Goyder South Hybrid Renewable Energy Facility – Stage 1

Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025

FINAL

October 2026

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GOYDER SOUTH

GOYDER RENEWABLES ZONE

Goyder South Hybrid Renewable Energy Facility – Stage 1

Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025

FINAL

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Neoen Australia Pty Ltd

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Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V1	Dr M. Louter	07/09/2026	Dr T. How	01/10/2026

Declaration of Accuracy

In making this declaration, I am aware that section 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:

Full name: Pedro Gonçalves

Position: Chief Operating Officer

Organisation: Neoen Australia Pty Ltd on behalf of Goyder Wind Farm 1 Pty Ltd; Goyder Wind Farm 1B Pty Ltd

EPBC Referral Number: 2021/8958 and 2021/8957

Name of Action Management Plan this document and declaration refers to: *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025*.

Date: 2 October 2026

Executive Summary

Neoen Australia Pty Ltd (Neoen) is developing the Goyder South Hybrid Renewable Energy Facility (the Goyder South Project) between Burra and Robertstown in the Mid North of South Australia (SA). The Project combines wind, solar and energy storage in one integrated project and will be capable of delivering a steady, reliable, dispatchable output of power throughout the day and night.

Currently three stages have been constructed, including Stage 1A with 38 wind turbine generators (WTGs), Stage 1B with 37 WTGs, and the Overhead Transmission Line (OTL) and substation, which are collectively referred to as Goyder South Wind Farm Stage 1 (GSWF; the Goyder South Project; the Project).

WTGs have the potential to impact upon birds, including threatened and migratory bird species protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and other bird species, including raptors, such as the Wedge-tailed Eagle (*Aquila audax audax*). As such, Neoen is implementing the *Goyder South Hybrid Renewable Energy Facility Stage 1A and Stage 1B Bird Adaptive Management Plan* (BAMP) (EBS Ecology 2024) to effectively monitor for any impacts to birds during operation of the Stage 1A and Stage 1B wind farms, from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement management measures to mitigate any impacts, where practicable.

To do this, the BAMP identifies bird species of concern and relevant trigger levels for management responses. Then the BAMP outlines a Bird Monitoring Program, which includes bird utilisation survey (BUS), raptor nest activity monitoring, a long-term WTG collision monitoring program and periodic carcass persistence (scavenger activity) and searcher efficiency trials, as well as recording of incidental finds of bird carcasses. All data collected during the Bird Monitoring Program will be analysed and used to understand bird activity across the Stage 1A and Stage 1B wind farms. Furthermore, the results of the Bird Monitoring Program will be used to inform an adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project, and that potential impacts to other bird species (such as raptors) are minimised and mitigated, where practicable.

As part of implementing the BAMP, an annual BAMP implementation report which includes reporting on the Bird Monitoring Program and implementation of adaptive management actions undertaken in accordance with the BAMP will be prepared. Implementation of the BAMP commenced with the first BUS undertaken in December 2023, prior to commissioning of Stage 1A commencing on 4 April 2024. As such, the first *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2024* covered implementation of the BAMP from December 2023 until December 2024 (inclusive). Subsequently, this *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025* covers implementation of the BAMP from January 2025 until December 2025 (inclusive).

This report presents the data collected during implementation of the BAMP's Bird Monitoring Program, which is comprised of Bird Utilisation Survey (BUS), raptor nest activity monitoring, and long-term WTG collision monitoring including incidental finds of bird carcasses, throughout 2025. The data and associated results are analysed, with a particular focus on species of concern and flight heights at risk of collision with wind farm infrastructure, as well as consideration of trigger levels for management responses to bird collisions, estimation of annual mortality rate and review of WTG risk ratings.

Bird Utilisation Survey

BUS were undertaken on a seasonal basis (summer; autumn; winter; spring) to record all bird species observed and contribute to understanding bird utilisation across the Stage 1A and Stage 1B Project Areas. A total of 3,729 individual birds were recorded, including 3,448 individuals observed at BUS Sites and 281 individuals observed opportunistically. A total of 61 species (including 57 native and four introduced) were observed and were predominately common grassland and woodland bird species, which aligns with the available habitat that consists mainly of grassland and cropping paddocks with some remnant woodlands.

Only two EPBC Act listed species, the Southern Whiteface (*Aphelocephala leucopsis leucopsis*) and Diamond Firetail (*Stagonopleura guttata*), were observed, both of which are species of concern. No EPBC Act listed migratory species were observed, while three NPW Act listed threatened species were observed, including Chestnut Quail-thrush (*Cinclosoma castanotum*), Black Falcon (*Falco subniger*) and Diamond Firetail (*Stagonopleura guttata*). While the Chestnut Quail-thrush is not considered a species of concern, the Black Falcon is, and as it was observed during previous BUS (2024), it was previously added to the species of concern list. Two other species, the Fairy Martin (*Petrochelidon ariel*) and Red-backed Kingfisher (*Todiramphus pyrrhopygius*), have also been added to the species of concern list.

A total of 50 bird species were recorded flying within the Project Area, either at BUS sites or opportunistically, including 663 individual birds from 15 species recorded at WTG Rotor-swept Area (RSA) height and at risk of collision with wind farm infrastructure.

While flight height data was recorded for eight species of concern, only five species of concern, including Black Falcon, Brown Falcon, Brown Goshawk, Nankeen Kestrel and Wedge-tailed Eagle, were identified as flying at RSA height. While no species listed under the EPBC Act as threatened or migratory were identified as flying at RSA height, one species listed as threatened under the NPW Act, the Black Falcon, was identified as flying at RSA height.

The low number of EPBC Act listed threatened species (n=2) and lack of EPBC Act listed migratory species (n=0) recorded via 2024 and 2025 BUS, with none recorded at RSA height, suggests that the risk of impact via WTG collision, and potential for significant impact, to these species by the Stage 1A and Stage 1B wind farms is low. However, it is acknowledged that BUS data is subject to limitations, including the limited number of BUS sites, a small survey window (three days each season and a total of 12 survey days each year), and a lack of extensive flight height data for all species. Collection of additional data during future BUS will allow for more detailed assessment and statistical analysis, and stronger conclusions regarding overall collision risk.

Raptor Nest Activity Monitoring

Raptor nest activity monitoring was undertaken for known Wedge-tailed Eagle (WTE) nests to determine if they were in suitable condition for nesting and whether the nests are active and successful in fledging young. Of the five WTE nests known to occur within the Stage 1A and Stage 1B Project Areas and checked as part of the monitoring, only one (Nest 9) showed signs of recent activity and was observed to be in good condition. Of the other four nests checked, one (Nest 13) was intact and in good condition, but inactive, while one (Nest 17) was dilapidated, in poor condition and inactive, and two (Nest 12 and Nest 16) were no longer present.

While a successful breeding event was not recorded at any nest in 2025, conditions were similar to 2024 and considered to be suitable for breeding, and it is possible that WTE bred successfully at a nest (or nests) located outside of the Stage 1A and Stage 1B Project Areas in 2025. As raptor nest

activity monitoring has only been completed over two years to date, it is too early to attempt to draw any conclusions on whether the Stage 1A or Stage 1B wind farms are impacting upon breeding success of WTE or other large raptors. However, future raptor nest activity monitoring will help to determine whether WTE and/or other large raptor nests within the Stage 1A and Stage 1B Project Areas are in suitable condition for nesting and whether the nests continue to be active and successful in fledging young during wind farm operation, or if wind farm operation may be negatively impacting on breeding within the Project Areas.

Long-term WTG Collision Monitoring

Four quarterly WTG collision monitoring surveys were undertaken in 2025. Two bird carcasses and 18 feather spots were observed, including seven Australian Magpie, five Nankeen Kestrel, three Magpielark, two Little Raven, one Horsefield's Bronze Cuckoo, one Common Starling and one feather spot of down feathers that was not able to be identified to a species. While none of these species are listed under the EPBC Act or NPW Act, Nankeen Kestrel is a species of concern in accordance with the BAMP.

Incidental Finds of Bird Carcasses

In addition to the two bird carcasses and 18 feather spots observed via the WTG collision monitoring program, four incidental finds, all WTE carcasses, were observed and reported by wind farm personnel in 2025, including three at/adjacent to one WTG (SG054). While the WTE is not listed under the EPBC Act or NPW Act, it is a species of concern in accordance with the BAMP. While two WTE carcasses were found incidentally at/adjacent to WTG SG054 in June and another one in September, the trigger level for 'other non-threatened bird species' was not reached.

Species of Concern

No carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, was found during long-term WTG collision monitoring, or incidentally in 2025. Two species of concern which are non-threatened species of 'at risk' birds, including five Nankeen Kestrel and four Wedge-tailed Eagle, were found during WTG collision monitoring, or incidentally in 2025. However, no trigger level was reached.

Bird Monitoring Program Data Analysis and Adaptive Management

While a total of two carcasses and 18 feather spots were recorded during WTG collision monitoring, and four carcasses were observed incidentally, in 2025, no trigger level impact was detected. As such, the adaptive management framework protocol was not required to be implemented, and no adaptive management action was required or undertaken.

Estimation of Annual Mortality Rate

As no carcass or feather spot of any EPBC Act threatened or migratory listed species was found during WTG collision monitoring or incidentally in 2025, the annual mortality rate for each EPBC Act listed species of concern has not been estimated for 2025. However, the annual mortality rate has been estimated by Symbolix for other bird species which are species of concern, including Nankeen Kestrel and WTE (Symbolix 2026). No carcass or feather spot of any other species of concern was found during WTG collision monitoring or incidentally in 2025.

As five Nankeen Kestrels were found during WTG collision monitoring surveys in 2025 and four WTE carcasses were found incidentally in 2025, the resulting (median) estimate of total mortality for Nankeen Kestrel is 676, with 95 % confidence that fewer than 1306 individuals were lost, and the

resulting (median) estimate of total mortality for WTE is 5, with 95 % confidence that fewer than 11 individuals were lost (Symbolix 2026).

However, Symbolix (2026) expect the estimate for Nankeen Kestrel to be biased high to some extent and explain that it is possible for some of the estimated mortalities in the distribution to be higher than is ecologically possible. Therefore, Symbolix recommend that the estimates must be interpreted through an ecological lens based on the knowledge of the local population, and while the median is more statistically likely, the value that is more ecologically likely may be lower based on the number of birds available to be struck.

While Nankeen Kestrel population density would vary depending on availability of suitable habitat and seasonal conditions, a high-level estimate of Nankeen Kestrel population across the Stage 1A and Stage 1B Project Areas suggests that there would be approximately 18-490 individuals. As such, it is unlikely that 676 Nankeen Kestrel were lost throughout the Stage 1A and Stage 1B Project Areas as it is unlikely that 676 Nankeen Kestrel occur within the Project Areas.

WTG Risk Ratings

As more than 12 months of BUS and WTG collision monitoring has now been completed, the results have been analysed and WTG risk ratings have been reviewed and adjusted, where required. Of the 75 WTGs across the Stage 1A and Stage 1B Project Areas, 64 have a Low risk rating, eight have a Low to Moderate risk rating, two have a Moderate risk rating and one has a Moderate to High risk rating.

However, no WTG has been assigned a High risk rating as no carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, has been found during long-term WTG collision monitoring or incidentally to date, and no trigger level impact has occurred to date.

Progress on Achieving BAMP's Environmental Objectives

Implementation of the BAMP started with the first BUS completed in December 2023 and significant progress on achieving the BAMP's environmental objectives has been made to date. The BAMP's Bird Monitoring Program has been implemented and data collected has been analysed and reported upon. All BAMP commitments that have been required to date have been undertaken, while some BAMP commitments have not been required. As no EPBC Act listed bird species carcass or feather spot has been found to date during implementation of the Bird Monitoring Program, the BAMP's adaptive management framework protocol has not been required to be implemented to date. However, the overall environmental objectives required to date, i.e. to effectively monitor for any impacts to EPBC Act listed bird species during the operation of the wind farm from (but not limited to) wind turbine strikes have been achieved.

Review of BAMP

A review of the BAMP has been undertaken during preparation of this report focusing on the environmental objectives to see if they are being achieved and to identify any improvements that might be required. Implementation of the BAMP is progressing well and no improvements or other changes to the Bird Monitoring Program or the broader BAMP have been identified during the review.

However, as the BAMP's adaptive management framework protocol has not been required to be implemented to date, it has not been tested and as such, has not been reviewed. Future review of the BAMP, as part of annual implementation reporting, will identify any improvements that might be required for the adaptive management framework protocol or the broader Bird Monitoring Program and BAMP, to ensure the environmental objectives are being achieved.

Future Implementation of the BAMP

In accordance with the BAMP, the Bird Monitoring Program will continue to be implemented throughout 2026 and the data collected will continue to be analysed and used to inform the adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project and that potential impacts to other bird species (such as raptors) are minimised and mitigated, where possible.

Abbreviations

Abbreviation	Full Word or Phrase
AM	AM stands for ante meridiem, meaning "before midday," and designates the 12-hour period from midnight to noon.
BAMP	Bird Adaptive Management Plan
BOM	Bureau of Meteorology
BS	BUS Site
BUS	Bird Utilisation Survey
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
GDA2020	Geocentric Datum of Australia 2020
GPS	Global Positioning System
GSWF	Goyder South Wind Farm Stage 1 (including Stage 1A, Stage 1B and the Overhead Transmission Line and Substation)
MGA2020	Map Grid of Australia 2020
Neoen	Neoen Australia Pty Ltd
NPW Act	*National Parks and Wildlife Act 1972*
OTL	Overhead Transmission Line
PDI Act	*Planning, Development and Infrastructure Act 2016* (SA)
PM	PM stands for post meridiem, meaning "after midday," and refers to the 12-hour period from noon to midnight.
RSA	Rotor-swept Area
SA	South Australia(n)
sp.	Species
spp.	Species (plural)
ssp.	Subspecies
VA(s)	Vegetation Association(s)
WTE	Wedge-tailed Eagle (*Aquila audax audax*)
WTG(s)	Wind Turbine Generator(s)

Glossary

Term	Definition / Meaning
Abundance	The number of individuals recorded at a survey site or a specific location.
Commission / Commissioning	EPBC 2021/8957 and 2021/8958 Approval definition: All activities, including turning of turbines, after the components of the first complete wind turbine are installed. The date on which **commission/commissioning** commences is the first date on which the blades of the first completed wind turbine start rotating.
Department	EPBC 2021/8957 and 2021/8958 Approval definition: The Australian Government agency responsible for administering the EPBC Act. At the time of writing this report, DCCEEW is the Department.
EBS Ecology	Environmental and Biodiversity Services Pty Ltd – trading as EBS Ecology (which is now Umwelt).
Feather spot	A collection of five or more feathers found grouped together in a manner that suggests a dead bird was once at the location.
Observation	A record of a bird sighting within the Stage 1A or Stage 1B wind farms (or at the BUS Site at Porter Lagoon).
Occupancy	The number of sites at which a species is recorded. May be expressed as a whole number (i.e., 3 [of a maximum of 13 sites]) or a percentage [i.e., 23.08 % of sites].
Operation	EPBC 2021/8957 and EPBC 2021/8958 Approval definition: All activities that occur after the components of the final wind turbine generator are installed.
the Project	Goyder South Wind Farm Stage 1 (incorporating Stage 1A, Stage 1B and the OTL and Substation).
Project Area	The area (or boundary) in which the Project is located, as shown in mapping.
RSA	For this Project, bird flight heights are classified as being below RSA height (less than 43 m), at RSA height (43-199 m) and above RSA height (greater than 199 m), which aligns with WTG design at the GSWF.
Species richness	The number of different species represented in an ecological community, landscape, region or survey site.
Suitably qualified bird expert	EPBC 2021/8958 Approval definition: A person who has relevant professional qualifications and at least 3 years of work experience designing and implementing plans for the conservation management of birds, who can identify bird species, and who can give an authoritative assessment and advice [*sic*] practices to avoid and mitigate impacts on birds using relevant protocols, standards, methods and/or literature. If the person does not have appropriate professional qualifications, the person must have at least 10 years of work experience identifying bird species and designing and implementing plans for the conservation management of birds.
Umwelt	Umwelt (Australia) Pty Ltd.

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1.0 Introduction

Neoen Australia Pty Ltd (Neoen) is developing the Goyder South Hybrid Renewable Energy Facility (the Goyder South Project) between Burra and Robertstown in the Mid North of South Australia (SA). The Project combines wind, solar and energy storage in one integrated project and will be capable of delivering a steady, reliable, dispatchable output of power throughout the day and night. As the Project will total up to $3 billion in investment, Neoen is implementing the Project in separate stages, with each stage having its own legal entity, construction contracts and financing packages.

Currently three stages have been constructed, including Stage 1A with 38 wind turbine generators (WTGs), Stage 1B with 37 WTGs, and the Overhead Transmission Line (OTL) and substation, which are collectively referred to as Goyder South Wind Farm Stage 1 (GSWF; the Goyder South Project; the Project) and shown in **Figure 1.1**.

WTGs have the potential to impact upon birds, including threatened and migratory bird species protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and other bird species, including raptors, such as the Wedge-tailed Eagle (*Aquila audax audax*). As such, Neoen is implementing the *Goyder South Hybrid Renewable Energy Facility Stage 1A and Stage 1B Bird Adaptive Management Plan* (BAMP) (EBS Ecology 2024) to effectively monitor for any impacts to birds during operation of the Stage 1A and Stage 1B wind farms, from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement management measures to mitigate any impacts, where practicable.

To do this, the BAMP identifies bird species of concern and relevant trigger levels for management responses. Then the BAMP outlines a Bird Monitoring Program, which includes Bird Utilisation Survey (BUS), raptor nest activity monitoring, a long-term WTG collision monitoring program and periodic carcass persistence (scavenger activity) and searcher efficiency trials, as well as recording of incidental finds of bird carcasses. All data collected during the Bird Monitoring Program will be analysed and used to understand bird activity across the Stage 1A and Stage 1B wind farms. Furthermore, the results of the Bird Monitoring Program will be used to inform an adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project, and that potential impacts to other bird species (such as raptors) are minimised and mitigated, where practicable.

As part of implementing the BAMP, an annual BAMP implementation report which includes reporting on the Bird Monitoring Program and implementation of adaptive management actions undertaken in accordance with the BAMP will be prepared. Implementation of the BAMP commenced with the first BUS undertaken in December 2023, prior to commissioning of Stage 1A commencing on 4 April 2024. As such, the first *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2024* covered implementation of the BAMP from December 2023 until December 2024 (inclusive). Subsequently, this *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025* covers implementation of the BAMP from January 2025 until December 2025 (inclusive).

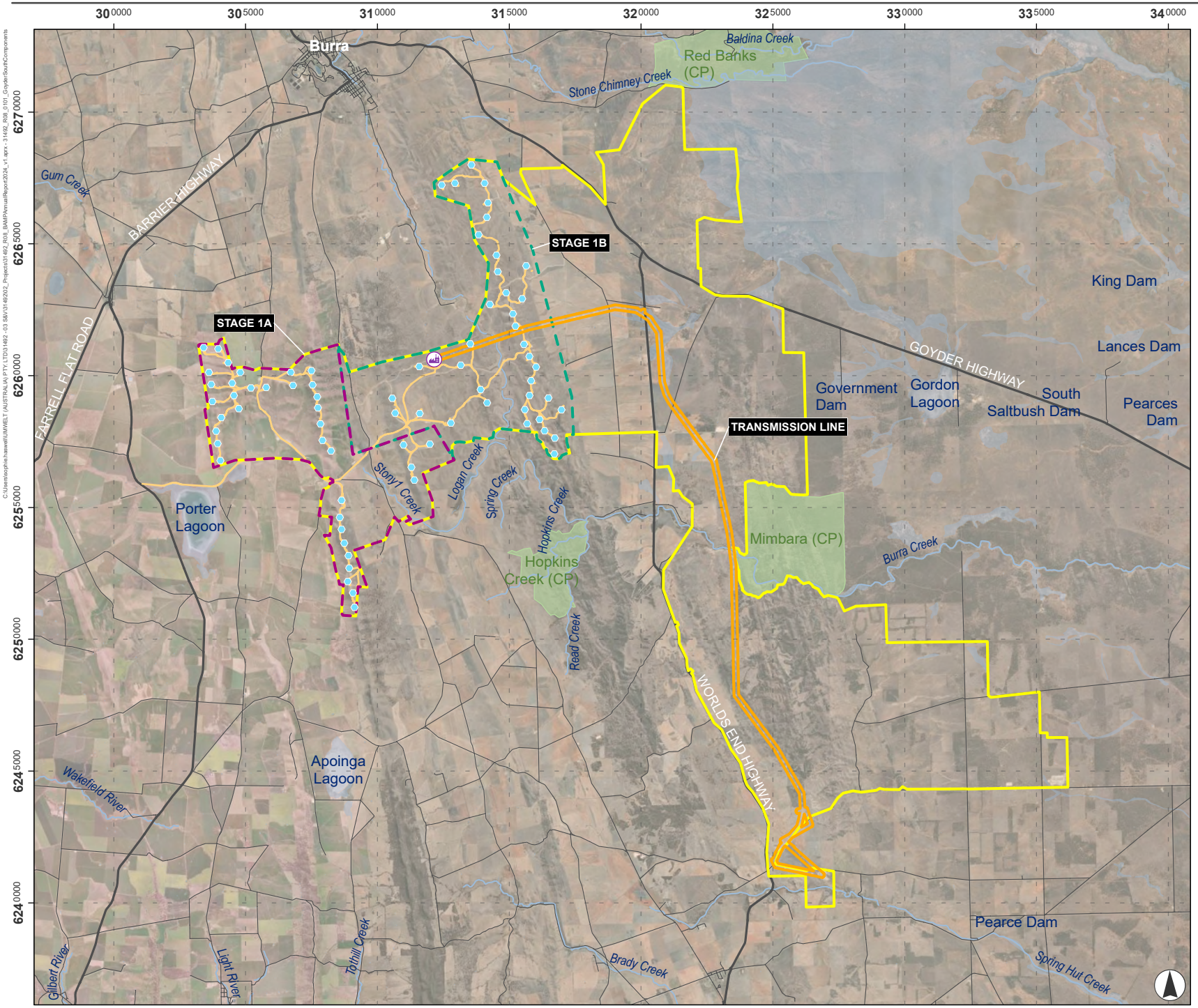
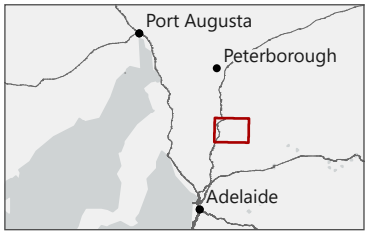


Figure 1.1

Components of the Goyder South Wind Farm Stage 1 Project

Legend

- Project Area
- Stage 1A
- Stage 1B
- Trasmission line
- WTG
- Substation west
- Access track
- Main road
- Local road
- Water course
- Water body
- NPWSA reserve



0 2.5 5

Kilometres

Scale 1:200,000 at A4
GDA2020 MGA Zone 54

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2.0 Background

2.1 Legislative Approvals and Conditions

Approvals in accordance with the Commonwealth EPBC Act and South Australian *Planning, Development and Infrastructure Act 2016* (PDI Act) have been sought and obtained for the Project. Conditions of approval associated with both the EPBC Act approvals and PDI Act approval are outlined in the BAMP.

2.1.1 Important Dates Associated with EPBC Act Approval Conditions

Important dates associated with the EPBC approval conditions are outlined in **Table 2.1**.

Table 2.1 Important Dates Associated With the EPBC Approval Conditions

	Stage 1A (EPBC 2021/8958)	Stage 1B (EPBC 2021/8957)
EPBC Approval Date	05/07/2022	13/07/2022
Commencement of the Action Date	07/07/2022	23/08/2022
Minister's Approval of the BAMP Date	23/02/2024	23/02/2024
Implementation of the BAMP Start Date	19/12/2023	19/12/2023
Commissioning Commencement Date	04/04/2024	11/11/2024
Operation Start Date	21/03/2025	04/04/2025
EPBC Approval Expiry Date	31/12/2057	31/12/2057

Neoen is contracted by Goyder Wind Farm 1 Pty Ltd (Stage 1A) and Goyder Wind Farm 1B Pty Ltd (Stage 1B) to ensure compliance with the EPBC Act and PDI Act approvals on behalf of the GSWF.

2.2 Bird Species Recorded At GSWF

A list of all bird species recorded at GSWF and Porter Lagoon during initial ecological assessment undertaken in autumn between 25 March and 11 April 2019, and spring between 2-5 September 2019 (EBS Ecology 2020), is provided in **Appendix A**.

2.3 Overview of BAMP

The BAMP (EBS Ecology 2024, version 5, dated 24/01/2024) was approved by DCCEEW on 23 February 2024, and as outlined previously, Neoen is implementing the BAMP to effectively monitor for any impacts to birds during operation of the Stage 1A and Stage 1B wind farms, from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement management measures to mitigate any impacts, where practicable.

The BAMP identifies bird species of concern and relevant trigger levels for management responses, both of which are reiterated in **Section 2.3.3** and **Section 2.3.4**, respectively, below for clarity. Then

the BAMP outlines a Bird Monitoring Program, where all data collected is analysed and used to inform an adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project, and that potential impacts to other bird species (such as raptors) are minimised and mitigated, where practicable.

2.3.1 BAMP Objectives and Commitments

As stated in Section 2 of the BAMP, the overall environmental objectives are to:

> *effectively monitor for any impacts to EPBC Act listed bird species, during the operation of the wind farm from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement the technology, measures and procedures necessary to ensure that the impacts are accurately measured, reported and remain insignificant.*

In addition to EPBC Act listed bird species, the BAMP also includes an on-going monitoring and mitigation protocol for raptor and other bird species that may be impacted by the development. As such, the BAMP also monitors for any impacts to raptors and other bird species that may be subject to wind turbine strike and proposes mitigation measures to minimise impacts, where practicable. To achieve these objectives, various actions will be undertaken within five main tasks:

- Monitor
- Analyse
- Manage, Mitigate and Adapt
- Report
- Review and Improve

Neoen is committed to implementing the BAMP for the duration of the Stage 1A and Stage 1B wind farms and until completion of each action. The table of commitments (from the BAMP) to achieve the BAMP's environmental objectives is repeated in **Table 2.2** for reference.

Table 2.2 Commitments to Achieve the BAMP's Environmental Objectives

Task	Commitment	Reference (within BAMP)
Monitor	Implement a post-commissioning, long-term WTG collision monitoring program to identify and document any impacts to EPBC Act listed bird species and other bird species from (but not limited to) wind turbine strikes, during operation of the Stage 1A and Stage 1B wind farms.	Section 8 (page 51).
	Monitor EPBC Act listed bird species and other bird species occurrence within the Goyder South Project Area, as well as Porter Lagoon.	
	Monitor WTE [Wedge-tailed Eagle] nesting activity.	
	Monitor environmental/meteorological conditions.	
	Undertake further periodic carcass persistence and searcher efficiency trials to check if correction factors necessary to estimate total fatalities need revision.	
Analyse	Analyse EPBC Act listed bird species and other bird species occurrence records within the Goyder South Project Area, as well as Porter Lagoon.	Section 8.4 (page 69).
	Analyse WTE nesting activity.	

Task	Commitment	Reference (within BAMP)
	Analyse environmental/meteorological conditions.	
	Analyse bird strike data for each WTG monitored.	
	Analyse data from further periodic carcass persistence and searcher efficiency trials to check if assumptions need revision.	
	Estimate annual mortality rate for each EPBC Act listed bird species and other bird species.	
	DNA test carcasses that cannot be otherwise identified by a suitably qualified bird expert.	Section 8.3.7 (page 68).
	Determine if a significant impact to an EPBC Act listed bird species has occurred or is likely to have occurred, as a result of the action, via completion of a Significant Impact Self-Assessment in accordance with the Matters of National Environmental Significance: Significant impact guidelines 1.1 (Commonwealth of Australia 2013) for each EPBC Act listed bird species recorded to have been struck by a WTG.	Section 5 (page 41) and Section 8.4 (page 69).
Manage, mitigate and adapt	Implement corrective actions if triggers are reached.	Section 9 (page 72) and sub-sections.
Report	Report EPBC Act listed bird species and other bird species occurrence within the Goyder South Project Area, as well as Porter Lagoon.	Section 8.5 (page 70) and Section 9.5 (page 86).
	Report WTE nesting activity.	
	Report environmental/meteorological conditions.	
	Report bird strike data for each WTG monitored.	
	Report on further periodic carcass persistence and searcher efficiency trials to check if assumptions need revision.	
	Report on estimated annual mortality rate for each EPBC Act listed bird species and other bird species.	
	Report on triggers reached.	
	Report on corrective actions undertaken (if corrective actions are required).	
Review and improve	Review this BAMP periodically to ensure the environmental objectives are being achieved and identify any improvements that might be required.	Section 5.4 (page 43).
	If significant impacts to EPBC Act listed bird species occur, or are likely to have occurred, as a result of the action, NEOEN will, within 3 months of becoming aware of any actual or likely significant impact, submit to the Department for the approval of the Minister a revised BAMP responding to, and accompanied by, an evaluation prepared by a suitably qualified bird expert of the effectiveness of the BAMP in preventing significant impacts to EPBC Act listed bird species.	

The status of progress on achieving the overall environmental objectives, as well as the five main tasks and their associated commitments is reported upon in **Section 12.0**.

2.3.2 Background Information Within the BAMP

Refer to the BAMP for important background information on the GSWF Project, including specifications of the Stage 1A and Stage 1B WTGs as well as reference reports and supporting documentation. Furthermore, the BAMP provides important background information on the following for the GSWF and the BAMP:

- Site characteristics and ecological values.
- Topography.
- Weather patterns and prevailing winds.
- Vegetation Associations.

- Floodplains, wetlands, lakes and watercourses within 25 km of the Project site.
- Woodland habitats within the Project Area.
- Bird species at the GSWF, including:
    - Relevant EPBC Act listed bird species (and their likelihood of occurrence within the Goyder South Stage 1A and Stage 1B Project Areas).
    - Other bird species (potentially relevant to the Project).
- Species of concern (also see **Section 2.3.3** below).
- Potential impacts and risks for turbine collision, including:
    - Potential likelihood of collision with wind farm infrastructure.
- Thresholds for significant impacts.
- Trigger levels for management responses to bird collisions (also see **Section 2.3.4** below).

2.3.3 Species of Concern

The BAMP identifies species of concern for which trigger levels for management responses apply. The BAMP is applicable to all of the bird species listed in BAMP Table 10 and BAMP Table 11, which are also included in **Appendix B**. The BAMP also applies to any native avifauna species subsequently found to occur at the site and that are listed as:

- Threatened or migratory under provisions of the EPBC Act.
- Threatened on schedules of the SA *National Parks and Wildlife Act 1972* (NPW Act).
- Non-threatened species of 'at risk' birds that were not previously known to occur or predicted to occur at the site and/or have not been included in Table 11 in the BAMP.

As stated in the BAMP, these are collectively termed 'species of concern'. Introduced / non-native species are not included as 'species of concern'.

A total of 11 relevant EPBC Act listed threatened and/or migratory bird species have been identified as species of concern (which are listed in Table 10 in the BAMP; see **Appendix B**).

2.3.4 Trigger Levels for Management Responses to Bird Collisions

The BAMP specifies trigger levels for species of concern which, where required, will prompt implementation of adaptive management measures to reduce impacts below the specified thresholds.

Trigger levels for management responses to bird collision are specified in Section 7.2 of the BAMP and repeated in **Table 2.3** below, and are for numbers of bird fatalities detected during carcass searches (WTG collision monitoring) and/or incidental finds. The trigger levels apply for all native avifauna that may use the site and for any avifauna species that are listed as threatened in the future. No trigger level applies to any introduced / non-native avifauna species.

Table 2.3 Trigger Levels for Species of Concern

Species Group	Trigger Level Details
EPBC Act listed threatened and migratory bird species (listed in Table 12 of the BAMP)	A trigger level impact will occur when any carcass; feather spot; or injured individual of a single species is found under or close to a WTG during any WTG collision monitoring search or incidentally by wind farm personnel.
Other non-threatened bird species (including non EPBC Act listed bird species listed in Table 12 of the BAMP)	A trigger level impact will occur when more than four carcasses or feather spots of a single species are found under or close to a WTG during any WTG collision monitoring search, and/or incidentally by wind farm personnel, in any two consecutive months.

Source: Table 19 in Section 7.2 of the BAMP.

2.3.5 Rotor-Swept Area

The Stage 1A and Stage 1B wind farms include 38 and 37 WTGs (respectively), with a maximum hub height of 121 m, a maximum blade length of 78 m, an overall maximum height (blade tip height) of 199 m and a maximum rotor diameter of 156 m, as summarised in **Table 2.4**. The rotor-swept area (RSA) is the area within the rotor diameter, from approximately 43 m above ground to 199 m above ground, as summarised in **Table 2.4** and illustrated in **Figure 2.1**.

Table 2.4 WTG Specifications and Associated RSA

WTG hub height:	121 m
Maximum blade length:	78 m
Maximum rotor diameter:	156 m
Maximum WTG height (at blade tip):	199 m
RSA (height above ground):	43 – 199 m

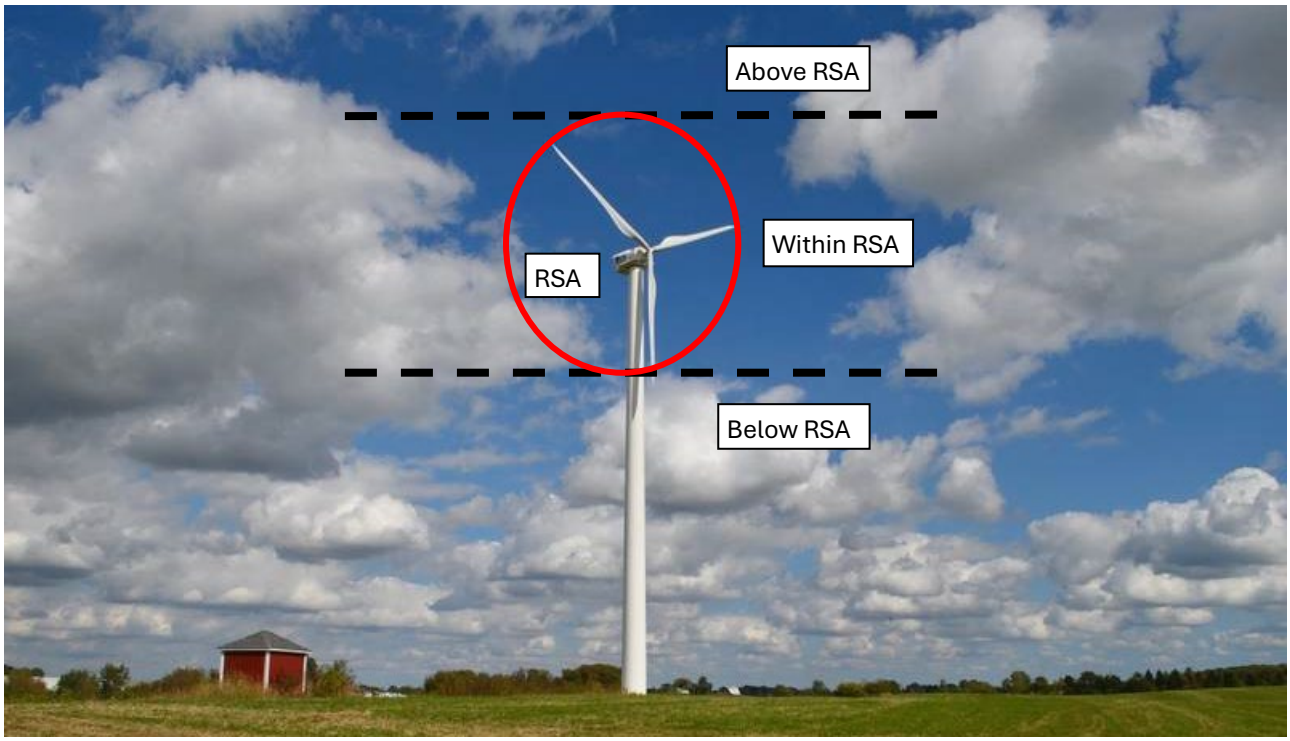


Figure 2.1 Schematic Image Illustrating the RSA

3.0 BAMP Bird Monitoring Program

The overall environmental objectives of the BAMP are to effectively monitor for any impacts to EPBC Act listed bird species during the operation of the Stage 1A and Stage 1B wind farms from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement the technology, measures and procedures necessary to ensure that impacts are accurately measured, reported and remain insignificant. In addition to EPBC Act listed bird species, the BAMP also includes an on-going monitoring and mitigation protocol for raptor and other bird species that may be impacted by the development. As such, the BAMP also monitors for any impacts to raptors and other bird species that may be subject to wind turbine strike and proposes mitigation measures to minimise impacts, where practicable. Therefore, the Bird Monitoring Program, which involves multiple survey types, is an essential component of the BAMP.

3.1 BAMP Bird Monitoring Program Objectives

As stated in the BAMP, the objectives of the Bird Monitoring Program are to:

- Record which EPBC Act listed bird species, state listed species, and species of concern (e.g., raptors) occur on site.
- Determine whether WTE and other raptor nests are in a suitable condition for nesting and whether the nests are active and successful in fledging young.
- Detect potential impacts to EPBC Act listed bird species and other bird species as a result of WTG collision.
- Identify trigger level impacts.
- Undertake further periodic carcass persistence and searcher efficiency trials (to check if correction factors necessary to estimate total fatalities need revision).
- Record incidental finds of bird carcasses.
- Estimate the number and species of birds suspected to have been killed by collision with turbines, on an annual basis.
- Contribute data and other information to inform an adaptive management framework.

To achieve these objectives, the following surveys and monitoring is proposed to be undertaken:

- BUS.
- Raptor nest activity monitoring.
- Long-term WTG collision monitoring.
- Periodic carcass persistence (scavenger activity) and searcher efficiency trials.
- Opportunistic observations of agricultural practices and pest species.
- Incidental finds of bird carcasses.
- DNA testing.

3.2 Implementation of the Bird Monitoring Program

Implementation of the Bird Monitoring Program commenced with the first BUS undertaken in December 2023. Each component of the Bird Monitoring Program undertaken in 2025 is summarised in **Table 3.1**.

Table 3.1 Bird Monitoring Program Components Undertaken in 2025

Survey / Monitoring Type	Method	Timeframe / Frequency	Undertaken / Comments	Reference
BUS	In accordance with BAMP Section 8.3.1.	Each season (summer; autumn; winter; spring) for the first two years; then as outlined in BAMP Section 8.3.1.	Seasonal BUS completed: • 10-13/02/2025 (summer) • 27-29/05/2025 (autumn) • 30/07 – 1/08/2025 (winter) • 13-15/10/2025 (spring)	**Section 5.0**
Raptor Nest Activity Monitoring	In accordance with BAMP Section 8.3.2.	Once a year in October / November (each year for twenty years); then once every second year for twenty years.	Monitoring completed: • 13-15/10/2025 (spring)	**Section 6.0**
Long-term WTG Collision Monitoring	In accordance with BAMP Section 8.3.3.	Quarterly (i.e., once every three months) (for the duration of the Bird Monitoring Program).	Quarterly monitoring was completed in: • February 2025 • May 2025 • August 2025 • November 2025	**Section 7.0**
Incidental Finds of Bird Carcasses	In accordance with BAMP Section 8.3.6.	No set timeframe or frequency, but recorded when found, during operation of the GSWF.	Four incidental finds occurred and have been reported on.	**Section 7.4**
DNA Testing	In accordance with BAMP Section 8.3.7.	As required, when DNA testing is necessary.	Not required in 2025 (as all bird carcasses were identified).	**Section 7.5**
Carcass Persistence (Scavenger Activity) and Searcher Efficiency Trials	In accordance with BAMP Section 8.3.4.	Two carcass persistence trials in the first year of the Bird Monitoring Program as outlined in BAMP Section 8.3.4.1. Two searcher efficiency trials in the first year of the Bird Monitoring Program as outlined in BAMP Section 8.3.4.2.	Not required in 2025 (as these were completed in the first year of the Bird Monitoring Program, in 2024).	**Section 7.7**
Opportunistic Observations of Agricultural Practices and Pest Species	In accordance with BAMP Section 8.3.5.	Opportunistically (during other monitoring events and regular Project operations).	Recorded opportunistically during monitoring events.	**Section 9.0**
Data Analysis – Annual Mortality Rate	In accordance with BAMP Section 8.4.1.	After 12 months of WTG collision monitoring.	Annual mortality rate for 2025 has been calculated.	**Section 10.2**

Survey / Monitoring Type	Method	Timeframe / Frequency	Undertaken / Comments	Reference
Data Analysis – WTG Risk Rating	In accordance with BAMP Section 8.4.2.	After the initial 12 months of BUS and WTG collision monitoring.	WTG risk ratings have been reviewed and adjusted where required.	**Section 10.3**
Adaptive Management	In accordance with BAMP Section 9.	As required (refer to the BAMP for details).	Not required in 2025.	**Section 11.0**

3.3 Permits / Approvals / Licences

All Bird Monitoring Program survey and monitoring work was undertaken under the following permits / approvals / licences:

- Scientific Research Permit No. K25613-23; K25613-26; K25613-27; and K25613-28 (Department for Environment and Water).
- Wildlife Ethics Committee Approval No. 27/2022 and 18/2025 (Wildlife Ethics Committee).
- Scientific Licence No. 158 (Animal Welfare, National Parks and Wildlife SA).

3.4 Relevant Guidelines

All Bird Monitoring Program survey and monitoring work, as well as data and reporting, has been undertaken and prepared in accordance with:

- Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2010).
- Guidelines for Biological Survey and Mapped Data (Commonwealth of Australia 2018).
- Guide to providing maps and boundary data for EPBC Act projects (DAWE 2021).

3.5 Spatial Data

All spatial data has been captured or converted to the following coordinate reference system:

- **Datum**: Geocentric Datum of Australia 2020 (GDA2020).
- **Projection**: Map Grid of Australia 2020 (MGA2020), Zone 54.

All location coordinates listed in this report are expressed using this system. Spatial data converted from other coordinate reference systems may have accuracy limitations.

4.0 Environmental and Meteorological Conditions

4.1 Landscape Context and Vegetation

The Stage 1A and Stage 1B Project Areas are centred on the Bald Hills Range, an area of moderately steep undulating hills interspersed with deep valleys. Outcropping of sedimentary rocks such as siltstone and sandstone occurs on the higher hills, while valley floors contain alluvial deposits of gravel, sand and colluvium. Soils range from shallow clays and clay-loams over rock on the hills to deep loams and clay-loams in valleys.

As explained in the BAMP, the majority of the vegetation within the Stage 1A and Stage 1B Project Areas has been modified as a result of historical and current agricultural practices. Whilst patches of native vegetation remain, the majority of the Project Areas consist of *Austrostipa* spp. (Spear Grass) Mixed Grassland (43.35 % of Stage 1A and 74.34 % of Stage 1B). Furthermore, 57.82 % of vegetation in Stage 1A is grassland (of different types) and 37.02% is cropping, while only 4.88 % is woodland, as outlined in **Table 4.1**. Similarly, 76.98 % of vegetation in Stage 1B is grassland (of different types) and 11.68 % is cropping, while only 10.52 % is woodland (**Table 4.1**).

Table 4.1 Vegetation Types Within the Stage 1A and Stage 1B Project Areas

Vegetation Type	Stage 1A		Stage 1B	
	Extent Within Project Area (ha)	% of Project Area	Extent Within Project Area (ha)	% of Project Area
Grassland	2,146.11	57.82	3,432.04	76.98
Cropping	1,374.09	37.02	520.84	11.68
Woodland	181.04	4.88	469.14	10.52
Other (amenity/urban)	10.16	0.27	36.14	0.81
Totals	**3,711.40**	**100 %**	**4,458.16**	**100 %**

Native grasslands are generally in poor condition with minimal variation throughout the Stage 1A and Stage 1B Project Areas. All vegetation in the Project Areas is impacted by grazing and weed encroachment. Grassland associations are heavily grazed, with palatable emergent shrubs often over-utilised with little or no regeneration occurring.

Vegetation Associations (VAs) across the Stage 1A and Stage 1B Project Areas are shown in **Figure 4.1** and **Figure 4.2**. Out of the 38 WTGs in Stage 1A, 33 are located entirely within grassland vegetation, four are located across vegetation consisting of grassland and cropping and one is located entirely within grassland vegetation but has woodland vegetation within approximately 100 m of the WTG tower (**Figure 4.1**). Out of the 37 WTGs in Stage 1B, 24 are located entirely within grassland vegetation, six are located across vegetation consisting of woodland and grassland, three are located within grassland with emergent woodland, three are located within woodland and one is located entirely within cropping (**Figure 4.2**).

Refer to the BAMP for more information on topography, weather patterns and prevailing winds, vegetation associations, floodplains, wetlands, lakes and watercourses within the region, and woodland habitats within the Stage 1A and Stage 1B Project Areas.

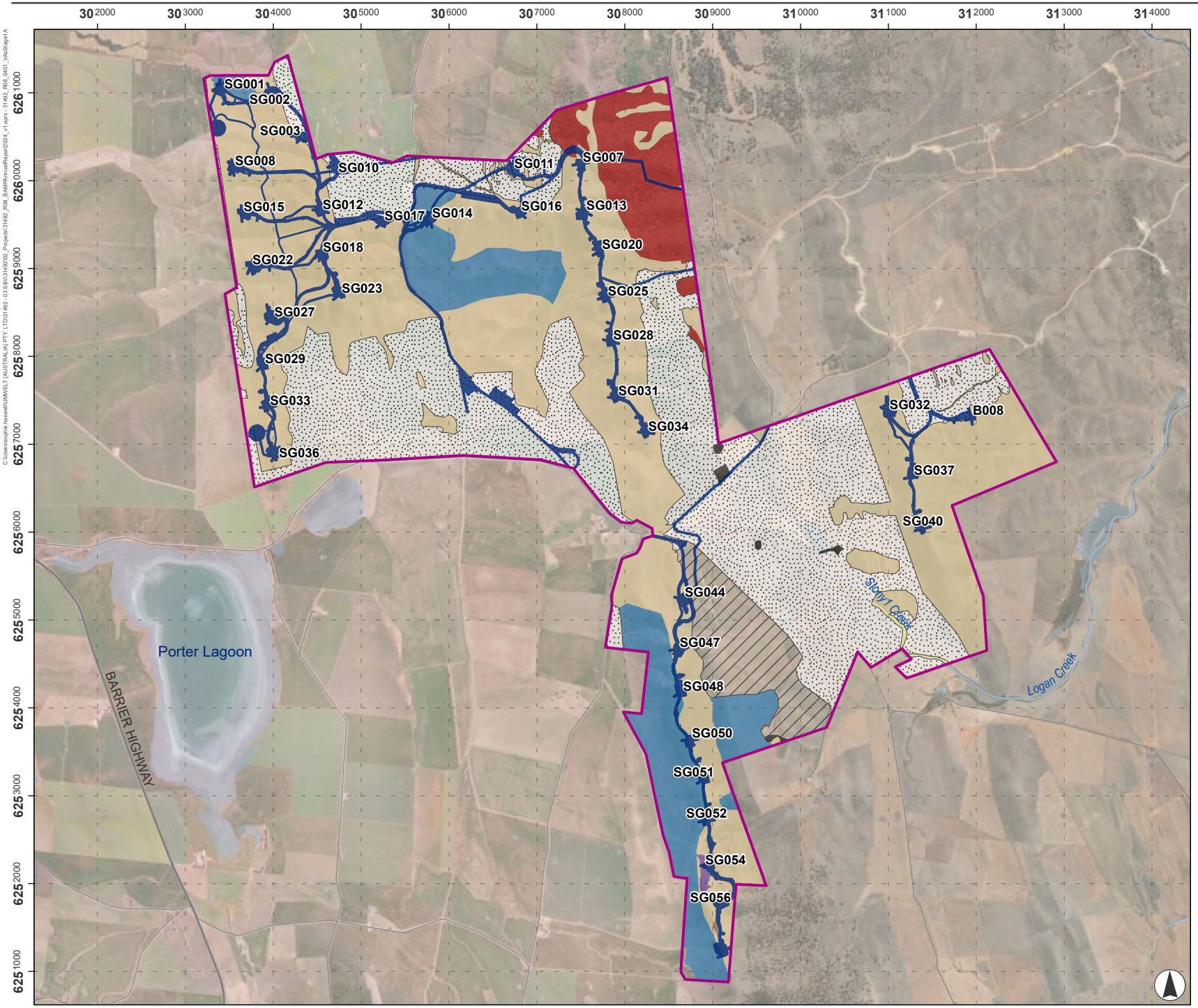


Figure 4.1

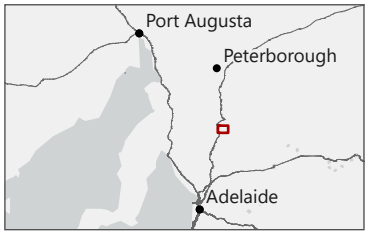
WTGs and VAs Across the Stage 1A Project Area

Legend

- Stage 1A
- Goyder South Infrastructure

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping



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Kilometres

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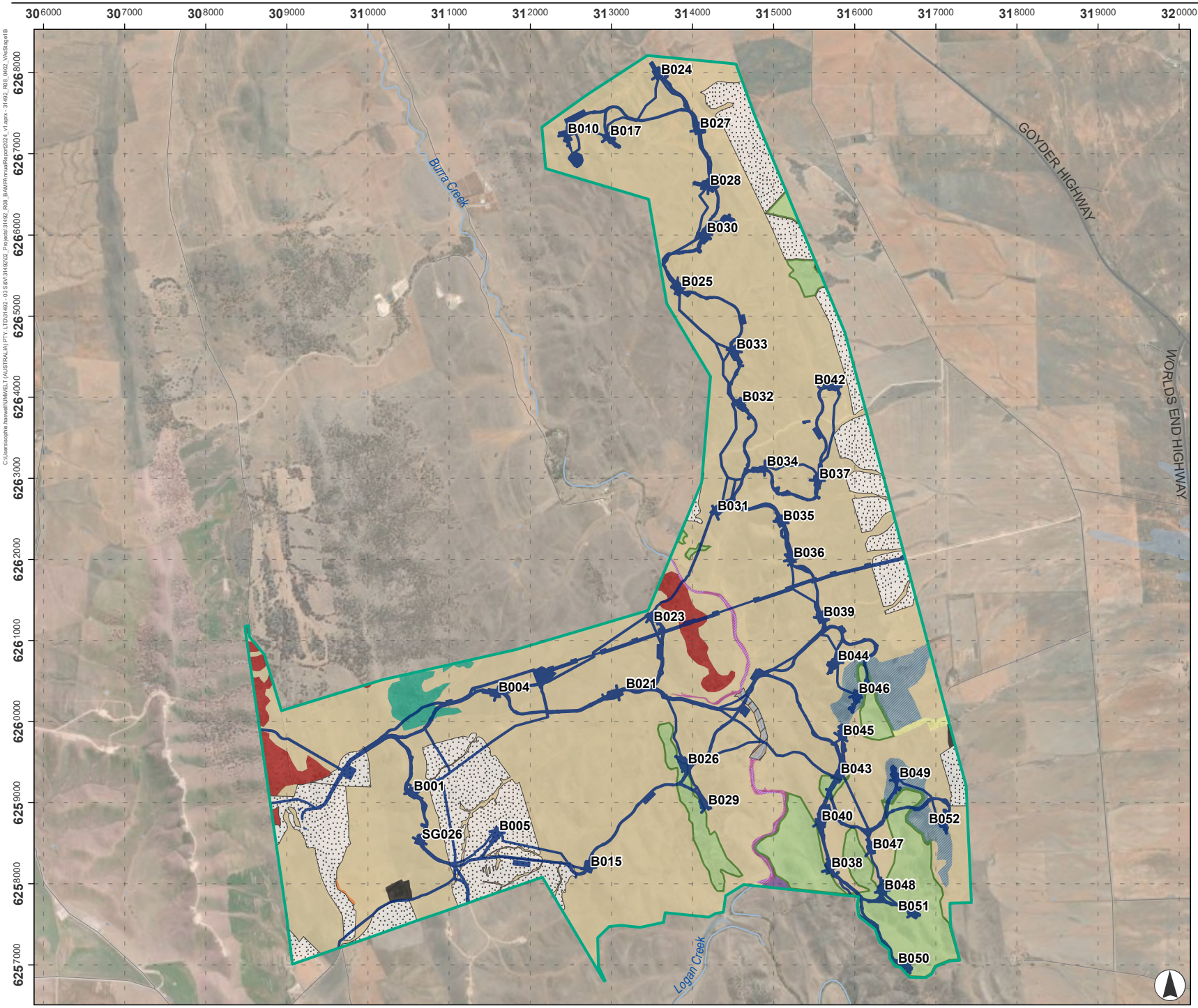


Figure 4.2

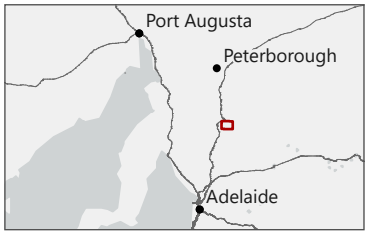
WTGs and VAs Across the Stage 1B Project Area

Legend

- Stage 1B
- Goyder South Infrastructure

Vegetation association

- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- Amenity / Urban
- Cropping



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Kilometres

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4.2 Average Temperature and Rainfall

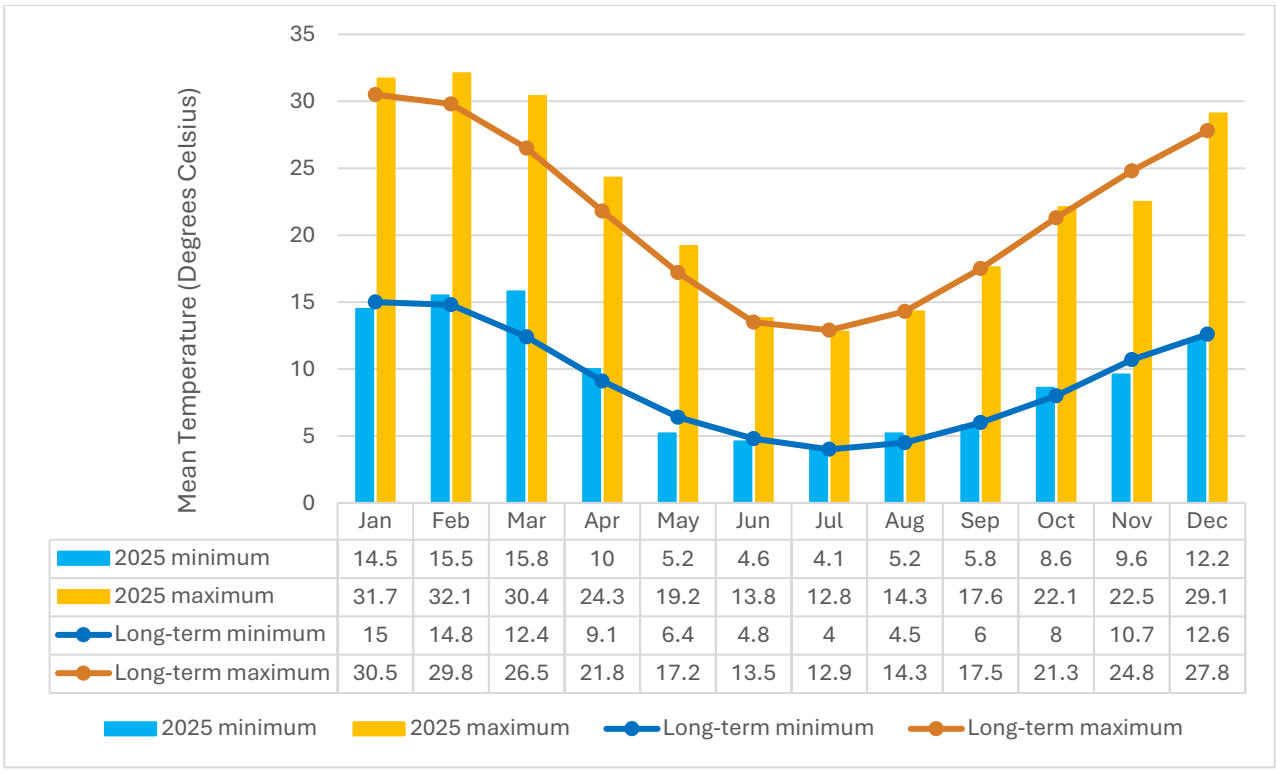
The Stage 1A and Stage 1B Project Areas are located between Burra and Robertstown in the Mid North of SA, where the climate consists of mild winters and hot summers, with rain occurring predominantly in the winter months (NY NRM 2018).

Long-term temperature data indicates that January and February are the warmest months, with mean temperatures ranging from a low of about 15°C and a high of about 30°C, while June and July are the coolest months, with mean temperatures ranging from a low of about 4°C and a high of about 13°C (**Graph 4.1**). As temperature data is not available at the Bureau of Meteorology (BOM) Burra Community School weather station (#21077), temperature data has been obtained from the BOM Clare High School weather station (#21131) (BOM 2026a) which is approximately 30 km west of the Stage 1A and Stage 1B Project Areas.

In 2025, mean maximum daily temperatures were above the long-term average in all months (particularly in February, March, April and May) except for July, August and November, while mean minimum daily temperatures were generally close to the long-term average each month.

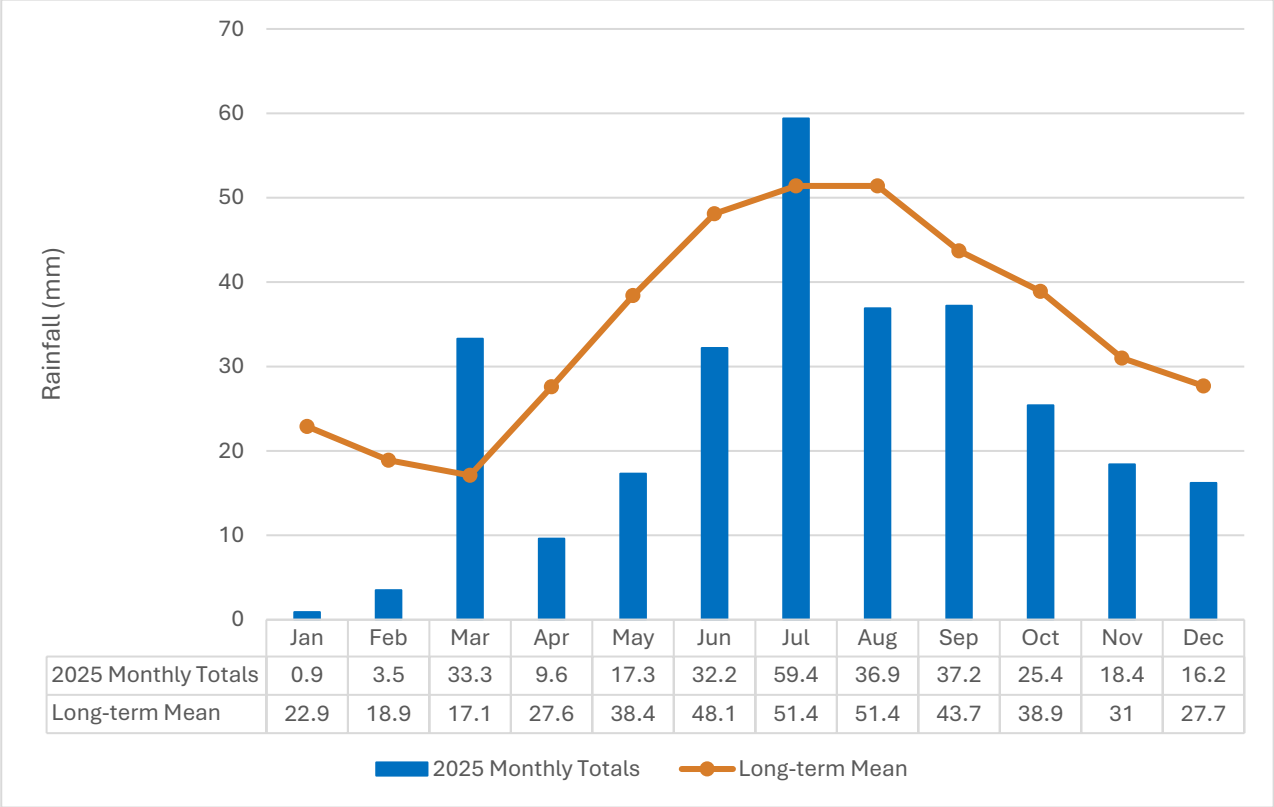
The long-term average annual rainfall at Burra is 417.1 mm, with winter (June, July and August) receiving the highest rainfall, and late summer (January and February) and early autumn (March) receiving the lowest rainfall (**Graph 4.2**). However, in 2025, while there was above average rainfall in March and July, there was significantly below average rainfall in all other months, with an annual total of 290.3 mm.

Rainfall data has been obtained from the BOM Burra Community School weather station (#21077) (BOM 2026b), which is located approximately 10 km north of the Stage 1A and Stage 1B Project Areas.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2025 minimum	14.5	15.5	15.8	10	5.2	4.6	4.1	5.2	5.8	8.6	9.6	12.2
2025 maximum	31.7	32.1	30.4	24.3	19.2	13.8	12.8	14.3	17.6	22.1	22.5	29.1
Long-term minimum	15	14.8	12.4	9.1	6.4	4.8	4	4.5	6	8	10.7	12.6
Long-term maximum	30.5	29.8	26.5	21.8	17.2	13.5	12.9	14.3	17.5	21.3	24.8	27.8

Graph 4.1 Mean Minimum and Maximum Daily Temperatures Each Month in 2025 Compared with Long-term Mean Minimum and Maximum Daily Temperatures Each Month



Graph 4.2 Monthly Rainfall in 2025 Compared with Long-term Mean Monthly Rainfall

5.0 Bird Utilisation Survey

The objective of the Bird Monitoring Program is to *record which EPBC Act listed bird species, state listed species, and species of concern (e.g., raptors) occur on site* which will be achieved via undertaking BUS.

The BAMP requires BUS to be undertaken each season (summer; autumn; winter; spring) for the first two years of operation (refer to **Glossary** for definition of operation). As operation of Stage 1A and Stage 1B started on 21/03/2025 and 4/04/2025, respectively, seasonal BUS will continue through to autumn 2027 (inclusive). After the first two years of operation, BUS will be undertaken twice a year (once in summer (to detect migratory species) and once in spring (optimal survey time for birds) for operation years 3-10 inclusive.

The first BUS was undertaken on 19-21 December 2023 (i.e. before commencement of commissioning of Stage 1A or Stage 1B), as implementation of the BAMP had to commence before commissioning (which started on 4/04/2024 for Stage 1A) (refer to **Glossary** for definition of commissioning).

5.1 BUS Sites

Thirteen BUS sites were previously established across a range of different vegetation associations (VAs) within the Project Area to optimise the detection of bird assemblages, as outlined in **Table 5.1** and shown in **Figure 5.1**, **Figure 5.2** and **Figure 5.3**. Twelve BUS sites are located throughout the Stage 1A and Stage 1B Project Areas, across six different VAs, with five BUS sites within Stage 1A (3,711.40 ha) and seven within Stage 1B (4,458.16 ha), while one is located at the edge of Porter Lagoon (outside the Stage 1A and Stage 1B Project Areas).

The habitat type at each BUS site is broadly categorised as Lagoon, Grassland or Woodland. Seven sites (53.8 %) are located within Grassland habitat and five sites (38.5 %) are located within Woodland habitat, while one site (7.7 %) (BUS Site 1) is located at the edge of Porter Lagoon (a large body of water which occurs outside of the Stage 1A and Stage 1B Project Areas) and includes grassland at the edge of the lagoon as well as planted woodland adjacent to the lagoon. BUS Site 1 is located at Porter Lagoon, to survey specifically for migratory wader species which might utilise the lagoon habitat.

Table 5.1 BUS Site Locations, Vegetation Associations and Habitat Types

BUS Site	Stage 1A / Stage 1B	Latitude	Longitude	Vegetation Association	Habitat Type
1	N/A	-33.820983	138.871917	Grazed Mixed Grassland next to Porter Lagoon.	Lagoon
2	Stage 1A	-33.788291	138.881921	VA 8 *Austrostipa* spp. (Spear Grass) mixed grassland.	Grassland
3	Stage 1A	-33.778633	138.919149	VA 6 *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) open woodland.	Woodland
4	Stage 1A	-33.841198	138.931216	VA 2 *Lomandra multiflora* ssp. *dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) mixed open grassland.	Grassland
5	Stage 1B	-33.780569	138.953826	VA 4 *Eucalyptus odorata* (Peppermint Box) closed woodland.	Woodland
6	Stage 1B	-33.792663	138.991502	VA 3 *Eucalyptus porosa* (Mallee Box) open woodland.	Woodland
7	Stage 1B	-33.749617	139.006506	VA 8 *Austrostipa* spp. (Spear Grass) mixed grassland.	Grassland
8	Stage 1B	-33.779672	138.993384	VA 6 *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) open woodland.	Woodland
9	Stage 1B	-33.800154	139.013894	VA 3 *Eucalyptus porosa* (Mallee Box) open woodland.	Woodland
10	Stage 1A	-33.788661	138.902949	VA 2 *Lomandra multiflora* ssp. *dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) mixed open grassland.	Grassland
11	Stage 1A	-33.809142	138.968271	VA 8 *Austrostipa* spp. (Spear Grass) mixed grassland.	Grassland
12	Stage 1B	-33.780426	139.017011	VA 14 *Triodia irritans* (Spinifex) Grassland +/- Emergent *Eucalyptus oleosa* ssp. *oleosa* (Red Mallee).	Grassland
13	Stage 1B	-33.720469	138.996799	VA 8 *Austrostipa* spp. (Spear Grass) mixed grassland.	Grassland

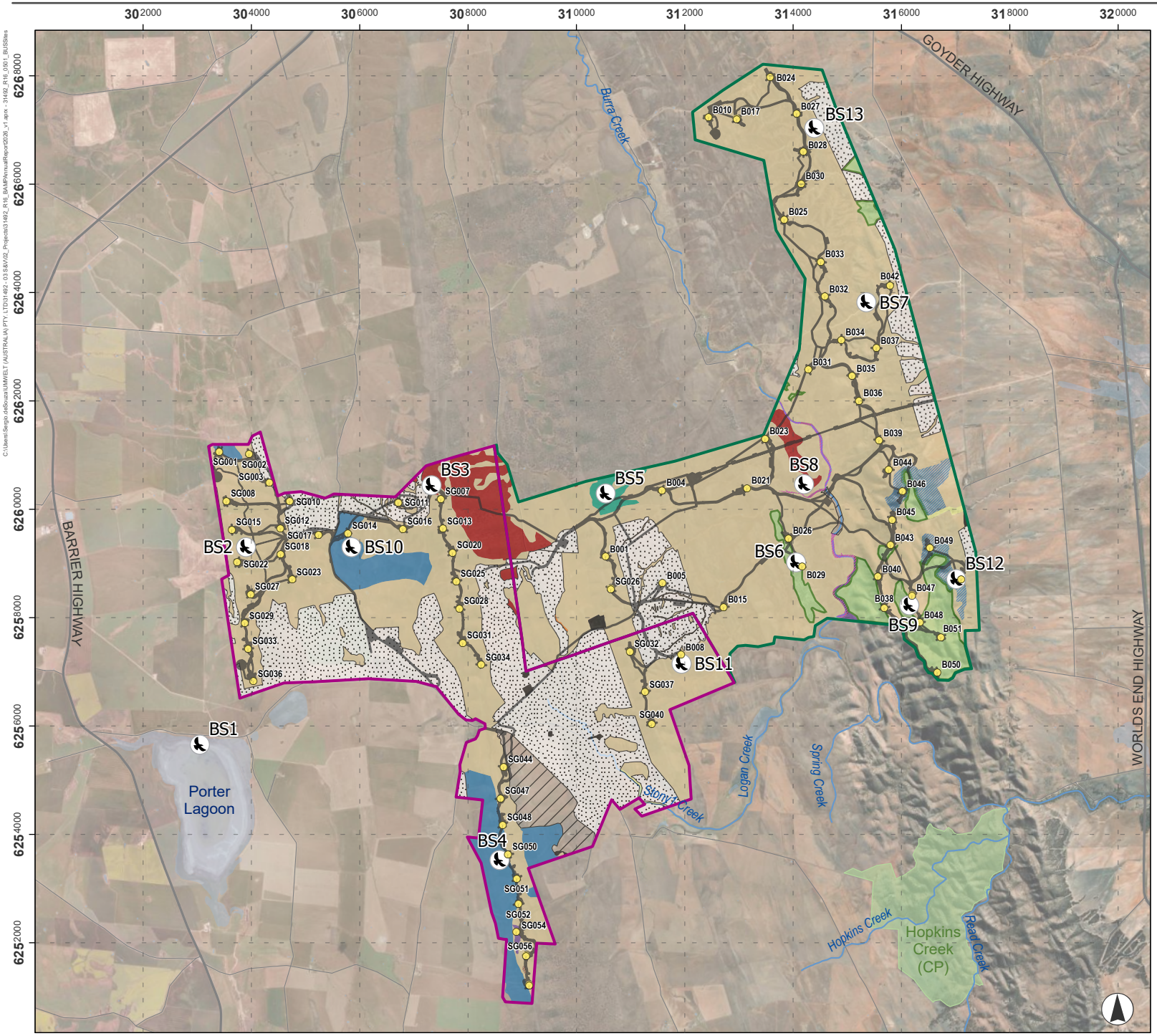


Figure 5.1

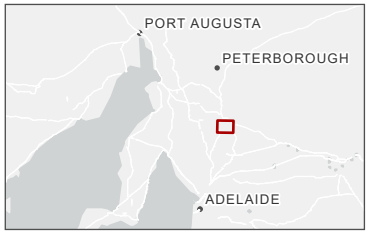
BUS Sites Across the Project Area

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- BUS site
- Wind Turbine Generator

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping



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Kilometres

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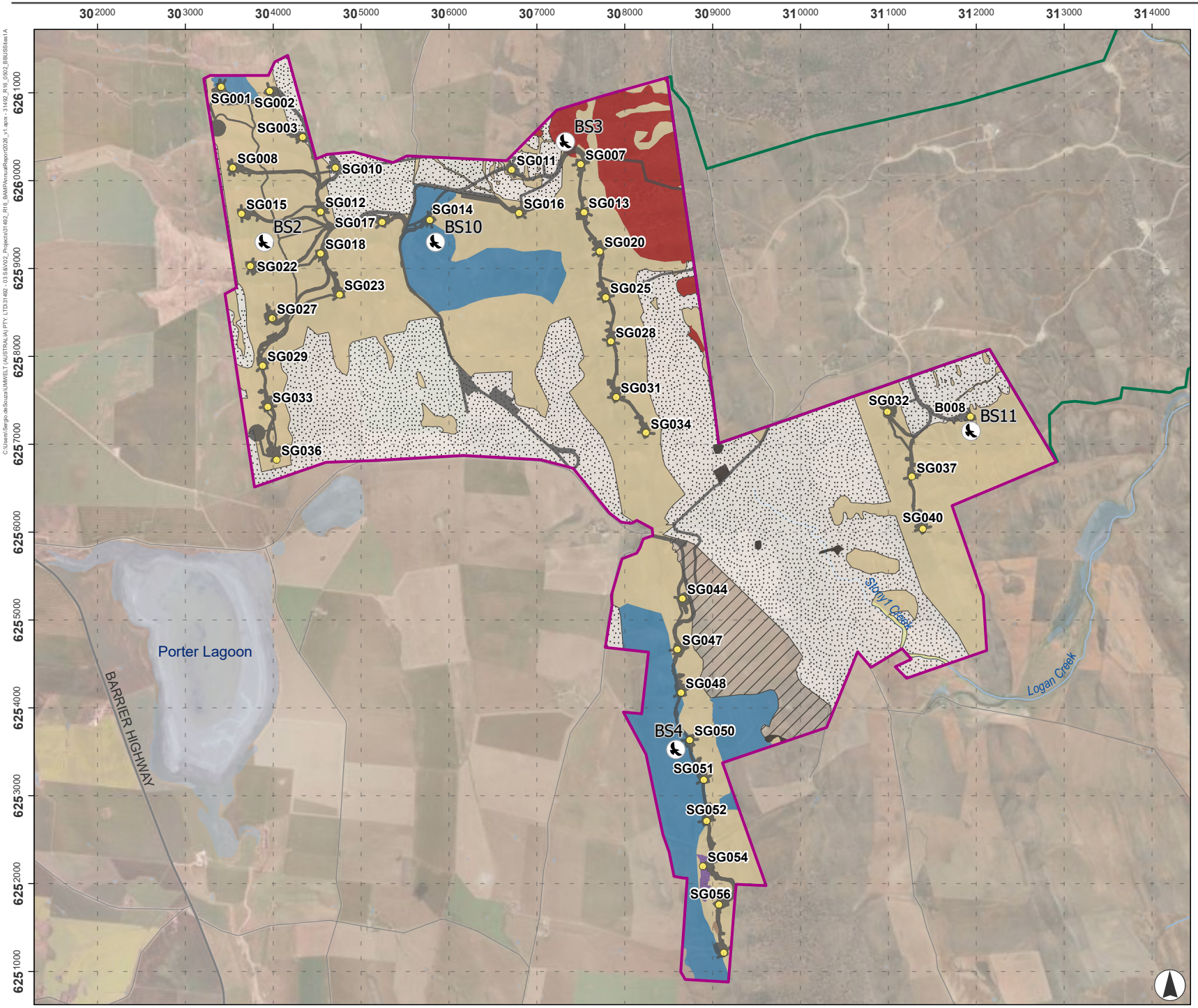


Figure 5.2

BUS Sites Within and Adjacent to the Stage 1A Project Area

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- BUS site
- Wind Turbine Generator

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping

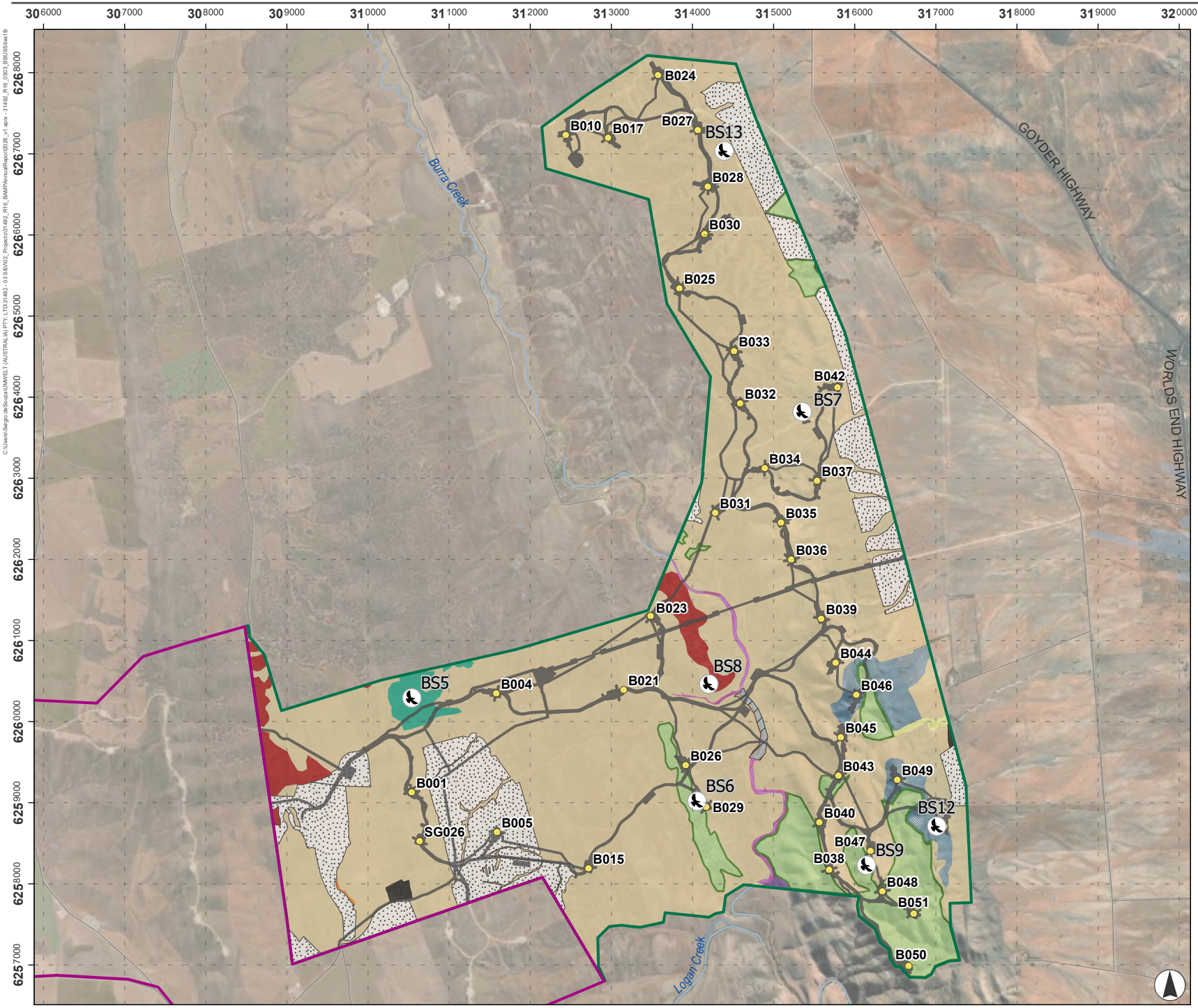
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Figure 5.3

BUS Sites Within the Stage 1B Project Area

Legend

- Stage 1A
- Stage 1B
- BUS site
- Goyder South Infrastructure
- Wind Turbine Generator

Vegetation association

- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- Amenity / Urban
- Cropping

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5.2 BUS Methodology

5.2.1 20 Minute 2-ha Bird Survey

At each BUS site, a 2-ha area was traversed for 20 minutes in accordance with the standard Birdlife Australia 2-ha survey method (Birdlife Australia, 2025), originally adapted from Lyon (1986), and in accordance with the *Survey guidelines for Australia's threatened birds. Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia, 2010).

The surveys were conducted twice at each site, once in the morning and once in the afternoon, on different days. Surveys were undertaken in typical seasonal weather conditions (summer, autumn, winter and spring).

For each bird observed at a BUS site during a 20-minute survey, the following data is collected:

- Species.
- Number of individuals (of each species) observed.
- Flight height above ground (m) (minimum and maximum) (where relevant).
- Behaviour, including:
    - Flying in a single direction – FLM.
    - Flying (hovering or circling) over or around a single point – FLH.
    - Foraging (feeding) on ground – FOG.
    - Foraging on trees or shrubs – FOT/FOS.
    - Perching/resting/walking on ground – ROG.
    - Perching/resting/climbing on trees or shrubs – ROT/ROS.
    - Flight details: height (m) and direction flown, where possible and relevant.

Flight heights and distances are estimated with the aid of existing meteorological masts, wind turbines, landmarks and mapping, aided by the use of a range-finder in the absence of these reference points.

All birds observed or heard while traversing a BUS Site are recorded, including those that are observed directly outside of the 2-ha area within the same vegetation association, up to a distance where a positive species identification could reasonably be obtained. Birds observed outside of the 2-ha area are recorded as being offsite.

Behaviour is assigned to birds as per the activity undertaken upon initially being observed, or if disturbed by surveyors, prior to being disturbed. For example, for birds commonly observed for the first time after being flushed, behaviour would be recorded as resting on ground or foraging on ground, as relevant.

Flight height details are recorded for all bird species observed flying during the surveys. These details are used to help understand and assess the potential collision risk of the bird species (refer to **Section 5.4)**.

5.2.2 Opportunistic Bird Observations

Opportunistic observations are recorded separately and will be used to supplement BUS Site observations across the Project Area and to detect any species that are not recorded during the BUS Site surveys.

All opportunistic records of 'at risk' bird species (such as threatened species and raptors) and species not already observed during BUS Site surveys, are recorded while travelling between BUS Sites and throughout the Project Area. For each opportunistic observation, the following information is recorded:

- Bird species.
- Number of individuals.
- Flight height and direction (where relevant).
- Behaviour.
- Location (e.g. via Global Positioning System (GPS) waypoint).

5.2.3 Limitations

Where possible, survey windows aim to be flexible and can be planned to coincide with favourable seasonal weather conditions as much as possible, including low wind and clear skies. Due to scheduling, this is not always possible and sometimes surveys are undertaken during inclement weather, which is likely to impact observations during the survey. Furthermore, each seasonal survey (13 BUS Sites surveyed twice) occurs over a 3-day period, which represents only a snapshot of avian activity and utilisation at the time of the survey.

The results detailed in this report consist of descriptive statistics (i.e., not inferential statistics) that display and summarise the avian observations and data collected at specific sites at a given point in time. Seasonality and variation in local weather conditions may impact on avian activity and thus survey results, as birds are known to be generally less active when climatic conditions are challenging (i.e., low/high temperatures, strong winds/rain).

Estimation of flight height is prone to observer error and may not accurately represent the actual risk of bird collision with WTGs, based on their actual distance from the ground and the height of the WTGs. Additionally, the survey methods do not account for the time a bird species spends within the RSA, which is likely to influence the actual level of risk. For example, the level of risk of collision for a bird species which spends 5 % of its time airborne in the RSA, is likely to be different to a bird species which spends 50 % of its time airborne in the rotor-swept risk area.

5.3 BUS Results

Four BUS were undertaken at the following times:

- Summer – 10-13 February 2025.
- Autumn – 27-29 May 2025.
- Winter – 30 July – 1 August 2025.
- Spring – 13-15 October 2025.

5.3.1 Weather Conditions During BUS

Weather conditions during the four BUS are presented in **Table 5.2**. Rainfall data has been obtained from the BOM Burra Community School weather station (#21077) (BOM 2026b), while temperature data and wind data (where available) has been obtained from the BOM Clare High School weather station (#21131) (BOM 2026a). However, as no wind data was available (at the time of writing) from BOM for summer and autumn, wind data has been sourced from GSWF (GE 2026), and no maximum wind gust data is available for summer or autumn.

While rain was recorded during all four BUS, the autumn and spring surveys experienced the most rainfall with 15.9 mm and 23.8 mm, respectively, while the winter survey experienced the most rainfall prior to the survey with 36.9 mm recorded in the two weeks prior to the survey.

The winter BUS experienced the lowest temperatures overall (ranging from 0.4°C to 12°C), while the summer BUS experienced the highest temperatures overall (ranging from 23.3°C to 41.8°C).

Table 5.2 Weather Conditions During BUS

Season	Date / Survey Period	Rain (mm)	Rain Prior to Survey* (mm)	Lowest Temperature (°C)	Highest Temperature (°C)	Maximum Wind Gust			9am Wind		3pm Wind	
						Direction	Speed (km/h)	Time	Direction	Speed (km/h)	Direction	Speed (km/h)
Summer	10/02	0		15.4	34	-	-	-	E	6	E	3
	11/02	0		18.6	39.1	-	-	-	NE	7	SSE	3
	12/02	0		23.3	41.8	-	-	-	NNE	9	NE	6
	13/02	0.3		19.2	25.6	-	-		SSW	15	SSW	14
	10-13/02/2025	0.3	3.2 (4/02)									
Autumn	27/05	15.6		8.1	15	-	-	-	W	14	SW	11
	28/05	0.3		8.3	14	-	-	-	S	4	SW	5
	29/05	0		10.1	15.8	-	-	-	S	6	S	8
	27-29/05/2025	15.9	0.2 (19/05)									
Winter	30/07	3.6		0.6	12	SW	26	15:16	SE	7	S	13
	31/07	0		1.4	11.2	SSE	20	15:11	S	2	SE	11
	1/08	0.4		0.4	11.6	S	28	10:56	SSE	7	SSE	9
	30/07 – 1/08/2025	4.0	36.9 (16-29/07)									
Spring	13/10	23.2		6.1	20.5	NNW	31	14:04	SW	7	WNW	13
	14/10	0.6		3.1	22.1	SSW	28	16:55	SW	7	WSW	11
	15/10	0		5.3	28.5	N	43	12:20	NE	11	NNW	15
	13-15/10/2025	23.8	2.6 (30/09 & 6/10)									

*Rain up to two weeks prior to BUS.

Source: All rain data is from BOM Burra Community School weather station (#21077) (BOM 2026b). All temperature data is from BOM Clare High School weather station (#21131) (BOM 2026a). As no wind data was available (at the time of writing) from BOM for summer and autumn, wind data has been sourced from GSWF (GE 2026), and no maximum wind gust data is available for summer or autumn. Winter and spring wind data is from BOM Clare High School weather station (#21131) (BOM 2026a).

5.3.2 Bird Species Diversity and Abundance

In 2025, a total of 61 bird species (57 native and four introduced species) were observed across the four seasonal BUS (**Table 5.3**), including 58 species at BUS sites and 3 additional species observed opportunistically. This is slightly lower than the total of 76 species (72 native and four introduced) recorded previously across the four BUS of December 2023 (summer) to October 2024 (spring) (Umwelt 2025).

Table 5.3 Bird Species Composition and Abundance During Each BUS in 2025

Survey Period	Seasonal Species Diversity	Seasonal Bird Abundance	Bird Abundance Per Season as a Percentage of all Observations (%)
Summer 2025	42	828	22.2
Autumn 2025	35	712	19.1
Winter 2025	41	1,152	30.9
Spring 2025	48	1,037	27.8
Total	**61**	**3,729**	**100**

Bird species recorded in 2025 were predominately common grassland and woodland species, which aligns with the available habitat that consists mainly of grassland and cropping paddocks with some remnant woodlands. A list of all (61) bird species observed across all four seasonal surveys at BUS sites, as well as opportunistic observations, is provided in **Appendix C**, while a list of all bird species recorded across all BUS to date is provided in **Appendix D**.

A total abundance of 3,729 individuals was recorded across the four seasonal BUS periods in 2025, including 3,448 individuals observed at BUS sites and 281 individuals observed opportunistically. Bird abundance varied over the four seasonal BUS periods, being greatest in winter (July/August) with 1,152 individuals recorded, and lowest in autumn (May) with 712 individuals recorded (**Table 5.3**).

Bird abundance declined from a total of 7,329 individuals in 2024 (Umwelt 2025) to 3,729 in 2025. This decrease is partly explained by the absence of large flocks of birds in 2025. For example, 3,000 Grey Teal were recorded in the summer (December 2023) BUS during two counts (AM and PM) at BUS Site 1 (Porter Lagoon), which substantially inflated total abundance in 2024.

Across all four seasonal BUS periods in 2025, the most abundant native species was Galah (*Eolophus roseicapilla*), followed by Australian Magpie (*Gymnorhina tibicen*) and Crow (*Corvus* sp.), accounting for 11.4 %, 10.7 % and 4.7 % of all sightings, respectively. In general, the number of birds recorded at each BUS site in 2025 was similar, with little variation between the sites, except when large flocks of birds were recorded, such as the group of Australian Shelducks (*Tadorna tadornoides*) recorded at BUS Site 1 (Porter Lagoon), or passing flocks of Galahs and Australian Magpies.

In 2025, four introduced species, including Eurasian Skylark (*Alauda arvensis arvensis*), Feral Pigeon (*Columba livia*), House Sparrow (*Passer domesticus domesticus*) and Common Starling (*Sturnus vulgaris vulgaris*), were observed and accounted for 2.7 %, 14.2 %, 4.3 % and 11.5 % of sightings respectively. Large flocks of more than 100 Feral Pigeon were recorded at BUS Site 8 across three different seasonal BUS periods, resulting in a notably high abundance for this species in 2025.

5.3.2.1 Seasonal Variation in Diversity and Abundance

Total avian diversity and abundance varied slightly between all four seasonal BUS in 2025 (**Table 5.3**). The highest diversity of bird species recorded was during the spring survey period when a total of 48 species were recorded. However, the highest abundance of bird species recorded was during the winter survey period with a total of 1,152 individuals, accounting for 30.9 % of all individual bird observations across the four seasons. The lowest avian diversity and abundance recorded was during the autumn BUS with a total of 35 bird species and 712 individuals, accounting for 19.1 % of individual birds recorded across all seasons, which may have been a result of the unfavourable weather conditions (rain) in the lead-up to the survey and also during the survey period (**Section 5.3.1**).

In contrast, in 2024 the highest diversity and abundance occurred in summer when 49 species and 3,628 individuals were recorded, accounting for more than half of all birds observed that year, with that peak strongly influenced by 3,000 Grey Teal recorded during two counts at BUS Site 1 (Porter Lagoon) during the summer (December 2023) BUS (Umwelt 2025). In 2024, the lowest diversity occurred in autumn (40 species) and the lowest abundance occurred in spring.

5.3.2.2 Habitat Variation in Diversity and Abundance

Across all four BUS in 2025, the diversity of species recorded at each BUS site varied from a low of ten at BUS Site 4 (which is *Austrostipa* spp. (Spear Grass) mixed grassland; Grassland habitat), to a high of 29 and 30 at each of the following two Woodland habitat BUS sites, suggesting that higher species diversity is recorded in Woodland habitats:

- BUS Site 5 (*Eucalyptus odorata* (Peppermint Box) closed woodland).
- BUS Site 8 (*Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) open woodland).

The total species diversity, together with the number of unique species (which are species that were not recorded at any other habitat type) and the total abundance recorded at each of the three habitat types (Grassland, Woodland and Lagoon), is presented in **Table 5.4**.

Table 5.4 Total Species Diversity and Number of Unique Species Recorded at Each Habitat Type Across all Four BUS in 2025

Habitat Type	BUS Site(s)	Total Species Diversity	Number of Unique Species	Total Abundance
Grassland	2, 4, 7, 10, 11, 12 and 13	29 (47.5%)	5 (8.2%)	1,351 (39.2%)
Woodland	3, 5, 6, 8 and 9	49 (80.3%)	22 (36%)	1,718 (49.8%)
Lagoon	1	22 (36.1%)	3 (4.9%)	379 (11.0%)

The highest species diversity was recorded at BUS sites within Woodland habitat, with 49 species, including 22 unique species, recorded, and accounting for 80.3 % of all species and 36.1 % of unique species. Lower species diversity was recorded at BUS sites within Grassland habitat, which recorded 29 species, including 5 unique species, representing 47.5 % of overall diversity and 8.2 % of unique species.

High diversity was also recorded at BUS Site 1 (Porter Lagoon), which recorded a total of 22 species, which despite being a single site, supported 36.1 % of total species and 4.9 % of unique species. This

included the following three unique species which were not recorded at any other habitat type or BUS site:

- Horsfield's Bronze Cuckoo (*Chalcites basalis*).
- Red-capped Plover (*Charadrius ruficapillus*).
- Australian Shelduck (*Tadorna tadornoides*).

Overall bird abundance was highest at the Woodland habitats, with 1,718 individual birds recorded, accounting for 49.8 % of total abundance, while Grassland habitats had the lowest abundance within the Stage 1A and Stage 1B Project Areas, with 1,351 individual birds recorded, accounting for 39.2 % of total abundance recorded (**Table 5.4**).

Lagoon habitat is located outside of the Stage 1A and Stage 1B Project Areas and recorded 379 individual birds, accounting for 11.0 % of total abundance. This value can be skewed by observations of large flocks of bird species depending on weather events and if water is present in the Lagoon. While water was present within the Lagoon during the 2025 BUS, only one large flock of 83 individual Australian Shelducks, was recorded during the spring survey. As a result of low flock numbers, BUS Site 1 recorded a lower bird abundance overall compared to 2024.

In 2024, Woodland habitat showed the highest bird diversity, with 56 species, including 31 unique species, while Grassland habitat supported fewer species (36 total, 10 unique) (Umwelt 2025). BUS Site 1 at Porter Lagoon also contributed notably in 2024, recording 23 species, including six unique species. Abundance patterns that year were strongly skewed by the Lagoon habitat, which recorded 3,000 Grey Teal during two counts at BUS Site 1 in summer (December 2023). Within the project area in 2024, Woodland habitat recorded the highest abundance (1,749 individuals), while Grassland habitat recorded the lowest (1,340 individuals).

5.3.3 Species of Concern

The BAMP is applicable to all of the bird species listed in BAMP Table 10 and BAMP Table 11, which are also included in **Appendix B** for reference. The BAMP also applies to any native species subsequently found to occur at the site and that are listed as:

- Threatened or migratory under provisions of the EPBC Act.
- Threatened on schedules of the SA NPW Act.
- Non-threatened species of 'at risk' birds that were not previously known to occur or predicted to occur at the site and/or have not been included in Table 11 in the BAMP.

These are collectively termed 'species of concern'. Species of concern recorded during the 2025 BUS are discussed below.

5.3.3.1 EPBC Act Listed Threatened Species

Only two EPBC Act listed threatened species, the Southern Whiteface (*Aphelocephala leucopsis leucopsis*) and Diamond Firetail (*Stagonopleura guttata*), were observed during BUS in 2025. Southern Whiteface was recorded during all four BUS in 2025, while Diamond Firetail was only recorded during summer and spring BUS in 2025. While Southern Whiteface was recorded during all four BUS in 2024, Diamond Firetail was not recorded during the 2024 survey periods (Umwelt 2025).

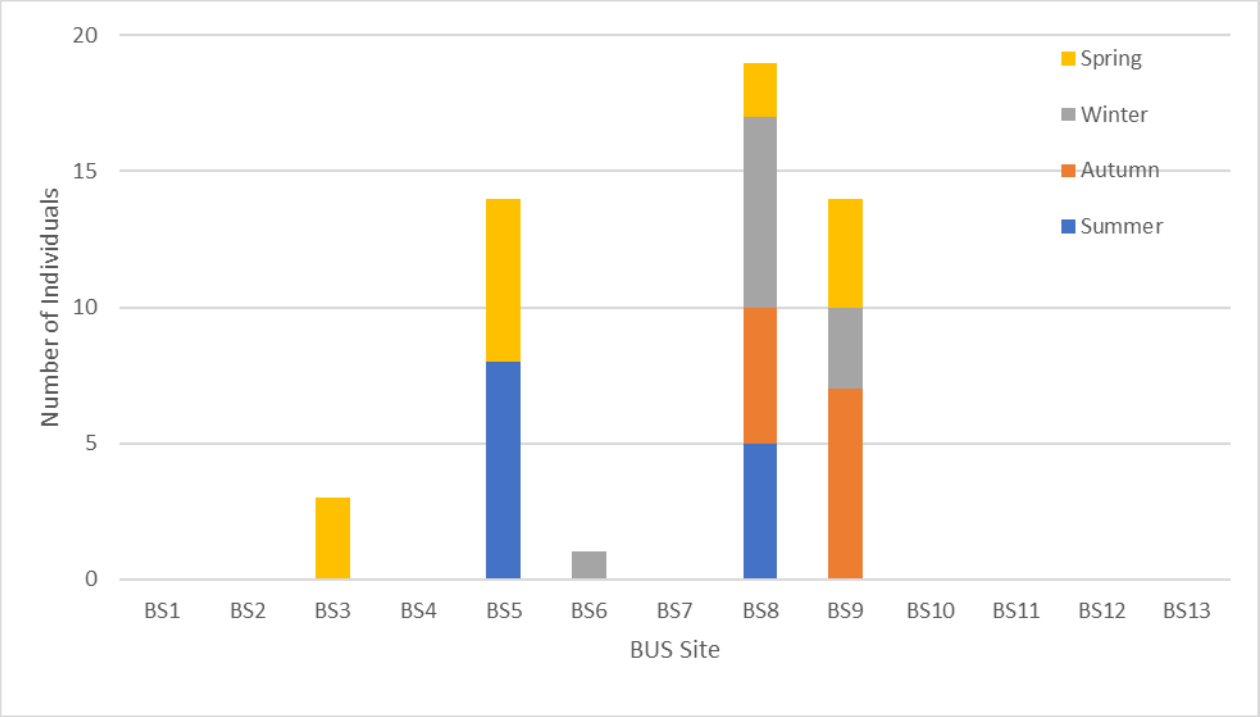
Southern Whiteface

The Southern Whiteface occurs in open woodland and shrubland habitat with an understorey of grasses and / or low shrubs. Suitable habitat is usually dominated by grassland or *Eucalyptus* spp., many of which occur in the Project Area (DCCEEW 2023a).

The most observations of Southern Whiteface occurred in the spring 2025 BUS when a total of 15 birds were observed across four BUS Sites (**Table 5.5**). Overall, the species was observed at five of the 13 BUS sites, all of which were Woodland sites (Site 3, 5, 6, 8 and 9), with the highest number observed at BUS Site 8, where a total of 19 individuals were observed over the four survey periods (**Graph 5.1**). The species was not observed opportunistically.

Table 5.5 Southern Whiteface Abundance and Occupancy During Each BUS Period in 2025

Survey Period	Abundance	Occupancy at BUS Sites	Opportunistically Recorded	Total Abundance
Summer	13	2	0	13
Autumn	12	2	0	12
Winter	11	3	0	11
Spring	15	4	0	15



Graph 5.1 Abundance and Occupancy of Southern Whiteface Observed at Each BUS Site (BS) Over the Four BUS Periods in 2025

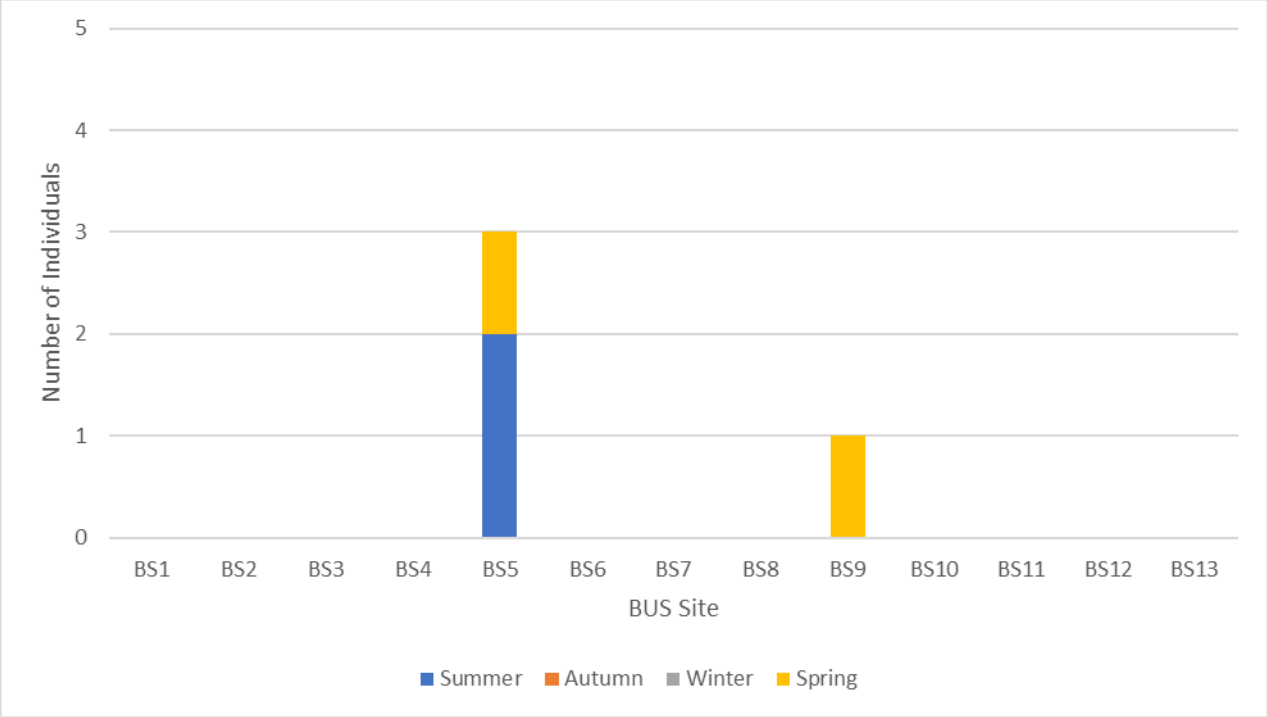
Diamond Firetail

The Diamond Firetail occurs in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees (Higgins *et al*. 2007 in DCCEEW 2023b). They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover (Antos *et al*. 2008 in DCCEEW 2023b).

Diamond Firetail abundance and occupancy during each BUS period in 2025 is presented in **Table 5.6**. The species was only observed at two (Site 5 and Site 9) of the 13 BUS sites, both of which were Woodland sites, with three individuals observed at BUS Site 5 over summer (n=2) and spring (n=1) BUS periods, and one observed at BUS Site 9 in spring (**Graph 5.2**). The species was not observed opportunistically.

Table 5.6 Diamond Firetail Abundance and Occupancy During Each BUS Period in 2025

Survey Period	Abundance	Occupancy at BUS Sites	Opportunistically Recorded	Total Abundance
Summer	2	1	0	2
Autumn	0	0	0	0
Winter	0	0	0	0
Spring	2	2	0	2



Graph 5.2 Abundance and Occupancy of Diamond Firetail Observed at Each BUS Site (BS) Over the Four BUS Periods in 2025

5.3.3.2 EPBC Act Listed Migratory Species

Similar to 2024, no EPBC Act listed migratory bird species were recorded during the four BUS periods in 2025 (**Appendix C**; **Appendix D**).

5.3.3.3 NPW Act Listed Threatened Species

Three NPW Act listed threatened species were observed during 2025 BUS, including Chestnut Quail-thrush (*Cinclosoma castanotum*), Black Falcon (*Falco subniger*) and Diamond Firetail (*Stagonopleura guttata*) (**Table 5.7**). The Chestnut Quail-thrush was observed once, opportunistically, during the

summer BUS. The Black Falcon was observed during the winter BUS, with one individual recorded at BUS Site 10 (Grassland habitat) flying over a ridge.

Table 5.7 NPW Act Listed Threatened Species Observed During Each BUS in 2025

Scientific Name	Common Name	NPW Act Status	Summer	Autumn	Winter	Spring
Cinclosoma castanotum	Chestnut Quail-thrush	R	1	-	-	-
Falco subniger	Black Falcon	R	-	-	1	-
Stagonopleura guttata	Diamond Firetail	V	2	-	-	2

NPW Act Status: **R**: Rare; **V**: Vulnerable.

The Chestnut Quail-thrush is a largely ground-based bird that favours the understorey over the canopy in order to forage, nest and hide from predators. They are a locally nomadic bird that prefers to run than fly – with or without disturbance. As they are largely ground-based and prefer to run than fly, the species is not considered at risk of collision with wind farm infrastructure and, as such, is not considered a species of concern.

The Black Falcon is a raptor species which is potentially at risk of collision with wind farm infrastructure, as it may fly at WTG RSA height (**Section 2.3.5**). While it was not initially identified as a bird species potentially relevant to the Stage 1A and Stage 1B Project Areas and potentially at risk of collision with wind farm infrastructure (refer to BAMP Section 4.2), it was observed for the first time during the summer 2023 BUS and as such was previously added to the species of concern list in **Appendix B** (Umwelt 2025).

5.3.3.4 Non-threatened Species of 'At Risk' Birds

Two non-threatened species of 'at risk' birds, that were not previously known to occur or predicted to occur at the site, the Fairy Martin (*Petrochelidon ariel*) and Red-backed Kingfisher (*Todiramphus pyrrhopygius*), were recorded at BUS sites during 2025 BUS (**Table 5.8**). Neither of these species are listed as threatened or migratory under the EPBC Act, or listed as threatened under the NPW Act. Both species are considered to be potentially at risk for collision with wind farm infrastructure as they may fly at WTG RSA height. As such, they are considered a species of concern and have been added to BAMP Table 11 (**Appendix B**).

Table 5.8 Non-threatened Species of 'At Risk' Birds Recorded Via BUS in 2025

Species Name (Common Name)	Summer BUS	Autumn BUS	Winter BUS	Spring BUS
Fairy Martin (*Petrochelidon ariel*)	-	-	-	BUS Site13
Red-backed Kingfisher (*Todiramphus pyrrhopygius*)	-	-	-	BUS Site 5 & 8

5.3.4 Raptors and Waterbirds

5.3.4.1 Raptors

A total of 40 raptor observations, consisting of five different species, were recorded across the four BUS in 2025, as summarised in **Table 5.9**. The two most commonly observed raptors were Nankeen

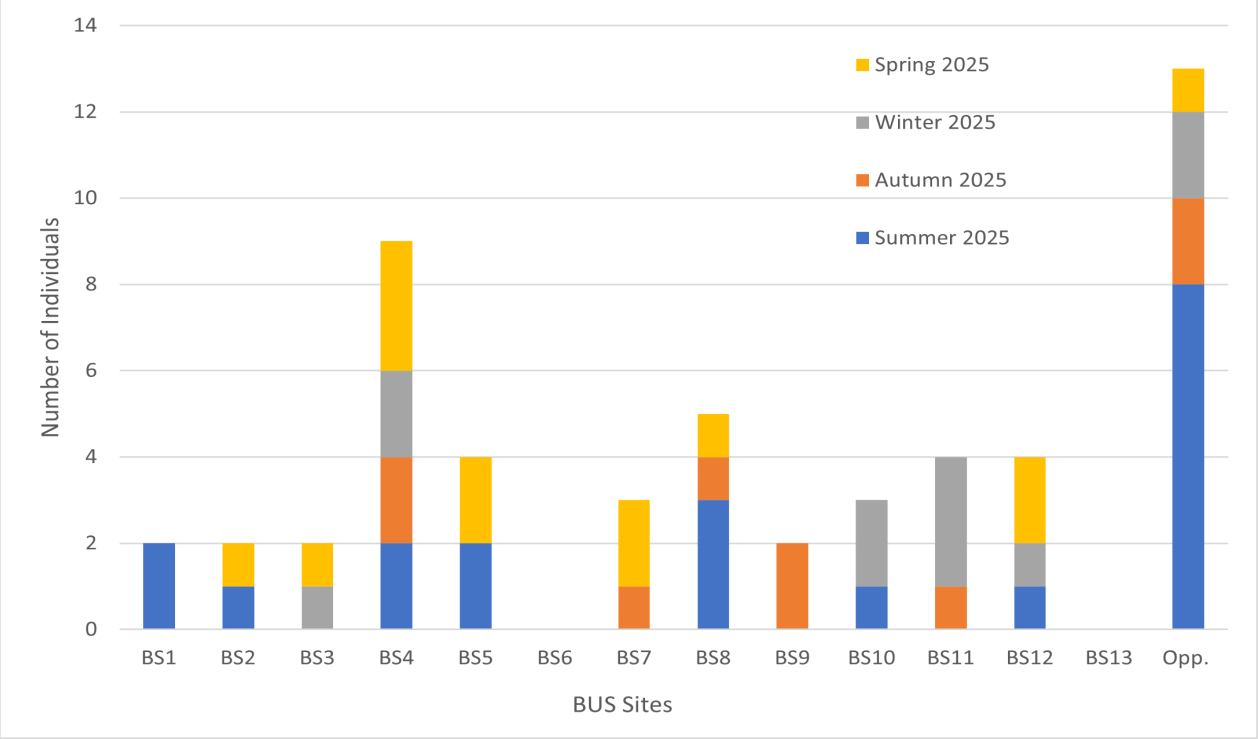
Kestrel (*Falco cenchroides cenchroides*) and Wedge-tailed Eagle (*Aquila audax audax*) with a total of 18 observations for each species across the 2025 BUS, accounting for 90 % of all raptors observed.

Nankeen Kestrel (*Falco cenchroides cenchroides*) was recorded in all four 2025 BUS periods and across 10 of 13 BUS sites, while the Wedge-tailed Eagle (*Aquila audax audax*) was recorded in all four 2025 BUS periods across 9 out of 13 BUS sites. Brown Goshawk (*Accipiter fasciatus fasciatus*), Brown Falcon (*Falco berigora berigora*) and Black Falcon (*Falco subniger*) were only recorded during one of the seasonal BUS periods. One Brown Goshawk was observed in spring at BUS Site 10, while two Brown Falcon were observed in summer at BUS Site 8, and one Black Falcon was observed in winter at BUS Site 5.

Table 5.9 Number of Observations of Raptors During Each BUS in 2025

Scientific Name	Common Name	Summer 2025	Autumn 2025	Winter 2025	Spring 2025	Total
Accipiter fasciatus fasciatus	Brown Goshawk	-	-	-	1	1
Aquila audax audax	Wedge-tailed Eagle	3	6	6	3	18
Falco berigora berigora	Brown Falcon	2	-	-	-	2
Falco cenchroides cenchroides	Nankeen Kestrel	7	1	2	8	18
Falco subniger	Black Falcon	-	-	1	-	1
Total	**-**	**12**	**7**	**9**	**12**	**40**

The total abundance of raptors observed over the 2025 BUS periods, at each BUS site and opportunistically, is shown in **Graph 5.3**.



Graph 5.3 Raptor Abundance and Occupancy at Each BUS Site Over the Four BUS Periods in 2025

In 2024, seven raptor species were recorded, with Nankeen Kestrel (n=27) the most widespread and frequently observed, appearing in all four surveys and at 11 of 13 sites (Umwelt 2025). Wedge-tailed Eagles were also common, recorded in three surveys at six sites, while the remaining species, including Brown Falcon, Brown Goshawk, Black-shouldered Kite, Australian Hobby, and Black Falcon,

were seen only occasionally. Across all surveys in 2024, 54 raptor observations were made, and Nankeen Kestrel accounted for just over half of these (51.9 %).

Opportunistic Observations

In 2025 opportunistic observations consisted of eight Nankeen Kestrel (mostly in summer), two Brown Falcon, two Wedge-tailed Eagle (both in autumn), and one Black-shouldered Kite in winter. Abundance for each raptor species across all four BUS periods in 2025 is provided in **Appendix C**, while **Appendix D** includes all raptor species recorded during BUS to date.

Opportunistic observations of raptors in 2025 were noticeably lower than in 2024, with fewer species and fewer overall observations in 2025. In 2024, opportunistic sightings included 19 Nankeen Kestrel (15 in summer), multiple Wedge-tailed Eagle across three BUS seasons, and nine Black-shouldered Kite in summer, along with Brown Falcon recorded year-round.

Wedge-tailed Eagle

Although not listed as a nationally or state threatened species, the Wedge-tailed Eagle (WTE from hereon) is considered to be a high-profile species and one of the most vulnerable to collision with operating turbines. In 2025, this species was observed 14 times across 9 out of 13 BUS sites and twice opportunistically in autumn. Similarly, in 2024 the WTE was observed 12 times across 6 out of 13 BUS sites and six times opportunistically (across autumn, winter and spring).

Four WTE nests are currently known to occur within the Project Area and are shown in **Figure 5.4**, along with previous nests which are no longer present, and other nests previously observed outside the Project Area (discussed further in **Section 6.0**).

As WTE pairs are known to reuse nests across varying seasons, and to minimise WTG collision risk for WTEs, wind farm design involved implementing a 1,000 m infrastructure exclusion buffer around known WTE nests, where practicable. However, two WTE nests were found late in the design process and as such do not have a 1,000 m infrastructure exclusion buffer. One of these nests is located approximately 470 m east of WTG SG072 and outside of the southern extent of the Stage 1A Project Area (**Figure 5.4**), with the status of this nest unknown (as it is located on private property). The other nest (Nest 16) was located approximately 480 m south-west of WTG B049, towards the southern extent of the Stage 1B Project Area (**Figure 5.4**), but is no longer present as determined via raptor nest monitoring. Furthermore, another WTE nest (Nest 17) was found more recently in May 2025, approximately 155 m south-east of WTG B026, and does not have a 1,000 m infrastructure exclusion buffer either, as it was found after the WTG had been constructed (**Figure 5.4**).

Refer to **Section 6.0** for raptor nest monitoring.

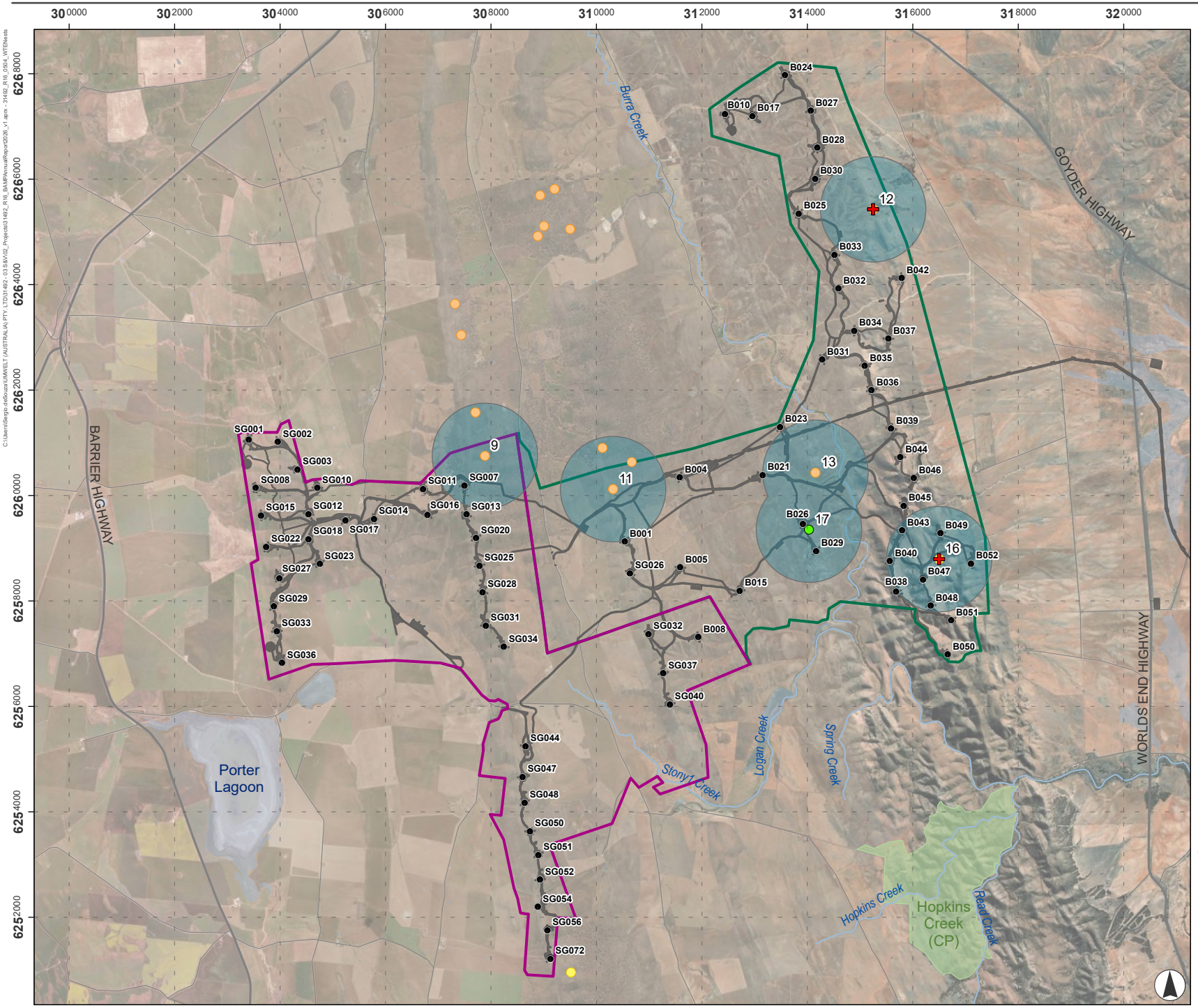


Figure 5.4

Wedge-tailed Eagle Nests Within and Surrounding the Project Area

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTE Nest within Project Area (Buffer 1km)
- Wind Turbine Generator
- WTE nest (2019)
- WTE nest (2021/2022)
- WTE nest (2025)
- WTE nest – no longer present
- Main road
- Local road
- Water course
- Water body
- NPWSA reserve

0 2.5 5

Kilometres

Scale 1:100,000 at A4
GDA2020 MGA Zone 54

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5.3.4.2 Waterbirds

The Project Area contains many small farm dams, creeks (mainly ephemeral) and drainage lines. Porter Lagoon (a large natural body of water) is situated approximately 2 km west of the Stage 1A and Stage 1B Project Areas (**Figure 5.1**) and is considered potential habitat for migratory bird species.

BUS Site 1 is situated next to Porter Lagoon and consists of grassland at the edge of the lagoon as well as planted woodland adjacent to the lagoon, and allows for migratory species to be observed during BUS. The dams in the Project Area generally lack aquatic vegetation, have bare edges trampled by stock (cattle and/or sheep) and therefore are not considered suitable foraging habitat for most migratory bird species.

In 2025, six waterbird species were recorded during seasonal BUS, comprising of 11.5 % of all birds observed during the four BUS periods (**Table 5.10**). None of the waterbirds observed are listed under the EPBC Act or NPW Act. Most of the waterbirds were recorded near BUS Site 1, 2 and 10, which are sites close to Porter Lagoon or small dams.

None of the species observed during the 2025 BUS were recorded as flying at RSA height. While the Australian Shelduck (*Tadorna tadornoides*), Australian Wood Duck (*Chenonetta jubata*) and Grey Teal (*Anas gracilis gracilis*) are generally known to fly at RSA heights, this was not recorded during the 2025 BUS (**Table 5.10**).

Table 5.10 Flight Height Details of Waterbirds Observed During 2025 BUS

Scientific Name	Common Name	Maximum Flight Height Observed (m)	Abundance (Recorded Via BUS)	Occupancy at BUS Sites	Opportunistic Records
Anas gracilis gracilis	Grey Teal	20	101	4	42
Anas superciliosa	Pacific Black Duck	15	2	1	-
Charadrius ruficapillus	Red-capped Plover	5	54	1	-
Chenonetta jubata	Australian Wood Duck	30	45	3	14
Egretta novaehollandiae	White-faced Heron	15	1	1	1
Tadorna tadornoides	Australian Shelduck	15	85	1	84

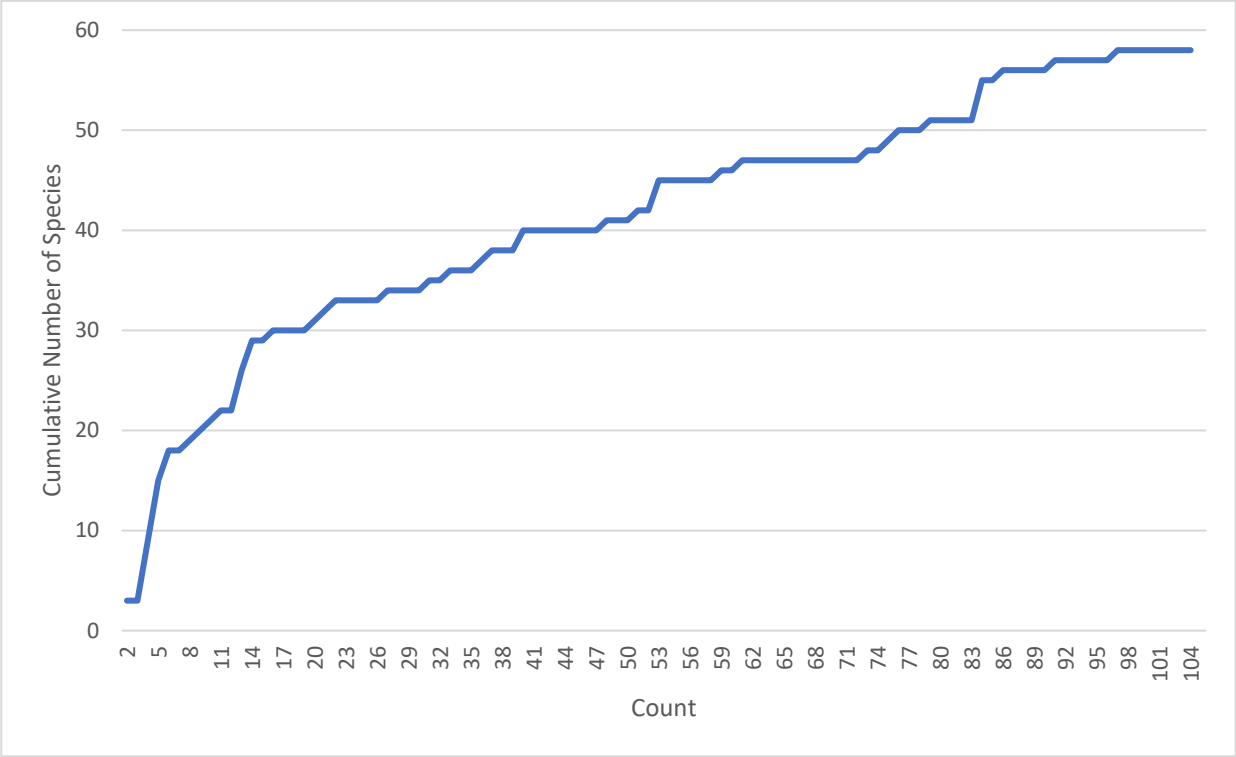
The Australian Wood Duck, Australian Shelduck, Grey Teal and Red-capped Plover are waterbirds known to move and forage in flocks, and were recorded at high abundance, with some at multiple sites and dams throughout the Project Area. The most abundant waterbird recorded across all four BUS periods in 2025 was the Grey Teal, with 60 individuals being observed during the summer BUS period at BUS Site 10, while the Australian Shelduck was the most abundant species recorded opportunistically throughout the Project Area over the four seasonal BUS periods in 2025.

In 2024, nine waterbird species were recorded, making up 51.3 % of all birds observed. However, this was heavily skewed by an exceptional total count of 3,123 Grey Teal, including 3,037 individuals at BUS Site 1, with 3,000 recorded over two counts (AM and PM) during the summer (December 2023) BUS.

5.3.5 Survey Adequacy

The cumulative number of bird species observed across the four seasonal BUS periods in 2025 is plotted in **Graph 5.4** (starting with the summer BUS in February 2025). A total of 58 different bird

species were observed via a total of 104 counts (with each 20 minute 2- ha bird survey undertaken at a BUS Site being a 'count'). The total number of counts is 104 (which consists of two counts (AM and PM) completed at each BUS Site, across 13 BUS Sites, over four BUS).



Graph 5.4 The Cumulative Number of Bird Species Recorded During BUS in 2025

The first BUS period in 2025 (summer) recorded a total of 33 species, while the second survey (autumn) recorded nine additional species, the third survey (winter) recorded nine additional species, and the fourth survey (spring) recorded seven additional seven species (resulting in a total of 58 species).

The shape of the curve in **Graph 5.4** demonstrates that after the initial summer BUS in 2025, the number of additional species being recorded is starting to plateau, demonstrating that the surveys provide a representative picture of the diversity of bird species using the Project Areas and surrounding region (i.e. Porter Lagoon). Given that different assemblages of bird species may occupy the site across different seasons, it is expected that the number of additional species detected will plateau even further in subsequent years of survey, as all seasons have now been surveyed more than once.

Low occurrence of opportunistic observations of unique species outside of dedicated BUS sites, suggests that survey sites have adequate coverage of the habitat within the Stage 1A and Stage 1B Project Areas and the data collected represents the diversity of species present.

5.4 Birds at RSA Height

A WTG primarily presents a collision risk to birds that fly within or close to RSA height. For this Project, bird flight heights are classified as being below RSA height (< 43 m), at RSA height (43-199 m) and above RSA height (> 199 m), which aligns with WTG design (**Section 2.3.5**).

Flight height data that was recorded for birds observed flying at BUS sites or opportunistically during BUS in 2025 is presented in **Table 5.11** and has been assessed to identify bird species flying at RSA height and therefore at risk of collision with WTGs.

Table 5.11 Minimum and Maximum Flight Heights of Birds Observed Flying During BUS in 2025

Scientific Name	Common Name	EPBC Act Status	NPW Act Status	Occupancy at BUS Sites	Opportunistic Records	Minimum Flight Height (m)	Maximum Flight Height (m)	Flight At Risk
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	-	69	-	1	15	No
Accipiter fasciatus fasciatus	Brown Goshawk	-	-	1	-	-	200	**Yes**
**Alauda arvensis arvensis*	Eurasian Skylark	-	-	70	-	20	180	**Yes**
Anas gracilis gracilis	Grey Teal	-	-	8	42	5	20	No
Anas superciliosa	Pacific Black Duck	-	-	2	-	-	15	No
Anthochaera carunculata	Red Wattlebird	-	-	7	-	15	20	No
Anthus australis australis	Australian Pipit	-	-	70	-	1	30	No
Aphelocephala leucopsis leucopsis	Southern Whiteface	VU	-	11	-	2	10	No
Aquila audax audax	Wedge-tailed Eagle	-	-	17	2	70	300	**Yes**
Artamus cyanopterus	Dusky Woodswallow	-	-	2	-	-	20	No
Barnardius zonarius	Australian Ringneck	-	-	4	-	-	10	No
Charadrius ruficapillus	Red-capped Plover	-	-	54	-	1	5	No
Chenonetta jubata	Australian Wood Duck	-	-	43	10	10	30	No
Cincloramphus cruralis	Brown Songlark	-	-	15	-	15	130	**Yes**
Climacteris picumnus picumnus	Brown Treecreeper	-	-	2	-	3	10	No
Colluricincla harmonica	Grey Shrikethrush	-	-	2	-	-	5	No
**Columba livia*	Feral Pigeon	-	-	417	-	8	150	**Yes**
Coracina novaehollandiae	Black-faced Cuckooshrike	-	-	6	-	8	90	**Yes**
Corvus mellori	Little Raven	-	-	51	-	5	80	**Yes**
Corvus sp.	Crows	-	-	146	-	5	200	**Yes**
Egretta novaehollandiae	White-faced Heron	-	-	1	-	-	15	No
Eolophus roseicapilla	Galah	-	-	270	-	5	120	**Yes**
Epthianura albifrons	White-fronted Chat	-	-	12	-	2	20	No
Falco berigora berigora	Brown Falcon	-	-	2	1	-	80	**Yes**
Falco cenchroides cenchroides	Nankeen Kestrel	-	-	14	7	1	250	**Yes**
Falco subniger	Black Falcon	-	R	1	-	150	250	**Yes**
Gavicalis virescens	Singing Honeyeater	-	-	13	-	3	15	No
Grallina cyanoleuca cyanoleuca	Magpielark	-	-	1	-	-	20	No
Gymnorhina tibicen	Australian Magpie	-	-	239	-	2	60	**Yes**

Scientific Name	Common Name	EPBC Act Status	NPW Act Status	Occupancy at BUS Sites	Opportunistic Records	Minimum Flight Height (m)	Maximum Flight Height (m)	Flight At Risk
Hirundo neoxena neoxena	Welcome Swallow	-	-	17	-	3	30	No
Lalage tricolor	White-winged Triller	-	-	4	-	10	15	No
Malurus leucopterus leuconotus	White-winged Fairywren	-	-	10	-	3	5	No
Manorina flavigula	Yellow-throated Miner	-	-	4	-	-	15	No
Manorina melanocephala	Noisy Miner	-	-	4	-	15	30	No
Merops ornatus	Rainbow Bee-eater	-	-	2	-	10	15	No
Ocyphaps lophotes lophotes	Crested Pigeon	-	-	2	-	-	10	No
Pardalotus striatus	Striated Pardalote	-	-	22	-	4	20	No
**Passer domesticus domesticus*	House Sparrow	-	-	46	-	5	20	No
Petrochelidon ariel	Fairy Martin	-	-	32	-	15	30	No
Petrochelidon nigricans	Tree martin	-	-	19	-	10	50	**Yes**
Petroica goodenovii	Red-capped Robin	-	-	13	1	1	8	No
Platycercus elegans	Crimson Rosella	-	-	22	-	5	30	No
Psephotus haematonotus	Red-rumped Parrot	-	-	2	-	-	15	No
Ptilotula penicillata	White-plumed Honeyeater	-	-	15	-	15	20	No
Rhipidura leucophrys leucophrys	Willie Wagtail	-	-	7	-	2	15	No
Smicrornis brevirostris	Weebill	-	-	18	-	5	15	No
Stagonopleura guttata	Diamond Firetail	VU	V	2	-	-	5	No
**Sturnus vulgaris vulgaris*	Common Starling	-	-	150	45	5	60	**Yes**
Tadorna tadornoides	Australian Shelduck	-	-	40	28	8	15	No
Vanellus miles	Masked Lapwing	-	-	7	-	3	40	No

EPBC Act Status: VU: Vulnerable.

NPW Act Status: V: Vulnerable; R: Rare.

* Denotes an introduced species.

Species of concern are in red text.

Flight height data was recorded for a total of 2,124 individual birds from 50 species. A total of 663 individual birds from 15 species were recorded at RSA height, which equates to approximately 17.7 % of the total number (3729) of birds recorded at BUS sites and opportunistically during the four BUS periods in 2025.

The five most abundant species identified as flying at RSA height during BUS in 2025 include the Eurasian Skylark, Feral Pigeon, Crow, Galah, and Australian Magpie. These five species account for almost 87.2 % of the birds identified as flying at RSA height, with the introduced Feral Pigeon comprising the bulk of these flights (47.2 %). Furthermore, these five species are common non-threatened species (with Eurasian Skylark and Feral Pigeon introduced species) that were observed throughout the Stage 1A and Stage 1B Project Areas and wider region.

While flight height data was recorded for eight species of concern, only five species of concern, including the Brown Goshawk, Wedge-tailed Eagle, Brown Falcon, Nankeen Kestrel and Black Flacon, were identified as flying at RSA height (**Table 5.11**). While no species listed under the EPBC Act as threatened or migratory were identified as flying at RSA height, one species listed as threatened under the NPW Act, the Black Falcon, was identified as flying at RSA height. The other four species of concern that were identified as flying at RSA height are other non-threatened species of 'at risk' birds listed in BAMP Table 11 (**Appendix B**).

Raptors accounted for 6.5 % of birds flying at RSA height, including Brown Goshawk, Wedge-tailed Eagle, Brown Falcon, Nankeen Kestrel and Black Falcon. Raptors are more susceptible to bird strike from WTG rotors because of their behaviour and foraging techniques and especially as they are less agile and have restricted forward field of view (Duriez, 2023).

No waterbirds were identified as flying at RSA height during BUS in 2025.

The distribution of birds flying at RSA heights at each of the 13 BUS sites was random during all four BUS in 2025. Birds were not recorded flying at RSA heights at any one BUS site more than another, which may suggest that collision risk to birds is rather uniformly distributed over the Stage 1A and Stage 1B Project Areas. For certain species that are known to be susceptible to collision with turbines, a lack of flight height data does not indicate they are not a species at risk of collision with turbines. It is possible that other bird species observed during BUS to date are capable of flight heights that are within the RSA and could be at risk of collision with turbines. However, the 24 months of data collected to date is too limited to draw conclusions and collection of more data during future BUS will assist to better understand risk of collision.

Furthermore, future data analysis could involve investigating any potential habitat link with at risk flights, for example, flights in Grassland habitat compared with flights in Woodland habitat and whether birds utilising Woodland habitat are at lower risk of collision compared to birds using Grassland habitat.

Birds flying at RSA height were more abundant in 2024 than in 2025, with 877 individuals (11.9 % of all birds recorded) identified as flying at RSA height in 2024, compared to the 663 individuals (17.7 %) of 2025. The species mix also shifted, as in 2024 RSA-height flights included raptors, waterbirds and common grassland species, with Common Starling dominating. Raptors made up a smaller share of RSA-height flights in 2024 (3.1 %) than in 2025 (6.5 %), and in both years, RSA-height flights were spread randomly across BUS sites, suggesting no single area posed a higher collision risk.

5.5 BUS Conclusions

Findings from the four BUS periods (summer (February 2025) to spring (October 2025)) are summarised as follows:

- Bird species recorded were predominantly common grassland and woodland species, consistent with the available habitat of grassland, cropping paddocks and scattered remnant woodland within the Project Area. Overall species diversity in 2025 (61 species) was slightly lower than in 2024 (76 species).
- Woodland habitat contributed the most to bird diversity, containing the highest number of species and the greatest proportion of unique species. This pattern is consistent with 2024, although both Woodland and Grassland habitats supported fewer species in 2025 (which is in-line with a lower overall species diversity recorded in 2025 compared to 2024, as explained above).
- Similarly, Woodland habitat supported a higher abundance of birds (1,718) compared to Grassland habitat (1,351), a pattern that is also consistent with 2024 results for Woodland (1,749) and Grassland (1,340) habitats.
- Observations of species of concern in 2025 included:
    - Two EPBC Act listed threatened species (Southern Whiteface and Diamond Firetail), which were recorded at BUS sites within Woodland habitat.
    - Two NPW Act listed threatened species (Diamond Firetail and Black Falcon), with the latter recorded once in Grassland habitat.
    - Two non-threatened species of 'at risk' birds that were not previously known to occur or predicted to occur at the site, the Fairy Martin and Reb-backed Kingfisher, which were recorded at BUS sites. As both species are considered to be at risk for collision with wind farm infrastructure, they have been added to the species of concern list (**Appendix B**).
- No EPBC Act listed migratory species were recorded during the four BUS periods (which is consistent with 2024 BUS results).
- A total of 15 bird species were identified as flying at RSA height in 2025.
- A total of five species of concern were observed flying at RSA height, including Black Falcon (NPW Act Rare), Brown Falcon, Brown Goshawk, Nankeen Kestrel and Wedge-tailed Eagle.
- No EPBC Act listed threatened species, or EPBC Act listed migratory species, were observed flying at RSA height (which is consistent with 2024 BUS results).
- The low number of EPBC Act listed threatened species (n=2) and lack of EPBC Act listed migratory species (n=0) recorded via 2024 and 2025 BUS, with none recorded at RSA height, suggests that the risk of impact via WTG collision, and potential for significant impact, to these species by the Stage 1A and Stage 1B wind farms is low. However, it is acknowledged that BUS data is subject to limitations, including the limited number of BUS sites, a small survey window (three days each season and a total of 12 survey days each year), and a lack of extensive flight height data for all species. Collection of additional data during future BUS will allow for more detailed assessment and statistical analysis, and stronger conclusions regarding overall collision risk.

6.0 Raptor Nest Activity Monitoring

The objective of the Bird Monitoring Program to *determine whether* WTE *and other raptor nests are in suitable condition for nesting and whether the nests are active and successful in fledging young* will be achieved via undertaking raptor nest activity monitoring.

As outlined in BAMP Section 8.3.2, known WTE nest locations within the Stage 1A and Stage 1B Project Areas will be monitored to determine whether nests are in a suitable condition for nesting and whether the nests are active and successful in fledging young.

Nests are proposed to be surveyed once a year in October/November, which coincides with the time that WTE nestlings are generally still in the nest, but close to fledging, to determine activity and nesting success (NR SAMDB 2012). Any other large raptor nests observed will also be monitored for condition and activity.

Raptor nest activity monitoring is proposed to be undertaken over 30 years as follows:

- Once a year for ten years, and
- Then once every second year for twenty years.

WTE nests located to date within the Stage 1A and Stage 1B Project Areas are summarised in **Table 6.1** and mapped in **Figure 6.1**. This includes WTE nests observed during initial ecological assessment during the Project's planning phase (EBS Ecology 2020) as well as subsequent nests observed to date, including the latest nest observed on 08/05/2025.

Table 6.1 WTE Nests Located Within the Project Area to Date

Nest ID	Latitude	Longitude	Location Description	Year Discovered	Condition When Discovered	Comment	Vegetation Type
9	-33.776	138.9253	682 m NE of WTG SG007	2019	Good		VA 4 *Eucalyptus odorata* (Peppermint Box) Closed Woodland.
11	-33.7821	138.9514	1022 m N of WTG B001	2019	Poor		VA 6 *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland.
12	-33.7351	139.0057	1129 m NE of WTG B033	2019	Poor	Two WTEs observed near nest (autumn 2019).	VA 6 *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland.
13	-33.7799	138.9928	1001 m NNE of WTG B026	2019	Good	Adult WTE Observed on nest (spring 2019).	VA 6 *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland.
16	-33.7951	139.0178	480 m SW of WTG B049	2021/2022	Unknown	Found in 2021/2022 by site personnel.	VA 3 *Eucalyptus porosa* (Mallee Box) Open Woodland.
17	-33.7897	138.9913	155 m SE of WTG B026	2025	Unknown	Found and recorded on 08/05/2025.	VA 8 *Austrostipa* spp. (Spear Grass) mixed grassland, but adjacent to VA 3 *Eucalyptus porosa* (Mallee Box) open woodland.

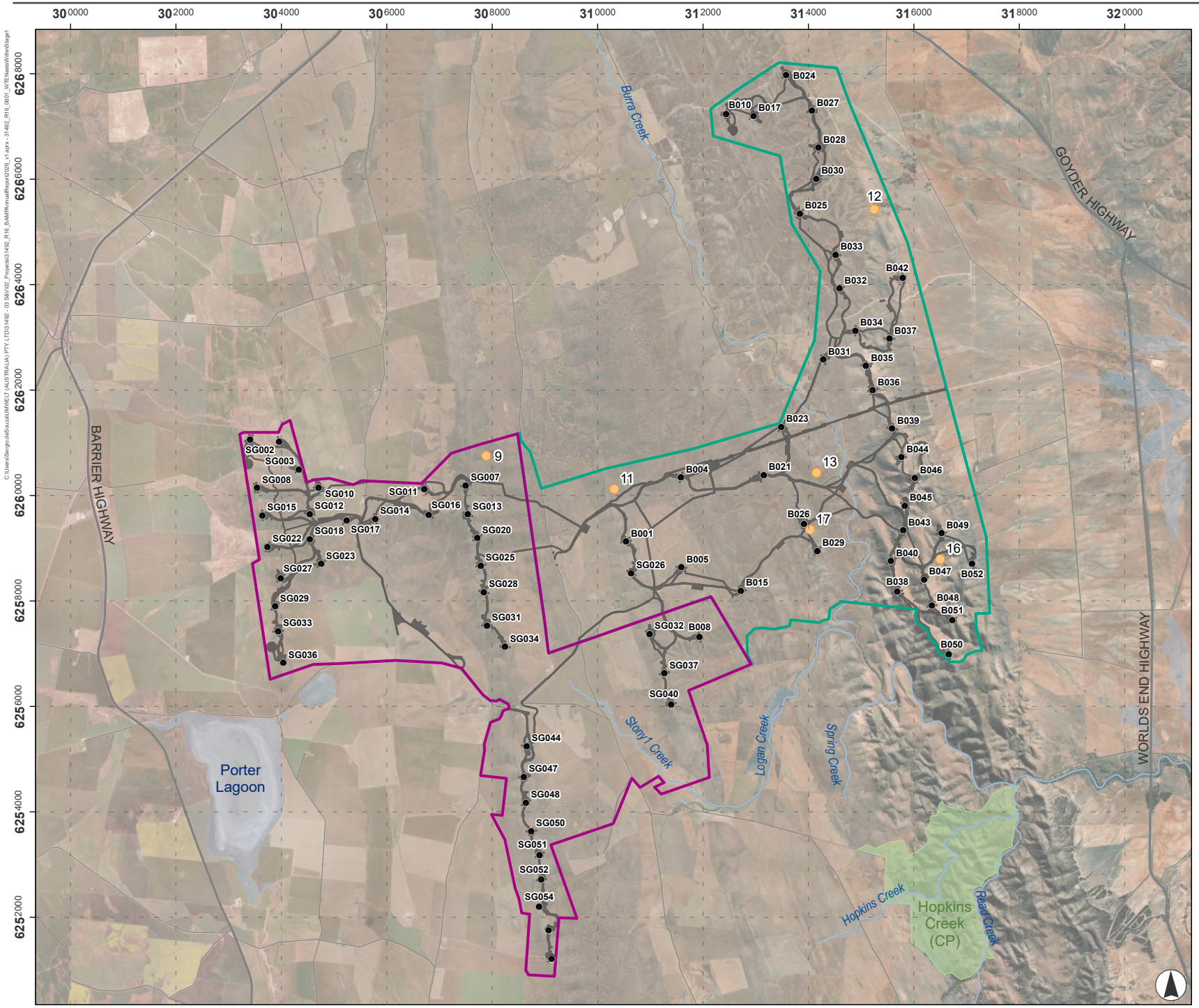


Figure 6.1

Known WTE Nests Within the Stage 1A and Stage 1B Project Areas

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTE nest
- Wind Turbine Generator
- Main road
- Local road
- Water course
- Water body
- NPWSA reserve

0 2.5 5

Kilometres

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Image Source: ESRI (2025) | **Data Source:** Umwelt, SA DIT, DEW (2025), GE (2024)

6.1 Raptor Nest Activity Monitoring Methodology

To determine the condition and activity of each WTE and/or large raptor nest, the following data is recorded (where possible):

- Location (gully, slope, hill crest, plain).
- Nest condition:
  - Whether the nest is intact or dilapidated.
  - Visually determined to be either poor, moderate or good.
  - Nest height (measured in metres (m), from the ground to the bottom of the nest).
  - Nest depth (measured in centimetres (cm), from the bottom of the nest to the rim of the nest).
  - Nest diameter (measured in m, distance between the outer rim of the nest).
- Size of nest:
  - Small (<60 cm deep, <1.2 m diameter).
  - Medium (60 – 100 cm deep, 1.2 m – 1.5 m diameter).
  - Large (>1 m deep, >1.5 m diameter).
- Nest activity (active or in-active) as determined by:
  - Whether whitewash (areas covered in droppings) and nesting material (e.g., fresh branches and/or leaves) are present or absent.
  - Species of raptor observed incubating or located near the nest.
- Nesting success: nests that contained a large-feathered nestling are considered successful (i.e., nestling(s) likely to fledge).

6.2 Raptor Nest Activity Monitoring Results

Raptor nest activity monitoring was undertaken on 13-15 October 2025. Five WTE nests within the Project Area were checked and assessed for changes in condition and activity, with the results presented in **Table 6.2**. The nest found in May 2025 (Nest 17) was not checked as part of the monitoring program on this occasion (as the survey team were not aware of its presence). However, it was checked informally on 06/11/2025.

Only one of the five WTE nests showed signs of recent activity and was observed to be in good condition (Nest 9; **Photo 6.1**). This nest is located 682 m NE of WTG SG007 in Stage 1A. While no chicks were present, whitewash (scat) underneath the nest suggests that the nest site was used by WTE in 2025, likely as a perching and/or roosting location, or feeding platform.

Nest 13 (**Photo 6.2**) was intact and in good condition, but inactive, with no sign of whitewash or animal bones beneath the nest. Nest 17 was dilapidated and in poor condition, and inactive, with no sign of whitewash or animal bones beneath the nest. Nest 12 and Nest 16 were no longer present.

Table 6.2 2025 Raptor Nest Activity Monitoring Results

Nest ID	Location Description	Date of Check	Location (Aspect)	Height (Above Ground) (m)	Diameter (m)	Depth (cm)	Size Class	Condition	Activity Status	Nesting Success	Notes
9	682 m NE of WTG SG007	14/10/2025	Slope	10	1.2	100	Medium	Intact; Good	**Active**	None	Only a few sticks on the ground underneath. Could not see into bowl of nest. Whitewash / scat present underneath nest.
11	1022 m N of WTG B001	15/10/2025	Slope	7	1.0	30	Small	Dilapidated; Poor	**Inactive**	None	Falling apart. No sign of activity (whitewash; animal bones).
12	1129 m NE of WTG B033	15/10/2025	Plain	N/A	N/A	N/A	N/A	N/A	Gone	N/A	No nest present at this location, or remains of any kind.
13	1001 m NNE of WTG B026	13/10/2025	Slope	9	1.4	50	Medium	Intact; Good	**Inactive**	None	Intact and in good condition. No sign of activity (whitewash, animal bones).
16	480 m SW of WTG B049	14/10/2025	Slope	N/A	N/A	N/A	N/A	N/A	Gone	N/A	No nest present. However, sticks on the ground were possibly the remains of a fallen nest, but have been there long enough that vegetation has grown up through the sticks.
17	155 m SE of WTG B026	06/11/2025	Slope	-	-	-	Medium	Dilapidated; Poor	**Inactive**	None	Not checked as part of raptor nest monitoring in 2025. However, observed to be dilapidated and considered inactive (as no sign of whitewash or animal bones) on 06/11/2025 during WTG collision monitoring survey at B026.



Photo 6.1 WTE Nest 9



Photo 6.2 WTE Nest 13

6.3 Cumulative Results and Discussion

Raptor nest activity monitoring results to date (2024 and 2025) are summarised in **Table 6.3** to allow for comparison across years. Nests 12 and 16 were no longer present in 2024 and 2025 and do not need to be surveyed in future monitoring events. Nest 11 has been recorded as inactive in both 2024 and 2025, with the nest dilapidated / falling apart. Nest 9 was recorded as inactive in 2024 but showed signs of recent activity in 2025. While Nest 13 was active and supported successful breeding in 2024, it was inactive in 2025, but remained intact and in good condition.

WTE form a pair bond for life, only changing partners when one of the pair dies (Olsen 1995). They show strong site fidelity with individuals often occupying the same territories for 40 years or more (Hatton *et al*. 2014). Most territories have several nests usually within a few hundred metres, but one is favoured for breeding (NY LB 2024). Nest sites may be occupied for up to 40 years by generations of eagles (Debus 2017) and there are reports of nests being used for over a century (NY LB 2024). WTE usually breed once a year, but only when their prey is abundant (NY LB 2024).

While two nests are no longer present and one other nest was inactive and dilapidated in 2025, two other nests were intact and in good condition, with one of these nests showing signs of recent activity (**Table 6.3**). While a successful breeding event was not recorded at any nest within the Stage 1A or Stage 1B Project Areas in 2025, conditions were similar to 2024 and considered to be suitable for breeding, and it is possible that WTE bred successfully at a nest (or nests) located outside of the Project Areas in 2025. As raptor nest activity monitoring has only been completed over two years to date, it is too early to attempt to draw any conclusions on whether the Stage 1A or Stage 1B wind farms are impacting upon breeding success of WTE or other large raptors. However, future raptor nest activity monitoring will help to determine whether WTE and/or other large raptor nests within the Stage

1A and Stage 1B Project Areas are in suitable condition for nesting and whether the nests continue to be active and successful in fledging young during wind farm operation, or if wind farm operation may be negatively impacting on breeding within the Project Areas.

Table 6.3 Cumulative Raptor Nest Activity Monitoring Results (2024 and 2025)

Nest ID	Location Description	Summary of 2024 Check	Summary of 2025 Check	Future Monitoring Requirements
9	682 m NE of WTG SG007	**Inactive. Intact.** Only a few sticks on the ground underneath. Could not see into bowl of nest due to angle. Handful of bones (likely to be kangaroo joey and rabbit) under the nest tree, but no whitewash. As such, the site is possibly used as a feeding perch but not currently for breeding. An adult WTE took off from a tree within 50 m of the nest tree, when surveyors approached the broader area of the nest site.	**Active. Intact. Good condition.** Only a few sticks on the ground underneath. Could not see into bowl of nest. Whitewash / scat present underneath nest.	Monitor in 2026.
11	1022 m N of WTG B001	**Inactive. Dilapidated** / falling apart. No signs of activity.	**Inactive. Dilapidated. Poor condition.** Falling apart. No signs of activity.	Monitor in 2026.
12	1129 m NE of WTG B033	**Gone.** No nest present at this location, or remains of any kind.	**Gone.** No nest present at this location, or remains of any kind.	Exclude from monitoring in 2026.
13	1001 m NNE of WTG B026	**Active.** Two large, white fluffy WTE chicks in nest and one adult observed in tree nearby which flew off when surveyors approached the broader area of the nest site. Due to the nest being active with chicks, nest condition and size data was not collected, as the surveyors stayed away from the nest to minimise disturbance to the adult and chicks. A nest supporting successful breeding.	**Inactive. Intact. Good condition.** No sign of activity (whitewash, animal bones).	Monitor in 2026.
16	490 m NE of WTG B047	**Gone.** No nest present. However, sticks on the ground were possibly the remains of a fallen nest, but have been there long enough that vegetation has grown up through the sticks.	**Gone.** No nest present. However, sticks on the ground were possibly the remains of a fallen nest, but have been there long enough that vegetation has grown up through the sticks.	Exclude from monitoring in 2026.
17	155 m SE of WTG B026	N/A. (Not known in 2024.)	**Inactive. Dilapidated. Poor condition.** Not checked as part of raptor nest monitoring in 2025. However, observed to be dilapidated and considered inactive (as no sign of whitewash or animal bones) on 06/11/2025 during WTG collision monitoring survey at B026.	Monitor in 2026.

7.0 Long-term WTG Collision Monitoring

The objective of the Bird Monitoring Program to *detect potential impacts to EPBC Act listed bird species and other bird species as a result of WTG collision* will be achieved via undertaking long-term WTG collision monitoring.

The BAMP requires WTG collision monitoring to be undertaken on a quarterly basis (i.e. once every three months) at a total of 26 nominated WTGs, including 13 in Stage 1A and 13 in Stage 1B.

All WTGs proposed to be monitored were selected at random. However, they are considered to be representative of the habitat available for the bird species of concern throughout the Stage 1A and Stage 1B Project Areas. Refer to BAMP Section 8.3.3 (and sub-sections) for more information, including the Vegetation Association (i.e. vegetation and habitat type) that each WTG monitored is located within, and the anticipated collision risk level of each WTG proposed to be monitored.

The BAMP requires the long-term WTG collision monitoring program to commence as soon as practicable upon the commencement of commissioning. While commissioning of WTGs in Stage 1A was anticipated to commence in February 2024, it did not commence until mid-April and was slow to progress with the second WTG not commissioned until early June 2024. As such, the long-term WTG collision monitoring program commenced in August 2024. Details on the WTGs monitored and the methodology implemented in 2025 are provided in the following subsections.

7.1 WTGs Monitored

Four quarterly WTG collision monitoring surveys were undertaken within the Stage 1A and Stage 1B Project Areas in 2025 and are summarised in **Table 7.1** and **Table 7.2**, respectively. During the February survey period, 12 of 13 Stage 1A WTGs and 10 of 13 Stage 1B WTGs were monitored, while the remaining three turbines (SG034, B026, B029 and B034) were not monitored as they had not yet been commissioned. The three following survey periods in May, August and November achieved full coverage, with all 13 Stage 1A and all 13 Stage 1B WTGs monitored.

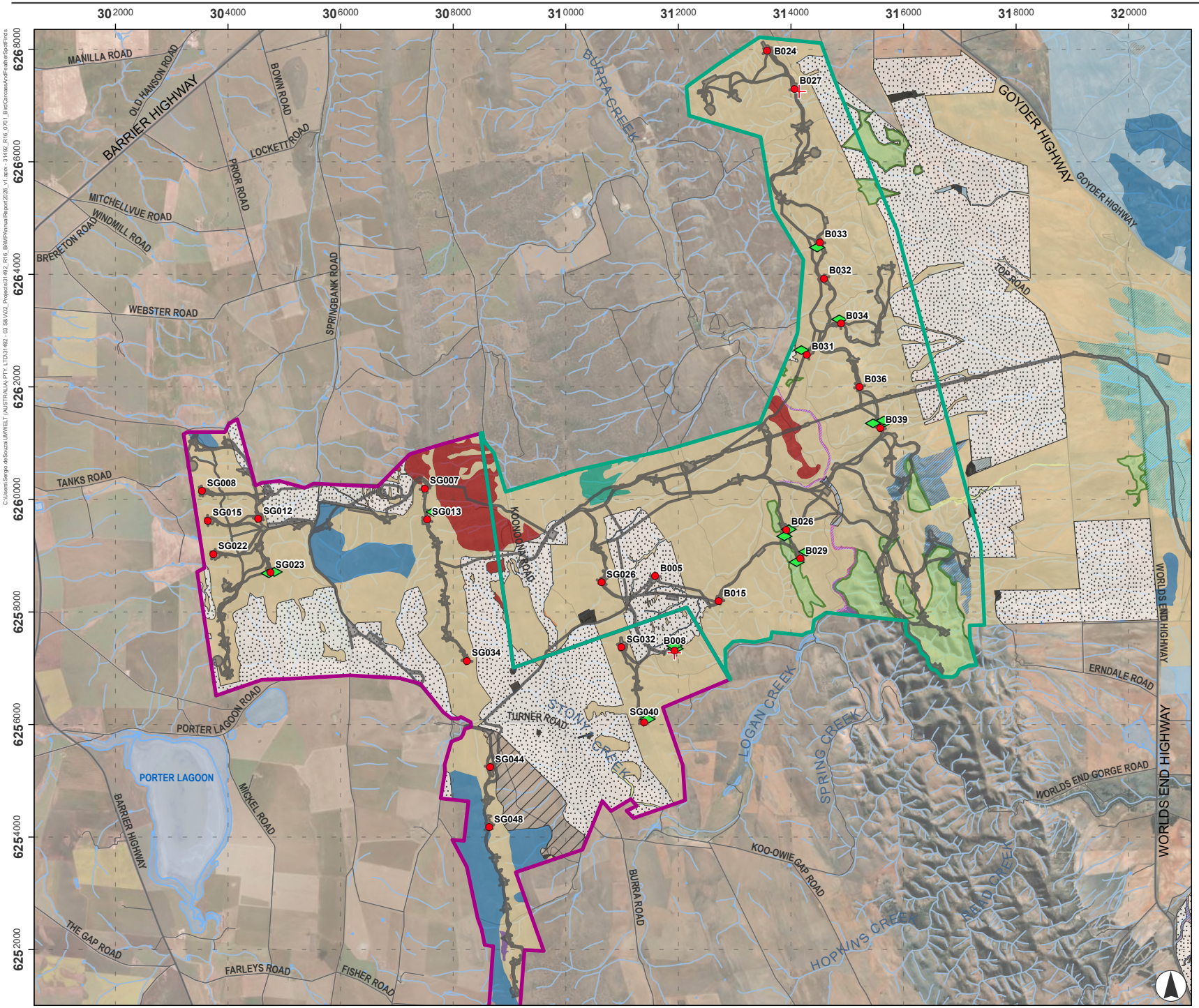


Figure 7.1

Overview of WTG Collision Monitoring Bird Carcass and Feather Spot Finds Across the Project Area

Legend

- Goyder south - Stage 1A
- Goyder south - Stage 1B
- Goyder South Infrastructure
- WTG Collision Monitoring Site
- Bird Carcass
- Feather spot
- Main road
- Local road
- Water course
- Water body

Vegetation association

- 1: *Maireana aphylla* (Cotton Bush) / *Atriplex stipitata* (Bitter Saltbush) Mixed Low Open Chenopod Shrubland
- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 13: *Atriplex nummularia* (Old-man Saltbush) Plantation
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- 19: *Nitraria billardierei* (Nitre-bush) Low Shrubland
- 20: *Maireana pyramidata* (Black Bluebush) Low Shrubland
- 22: *Eucalyptus porosa* open woodland over *Eremophila sp.* / *Acacia papyrocarpa* shrubs over Maireana understorey
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping

0 1 2

Kilometres

Scale 1:93,750 at A4
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Table 7.2 Stage 1B WTGs Monitored in 2025

WTG	Vegetation Association	WTG Commission Date	Collision Monitoring Survey			
			25-28 February; 04-06 March	05-08 May	18-21 August	03-07 November
B005	Cropping	02/12/2024	✓	✓	✓	✓
B015	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	02/12/2024	✓	✓	✓	✓
B024	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	18/12/2024	✓	✓	✓	✓
B026	**VA 3:** *Eucalyptus porosa* (Mallee Box) Open Woodland **VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	11/03/2025	-	✓	✓	✓
B027	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	18/12/2024	✓	✓	✓	✓
B029	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland **VA 3:** *Eucalyptus porosa* (Mallee Box) Open Woodland	04/03/2025	-	✓	✓	✓
B031	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	09/12/2024	✓	✓	✓	✓
B032	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	08/12/2024	✓	✓	✓	✓
B033	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	20/02/2025	✓	✓	✓	✓
B034	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	27/12/2024	-	✓	✓	✓
B036	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	22/02/2025	✓	✓	✓	✓
B039	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	19/02/2025	✓	✓	✓	✓
SG026	**VA 8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland	06/12/2024	✓	✓	✓	✓

7.2 WTG Collision Monitoring Methodology

Each WTG to be monitored has been overlayed with a 240 m x 240 m monitoring quadrat, with the WTG in the centre. Markers (flat, black rubber mats marked with bright pink paint) were installed at each of the outer four corners. The monitoring quadrat was further sub-divided into four 120 m x 120 m cells.

To search for carcasses, searchers/surveyors traversed each 120 m x 120 m cell of the monitoring quadrat on foot, along parallel transects at 5 m intervals (or slightly wider intervals (up to 8 m), if visibility and detection conditions were considered good enough (i.e. grass cover was low, allowing for a clear, uninterrupted view of potential carcasses)). A handheld GPS, or GPS equipped device (such as a mobile phone), was used to assist each searcher/surveyor to traverse parallel transects at 5 m (or similar) intervals. Data outlined in the *WTG monitoring survey datasheet* (BAMP Appendix 7) was collected for each WTG monitored, including (but not limited to):

- Date and time details (including start and finish time).
- WTG ID and observer names.
- Survey details (including ground visibility; amount of quadrat searched; limitations; site photo).
- Weather details (including temperature; precipitation; wind conditions).
- WTG bird mortality record.
- Any additional comments / notes.

When a bird carcass or feather spot (5 or more feathers grouped together) was observed, data outlined within *Dead or injured bird datasheet* (BAMP Appendix 8) was collected, including (but not limited to):

- Date and location details (including WTG ID and easting and northing of carcass/feather spot).
- Survey and detection details (including search or incidental find; visibility; photo).
- Weather at time of detection (including temperature; precipitation; wind conditions).
- Carcass / injured animal details (including species; age; sex; condition; degree of decay).

Each bird carcass or feather spot found was left in-situ and carcasses are tagged to allow for collection of passive carcass persistence scavenger data during future monitoring events. However, if a dead bird or feather spot cannot be identified in the field, it must be collected upon discovery and placed into a plastic bag (i.e., zip-lock bag) and clearly labelled with the date, time, location (WTG number and GPS waypoint / coordinates) for species identification by an ecologist and/or suitably qualified bird expert. Dead bird carcasses and feather spots were always handled with gloves to avoid contamination of samples.

As outlined in the BAMP (Section 8.3.3.2), purpose-trained dogs may be used to search the quadrat for carcasses / feather spots. However, purpose-trained dogs were not used as part of the long-term WTG collision monitoring in 2025.

7.3 WTG Collision Monitoring Results

Two bird carcasses and 18 feather spots were observed during the 2025 WTG collision monitoring program, as summarised in **Table 7.3**. This included seven Australian Magpie, five Nankeen Kestrel, three Magpielark, two Little Raven, one Horsefield's Bronze Cuckoo, one Common Starling and one feather spot of down feathers that was not able to be identified to a species. While none of these species are listed under the EPBC Act or NPW Act, Nankeen Kestrel is a species of concern in accordance with the BAMP.

Table 7.3 Bird Carcass and Feather Spots Observed Via WTG Collision Monitoring

WTG	Date	Carcass / Feather Spot	Species	Latitude	Longitude	Figure Reference
SG023	26/02/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.793843	138.891776	**Figure 7.2**
SG023	26/02/2025	Feather spot	Nankeen Kestrel (*Falco cenchroides cenchroides*)	-33.793985	138.890690	**Figure 7.2**
SG023	9/05/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.793821	138.891796	**Figure 7.2**
SG013	26/02/2025	Feather spot	Magpielark (*Grallina cyanoleuca*)	-33.784664	138.922563	**Figure 7.3**
SG040	27/02/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.818083	138.962845	**Figure 7.4**
SG040	27/02/2025	Feather spot	Nankeen Kestrel (*Falco cenchroides cenchroides*)	-33.818517	138.962790	**Figure 7.4**
B008	27/02/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.807400	138.968412	**Figure 7.5**
B008	19/08/2025	Carcass	Horsefield's Bronze Cuckoo (*Chalcites basalis*)	-33.808045	138.968153	**Figure 7.5**
B008	05/11/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.806956	138.968200	**Figure 7.5**
B039	04/03/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.771822	139.009295	**Figure 7.6**
B039	09/05/2025	Feather spot	Magpielark (*Grallina cyanoleuca*)	-33.771540	139.009219	**Figure 7.6**
B039	09/05/2025	Feather spot	Magpielark (*Grallina cyanoleuca*)	-33.771921	139.007118	**Figure 7.6**
B033	06/03/2025	Feather spot	Little Raven (*Corvus mellori*)	-33.743574	138.997083	**Figure 7.7**
B034	09/05/2025	Feather spot	Nankeen Kestrel (*Falco cenchroides cenchroides*)	-33.755104	139.001055	**Figure 7.8**
B026	09/05/2025	Feather spot	Australian Magpie (*Gymnorhina tibicen*)	-33.789760	138.989700	**Figure 7.9**
B026	06/11/2025	Feather spot	Nankeen Kestrel (*Falco cenchroides cenchroides*)	-33.788581	138.990600	**Figure 7.9**

WTG	Date	Carcass / Feather Spot	Species	Latitude	Longitude	Figure Reference
B031	20/08/2025	Feather spot	Little Raven (*Corvus mellori*)	-33.759906	138.993675	**Figure 7.10**
B027	03/11/2025	Carcass	Nankeen Kestrel (*Falco cenchroides cenchroides*)	-33.718537	138.994200	**Figure 7.11**
B029	06/11/2025	Feather spot	Unknown (down feathers only)	-33.793908	138.992000	**Figure 7.12**
B029	06/11/2025	Feather spot	Common Starling (*Sturnus vulgaris*)	-33.792264	138.993900	**Figure 7.12**

Species of concern are in red text.

An overview map of 2025 WTG collision monitoring bird carcass and feather spot finds is provided in **Figure 7.1**, while each WTG monitored that included a carcass or feather spot find is provided in **Figure 7.2** to **Figure 7.12**.

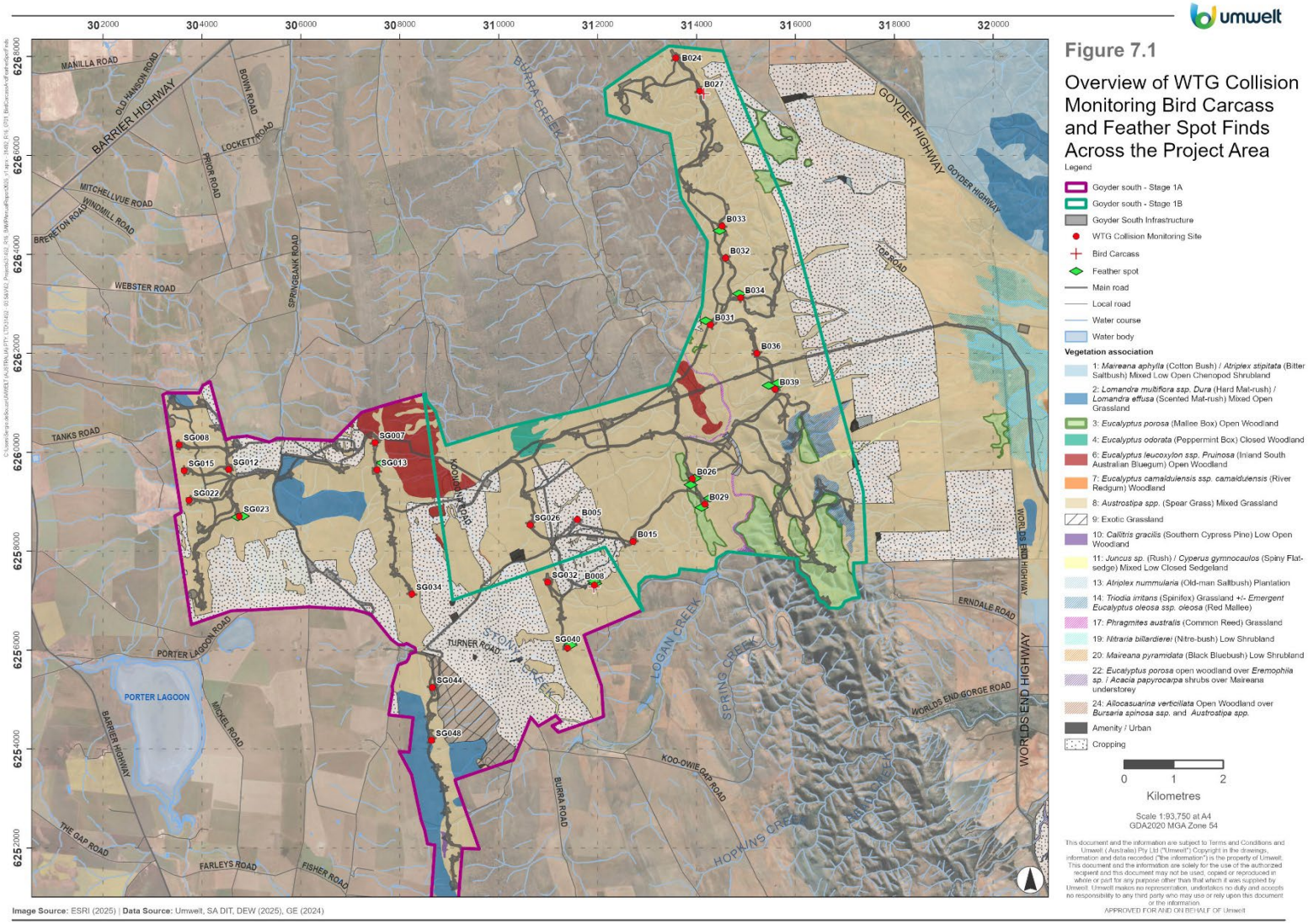


Figure 7.1 Overview of WTG Collision Monitoring Bird Carcass and Feather Spot Finds Across the Project Area



FIGURE: 7.2

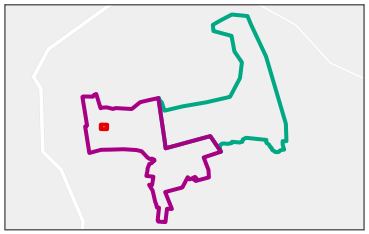
Location of Feather-spots Observed at SG023

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Australian Magpie (*Gymnorhina tibicen*)
- Feather spot - Nankeen Kestrel (*Falco cenchroides*)



0 25 50

Metres

Scale 1:2,000 at A4
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FIGURE: 7.3

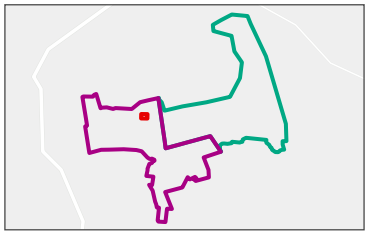
Location of Feather-spot Observed at SG013

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Magpielark (*Grallina cyanoleuca*



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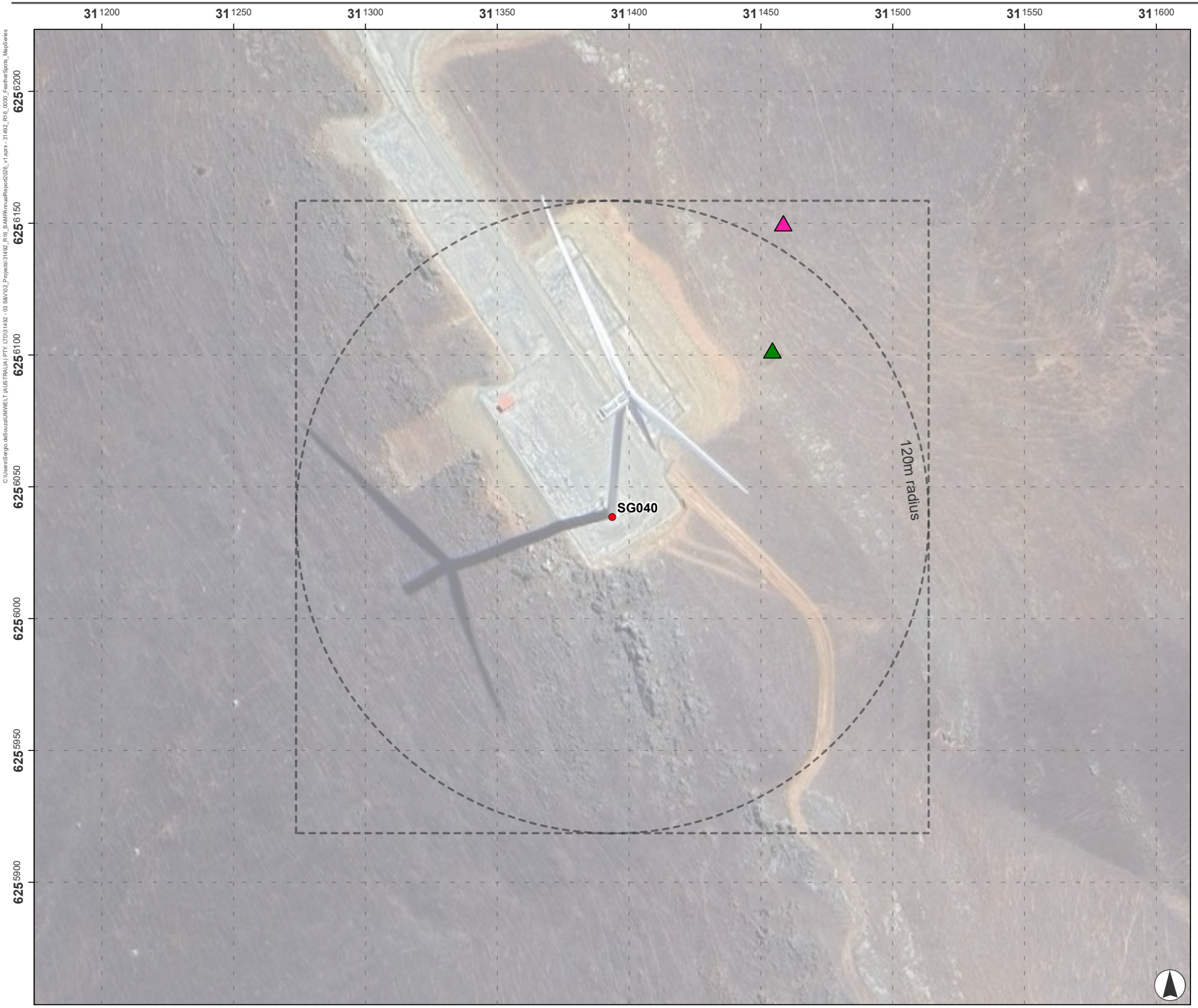


FIGURE: 7.4

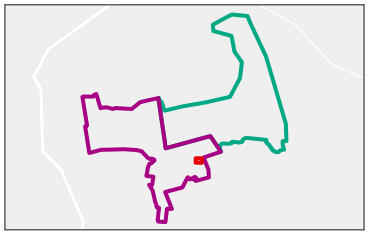
Location of Feather-spots Observed at SG040

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Australian Magpie (*Gymnorhina tibicen*)
- Feather spot - Nankeen Kestrel (*Falco cenchroides*)



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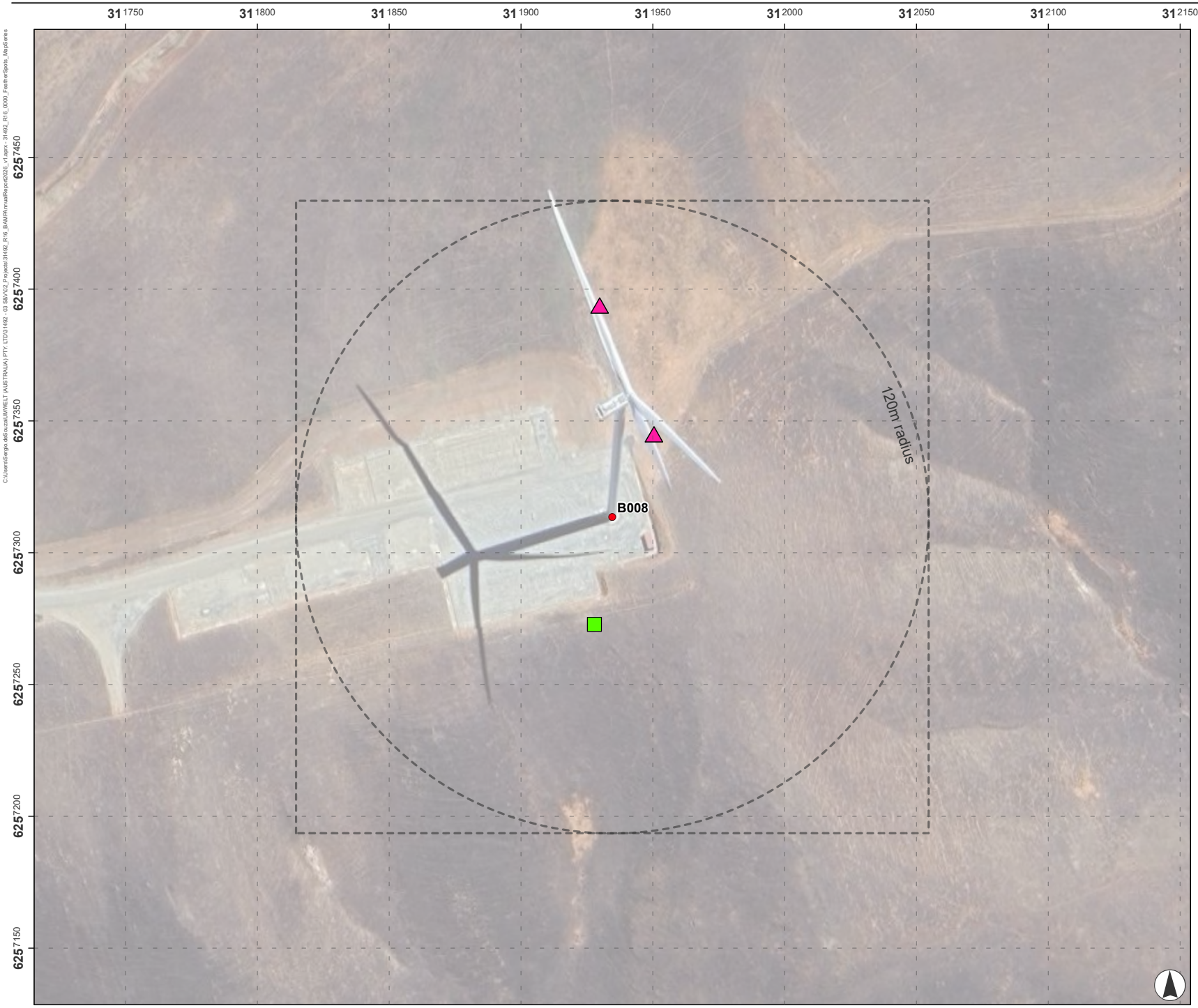


FIGURE: 7.5

Location of Feather-spots and Bird Carcass Observed at B008

Legend

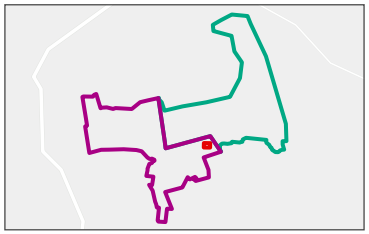
- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Bird Carcass - Horsefield's Bronze Cuckoo (*Chrysococcyx basalis*)

Bird Strike Record

- Feather spot - Australian Magpie (*Gymnorhina tibicen*)



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FIGURE: 7.6

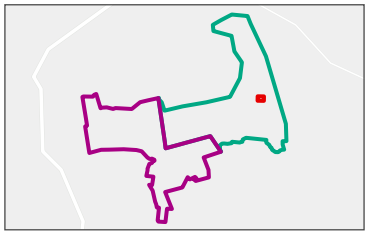
Location of Feather-spots Observed at B039

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Australian Magpie (*Gymnorhina tibicen*)
- Feather spot - Magpielark (*Grallina cyanoleuca*



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FIGURE: 7.7

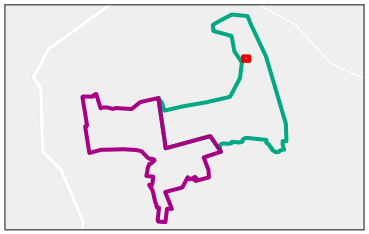
Location of Feather-spot Observed at B033

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Little Raven (*Corvus mellori*)



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FIGURE: 7.8

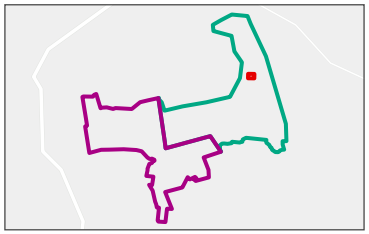
Location of Feather-spot Observed at B034

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Nankeen Kestrel (*Falco cenchroides*)



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FIGURE: 7.9

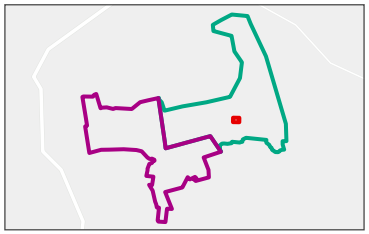
Location of Feather-spots Observed at B026

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Australian Magpie (*Gymnorhina tibicen*)
- Feather spot - Nankeen Kestrel (*Falco cenchroides*)



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Metres

Scale 1:2,000 at A4
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FIGURE: 7.10

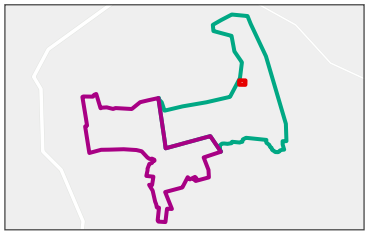
Location of Feather-spot Observed at B031

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather spot - Little Raven (*Corvus mellori*)



0 25 50

Metres

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FIGURE: 7.11

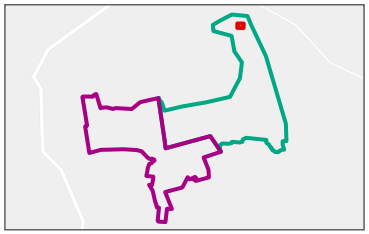
Location of Carcass Observed at B027

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Bird Carcass - Nankeen Kestrel (*Falco cenchroides*)



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FIGURE: 7.12

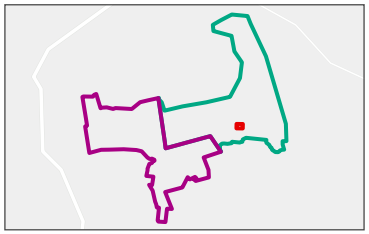
Location of Feather-spots Observed at B029

Legend

- WTG Collision Monitoring Site
- Monitoring Quadrat

Bird Strike Record

- Feather Spot - Common Starling (*Sturnus vulgaris*)
- Feather Spot – Unknown species (down feathers only)



0 25 50

Metres

Scale 1:2,000 at A4
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7.4 Incidental Finds

As outlined in Section 8.3.6 of the BAMP, it is possible that during the life of the Stage 1A and Stage 1B wind farms, bird carcasses will be discovered incidentally by site personnel. Upon incidental discovery, carcasses and feather spots must be photographed in situ and the *Dead or injured bird datasheet* (Appendix 8 of the BAMP) must be completed.

7.4.1 Incidental Finds Results

Four incidental finds, all Wedge-tailed Eagle (WTE) carcasses, were observed and reported by wind farm personnel in 2025 and are summarised in **Table 7.4**. A photograph of each is provided in **Photo 7.1** to **Photo 7.4**, while the location of each is shown in **Figure 7.13**.

It is possible that the incidental find on 17/06/2025 is a repeat find of the carcass found on 10/06/2025, as it is the same species and similar location (**Table 7.4**; **Figure 7.13**), and neither carcass was tagged (with date and location of find details) when it was found. However, as it may also be a different carcass, it is included and considered as an individual record.

While the WTE is not listed under the EPBC Act or NPW Act, it is a species of concern in accordance with the BAMP. While two WTE carcasses were found incidentally at/adjacent to WTG SG054 in June and another one in September, the trigger level for 'other non-threatened bird species' was not reached (refer to **Section 2.3.4** for trigger level details).

Table 7.4 Incidental Finds of Bird Carcasses and/or Feather Spots

Date of Find	Carcass / Feather Spot	Species	Location of Find	Latitude	Longitude	Activity That Resulted in Incidental Find	Photo
23/04/2025	Carcass	Wedge-tailed Eagle (*Aquila audax audax*)	B035	-33.76212	139.00375	Driving along access road adjacent WTG hardstand.	**Photo 7.1**
10/06/2025	Carcass	Wedge-tailed Eagle (*Aquila audax audax*)	Approximately 150-200m NE of WTG SG054	-33.85209	138.93518	Driving along access road near SG054.	**Photo 7.2**
17/06/2025	Carcass	Wedge-tailed Eagle (*Aquila audax audax*)	SG054	-33.85216	138.93541	Driving along access road near SG054.	**Photo 7.3**
01/09/2025	Carcass	Wedge-tailed Eagle (*Aquila audax audax*)	SG054	-33.85299	138.93490	Driving along access road near SG054.	**Photo 7.4**



Photo 7.1 Wedge-tailed Eagle Carcass Found 23/04/2025



Photo 7.2 Wedge-tailed Eagle Carcass Found 10/06/2025



Photo 7.3 Wedge-tailed Eagle Carcass Found 17/06/2025



Photo 7.4 Wedge-tailed Eagle Carcass Found 1/09/2025

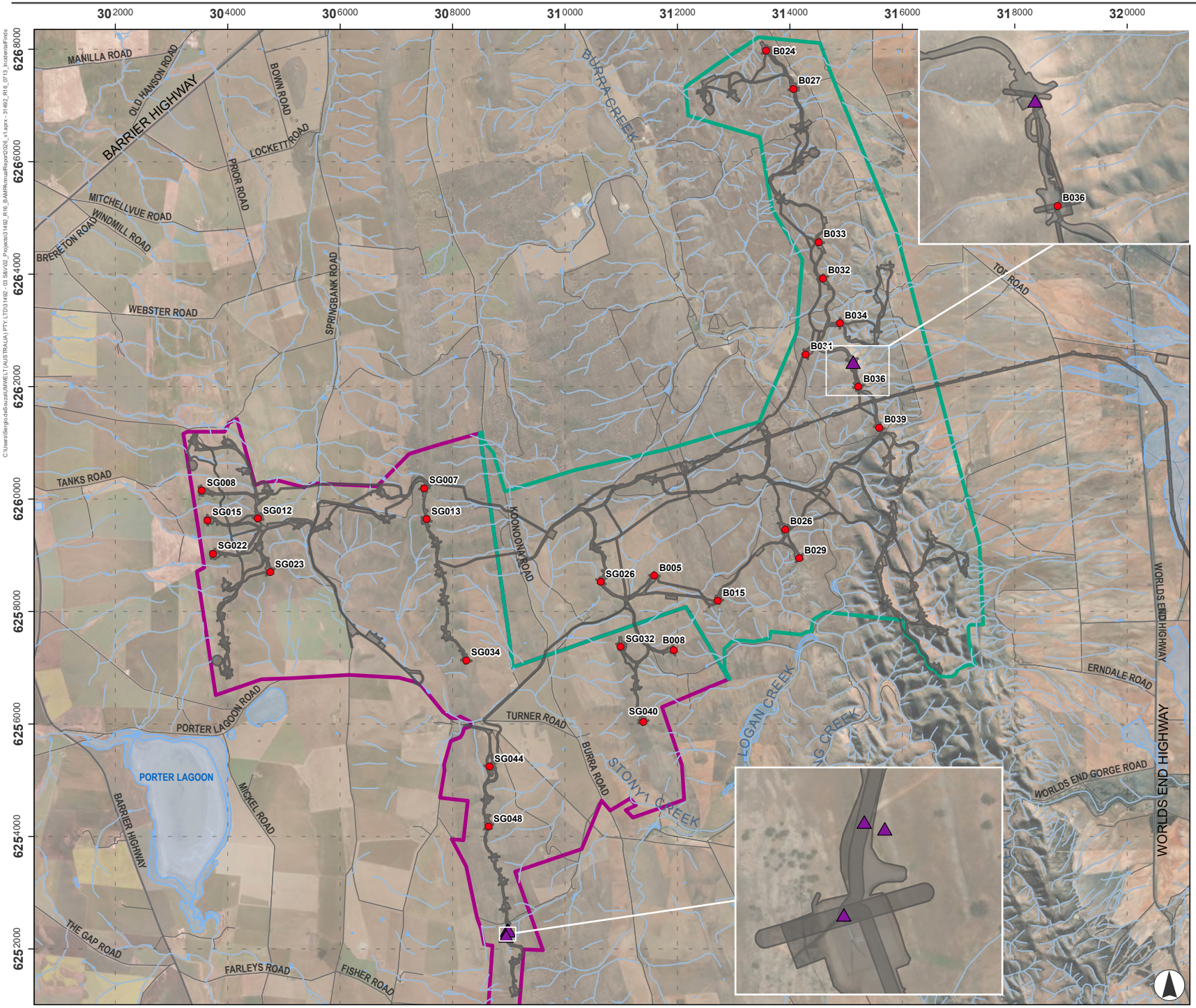


Figure 7.13

Incidental Finds Across the Project Area

Legend

- Goyder south - Stage 1A
- Goyder south - Stage 1B
- Goyder South Infrastructure
- WTG Collision Monitoring Site
- Water course
- Water body

Incidental Finds

- Carcass - Wedge-tailed Eagle (*Aquila audax audax*)

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Kilometres

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7.5 DNA Testing

In accordance with Section 8.3.7 of the BAMP, if a bird carcass cannot be identified by a suitably qualified bird expert, then it will be subject to DNA testing to determine the bird species.

All bird carcasses detected during the Bird Monitoring Program were identified to species level. As such, DNA testing was not required.

7.6 Species of Concern

No carcass or feather spot of any EPBC Act threatened or migratory listed bird species was found during long-term WTG collision monitoring, or incidentally in 2025. Furthermore, no carcass or feather spot of any NPW Act listed threatened species was found during WTG collision monitoring, or incidentally in 2025. Two species of concern which are non-threatened species of 'at risk' birds, including five Nankeen Kestrel and four Wedge-tailed Eagle, were found during WTG collision monitoring, or incidentally in 2025, as summarised in **Table 7.5**. However, no trigger level was reached.

Table 7.5 Other Bird Species (Which Are Species of Concern) Found During WTG Collision Monitoring or Incidentally in 2025

Species	Date	Location	Carcass / Feather Spot	Detection Method
Nankeen Kestrel (*Falco cenchroides cenchroides*)	26/02/2025	SG023	Feather spot	Human Search at WTG
	27/02/2025	SG040	Feather spot	Human Search at WTG
	09/05/2025	B034	Feather spot	Human Search at WTG
	03/11/2025	B027	Carcass	Human Search at WTG
	06/11/2025	B026	Feather spot	Human Search at WTG
Wedge-tailed Eagle (*Aquila audax audax*)	23/04/2025	B035	Carcass	Incidental Find
	10/06/2025	SG054	Carcass	Incidental Find
	17/06/2025	SG054	Carcass	Incidental Find
	01/09/2025	SG054	Carcass	Incidental Find

7.7 Cumulative Results to Date

All carcasses and feather spots recorded in Stage 1A and Stage 1B Project Areas during the long-term WTG collision monitoring program to date (2024-2025), including those found during active searches at WTGs and incidentally, are presented in **Table 7.6** and **Table 7.7**, respectively. An overview map of all carcasses and feather spots recorded to date is provided in **Figure 7.14**, while all carcasses and feather spots recorded to date in Stage 1A and Stage 1B Project Areas are shown in **Figure 7.15** and **Figure 7.16**, respectively.

No carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, has been found to date during implementation of the Bird Monitoring Program's long-term WTG collision monitoring.

Table 7.6 All Bird Carcass and Feather Spots Recorded During the Long-term WTG Collision Monitoring Program in Stage 1A (2024-2025)

WTG	Date	Carcass / Feather spot	Detection Method	Species	Vegetation Association	Habitat Type
SG002*	04/09/2024	Carcass	Incidental find	Brown Falcon (*Falco berigora berigora*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG007	21/08/2024	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland. (Also adjacent to **VA6**: *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland.)	Grassland adjacent Open Woodland
	21/08/2024	Feather spot	Human search at WTG	Galah (*Eolophus roseicapilla*)		
	13/11/2024	Feather spot	Human search at WTG	Galah (*Eolophus roseicapilla*)		
SG008	19/08/2024	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG012	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG013	01/11/2024	Carcass	Incidental find	Nankeen Kestrel (*Falco cenchroides cenchroides*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	26/02/2025	Feather spot	Human search at WTG	Magpielark (*Grallina cyanoleuca*)		
SG014*	14/10/2024	Feather spot	Incidental find	Galah (*Eolophus roseicapilla*)	**VA2:** *Lomandra multiflora* ssp. *dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland.	Grassland
SG015	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG022	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG023	26/02/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	26/02/2025	Feather spot	Human search at WTG	Nankeen Kestrel (*Falco cenchroides cenchroides*)		
	09/05/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)		
SG032	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG034	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland

WTG	Date	Carcass / Feather spot	Detection Method	Species	Vegetation Association	Habitat Type
SG040	14/11/2024	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	27/02/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)		
	27/02/2025	Feather spot	Human search at WTG	Nankeen Kestrel (*Falco cenchroides cenchroides*)		
SG044	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG048	-	-	-	-	**VA2:** *Lomandra multiflora* ssp. *dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland. **VA8:** *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
SG050*	15/10/2024	Feather spot	Incidental find	Australian Magpie (*Gymnorhina tibicen*)	**VA2:** *Lomandra multiflora* ssp. *dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland.	Grassland
SG054*	10/06/2025	Carcass	Incidental find	Wedge-tailed Eagle (*Aquila audax audax*)	**VA8:** *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	17/06/2025	Carcass	Incidental find	Wedge-tailed Eagle (*Aquila audax audax*)		
	01/09/2025	Carcass	Incidental find	Wedge-tailed Eagle (*Aquila audax audax*)		
B008	27/02/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8:** *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	19/08/2025	Carcass	Human search at WTG	Horsefield's Bronze Cuckoo (*Chalcites basalis*)		
	05/11/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)		

* Indicates that the WTG is not a nominated WTG monitored as part of WTG collision monitoring program.
Species of concern are in red text.

Table 7.7 All Bird Carcass and Feather Spots Recorded During the Long-term WTG Collision Monitoring Program in Stage 1B (2024-2025)

WTG	Date	Carcass / Feather spot	Detection Method	Species	Vegetation Association	Habitat Type
B005	-	-	-	-	Cropping	Artificial grassland
B015	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B024	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B026	09/05/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland **VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Open Woodland and Grassland
	06/11/2025	Feather spot	Human search at WTG	Nankeen Kestrel (*Falco cenchroides cenchroides*)		
B027	03/11/2025	Carcass	Human search at WTG	Nankeen Kestrel (*Falco cenchroides cenchroides*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B029	06/11/2025	Feather spot	Human search at WTG	Unknown (down feathers only)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland. **VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland	Grassland and Open Woodland
	06/11/2025	Feather spot	Human search at WTG	Common Starling (*Sturnus vulgaris*)		
B031	20/08/2025	Feather spot	Human search at WTG	Little Raven (*Corvus mellori*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B032	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B033	06/03/2025	Feather spot	Human search at WTG	Little Raven (*Corvus mellori*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B034	09/05/2025	Feather spot	Human search at WTG	Nankeen Kestrel (*Falco cenchroides cenchroides*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B035*	23/04/2025	Carcass	Incidental find	Wedge-tailed Eagle (*Aquila audax audax*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B036	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
B039	04/03/2025	Feather spot	Human search at WTG	Australian Magpie (*Gymnorhina tibicen*)	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland
	09/05/2025	Feather spot	Human search at WTG	Magpielark (*Grallina cyanoleuca*)		

WTG	Date	Carcass / Feather spot	Detection Method	Species	Vegetation Association	Habitat Type
	09/05/2025	Feather spot	Human search at WTG	Magpielark (*Grallina cyanoleuca*)		
SG026	-	-	-	-	**VA8**: *Austrostipa* spp. (Spear Grass) Mixed Grassland.	Grassland

* Indicates that the WTG is not a nominated WTG monitored as part of WTG collision monitoring program.
Species of concern are in red text.

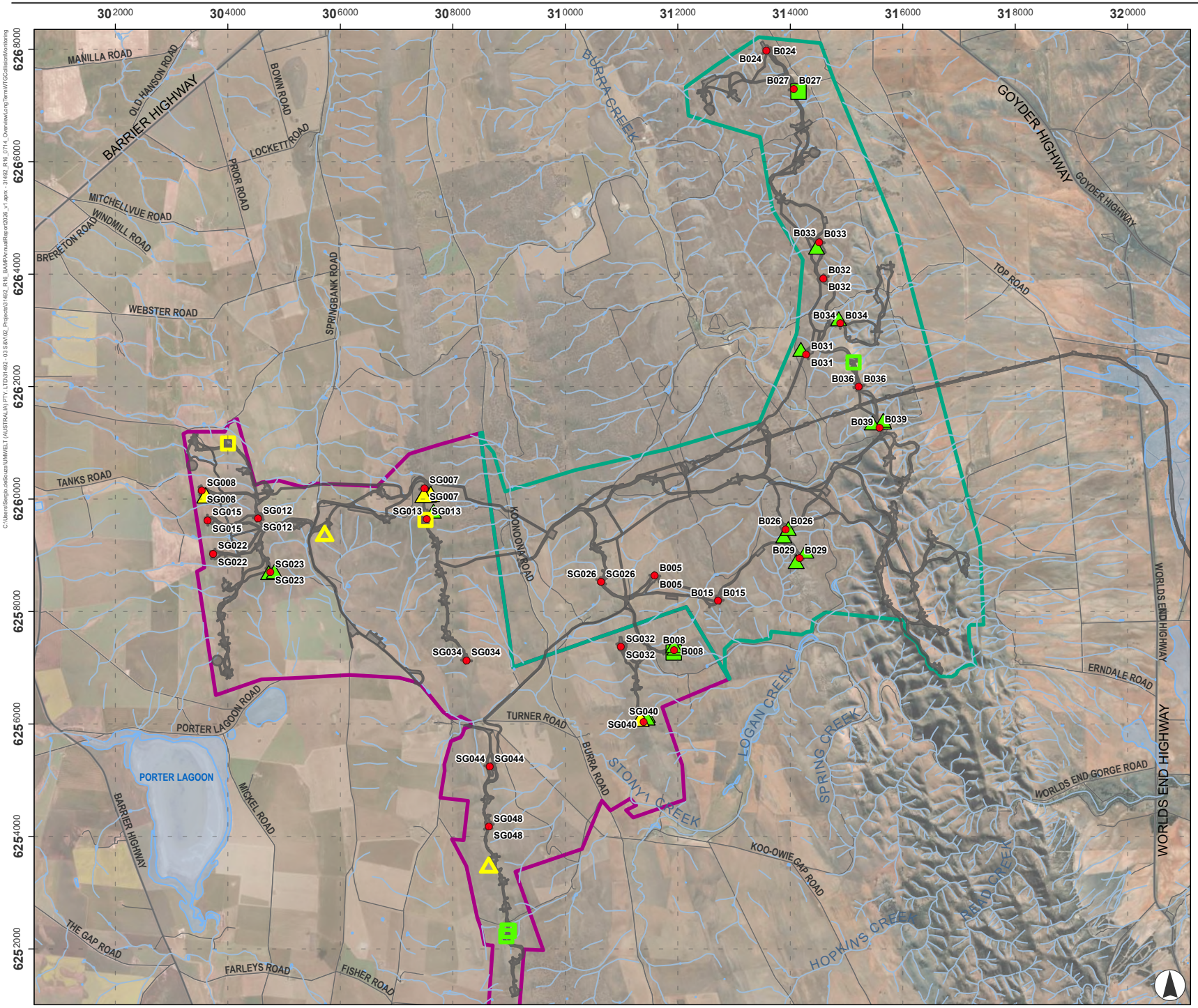


Figure 7.14

Overview of Long-term WTG Collision Monitoring Program Cumulative Results

Legend

- Goyder south - Stage 1A
- Goyder south - Stage 1B
- Goyder South Infrastructure
- WTG Collision Monitoring Site
- Water course
- Water body

Bird Strike Record 2024

- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

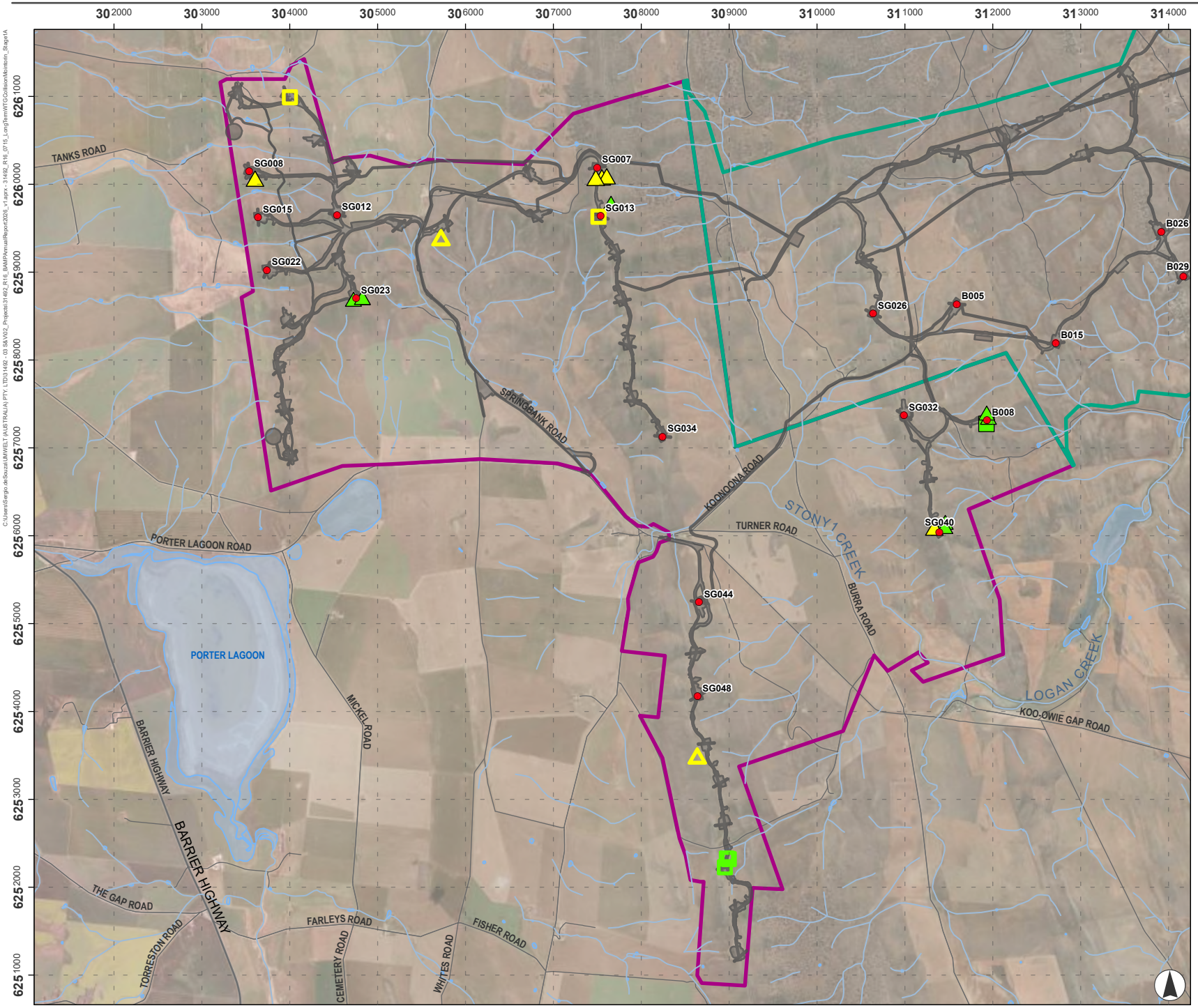
- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

0 1 2
Kilometres

Scale 1:93,750 at A4
GDA2020 MGA Zone 54

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Image Source: ESRI (2025) | **Data Source:** Umwelt, SA DIT, DEW (2025), GE (2024)



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Figure 7.15

Long-term WTG Collision Monitoring Program Cumulative Results Stage 1A

Legend

- Goyder south - Stage 1A
- Goyder south - Stage 1B
- Goyder South Infrastructure
- WTG Collision Monitoring Site
- Roads
- Water course
- Water body

Bird Strike Record 2024

- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)



0 1 2

Kilometres

Scale 1:60,000 at A4
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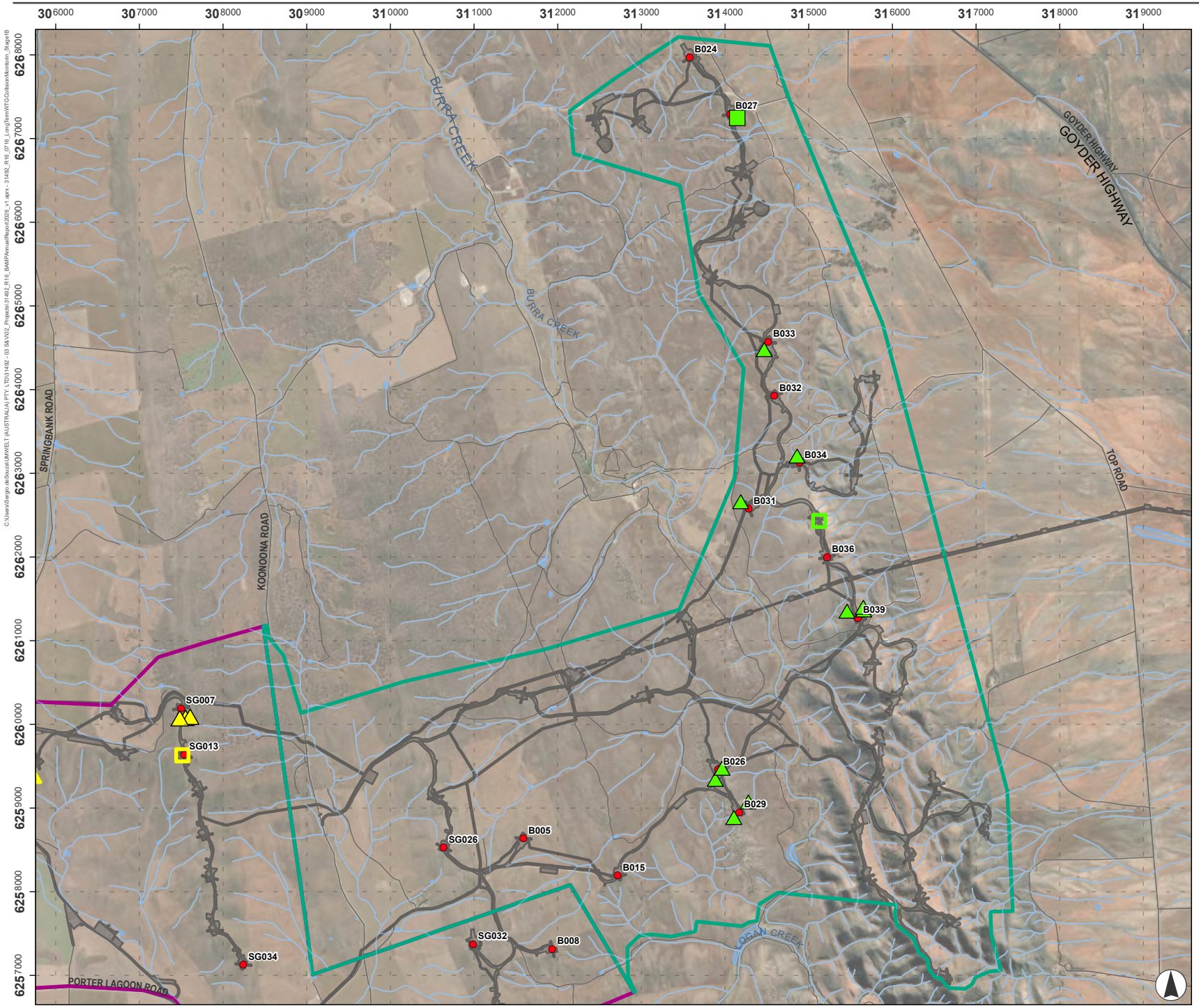


Figure 7.16

Bird Carcass and Feather-spots Observed Via WTG Collision Monitoring in Stage 1B to Date

Legend

- Goyder south - Stage 1A
- Goyder south - Stage 1B
- WTG Collision Monitoring Site
- Water course
- Water body

Bird Strike Record 2024

- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)



0 1 2

Kilometres

Scale 1:63,000 at A4
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Image Source: ESRI (2025) | **Data Source:** Umwelt, SA DIT, DEW (2025), GE (2024)

7.7.1 General Statistics

A total of 33 carcasses and feather spots have been recorded during the long-term WTG collision monitoring program to date (2024-2025), including eight carcasses and 25 feather-spots, as summarised in **Table 7.8**. Most finds (25) were detected during active WTG collision monitoring searches, while eight were detected incidentally. Records cover 18 different WTGs, including ten in Stage 1A and eight in Stage 1B, and represent eight bird species, with Australian Magpie, Nankeen Kestrel and WTE the most frequently recorded.

Table 7.8 Summary of Carcasses and Feather Spots Found at WTGs to Date (2024-2025)

	Stage 1A	Stage 1B	Total
Total Number of Carcasses Found:	6	2	8
Total Number of Feather Spots Found:	15	10	25
Total Number of Carcasses and Feather Spots Found:	21	12	33
Total Number of Carcasses and Feather Spots Found via Human Search at WTG:	14	11	25
Total Number of Incidental Finds:	7	1	8
Total Number of Species of Concern:	3 species 7 individuals	2 species 4 individuals	3 species 11 individuals
Number of Species:	**7** • Australian Magpie (n=9) • Galah (n=3) • Nankeen Kestrel (n=3) • Wedge-tailed Eagle (n=3) • Brown Falcon (n=1) • Horsefield's Bronze Cuckoo (n=1) • Magpielark (n=1)	**5^** • Nankeen Kestrel (n=3) • Australian Magpie (n=2) • Magpielark (n=2) • Wedge-tailed Eagle (n=1) • Common Starling (n=1) • Unknown (down feathers only) (n=1)	**8^** • Australian Magpie (n=11) • Nankeen Kestrel (n=6) • Wedge-tailed Eagle (n=4) • Galah (n=3) • Magpielark (n=3) • Brown Falcon (n=1) • Horsefield's Bronze Cuckoo (n=1) • Common Starling (n=1) • Unknown (down feathers only) (n=1)
Number of WTGs (Where a Carcass or Feather Spot Found):	**10** • SG002* (n=1) • SG007 (n=3) • SG008 (n=1) • SG013 (n=2) • SG014* (n=1) • SG023 (n=3) • SG040 (n=3) • SG050* (n=1) • SG054* (n=3) • B008 (n=3)	**8** • B026 (n=2) • B027 (n=1) • B029 (n=2) • B031 (n=1) • B033 (n=1) • B034 (n=1) • B035* (n=1) • B039 (n=3)	**18** (As per other 2 columns.) Note that 5 WTGs are not a nominated WTG monitored as part of the WTG collision monitoring program.

^Does not include unknown (down feathers only). *Indicates that the WTG is not a nominated WTG monitored as part of the WTG collision monitoring program. Species of concern are in red text.

8.0 Carcass Persistence (Scavenger Activity) and Searcher Efficiency Trials

As outlined in the BAMP (Section 8.3.4 and sub-sections) carcasses of birds that collide with WTGs may be removed by scavengers or will ultimately disappear due to decomposition. Carcass persistence and searcher efficiency affects the detection of dead birds that collide with WTGs and consequently influences estimation of the total number of fatalities for each species.

As one of the objectives of the Bird Monitoring Program is to *estimate the number and species of birds suspected to have been killed by collision with turbines, on an annual basis*, it is essential that the monitoring program is scientifically and statistically robust. As such, trials to determine persistence time of carcasses and efficiency of searchers are required to determine and apply appropriate correction factors for carcasses scavenged (removed) and/or missed by searchers, to inform estimation of total collision mortality for species of interest and/or concern.

As such, scavenger activity trials have been completed to determine the length of time before scavengers (such as Red Fox (*Vulpes vulpes*)) remove a carcass from the site and searcher efficiency trials have also been completed to determine the likelihood of detecting a carcass during searches, at the Goyder South Project. These trials are designed to complement WTG collision monitoring data and will be used to inform appropriate correction factors necessary to estimate total collision mortality.

Refer to the *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2024* (Umwelt 2025) for details on the scavenger activity and searcher efficiency trials completed at GSWF.

9.0 Opportunistic Observations of Agricultural Practices and Pest Species

As outlined in the BAMP (Section 8.3.5), agricultural practices, such as feeding of grain and/or fodder to stock, lambing, or water points in close proximity to WTGs, and pest species, which are observed opportunistically during monitoring events, or during regular operation of the Project, will be recorded and included in reporting, as this information may be helpful when attempting to determine the cause of a trigger level impact.

Opportunistic observations of agricultural practices and pest species recorded during monitoring events in 2025 are presented in **Table 9.1**. Animal carcasses (such as, but not limited to, lambs, sheep, cows and kangaroo) are highly likely to attract scavenging bird species (such as WTE), as is the presence of rabbits. Dams provide artificial, man-made water sources, which are likely to attract bird species and may also attract raptors that hunt these birds.

However, as a trigger level impact has not occurred to date, no analysis of this data has been undertaken.

Table 9.1 Opportunistic Observations of Agricultural Practices and Pest Species in 2025

Date	Survey Type	Location	Opportunistic Observation
05/05/2025	WTG collision monitoring	SG048	Numerous dead lambs observed across the area. One WTE observed flying at approximately 75 m height within the SG048 WTG collision monitoring survey site.
06/05/2025	WTG collision monitoring	SG015	One rotting adult sheep carcass approximately 50 m from SG015 WTG collision monitoring survey site. One WTE observed flying through the SG015 WTG collision monitoring survey site.
29/05/2025	BUS (autumn)	BS6	Fox observed on site during AM BUS.
21/08/2025	WTG collision monitoring	B015	Fresh fox tracks observed within the mud.
03/11/2025	WTG collision monitoring	SG008	Dam located beyond western side of WTG collision monitoring site.
03/11/2025	WTG collision monitoring	SG015	Dead kangaroo observed.
03/11/2025	WTG collision monitoring	SG022	Dead lamb observed within WTG collision monitoring site.
03/11/2025	WTG collision monitoring	SG012	Dam located adjacent to WTG collision monitoring site.
04/11/2025	WTG collision monitoring	B027	Old cow skeleton observed within WTG collision monitoring survey site.
04/11/2025	WTG collision monitoring	B033	Fox dens observed within WTG collision monitoring survey site.
06/11/2025	WTG collision monitoring	B029	Evidence of fox presence (scat and markings) observed.
06/11/2025	WTG collision monitoring	B026	Fox scat observed within WTG collision monitoring site.

Date	Survey Type	Location	Opportunistic Observation
06/11/2025	WTG collision monitoring	SG026	Two dams located beyond WTG collision monitoring site.
06/11/2025	WTG collision monitoring	SG048	Dead lamb observed.
06/11/2025	WTG collision monitoring	SG034	Rabbit burrows within the middle of the southern edge of the SG034 WTG collision monitoring survey area.

10.0 Bird Monitoring Program Data Analysis

All data collected during the Bird Monitoring Program has been entered into a specific database and analysed to understand bird activity and WTG collisions across the Stage 1A and Stage 1B Project Areas.

10.1 Consideration of Trigger Levels

WTG collision monitoring results were assessed following each quarterly WTG collision monitoring event and compared to relative trigger levels for each species of concern. Refer to **Section 2.3.4** for trigger levels. If a trigger level occurs, the adaptive management framework (outlined in Section 9 of the BAMP) will be followed, which includes undertaking a significant impact assessment to determine the level of impact on the bird species of concern.

While two carcasses and 18 feather spots were recorded during the 2025 WTG collision monitoring program (**Table 7.3**), and four carcasses were observed incidentally (**Table 7.4**), none of the species recorded are listed under the EPBC Act. As such, the trigger level for "EPBC Act listed threatened and migratory bird species" was not reached and a significant impact self-assessment in accordance with the Matters of National Environmental Significance: Significant impact guidelines 1.1 (Commonwealth of Australia 2013) has not been required to be undertaken.

Furthermore, the trigger for "Other non-threatened bird species" was not reached either, as more than four carcasses or feather spots of a single species were not found under or close to a WTG during any quarterly WTG collision monitoring search, and/or incidentally by wind farm personnel, in any two consecutive months.

As no trigger level impact was detected in 2025, or to date, no adaptive management action (as outlined in the BAMP) was required or undertaken in 2025, or to date.

10.2 Estimation of Annual Mortality Rate

As outlined in the BAMP (Section 8.4.1), after 12 months of WTG collision monitoring, the annual mortality rate for each EPBC Act listed bird species and other bird species (i.e. species of concern) will be estimated using current best practice science taking into account searched areas, carcass persistence times and searcher efficiency rates. Refer to BAMP Section 8.4.1 for more detailed information on estimating the annual mortality rate. Annual mortality rates will be compared to the thresholds for significant impacts set for EPBC Act listed species of concern in BAMP Section 4.5 and if thresholds are reached, impacts will be deemed significant and both offsets and additional management measures will be required.

As no carcass or feather spot of any EPBC Act threatened or migratory listed species was found during WTG collision monitoring or incidentally in 2025, the annual mortality rate for each EPBC Act listed species of concern has not been estimated for 2025. However, the annual mortality rate has been estimated for other bird species which are species of concern, including Nankeen Kestrel (*Falco cenchroides cenchroides*) and Wedge-tailed Eagle (*Aquila audax audax*), and is presented in **Table 10.1**. No carcass or feather spot of any other species of concern was found during WTG collision monitoring or incidentally in 2025.

As outlined in **Section 7.3**, five Nankeen Kestrels were found during WTG collision monitoring surveys in 2025 and while no WTE carcasses or feather spots were found during WTG collision monitoring surveys in 2025, four were found incidentally in 2025 (**Section 7.4.1**). As such, the resulting (median) estimate of total mortality for Nankeen Kestrel is 676, with 95 % confidence that fewer than 1306 individuals were lost, and the resulting (median) estimate of total mortality for WTE is 5, with 95 % confidence that fewer than 11 individuals were lost (**Table 10.1**). Refer to **Appendix G** for the Goyder South Wind Farm Mortality Estimate – Year 1 (Symbolix 2026) for further detail.

Table 10.1 Percentiles of Estimated Total Losses in Year One (2025) of Surveys

Species	0 %	50 % (median)	90 %	95 %	99 %
Nankeen Kestrel	191	676	1162	1306	1789
Wedge-tailed Eagle	3	5	9	11	14

Source: Symbolix 2026.

However, Symbolix (2026) expect the estimate for Nankeen Kestrel to be biased high to some extent due to the use of poultry as proxies in the carcass persistence trials. In addition, the length of time between WTG collision monitoring surveys (which are undertaken quarterly / every three months, rather than monthly) introduces further limitation to the data used in the modelling.

Symbolix (2026) explain that mortality estimators work backwards from the number of found carcasses, using the searcher efficiency, scavenging rate and coverage factor to estimate the number of strikes most likely to result in the number of carcasses found. This means that it is possible for some of the estimated mortalities in the distribution to be higher than is ecologically possible. Therefore, the estimates must be interpreted through an ecological lens based on the knowledge of the local population. While the median is more statistically likely, the value that is more ecologically likely may be lower based on the number of birds available to be struck.

As summarised in **Section 5.3.4.1** and **Table 5.9**, a total of 18 Nankeen Kestrel were recorded across all seasonal BUS in 2025 (including 7 in summer; 1 in autumn; 2 in winter; and 8 in spring).

A long-term study on Nankeen Kestrels nesting around suburban Canberra found that within suitable habitat, nest sites are spaced as close as 250 m and nearest-neighbour distances average 717 m, to give a density of 108 pairs (216 birds) per 100 km^2 (which is equivalent to 2.16 birds per km^2) (Baker *et al*. 1997). Other recorded densities include six birds in 1 km^2, to seven pairs (14 birds) in <60 km^2 (which is equivalent to 0.23 birds per km^2) (Debus *et al*. 2025).

While Nankeen Kestrel population density would vary depending on availability of suitable habitat and seasonal conditions, a high-level estimate of Nankeen Kestrel population across the Stage 1A and Stage 1B Project Areas (which total 81.6315 km^2) is presented in **Table 10.2** and suggests that there would be approximately 18-490 individuals.

Table 10.2 Nankeen Kestrel Population Estimate

Density	Number of birds
0.23 birds per km^2	18.78
2.16 birds per km^2	176.62
6.00 birds per km^2	489.79

As such, it is unlikely that 676 Nankeen Kestrel were lost throughout the Stage 1A and Stage 1B Project Areas as it is unlikely that 676 Nankeen Kestrel occur within the Project Areas.

As the annual mortality rate for each EPBC Act listed species of concern was not able to be estimated for 2025, annual mortality rates have not been compared to the thresholds for significant impacts set in BAMP Section 4.5 and no response (such as impacts deemed significant and implementation of offsets or additional management measures) has been required.

10.3 Review of WTG Risk Ratings

As outlined in the BAMP (Section 8.4.2), after the initial 12 months of BUS and WTG collision monitoring, the results will be analysed to review, adjust, and if required, assign WTG high risk ratings. As more than 12 months of BUS and WTG collision monitoring has now been completed, the results have been analysed and WTG risk ratings have been reviewed and adjusted, where required. In accordance with the BAMP, the criteria which has been used to assess and adjust WTG risk ratings is outlined in **Table 10.3**, along with commentary on how the criteria has been assessed.

Initial WTG risk ratings from the BAMP are summarised in **Table 10.4**, along with the revised WTG risk ratings, while further detailed information on the review and assignment of each WTG risk rating is provided in **Table 10.6** and **Table 10.7** for WTGs within Stage 1A and Stage 1B, respectively. While only WTGs nominated (in the BAMP) to be monitored as part of the long-term WTG collision monitoring were assigned a WTG risk rating initially, all WTGs have now been assigned a WTG risk rating.

Out of the 75 WTGs across the Stage 1A and Stage 1B Project Areas:

- 64 have a Low risk rating.
- 8 have a Low to Moderate risk rating.
- 2 have a Moderate risk rating.
- 1 (SG007) has a Moderate to High risk rating (**Table 10.4**).

However, no WTG has been assigned a High risk rating as no carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, has been found during long-term WTG collision monitoring or incidentally to date (**Section 7.7**), and no trigger level impact has occurred to date (**Section 10.1**).

WTG risk ratings will be reviewed again as part of the next annual BAMP implementation report.

Table 10.3 Criteria Used to Review and Adjust WTG Risk Ratings

Criteria	Commentary
WTG proximity (within 500 m) to observations of species of concern (particularly EPBC Act listed species).	All Bus sites, apart from BUS sites 1, 5 and 8, are within 500m of a WTG. Species of concern that have been recorded at BUS sites within 500 m of a WTG to date (2023-2025) are outlined in **Table 10.5**. All BUS sites and the species of concern that have been recorded at them are mapped in **Figure 10.1** to **Figure 10.8**, along with a 500 m buffer on each WTG.
Number and density of species of concern observed in proximity (within 500 m) to WTG.	The number of each species of concern that has been recorded at BUS sites within 500 m of a WTG to date (2023-2025) is included in **Table 10.5**. Each individual record of a species of concern observed opportunistically to date is mapped in **Figure 10.1** to **Figure 10.8**, along with a 500 m buffer on each WTG.

Criteria	Commentary
Frequency of species of concern observations in proximity (within 500 m) to WTG (both within a survey period and over various seasons).	Each individual record of a species of concern observed opportunistically to date (2023-2025) is mapped in **Figure 10.1** to **Figure 10.8**, along with a 500 m buffer on each WTG. The mapping shows that there is not a high frequency of species of concern that have been recorded opportunistically. The total number of each species of concern that has been recorded at BUS sites within 500 m of a WTG to date (2023-2025) is included in **Table 10.5**. While numbers recorded within each survey period and over various seasons are not included, the highest number of any single species of concern recorded was 61 Southern Whiteface to date, which over two 12-month periods of data collection, does not represent a high frequency of observations. Data for this criterion will be reviewed and analysed further as part of the next annual BAMP implementation report.
Presence of nesting or roosting habitat for species of concern.	Vegetation types within the Stage 1A and Stage 1B Project Areas include grassland (57.82 % and 76.98 %), cropping (37.02 % and 11.68 %), woodland (4.88 % and 10.52 %) and other (amenity/urban: 0.27 % and 0.81 %), respectively (**Section 4.1**). Nesting or roosting habitat for species of concern consists of a very limited amount of woodland vegetation; 4.88% and 10.52% of all vegetation within Stage 1A and Stage 1B, respectively. Vegetation Associations across the Stage 1A and Stage 1B Project Areas are included in the mapping in **Figure 10.1** to **Figure 10.8**, along with known WTE nests.
WTG strike data (collected during the long-term WTG collision monitoring).	All WTG strike data collected during the long-term WTG collision monitoring program to date (2023-2025), which is summarised in **Section 7.7**, is mapped in **Figure 10.1** to **Figure 10.8**.

Table 10.4 Summary of Initial and Revised WTG Risk Ratings

WTG	Stage 1A		WTG	Stage 1B	
	Collision Risk Rating in BAMP	Revised Collision Risk Rating		Collision Risk Rating in BAMP	Revised Collision Risk Rating
SG001	Not rated.	Low	B001	Not rated.	Low
SG002	Not rated.	Low	B004	Not rated.	Low
SG003	Not rated.	Low	B005	Low	Low
SG007	Moderate to High (particularly for WTEs)	Moderate to High (particularly for WTEs)	B010	Not rated.	Low
SG008	Low	Low	B015	Low	Low
SG010	Not rated.	Low	B017	Not rated.	Low
SG011	Not rated.	Low	B021	Not rated.	Low
SG012	Low	Low	B023	Not rated.	Low
SG013	Low to Moderate	Low to Moderate	B024	Low	Low
SG014	Not rated.	Low	B025	Not rated.	Low
SG015	Low	Low	B026	Moderate (particularly for WTEs)	Moderate (particularly for WTEs)
SG016	Not rated.	Low	B027	Low	Low
SG017	Not rated.	Low	B028	Not rated.	Low
SG018	Not rated.	Low	B029	Moderate (particularly for WTEs)	Moderate (particularly for WTEs)
SG020	Not rated.	Low	B030	Not rated.	Low

WTG	Stage 1A		WTG	Stage 1B	
	Collision Risk Rating in BAMP	Revised Collision Risk Rating		Collision Risk Rating in BAMP	Revised Collision Risk Rating
SG022	Low	Low	B031	Low	Low
SG023	Low	Low	B032	Low	Low
SG025	Not rated.	Low	B033	Low to Moderate (particularly for WTEs)	Low to Moderate (particularly for WTEs)
SG027	Not rated.	Low	B034	Low	Low
SG028	Not rated.	Low	B035	Not rated.	Low
SG029	Not rated.	Low	B036	Low	Low
SG031	Not rated.	Low	B037	Not rated.	Low
SG032	Low	Low	B038	Not rated.	Low to Moderate
SG033	Not rated.	Low	B039	Low	Low
SG034	Low	Low	B040	Not rated.	Low
SG036	Not rated.	Low	B042	Not rated.	Low
SG037	Not rated.	Low	B043	Not rated.	Low
SG040	Low	Low to Moderate	B044	Not rated.	Low
SG044	Low	Low	B045	Not rated.	Low
SG047	Not rated.	Low	B046	Not rated.	Low
SG048	Low	Low	B047	Not rated.	Low to Moderate
SG050	Not rated.	Low to Moderate	B048	Not rated.	Low to Moderate
SG051	Not rated.	Low	B049	Not rated.	Low
SG052	Not rated.	Low	B050	Not rated.	Low
SG054	Not rated.	Low to Moderate	B051	Not rated.	Low
SG056	Not rated.	Low	B052	Not rated.	Low
SG072	Not rated.	Low	SG026	Low	Low
B008	Low	Low			

Table 10.5 Species of Concern Recorded at BUS Sites (BS) Within 500m of a WTG to Date (2023-2025)

Scientific Name	Common Name	EPBC Act Listing	NPW Act Listing	BS 2	BS 3	BS 4	BS 6	BS 7	BS 9	BS 10	BS 11	BS 12	BS 13	Total Records
Accipiter fasciatus fasciatus	Brown Goshawk	-	-	-	1	-	-	-	-	-	-	-	-	1
Aphelocephala leucopsis leucopsis	Southern Whiteface	VU	-	-	3	-	23	5	30	-	-	-	-	61
Aquila audax audax	Wedge-tailed Eagle	-	-	2	1	5	-	-	2	2	3	5	-	20
Elanus axillaris	Black-shouldered Kite	-	-	-	-	1	-	2	-	-	-	-	-	3
Falco berigora berigora	Brown Falcon	-	-	-	-	1	-	1	1	2	-	2	-	7
Falco cenchroides cenchroides	Nankeen Kestrel	-	-	7	3	10	1	5	1	3	2	1	-	33
Falco subniger	Black Falcon	-	R	-	-	-	-	-	-	2	-	-	-	2
Petrochelidon ariel	Fairy Martin	-	-	-	-	-	-	-	-	-	-	-	32	32
Stagonopleura guttata	Diamond Firetail	VU	V	-	-	-	-	-	1	-	-	-	-	1

EPBC Act and NPW Act Listing codes: R: Rare; V/VU: Vulnerable.

BUS sites 1, 5 and 8 are excluded as they are not within 500 m of a WTG.

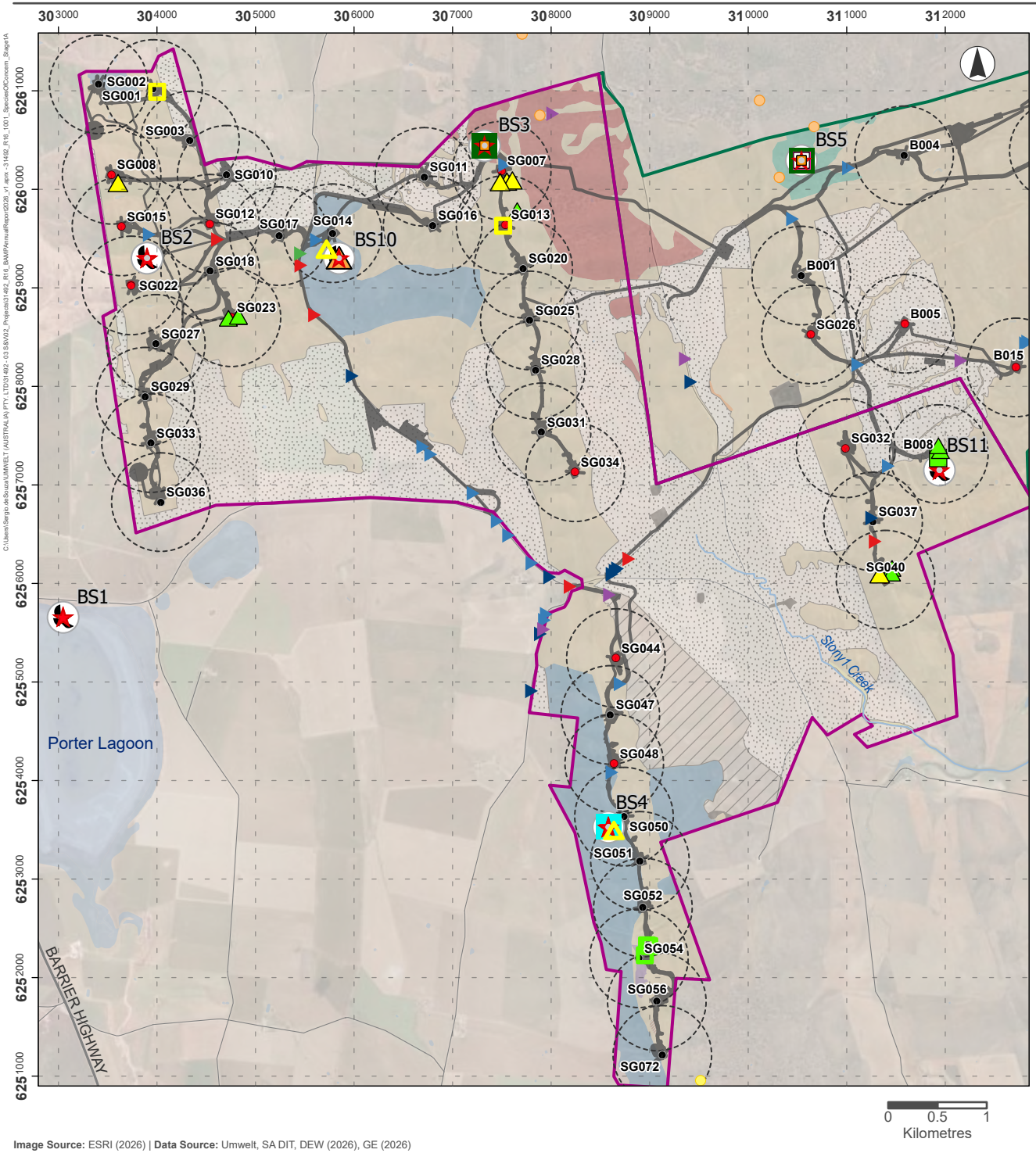


Image Source: ESRI (2026) | **Data Source:** Umwelt, SA DIT, DEW (2026), GE (2026)

Figure 10.1

Overview of Stage 1A: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- Wind Turbine Generator
- WTG Collision Monitoring Site
- BUS site

Species of Concern

- Black Falcon (Falco subniger) NPW: R
- Black-shouldered Kite (Elanus axillaris)
- Brown Falcon (Falco berigora berigora)
- Brown Goshawk (Accipiter fasciatus fasciatus)
- Diamond Firetail (Stagonopleura guttata) NPW: V EPBC: VU
- Red-backed Kingfisher (*Todiramphus pyrrhopygius*)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Nankeen kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2024

- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping

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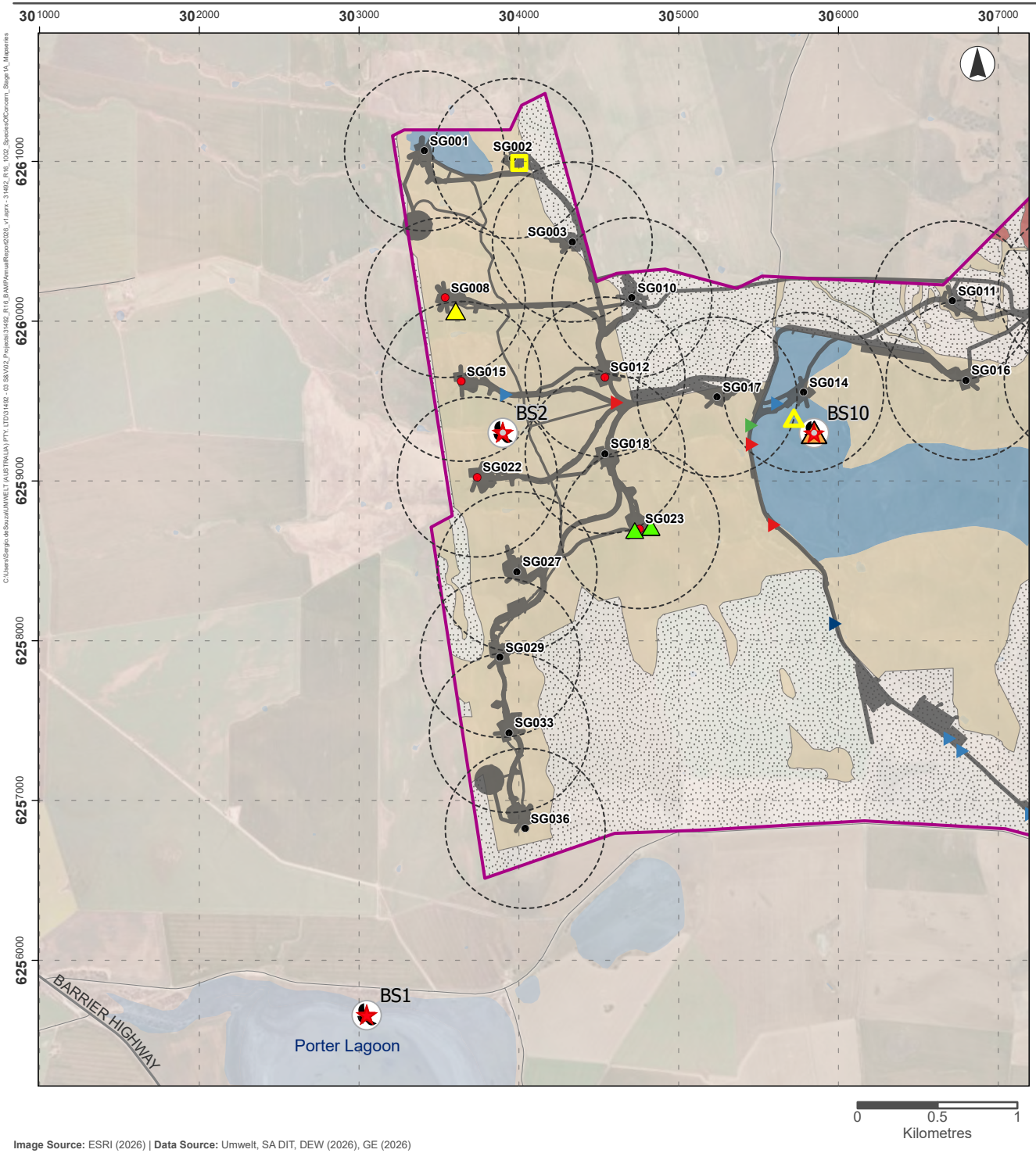


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FIGURE: 10.2

North-Western Extent of Stage 1A: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

Species of Concern

- Black Falcon (Falco subniger) NPW: R
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Nankeen kestrel *Falco cenchroides cenchroides*

Bird Strike Record 2024

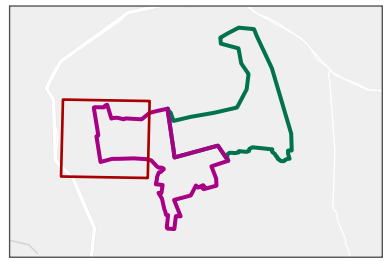
- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- Cropping



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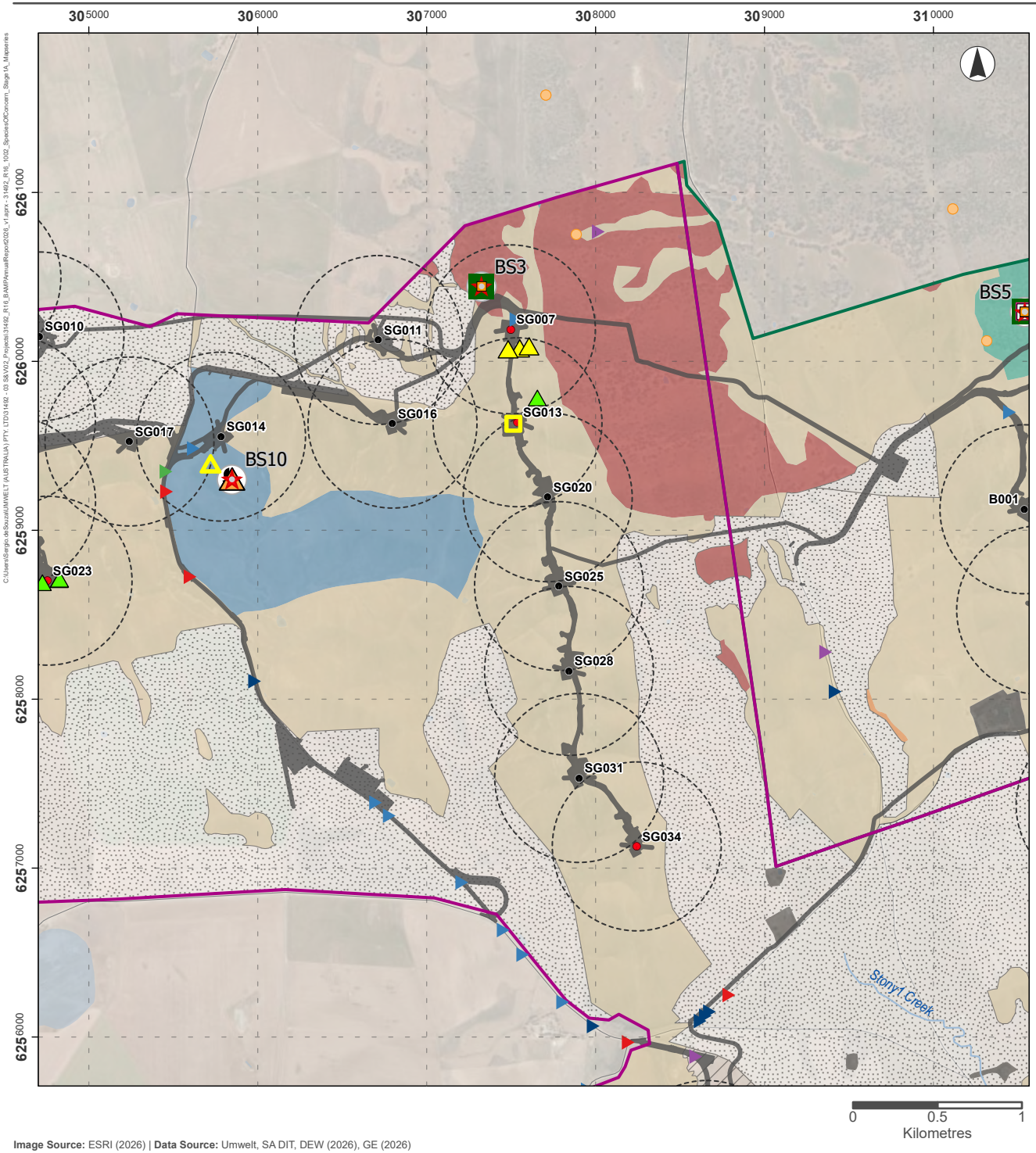


Image Source: ESRI (2026) | **Data Source:** Umwelt, SA DIT, DEW (2026), GE (2026)

FIGURE: 10.3

North-Eastern Extent of Stage 1A: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

WTE Nest Record

- WTE nest (2019)

Species of Concern

- Black Falcon (Falco subniger) NPW: R
- Brown Goshawk (Accipiter fasciatus fasciatus)
- Diamond Firetail (Stagonopleura guttata) NPW: V EPBC: VU
- Red-backed Kingfisher (*Todiramphus pyrrhopygius*)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Nankeen kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2024

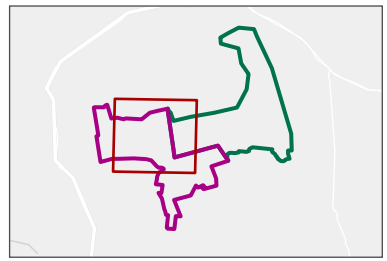
- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- Amenity / Urban
- Cropping



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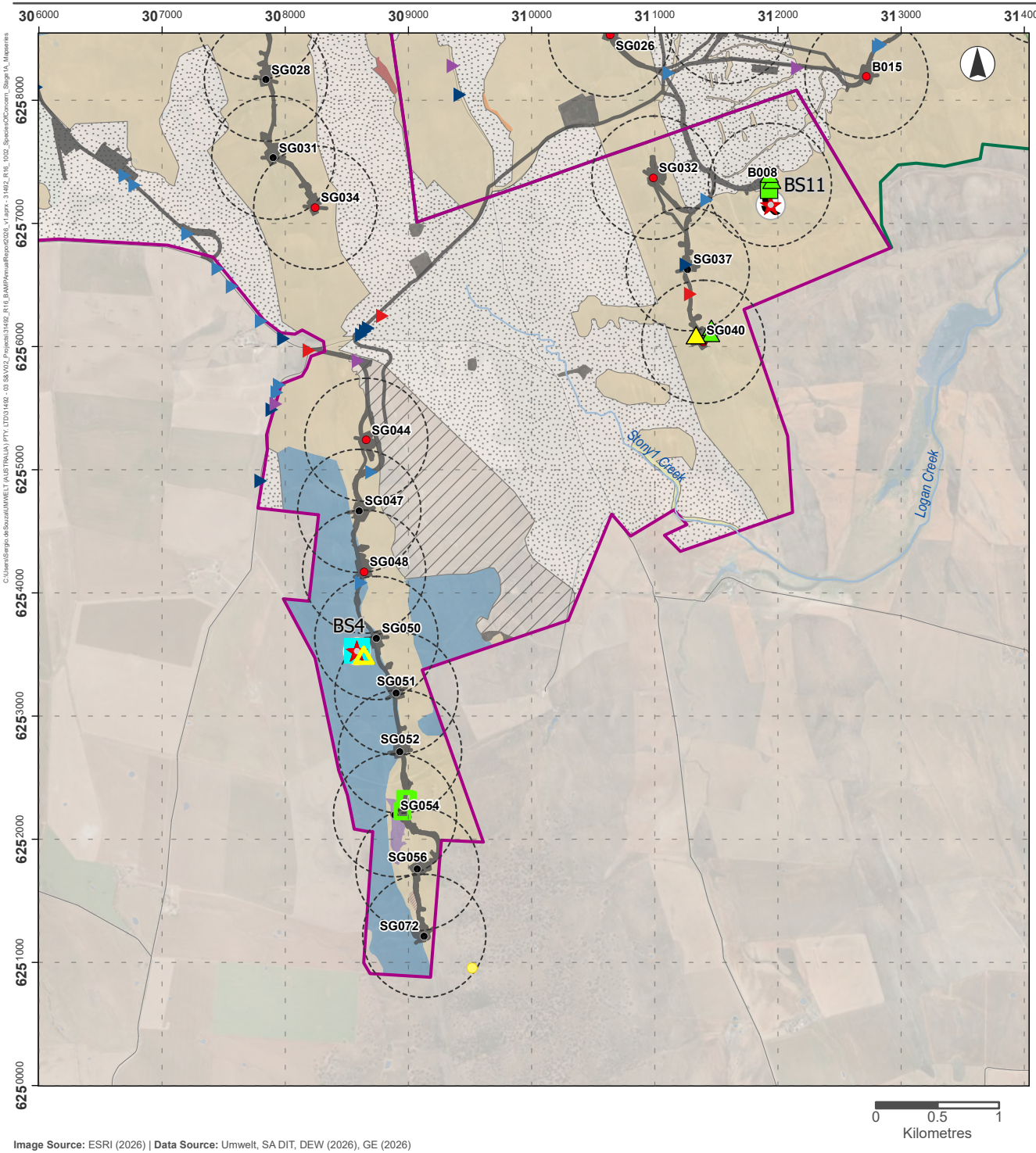


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FIGURE: 10.4

South Eastern Extent of Stage 1A: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

WTE Nest Record

- WTE nest (2021/2022)

Species of Concern

- Black-shouldered Kite (Elanus axillaris)
- Brown Falcon (Falco berigora berigora)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2024

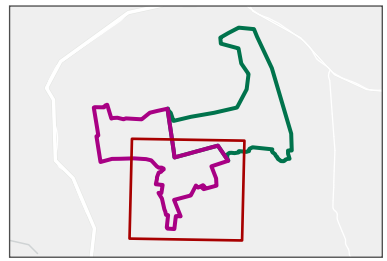
- Feather spot, Human search (at WTG)
- Feather spot, Incidental find

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 24: *Allocasuarina verticillata* Open Woodland over *Bursaria spinosa ssp.* and *Austrostipa spp.*
- Amenity / Urban
- Cropping



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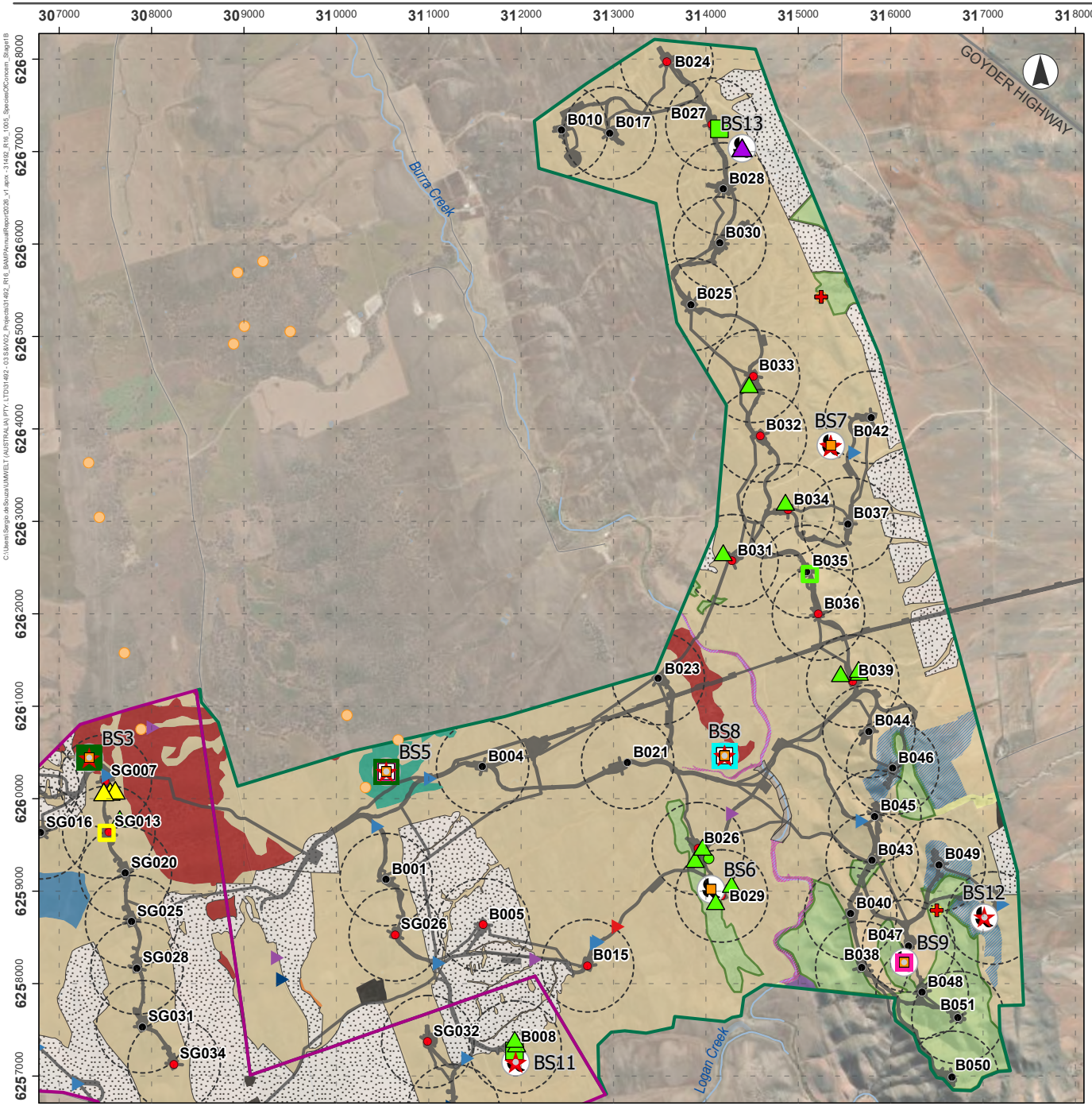


Figure 10.5

Overview of Stage 1B: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- WTG Collision Monitoring Site
- Wind Turbine Generator
- BUS site
- WTE nest (2019)
- WTE nest (2021/2022)
- WTE nest (2025)
- WTE nest – no longer present

Species of Concern

- Black-shouldered Kite (Elanus axillaris)
- Brown Falcon (Falco berigora berigora)
- Brown Goshawk (Accipiter fasciatus fasciatus)
- Diamond Firetail (Stagonopleura guttata) NPW: V EPBC: VU
- Fairy Martin (*Petrochelidon ariel*)
- Fairy Martin (Petrochelidon ariel)
- Red-backed Kingfisher (*Todiramphus pyrrhopygius*)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2024

- Dead (carcass), Incidental find
- Feather spot, Human search (at WTG)

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- Amenity / Urban
- Cropping

0 0.5 1
Kilometres

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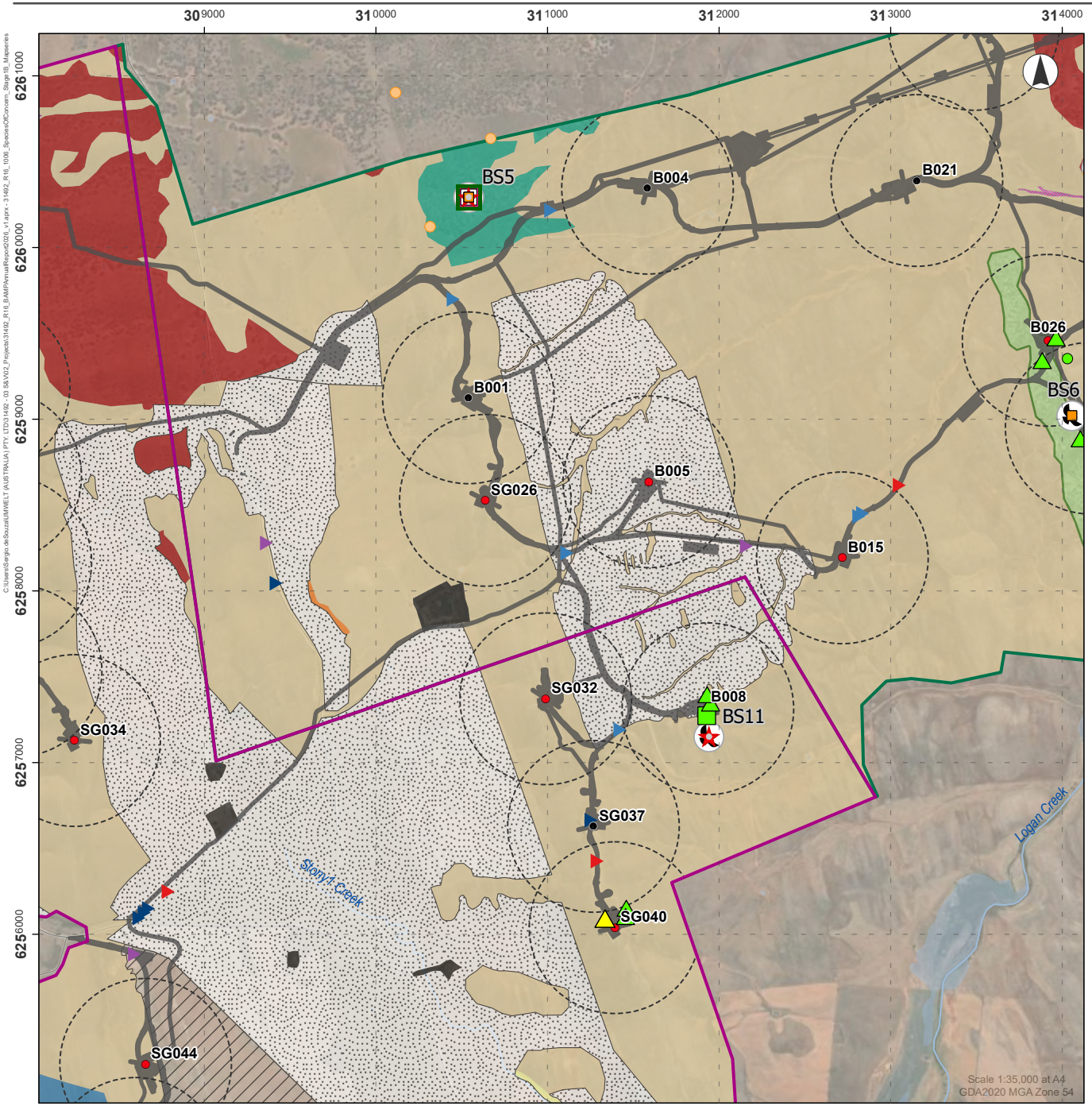


Image Source: ESRI (2025) | **Data Source:** Umwelt, SA DIT, DEW (2025), GE (2024)

FIGURE 10.6

South-Western Extent of Stage 1B: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

WTE Nest Record

- WTE nest (2019)
- WTE nest (2025)

Species of Concern

- Brown Falcon (Falco berigora berigora)
- Brown Goshawk (Accipiter fasciatus fasciatus)
- Diamond Firetail (Stagonopleura guttata) NPW: V EPBC: VU
- Red-backed Kingfisher (*Todiramphus pyrrhopygius*)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Black-shouldered Kite *Elanus axillaris*
- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2024

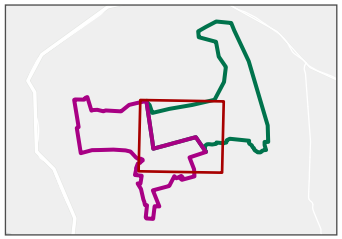
- Feather spot, Human search (at WTG)

Bird Strike Record 2025

- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

Vegetation association

- 2: *Lomandra multiflora ssp. Dura* (Hard Mat-rush) / *Lomandra effusa* (Scented Mat-rush) Mixed Open Grassland
- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 4: *Eucalyptus odorata* (Peppermint Box) Closed Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 7: *Eucalyptus camaldulensis ssp. camaldulensis* (River Redgum) Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 17: *Phragmites australis* (Common Reed) Grassland
- Amenity / Urban
- Cropping



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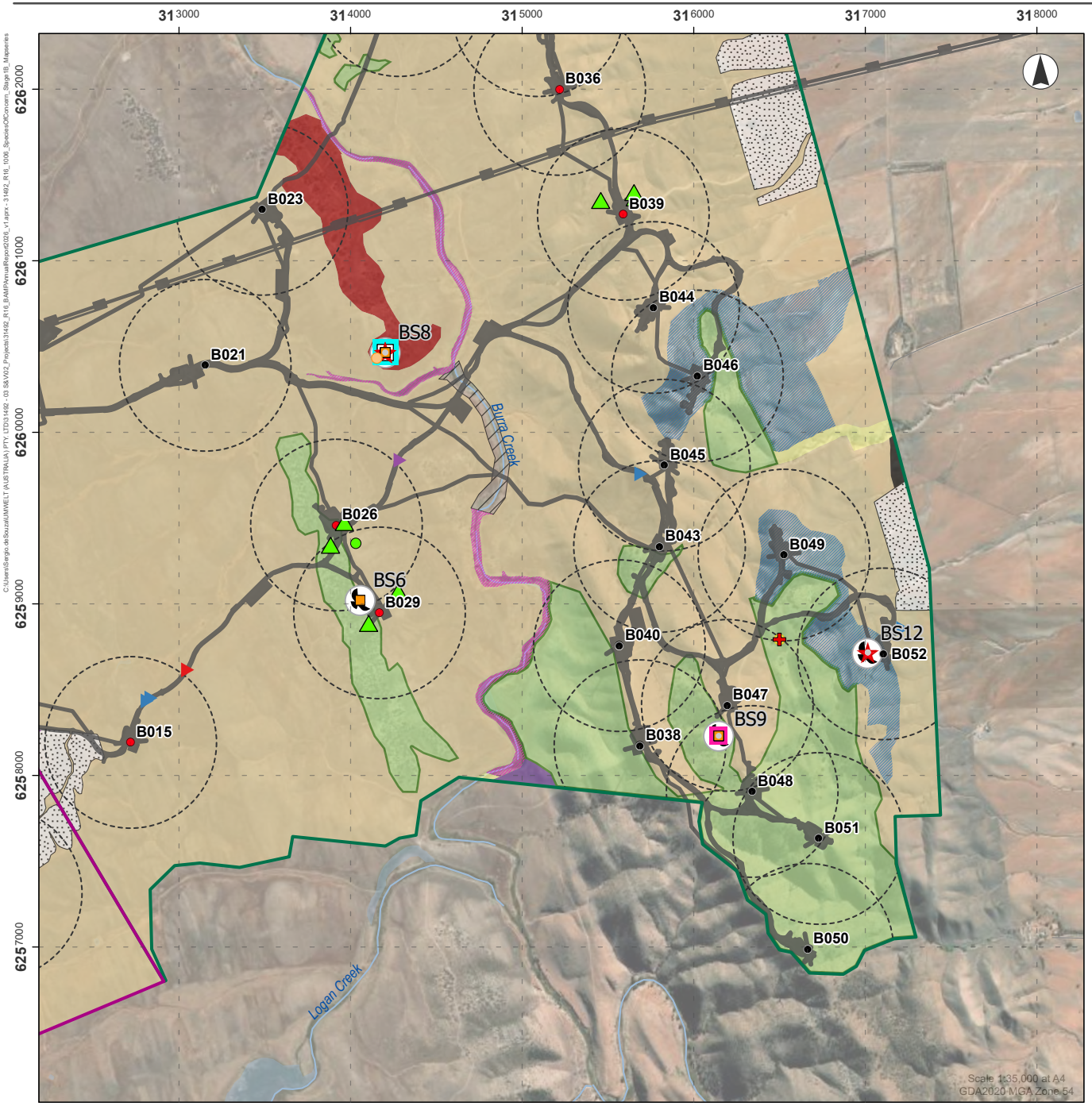


FIGURE 10.7

South-Eastern Extent of Stage 1B: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1A
- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

WTE Nest Record

- WTE nest (2019)
- WTE nest (2021/2022)
- WTE nest (2025)
- WTE nest – no longer present

Species of Concern

- Brown Falcon (Falco berigora berigora)
- Diamond Firetail (Stagonopleura guttata) NPW: V EPBC: VU
- Red-backed Kingfisher (*Todiramphus pyrrhopygius*)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU
- Wedge-tailed Eagle (Aquila audax audax)

Species of Concern - Opportunistic Records

- Brown Falcon *Falco berigora berigora*
- Nankeen Kestrel *Falco cenchroides cenchroides*
- Wedge-tailed Eagle *Aquila audax audax*

Bird Strike Record 2025

- Feather spot, Human search (at WTG)

Vegetation association

- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 6: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- 9: Exotic Grassland
- 10: *Callitris gracilis* (Southern Cypress Pine) Low Open Woodland
- 11: *Juncus sp.* (Rush) / *Cyperus gymnocaulos* (Spiny Flat-sedge) Mixed Low Closed Sedgeland
- 14: *Triodia irritans* (Spinifex) Grassland +/- *Emergent Eucalyptus oleosa ssp. oleosa* (Red Mallee)
- 17: *Phragmites australis* (Common Reed) Grassland
- Amenity / Urban
- Cropping

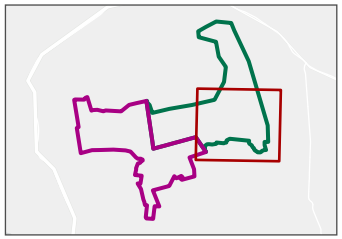


Image Source: ESRI (2025) | **Data Source:** Umwelt, SA DIT, DEW (2025), GE (2024)

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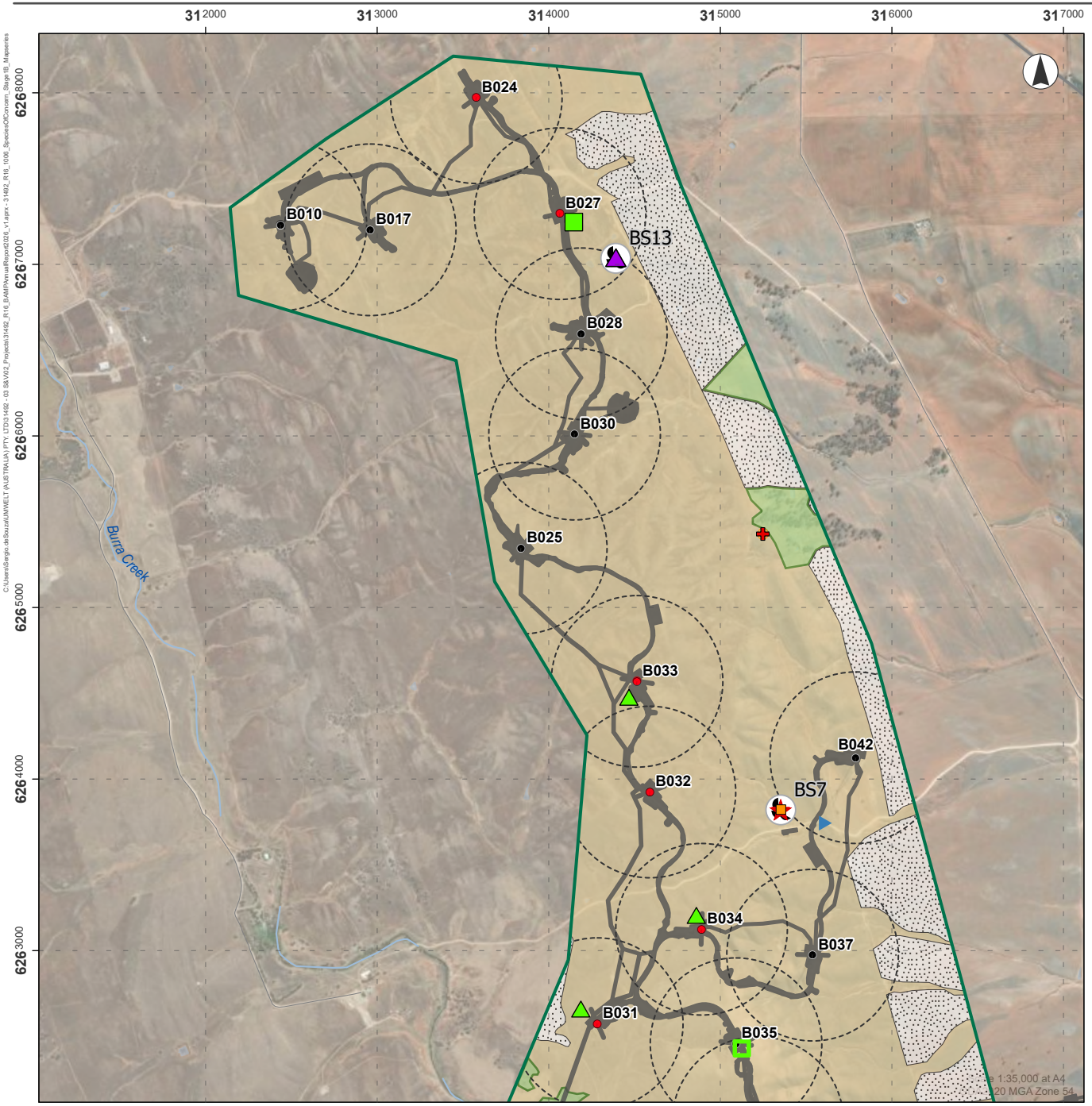


FIGURE 10.8

Northern Extent of Stage 1B: Species of Concern Recorded at BUS Sites and Opportunistically, Along With Carcasses, Feather Spots and WTE Nests, to Date

Legend

- Stage 1B
- Goyder South Infrastructure
- WTG 500m Buffer
- BUS site
- Wind Turbine Generator
- WTG Collision Monitoring Site

WTE Nest Record

- WTE nest (2019)
- WTE nest – no longer present

Species of Concern

- Black-shouldered Kite (Elanus axillaris)
- Fairy Martin (*Petrochelidon ariel*)
- Fairy Martin (Petrochelidon ariel)
- Nankeen Kestrel (Falco cenchroides cenchroides)
- Southern Whiteface (Aphelocephala leucopsis leucopsis) EPBC: VU

Species of Concern - Opportunistic Records

- Nankeen Kestrel *Falco cenchroides cenchroides*

Bird Strike Record 2025

- Dead (carcass), Incidental find
- Dead (carcass), Human search (at WTG)
- Feather spot, Human search (at WTG)

Vegetation association

- 3: *Eucalyptus porosa* (Mallee Box) Open Woodland
- 8: *Austrostipa spp.* (Spear Grass) Mixed Grassland
- Cropping

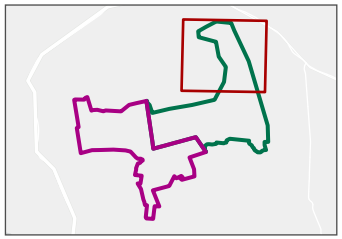


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Table 10.6 WTG Risk Ratings - Stage 1A

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
SG001	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG002	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • One carcass, an incidental find, has been recorded at this WTG to date: ○ 4/09/2024 - **Brown Falcon** (*Falco berigora berigora*). • No carcass or feather spot recorded at this WTG in 2025. • No other species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. As one species of concern (**Brown Falcon** carcass) has been recorded at this WTG to date, the collision risk rating of this WTG has been revised to Low due to a record of a species of concern.	**Figure 10.1** **Figure 10.2**
SG003	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG007	Moderate to high (particularly for WTEs)	Although this WTG is located within grassland vegetation, woodland vegetation (**VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland), which potentially provides habitat for some species of concern, is located within 40-100 m of the	Moderate to high (particularly for WTEs)	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • Although this WTG is located within grassland vegetation, woodland vegetation (**VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland), which potentially provides habitat for some species of concern, is located within 40-100 m of the WTG and a WTE nest is located approximately 550 m from the WTG. • BUS Site 3 is located within about 400 m of this WTG and the following species of concern have been recorded at BUS Site 3 to date:	**Figure 10.1** **Figure 10.3**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
		WTG and a WTE nest is located approximately 550 m from the WTG. Porter Lagoon is approximately 5.9 km south-west of this WTG.		○ **Brown Goshawk** (*Accipiter fasciatus fasciatus*) (2023; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=2) (2025; n=2). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2025; n=3). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2025; n=1). • Three feather spots, found via human search at this WTG, have been recorded to date: ○ 21/08/2024 – Australian Magpie (*Gymnorhina tibicen*). ○ 21/08/2024 – Galah (*Eolophus roseicapilla*). ○ 13/11/2024 – Galah (*Eolophus roseicapilla*). • No carcass or feather spot of a species of concern has been recorded at this WTG to date. • Nesting and/or roosting habitat for species of concern occurs within 40 – 100 m of this WTG and a WTE nest is located approximately 550 m from this WTG. As no carcass or feather spot of a species of concern has been recorded at this WTG during WTG collision monitoring or incidentally to date, and the risk rating is already Moderate to high, the risk rating has not been increased.	
SG008	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.5 km south of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One feather spot, found via human search at this WTG, has been recorded to date: ○ 19/08/2024 – Australian Magpie (*Gymnorhina tibicen*). • No carcass or feather spot of a species of concern has been recorded at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.2**
SG010	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within cropping and adjacent to grassland vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG011	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation.	**Figure 10.1** **Figure 10.3**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	
SG012	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.1 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • One species of concern (**Brown Falcon** (*Falco berigora berigora*)) has been recorded opportunistically within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although one species of concern has been recorded within 500 m of this WTG, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.2**
SG013	Low to Moderate	Although this WTG is located within grassland vegetation, woodland vegetation (**VA6:** *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland), which potentially provides habitat for some species of concern, is located approximately 200 m from the WTG and a WTE nest is located approximately 1.0 km from the WTG. Porter Lagoon is approximately 5.5 km south-west of this WTG.	Low to Moderate	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • Although this WTG is located within grassland vegetation, woodland vegetation (**VA6:** *Eucalyptus leucoxylon* ssp. *pruinosa* (Inland South Australian Blue Gum) Open Woodland), which potentially provides habitat for some species of concern, is located approximately 200 m from the WTG and a WTE nest is located approximately 1.0 km from the WTG. • One carcass and one feather spot have been recorded at this WTG to date: ○ 1/11/2024 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*) carcass as an incidental find. ○ 26/02/2025 – Magpielark (*Grallina cyanoleuca*) feather spot found via human search at WTG. • Apart from the above **Nankeen Kestrel** incidental carcass find, no other species of concern have been recorded within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern occurs approximately 200 m from this WTG and a WTE nest is located approximately 1.0 km from this WTG. Although one species of concern (**Nankeen Kestrel)** has been recorded at this WTG to date, the collision risk rating of this WTG is considered appropriate and has not been changed.	**Figure 10.1** **Figure 10.3**
SG014	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring.	**Figure 10.1** **Figure 10.2**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• This WTG is located within grassland and adjacent to cropping vegetation. • BUS Site 10 is located within about 300 m of this WTG and the following species of concern have been recorded at BUS Site 10 to date: ○ **Black Falcon** (*Falco subniger*) (2025; n=1) ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=1) (2025; n=1). • Two species of concern have been recorded opportunistically within 500 m of this WTG to date: ○ **Brown Falcon** (*Falco berigora berigora*) ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One feather spot, an incidental find, has been recorded at this WTG to date: ○ 19/08/2024 – Galah (*Eolophus roseicapilla*). • No carcass or feather spot recorded at this WTG in 2025. • No carcass or feather spot of a species of concern has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	
SG015	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.0 km south of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • BUS Site 2 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 2 to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2023; n=4) (2024; n=2) (2025; n=1). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=1) (2025; n=1). • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although two species of concern have been recorded within 500 m of this WTG, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.2**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
SG016	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.3**
SG017	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • Two species of concern have been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) ○ **Brown Falcon** (*Falco berigora berigora*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG018	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Brown Falcon** (*Falco berigora berigora*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG020	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern occurs approximately 400 m from this WTG. • No carcass or feather spot recorded at this WTG to date.	**Figure 10.1** **Figure 10.3**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				As such, the collision risk rating of this WTG is Low.	
SG022	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 3.4 km south of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • BUS Site 2 is located within 400 m of this WTG and the following species of concern have been recorded at BUS Site 2 to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2023; n=4) (2024; n=2) (2025; n=1). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=1) (2025; n=1). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although two species of concern have been recorded within 500 m of this WTG, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.3**
SG023	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 3.2 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • Three feather spots, found via human search at this WTG, have been recorded to date: ○ 26/02/2025 – Australian Magpie (*Gymnorhina tibicen*). ○ 26/02/2025 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*). ○ 9/05/2025 – Australian Magpie (*Gymnorhina tibicen*). As only one feather spot of one species of concern (**Nankeen Kestrel)** has been recorded during WTG collision monitoring at this WTG to date and no other species of concern have been recorded within 500m of this WTG to date, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.2**
SG025	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.3**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
SG027	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG028	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.3**
SG029	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG031	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.3**
SG032	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date:	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
		concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 7.4 km west of this WTG.		○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although one species of concern has been recorded opportunistically within 500 m of this WTG to date, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	
SG033	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG034	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.6 km west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.3**
SG036	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • No species of concern have been recorded within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.2**
SG037	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation.	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• Two species of concern have been recorded opportunistically within 500 m of this WTG to date: ○ **Black-shouldered Kite** (*Elanus axillaris*). ○ **Brown Falcon** (*Falco berigora berigora*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot has been recorded at this WTG to date. Although two species of concern (**Black-shouldered Kite** and **Brown Falcon**) have been recorded opportunistically within 500 m of this WTG to date, no carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	
SG040	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 7.5 km west of this WTG.	Low to Moderate	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Brown Falcon** (*Falco berigora berigora*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • Three feather spots, found via human search at this WTG, recorded to date: ○ 14/11/2024 – Australian Magpie (*Gymnorhina tibicen*). ○ 27/02/2025 – Australian Magpie (*Gymnorhina tibicen*). ○ 27/02/2025 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*). As one species of concern (**Brown Falcon**) has been recorded opportunistically and a feather spot of another species of concern (**Nankeen Kestrel)** has been recorded during WTG collision monitoring at this WTG to date, the collision risk rating of this WTG has been changed to Low to Moderate.	**Figure 10.1** **Figure 10.4**
SG044	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.7 km west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date.	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				Although one species of concern (**Nankeen Kestrel**) has been recorded opportunistically within 500 m of this WTG to date, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	
SG047	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although one species of concern (**Nankeen Kestrel**) has been recorded opportunistically within 500 m of this WTG to date, no carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.4**
SG048	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 4.6 km west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although one species of concern (**Nankeen Kestrel**) has been recorded opportunistically within 500 m of this WTG to date, no carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.1** **Figure 10.4**
SG050	Not rated.	N/A	Low to Moderate	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • BUS Site 4 is located within 300 m of this WTG and the following species of concern have been recorded at BUS Site 4 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2023; n=1).	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=5) (2025; n=5). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=1) (2025; n=4). • One species of concern has been recorded opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One feather spot, an incidental find, has been recorded at this WTG to date: ○ 15/10/2024 – Australian Magpie (*Gymnorhina tibicen*). • No carcass or feather spot of a species of concern has been recorded at this WTG to date. Although three species of concern have been recorded within 500 m of this WTG, no carcass or feather spot of any species of concern has been recorded to date. As such, the collision risk rating of this WTG is Low to Moderate.	
SG051	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • BUS Site 4 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 4 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2023; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=5) (2025; n=5). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=1) (2025; n=4). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although three species of concern have been recorded within 500 m of this WTG, no carcass or feather spot of any species has been recorded to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.4**
SG052	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.4**
SG054	Not rated.	N/A	Low to Moderate	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring.	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• This WTG is located within grassland vegetation and adjacent to Low Open Woodland. • No species of concern have been observed within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern may occur within proximity to this WTG. • Three carcasses, all incidental finds, have been recorded at this WTG to date: ○ 10/06/2025 – **Wedge-tailed Eagle** (*Aquila audax audax*). ○ 17/06/2025 – **Wedge-tailed Eagle** (*Aquila audax audax*). ○ 1/09/2025 – **Wedge-tailed Eagle** (*Aquila audax audax*). Note that the record on 17/06/2025 may a repeat find of the carcass found on 10/06/2025. As three carcasses of a species of concern (**Wedge-tailed Eagle**) have been found incidentally at this WTG to date, the risk rating of this WTG has been revised to Low to Moderate risk.	
SG056	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to Low Open Woodland. • No species of concern have been observed within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern may occur within proximity to this WTG (but outside of the Stage 1A Project Area). • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.4**
SG072	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation (and adjacent to Woodland located outside of the Stage 1A Project Area). • No species of concern have been observed within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG (but outside of the Stage 1A Project Area). A WTE nest is located within 500 m of this WTG, on private land outside of the Stage 1A Project Area). • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although no species of concern have been observed within 500 m of this WTG to date, a WTG nest is located within 500m of this WTG and as such, the collision risk rating of this WTG is Low.	**Figure 10.1** **Figure 10.4**
B008	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation.	**Figure 10.1** **Figure 10.4**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
		concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 8.2 km west of this WTG.		• BUS Site 11 is located within 100 m of this WTG and the following species of concern have been recorded at BUS Site 11 to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2025; n=1). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2025; n=3). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • Two feather spots and one carcass, found via human search at this WTG, have been recorded to date: ○ 27/02/2025 – Australian Magpie (*Gymnorhina tibicen*). ○ 19/08/2025 – Horsefield's Bronze Cuckoo (*Chalcites basalis*). ○ 5/11/2025 – Australian Magpie (*Gymnorhina tibicen*). Although two species of concern have been recorded within 500 m of this WTG, no carcass or feather spot of any species of concern has been recorded during WTG collision monitoring or incidentally to date. As such, the collision risk rating of this WTG is Low.	

Species of concern are in bold text.

Table 10.7 WTG Risk Ratings - Stage 1B

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
B001	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.6**
B004	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.6**
B005	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 8.3 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within cropping and grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. As such, the collision risk rating of this WTG has not changed.	**Figure 10.5** **Figure 10.6**
B010	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
B015	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 9.1 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • Two species of concern have been recorded opportunistically within 500 m of this WTG to date: ○ **Brown Falcon** (*Falco berigora berigora*). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although two species of concern have been recorded opportunistically within 500 m of this WTG, no carcass or feather spot has been recorded during WTG collision monitoring or incidentally at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.7**
B017	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**
B021	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.6** **Figure 10.7**
B023	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date.	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• Some nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	
B024	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 15.8 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.8**
B025	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**
B026	Moderate (particularly for WTEs)	Although this WTG is not located adjacent to Porter Lagoon, it is located across both grassland and woodland vegetation (**VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland), which potentially provides habitat for some species of concern, and a WTE nest is located approximately 1.0 km from the WTG. Porter Lagoon is approximately 10.7 km south-west of this WTG.	Moderate (particularly for WTEs)	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland and grassland vegetation. • BUS Site 6 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 6 to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2023; n=6), (2024; n=16), (2025; n=1). • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. A WTE nest (Nest 17) is approximately 155 m from this WTG. • Two feather spots, found via human search at this WTG, have been recorded to date: ○ 9/05/2025 – Australian Magpie (*Gymnorhina tibicen*). ○ 6/11/2025 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*). Although two species of concern (**Nankeen Kestrel** and **Southern Whiteface**) have been observed within 500 m of this WTG to date, and one feather spot of a species of concern	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				(**Nankeen Kestrel**) has been recorded during WTG collision monitoring at this WTG to date, the collision risk rating of this WTG is considered appropriate and has not been changed.	
B027	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 15.5 km south-west of this WTG. A WTE nest is approximately 2.2 km south of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • BUS Site 13 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 13 to date: ○ **Fairy Martin** (*Petrochelidon ariel*) (2025; n=32). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One carcass, found via human search at this WTG, has been recorded to date: ○ 3/11/2025 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*). Only one species of concern (**Fairy Martin**) has been observed to date and only one carcass of a species of concern (**Nankeen Kestrel)** has been recorded during WTG collision monitoring or incidentally at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.8**
B028	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. • BUS Site 13 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 13 to date: ○ **Fairy Martin** (*Petrochelidon ariel*) (2025; n=32). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As only one species of concern (**Fairy Martin**) has been observed to date and no carcass or feather spot of any species has been recorded at this WTG to date, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**
B029	Moderate (particularly for WTEs)	Although this WTG is not located adjacent to Porter Lagoon, it is located across both grassland and woodland vegetation (**VA3:** *Eucalyptus porosa* (Mallee Box) Open Woodland), which potentially provides habitat for some species of concern, and a WTE nest is located approximately 1.4 km from the WTG.	Moderate (particularly for WTEs)	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland and grassland vegetation. • BUS Site 6 is located within 100 m of this WTG and the following species of concern have been recorded at BUS Site 6 to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2023; n=6), (2024; n=16), (2025; n=1).	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
		Porter Lagoon is approximately 10.8 km west of this WTG.		• Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. A WTE nest (Nest 17) is approximately 450 m from this WTG. • Two feather spots, found via human search at this WTG, have been recorded to date: ○ 6/11/2025 – Unknown (down feathers only). ○ 6/11/2025 – Common Starling (*Sturnus vulgaris*). • No carcass or feather spot of a species of concern has been recorded during WTG collision monitoring or incidentally at this WTG to date. Although two species of concern (**Nankeen Kestrel** and **Southern Whiteface**) have been observed within 500 m of this WTG to date, no carcass or feather spot of a species of concern has been recorded during WTG collision monitoring at this WTG to date. As such, the collision risk rating of this WTG is considered appropriate and has not been changed.	
B030	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**
B031	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 12.5 km south-west of this WTG. A WTE nest is approximately 2.1 km south of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to cropping vegetation. A very small amount of Open Woodland occurs within 500 m of this WTG. • No species of concern have been observed within 500 m of this WTG to date. • A very small amount of nesting and/or roosting habitat for species of concern (Open Woodland) may occur within proximity to this WTG. • One feather spot, found via human search at this WTG, has been recorded to date: ○ 20/08/2025 – Little Raven (*Corvus mellori*). As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.8**
B032	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation).	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG.	**Figure 10.5** **Figure 10.8**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
		Porter Lagoon is approximately 13.5 km south-west of this WTG. A WTE nest is approximately 1.5 km north-east of this WTG.		• No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	
B033	Low to Moderate (particularly for WTEs)	Although this WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation), a WTE nest is located approximately 1.1 km from this WTG. Porter Lagoon is approximately 13.9 km south-west of this WTG.	Low to Moderate (particularly for WTEs)	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within close proximity to this WTG. While a WTE nest was previously recorded approximately 1.1 km from this WTG, it was no longer present in 2024 or 2025 (**Section 6.3**). • One feather spot, found via human search at this WTG, has been recorded to date: ○ 6/03/2025 – Little Raven (*Corvus mellori*). • No carcass or feather spot of a species of concern has been recorded at this WTG during WTG collision monitoring or incidentally, to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.8**
B034	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 13.4 km south-west of this WTG. A WTE nest is approximately 2.3 km north of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One feather spot, found via human search at this WTG, has been recorded to date: ○ 9/05/2025 – **Nankeen Kestrel** (*Falco cenchroides cenchroides*). As only one species of concern (**Nankeen Kestrel**) has been recorded at this WTG during WTG collision monitoring or incidentally to date, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.8**
B035	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • One carcass, an incidental find, has been recorded at this WTG to date: ○ 23/04/2025 – **Wedge-tailed Eagle** (*Aquila audax audax*).	**Figure 10.5** **Figure 10.8**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				The risk rating of this WTG has been revised to Low due to an opportunistic carcass record of a species of concern (**Wedge-tailed Eagle**).	
B036	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 13.0 km south-west of this WTG. A WTE nest is approximately 1.9 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.7**
B037	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to cropping. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.8**
B038	Not rated.	N/A	Low to Moderate	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland and grassland vegetation. • BUS Site 9 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 9 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2024; n=1). ○ **Diamond Firetail** (*Stagonopleura guttata*) (2025; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2024; n=16), (2025; n=14). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2025; n=2). • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date.	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				Although no carcass or feather spot of a species of concern has been recorded at this WTG to date, five species of concern have been observed within 500 m of this WTG to date. As such, the collision risk rating of this WTG has been revised to Low to Moderate.	
B039	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 13.0 km south-west of this WTG. A WTE nest is approximately 1.6 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • Three feather spots, found via human search at this WTG, have been recorded to date: ○ 4/03/2025 – Australian Magpie (*Gymnorhina tibicen*). ○ 9/05/2025 – Magpielark (*Grallina cyanoleuca*). ○ 9/05/2025 – Magpielark (*Grallina cyanoleuca*). • No carcass or feather spot of a species of concern has been recorded during WTG collision monitoring at this WTG to date. As no species of concern has been overserved within 500 m of this WTG to date, and no carcass or feather spot of a species of concern has been recorded during WTG collision monitoring at this WTG to date, the collision risk rating of this WTG has not been changed.	**Figure 10.5** **Figure 10.7**
B040	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and adjacent to Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Some nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B042	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to cropping. • BUS Site 7 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 7 to date: ○ **Black-shouldered Kite** (*Elanus axillaris*) (2023; n=2). ○ **Brown Falcon** (*Falco berigora berigora*) (2024; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2023; n=2), (2025; n=3). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2023; n=2), (2024; n=3).	**Figure 10.5** **Figure 10.8**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• One species of concern has been observed opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk of this WTG is Low.	
B043	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to a small amount of Open Woodland vegetation. • One species of concern has been observed opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*). • Some limited nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B044	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to a small amount of Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Some limited nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B045	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to a small amount of Open Woodland vegetation. • One species of concern has been observed opportunistically within 500 m of this WTG to date: ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*).	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• Some limited nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	
B046	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Some nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B047	Not rated.	N/A	Low to Moderate	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland and grassland vegetation. • BUS Site 9 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 9 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2024; n=1). ○ **Diamond Firetail** (*Stagonopleura guttata*) (2025; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2024; n=16), (2025; n=14). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2025; n=2). • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. While a WTE nest (Nest 16) was previously recorded approximately 500 m from this WTG, it was no longer present in 2024 or 2025 (**Section 6.3**). • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although no carcass or feather spot of a species of concern has been recorded at this WTG to date, five species of concern have been observed within 500 m of this WTG to date. As such, the collision risk rating of this WTG has been revised to Low to Moderate.	**Figure 10.5** **Figure 10.7**
B048	Not rated.	N/A	Low to Moderate	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland and grassland vegetation.	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
				• BUS Site 9 is located within 500 m of this WTG and the following species of concern have been recorded at BUS Site 9 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2024; n=1). ○ **Diamond Firetail** (*Stagonopleura guttata*) (2025; n=1). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2024; n=1). ○ **Southern Whiteface** (*Aphelocephala leucopsis leucopsis*) (2024; n=16), (2025; n=14). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2025; n=2). • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although no carcass or feather spot of a species of concern has been recorded at this WTG to date, five species of concern have been observed within 500 m of this WTG to date. As such, the collision risk rating of this WTG has been revised to Low to Moderate.	
B049	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation and adjacent to some Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Some nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. While a WTE nest (Nest 16) was previously recorded approximately 500 m from this WTG, it was no longer present in 2024 or 2025 (**Section 6.3**). • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B050	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**

WTG	Collision Risk Rating in BAMP	Comment (in BAMP) on Collision Risk Level	Revised Collision Risk Rating	Commentary	Figure Reference
B051	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within Open Woodland vegetation. • No species of concern have been observed within 500 m of this WTG to date. • Nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. As such, the collision risk rating of this WTG is Low.	**Figure 10.5** **Figure 10.7**
B052	Not rated.	N/A	Low	• This WTG is not a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland vegetation with some cropping and Open Woodland vegetation. • BUS Site 12 is located within 100 m of this WTG and the following species of concern have been recorded at BUS Site 12 to date: ○ **Brown Falcon** (*Falco berigora berigora*) (2024; n=2). ○ **Nankeen Kestrel** (*Falco cenchroides cenchroides*) (2025; n=1). ○ **Wedge-tailed Eagle** (*Aquila audax audax*) (2024; n=2), (2025; n=3). • Some nesting and/or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded at this WTG to date. Although no carcass or feather spot of a species of concern has been recorded at this WTG to date, three species of concern have been observed within 500 m of this WTG to date. As such, the collision risk rating of this WTG has been revised to Low.	**Figure 10.5** **Figure 10.7**
SG026	Low	This WTG is located entirely within grassland vegetation and is not located within or adjacent to potential habitat for species of concern (such as Porter Lagoon or woodland vegetation). Porter Lagoon is approximately 7.4 km south-west of this WTG. A WTE nest is approximately 1.6 km south-west of this WTG.	Low	• This WTG is a nominated WTG that is monitored as part of the long-term WTG collision monitoring. • This WTG is located within grassland and cropping vegetation. • No species of concern have been observed within 500 m of this WTG to date. • No nesting or roosting habitat for species of concern occurs within proximity to this WTG. • No carcass or feather spot (of any species) has been recorded during WTG collision monitoring or incidentally at this WTG to date. As such, the collision risk rating of this WTG has not changed.	**Figure 10.5** **Figure 10.6**

Species of concern are in bold text.

11.0 Adaptive Management Framework

As outlined in Section 9 of the BAMP, results of the Bird Monitoring Program, including BUS, raptor nest activity monitoring, WTG collision monitoring, incidental finds of bird carcasses, carcass persistence (scavenger activity) and searcher efficiency trials, and opportunistic observations of agricultural practices and pest species, will be used to inform an adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project and that potential impacts to raptor and other bird species are minimised and mitigated, where practicable.

However, no trigger level impact was detected during the Bird Monitoring Program in 2025 or to date. As such, the adaptive management framework protocol has not been required to be implemented in 2025 or to date.

12.0 Progress on Achieving BAMP's Environmental Objectives

As stated in Section 2 of the BAMP and repeated in **Section 2.3.1** of this report, the overall environmental objectives of the BAMP are to:

> *effectively* monitor *for any impacts to EPBC Act listed bird species, during the operation of the wind farm from (but not limited to) wind turbine strikes and, if any impacts are detected, to implement the technology, measures and procedures necessary to ensure that the impacts are accurately measured, reported and remain insignificant.*

In addition to EPBC Act listed bird species, the BAMP also includes an on-going monitoring and mitigation protocol for raptor and other bird species that may be impacted by the development. As such, the BAMP also monitors for any impacts to raptors and other bird species that may be subject to wind turbine strike and proposes mitigation measures to minimise impacts, where practicable. To achieve these objectives, various actions will be undertaken within five main tasks:

- Monitor
- Analyse
- Manage, Mitigate and Adapt
- Report
- Review and Improve

As stated previously, Neoen is committed to implementing the BAMP for the duration of the Stage 1A and Stage 1B wind farms and until completion of each action.

The table of commitments to achieve the BAMP's environmental objectives (Table 1 from Section 2 of the BAMP) is repeated as **Table 2.2** in Section **2.3.1** of this report for reference. The status of each commitment, contributing to progress on the BAMP's environmental objectives, is presented in **Table 12.1** (on the following page), together with ongoing requirements.

Implementation of the BAMP started with the first BUS completed in December 2023 and significant progress on achieving the BAMP's environmental objectives has been made to date. The BAMP's Bird Monitoring Program, including BUS, raptor nest activity monitoring, long-term WTG collision monitoring, periodic carcass persistence (scavenger activity) and searcher efficiency trials, opportunistic observations of agricultural practices and pest species and incidental finds of bird carcasses, has been implemented, and data collected has been analysed and reported upon. All BAMP commitments that have been required to date have been undertaken, while some BAMP commitments have not been required, as detailed in **Table 12.1**. As no EPBC Act listed bird species carcass or feather spot has been found to date during implementation of the Bird Monitoring Program's long-term WTG collision monitoring, the BAMP's adaptive management framework protocol has not been required to be implemented to date. However, the overall environmental objectives required to date, i.e. to effectively monitor for any impacts to EPBC Act listed bird species during the operation of the wind farm from (but not limited to) wind turbine strikes have been achieved.

Table 12.1 Status of Each Commitment to Achieve the BAMP's Environmental Objectives

Task	BAMP Commitment	Reference (Within BAMP)	Status of Commitment and Ongoing Requirements	Reference Within This Report
Monitor	Implement a post-commissioning, long-term WTG collision monitoring program to identify and document any impacts to EPBC Act listed bird species and other bird species from (but not limited to) wind turbine strikes, during operation of the Stage 1A and Stage 1B wind farms.	Section 8 (page 51).	**Undertaken and ongoing.** A post-commissioning, long-term WTG collision monitoring program in line with this commitment has been implemented in accordance with the BAMP, since August 2024 and will continue to be implemented.	**Section 7.0**
	Monitor EPBC Act listed bird species and other bird species occurrence within the Goyder South Project Area, as well as Porter Lagoon.		**Undertaken and ongoing.** Bird species occurrence monitored via BUS (in accordance with the BAMP), since December 2023.	**Section 5.0**
	Monitor WTE nesting activity.		**Undertaken and ongoing.** WTE nesting activity monitored (in accordance with the BAMP), since October 2024.	**Section 6.0**
	Monitor environmental/meteorological conditions.		**Undertaken and ongoing.** Environmental/meteorological conditions monitored (in accordance with the BAMP), since 2024.	**Section 4.0**
	Undertake further periodic carcass persistence and searcher efficiency trials to check if correction factors necessary to estimate total fatalities need revision.		**Completed.** Two carcass persistence and searcher efficiency trials were undertaken in 2024 (winter: 19 August – 17 September 2024; and spring 11-22 November 2024).	N/A – refer to Umwelt 2025.
Analyse	Analyse EPBC Act listed bird species and other bird species occurrence records within the Goyder South Project Area, as well as Porter Lagoon.	Section 8.4 (page 69).	**Undertaken and ongoing.** Bird species occurrence records (collected via BUS since December 2023) analysed.	**Section 5.0**
	Analyse WTE nesting activity.		**Undertaken and ongoing.** WTE nesting activity (collected via monitoring since October 2024) analysed.	**Section 6.0**
	Analyse environmental/meteorological conditions.		**Undertaken and ongoing.** Environmental/meteorological conditions analysed each year since 2024.	**Section 4.0**
	Analyse bird strike data for each WTG monitored.		**Undertaken and ongoing.** Bird strike data for each WTG monitored (since 2024) analysed.	**Section 7.7**

Task	BAMP Commitment	Reference (Within BAMP)	Status of Commitment and Ongoing Requirements	Reference Within This Report
	Analyse data from further periodic carcass persistence and searcher efficiency trials to check if assumptions need revision.		**Completed.** Data from two carcass persistence and searcher efficiency trials undertaken in 2024 (winter: 19 August – 17 September 2024; and spring 11-22 November 2024) analysed.	N/A – refer to Umwelt 2025.
	Estimate annual mortality rate for each EPBC Act listed bird species and other bird species.		**Completed and ongoing.** Annual mortality rate for each EPBC Act listed bird species and other bird species has been estimated for 2025.	**Section 10.2**
	DNA test carcasses that cannot be otherwise identified by a suitably qualified bird expert.	Section 8.3.7 (page 68).	**Not required to date.** All carcasses found to date (2024-2025) have been identified.	**Section 7.5**
	Determine if a significant impact to an EPBC Act listed bird species has occurred or is likely to have occurred, as a result of the action, via completion of a Significant Impact Self-Assessment in accordance with the Matters of National Environmental Significance: Significant impact guidelines 1.1 (Commonwealth of Australia 2013) for each EPBC Act listed bird species recorded to have been struck by a WTG.	Section 5 (page 41) and Section 8.4 (page 69).	**Not required to date.** No EPBC Act listed bird species carcass (or feather spot) has been found to date during implementation of the BAMP long-term WTG Collision Monitoring (2024-2025).	**Section 7.7** and Umwelt 2025.
Manage, Mitigate and Adapt	Implement corrective actions if triggers are reached.	Section 9 (page 72) and sub-sections.	**Not required to date.** Corrective actions have not been required to date as no trigger has been reached to date (2024-2025).	**Section 10.1** and **11.0**; and Umwelt 2025.
Report	Report EPBC Act listed bird species and other bird species occurrence within the Goyder South Project Area, as well as Porter Lagoon.	Section 8.5 (page 70) and Section 9.5 (page 86).	**Completed and ongoing.** All bird species occurrence data (collected via BUS since 2023) reported.	**Section 5.3**
	Report WTE nesting activity.		**Completed and ongoing.** WTE nesting activity (collected via monitoring since October 2024) reported.	**Section 6.2** and **6.3**
	Report environmental/meteorological conditions.		**Completed and ongoing.** Environmental/meteorological conditions reported each year since 2024.	**Section 4.0**
	Report bird strike data for each WTG monitored.		**Completed and ongoing.** Bird strike data for each WTG monitored (since 2024) reported.	**Section 7.3** and **7.7**
	Report on further periodic carcass persistence and searcher efficiency trials to check if assumptions need revision.		**Completed.** Data from two carcass persistence and searcher efficiency trials undertaken in 2024 (winter: 19 August – 17 September 2024; and spring 11-22 November 2024) reported in Umwelt 2025.	N/A – refer to Umwelt 2025.

Task	BAMP Commitment	Reference (Within BAMP)	Status of Commitment and Ongoing Requirements	Reference Within This Report
	Report on estimated annual mortality rate for each EPBC Act listed bird species and other bird species.		**Completed and ongoing.** Annual mortality rate for each EPBC Act listed bird species and other bird species estimated for 2025.	**Section 10.2**
	Report on triggers reached.		**Not required to date.** No trigger has been reached to date (2024-2025).	**Section 10.1** and Umwelt 2025.
	Report on corrective actions undertaken (if corrective actions are required).		**Not required to date.** Corrective actions have not been required to date as no trigger has been reached to date (2024-2025).	**Section 10.1** and **11.0**; and Umwelt 2025.
Review and Improve	Review this BAMP periodically to ensure the environmental objectives are being achieved and identify any improvements that might be required.	Section 5.4 (page 43).	**Completed and ongoing.** BAMP reviewed.	**Section 13.0**.
	If significant impacts to EPBC Act listed bird species occur, or are likely to have occurred, as a result of the action, NEOEN will, within 3 months of becoming aware of any actual or likely significant impact, submit to the Department for the approval of the Minister a revised BAMP responding to, and accompanied by, an evaluation prepared by a suitably qualified bird expert of the effectiveness of the BAMP in preventing significant impacts to EPBC Act listed bird species.		**Not required to date.** No EPBC Act listed bird species carcass (or feather spot) has been found to date during implementation of the BAMP long-term WTG Collision Monitoring (2024-2025). No significant impact to EPBC Act listed bird species has occurred, or is considered likely to have occurred, as a result of the action to date (2024-2025). As such, a revised BAMP in accordance with this commitment has not been required to date.	**Section 7.7** and Umwelt 2025.

13.0 Review of BAMP

As outlined in the BAMP (Section 5.4), the BAMP will be reviewed annually during implementation of the Bird Monitoring Program to ensure the environmental objectives are being achieved and to identify any improvements that might be required. As such, a review of the BAMP has been undertaken during preparation of this report focusing on the environmental objectives to see if they are being achieved and to identify any improvements that might be required.

The BAMP was primarily prepared to satisfy the requirement for a BAMP associated with the conditions of EPBC Act approval for Stage 1A (EPBC 2021/8958) and Stage 1B (EPBC 2021/8957) of the Goyder South Project, and was approved by the Minister (within DCCEEW) on 23 February 2024. The BAMP was also prepared to satisfy condition 13 of the (South Australian) Development Approval (Development Application 422/V009/20 R1).

Implementation of the BAMP started with the first BUS completed in December 2023, and it has continued to be implemented throughout 2024 and 2025. As stated in **Section 12.0**, the BAMP's Bird Monitoring Program, including BUS, raptor nest activity monitoring, long-term WTG collision monitoring, periodic carcass persistence (scavenger activity) and searcher efficiency trials, opportunistic observations of agricultural practices and pest species and incidental finds of bird carcasses, has been implemented, and data collected has been analysed and reported upon. Furthermore, all BAMP commitments that have been required to date have been undertaken, while some BAMP commitments have not been required. While the BAMP's adaptive management framework protocol has not been required to be implemented to date, the overall environmental objectives required to date, have been achieved. As such, implementation of the BAMP is progressing well and no improvements or other changes to the Bird Monitoring Program or the broader BAMP have been identified during the review.

However, as the BAMP's adaptive management framework protocol has not been required to be implemented to date, it has not been tested and as such, has not been reviewed. Future review of the BAMP, as part of annual implementation reporting, will identify any improvements that might be required for the adaptive management framework protocol or the broader Bird Monitoring Program and BAMP, to ensure the environmental objectives are being achieved.

14.0 Conclusion

Neoen commenced implementing the BAMP, including its Bird Monitoring Program, with the first BUS undertaken in December 2023 and continued implementation throughout 2024 and 2025. As such, this *Goyder South Hybrid Renewable Energy Facility – Stage 1: Stage 1A and Stage 1B Bird Adaptive Management Plan Annual Implementation Report 2025* covers implementation of the BAMP from January 2025 until December 2025 (inclusive).

Bird Utilisation Survey

Four seasonal BUS were completed in 2025. A total of 3,729 individual birds were recorded, including 3,448 individuals observed at BUS Sites and 281 individuals observed opportunistically. Bird abundance varied over the four seasonal BUS and was the greatest in winter and the lowest in autumn.

A total of 61 species (including 57 native and four introduced) were observed across the four seasonal BUS, including 58 species at BUS Sites and 3 additional species observed opportunistically. Bird species recorded were predominately common grassland and woodland bird species, which aligns with the available habitat that consists mainly of grassland and cropping paddocks with some remnant woodlands. The most abundant native species was Galah (*Eolophus roseicapilla*), followed by Australian Magpie (*Gymnorhina tibicen*) and Crow (*Corvus* sp.), accounting for 11.4 %, 10.7 % and 4.7 % of all sightings, respectively.

Only two EPBC Act listed species, the Southern Whiteface (*Aphelocephala leucopsis leucopsis*) and Diamond Firetail (*Stagonopleura guttata*), were observed during BUS in 2025, both of which are species of concern. No EPBC Act listed migratory bird species were recorded during the four seasonal BUS in 2025, while three NPW Act listed threatened species were observed, including Chestnut Quail-thrush (*Cinclosoma castanotum*), Black Falcon (*Falco subniger*) and Diamond Firetail (*Stagonopleura guttata*). While the Chestnut Quail-thrush is not considered a species of concern, the Black Falcon is, and as it was observed during previous BUS (2024), it was previously added to the species of concern list (BAMP Table 11; **Appendix B**).

Two non-threatened species of 'at risk' birds, that were not previously known to occur or predicted to occur at the site, the Fairy Martin (*Petrochelidon ariel*) and Red-backed Kingfisher (*Todiramphus pyrrhopygius*), were recorded at BUS sites during 2025 BUS. As both species are considered to be at risk for collision with wind farm infrastructure, they have been added to the species of concern list.

Of the 50 bird species recorded flying within the Project Area, either at BUS sites or opportunistically, a total of 663 individual birds from 15 species were recorded at RSA height, which equates to approximately 17.7 % of the total number (3729) of birds recorded at BUS sites and opportunistically during the four BUS periods in 2025.

While flight height data was recorded for eight species of concern, only five species of concern, including Black Falcon, Brown Falcon, Brown Goshawk, Nankeen Kestrel and Wedge-tailed Eagle, were identified as flying at RSA height. While no species listed under the EPBC Act as threatened or migratory were identified as flying at RSA height, one species listed as threatened under the NPW Act, the Black Falcon, was identified as flying at RSA height. The other four species of concern that were identified as flying at RSA height are other non-threatened species of 'at risk' birds listed in BAMP Table 11 (**Appendix B**).

The distribution of birds flying at RSA heights at each of the 13 BUS sites was random during all four BUS in 2025. Birds were not recorded flying at RSA heights at any one BUS site more than another, which may suggest that collision risk to birds is rather uniformly distributed over the Stage 1A and Stage 1B Project Areas. For certain species that are known to be susceptible to collision with turbines, a lack of flight height data does not indicate they are not a species at risk of collision with turbines. It is possible that other bird species observed during BUS to date are capable of flight heights that are within the RSA and could be at risk of collision with turbines. However, the 24 months of data collected to date is too limited to draw conclusions and collection of more data during future BUS will assist to better understand risk of collision.

The low number of EPBC Act listed threatened species (n=2) and lack of EPBC Act listed migratory species (n=0) recorded via 2024 and 2025 BUS, with none recorded at RSA height, suggests that the risk of impact via WTG collision, and potential for significant impact, to these species by the Stage 1A and Stage 1B wind farms is low. However, it is acknowledged that BUS data is subject to limitations, including the limited number of BUS sites, a small survey window (three days each season and a total of 12 survey days each year), and a lack of extensive flight height data for all species. Collection of additional data during future BUS will allow for more detailed assessment and statistical analysis, and stronger conclusions regarding overall collision risk.

Raptor Nest Activity Monitoring

Of the five Wedge-tailed Eagle (WTE) nests known to occur within the Stage 1A and Stage 1B Project Areas and checked as part of the raptor nest activity monitoring, only one (Nest 9) showed signs of recent activity and was observed to be in good condition. Of the other four nests checked, one (Nest 13) was intact and in good condition, but inactive, while one (Nest 17) was dilapidated, in poor condition and inactive, and two (Nest 12 and Nest 16) were no longer present.

While a successful breeding event was not recorded at any nest in 2025, conditions were similar to 2024 and considered to be suitable for breeding, and it is possible that WTE bred successfully at a nest (or nests) located outside of the Stage 1A and Stage 1B Project Areas in 2025. As raptor nest activity monitoring has only been completed over two years to date, it is too early to attempt to draw any conclusions on whether the Stage 1A or Stage 1B wind farms are impacting upon breeding success of WTE or other large raptors. However, future raptor nest activity monitoring will help to determine whether WTE and/or other large raptor nests within the Stage 1A and Stage 1B Project Areas are in suitable condition for nesting and whether the nests continue to be active and successful in fledging young during wind farm operation, or if wind farm operation may be negatively impacting on breeding within the Project Areas.

Long-term WTG Collision Monitoring

Four quarterly WTG collision monitoring surveys were undertaken in 2025. Two bird carcasses and 18 feather spots were observed, including seven Australian Magpie, five Nankeen Kestrel, three Magpielark, two Little Raven, one Horsefield's Bronze Cuckoo, one Common Starling and one feather spot of down feathers that was not able to be identified to a species. While none of these species are listed under the EPBC Act or NPW Act, Nankeen Kestrel is a species of concern in accordance with the BAMP.

Incidental Finds of Bird Carcasses

Four incidental finds, all WTE carcasses, were observed and reported by wind farm personnel in 2025, including three at/adjacent to one WTG (SG054). While the WTE is not listed under the EPBC Act or NPW Act, it is a species of concern in accordance with the BAMP. While two WTE carcasses were

found incidentally at/adjacent to WTG SG054 in June and another one in September, the trigger level for 'other non-threatened bird species' was not reached.

Species of Concern

No carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, was found during long-term WTG collision monitoring, or incidentally in 2025. Two species of concern which are non-threatened species of 'at risk' birds, including five Nankeen Kestrel and four Wedge-tailed Eagle, were found during WTG collision monitoring, or incidentally in 2025. However, no trigger level was reached.

Cumulative WTG Collision Monitoring and Incidental Results to Date

No carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species has been found to date during implementation of the Bird Monitoring Program's long-term WTG collision monitoring.

A total of 33 carcasses and feather spots have been recorded during the long-term WTG collision monitoring program to date (2024-2025), including eight carcasses and 25 feather-spots. Most finds (25) were detected during active WTG collision monitoring searches, while eight were detected incidentally. Records cover 18 different WTGs, including ten in Stage 1A and eight in Stage 1B, and represent eight bird species, with Australian Magpie, Nankeen Kestrel and WTE the most frequently recorded.

Bird Monitoring Program Data Analysis and Adaptive Management

While a total of two carcasses and 18 feather spots were recorded during WTG collision monitoring, and four carcasses were observed incidentally, in 2025, no trigger level impact was detected. As such, the adaptive management framework protocol was not required to be implemented, and no adaptive management action was required or undertaken.

Estimation of Annual Mortality Rate

As no carcass or feather spot of any EPBC Act threatened or migratory listed species was found during WTG collision monitoring or incidentally in 2025, the annual mortality rate for each EPBC Act listed species of concern has not been estimated for 2025. However, the annual mortality rate has been estimated by Symbolix for other bird species which are species of concern, including Nankeen Kestrel and WTE (Symbolix 2026). No carcass or feather spot of any other species of concern was found during WTG collision monitoring or incidentally in 2025.

As five Nankeen Kestrels were found during WTG collision monitoring surveys in 2025 and four WTE carcasses were found incidentally in 2025, the resulting (median) estimate of total mortality for Nankeen Kestrel is 676, with 95 % confidence that fewer than 1306 individuals were lost, and the resulting (median) estimate of total mortality for WTE is 5, with 95 % confidence that fewer than 11 individuals were lost (Symbolix 2026).

However, Symbolix (2026) expect the estimate for Nankeen Kestrel to be biased high to some extent and explain that it is possible for some of the estimated mortalities in the distribution to be higher than is ecologically possible. Therefore, Symbolix recommend that the estimates must be interpreted through an ecological lens based on the knowledge of the local population, and while the median is more statistically likely, the value that is more ecologically likely may be lower based on the number of birds available to be struck.

While Nankeen Kestrel population density would vary depending on availability of suitable habitat and seasonal conditions, a high-level estimate of Nankeen Kestrel population across the Stage 1A and Stage 1B Project Areas suggests that there would be approximately 18-490 individuals. As such, it is unlikely that 676 Nankeen Kestrel were lost throughout the Stage 1A and Stage 1B Project Areas as it is unlikely that 676 Nankeen Kestrel occur within the Project Areas.

WTG Risk Ratings

As more than 12 months of BUS and WTG collision monitoring has now been completed, the results have been analysed and WTG risk ratings have been reviewed and adjusted, where required. Of the 75 WTGs across the Stage 1A and Stage 1B Project Areas, 64 have a Low risk rating, eight have a Low to Moderate risk rating, two have a Moderate risk rating and one has a Moderate to High risk rating.

However, no WTG has been assigned a High risk rating as no carcass or feather spot of any EPBC Act threatened or migratory listed bird species, or NPW Act listed threatened species, has been found during long-term WTG collision monitoring or incidentally to date, and no trigger level impact has occurred to date.

WTG risk ratings will be reviewed again as part of the next annual BAMP implementation report.

Adaptive Management Framework

As no trigger level impact was detected during the Bird Monitoring Program in 2025 or to date, the adaptive management framework protocol has not been required to be implemented in 2025 or to date.

Progress on Achieving BAMP's Environmental Objectives

Implementation of the BAMP started with the first BUS completed in December 2023 and significant progress on achieving the BAMP's environmental objectives has been made to date. The BAMP's Bird Monitoring Program has been implemented and data collected has been analysed and reported upon. All BAMP commitments that have been required to date have been undertaken, while some BAMP commitments have not been required. As no EPBC Act listed bird species carcass or feather spot has been found to date during implementation of the Bird Monitoring Program, the BAMP's adaptive management framework protocol has not been required to be implemented to date. However, the overall environmental objectives required to date, i.e. to effectively monitor for any impacts to EPBC Act listed bird species during the operation of the wind farm from (but not limited to) wind turbine strikes have been achieved.

Review of BAMP

A review of the BAMP has been undertaken during preparation of this report focusing on the environmental objectives to see if they are being achieved and to identify any improvements that might be required. Implementation of the BAMP is progressing well and no improvements or other changes to the Bird Monitoring Program or the broader BAMP have been identified during the review.

However, as the BAMP's adaptive management framework protocol has not been required to be implemented to date, it has not been tested and as such, has not been reviewed. Future review of the BAMP, as part of annual implementation reporting, will identify any improvements that might be required for the adaptive management framework protocol or the broader Bird Monitoring Program and BAMP, to ensure the environmental objectives are being achieved.

Future Implementation of the BAMP

In accordance with the BAMP, the Bird Monitoring Program will continue to be implemented throughout 2026 and the data collected will continue to be analysed and used to inform the adaptive management framework to ensure that no significant impacts to EPBC Act listed bird species are likely to occur as a result of the Project and that potential impacts to other bird species (such as raptors) are minimised and mitigated, where possible.

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Appendix A

Bird Species Recorded at GSWF During Ecological Assessment

umwelt

Scientific Name	Common Name	EPBC Act Status	NPW Act Status	Recorded Autumn 2019	Recorded Spring 2019
Acanthagenys rufogularis	Spiny-cheeked Honeyeater			✓	✓
Acanthiza chrysorrhoa	Yellow-rumped Thornbill			✓	✓
Acanthiza nana	Yellow Thornbill			✓	
Acanthiza uropygialis	Chestnut-rumped Thornbill			✓	✓
Accipiter cirrocephalus cirrocephalus	Collared Sparrowhawk			✓	
Accipiter fasciatus fasciatus	Brown Goshawk				✓
Acrocephalus australis	Australian Reed-Warbler				✓
Aegotheles cristatus	Australian Owlet-nightjar				✓
*Alauda arvensis arvensis**	Eurasian Skylark				✓
Anas gracilis	Grey Teal			✓	
Anas superciliosa	Pacific Black Duck				✓
Anthochaera carunculata	Red Wattlebird			✓	✓
Anthus australis	Australian Pipit			✓	
Aphelocephala leucopsis	Southern Whiteface	VU		✓	✓
Aquila audax audax	Wedge-tailed Eagle			✓	✓
Artamus cyanopterus	Dusky Woodswallow			✓	✓
Barnardius zonarius	Australian Ringneck				
Barnardius zonarius barnardi	Mallee Ringneck			✓	✓
Cacatua sanguinea gymnopis	Little Corella				✓
Charadrius ruficapillus	Red-capped Plover				✓
Chenonetta jubata	Maned Duck			✓	
Chroicocephalus novaehollandiae novaehollandiae	Silver Gull				✓
Chalcites basalis	Horsfield's Bronze Cuckoo				✓
Cincloramphus cruralis	Brown Songlark				✓
Circus approximans	Swamp Harrier				✓
Climacteris picumnus	Brown Treecreeper			✓	✓
Colluricincla harmonica	Grey Shrike-thrush			✓	✓
Columba livia	Feral Pigeon				✓
Coracina novaehollandiae	Black-faced Cuckooshrike				✓
Corcorax melanorhamphos	White-winged Chough		R	✓	✓
Corvus coronoides	Australian Raven				✓
Corvus mellori	Little Raven			✓	✓
Cracticus torquatus	Grey Butcherbird			✓	✓
Dacelo novaeguineae	Laughing Kookaburra				✓
Daphoenositta chrysoptera	Varied Sittella				✓
Dicaeum hirundinaceum	Mistletoebird			✓	
Dromaius novaehollandiae	Emu				✓
Egretta novaehollandiae	White-faced Heron			✓	✓
Elseyornis melanops	Black-fronted Dotterel				✓

Scientific Name	Common Name	EPBC Act Status	NPW Act Status	Recorded Autumn 2019	Recorded Spring 2019
Eolophus roseicapilla	Galah			✓	✓
Epthianura albifrons	White-fronted Chat			✓	✓
Epthianura aurifrons	Orange Chat				✓
Epthianura tricolor	Crimson Chat				✓
Falco berigora berigora	Brown Falcon				✓
Falco cenchroides cenchroides	Nankeen Kestrel			✓	✓
Falco peregrinus macropus	Peregrine Falcon				
Gavicalis virescens	Singing Honeyeater			✓	✓
Geopelia placida	Peaceful Dove				✓
Grallina cyanoleuca	Magpielark			✓	✓
Gymnorhina tibicen	Australian Magpie			✓	✓
Hirundo neoxena	Welcome Swallow			✓	
Lalage tricolor	White-winged triller				✓
Lichenostomus ornatus	Yellow-plumed Honeyeater				✓
Malurus lamberti	Variegated Fairywren				✓
Malurus splendens	Splendid Fairy-wren				✓
Manorina flavigula	Yellow-throated Miner			✓	✓
Manorina melanocephala	Noisy Miner				✓
Megalurus gramineus	Little Grassbird				✓
Melanodryas cucullata cucullata	South-eastern Hooded Robin	EN	R		✓
Melithreptus brevirostris	Brown-headed Honeyeater				✓
Microcarbo melanoleucos melanoleucos	Little Pied Cormorant			✓	✓
Microeca fascinans fascinans	Jacky Winter				✓
Milvus migrans	Black Kite				✓
Myiagra cyanoleuca	Satin Flycatcher	Mi	E	✓	
Myiagra inquieta	Restless Flycatcher		R		✓
Neophema elegans	Elegant Parrot		R	✓	
Nesoptilotis leucotis	White-eared Honeyeater			✓	✓
Ocyphaps lophotes	Crested Pigeon			✓	✓
Pachycephala pectoralis	Golden Whistler			✓	✓
Pachycephala rufiventris	Rufous Whistler			✓	✓
Pardalotus punctatus	Spotted Pardalote			✓	✓
Pardalotus striatus	Striated Pardalote			✓	✓
*Passer domesticus**	House Sparrow			✓	✓
Petrochelidon nigricans	Tree Martin				✓
Petroica goodenovii	Red-capped Robin				✓
Phaps chalcoptera	Common Bronzewing				✓
Platycercus elegans	Crimson Rosella			✓	✓
Pomatostomus ruficeps	Chestnut-crowned Babbler				✓

Scientific Name	Common Name	EPBC Act Status	NPW Act Status	Recorded Autumn 2019	Recorded Spring 2019
Pomatostomus superciliosus	White-browed Babbler			✓	✓
Psephotellus varius	Mulga Parrot			✓	
Psephotus haematonotus	Red-rumped Parrot			✓	✓
Ptilotula ornata	Yellow-plumed Honeyeater			✓	✓
Ptilotula penicillata	White-plumed Honeyeater			✓	✓
Pyrrholaemus brunneus	Redthroat				✓
Rhipidura albiscapa	Grey Fantail			✓	✓
Rhipidura leucophrys	Willie Wagtail			✓	✓
Smicrornis brevirostris	Weebill			✓	✓
Stagonopleura guttata	Diamond Firetail		V	✓	
Strepera versicolor	Grey Currawong				✓
*Sturnus vulgaris**	Common Starling			✓	✓
Tadorna tadornoides	Australian Shelduck				✓
*Turdus merula merula**	Common Blackbird				✓
Vanellus miles	Masked Lapwing				✓
Vanellus tricolor	Banded Lapwing				✓
Zosterops lateralis pinarochrous	Silvereye (EP, YP, FR, MLR, MM, SE)			✓	

EPBC Act Status: EN: Endangered. VU: Vulnerable. Mi: Migratory.
NPW Act Status: E: Endangered. R: Rare. V: Vulnerable.
***** Denotes introduced species.

Appendix B

Species of Concern

BAMP Table 10: EPBC Act Listed Bird Species Likelihood of Occurrence Within the Stage 1A and/or Stage 1B Project Areas (Updated to Include Observations via BUS 2023-2025)

Scientific Name	Common Name	Conservation Status		Source	Last BDBSA Record (Year)	Observed During Initial Flora and Fauna Assessment Field Surveys (2019) (EBS Ecology 2020)	Likelihood of Occurrence Within the Stage 1A and/or Stage 1B Project Areas	Observed Via BUS (2023-2025)
		EPBC Act	NPW Act					
Actitis hypoleucos	Common Sandpiper	Mi	R	1	-	-	**Possible** (flyover only)	No
Aphelocephala leucopsis	Southern Whiteface	VU	-	1; 2; 3	2015	Yes	**Known** (observed within scattered trees / woodland)	**Yes**
Apus pacificus	Fork-tailed Swift	Mi	-	1; 2	2006	-	**Possible** (flyover only)	No
Botaurus poiciloptilus	Australasian Bittern	EN	E	1	-	-	Unlikely	No
Calidris acuminata	Sharp-tailed Sandpiper	Mi	-	1; 2	2003	-	**Possible** (flyover only)	No
Calidris ferruginea	Curlew Sandpiper	CE, Mi	-	1	-	-	**Possible** (flyover only)	No
Calidris melanotos	Pectoral Sandpiper	Mi	R	1	-	-	**Possible** (flyover only)	No
Falco hypoleucos	Grey Falcon	VU	R	1	-	-	Unlikely	No
Gallinago hardwickii	Latham's Snipe	Mi	-	1	-	-	Unlikely	No
Grantiella picta	Painted Honeyeater	VU	-	1; 2	2000	-	Unlikely	No
Leipoa ocellata	Malleefowl	VU	V	1	-	-	Unlikely	No
Lophochroa leadbeateri leadbeateri	Major Mitchell's Cockatoo (eastern)	EN	R	1	-	-	Unlikely	No
Manorina melanotis	Black-eared Miner	EN	E	1	-	-	Unlikely	No
Melanodryas cucullata cucullata	South-eastern Hooded Robin	EN	R	1; 2	2010	Yes	**Known** (observed on site)	No
Motacilla cinerea	Grey Wagtail	Mi	-	1	-	-	Unlikely	No
Motacilla flava	Yellow Wagtail	Mi	-	1	-	-	Unlikely	No

Scientific Name	Common Name	Conservation Status		Source	Last BDBSA Record (Year)	Observed During Initial Flora and Fauna Assessment Field Surveys (2019) (EBS Ecology 2020)	Likelihood of Occurrence Within the Stage 1A and/or Stage 1B Project Areas	Observed Via BUS (2023-2025)
		EPBC Act	NPW Act					
Myiagra cyanoleuca	Satin Flycatcher	Mi	E	1; 2	1998	Yes	**Known** (observed within woodland)	No
Neophema chrysostoma	Blue-winged Parrot	VU	V	1; 2	2001	-	Possible	No
Numenius madagascariensis	Far Eastern Curlew	CE, Mi	V	1	-	-	Unlikely	No
Pandion haliaetus	Osprey	Mi	R	1	-	-	Unlikely	No
Pedionomus torquatus	Plains-wanderer	CE	-	1	-	-	Unlikely	No
Pezoporus occidentalis	Night Parrot	EN	E	1	-	-	Unlikely	No
Polytelis anthopeplus monarchoides	Regent Parrot (eastern)	VU	V	1; 2	2013	-	Unlikely	No
Rostratula australis	Australian Painted Snipe	EN	V	1; 2	2001	-	Unlikely	No
Stagonopleura guttata	Diamond Firetail	VU	V	1; 2; 3	2010	Yes	**Known** (observed at riparian area adjacent Mixed Open Mallee)	**Yes**
Tringa nebularia	Common Greenshank	Mi	-	1	-	-	**Possible** (flyover only)	No

Conservation Status Codes: EPBC Act/NPW Act: CE: Critically Endangered; **EN/E:** Endangered; **VU/V:** Vulnerable; **R:** Rare; **Mi:** Migratory.

Source:

1. Protected Matters Search Tool.
2. BDBSA (Biological Databases of South Australia) record.
3. Recorded onsite.

Light orange shaded cells represented species with a known likelihood of occurrence.

Light grey represents species with a possibly likelihood of occurrence.

BAMP Table 11: Other Bird Species That May Be Relevant to the Project's WTG Collision Monitoring Program (Updated to Include Observations Via BUS 2023-2025)

Scientific name	Common name	SA Conservation Status (NPW Act)	Source	Last BDBSA Record (Year)	Observed During Initial Flora and Fauna Assessment Field Surveys (2019) (EBS Ecology 2020)	Likelihood of occurrence within the Stage 1A and/or Stage 1B Project Areas	Observed Via BUS (2023-2025)
Accipiter cirrocephalus cirrocephalus	Collared Sparrowhawk	-	1; 2	2010	Yes	**Known**	No
Accipiter fasciatus fasciatus	Brown Goshawk	-	1; 2	2008	Yes	**Known**	**Yes**
Anhinga novaehollandiae	Australasian Darter	R	2	2000	-	**Possible**	No
Anseranas semipalmata	Magpie Goose	E	2	1983	-	Unlikely	No
Ardeotis australis	Australian Bustard	V	2	2000	-	Unlikely	No
Aquila audax audax	Wedge-tailed Eagle	-	1; 2	2008	Yes	**Known**	**Yes**
Circus approximans	Swamp Harrier	-	1		Yes	**Known**	No
Cladorhynchus leucocephalus	Banded Stilt	V	2	2003	-	**Possible**	No
Corcorax melanorhamphos	White-winged Chough	R	1; 2	2015	Yes	**Known**	No
Coturnix ypsilophora	Brown Quail	V	2	2015	-	**Possible**	No
*Elanus axillaris**	Black-shouldered Kite	-	1; 2	2014	No	**Known**	**Yes**
Falco berigora berigora	Brown Falcon	-	1; 2	2015	Yes	**Known**	**Yes**
Falco cenchroides cenchroides	Nankeen Kestrel	-	1; 2	2015	Yes	**Known**	**Yes**
*Falco longipennis**	Australian Hobby	-	1; 2	2002	No	**Known**	**Yes**
Falco peregrinus	Peregrine Falcon	R	1; 2	2010	Yes	**Known**	No
*Falco subniger**	Black Falcon	R	1; 2	1998	No	**Known**	**Yes**
Melithreptus gularis	Black-chinned Honeyeater	R	2	2006	-	**Possible**	No
Myiagra inquieta	Restless Flycatcher	R	2	2010	Yes	**Likely**	No
Neophema elegans	Elegant Parrot	R	1; 2	2006	Yes	**Known**	**Yes**
Pachycephala inornata	Gilbert's Whistler	R	2	1986	-	Unlikely	No

Scientific name	Common name	SA Conservation Status (NPW Act)	Source	Last BDBSA Record (Year)	Observed During Initial Flora and Fauna Assessment Field Surveys (2019) (EBS Ecology 2020)	Likelihood of occurrence within the Stage 1A and/or Stage 1B Project Areas	Observed Via BUS (2023-2025)
Petrochelidon ariel	Fairy Martin	-	1	N/A	No	**Known**	**Yes**
Plectorhyncha lanceolata	Striped Honeyeater	R	2	1986	-	Unlikely	No
Porzana tabuensis	Spotless Crake	R	2	2002	-	Unlikely	No
Todiramphus pyrrhopygius	Red-backed Kingfisher	-	1	N/A	No	**Known**	**Yes**
Turnix varius	Painted Buttonquail	R	2	2015	-	**Possible**	No

***Denotes Species added to the table post BAMP.**

SA Conservation Status (NPW Act) Codes: E: Endangered; **V:** Vulnerable; **R:** Rare.

Source: 1: Recorded on site. **2:** BDBSA (Biological Databases of South Australia) record.

Light orange shaded rows represent species with a known or likely likelihood of occurrence.

Light grey shaded rows represent species with a possible likelihood of occurrence.

Appendix C

Bird Species Diversity and Abundance Across All 2025 BUS



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Species Name	Common Name	EPBC Act Status	NPW Act Status	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	BUS Site Abundance^	BUS Site Occupancy^	Opportune
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	-	-	-	36	-	101	11	-	13	9	-	-	-	-	170	5	-
Accipiter fasciatus fasciatus	Brown Goshawk	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-
*Alauda arvensis arvensis**	Eurasian Skylark	-	-	3	17	-	9	-	-	21	-	2	10	19	2	17	100	9	-
Anas gracilis gracilis	Grey Teal	-	-	-	9	-	-	-	-	-	-	-	60	12	-	20	101	4	42
Anas superciliosa	Pacific Black Duck	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	2	1	-
Anthochaera carunculata	Red Wattlebird	-	-	-	-	6	-	1	-	-	7	-	-	-	2	-	16	4	-
Anthus australis	Australian Pipit	-	-	-	6	-	10	-	-	29	3	-	5	27	8	33	121	8	8
Aphelocephala leucopsis leucopsis	Southern Whiteface	VU	-	-	-	3	-	14	1	-	19	14	-	-	-	-	51	5	-
Aquila audax audax	Wedge-tailed Eagle	-	-	-	1	1	4	2	-	-	1	2	1	3	3	-	18	9	2
Artamus cyanopterus	Dusky Woodswallow	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	1	-
Barnardius zonarius	Australian Ringneck	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5	1	-
Chalcites basalis	Horsfield's Bronze Cuckoo	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Charadrius ruficapillus	Red-capped Plover	-	-	54	-	-	-	-	-	-	-	-	-	-	-	-	54	1	-

Species Name	Common Name	EPBC Act Status	NPW Act Status	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	BUS Site Abundance^	BUS Site Occupancy^	Opportune
Chenonetta jubata	Australian Wood Duck	-	-	-	36	9	-	-	-	-	-	-	-	-	-	-	45	2	14
Cinclosoma castanotum	Chestnut Quail-thrush	-	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cincloramphus cruralis	Brown Songlark	-	-	1	-	-	3	-	-	2	-	-	1	1	-	9	17	6	-
Climacteris picumnus picumnus	Brown Treecreeper	-	-	-	-	-	-	23	-	-	-	-	-	-	-	-	23	1	-
Colluricincla harmonica	Grey Shrikethrush	-	-	-	-	-	-	3	3	-	-	2	-	-	-	-	8	3	-
*Columba livia**	Feral Pigeon	-	-	-	-	-	-	-	-	6	390	-	-	121	-	11	528	4	-
Coracina novaehollandiae	Black-faced Cuckoo-shrike	-	-	1	-	3	-	-	-	1	-	4	-	-	1	-	10	5	2
Corvus mellori	Little Raven	-	-	15	1	2	5	19	9	1	1	4	18	-	-	2	77	11	15
Corvus sp.	Crows	-	-	10	14	6	32	12	8	14	11	11	12	14	18	14	176	13	-
Coturnix pectoralis	Stubble Quail	-	-	-	-	-	-	-	-	-	5	-	-	-	-	2	7	2	-
Egretta novaehollandiae	White-faced Heron	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	1	1
Elanus axillaris	Black-shouldered Kite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Eolophus roseicapilla	Galah	-	-	59	1	63	2	47	12	56	87	39	22	69	24	9	490	13	-
Epthianura albifrons	White-fronted Chat	-	-	-	-	-	-	-	-	2	-	-	-	-	-	10	12	2	-
Falco berigora berigora	Brown Falcon	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2	1	2

Species Name	Common Name	EPBC Act Status	NPW Act Status	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	BUS Site Abundance^	BUS Site Occupancy^	Opportune
Falco cenchroides cenchroides	Nankeen Kestrel	-	-	2	1	1	5	1	-	3	2	-	1	1	1	-	18	10	8
Falco subniger	Black Falcon	-	R	-	-	-	-	-	-	-	-	-	1	-	-	-	1	1	-
Gavicalis virescens	Singing Honeyeater	-	-	-	-	-	-	-	3	-	4	7	-	-	16	-	30	4	-
Grallina cyanoleuca cyanoleuca	Magpielark	-	-	1	3	3	-	-	-	-	-	-	-	-	-	-	7	3	-
Gymnorhina tibicen	Australian Magpie	-	-	26	94	21	53	42	17	5	11	14	36	48	9	37	413	13	-
Hirundo neoxena neoxena	Welcome Swallow	-	-	4	7	-	-	2	-	8	1	-	-	-	-	-	22	5	-
Lalage tricolor	White-winged Triller	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4	1	-
Malurus assimilis assimilis	Purple-backed Fairywren	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	8	1	-
Malurus leucopterus leuconotus	White-winged Fairywren	-	-	-	-	-	-	-	-	7	-	-	-	-	-	8	18	2	-
Manorina flavigula	Yellow-throated Miner	-	-	7	-	-	-	-	-	-	1	-	-	-	-	-	8	2	-
Manorina melanocephala	Noisy Miner	-	-	2	-	1	-	-	-	-	-	2	-	-	-	-	5	3	-
Merops ornatus	Rainbow Bee-eater	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	2	2	-
Ocyphaps lophotes lophotes	Crested Pigeon	-	-	-	-	4	-	-	-	-	2	-	-	-	-	-	6	2	-

Species Name	Common Name	EPBC Act Status	NPW Act Status	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	BUS Site Abundance^	BUS Site Occupancy^	Opportune
Pachycephala rufiventris rufiventris	Rufous Whistler	-	-	-	-	-	-	1	1	-	-	1	-	-	-	-	3	3	-
Pardalotus striatus	Striated Pardalote	-	-	3	-	20	-	16	15	1	4	14	-	-	3	-	76	8	-
*Passer domesticus domesticus**	House Sparrow	-	-	-	-	1	-	-	-	53	57	-	-	-	-	49	160	4	-
Petrochelidon ariel	Fairy Martin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32	32	1	-
Petrochelidon nigricans	Tree Martin	-	-	4	-	-	2	10	-	-	3	-	-	-	-	-	19	4	-
Petroica goodenovii	Red-capped Robin	-	-	2	-	-	-	1	3	1	3	2	-	-	-	3	15	7	1
Platycercus elegans	Crimson Rosella	-	-	3	-	30	-	10	-	-	5	-	-	-	-	-	48	4	-
Psephotus haematonotus	Red-rumped Parrot	-	-	-	-	-	-	8	-	-	-	2	-	-	-	-	10	2	-
Ptilotula ornata	Yellow-plumed Honeyeater	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	5	1	-
Ptilotula penicillata	White-plumed Honeyeater	-	-	-	-	-	-	8	2	-	13	-	-	-	-	-	23	3	-
Rhipidura albiscapa	Grey Fantail	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	1	-
Rhipidura leucophrys leucophrys	Willie Wagtail	-	-	1	1	3	-	6	1	2	2	1	-	2	-	1	20	10	-
Smicrornis brevirostris	Weebill	-	-	-	-	-	-	21	22	-	18	16	-	-	-	-	77	4	-

Species Name	Common Name	EPBC Act Status	NPW Act Status	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	BS12	BS13	BUS Site Abundance^	BUS Site Occupancy^	Opportune
Stagonopleura guttata	Diamond Firetail	VU	V	-	-	-	-	3	-	-	-	1	-	-	-	-	4	2	-
*Sturnus vulgaris vulgaris**	Common Starling	-	-	83	-	34	-	80	-	36	56	9	-	-	30	6	334	8	95
Tadorna tadornoides	Australian Shelduck	-	-	85	-	-	-	-	-	-	-	-	-	-	-	-	85	1	84
Taeniopygia guttata castanotis	Zebra Finch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Todiramphus pyrrhopygius	Red-backed Kingfisher	-	-	-	-	-	-	1	-	-	2	-	-	-	-	-	3	2	-
Vanellus miles	Masked Lapwing	-	-	12	-	-	-	-	-	-	2	-	-	-	-	-	14	2	-
Zosterops lateralis	Silvereye	-	-	-	-	-	-	-	17	-	-	1	-	-	-	-	18	2	-
Total Abundance per Site:				379	191	249	125	443	138	249	731	157	167	317	117	263	3526	-	-
Total Species Richness per Site:				22	11	12	13	18	14	20	11	29	17	20	30	21	-	-	-

Species of concern are in red text.

* Indicates introduced (non-native) species.

EPBC Act / NPW Act Conservation Codes: R: Rare; VU/V: Vulnerable.

^ Indicates BUS Site abundance / occupancy only (does not include opportune observations).

Appendix D

Bird Species Recorded Across All BUS to Date



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Scientific Name	Common Name	Conservation Status		Observed During 2023/2024 BUS	Observed During 2025 BUS
		EPBC Act	NPW Act		
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	-	-	✓	-
Acanthiza apicalis	Inland Thornbill	-	-	✓	-
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	-	-	✓	✓
Acanthiza reguloides	Buff-rumped Thornbill	-	-	✓	-
Acanthiza uropygialis	Chestnut-rumped Thornbill	-	-	✓	-
Accipiter fasciatus fasciatus	Brown Goshawk	-	-	✓	✓
Acrocephalus australis	Australian Reed Warbler	-	-	✓	-
Aegotheles cristatus cristatus	Australian Owlet-nightjar	-	-	✓	-
*Alauda arvensis arvensis**	Eurasian Skylark	-	-	✓	✓
Anas gracilis gracilis	Grey Teal	-	-	✓	✓
Anas superciliosa	Pacific Black Duck	-	-	✓	✓
Anthochaera carunculata	Red Wattlebird	-	-	✓	✓
Anthus australis australis	Australian Pipit	-	-	✓	✓
Aphelocephala leucopsis leucopsis	Southern Whiteface	VU	-	✓	✓
Aquila audax audax	Wedge-tailed Eagle	-	-	✓	✓
Artamus cyanopterus	Dusky Woodswallow	-	-	-	✓
Barnardius zonarius	Australian Ringneck	-	-	✓	✓
Chalcites basalis	Horsfield's Bronze Cuckoo	-	-	✓	✓
Charadrius ruficapillus	Red-capped Plover	-	-	✓	✓
Chenonetta jubata	Australian Wood Duck	-	-	✓	✓
Chroicocephalus novaehollandiae novaehollandiae	Silver Gull	-	-	✓	-
Cinclosoma castanotum	Chestnut Quail-thrush	-	R	-	✓
Cincloramphus cruralis	Brown Songlark	-	-	✓	✓
Climacteris picumnus picumnus	Brown Treecreeper	-	-	✓	✓
Colluricincla harmonica	Grey Shrikethrush	-	-	✓	✓
*Columba livia**	Feral Pigeon	-	-	✓	✓
Coracina novaehollandiae	Black-faced Cuckoo-shrike	-	-	✓	✓
Corvus coronoides	Australian Raven	-	-	✓	-
Corvus mellori	Little Raven	-	-	✓	✓
Corvus sp.	Crows	-	-	✓	✓
Coturnix pectoralis	Stubble Quail	-	-	✓	✓
Cracticus torquatus leucopterus	Grey Butcherbird	-	-	✓	-

Scientific Name	Common Name	Conservation Status		Observed During 2023/2024 BUS	Observed During 2025 BUS
		EPBC Act	NPW Act		
Dacelo novaeguineae novaeguineae	Laughing Kookaburra	-	-	✓	-
Daphoenositta chrysoptera	Varied sittella	-	-	✓	-
Egretta novaehollandiae	White-faced Heron	-	-	-	✓
Elanus axillaris	Black-shouldered Kite	-	-	✓	✓
Elseyornis melanops	Black-fronted Dotterel	-	-	✓	-
Eolophus roseicapilla	Galah	-	-	✓	✓
Epthianura albifrons	White-fronted Chat	-	-	✓	✓
Falco berigora berigora	Brown Falcon	-	-	✓	✓
Falco cenchroides cenchroides	Nankeen Kestrel	-	-	✓	✓
Falco longipennis	Australian Hobby	-	-	✓	-
Falco subniger	Black Falcon	-	R	✓	✓
Gavicalis virescens	Singing Honeyeater	-	-	✓	✓
Grallina cyanoleuca cyanoleuca	Magpielark	-	-	✓	✓
Gymnorhina tibicen	Australian Magpie	-	-	✓	✓
Hirundo neoxena neoxena	Welcome Swallow	-	-	✓	✓
Lalage tricolor	White-winged Triller	-	-	-	✓
Lichenostomus leucotis	White-eared Honeyeater	-	-	✓	-
Malurus assimilis assimilis	Purple-backed Fairywren	-	-	✓	✓
Malurus lamberti	Variegated Fairywren	-	-	✓	-
Malurus leucopterus leuconotus	White-winged Fairywren	-	-	✓	✓
Manorina flavigula	Yellow-throated Miner	-	-	✓	✓
Manorina melanocephala	Noisy Miner	-	-	✓	✓
Melithreptus brevirostris	Brown-headed Honeyeater	-	-	✓	-
Melithreptus lunatus	White-naped Honeyeater	-	-	✓	-
Merops ornatus	Rainbow Bee-eater	-	-	✓	✓
Microcarbo melanoleucos melanoleucos	Little Pied Cormorant	-	-	✓	-
Microeca fascinans	Jacky Winter	-	-	✓	-
Mirafra javanica	Horsfield's Bushlark	-	-	✓	-
Neophema elegans elegans	Elegant Parrot	-	R	✓	-
Ocyphaps lophotes lophotes	Crested Pigeon	-	-	✓	✓
Pachycephala pectoralis	Golden Whistler	-	-	✓	-
Pachycephala rufiventris rufiventris	Rufous Whistler	-	-	-	✓
Pardalotus punctatus	Spotted Pardalote	-	-	✓	-

Scientific Name	Common Name	Conservation Status		Observed During 2023/2024 BUS	Observed During 2025 BUS
		EPBC Act	NPW Act		
Pardalotus striatus	Striated Pardalote	-	-	✓	✓
*Passer domesticus domesticus**	House Sparrow	-	-	✓	✓
Petrochelidon ariel	Fairy Martin	-	-	-	✓
Petrochelidon nigricans	Tree Martin	-	-	✓	✓
Petroica goodenovii	Red-capped Robin	-	-	✓	✓
Platycercus elegans	Crimson Rosella	-	-	✓	✓
Psephotus haematonotus	Red-rumped Parrot	-	-	✓	✓
Ptilotula ornata	Yellow-plumed Honeyeater	-	-	-	✓
Ptilotula penicillata	White-plumed Honeyeater	-	-	✓	✓
Rhipidura albiscapa	Grey Fantail	-	-	✓	✓
Rhipidura leucophrys leucophrys	Willie Wagtail	-	-	✓	✓
Smicrornis brevirostris	Weebill	-	-	✓	✓
Stagonopleura guttata	Diamond Firetail	VU	V	-	✓
Strepera versicolor	Grey Currawong	-	-	✓	-
*Sturnus vulgaris vulgaris**	Common Starling	-	-	✓	✓
Tadorna tadornoides	Australian Shelduck	-	-	✓	✓
Taeniopygia guttata castanotis	Zebra Finch	-	-	✓	✓
Todiramphus pyrrhopygius	Red-backed Kingfisher	-	-	-	✓
Vanellus miles	Masked Lapwing	-	-	✓	✓
Zosterops lateralis	Silvereye	-	-	✓	✓

EPBC Act / NPW Act Conservation Status Codes: **R**: Rare; **VU/V**: Vulnerable.

* Indicates introduced (non-native) species.

Species of concern are in red.

Appendix E

WTG Collision Monitoring Site Photos

WTG	February/March 2025	May 2025	August 2025	November 2025
SG007				
SG008				
SG012				

WTG	February/March 2025	May 2025	August 2025	November 2025
SG013				
SG015				
SG022				

WTG	February/March 2025	May 2025	August 2025	November 2025
SG023				
SG032				
SG034	Not monitored.			

WTG	February/March 2025	May 2025	August 2025	November 2025
SG040				
SG044				
SG048				

WTG	February/March 2025	May 2025	August 2025	November 2025
B008				
B005				
B015				

WTG	February/March 2025	May 2025	August 2025	November 2025
B024	No photo available.			
B026	Not monitored.			
B027				

WTG	February/March 2025	May 2025	August 2025	November 2025
B029	Not monitored.			
B031				
B032				

WTG	February/March 2025	May 2025	August 2025	November 2025
B033				
B034				
B036				

WTG	February/March 2025	May 2025	August 2025	November 2025
B039				
SG026				

Appendix F

WTG Collision Monitoring Carcass and Feather Spot Photos

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WTG	Photo of Carcass or Feather Spot With Species and Location Details (Coordinates)	
SG013	 Feather Spot 26/02/2025 Magpielark (*Grallina cyanoleuca*) Coordinates: -33.784664; 138.922563	
SG023	 Feather Spot 26/02/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.793843; 138.891776	 Feather Spot 26/02/2025 Nankeen Kestrel (*Falco cenchroides cenchroides*) Coordinates: -33.793985; 138.890690
SG023	 Feather Spot 9/05/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.793821; 138.891796	

WTG	Photo of Carcass or Feather Spot With Species and Location Details (Coordinates)	
SG040	 Feather Spot 27/02/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.818083; 138.962845	 Feather Spot 27/02/2025 Nankeen Kestrel (*Falco cenchroides cenchroides*) Coordinates: -33.818517; 138.962790
B008	 Feather Spot 27/02/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.807400; 138.968412	 Carcass 19/08/2025 Horsefield's Bronze Cuckoo (*Chalcites basalis*) Coordinates: -33.808045; 138.968153
B008	 Feather Spot 5/11/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.806956; 138.968200	

WTG	Photo of Carcass or Feather Spot With Species and Location Details (Coordinates)	
B026	 Feather Spot 9/05/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.789760; 138.989700	 Feather Spot 6/11/2025 Nankeen Kestrel (*Falco cenchroides cenchroides*) Coordinates: -33.788581; 138.990600
B027	 Carcass 3/11/2025 Nankeen Kestrel (*Falco cenchroides cenchroides*) Coordinates: -33.718537; 138.994200	
B029	 Feather Spot 6/11/2025 Unknow (down feathers only) Coordinates: -33.793908; 138.992000	 Feather Spot 6/11/2025 Common Starling (*Sturnus vulgaris*) Coordinates: -33.792264; 138.993900

WTG	Photo of Carcass or Feather Spot With Species and Location Details (Coordinates)
B031	 Feather Spot 20/08/2025 Little Raven (*Corvus mellori*) Coordinates: -33.759906; 138.993675
B033	 Feather Spot 6/03/2025 Little Raven (*Corvus mellori*) Coordinates: -33.743574; 138.997083
B034	 Feather Spot 9/05/2025 Nankeen Kestrel (*Falco cenchroides cenchroides*) Coordinates: -33.755104; 139.001055

WTG	Photo of Carcass or Feather Spot With Species and Location Details (Coordinates)	
B039	 Feather Spot 4/03/2025 Australian Magpie (*Gymnorhina tibicen*) Coordinates: -33.771822; 139.009295	 Feather Spot 9/05/2025 Magpielark (*Grallina cyanoleuca*) Coordinates: -33.771540; 139.009219
B039	 Feather Spot 9/05/2025 Magpielark (*Grallina cyanoleuca*) Coordinates: -33.771921; 139.007118	

Appendix G

Goyder South Wind Farm Mortality Estimate – Year 1

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Goyder South Wind Farm Mortality Estimate - Year 1

Prepared for Umwelt, 14 September 2026, Ver. 1.0

This report outlines an analysis of mortality at Goyder South Wind Farm (GSWF) from 2025-02-25 to 2025-11-07. The analysis is broken into the three related components below:

- Searcher efficiency / detectability – estimated from trials in August 2024 and November 2024
- Scavenger loss rates – estimated from trials from August 2024 and November 2024
- Mortality estimates - based on surveys at 26 turbines, from 2025-02-25 to 2025-11-07

We estimate mortality for nankeen kestrels and wedge-tailed eagles. We note that we have not included any other EPBC listed species or species of interest in the mortality analysis as there is no evidence of their mortality in this period. An estimate without evidence of mortality will be biased high as the estimator assumes at least one strike occurred.

1 Available data

Survey data was collected and provided by Umwelt on behalf of Neoen. A brief summary of the data is provided below, and the ultimate focus of this report is a discussion of the potential mortality.

Turbine parameter data (rotor diameter and height) was provided by Umwelt.

1.1 Data cleaning

Carcass persistence and detectability data:

- Carcasses with species recorded as "DOC" (Day Old Chick) were recoded to "Chick"

2 Statistical methodology overview

Mortality through collision is an ongoing environmental management issue for wind facilities. Different sites present different risk levels; consequently different sites have different monitoring requirements. In order to estimate the mortality loss at a given site (in a way that is comparable with other facilities) we must account for differences in survey effort, searcher and scavenger efficiency. We used a Monte Carlo method to achieve this.

Best practice estimators project the number of found carcasses (C) up to the number of actual mortalities (M), by accounting for:

- The probability a carcass will be detected by the searcher (p)
- The probability a carcass is not lost to scavenging or decay prior to the search (r)
- The probability a carcass falls within the searched area (a) - also known as the "coverage factor"
- The fraction of turbines searched (f)

Most mortality estimators, e.g. (Huso 2011), can be conceptualised as a ratio estimator:

$$\hat{M} = \frac{C}{\hat{p} \cdot \hat{r} \cdot \hat{a} \cdot f} \tag{1}$$

The terms in the denominator provide a "boost factor" to the number of carcasses found, C.

However, a limitation of analytical methods, is estimating r, when the time between surveys is not constant. In Australia, it is common for the time between searches to vary due to seasonal changes in effort, designs targeting specific species, logistical reasons, or the use of a pulsed design in which the turbine is searched monthly with a return visit a few days later. Additionally, ratio estimators cannot handle the cases when zero carcasses are found, as zero

multiplied by any number still gives zero. This limits their ability to provide an estimate for very rare species that may collide infrequently.

To address this, Symbolix have developed a Monte Carlo algorithm. We have used this method for mortality estimates at over forty wind farms in Australia to date.

Monte Carlo methods (Sawilowsky (2003), Ripley (1987)) simulate a large set of possible survey results, by simulating the actual survey protocol, and sampling from empirical distributions for scavenge loss and searcher efficiency. This method allows us to directly sample the probability a carcass was lost before each survey, negating the need to calculate r analytically for each survey round.

We then estimate how many carcasses were truly generated, given the range of searcher and scavenger efficiencies, the survey frequency and coverage, and the true "found" details. After many simulations, we can estimate the likely range of mortalities that could have resulted in the recorded survey outcome (number of carcasses found).

This method has been benchmarked against analytical approaches (Huso (2011); Korner-Nievergelt et al. (2011)). Its outputs are equivalent but it is able to robustly model more complex survey designs (e.g. pulsed surveys, rotating survey list).

Figure 1 provides an overview of the methodology. A detailed explanation can be found in Stark and Muir (2020).

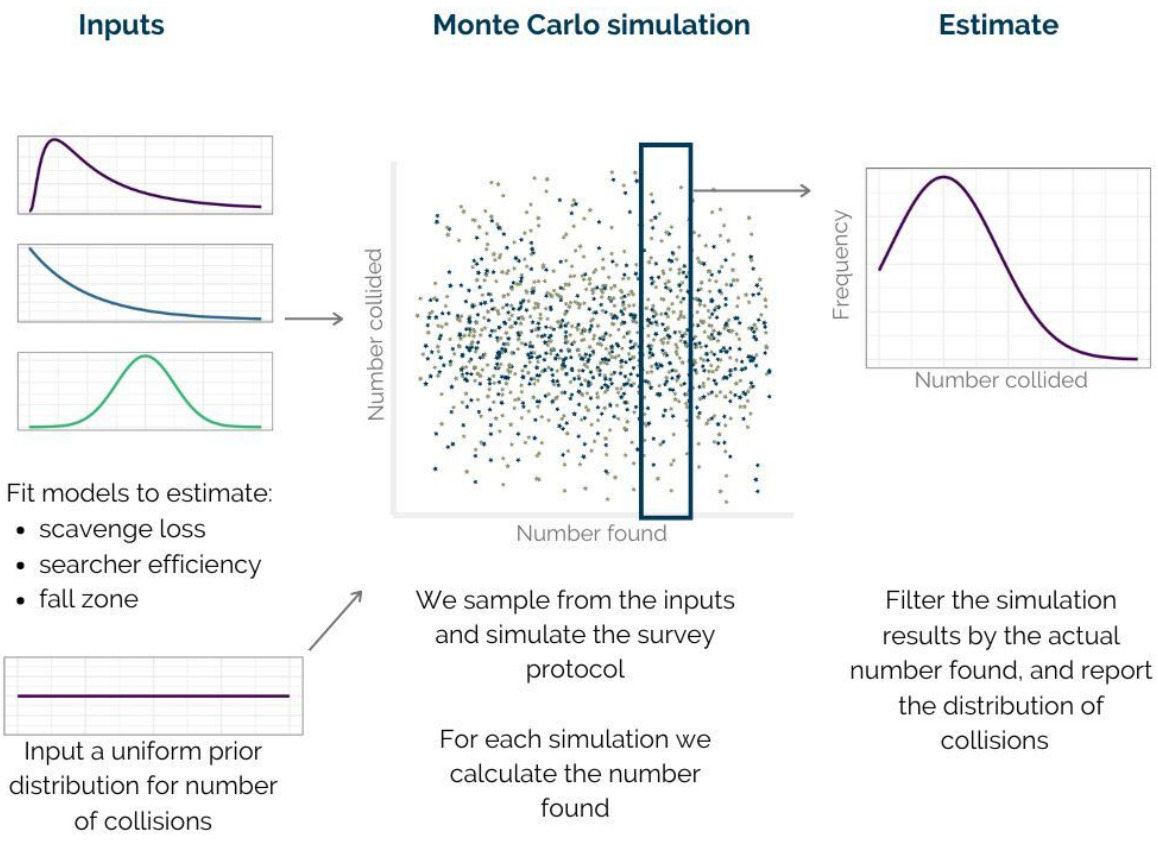


Figure 1: Overview of how the mortality estimation works.

The following sections outline how we estimate p, r and a. C is given by the field observation data for this site, and f is defined by the survey design.

3 Analysis and modelling

The survey program consisted of carcass searches, and adjunct scavenger and detection trials. We summarise the methods, field data and analysis results for each below.

3.1 Carcass search data

The carcass searches provide the C and f terms in Section 2.

3.1.1 Survey effort

Carcass searches were undertaken in accordance with the Bird Adaptive Management Plan (BAMP)[1] (EBS Ecology 2024). This included quarterly standard surveys at 26 turbines using human observers.

The mortality estimate was based on a dated list of turbine surveys. The survey frequency is summarised in Table 1.

In total, 35% of turbines were searched quarterly by human observers in a 240 meter wide square search area. In the Monte Carlo algorithm, we explicitly simulate the survey design. The proportion of turbines sampled (f) is therefore accounted for in the simulation.

Table 1: Number of surveys per month.

Date	Standard
2025 Feb	13
2025 Mar	10
2025 May	26
2025 Aug	26
2025 Nov	26

3.1.2 Carcass finds

The carcasses relevant to the reported mortality estimates were five nankeen kestrels found during formal surveys, and four wedge-tailed eagles found incidentally. While the incidental carcasses are not included in the data that produces the mortality estimate[2], they do provide evidence of mortality, meaning that our mortality estimate for wedge-tailed eagles will not be biased high because the estimator's assumption of at least one strike is fulfilled.

[1] EX220806-BAMP-Final-v5-20240125_signed_compressed.pdf
[2] Incidental finds do not have the associated measure of effort required for modelling.

3.2 Searcher efficiency

The aim of searcher efficiency trials is the quantify the effectiveness of observers, at finding carcasses. They provide the p term in Equation 2.

3.2.1 Field methods

The searcher efficiency data was collected in accordance to the specification in section 8.3.4.2 of the BAMP. This included human observers.

The searcher efficiency data is sourced from trials conducted in August 2024 and November 2024. Carcasses were laid out, searches for the carcasses undertaken using the same protocol as the main mortality survey (i.e. human observers searching by quadrant). If the carcass was found, "success" was recorded, else "failure" was the searcher missing the carcass.

The carcasses deployed for searcher efficiency trials included adult chickens (8 replicates) as large birds, pigeons (9 replicates) as medium birds and day old chicks (7 replicates) as small birds.

The number of carcasses for each group are summarised in Table 2.

Table 2: Count by species class used during the detection trials.

Species type	Human
Large Bird	8
Medium Bird	9
Small Bird	7

3.2.2 Statistical methods

We estimated searcher efficiency by fitting binomial generalised linear models (GLMs). The optimal model was determined, guided by the small-sample corrected Akaike Information Criterion (AICc) (Anderson and Burnham 2004).

The theory of AICc is complex, the details of which are beyond the scope of this report. However, fundamentally AICc is a method for choosing the best approximating (i.e. best model fit) and parsimonious (a simpler model is preferable to a more complex model) model. For each model we fit to the data, we calculate the AICc. We compare the differences in AICc between models, which in turn informs us of the weight of evidence for that particular model.

We also consider the reliability and applicability of parameters in the model. For example, cloud cover may affect detection rates, but the ability of observers to accurately and consistently record cloud cover is likely to be poor and it is not feasible to incorporate cloud cover into a mortality estimate.

AICc is not the same as significance testing. We do not aim to state anything is significant at the 5% level, instead we aim to find a good model fit for the data.

3.2.3 Results

The best model for searcher efficiency included was the "intercept-only model" (i.e. all carcasses have the same expected searcher efficiency).

The outputs of this model is presented in Table 3.

Table 3: Detection efficiencies for birds of all size classes.

Variable	Birds
Number found	20
Number placed	24
Mean detectability proportion	0.83
Detectability lower bound (95% CI)	0.63
Detectability upper bound (95% CI)	0.95

Overall detectability of birds is 83%, with a 95% confidence interval of [63%, 95%].

3.3 Carcass persistence

In order to accurately estimate mortality, we must account for carcass loss to scavengers. Carcass persistence trials are performed to quantify the time until a carcass is completely lost as a result of scavenger activity and decay.

This section estimates the r term in Section 2.

3.3.1 Field methods

The carcass persistence data was collected in accordance to the specification in section 8.3.4.1 of the BAMP. This included two persistence trials, on in Winter and one in Spring to account for different site conditions.

Carcass persistence trials were conducted in August 2024 and November 2024. The trials ran over approximately 30 days. In total, 85 carcasses were used (including 32 adults chickens as large birds, 25 pigeons as medium birds, and 28 chicks as small birds). Trials used human checks twice daily up to day four (in Winter trials) or five (in Spring trials) after which, if the carcass still remained, a remote sensing camera was deployed in order to record exact times of scavenge events.

We note the International Finance Corporation (2023) states that "Surrogate carcasses such as domesticated poultry and game birds are more palatable to carcass scavengers (and hence removed more quickly) than carcasses of the large birds that they could be used to surrogate for, specifically raptors. It is likely that using these types of surrogates for raptors will inflate fatality rate estimates for this group". Therefore we expect that the use of only chickens and pigeons for these trials will bias the estimate for nankeen kestrels high by some (unquantifiable) amount.

Table 4 summarises the species types used in the trials.

Table 4: Count by species class used in the carcass persistence trials.

Species type	Bird	Count
Large Bird	Chicken	32
Small Bird	Chick	28
Medium Bird	Pigeon	25

3.3.2 Statistical methods

Survival analysis (Kaplan and Meier (1958), Kalbfleisch and Prentice (2011)) was used to determine the distribution of time until complete loss from scavenge (or decay). Survival analysis was required to account for the fact that we do not necessarily know the exact time of scavenge loss, only an interval in which the scavenge event happened. For example, any carcass which is unscavenged at the end of the trial, has its scavenge event in the interval $[x, \infty]$ (where x is the length of the trial).

By performing survival analysis we can estimate the time until carcass loss after a given length of time, despite these unknowns.

We fit parameterised models to analyse significant factors influencing time to scavenge (carcass species type etc.), and to find the most appropriate distribution to fit the time-to-loss curve (e.g. log-normal, exponential).

Time to carcass loss is influenced by the parameters discussed above and the distribution of the loss curve we fit to the data (Huso et al. 2015). The choice of loss function is important because it should capture the behaviours and relative time dependence of the various scavengers. Generally, the best distribution is the log-normal distribution (Stark and Muir 2020).

3.3.3 Results

The best model for carcass persistence included aggregated medium and large birds, keeping small birds separate. As no estimate is being done for any small bird species, we removed

them from the model. No Wedge-tailed Eagle carcasses were used in the trials so the Wedge-tailed Eagle scavenging rates are taken from our Victoria-wide meta-analysis Stark and Muir (2020).

Figure 2 shows the survival curve fitted to the carcasses. The survival curve (smooth solid line for fitted regression curve, jagged step function for empirical removal rate) shows the estimated proportion of the set remaining at any given time. The shaded portions are the 95% confidence intervals on the estimate.

Under these assumptions, the median time to medium and large bird carcass removal is 1.5 days, with a 95% confidence interval of [1.2, 1.9] days.

The median time to Wedge-tailed Eagle carcass removal via scavenge is 287 days, with a 95% confidence interval of [130, 635] days.

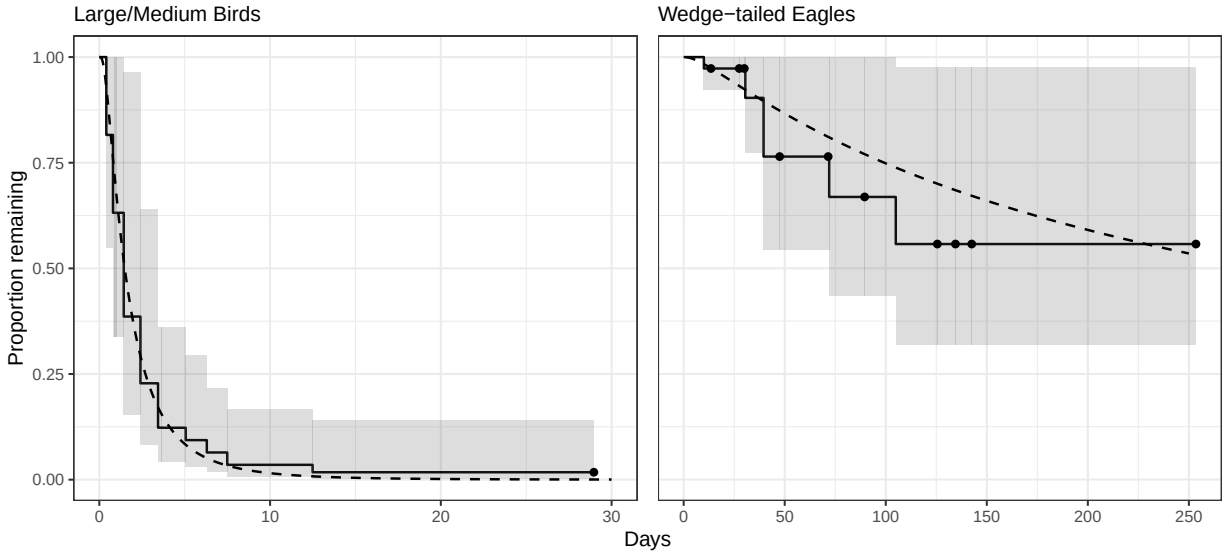


Figure 2: Empirical survival curve (the step function), with 95% confidence intervals shaded. The smooth curve presents the fitted model.

3.4 Coverage factor

The probability a carcass falls within the searched area (i.e. the "coverage factor") is calculated to provide the a term (Section 2).

3.4.1 Statistical methods

3.4.1.1 Fall zone simulation We generated a carcass fall-zone distribution for each species class given the turbine size at the wind farm.

The fall-zone distribution is the end result of the simulation method detailed in Hull and Muir (2010). The simulation method is a ballistics model describing bird and bat strikes by turbine

blades.

3.4.1.2 Coverage factor calculation The percentage of the fall zone not covered by the survey area, provides a correction factor in the mortality estimate. Because carcasses that fall outside the searched area have a zero probability of being detected by a survey, the likelihood of landing in this region is essential to understanding the relationship between detections and actual losses. On several instances (n = 11), the turbines could not be searched fully (although in all cases the percentage searched was $\geq$ 80%), this was accounted for by multiplying the coverage factor of the full area by the percentage surveyed.

At GSWF square search areas were used. To account for the search areas not being radially symmetric, a technique similar to that in Box 3.4 of International Finance Corporation (2023) was used.

A two-dimensional fall zone distribution is generated from rotating the one-dimensional output of Hull and Muir (2010). This 2-D distribution is a series of concentric annuli, with the probability density in each annulus, being equal to the density of the corresponding histogram bin in the one-dimensional Hull and Muir (2010) output. The annuli are then spatially intersected with the searched area, and hence the proportion of carcasses falling in searched area (the "coverage factor") is found.

3.4.2 Simulation inputs

The fall zone simulation requires a set of turbine and bird specifications.

Table 5 displays the dimensions and RPM of the turbines at GSWF Wind Farm. Table 6 shows the bird and bat physical parameters used. The Medium Bird archetype was used for the Nankeen Kestrel.

Table 5: Turbine specifications for Goyder South Wind Farm

Rotor Diameter (m)	Tower Height (m)	RPM
158	121	11

Table 6: Species parameters used per group.

Species type	Archetype	Mass (kg)	Min. area (sq m)	Max. area (sq m)
WTE	Wedge-tailed Eagle	4.2	0.0700000	0.8000000
Medium Bird	Australian Magpie	0.3	0.0050265	0.0766667

3.4.3 Results

Figure 3 displays the simulation results, given the factors specified above. We display the cumulative density function (CDF) on the y axis versus the distance from turbine on the x axis for each species type. The CDF describes the expected proportion of carcasses which fall less than or equal to a certain distance from the turbine.

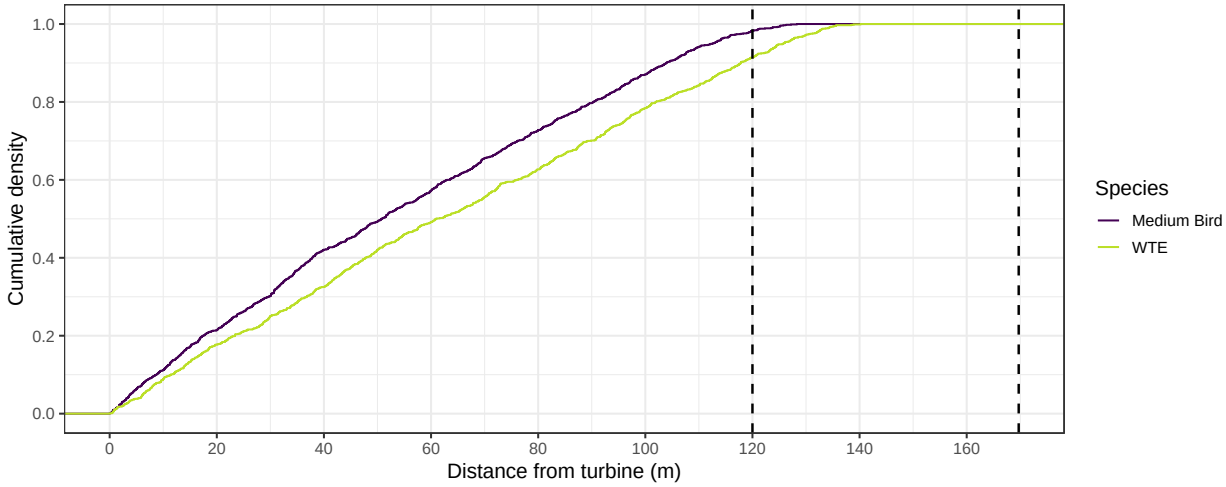


Figure 3: Cumulative distribution function of the fall zone simulation output for medium birds and wedge-tailed eagles. Vertical lines indicate the distance from the turbine to the centre of the edge of the square, and the distance from the turbine to the corner of the square.

Once the fall zone distribution is calculated, we generate a "coverage factor". The coverage factor represents the expected proportion of carcasses which fall within the searched area, given the search protocol.

On average, we expect about 99% of medium birds and 96% of wedge-tailed eagles to fall within a 240m wide square search area centred on the turbine.

4 Mortality estimate

With estimates for scavenge loss, searcher efficiency, and survey coverage for GSWF, we then converted the number of bird carcasses detected into an estimate of overall mortality from 2025-02-25 to 2025-11-07.

The mortality estimation is done via a Monte Carlo algorithm. We used 15000 simulations, with the survey design simulated each time. Random numbers of virtual mortalities were simulated, along with the scavenge time and searcher efficiency (based on the measured confidence intervals). The proportion of virtual carcasses that were "found" was recorded for each simulation. Finally, those trials that had the same outcome as the reported survey detections were collated, and the initial conditions (i.e. how many true losses there were) reported on.

The model assumptions are listed below:

- There were 75 turbines on site available to strike bats and birds.
- Of these, 26 were searched quarterly in a 240m square area centred on the turbine.
- Search frequency for each turbine was taken from a list of actual survey dates (see Table 1 for a summary).
- Mortalities were allowed to occur from 2025-02-25, until the final surveyed date (2025-11-07).
- Bats and birds are on-site at all times during this period.
- Bats and birds that are struck are immediately replaced (i.e. strikes one day do not affect the chance of strikes the next).
- We assume that all carcasses and all feather spots (regardless of size or composition) are attributable to the wind turbines.
- Finds are random and independent, and not clustered with other finds.
- There was equal chance of any turbine being involved in a collision / mortality.
- Scavenger loss and searcher efficiency rates are calculated as outlined above.
- We assumed a log-normal scavenge shape.
- We assumed coverage factors as outlined above.

Note that dot point six above means that there are no assumptions about the starting population, birds can be struck infinitely without any change in the likelihood of another strike (this is a trait of all mortality estimators). Mortality estimators work backwards from the number of found carcasses, using the searcher efficiency, scavenging rate and coverage factor to estimate the number of strikes most likely to result in the number of carcasses found. This means that it is possible for some of the estimated mortalities in the distribution to be higher than is ecologically possible. Therefore the estimates must be interpreted through an ecological lens based on the knowledge of the local population. While the median is more *statistically* likely, the value that is more *ecologically* likely may be lower based on the number of birds available to be struck.

4.1 Nankeen kestrels

During year one of surveys, five nankeen kestrels were found during formal surveys. The resulting (median) estimate of total mortality is 676 nankeen kestrels lost on site over the nine months of survey.

As noted in Section 3.3.1, we expect this estimate to be biased high to some extent due to the use of poultry as proxies in the carcass persistence trials.

Table 7 and Figure 4 display the percentiles of the distributions, to show the confidence on the mortality estimate.

Based on the detected carcasses, measured detectability, scavenge rate, and survey effort, we expect that there was a total site loss of around 676 nankeen kestrels, and are 95% confident that fewer than 1306 individuals were lost, in the nine month period.

Table 7: Percentiles of estimated total nankeen kestrel losses in year one of surveys.

0%	50% (median)	90%	95%	99%
191	676	1162	1306	1789

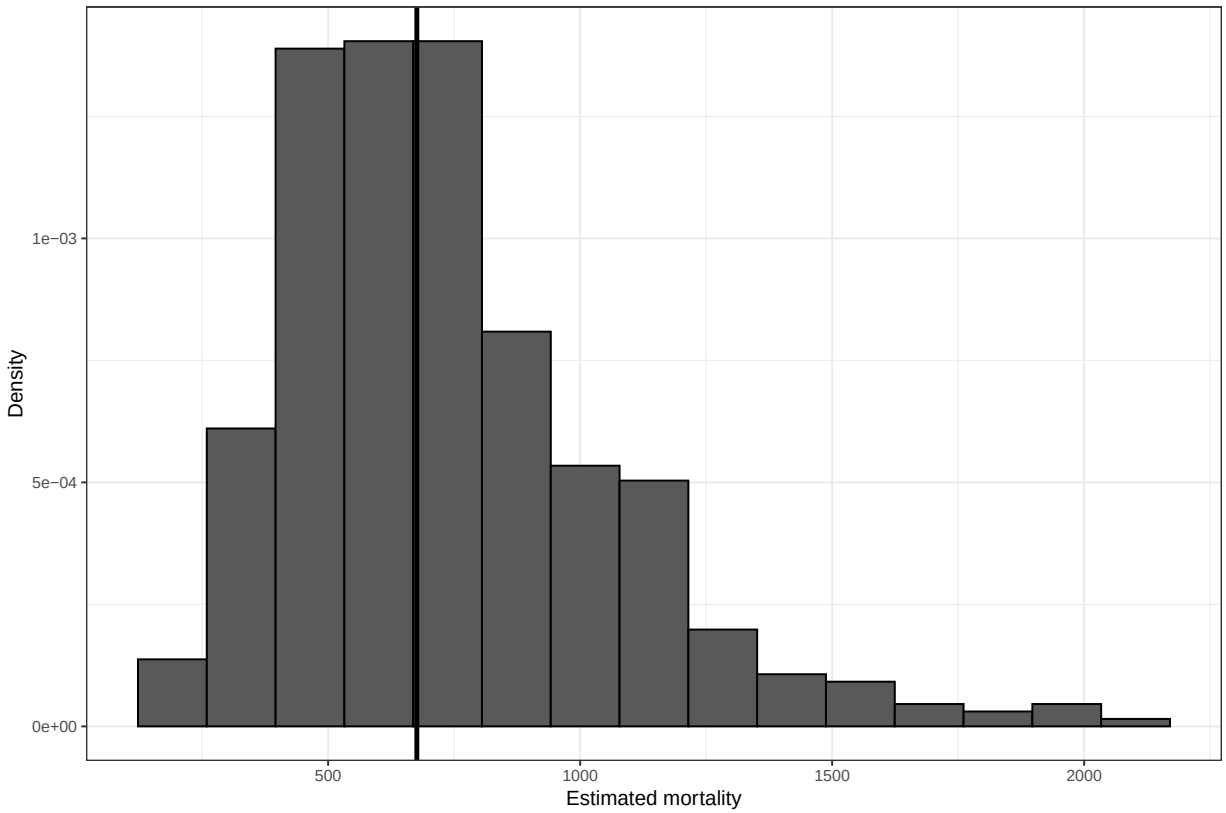


Figure 4: Histogram of the total losses distribution (nankeen kestrels). The black solid line shows the median.

4.2 Wedge-tailed eagles

During year one of surveys, zero wedge-tailed eagles were found during formal surveys. The resulting (median) estimate of total mortality is 5 wedge-tailed eagles lost on site over the nine months of survey.

We note that although there were zero formal finds we do not expect the estimate to be biased high as we do have evidence of mortality during the period in the form of four incidental carcass finds (Section 3.1.2).

Table 8 and Figure 5 display the percentiles of the distributions, to show the confidence on the mortality estimate.

Based on the detected carcasses, measured detectability, scavenge rate, and survey effort, we expect that there was a total site loss of around 5 wedge-tailed eagles, and are 95% confident that fewer than 11 individuals were lost, in the nine month period.

Table 8: Percentiles of estimated total wedge-tailed eagle losses in year one of surveys.

0%	50% (median)	90%	95%	99%
3	5	9	11	14

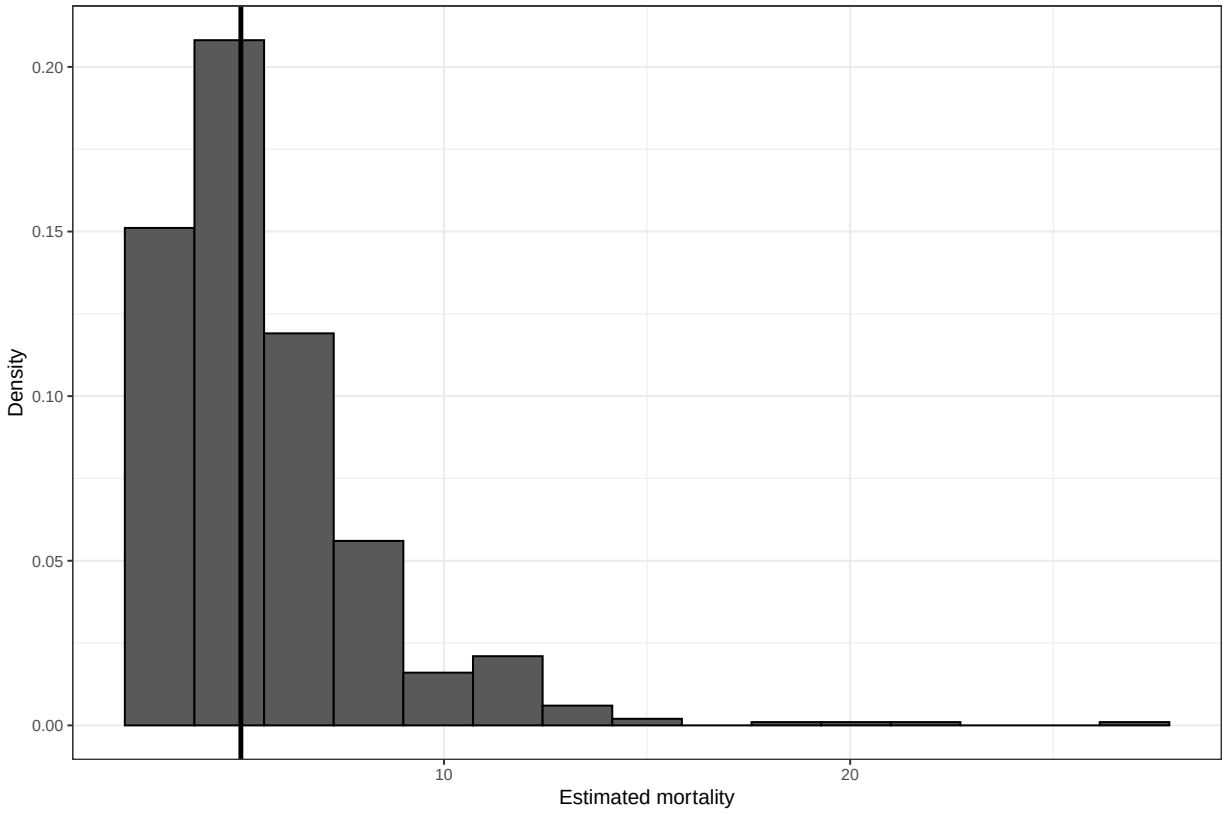


Figure 5: Histogram of the total losses distribution (wedge-tailed eagles). The black solid line shows the median.

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