undertaken.

#### **Survey personnel**

The Superb Parrot surveys, including flight path mapping, was undertaken by experienced sub-contractors and included:

- Rena Goborov
- Frank Bird
- Claire McCall
- Tamara Leitch
- Patrick Taggart
- Inka Veltheim

All of these personnel are experienced in and suitably qualified for conducting the surveys described above.



## INTERPRETATION OF RESULTS

We present below a tabulated summary and brief written assessment of the findings of the Superb Parrot surveys. Maps of the recorded observations and plotted flight paths are presented in **Attachments A to C**.

### Population Monitoring Results

The Superb Parrot was observed only once during the course of the 17 transect surveys conducted at the wind farm site from the 25 November to the 27<sup>th</sup> November 2014 (inclusive). This record included an observation of 3 birds at Transect 12 on the 26/11/2014 at 18.45h. Three Superb Parrots were observed on-site during opportunistic observations (see below).

For ease of reference and formatting, this record has been included as Observation Reference Point G in Table 1 below (note: For the final report we will include a summary table of the location and timing of each transect survey conducted).

### Opportunistic Records of the Superb Parrot

The opportunistic records made of Superb Parrots in or near the study site (and outside of the timed surveys) were collected and are presented in Table 1 below (note that for ease of reference, this includes the 3 birds observed at Transect 12, identified as Observation Reference Point G).

Table 1. Summary Results of the Opportunistic Records of Superb Parrots at Yass Valley

Observation Ref Point	Date & Time	Site Location*	No. Individuals	Microhabitat Type	Additional Comments
<b>A</b>	25/11/2014 19.26hrs	OFFSITE 634661 6150957	3	Observed in Live and Dead Trees	Male was observed feeding in flowering eucalyptus. Females were observed in nearby stage dead tree. No height or directional flight data recorded.
<b>B</b>	26/11/2014 11.01hrs	OFFSITE 643432 6149686	1	Observed flying above the canopy.	Birds was seen along Whitefields Rd, flying approximately 8-10m above small trees (no directional data recorded).
<b>C</b>	26/11/2014 13.10hrs	OFFSITE 634620 6151118	6	Observed in Live Tree, Low Shrubs (Mid and Lower Canopy)	Individuals observed in live tree.
<b>D</b>	26/11/2014 18.55hrs	OFFSITE 644971 6160958	250 (approx.)	Observed in Live and Dead Trees and on the ground	Observed in Canola Paddock north of Garryowen Rd, with some individuals also seen using nearby live eucalyptus and dead stag trees. Most of the flock was seen to fly off to SE in groups of up to 35 birds, with some flying off to the S and SW. Flight height was generally about 10m.
<b>E</b>	26/11/2014 19.20hrs	OFFSITE 636062 6149400	10	Observed in Live and Dead Trees	Birds were seen along Coppabella Rd, in the Cootamundra and Black Wattle Revegetation Corridor (possibly eating). 4 birds seen to fly in from the E (at 6m height). 1 bird flew away to the SE (at about 40m height), and other 9 birds flew away to the North (at 6-8m height).
<b>F</b>	27/11/2014 19.39hrs	OFFSITE 645788 6146972	6	Observed flying above the canopy.	Birds were observed flying in a SSE direction toward Hume Fwy
<b>G</b> "Transect 12"	26/11/2014 18.45hrs	ONSITE 637273 6152054	3	Observed flying above the ground.	Observed 430m from start point, flying in a SSW direction, approximately 15-20m in height above a grassed paddock.
<b>H</b>	28/11/2014 10.00	OFFSITE 652247 615684	13	Observed resting briefly in Dead Stag Trees	Birds seen near intersection of Illalong Rd & Burley Griffin Way. 13 birds arrived from West, stopped in Stag Trees. 11 flew away in SSW direction and other 2 birds flew away in NE direction, all at about 8m in height.

\*Coordinates given as GDA94 (55H)

A total of 7 opportunistic records were made (noting that Observation Reference Point G was made during a timed survey at Transect 12, and thus was not opportunistic). All of the seven opportunistic records were made outside of the study site area.

The largest number of birds seen during these opportunistic observations was 250 birds at Garryowen Rd, more than 5km north of the site. Apart from this observation, most other records were of much smaller flocks (13 birds were seen in the second largest recorded flock, observed at Illalong Rd and Burley Griffin Way, approximately 7km to the northeast of the site), or as an individual.

The most frequent opportunistic records of Superb Parrots outside of the study site were made to the southwest of the site

There was no observable trend in microhabitat use, with birds found in both trees, as well as seen feeding in open paddocks. Additionally, the birds did not display any trend or strong preference for broader habitat areas, such as low-lying paddocks, slopes or ridgelines.

With regard to observed flight patterns recorded during these opportunistic observations, of the eight observations included in table 1 above, only six of the records included flight height records, revealing that the maximum flying height observed was 40m, and the median height was 8m. Only five of these observations included a record of the direction that flights were observed, with no obvious trend apparent, including flights to the N, NE, S, SE and SW.

The location and directional flight pattern of the records included in Table 1 are provided in **Attachment A**, with the exception of Observation Reference Point H, which is outside of the view window of the map (note that further zooming out of the map would reduce the legibility of the map and so was not shown. See below for a further description of this map).

### ***Flight Path Mapping Results***

The Flight Path Mapping Survey results are provided in Table 2 below, including a summary of all four survey sites (as labelled Sites 1 to 4 in Attachment A), regardless of whether the species was recorded or not.

Table 2. Summary Results of the Flight Path Mapping of Superb Parrots at Yass Valley

<b>FPMS Site &amp; Name</b>	<b>Date &amp; Time</b>	<b>Site Locations</b>	<b>No. SP Observed</b>	<b>Flight Height</b>	<b>Flight Direction and Microhabitat Use</b>
Site 1 "Coppabella 1" 5 Observers	27/11/2014 07.45hrs to 08.45hrs	637730/6152671 637376/6152047 638086/6152207 639090/6152416 638123/6153103	1	8m (Inka) 18-30m (Rena)	Male SP (same bird was recorded by two observers) seen flying from WSW to ENE. Bird was first seen flying through minor Box Gum Woodland near creekline with some scattered rocky outcrops, (with no flowering trees or shrubs), then across more open paddock to second observation point, where it then flew approx. 150-200 to tree at 18m height, before flying off to SE at 30m height towards flats and then out of sight.
Site 2 "Coppabella 2" 4 Observers	28/11/2014 07.45hrs to 08.55hrs	637739/6152974 638086/6152207 637430/6152057 Note: GPS missing for 4 <sup>th</sup> observer.	0	N/A	N/A
Site 3 "East Side 1" 6 Observers	27/11/2014 18.00hrs to 19.20hrs	645820/6149780 644733/6152600 644734/6150745 644738/6153458 645066/6150197 644751/6150491	0	N/A	N/A
Site 4 "East Side 2" 2 Observers	28/11/2014 08.05hrs to 09.05hrs	644240/6150605 643796/6149647	0	N/A	N/A

The flight path of the single individual recorded on 27/11/2014 was noted to fly generally from the WSW to the ENE before turning away from the site to the SE, and flying at a height of between 8 and 30m, occasional stopping in trees, with one single flight recorded between trees with a distance of about 150 to 200m length. This flight is plotted as a Blue Line in **Attachment A**.

#### **Summary Description of Mapped Results at Attachment A**

Note that the flight paths shown in **Attachment A** (*Superb Parrot Survey Effort and Results Index Map*) include both the observation made specifically during the course of the Flight Path Mapping Surveys (in Table 2 above, and shown as a thicker Blue Line in the map), as well as the observed flight patterns noted and recorded during the opportunistic surveys (in Table 1 above, and shown as Pink Lines. The arrows are pointing in the observed direction of flight.

#### **Summary of Records of Other Species at Attachment E**

A total of 67 species (not including the Superb Parrot) were recorded within the broader study area during the three study period for the Superb Parrot. Most of these species are relatively common species, although a number of species listed as Vulnerable under NSW Threatened Species Conservation Act 1995 were recorded, including the Brown Treecreeper, Diamond Firetail, Hooded Robin, Little Eagle, Turquoise Parrot, and the Varied Sittella. In addition, three species were recorded that are listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* as either Marine (s248) or Migratory (s209) species, including the Australasian (Richard's) Pipit, Black-faced Cuckoo-shrike, Little Raven, Magpie Lark, Nankeen Kestrel, Rainbow Bee-eater, Sacred kingfisher, Silvereye, Tree Martin and the Welcome swallow

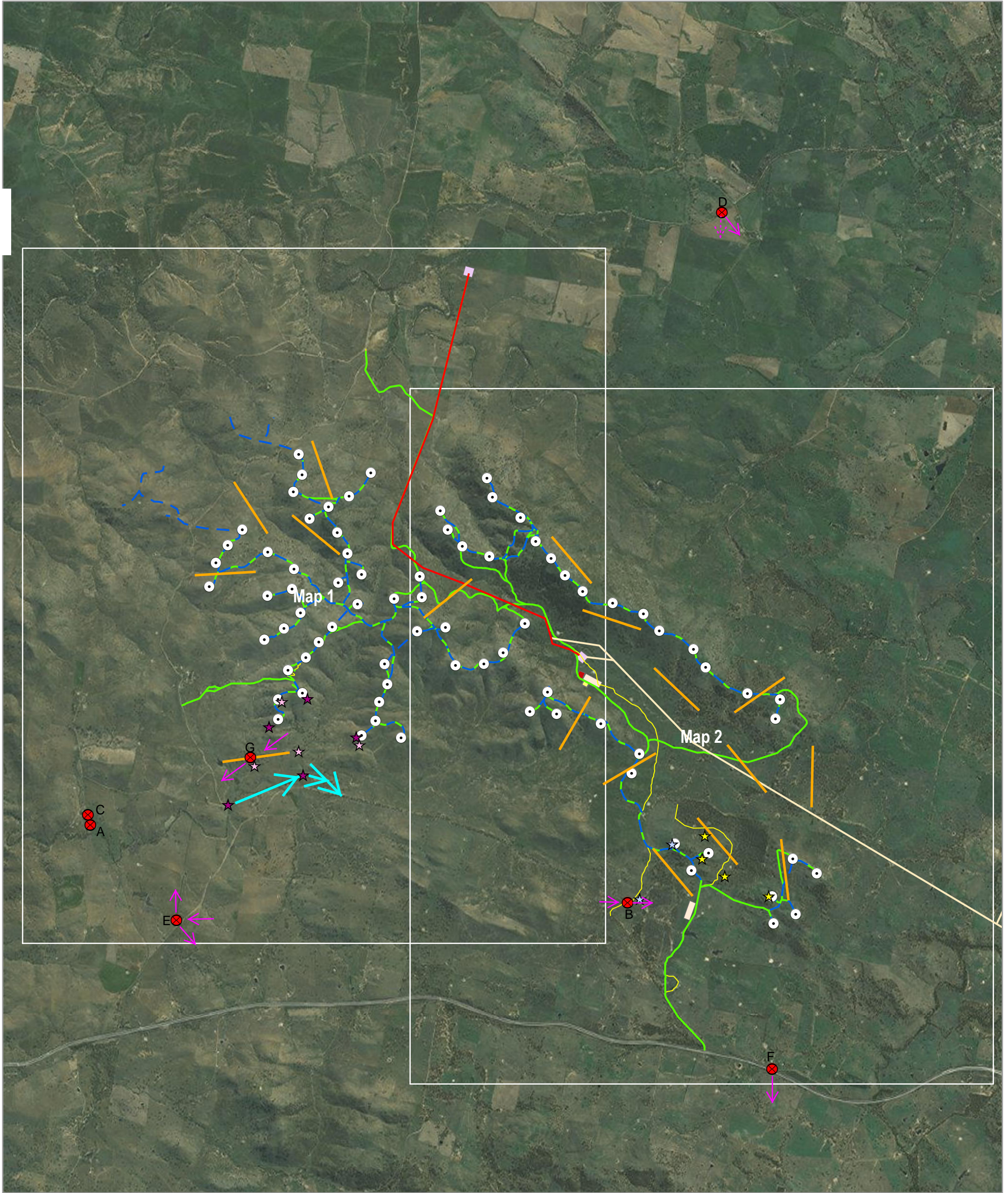
## **CONCLUSION**

In summary, this survey involved a period of 4 consecutive days during which visual observations were taken by environmental professionals who specifically focused on identifying the presence and movement of superb parrots in close proximity to the turbine sites for the proposed Yass Valley Wind Farm. Observations were taken from transects distributed across the development area and over the survey period only 3 superb parrots were sighted along one particular transect, and these birds were seen about 750 metres from a proposed turbine site. On this occasion, the birds were flying away from the development area, at a height of up to 20m. It is not known if these birds flew over the development area. During the survey, opportunistic sightings were also recorded of any superb parrots outside of the development area and about 290 superb parrots were seen. One of these observations involved a sighting of approximately 250 superb parrots in a paddock containing a canola crop located several kilometres to the north of the development area. All of the other opportunistic sightings involved birds to the south of the development area. The results of this survey provide that;

1. Superb Parrots were active in the local area.
2. No flight paths were recorded over the development area

# ATTACHMENT A – SUPERB PARROT SURVEY EFFORT AND RESULTS INDEX MAP





# **SUPERB PARROT SURVEY EFFORT AND RESULTS INDEX MAP**

## **Yass Valley Wind Farm Spring Surveys**

- Turbine location
- 132kV Powerline
- 330kV Powerline
- Underground cabling
- Access tracks (proposed)
- Access tracks (existing)
- Batch Plant
- Construction compound
- O&M building
- Superb Parrot transect
- Superb Parrot observation
- Superb Parrot viewing sites:
  - ★ Site 1 = FPMS #1
  - ★ Site 2 = FPMS #2
  - ★ Site 3 = FPMS #3
  - ★ Site 4 = FPMS #4
- ↗ Observed Flight Path (Opportunistic)
- ↗ Observed Flight Path (from Flight Path Mapping Site)
- A-F = Observation Number (from Table 1 of Report)

**Notes:**  
 - Superb Parrot data collected by nghenvironmental, 2014  
 - Turbines, access tracks and powerlines data courtesy of Epuron, received 2014  
 - Base map Copyright © Esri and its data suppliers.

0
0.5
1 Kilometres

A3 @ 1:60000  
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Author: JB

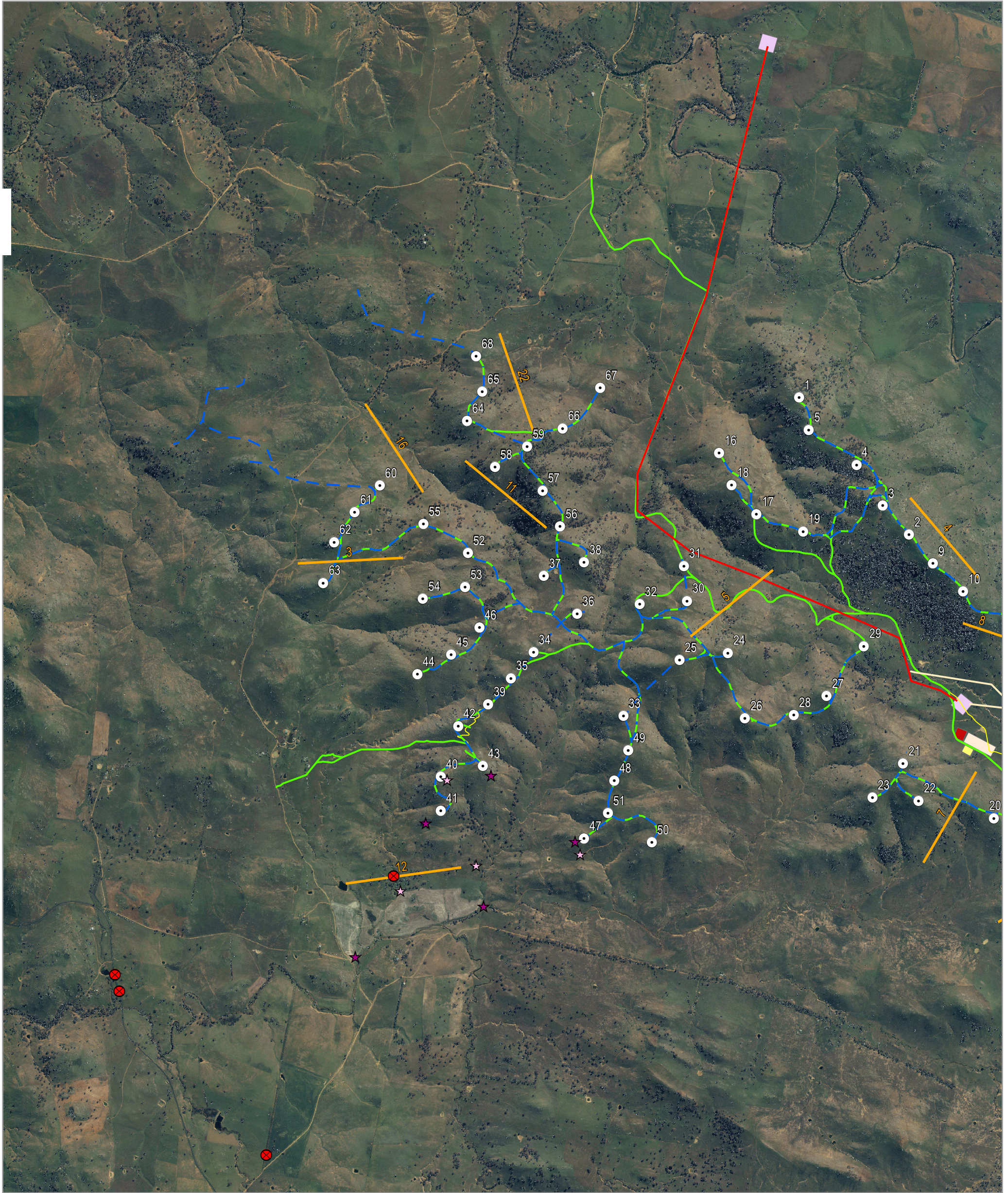
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# ATTACHMENT B - SUPERB PARROT SURVEY EFFORT AND RESULTS MAP 1





SUPERB PARROT SURVEY EFFORT AND RESULTS Map 1

Yass Valley Wind Farm Spring Surveys

- Turbine location
- 132kV Powerline
- 330kV Powerline
- Underground cabling
- Access tracks (proposed)
- Access tracks (existing)
- Batch Plant
- Construction compound
- O&M building
- Superb Parrot transect
- ⊗ Superb Parrot observation
- ★ Superb Parrot viewing sites
- ★ Site 1
- ★ Site 2

Notes:  
 - Superb Parrot data collected by nghenvironmental, 2014  
 - Turbines, access tracks and powerlines data courtesy of Epuron, received 2014  
 - Aerial courtesy of Epuron, received 2012

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0.5
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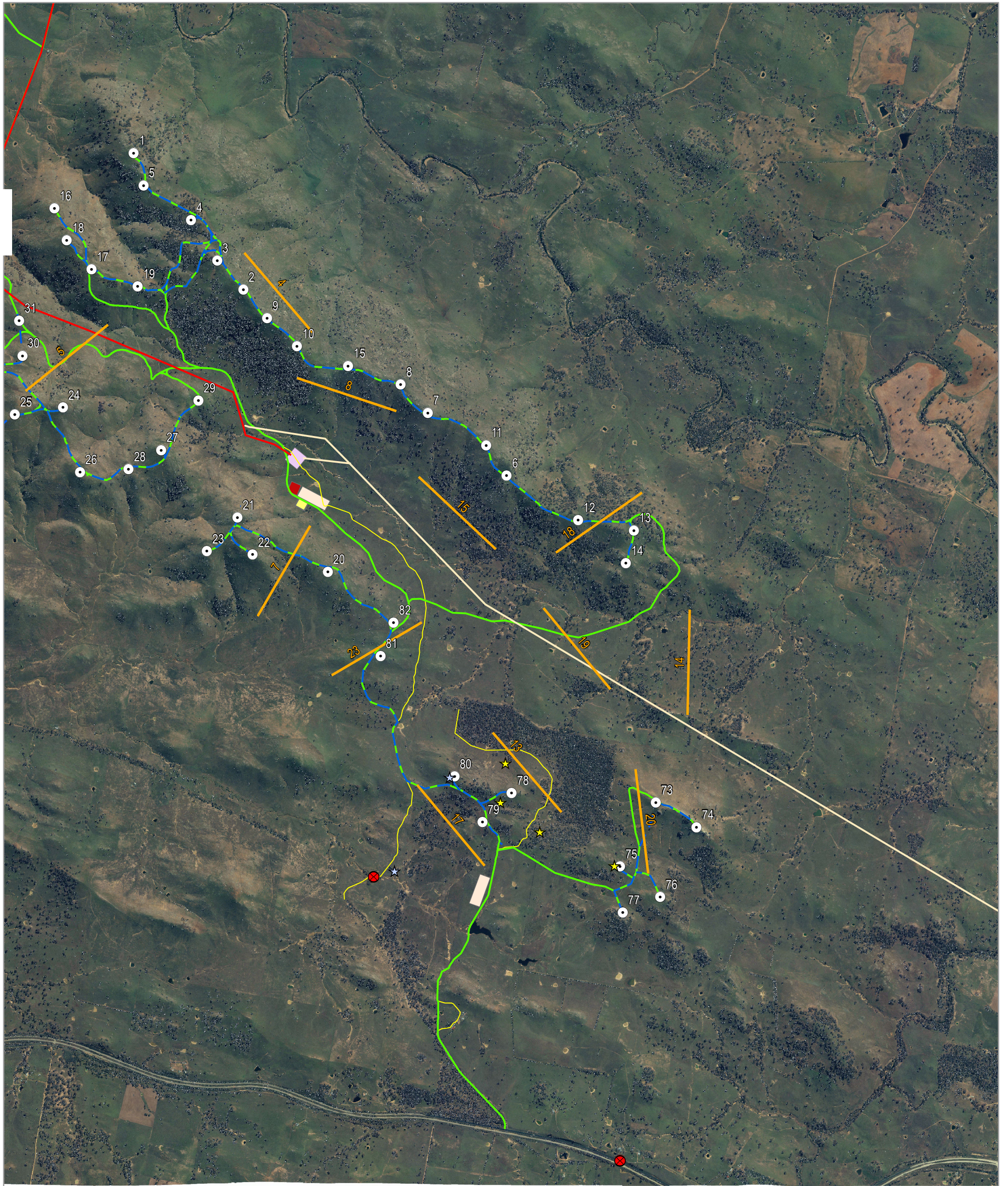
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Author: JB

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# ATTACHMENT C - SUPERB PARROT SURVEY EFFORT AND RESULTS MAP 2





**SUPERB PARROT SURVEY EFFORT AND RESULTS MAP 2**

**Yass Valley Wind Farm Spring Surveys**

- |                            |                         |                               |
|----------------------------|-------------------------|-------------------------------|
| ○ Turbine location         | ■ Batch Plant           | — Superb Parrot transect      |
| — 132kV Powerline          | ■ Construction compound | ⊗ Superb Parrot observation   |
| — 330kV Powerline          | ■ O&M building          | ★ Superb Parrot viewing sites |
| — Underground cabling      |                         | ★ Site 3                      |
| — Access tracks (proposed) |                         | ★ Site 4                      |
| — Access tracks (existing) |                         |                               |

**Notes:**  
 - Superb Parrot data collected by nghenvironmental, 2014  
 - Turbines, access tracks and powerlines data courtesy of Epuron, received 2014  
 - Aerial courtesy of Epuron, received 2012

0 0.5 1 Kilometres

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 Author: JB

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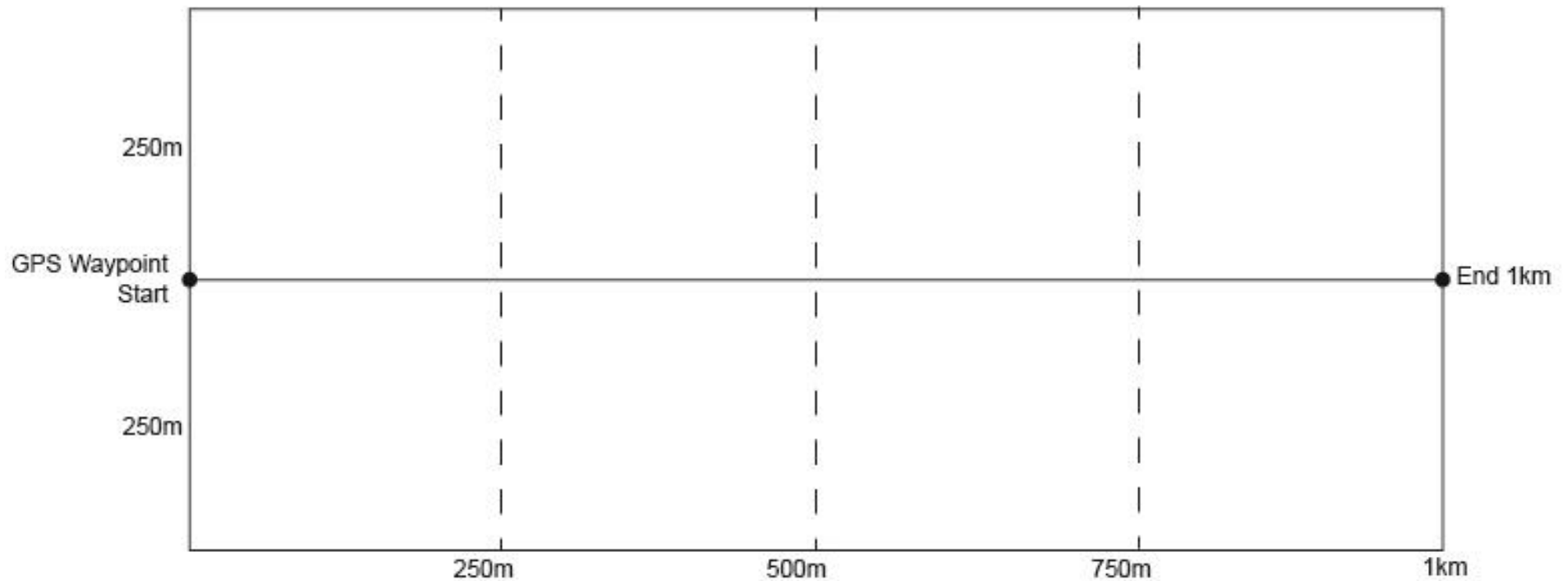
# ATTACHMENT D – DETAILED SURVEY METHODS

### Superb Parrot Population Monitoring Survey Sheet

Observer		Date	
Site		# of people present	
GPS Starting Point:		GPS End Point:	
Start Time		Finish Time	

Temperature	1 (cold)	2	3	4 (hot)
Cloud	1 (clear)	2	3	4 (overcast)
Wind	1 (none)	2	3	4 (strong)

Superb Parrot Observations
Flight height:
Flight direction (from where, to where):
Incidentals:



## Superb Parrot Population Monitoring Survey Sheet

## Bird species list

[illegible]

## Superb Parrot Population Monitoring Survey Sheet

### Superb Parrot Counting

X = female, · = male, ✓ = indeterminate sex

### Surrounding landscape assessment

- Please assess the surrounding landscape features near each individual or group of Superb Parrots you see and mark this information next to your sighting record on the field sheet. The following table provides codes for this type of information.

Location when first seen	Flying = F	In tree = IT	On ground = OG
Trees within 50m of birds seen in transect	No trees = NT	Scattered trees = ST (1 – 5 stems)	Woodland = W (5 + stems)
Shrubs within 50m of birds seen in transect	No shrub = NS	Scattered shrubs = SS (up to 20% area)	Dense shrub = DS (over 20% area)
Ground layer within 50m of birds seen in transect	Grass = G	Crop = C, specify	Other, specify
Land use within 50m of birds seen in transect	Road reserve = RR	Paddock = P	Other, specify

### Superb Parrot survey method

#### Navigating the site

- If you have a range finder please calibrate your distance estimation for 250 m either side of the transect. Alternatively, you could use a measuring tape or pace out 250m
- Locate the start position on your GPS using the navigate function
- Note the start time – this is critically important
- Start walking, and maintain a very slow walking pace. The 1 km transect line should take about 1 hr to complete – that is 15 minutes for each 250 metre section of the transect.
- Note all Superb parrots seen in front of you or perpendicular to you to a distance of 250 metres either side of the transect (see below)
- As you walk take a mental note of your distance (on the GPS) from the start point so you can note the approximate position of Superb Parrot observations on the map

### Counting Superb Parrots

- When Superb Parrots are seen, mark their approximate location on the datasheet map using the symbols for the sexes. Please note total number for both sexes and indeterminate birds.
- Count all Superb Parrots in front of you, and perpendicular to you to a distance of 250m either side.
- Do not count Superb Parrots behind you, and only mark individuals on the sheet if they enter the 'active' transect i.e. perpendicular or in front of you. In this case, mark the point they enter the transect.
- Mark Superb Parrot sightings on the map where they are first seen.
- For each bird or flock please estimate to the nearest 10 m the height at which they are flying and also the approximate bearing they are flying towards (e.g. N, NW, NE, E etc.)
- Avoid double counting – try not to record individuals twice
- If you are not sure how many, estimate the number
- When you see a Super Parrot, note the surrounding landscape features such as trees and shrubs – please refer to the landscape assessment table above for the different landscape feature codes outlined on the field sheet
- Remember, a zero count is just as important as a count where birds are recorded!

## ATTACHMENT E – INCIDENTAL OBSERVATION RECORDS

NOTE: This table includes records of all birds seen in the area during the survey period, however the *locations* of the sightings provided in the table below, are only in relation to locations within the study area (and referenced as either within a defined Transect, or near to a turbine, where the prefix TS applies to Transect Locations, and TU refers to Turbine Locations). If a species record does not have a TS or TU location, then it was an opportunistic record made outside of the study site.

Note also that the same species may have been recorded twice at each transect, as two people were often doing each transect, and starting at either end, and completing separate data sheets, such that the same species could be recorded twice at the one transect.

Common Name	Species Name	Conservation Status	Occurrence (no times recorded)	Locations (Transect no)
Australian Magpie	<i>Cracticus tibicen</i>		28	TS3, TS4, TS5, TS6, TS8, TS11, TS12, TS13, TS14, TS15, TS16, TS17, TS18, TS19, TS20, T22, TS23
Australasian (Richard's) Pipit	<i>Anthus novaeseelandiae</i>	Listed Marine Species (EPBC Act)	17	TS3, TS4, TS5, TS8, TS12, TS13, TS19, TS20, T22, TS23,
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	Listed Marine Species (EPBC Act)	13	TS12, TS13, TS14, TS15, TS17, TS18, TS19, T22, TS23
Black-faced Woodswallow	<i>Artamus cinereus</i>		1	TS11
Brown Falcon	<i>Falco berigora</i>		8	TS3, TS4, TS11, TS22,
Brown-headed Honeyeater	<i>Melithreptus brevirostris</i>		1	TS14,
Brown Songlark	<i>Cincloramphus cruralis</i>		3	TS16, TS22,
Brown Thornbill	<i>Acanthiza pusilla</i>		3	TS11, TS15, TS18,
Brown Treecreeper	<i>Climacteris picumnus victoriae</i>	Vulnerable, NSW	8	TU60, TS16
Buff-rumped Thornbill	<i>Acanthiza reguloides</i>		4	TS4, TS8, TS13,
Corella	<i>Cacatua (Licmetis) spp.</i>		1	TS12
Crested Shrike-tit	<i>Falcunculus frontatus</i>		2	TS12, TS16
Crimson Rosella	<i>Platycercus elegans</i>		14	TS3, TS4, TS8, TS12, TS14, TS15, TS18, TS19, TS20
Diamond Firetail	<i>Stagonopleura guttata</i>	Vulnerable, NSW	2	
Dusky Woodswallow	<i>Artamus cyanopterus</i>		4	TS3, TS12, TS16
Eastern Rosella	<i>Platycercus eximius</i>		11	TS6, TS12, TS14, TS17, TS18, TS19, TS20
Eastern Yellow Robin	<i>Eopsaltria australis</i>		3	TS4, TS8, TS20
Fairy Martin	<i>Petrochelidon ariel</i>		1	

Common Name	Species Name	Conservation Status	Occurrence (no times recorded)	Locations (Transect no)
Friarbird, Little	<i>Philemon citreogularis</i>		4	TS4, TS8,
Friarbird, Noisy	<i>Philemon corniculatus</i>		10	TS13, TS15, TS18, TS19, TS20
Galah	<i>Eolophus roseicapilla</i>		28	TS3, TS4, TS5, TS6, TS8, TS11, TS12, TS14, TS15, TS16, TS17, TS18, TS19, TS20, TS22, TS23
Golden-headed Cisticola	<i>Cisticola exilis</i>		1	TS12
Grey Fantail	<i>Rhipidura albiscapa</i>		8	TS8, TS11, TS13, TS14, TS17,
Grey Shrike-thrush	<i>Colluricincla harmonica</i>		3	TS11, TS19,
Hooded Robin	<i>Melanodryas cucullata cucullata</i>	Vulnerable, NSW	1	
(Laughing) Kookaburra	<i>Dacelo novaeguineae</i>		15	TS4, TS5, TS6, TS8, TS13, TS14, TS15, TS17, TS18, TS19,
Leaden Flycatcher	<i>Myiagra rubecula</i>		2	TS13, TS15
Little Eagle	<i>Hieraaetus morphnoides</i>	Vulnerable, NSW	1	TU126/127
Magpie Lark	<i>Grallina cyanoleuca</i>	Listed Marine Species (EPBC Act)	10	TS12, TS14, TS17, TS18, TS19, TS22,
Masked Woodswallow	<i>Artamus personatus</i>		1	TS12
Nankeen Kestrel	<i>Falco cenchroides</i>	Listed Marine Species (EPBC Act)	13	TS3, TS5, TS6, TS8, TS11, TS17, TS19, TS20, TS23,
Noisy Miner	<i>Manorina melanocephala</i>		1	TS4
Olive-backed Oriole	<i>Oriolus sagittatus</i>		2	TS8,
Peregrine Falcon	<i>Falco peregrinus</i>		3	TU6, TS17,
Pied Currawong	<i>Strepera graculina</i>		7	TS6, TS14, TS19, TS22,
Rainbow Bee-eater	<i>Merops ornatus</i>	Listed Marine and Migratory (EPBC Act)	4	TS3, TS19, TS23
Raven (Australian)	<i>Corvus coronoides</i>		16	TS3, TS4, TS6, TS11, TS12, TS13, TS15, TS22,
Raven (Little)	<i>Corvus mellori</i>	Listed Marine Species (EPBC Act)	18	TS3, TS4, TS5, TS6, TS13, TS14, TS16, TS19, TS20, TS23
Red-rumped Parrot	<i>Psephotus haematonotus</i>		5	TS3, TS12, TS22,
Red Wattlebird	<i>Anthochaera carunculata</i>		9	TS6, TS8, TS11, TS14, TS18, TS19,

Common Name	Species Name	Conservation Status	Occurrence (no times recorded)	Locations (Transect no)
Rufous Songlark	<i>Cincloramphus mathewsi</i>		1	TS17,
Rufous whistler	<i>Pachycephala rufiventris</i>		1	TS8
Sacred Kingfisher	<i>Todiramphus sanctus</i>	Listed Marine Species (EPBC Act)	2	TS18, TS19
Silvereeye	<i>Zosterops lateralis</i>	Listed Marine Species (EPBC Act)	1	TS4
Southern Whiteface	<i>Aphelocephala leucopsis</i>		3	TS6, TS23
Spotted Pardalote	<i>Pardalotus punctatus</i>		13	TS6, TS8, TS11, TS14, TS15, TS17, TS18, TS19,
Starling, European	<i>Sturnus vulgaris</i>	Introduced Pest	19	TS3, TS5, TS12, TS14, TS16, TS17, TS19, TS22, TS23
Striated Pardalote	<i>Pardalotus striatus</i>		21	TS3, TS4, TS5, TS6, TS8, TS11, TS13, TS14, TS17, TS18, TS19, TS20, TS22, TS23
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>		19	TS8, TS12, TS13, TS14, TS15, TS17, TS18, TS19, TS20, TS23
Superb Fairy-wren	<i>Malurus cyaneus</i>		12	TS5, TS6, TS8, TS11, TS14, TS15, TS17, TS18, TS19, TS20
Tree Martin	<i>Petrochelidon nigricans</i>	Listed Marine Species (EPBC Act)	2	TS16, TS17,
Turquoise Parrot	<i>Neophema pulchella</i>	Vulnerable, NSW	1	TS20
Varied Sittella	<i>Daphoenositta chrysoptera</i>	Vulnerable, NSW	1	
Wedge-tailed Eagle	<i>Aquila audax</i>		7	TU41/43 TS13, TS20
Weebill	<i>Smicrornis brevirostris</i>		3	TS14,
Welcome Swallow	<i>Hirundo neoxena</i>	Listed Marine Species (EPBC Act)	2	TS16, TS17,
White-browed Scrubwren	<i>Sericornis frontalis</i>		2	TS11, TS14,
White-browed Woodswallow	<i>Artamus superciliosus</i>		2	
White-faced Heron	<i>Egretta novaehollandiae</i>		3	TS13,
White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>		5	TS12, TS16, TS22,
White-throated Gerygone	<i>Gerygone olivacea</i>		8	TS13, TS14, TS15, TS18, TS19,
White-throated Treecreeper	<i>Cormobates leucophaea</i>		15	TS8, TS11, TS13, TS14, TS15, TS17, TS18, TS19, TS20



Common Name	Species Name	Conservation Status	Occurrence (no times recorded)	Locations (Transect no)
White-winged Chough	<i>Corcorax melanorhamphos</i>		9	TS8, TS11, TS13, TS14, TS15, TS17, TS18, TS19,
Willy Wagtail	<i>Rhipidura leucophrys</i>		14	TS3, TS6, TS11, TS12, TS16, TS17, TS19, TS20, TS22,
Wood Duck	<i>Chenonetta jubata</i>		1	TS3
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>		3	TS14, TS15, TS19,
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>		17	TS4, TS6, TS8, TS13, TS14, TS17, TS18, TS19, TS20, TS22, TS23
<b>Total Number of Species Recorded</b>			<b>67</b>	