Goyder North Wind Farm

Ecological Assessment Report – 2025

Final

September 2025

umwelt

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Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Neoen Australia Pty Ltd

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Report No.:	31669 / R19
Date:	September 2025

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Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V1	EBS Ecology	02/05/2024	EBS Ecology	08/05/2024
V2	Umwelt	08/10/2024	Umwelt	08/10/2024
V3	I. Marshall, A. Derry, J. Skewes	9/09/2025	A. Derry	11/09/2025

Executive Summary

Neoen is developing the Goyder North Renewable Energy Facility (GNREF) as a part of its wider Goyder Renewables Zone (GRZ) concept. This concept incorporates Goyder South and Goyder North projects across which Neoen have previously undertaken feasibility and environmental studies. Goyder South is located south of Burra and is currently being constructed. EBS Ecology (EBS), now Umwelt (Australia) Pty Ltd (Umwelt) undertook extensive ecological studies as part of Goyder South and the wider GRZ, and more recently was engaged by Neoen to undertake detailed ecological investigations in relation to the current GNREF Project location.

The GNREF comprises approximately 21,500 ha of land and is located north-east of Burra and east of the Mount Bryan township in the Goyder Regional Council area. While a Planning Application was approved by the State Planning Commission for the broader GNREF in 2024, the design has since been refined to the southern portion for construction, defined as Goyder North Wind Farm (GNWF) which includes an Overhead Transmission Line (OTL). There are no current plans to develop further stages and if any further stages were to be progressed in the future, they would be subject to their own approval processes and stakeholder engagement. A Project Design, including a Disturbance Footprint and wider Development Envelope, have been defined for GNWF.

The objective of this report is to collate all information collected by Umwelt (and previously EBS) on various targeted flora and fauna surveys and desktop assessments within the GNREF since 2022, and present an ecological assessment focussed on GNWF, in support an *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Referral (2024/09929) and assessment via preliminary documentation.

This report presents:

- A summary of all native vegetation mapped across the GNREF and survey effort to date (August 2025), including broad vegetation surveys across the GNREF and a suite of detailed and targeted surveys in GNWF.
- A desktop assessment of national and state threatened flora, fauna and Threatened Ecological Communities (TECs) considered to potentially occur within a 5 km buffer of the GNREF (Search Area).
- A likelihood assessment of threatened flora, fauna and TECs, identified in the desktop assessment, which may occur within GNWF, verified, and confirmed by on ground assessments within GNWF.
- A summary of targeted field surveys undertaken for flora and fauna of conservation significance within GNWF, including Bird and Bat Utilisation Surveys (BBUS), Mallee Bird Community (MBC) Threatened Ecological Community (TEC) survey, Pygmy Blue-tongue Lizard (PBTL, *Tiliqua adelaidensis*) survey, Flinders Ranges Worm-lizard (FRWL, *Aprasia pseudopulchella*), and targeted threatened flora surveys.
- Individual assessments of relevant (i.e. known or likely to occur) Matters of National Environmental Significance (MNES) and other ecological matters of significance, in relation to the GNWF Disturbance Footprint and Development Envelope.
- A summary of ecological constraints relevant to the proposed GNWF Project.

Desktop Results

A desktop assessment using results of the Protected Matters Search Tool (PMST) identified the following MNES may occur within the Search Area.

- Up to four Threatened Ecological Communities (TECs)
- 34 EPBC Act threatened species; and
- Nine EPBC Act Migratory species.

Data was extracted from the Biological Database of South Australia (BDBSA) for the Search Area. Fourteen of the 35 nationally threatened species were found to have historical records in the Search Area. On ground verification of habitat suitability further refined the likelihood assessment of these species to include seven flora and six fauna species as likely to occur in GNWF.

The BDBSA also identified 51 *National Parks and Wildlife Act 1972* (NPW Act) listed threatened species with records in the Search Area including 36 flora and 15 fauna species. On ground verification of habitat suitability further refined the likelihood assessment of these species with 28 flora and 14 fauna species considered as potentially occurring in GNWF.

Field Survey Results

Native vegetation was broadly mapped across the GNREF in 2022, with additional detailed surveys undertaken in GNWF in 2023, using Bushland Assessment Methods (BAM) as required by the Native Vegetation Branch (South Australia). Native vegetation throughout the Project Area is comprised predominantly of grasslands, with large tracts of Iron-grass (*Lomandra* spp.) in the central hills of GNREF. Remnant mallee woodland associations occur along the eastern hills of the site, dropping steeply to the east into chenopod dominated plains. The OTL route traverses a variety of landscapes, and includes *Austrostipa* Grassland, *Lomandra* Grassland, Chenopod Shrubland, and Mallee Woodland.

Twenty-three native vegetation associations were mapped across the GNREF, in which up to 268 species of native plants (including some unidentified to species level), and 106 weed species were reported. Vegetation surveys identified twelve threatened flora species, including two nationally listed and ten state listed species. One TEC, Iron-grass Natural Temperate Grassland of South Australia (INTG), was mapped in the Project Area.

Opportunistic and targeted threatened fauna surveys were undertaken as per standard and species-specific targeted survey guidelines. These surveys reported 140 native species (native and introduced), including 108 species of bird (four introduced), 12 mammals (eight introduced), four native frogs, fifteen reptiles and one crustacean. Additionally, up to four species of bat have been detected. Eleven fauna species listed as threatened or migratory were recorded during field surveys, including five EPBC listed species and one Migratory species.

Targeted surveys were undertaken as per Mallee Bird Community (MBC) of the Murray Darling Depression (MDD) Bioregion TEC survey guidelines, to determine if areas within the southern portion of the OTL, within the MDD Bioregion, were found to constitute the MBC TEC. The surveys reported three MBC dependent bird species, which qualifies suitable mallee vegetation within the OTL as the TEC.

Other ecological constraints identified within the Project Area include the widespread occurrence of Southern Hairy-nosed Wombat (*Lasiorhinus latifrons*) and a potential nesting site for Wedge-tailed Eagle (*Aquila audax*) (WTE). While neither of these species are listed as threatened under state or national legislation, a subsection (68AA) of the NPW Act provides additional protections for the Southern Hairy-nosed Wombat. WTE also garners some attention from state authorities in relation to wind farm developments due to their susceptibility to rotor strike. Both of these native fauna species have been identified as potential constraints during the state assessment process and management measures need to be addressed under a Construction and /or Operation Environmental Management Plan (CEMP / OEMP).

Summary of Ecological Constraints

Application of the mitigation hierarchy to any proposed Project is highly valued and rigorously assessed by both national (Department of Climate Change, Energy, the Environment and Water) and state (Native Vegetation Council) regulators. The mitigation hierarchy considers the application of avoidance measures first, followed by minimisation and then mitigation. Umwelt has worked with Neoen throughout the design process to date, to apply measures to avoid, minimise and mitigate potential impacts to ecological matters.

Neoen is committed to continue applying the mitigation hierarchy to first avoid, then minimise and lastly mitigate impacts to MNES, state and other ecological matters throughout construction and operation of the GNREF, if approvals are granted. Neoen acknowledges that complete avoidance of these ecological matters is not feasible and find that the proposed GNWF Project has the potential to impact several MNES and matters of state significance.

Matters of state significance include the presence of native vegetation, including state listed threatened flora and fauna species. These are listed under the NPW Act, and result in additional loadings, under state legislation during the native vegetation clearance approval process, through the Native Vegetation Council (NVC) (*Native Vegetation Act 1991* and *Native Vegetation Regulations 2017*). A significant environmental benefit (SEB) offset (on ground or monetary) will be required to offset any native vegetation clearance proposed by the Project. A suitable property has been identified and is currently under assessment for suitability as part of the State NVC approval process.

Based on the desktop assessment and field surveys undertaken to date, Umwelt expects that the proposed GNWF Project is **likely to impact** on the following EPBC listed threatened species / species habitat and TECs:

- Iron-grass Natural Temperate Grassland of South Australia TEC
- Mallee Bird Community of the Murray Darling Depression Bioregion TEC
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*)
- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*)
- Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*).

The proposed GNWF Project **may impact** on:

- Blue-winged Parrot (*Neophema chrysostoma*)
- Diamond Firetail (*Stagonopleura guttata*)

- *Acacia spilleriana* (Spiller's Wattle)
- *Dodonaea procumbens* (Trailing Hop-bush).

The proposed GNWF Project is **unlikely to impact** on:

- *Acacia glandulicarpa* (Hairy-pod Wattle)
- *Codonocarpus pyramidalis* (Slender Bell-fruit)
- *Dodonaea subglandulifera* (Peep Hill Hop-bush)
- *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush)
- *Senecio megaglossus* (Superb Groundsel).

This report does not provide a significant impact assessment under the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DotE, 2013) for the abovementioned species. The Project has been deemed a Controlled Action (2024/09929) and will be assessed via preliminary documentation. This report compiles a summary of the ecological assessments which have been undertaken within the Project Area to May 2025, using the GNWF project design current at August 2025. However, it should be noted that ecological survey work is ongoing, and further works are likely to have been undertaken following finalisation of this report. Several detailed survey reports are referred to throughout this report, where relevant, and these individual reports should be referred to for further detail on the relevant ecological aspect(s).

A summary of potential impacts to MNES within the current proposed DF is included in the table below. Neoen has implemented recommended mitigation measures throughout the design process to minimise ecological impacts. A summary table of ecological constraints is also included below. These measures as well as additional measures specified for the construction and operational phases will continue to be applied during the lifetime of the Project, directly addressing the mitigation of impacts on EPBC Act listed threatened species.

Summary of Potential Impacts to MNES Within Current Proposed DF

MNES	Impact Description	WF (ha)	OTL (ha)
Threatened Ecological Communities			
Iron-grass Natural Temperate Grassland (Class A or B)	• Reduction in total area of INTG and other, lower quality Lomandra Grassland. • Potential for introduction or spread of weed species from construction / operation into surrounding grassland resulting in further degradation to vegetation. • Runoff from construction and operation areas causing degradation to vegetation.	6.14	0.00
Mallee Bird Community of the Murray Darling Depression Bioregion	• Reduction in total area of MBC. • Disturbance to local MBC bird species in adjacent areas during construction.	0.00	0.76
Threatened and Migratory Fauna			
Southern Whiteface (*Aphelocephala leucopsis leucopsis*)	• Reduction in total area of potential and important habitat for the species (including foraging and nesting sites). • Potential disturbance to species during construction	45.41	12.55
Fork-tailed Swift (*Apus pacificus*)	• Potential for bird strike during operation resulting in loss of individuals. • Displacement of birds from potential foraging habitat for the species due to avoidance behaviours related to presence of WTGs.	NA	NA
Hooded Robin (*Melanodryas cucullata cucullata*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction.	28.81	12.24
Blue-winged Parrot (*Neophema chrysostoma*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction	430.95	40.91
Diamond Firetail (*Stagonopleura guttata*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction.	23.53	7.89
Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*)	• Potential loss of individuals occurring in Disturbance Footprint during construction. • Loss of and fragmentation of suitable habitat. • Noise and vibration disturbance during construction and operation.	35.34 (known) 115.50 (possible)	0.07 (known) 2.19 (possible)

MNES	Impact Description	WF (ha)	OTL (ha)
	• Increased risk of mortality during operation due to increase in vehicular movement at the site.		
Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)	• Potential loss of individuals occurring in DF during construction. • Loss of and fragmentation of habitat. • Noise and vibration disturbance during construction and operation. • Runoff from construction areas leading to sedimentation build up in and / or around burrows. • Division and isolation of populations caused by the construction of access tracks and infrastructure. • Disturbance from turbine blade shadow flicker during operation.	18.98 (known) 338.41 (likely)	1.06 (known) 9.65 (likely)
Threatened Flora			
Acacia spilleriana (Spillers Wattle)	• No direct impacts likely. • Potential indirect impact to nearby known populations or individuals caused by increased dust and / or change in hydrology related to construction of and/ or increased use of roads.	Known individuals planted along Gum Hill Road	None detected
Dodonaea procumbens (Trailing Hop-bush)		Population in Mokota Conservation Park outside of Disturbance Footprint.	None detected
Acacia glandulicarpa (Hairy-pod Wattle)	• No direct or indirect impacts likely. • However, potential loss of individuals or populations during construction, if not detected and / or ground truthing is not undertaken following any required design changes in areas of moderate risk.	None detected	None detected
Codonocarpus pyramidalis Slender Bell-fruit)			
Dodonaea procumbens (Trailing Hop-bush)			
Olearia pannosa ssp. *pannosa* (Silver Daisy-bush)			
Senecio megaglossus (Superb Groundsel)			

Summary of Ecological Constraints Relevant to the GNWF Project

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
Matters of National Environmental Significance				
Nationally threatened fauna (including migratory species)	Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)	Common across the GNWF. Present in most vegetation associations, most common in mallee woodland, shrublands and fringing habitats.	• 82.95 (46.24 ha permanent, 36.71 ha temporary) (or ~15.45%) of the total impact area occurs in non-native vegetation. • Where possible, access roads have been aligned with existing farm tracks to minimise native vegetation clearance and potential impacts to PBTL / FRWL habitat. • Historical known locations of PBTL (BDBSA records) have been avoided during the design process. • Targeted PBTL surveys have been undertaken across the Disturbance Footprint to determine potential density. Additional micro siting of infrastructure was undertaken to relocate proposed infrastructure away from known populations. • A PTBL management plan has been drafted for the Project to further manage potential impacts to the species during construction and operation.	• Minimise impact to fauna habitat by continuing to apply the mitigation hierarchy during the evolution of the Project design. • Implement a CEMP and OEMP to mitigate risk of impact during construction and operation phase – include requirements for micro siting and pre-clearance surveys. • Finalise BBUS surveys to meet the requirements of the *Onshore Wind Farm Guidance – best practice approaches when seeking approval under Australia's national environmental law* (DCCEEW, 2024 – in draft). • Loadings applied to all native vegetation clearance applications for species listed in PMST as 'known' to occur and / or for species with records since 1995 within the Search Area (5 km). • Continue to investigate EPBC Offset sites and strategies for MNES likely to have significant
	Pacific Swift (*Apus pacificus*) (EPBC Act: Migratory Marine)	Observed as a flyover in GNWF. May be present as a flyover in all habitats in the GNWF including exotic and cropped land. Only one observation across all surveys including seven targeted BBUS.		
	Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)	BDBSA records within the GNWF and potentially suitable habitat within the FLB.		
	Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)	BDBSA and Umwelt records from OTL. Suitable mallee woodland habitat throughout.		
	Blue-winged Parrot (*Neophema chrysostoma*) (EPBC Act: Vulnerable; NPW Act: Vulnerable)	Potentially suitable seasonal foraging habitat in GNWF, though unlikely to be preferred. No known records within Search Area.		
	Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)	BDBSA and Umwelt records in south of GNWF (OTL). Small patches of potentially suitable open grassy woodland habitat.		
	Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)	Common and widespread in grassland and grassy shrubland habitats within WF including BDBSA		

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
	(EPBC Act: Endangered, NPW Act: Endangered)	records and up to 52 Umwelt records within the surveyed portion of the Disturbance Footprint inside the WF. Potentially suitable habitat is widespread.	• Targeted FRWL surveys undertaken in suitable habitat in DF to determine potential risk to species. • Non-conventional methods adopted to significantly reduce impact to high quality vegetation or MNES habitat along the OTL stringing corridor resulting in no requirement for vegetation maintenance zones under wires and reduced stringing corridor. • Civil design parameters refined through consultation with construction contractors.	residual impact, including PBTL and INTG.
Nationally threatened flora known to occur in DE	*Acacia spilleriana* (Spillers Wattle) (EPBC Act: Endangered; NPW Act: Endangered)	Planted specimens occur along Gum Hill Road. Specimens are on the southern side of the road and not proposed to be impacted.	• Gum Hill Road Access track has been removed from the current preferred main access route to avoid impacts to planted population of *Acacia spilleriana*. • The current Disturbance Footprint has avoided all historical (BDBSA) recorded locations of threatened flora. • Neoen engaged EBS to undertake targeted surveys for flora (and fauna) across the Disturbance Footprint (February 2024), during which no	• Minimise impact to native vegetation by applying the mitigation hierarchy during the evolution of the Project design, including avoiding known populations of threatened flora. • Implement a CEMP and OEMP to mitigate risk of impact during construction and operation phase for high-risk and moderate risk areas and include requirements for ground-truthing surveys in moderate risk areas and implementation of ecological no-go zones.
Nationally threatened flora with potential to occur (in unsurveyed areas of DE)	*Dodonaea procumbens* (Trailing Hop-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable)	Population known to occur in Mokota CP directly adjacent to the Disturbance Footprint. At least two historical records occur within the Development Envelope.		
	Acacia glandulicarpa (Hairy-pod Wattle (EPBC Act: Vulnerable; NPW Act: Endangered) *Codonocarpus pyramidalis* (Slender Bell fruit) (EPBC Act: Vulnerable; NPW Act: Endangered)	None of these species have been detected in the Disturbance Footprint, GNWF or broader GNREF during the field surveys. Field surveys have not extensively covered the Development Envelope, and some 'at risk' locations remain		

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
	Dodonaea subglandulifera (Peep-hill Hop-bush) (EPBC Act: Endangered; NPW Act: Endangered) *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable). *Senecio megaglossus* (Superb Groundsel) (EPBC Act: Vulnerable, NPW Act: Endangered).	for these species if the current Disturbance Footprint is altered.	additional threatened flora species were located. • Neoen will implement a CEMP (and associated sub-plans) which will address measures to further avoid, minimise and mitigate impacts to threatened flora should any populations be detected during the construction phase. • Loadings applied to all native vegetation clearance applications for flora species recorded within the Project Area during the field survey.	• Implement approaches to minimise indirect impacts to known populations of species such as *Acacia spilleriana* and *Dodonaea procumbens,* in 'high risk' areas for example, sealing roads in vicinity of threatened plant populations to reduce dust impacts and reducing speed limits in sensitive locations.
Threatened Ecological Communities	Iron-grass Natural Temperate Grassland of South Australia (EPBC Act: Critically Endangered)	1,931.24 ha of Lomandra Grassland (VA6) is known to occur within the GNWF, of which 1,498.09 ha is mapped as meeting the criteria for listing and INTG TEC. GNWF will impact up to 8.59 ha of Lomandra Grassland (0.44% of mapped area in GNWF). This includes 6.14 ha of Class B INTG (0.41% of TEC mapped in GNWF), of which 2.43 ha is permanent, and 3.72 ha is temporary clearance.	• Neoen reduced the number of WTGs impacting Lomandra Grassland (all condition classes) from 41 (July 2023) to 16 (September 2023), which included removing all WTGs occurring in higher quality Lomandra grassland (likely Class B). • Targeted surveys were undertaken in October 2024 to determine the condition of INTG. • Further micro siting has resulted in a residual impact of 6.14 ha of B Class INTG and 2.44 ha of C Class INTG. This results from one WTG which	• Continually apply the mitigation hierarchy during Project design evolution to further avoid, minimise and mitigate impacts to INTG. • Implement a CEMP and OEMP with a range of INTG specific construction measures to mitigate risk of impact during construction and operation phase for high-risk areas and include requirements for ground-truthing surveys and implementation of ecological no-go zones where required, as well as speed limits and more general construction measures.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
			encroaches on the edge of Class B INTG, and where access roads are required to cross patches or widen existing tracks for access. • Additional micro siting has subsequently been undertaken to minimise impacts of existing WTGs and access roads. • Where possible, access roads and MV cables avoid impacts to potential INTG. • Where possible, access roads have been aligned with existing farm tracks to minimise native vegetation clearance and potential impacts to PBTL habitat. • Native Vegetation Clearance Application Loadings applied to all vegetation associations classed as a TEC. • Neoen is developing an INTG Management Plan specific to the Project to further manage potential impacts to the TEC.	• Rehabilitation of any temporary impact areas proposed in INTG.
	Mallee Bird Community of the Murray Darling Depression Bioregion (EPBC Act: Vulnerable)	Up to 108.85 ha of potential MBC (VA18) has been mapped in the Project Area (MDD Bioregion, Block C). This includes vegetation mapped within the OTL Development Envelope. The	• Neoen redesigned the south end of the OTL route, Bundey Substation Expansion and Access Roads to avoid impacts to MBC. The remaining impacts include crossing several small	• Continue to apply mitigation hierarchy by micro siting placement of OTL infrastructure, such as tower pads and access roads.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
		community is more widespread in the local area. Up to 0.76 ha may be impacted as part of the OTL Disturbance Footprint.	roadside strips of vegetation, required to access the existing Bundey Substation and several fringing impacts to vegetation where OTL changes direction (for brake and winch sites). • Non-conventional conductor stringing methods and strategic design placement of transmission towers has eliminated the requirement for a dedicated vegetation maintenance zone, which further reduces impacts, such as trimming and regular disturbance, on this TEC.	• Native Vegetation Clearance Application Loadings applied to all vegetation associations classed as a TEC (VA18).
Matters of State Environmental Significance				
Native Vegetation	Clearance of native vegetation is proposed within Disturbance Footprint.	Total Disturbance Footprint of 536.82 ha including 307.56 ha permanent and 229.26 ha temporary). • WF (including Site Access options): 466.86 ha (275.96 ha permanent; 190.90 ha temporary) • OTL (including Bundey Substation Expansion): 69.96 ha (31.60 ha permanent, 38.36 ha temporary).	• 82.95 ha (46.25 ha permanent, 36.71 ha temporary) (or ~15.45%) of the total impact area occurs in non-native vegetation. • A large portion of the Disturbance Footprint (WF and OTL) (350.59 ha or 77.25% of all native vegetation impacted) is situated in grassland which has been utilised for ongoing agricultural grazing practices and is considered degraded from a native vegetation perspective.	• Continue to apply the mitigation hierarchy to avoid, minimise and mitigate impacts to native vegetation, with a focus on high ecological value vegetation associations or vegetation which supports threatened species. • Implement a CEMP and OEMP to minimise indirect impacts to native vegetation such as dust, weed encroachment and impacts from changes to water distribution.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
			• Preliminary designs increased the number of WTGs to be situated in non-native vegetation from 8 (July 2023) to 13 (September 2023), demonstrating minimisation. • Non-conventional methods have been adopted to minimise clearance of high-quality vegetation along the OTL, previously required for stringing corridor. • A Native Vegetation Clearance Application has been submitted to NVC. • Acquisition of SEB Offset property for the first stage of development has been finalised.	• Investigate additional on ground options for suitable Significant Environmental Benefit (SEB) offsets, to offset Stage 2 of development.
NPW Act listed flora	*Austrostipa gibbosa* (Swollen Spear-grass) (NPW: Rare) *Cryptandra campanulata* (Long-flower Cryptandra) (NPW: Rare) *Cullen parvum* (Small Scurf-pea) (NPW: Vulnerable) *Dianella longifolia* var. *grandis* (Pale Flax-lily) (NPW: Rare) *Eryngium ovinum* (Blue Devil) (NPW: Vulnerable) *Maireana excavata* (Bottle Fissure-plant) (NPW: Rare)	Known records of ten NPW Act listed threatened species (in addition to EPBC species) within the GNWF (plus one additional GNREF). Based on the suitability of habitat and proximity of recent nearby records, it is highly likely that up to 19 other listed threatened flora species will occur.	• Neoen has applied the mitigation hierarchy throughout the design process, avoiding, minimising, and mitigating potential impacts to native vegetation. • The SEB Offset property for native vegetation reported three State listed threatened flora species on site, including two which have been observed at GNWF:	• Consider the mitigation hierarchy at all stages of the project design phase. • Where possible, microsite infrastructure to avoid impacts to known locations of NPW Act listed threatened flora. • Loadings applied to all vegetation associations which contain known records of threatened flora. • Consider presence or likely presence of NPW Act listed

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	Maireana rohrlachii (Rohrlach's Bluebush) (NPW: Rare) *Ptilotus erubescens* (Hairy-tails) (NPW: Rare) *Rumex dumosus* (Wiry Dock) (NPW: Rare) *Swainsona behriana* (Behr's Swainson Pea) (NPW: Vulnerable)		• *Cryptandra campanulata* (NPW Act Rare) (GNWF) • *Daviesia devito* (Mallee Bitter Pea) (NPW Act: Rare). • *Maireana rohrlachii* (NPW Act: Rare) (GNWF) • A further 12 EPBC and /or NPW flora species were assessed as likely or possibly occurring.	threatened flora in proposed future Offset sites.
NPW Act listed fauna	White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare) Black Falcon (*Falco subniger*) (NPW Act: Rare) Restless Flycatcher (Myiagra inquieta) (NPW Act: Rare) Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)	Known records of four NPW Act listed threatened species (in addition to EPBC species) within the Project Area. Based on the suitability of habitat and proximity of recent nearby records, it is highly likely that up to nine other listed threatened species will also occur.	• Neoen has applied the mitigation hierarchy throughout the design process, avoiding, minimising, and mitigating potential impacts to native vegetation and high value fauna habitat. • The SEB Offset property for native vegetation reported two EPBC/State listed threatened fauna species on site: ○ Southern Whiteface ○ South-eastern Hooded Robin • A further 11 EPBC and / or NPW fauna species were assessed as likely or possibly occurring.	• Consider the mitigation hierarchy at all stages of the project design phase. • Loadings applied to all vegetation associations which have potential to support threatened fauna species. • Consider presence or likely presence of listed threatened fauna in proposed future Offset sites.
Wedge-tailed Eagle Nest	NVC and other state authorities recommend wind farms implement avoidance buffers be placed around sensitive or vulnerable raptor species including Wedge-tailed Eagle	One Wedge-tailed Eagle Nest has been detected within the GNWF Project Area. It has not been reported as active during the field survey period since 2022.	• WTGs are located >500 m from known WTE nest location.	• If found to be active in future, address management measures in CEMP / OEMP.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
	and Peregrine Falcon. These recommendations are not legislated.			
NPW Act: Section 68AA	Burrows, digging and foraging behaviour of Wombats can undermine infrastructure and cause safety issues. Under the NPW Act, Section 68AA prohibits the destruction, damage, or disturbance of wombat burrows except in certain circumstances.	Wombats and wombat burrows are known within the Project Area. Within the vicinity of the Disturbance Footprint a total of 35 locations have been identified as having active wombat burrows.		• Consider implementing buffer zones from known wombat warren locations to proposed infrastructure to minimise likelihood of impacts. Newly detected warren systems should continue to be recorded across the Project Area to inform a thorough understanding of their potential impact on the Project. • Investigate requirements under Section 68AA of the NPW Act, including the location of 'Wombat Burrow Protection Zones' declared by the Minister. • Microsite infrastructure during construction to avoid impacting known locations of wombat warrens. • Implement Southern Hairy-nosed Wombat Management Plan in accordance with best practice methods and through consultation with qualified ecologists and wildlife handlers.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
Undescribed species	Undescribed worm species detected in Project Area.	Over 100 individuals of a large earthworm species were detected during an unusual weather event at several locations in GNWF. The species was considered unusual, however subsequent investigations determined it as likely to be an undescribed species.	• Neoen acknowledge the presence of this record and proposes to continue investigations as necessary. • Samples have been collected and sent to the SA Museum for further investigation.	• Neoen will respond accordingly based on information received in the investigation process.
Declared Weeds	Within the Project Area 14 weeds listed as Declared under the LSA Act and two species also listed as a Weed of National Significance (WoNS) have been identified.	*Chondrilla juncea, Chrysanthemoides monilifera* ssp. *monilifera, Convolvulus arvensis, Echium plantagineum, Gazania linearis, Lycium ferocissimum, Marrubium vulgare, Moraea flaccida, Olea europaeus, Reseda lutea, Rosa canina, Silybum marianum, Tribulus terrestris, Xanthium spinosum*.		• Comply with any legislative requirements under the LSA Act during construction and operation. • Neoen will obtain any required permits. • Neoen will implement biosecurity measures as part of their CEMP and OEMP.

Abbreviations

Abbreviation	Definition
BAM	Bushland Assessment Methods
BCM	Bushland Condition Monitoring
BDBSA	Biological Database of South Australia (managed by DEW)
BESS	Battery Energy Storage Systems
CEC	Clean Energy Council
CP	Conservation Park
CEMP	Construction Environmental Management Plan
DA	Development Application
DAWE	Department of Agriculture, Water, and the Environment (now DCCEEW).
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEW	Department of Environment and Water (South Australia)
DotE	Department of the Environment (Australian Government; now DCCEEW)
DotEE	Department of the Environment and Energy (Australian Government; now DCCEEW)
DPIE	Department of Planning, Industry and Environment (NSW)
DSEWPC	Department of Sustainability, Environment, Water, Population and Communities (Australian Government; now DCCEEW)
EBS	Environment and Biodiversity Services Pty Ltd – trading as EBS Ecology (now Umwelt)
EPA	Environment Protection Authority (South Australian)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
FLB	Flinders Lofty Block IBRA Bioregion
FRWL	Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*)
GNWF	Goyder North Wind Farm Project (includes WF and OTL)
GN3	Proposed future stage of development in the northern portion of the GNREF
GNREF	Goyder North Renewable Energy Facility
GRZ	Goyder Renewables Zone
GSHREP	Goyder South Hybrid Renewables Energy Project
ha	hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
INTG	Iron-grass Natural Temperate Grassland of South Australia Threatened Ecological Community
km	kilometre(s)
kV	Kilovolt (s)
LGA	Local Government Area
LSA Act	*Landscape South Australia Act 2019* (South Australia)
m	metre(s)
MBC	Mallee Bird Community of the Murray Darling Depression Bioregion
MDD	Murray Darling Depression IBRA Bioregion

Abbreviation	Definition
met mast	Meteorological mast (mast or tower equipped with instruments to measure windspeed and climatic conditions)
mm	millimetre (s)
MNES	Matter(s) of National Environmental Significance
Mt.	Mount
MW	Megawatts
MWh	Megawatt hour
NCCSA	Nature Conservation Society of South Australia's
Neoen	Neoen Australia Pty Ltd
NPW Act	*National Parks and Wildlife Act 1972* (South Australia)
NV Act	*Native Vegetation Act 1991* (South Australia)
NVC	Native Vegetation Council
NVF	Native Vegetation Fund
OEMP	Operation Environmental Management Plan
OMP	Offset Management Plan
OTL	Overhead Transmission Line
PBTL	Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)
Pers. comms.	Personal communications
PMST	Protected Matters Search Tool
PPA	Power Purchase Agreement
SA	South Australia(n)
SCAP	State Commission Assessment Panel
SEB	Significant Environmental Benefit
SIG	*Significant Impact Guidelines 1.1 for Matters of National Environmental Significance* (DotE, 2013)
sp.	Species (singular)
spp.	Species (plural)
SPRAT	Species Profile and Threats Database, maintained by DCCEEW.
ssp.	Subspecies
TEC	Threatened Ecological Community
VA	Vegetation Association (s)
WF	Boundary around the windfarm infrastructure components in GNWF
WTE	Wedge-tailed Eagle (*Aquila audax*)
WTG	Wind Turbine Generators
~	Approximately
<	Less than
>	More than
≤	Less than or equal to
≥	More than or equal to
%	Percent / percentage

Glossary

Action	The Action includes both the construction and operation of the proposed Project, and any change from existing activities which are required to undertake these tasks safely and effectively.
Declared weed	A plant that is regulated under the *Landscape South Australia Act 2019* due to its threat to primary industry, the natural environment and public safety.
Department	The Australian Government agency responsible for administering the EPBC Act.
Development Envelope (DE)	A 'buffered' version of the Disturbance Footprint that represents the spatial extent within which the Disturbance Footprint is expected to occur.
Disturbance Footprint (DF)	The area where permanent and temporary infrastructure is proposed and the maximum spatial extent of vegetation clearance and/or earthworks to allow for construction of the GNWF.
Minister	The Australian Government Minister administering the EPBC Act including any delegate thereof.
Operation	All activities that occur after the components of the final wind turbine generator are installed and the usage of the transmission line and substation for the purposes of transforming and/or redistributing electric current.
Project	The Goyder North Wind Farm Project, inclusive of Wind Turbine Generators (WTG), overhead power transmission lines, expansion of existing Bundey substation, on-site battery energy storage systems (BESS), access tracks and temporary facilities and infrastructure to enable construction. The Project is part of the larger Goyder North Renewable Energy Facility which includes a future stage of development which is not yet defined
Project Area	All Project components within GNWF including Wind Farm (WF) and OTL.
Project components	Includes boundaries of GNREF, GNWF, Development Envelope, Disturbance Footprint and Search Area.
Project elements	Distinct functional elements of the GNWF Project including WF, OTL and Site Access.
Search Area	A 5 km buffer around GNREF applied to all database searches and desktop study.
Significant impact(s)	Impacts which are important, notable, or of consequence, having regard to their context or intensity, and assessed within the framework of the Matters of National Environmental Significance – Significant Impact Guidelines 1.1, Commonwealth of Australia 2013.

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1.0 Introduction

1.1 Project Background

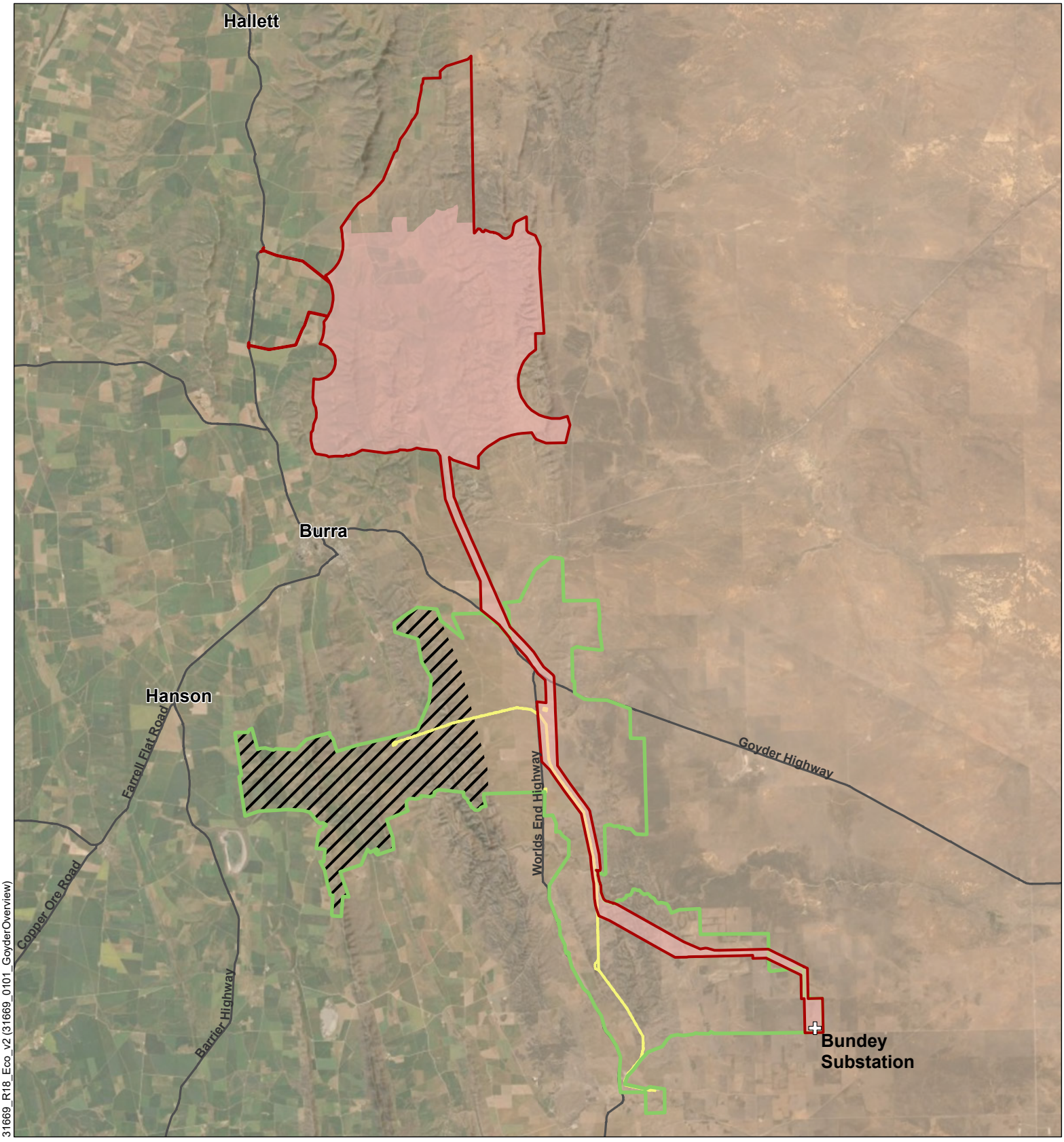
Neoen is developing the Goyder North Renewable Energy Facility (GNREF) as a part of its wider Goyder Renewables Zone (GRZ) concept (**Figure 1.1**). As a part of this concept, the Goyder South Hybrid Renewables Energy Project (GSHREP) was granted Development Approval (DA) in 2021, and EPBC Approval in July 2022 (Stage 1A EPBC/2021/8958; Stage 1B EPBC/2021/8957), with construction of Stage 1 beginning in 2022, consisting of 412 Megawatts (MW) of wind turbine power generation. The GRZ is ideally located to complement Project EnergyConnect, a large interconnector transmission line which connects the SA transmission network to New South Wales (NSW), currently under construction by ElectraNet and TransGrid (*pers. comms.* Neoen 2024).

The proposed GNREF is located north-east of Burra and east of the Mount Bryan township in the Goyder Regional Council area and is characterised by world-class wind resources and complimentary land uses comprising primarily of marginal grazing land located on the edge of Goyder's Line (pers. comms. Neoen 2024). The broader GNREF was granted Planning Approval under the *Planning, Development and Infrastructure Act 2016* (SA) (PDI Act) in October 2024, following a public State Commission Assessment Panel (SCAP) hearing, accommodating 135 Wind Turbine Generators (WTG) and up to 900 MW / 3,600 megawatt hours (MWh) of Battery Energy Storage Systems (BESS). The design has since been refined to constitute Goyder North Wind Farm (GNWF) comprising up to 99 turbines with no current plan to develop further stages. If any further stages were to be progressed in the future, they would be subject to their own approval processes and stakeholder engagement. This is detailed further in **Section 1.2**.

This report presents a broad overview of the GNREF to contextualise the site, and then provides detailed findings of targeted surveys, and an ecological assessment for matters pertaining to GNWF, which is the focus of this report.

Further targeted surveys are ongoing for the Project Area; however, this report provides a summary of results and the wind farm design current at end of August 2025. The project terminology and boundaries have evolved over time, resulting in slight variations in the names referred to or displayed in various supporting documents and maps, including Goyder North Renewable Energy Facility Stage 1, Goyder North Stage 1 (GN1) and Goyder North Wind Farm Stage 1 and Stage 2. Definitions have been provided where relevant to ensure clarity and consistency, however, the current and proposed Project under development is referred to as the GNWF which occurs within the boundary of the broader GNREF.

Figure 1.1 GRZ Overview Including GNREF and GS With GSS1 and GS OTL (Approved) and GNWF (Under Application)



GRZ Overview

- GNREF
- GNWF
- GS
- GSS1
- GS OTL
- Bundey Substation (existing)

31669_R18_Eco_v2 (31669_0101_GoyderOverview)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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GDA2020 MGA Zone 54

N

0 2.5 5 km

1.2 The Project

1.2.1 The Goyder North Renewable Energy Facility

The GNREF Project Area (hereafter GNREF) begins approximately (~) 4 kilometres (km) north-east of the township of Burra, extending ~25 km north towards the township of Hallett in South Australia's Mid North region, within the Regional Council of Goyder. The GNREF comprises approximately 21,500 hectares (ha) of predominantly agricultural land, utilised for cattle and sheep grazing and dryland cropping of grains.

Planning Approval was granted for the broader GNREF Project in 2024 comprising of:

- Wind generation including up to 135 wind turbine generators (WTGs) with a capacity of approximately 1,000 Megawatts (MW).
- Up to two BESS with a capacity of 450 MW / 1,800 MWh.
- Electrical substations, underground cabling and Overhead Transmission Lines (OTL) to connect the wind farm to the existing ElectraNet Transmission network at Bundey Substation which is being built of the SA-NSW interconnector (Project Energy Connect).
- Several temporary and permanent meteorological masts (Met masts).
- Permanent operations and maintenance (O & M) compounds and access tracks to WTGs and facilities.
- Temporary construction facilities including compounds and laydown areas, concrete batching plants and brake and winch sites.

1.2.2 Project Staging

Due to the size of capital investment associated with the building of the GNREF (>$4.7B) (*pers. comms.* Neoen 2024), it is necessary for Neoen to deploy the Project in stages. The size and timing of stages will be defined by the size and timing of Power Purchase Agreements, which are generally agreements between generators and electricity consumers to sell electricity from generation projects at an agreed price. These agreements are vital to making investment decisions and securing debt financing on any large-scale generation project and inform the stages of the Project.

Given the scale of wind energy generation associated with the GNWF, it is anticipated that development will occur in two stages with each stage potentially having its own legal entity, construction contracts and financing packages. The exact size and timing of stages will be defined through the development process and will be informed by the size and timing of Power Purchase Agreements dictated by customer electricity demand as well as the construction contractor's capability and tendering negotiations. GNWF (under application in this report) will likely comprise:

- Stage 1: Approximately 48 WTGs proposed to commence from Q1 2026.
- Stage 2: The remaining WTGs (constituting a total of up to 99) to be constructed begin construction in a 2–5-year timeframe.

An additional 400 MW or up to 36 WTGs were proposed in the broader Development Application (DA) approved in 2024. The design since been refined to GNWF, as defined above, and there is no current plan to develop any future additional stages. If any further additional stages were to be progressed in the future, they would be subject to their own approval processes and stakeholder engagement.

The proposed timelines are subject to the Project gaining all necessary approvals, undertaking a comprehensive and competitive tender process, and acquiring the appropriate level of contracted revenue to enable the financial investment decision to occur.

1.2.3 Proposed Project (GNWF)

GNWF is proposed to be developed on multiple freehold land parcels, two parcels of Crown Land and several local road reserves. GNWF does not align specifically with any future proposed land parcel or easement, as it is acknowledged that negotiations are ongoing with landowners and minor changes to the Project layout are considered likely, to further minimise potential impacts to environmental or cultural values, or because of landholder negotiations. If required, minor adjustments to the final Project layout will be contained within what is referred to as the Development Envelope, defined in **Section 1.2.4**.

Major highways in proximity to the GNWF include the Barrier Highway to the west and the Goyder Highway to the south. These major transport corridors link to Port of Adelaide, from which the turbine and battery components would be transported. It is currently anticipated that the equipment and parts required to build the wind farm would enter from the west, via the Barrier Highway, with several site access options proposed.

The layout for the GNWF Project, which is the focus on this assessment, is currently in the final stages of development and is based on the outcomes of several technical, environmental, and social studies including wind studies, heritage assessment, visual impact, and environmental and geotechnical assessments.

Table 1.1 summaries the specifications of proposed infrastructure for GNWF. These specifications are an upper limit and are intended to provide flexibility for any innovation in component design between now and the time of detailed design and construction.

Table 1.1 Infrastructure Components and Associated Permanent and Temporary Disturbance Footprint

Component	GNWF Specifications	Permanent Disturbance Footprint (ha)	Temporary Disturbance Footprint (ha)	Total Disturbance Footprint (ha)
WF Civil	**Components include WTGs, BESS, Substation, Access Tracks**	**267.90**	**132.95**	**400.85**
Wind Turbine Generators (WTG), Access Roads	Maximum number - 99 Minimum swept height - approx. 20 m Maximum swept height - approx. 240 m Maximum blade length - approx. 95 m Maximum rotor diameter - approx. 190 m Maximum rotation speed - approx. 9–10 revolutions per minute (rpm) Footings may be either a mass concrete footing (raft style), piled type rock anchors, or a combination of both at approximately 30 m in diameter.			
Battery Energy Storage System (BESS)	Approximate capacity of 225 MW/900 MWh. A fenced compound of one approximately 5 ha within the wind farm area.			
Electrical substations and operation and	Two fenced compounds of approximately 150 m x 150 m and 80 m x 180 m within the wind farm. An extension of the Bundey Substation of approximately 220 m x 440 m.			

Component	GNWF Specifications	Permanent Disturbance Footprint (ha)	Temporary Disturbance Footprint (ha)	Total Disturbance Footprint (ha)
maintenance facilities (O&M)	Including substation and ancillary equipment. Operation and maintenance facilities are assumed to have a footprint of 70 m x 50 m.			
Access Tracks	Tracks to each infrastructure component including turnarounds have been incorporated into each design element (i.e. wind farm, substations and BESS). Tracks will be permanent; however, a temporary disturbance footprint has also been allowed for the civil construction of roads and hardstands of 5 m beyond the outer extents of the civil road and WTG design layer. with an additional 5 m of temporary clearance either side.			
Overhead Transmission Lines	**A 275 kV or 330 kV multi-circuit overhead line connecting the wind farm substation to the Bundey Substation approximately 48 km south. Transmission lines would also connect the battery to the wind farm substation (approximately 400 m).**	**31.60**	**31.62**	**63.22**
Transmission Towers	Transmission towers would be up to 65 m high with a permanent footprint of approximately 26 m x 26 m, spaced approximately 300–500 m apart.	8.60	22.09	30.69
OTL Access	Access tracks for tower access along transmission lines are required for construction and operational access to each tower. Tracks have been designed to have a width of 6 m, with the effective disturbance footprint relating to the slope across each track. Where possible, these have utilised existing tracks including public roads, farmers tracks, or access tracks installed for the Goyder South transmission line.	23.00	0.00	23.00
Construction: OTL stringing, Helicopter Pads and Brake and Winch Sites	The OTL will be strung using non-conventional methods to avoid the need for a stringing corridor, minimising impacts to MNES and high-quality native vegetation. To enable non-conventional stringing, additional infrastructure includes brake and winch pads, and helicopter pads.	0.00	9.53	9.53
Other – Ancillary Infrastructure components	**Predominantly temporary components required for construction of the Wind Farm.**	**8.05**	**64.69**	**72.75**
Construction compounds and Facilities	Approximately 38 ha of footprint for construction facilities: • 170 m x 170 m Laydown Area x 1 • 100 m x 100 m Laydown Areas x 3 • 150 m x 150 m Construction Compounds x 3 • 100 m x 100 m site security facility x 1 • 150 m x 150 m Batch Plants x 5	0.00	44.82	44.82

Component	GNWF Specifications	Permanent Disturbance Footprint (ha)	Temporary Disturbance Footprint (ha)	Total Disturbance Footprint (ha)
	• 100 m x 100 m stockpile areas x 16 Approximately 7 ha of footprint for OTL construction facilities: • 300 m x 150 m OTL compound x 1 • 150 m x 150 m OTL batch plant x 1			
Underground cabling	Underground cabling for transmission (33–66 kV) and communications (fibre). MV cable preferentially placed adjacent to roads, within the 5 m temporary civil construction disturbance footprint either side of the road (temporary disturbance footprint area for civil works). Where it is not practical for cables to run adjacent with roads, a 7 m wide corridor (approximately) will be disturbed for up to three cables, with an additional 2 m for each cable thereafter. All disturbance footprint associated with cable trenching and laying (including overlapping temporary civil construction clearance) will constitute temporary disturbance and will be rehabilitated after installation.	0.00	19.54	19.54
Site Access	Primary access route is via the Barrier Highway. Site access roads include White Hill Road and Belcunda Road. A third access road option, Gum Hill Road, was removed from access options on 02 June 2025, resulting in a reduction of 4.09 ha from the DF. Site access roads will require widening in some locations and trimming of taller vegetation to enable transport of heavy machinery and large infrastructure components. The Disturbance Footprint caters for disturbance at several intersection upgrade locations with Barrier Highway to allow for upgrades and blade sweep. Some minor trimming of non-native vegetation may be required along major transport route; however, this is not included in calculations.	7.01	0.00	7.01
Met Masts	15 meteorological masts to calibrate wind speed across the site. Masts will be up to 140 m in height and will be guyed lattice structures.	1.04	0.34	1.38
	Total	**307.56**	**229.26**	**536.82**

1.2.4 Project Terminology and Definitions

Several project specific terminology and abbreviations which are referred to repeatedly throughout the report. Project boundaries components are described below in **Table 1.2** along with ecological assessments which are relevant to each location. GNWF project elements are summarised and defined in **Table 1.3**.

These definitions apply to all documents, noting that the Planning Application incorporates all stages of the GNREF (see below).

The location of the Project component definitions and elements are represented in **Figure 1.2** and **Figure 1.3** respectively.

Table 1.2 Project Component Boundaries and Relevant Ecological Assessments

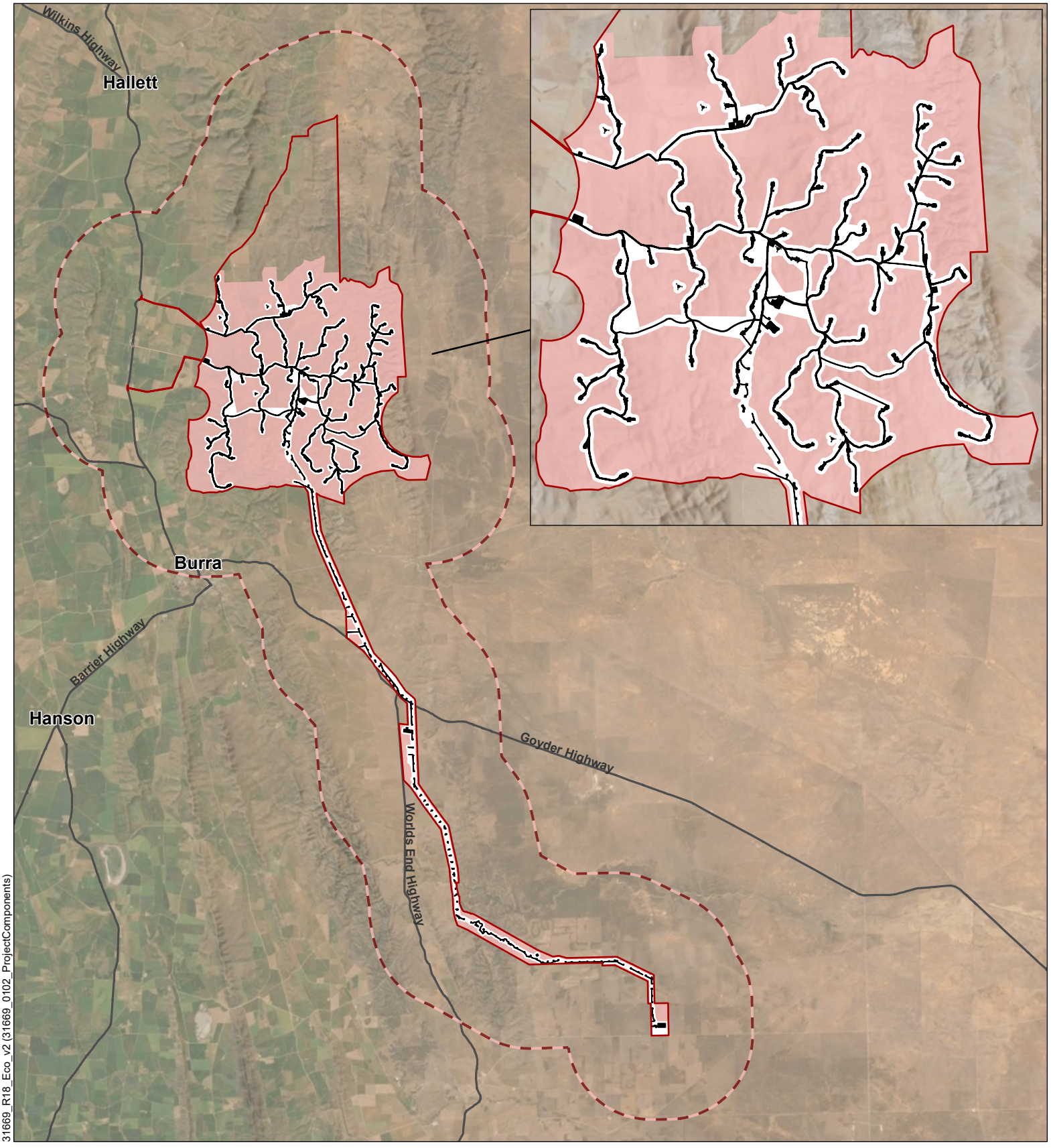
Term	Abbreviation	Description	Assessment Type
Goyder North Renewable Energy Facility	GNREF	The broader area which bounds the direct wind farm infrastructure of access roads and wind turbine generators (WTGs), which includes the entire footprint for which Planning Approval was obtained in 2024, including GNWF as well as the Overhead Transmission Line that connects into the existing Bundey Substation, and expansion of the Bundey Substation.	Historical surveys Desktop Assessments Broad Vegetation Mapping Detailed below further below.
Goyder North Wind Farm	GNWF	The portion of the GNREF which is proposed to commence construction within the next five years and is the focus of this assessment. Includes all wind generation infrastructure (comprising up to 99 turbines and generating approximately 600 MW) and associated infrastructure, including access roads, underground cables, substations, OTL, construction and operation compounds and met masts, required to transmit and connect into existing Bundey Substation.	Detailed vegetation surveys (BAM) Targeted PBTL surveys Targeted threatened vegetation surveys Targeted MBC TEC Surveys Targeted INTG TEC Surveys BBUS surveys (x7)
Search Area	SA	Includes GNREF plus a 5 km buffer area which was applied to the desktop database searches and results, and likelihood assessments for conservation significant species.	Desktop Assessments only, outside of GNREF boundary.
Development Envelope	DE	Project layout represents the maximum spatial extent in which the Disturbance Footprint will occur within. It is enclosed within GNWF and includes areas required for temporary and permanent project infrastructure, equipment and materials laydown, installation, and access. The Development Envelope allows flexibility in final positioning of the project infrastructure to occur once the Project has undergone detailed design and further ecological and cultural heritage surveys, and the contract has been awarded for supply and construction.	No specific surveys, however, Disturbance Footprint surveys all occur within the DE and therefore the DE represents an area of high confidence in survey results and mapping.

Term	Abbreviation	Description	Assessment Type
		This optimises final siting of infrastructure to allow for further avoidance and management of specific on-ground constraints that are identified in future technical assessments or during construction including both environmental and cultural heritage.	
Disturbance Footprint	DF	The total initial clearance area required for safe and efficient construction of the proposed GNWF Project, including both permanent and temporary clearance for construction buffers, laydown areas, stockpile areas and construction access routes for the Wind Farm Generation Components and the OTL.	BAM Targeted PBTL surveys Targeted FRWL surveys. Targeted EPBC listed threatened flora surveys. Targeted INTG condition assessment surveys.

Table 1.3 Project Elements

Term	Abbreviation	Description
Wind Farm Generation Components	WF	All infrastructure required for energy generation, storage and transmission within the GNWF area that is required up to the point of overhead transmission line intersection with the indicative boundary around the WF. Infrastructure includes WTGs, access roads, underground cables, substations at the wind farm, BESS, and construction and operation compounds.
Arterial Site Access Roads	-	Proposed arterial site access road routes that will provide main access to the WF, connecting to the Barrier Highway, west of the Wind Farm. Two options have been selected, with the Disturbance Footprint removed from the central option (Gum Hill Road) to avoid impacts to EPBC listed threatened plant species, *Acacia spilleriana* (Spiller's Wattle), which is planted on the road reserve.
Overhead Transmission Line	OTL	Overhead Transmission Line preferred route, which originates within the WF Project Area, and then traversing south, connecting to Bundey Substation (ElectraNet), Bright. The OTL will connect to this existing facility. Infrastructure includes an expansion to the existing Substation, and access road to connect to Junction Road.

Figure 1.2 Project Components



Goyder North Wind Farm
GNREF
Development Envelope
Disturbance Footprint
Search Area

31669_R18_Eco_v2 (31669_0102_ProjectComponents)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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GDA2020 MGA Zone 54

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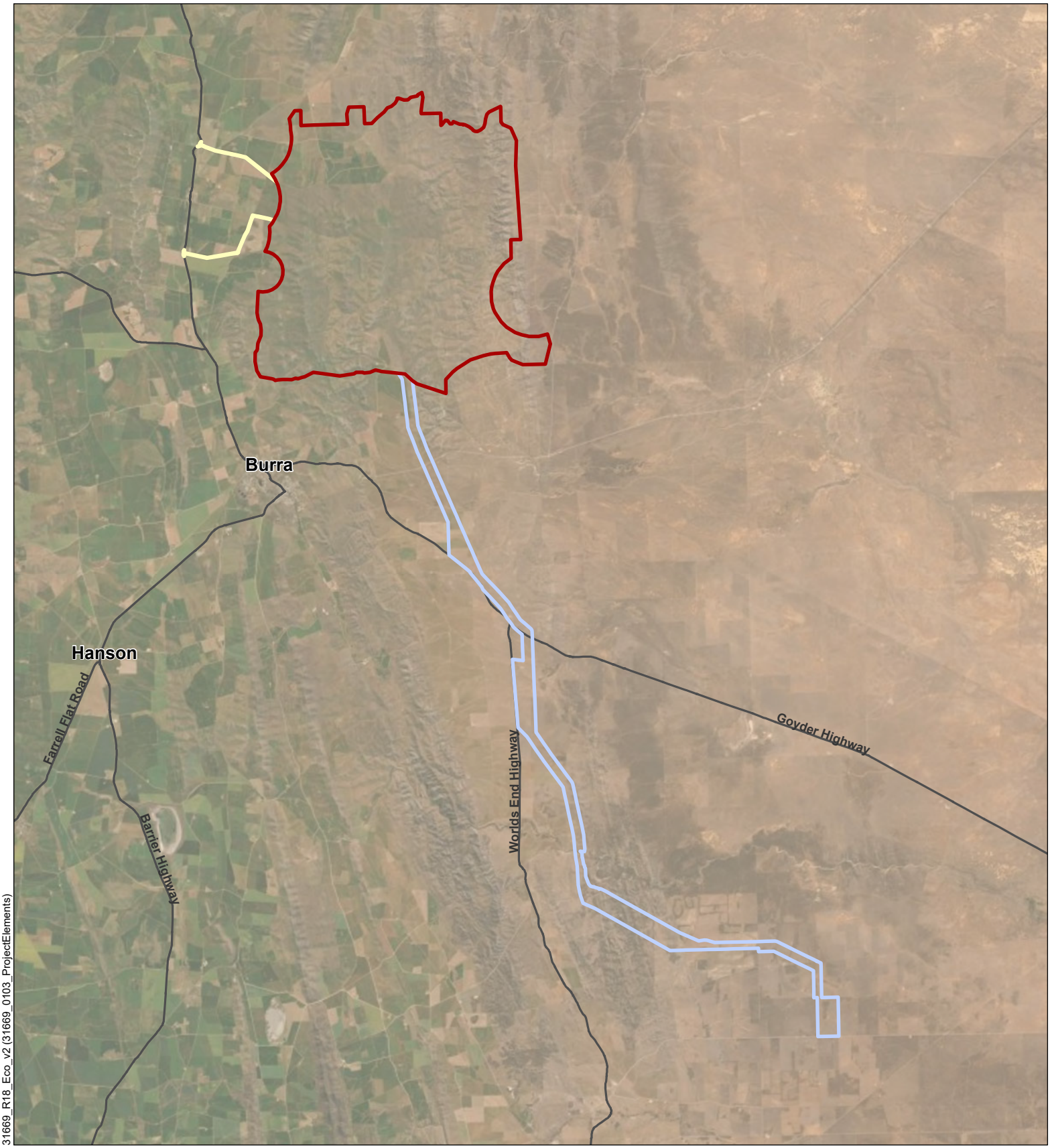
Figure 1.3 Project Elements



Goyder North Wind Farm
OTL
Access Rd

31669_R18_Eco_v2 (31669_0103_ProjectElements)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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GDA2020 MGA Zone 54

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1.3 Previous Surveys Conducted

Neoen have previously undertaken several feasibility and environmental studies for the GRZ, which was separated into two broad projects to be developed and constructed separately. The first project, Goyder South (previously, Stony Gap) is located south of Burra and is currently under construction.

The second project, originally known as Mount Cone Wind Farm is located north of Burra. Several surveys were previously conducted by EBS Ecology (now, and hereafter referred to as Umwelt Pty Ltd or Umwelt) at the proposed Goyder North Mount Cone site, which are summarised in **Table 1.4** as 'historical assessments.'

Following these earlier feasibility studies, the Mount Cone project was relocated to its current position and renamed GNREF. This ecological assessment report presents information collated by Umwelt since 2022 relating to the GNREF, under 'present assessments' in **Table 1.4**.

Surveys and assessments became targeted on the GNWF Project Area from late 2023, following refinement of the project design which incorporated ecological considerations. This refinement supported the emergence of GNWF as the component of the broader development most appropriate to progress through the approvals process.

Additional survey work has been completed to update and include new areas incorporated into the design since submission of the Referral in October 2024.

Table 1.4 Previous Surveys and Assessments Conducted by EBS Ecology and Umwelt

Project Description	Assessment Year	Survey Type	Citation	Project No.
Historical Assessments				
Mt Cone Wind Farm Flora and Fauna Assessment - Investec	October – November 2010	Flora survey and fauna assessment.	EBS (2011)	E00905
Mt Cone Wind Farm EPBC Referral -Investec	May 2011	EPBC referral was never completed.	NA	E00905a
Mt Cone Targeted PBTL Surveys -Investec	April-May 2012	Flora survey and fauna habitat assessment.	EBS (2012)	E00905b
Goyder Renewables Zone – Goyder 2 (Mount Cone Wind, Solar and Storage)	2019	Flora and Fauna Assessment.	EBS Ecology (2019)	E90101
Present Assessments				
GNREF on-ground flora assessment (GNREF, excl, OTL)	November 2022	On-ground broad flora survey and fauna habitat assessment, and Desktop assessment.	EBS Ecology (2022 – in draft)	EX220711
GNREF OTL Desktop Flora and Fauna Assessment	July 2023	Desktop flora and fauna assessment Report for three proposed OTL options.	(EBS Ecology, 2023a)	EX220711B
GNREF Ecological constraints mapping	July 2023	Desktop summary of known ecological constraints to guide windfarm design process.	(EBS Ecology, 2023b)	EX220711B
GNREF and OTL Ecological Risk Assessment Summary	September 2023	Desktop summary of windfarm design revisions based on known ecological constraints.	(EBS Ecology, 2023c)	EX220711B

Project Description	Assessment Year	Survey Type	Citation	Project No.
GNWF on-ground flora assessment	November 2023	Targeted GNWF and OTL Primary native vegetation assessment.	(Umwelt, 2025a)	EX220711B
GNWF (WF) spring bird and bat utilisation survey (BBUS) (1 of 8)	November 2023	On-ground targeted spring bird (9 sites) and bat (3 sites) survey.	(EBS Ecology, 2024a)	EX220711B
GNWF targeted Mallee Bird Community (MBC) surveys	November 2023	On-ground targeted spring MBC bird surveys within suitable patches of mallee vegetation along the OTL within the MDD Bioregion.	NA	EX220711B / EX230802
GNWF (WF) summer BBUS surveys (2 of 8)	February 2024	On-ground targeted summer bird (16 sites) and bat (3 sites) survey.	(EBS Ecology, 2024b)	EX240216
GNWF targeted Pygmy Blue-tongue Lizard (PBTL) surveys	February – March 2024	On-ground targeted PBTL surveys within infrastructure footprint (GNWF, OTL).	(Umwelt, 2025b)	EX240216
GNWF targeted EPBC listed threatened plant surveys (GNWF, OTL)	March 2024	On-ground targeted threatened plant searches along proposed infrastructure layout (GNWF, OTL).	NA	EX240216
GNWF on-ground flora assessment	February - March 2024	Native vegetation surveys on additional proposed access and infrastructure areas for GNWF and OTL (White Hill Road, Gum Hill Road, Belcunda Road, OTL remaining/ adjusted alignment).	(Umwelt, 2025a)	EX240216
GNWF (WF) autumn BBUS surveys (3 of 8)	May 2024	On-ground targeted autumn bird (16 sites) and bat (3 sites) survey.	(EBS Ecology, 2024c)	EX240216
GNWF (WF) winter BBUS surveys (4 of 8)	July 2024	On-ground targeted winter bird (16 sites and 4 vehicle transects) and bat (3 sites) survey.	(EBS Ecology, 2024d)	31498
GNWF (WF) spring BBUS (5 of 8)	September 2024	On-ground targeted spring bird (16 sites and 4 vehicle transects) and bat (3 sites) survey.	(Umwelt, 2024a)	31669
GNWF on-ground flora assessment	September 2024	On-ground field assessment of areas in GNWF incorporated into updated design.	(Umwelt, 2025a)	31669
GNWF Targeted INTG surveys	October 2024	On-ground targeted INTG assessment within the WF and OTL.	(Umwelt, 2025c)	31669
GNWF summer BBUS survey (6 of 8)	February 2025	On-ground targeted bird (16 sites and 4 vehicle transects) and bat (3 sites) survey.	(Umwelt, 2025d)	31669
GNWF targeted Flinders Ranges Worm-lizard (FRWL) Surveys	April 2025	On-ground targeted FRWL surveys within Disturbance Footprint and OTL.	(Umwelt, 2025e)	31669
GNWF targeted PBTL surveys in WF extension	April 2025	On-ground targeted PBTL surveys within Wind Farm Extension.	(Umwelt, 2025b)	31669
GNWF targeted threatened flora surveys	May 2025	On-ground targeted threatened flora surveys in updated OTL access track Disturbance Footprint and surrounds.	NA	31669

Project Description	Assessment Year	Survey Type	Citation	Project No.
GNWF autumn BBUS survey (7 of 8)	April 2025	On-ground targeted bird (16 sites and 4 vehicle transects) and bat (3 sites) survey.	Umwelt (2025f – in draft)	31669
GNWF winter BBUS survey (8 of 8)	July 2025	On-ground targeted bird (16 sites and 4 vehicle transects) and bat (3 sites) survey.	Umwelt (yet to be prepared)	31669

1.4 Report Objectives

The objective of this report is to collate all information collected by Umwelt (formerly EBS Ecology) from recent baseline and targeted flora and fauna surveys and desktop assessments within the current GNREF and present an ecological assessment focussed on GNWF, in preparation for submission of preliminary documentation associated with an *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Referral (EPBC 2024/09929) to the federal government for approval. A similar report was originally presented with the EPBC Referral (EBS Ecology, 2024e), however, since that time significant additional work has been undertaken to support the preliminary documentation. This report presents an updated summary of work, including additional works undertaken since submission of the Referral in 2024. Information collated in this report includes:

- A summary of all survey effort to date (August 2025), including broad vegetation surveys across the GNREF and a suite of detailed and targeted surveys in GNWF, including an assessment of impacts to each vegetation association.
- A desktop assessment of national and state threatened flora, fauna and Threatened Ecological Communities (TECs) considered to potentially occur within a 5 km buffer of the GNREF (Search Area).
- A likelihood assessment of threatened flora, fauna and TECs, identified in the desktop assessment, which may occur within GNWF, verified, and confirmed by on ground assessments within GNWF.
- A summary of targeted field surveys undertaken for flora and fauna of conservation significance within GNWF, including Bird and Bat Utilisation Surveys (BBUS), Mallee Bird Community (MBC) Threatened Ecological Community (TEC) survey, Pygmy Blue-tongue Lizard (PBTL, *Tiliqua adelaidensis*) survey, targeted threatened flora survey and targeted Iron-grass Natural Temperate Grassland (INTG) TEC survey.
- Individual assessments of relevant (i.e. known or likely to occur) ecological Matters of National Environmental Significance (MNES) and other ecological matters of significance, in relation to the GNWF Disturbance Footprint and Development Envelope.

2.0 Compliance and Legislative Summary

2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places – defined in the Act as 'Matters of National Environmental Significance' (MNES). The MNES protected under the Act are:

- World Heritage properties
- National Heritage places
- Wetlands of international importance (listed under the Ramsar Convention)
- The Great Barrier Reef Marine Park
- Commonwealth marine areas
- Listed Threatened Ecological Communities (TECs)
- Listed threatened species
- Listed Migratory species protected under international agreements.

Three of the eight MNES protected under the EPBC Act are of direct relevance to the Project Area which are:

- TECs
- listed threatened species
- migratory species.

Any action that has, will have, or is likely to have a significant impact on MNES requires Referral under the EPBC Act. Substantial penalties apply for undertaking an action that has, will have, or is likely to have significant impact on a MNES without approval. Other MNES listed above may occur within the Project Search Area more broadly and are addressed in **Section 4.2**.

The *Matters of National Environmental Significance Significant Impact Guidelines 1.* (DotE, 2013) (hereafter SIG), provide overarching guidance to help determine whether an action is likely to have a significant impact on a MNES.

An EPBC Referral (2024/09929) was submitted to the Commonwealth (DCCEEW) to address potentially significant impacts to MNES in August 2024. The EPBC Referral has been deemed Controlled Action and will be assessed further by preliminary documentation pathway. Subsequently, the Project design layout was amended, requiring a Referral Variation, submitted in March 2025.

2.2 Native Vegetation Act 1991

Native vegetation within the Project Area is protected under the *Native Vegetation Act 1991* (NV Act). This legislation is principally in place to provide incentives and assistance for the preservation and enhancement of native vegetation and to control the clearance of native vegetation.

Under the NV Act, native vegetation refers to any naturally occurring local plant species that is indigenous to SA, from small ground covers and native grasses to large trees and aquatic plants including marine vegetation. It also includes naturally occurring regrowth and in certain circumstances, dead trees.

Any proposed clearance of native vegetation in SA (unless exempt under the regulations) is to be assessed against the Principles of Clearance under the Act and requires approval from the Native Vegetation Council (NVC). Approval is generally conditional on achievement of a Significant Environmental Benefit (SEB) either though development of an approved SEB offset or through payment into the Native Vegetation Fund (NVF).

A Native Vegetation Clearance Data Report has been submitted to NVC in relation to native vegetation proposed to be impacted for GNWF (Umwelt, 2025a).

2.2.1 Native Vegetation Regulations 2017

The *Native Vegetation Regulations 2017* outline the circumstances where clearing native vegetation is permitted, outside of the clearance controls in the NV Act. The Regulations allow clearance for certain routine activities, such as for upgrading or establishing infrastructure.

The Regulations emphasise the requirement for proponents to apply the Mitigation Hierarchy, which requires that proponents consider all possible ways to avoid and minimise clearance of native vegetation, thus reducing the level of clearance and subsequent costs.

Part 3, Division 5, Regulation 12(34) – Infrastructure allows clearance of vegetation incidental to the construction or expansion of a building or infrastructure (and associated services) where the Minister has declared (in writing) that the clearance is in the public interest.

2.3 National Parks and Wildlife Act 1972

Native plants and animals in SA are protected under the *National Parks and Wildlife Act 1972* (NPW Act). It is an offence to take a native plant or protected animal without approval. Threatened flora and fauna species listed in Schedules 7 (Endangered species), 8 (Vulnerable species), or 9 (Rare species) of the NPW Act. Persons must not:

- Take a native plant on a reserve, wilderness protection area, wilderness protection zone, land reserved for public purposes, a forest reserve, or any other Crown land.
- Take a native plant of a prescribed species on private land.
- Take a native plant on private land without the consent of the owner (such plants may also be covered by the NV Act).
- Take a protected animal or the eggs of a protected animal without approval.
- Keep protected animals unless authorised to do so.
- Use poison to kill a protected animal without approval.

Conservation rated flora and fauna species listed on Schedules 7, 8, or 9 of the NPW Act are known to, or may occur within the Project Area. Persons must comply with the conditions imposed upon permits and approvals.

2.3.1 Section 68AA Prohibition on Destroying, Damaging

Additionally, under the NPW Act, Section 68AA prohibits the destruction, damage or disturbance of wombat burrows as follows:

68AA—Prohibition on destroying, damaging or disturbing wombat burrow

1. Subject to subsection (3), a person must not, without a permit granted by the Minister, destroy, damage or disturb the burrow of a wombat. Maximum penalty: $5,000 or imprisonment for 12 months.
2. It is a defence to a charge of an offence against subsection (1) for the defendant to prove that the defendant exercised such precautions as the defendant might reasonably be expected to have exercised in the circumstances to avoid destroying, damaging, or disturbing the burrow.
3. A person does not require a permit under subsection (1) if—
    a. the burrow is outside a Wombat Protection Zone; and
    b. the person is-
        i. the owner of the land where the burrow is located; or
        ii. authorised to destroy, damage, or disturb (as the case required) the burrow by the owner of the land where the burrow is located; and
    c. the burrow is causing or is likely to cause damage to crops, stock, machinery or infrastructure (including tracks and built infrastructure) or may constitute a safety risk or hazard to people.
4. Where a permit is granted for the purposes of this section, no further authorisation or permission for the destruction, damage or disturbance of the burrow is required pursuant to any other Act or law.
5. This section is in addition to, and does not derogate from, any other provision of this Act or any other Act or law relating to the taking or harming of, or interference with, animals.

2.3.1.1 Relevant Permits

All surveys were undertaken under the following permits:

- Scientific Research Permit No. K25613-23 (to K25613-27) (Department of Environment, Water and Natural Resources).
- Wildlife Ethics Committee Permit No. 27/2022 (Wildlife Ethics Committee) and Scientific Licence No. 158 (Animal Welfare, National Parks and Wildlife SA).

2.4 Landscape South Australia Act 2019

The *Landscape South Australia Act 2019* (LSA Act) repealed the *Natural Resources Management Act 2004*. Under the LSA Act, new regional landscape boards have been established. The aim is to deliver Landscape related services to regional communities, including effective water management, pest plant and animal control, soil and land management and support for broader sustainable primary production programs. Under the LSA Act, landholders have a legal responsibility to manage declared pest plants and animals and prevent land and water degradation.

Thirteen weeds listed as Declared under the LSA Act were identified within the Project Area including *Chrysanthemoides monilifera* (Boneseed), *Chondrilla juncea* (Skeleton Weed) *Lycium ferocissimum* (African Boxthorn), *Marrubium vulgare* (Horehound), *Echium plantagineum* (Salvation Jane), *Xanthium spinosum* (Bathurst Burr), and others. If soil is to be removed from the site, the construction contractor may require a permit to transport any Declared weeds on a public road. Landholders have a responsibility to control Declared weeds on their property.

The requirement for these permits will be discussed with the Northern and Yorke Landscape Management Board and permits will be obtained where necessary.

3.0 Methods

3.1 Desktop Assessment

A desktop assessment was conducted to determine the potential for any threatened and protected species (both Commonwealth and State listed) to occur within the Project Area. This was achieved by undertaking database searches using a 5 km buffer from the boundary of the GNREF (Search Area), in line with standard requirements of the native vegetation Bushland Assessment Method assessment for projects within agricultural areas (see **Section 3.3.1.1**).

3.1.1 Protected Matters Search Tool (PMST)

A PMST was generated on 26 February 2025 to identify MNES under the EPBC Act relevant to the Search Area, reflective of varied Project Area boundaries (DCCEEW, 2025a). The PMST is maintained by the Department of Climate Change, Energy, Environment and Water (DCCEEW) and was used to identify flora and fauna species and ecological communities of national significance that may occur or have suitable habitat within the GNWF.

3.1.2 Biological Database of South Australia (BDBSA)

An extraction from the BDBSA was obtained to identify flora and fauna species that have been recorded within the Search Area (DEW, 2024) (extracted 07/02/2024, record set number DEWNRBDBSA240207-2). A second BDBSA dataset was extracted for a Search Area within 20 km of a proposed Alternate OTL location the Bundey Substation (record set number: DEWNRBDBSA240403-4), however this option has subsequently been removed from the design. Data from this extract which was utilised for analysis of Mallee Bird Community (MBC) Threatened Ecological Community (TEC) criteria, as per the requirements of the Conservation Advice (DAWE, 2021a).

The BDBSA is comprised of an integrated collection of species records from the South Australian Museum, conservation organisations, private consultancy companies, Birds SA, Birdlife Australia, and the Australasian Wader Study Group, which meet DEW standards for data quality, integrity, and maintenance. An updated search of NatureMaps database was undertaken in February 2025 to account for any additional threatened species records which may have been entered into the database in the last 12 months. Threatened species records (both Commonwealth and State listed) from within the Search Area are summarised in **Section 4.2.**

3.1.3 Likelihood Assessment

An assessment to determine the likelihood of occurrence for threatened species and ecological communities within GNWF was conducted, separated into likelihood for the surveyed Disturbance Footprint and Disturbance Envelope.

Each of the threatened species and ecological communities identified by the PMST and BDBSA data extract were assigned a rating (highly likely / known, likely, possible, and unlikely), which described their likelihood of occurrence within the areas described above. The assessment was undertaken according to the framework shown in **Table 3.1**. The following criteria were considered when assigned a likelihood rating:

- Date of the most recent record (taking into consideration the date of the last surveys conducted in the area).
- Proximity of the records (distance to the Project Area) and confidence in survey data.
- Landscape location of the records (taking into consideration the landscape, remnancy and vegetation type of the Project Area, with higher likelihood assigned to species that were found in similar locations/condition/vegetation associations).
- Knowledge of the species; habitat preferences, causes of its decline, the conspicuousness of the species and local population trends.
- An on-ground assessment of suitable habitat and resources.

A detailed description of criteria utilised in the likelihood assessment is presented in **Table 3.1**.

Table 3.1 Likelihood Rating and Criteria for the Presence of Threatened Species

Likelihood	Criteria
Highly Likely / Known	Recorded in the last 10 years within 5 km of the Project Area, the species does not have highly specific niche requirements or suitable habitat is present and the site falls within the known range of the species distribution, or: The species was recorded as part of field surveys.
Likely	Recorded in the last 10 to 20 years within 5 km of the Project Area, the area falls within the known distribution of the species and the area provides suitable habitat or feeding resources for the species.
Possible	Recorded in the last 20 years within 5 km of the Project Area, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species, or: Recorded within 40 years, survey effort is considered adequate, habitat and feeding resources present and species of similar habitat needs have been recorded in the area.
Unlikely	No historical records within 5 km of the Project Area; or Recorded within 40 years within 5 km of the Project Area; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area, or: No records despite adequate survey effort.

3.2 Desktop Assessment Limitations

Field and desktop assessments were based on flora and fauna records sourced from the BDBSA. The BDBSA only includes verified flora and fauna records submitted to the South Australian Department of Environment and Water (DEW) or partner organisations. It is recognised that knowledge is sometimes poorly captured, and it is possible that threatened species occur that are not reflected by database records. Although much of the BDBSA data have been through a variety of validation processes, the lists may contain errors and should be used with caution. DEW gives no guarantee that the data is accurate or fit for any particular purpose of the user or any person to whom the user discloses the information.

BDBSA flora and fauna records were limited to a 5 km buffer around the GNREF boundary. The reliability of the BDBSA data ranges from 100 m to over 100 km. Spatial reliability has not been filtered in this report to account for all potential records and provide a conservative assessment of species likelihood.

Fauna species, in particular birds, can traverse distances more than the 5 km search buffer, and therefore, additional species may occur, which have not been captured within the specified Search Area. It is also acknowledged that the presence of species may not be adequately represented by database records. Hence, the BDBSA results that have been clipped to a 5 km buffer of the GNREF may not highlight all potential threatened flora and fauna species that may occur.

A search of the DEW NatureMaps database found that several historical Biological Survey Sites (including flora and fauna sites) occur within the Project Area boundary, which is likely to strengthen the confidence of historical records reported, for the area. This includes 25 flora site locations and nine fauna survey locations, with survey dates ranging between 1991 and 2003. Several additional sites occur within the 5 km Search Area, including 68 additional flora sites and 13 fauna sites. Thirteen additional BCM sites occur in the Search Area.

When undertaking Significant Impact Assessments for species determined as having high potential to occur in the Project Area, a variety of other resources were utilised to determine the broader context of each species on a regional scale. Other resources utilised included the Atlas of Living Australia (ALA), and local and regional flora and fauna assessments obtained from DEW NatureMaps (DEW, 2025). It is acknowledged that data from these resources may be outdated and / or not uphold rigorous data quality standards, however in the absence of dedicated studies on all species of concern, these data sources are considered suitable to broadly assess the local and regional context of species.

BDBSA data from a larger, 20 km buffer was extracted to enable an assessment of the presence of Mallee Bird Community species, as required under the assessment criteria for this nationally Threatened Ecological Community, however, this data was not utilised for the remainder of the likelihood assessment.

3.3 Field Assessments

Table 3.2 lists the field surveys that have been undertaken in the Project Area between November 2022 and June 2025, including targeted flora and fauna surveys. This report presents a compilation of the data gathered from these surveys.

Table 3.2 Recent Flora and Fauna Surveys Undertaken Within the Project Area

Survey Type	Dates	Aim	Project Area Covered
FLORA			
On-ground broad flora assessment	12 to 16 November 2022	Broadly map vegetation associations and condition and identify ecological constraints in the Project Area including threatened communities, flora and fauna species and species habitat.	GNREF (excluding OTL)
On-ground flora assessment (BAM)	20 to 24 November 2023	Native vegetation assessment in line with NVC standards (BAM, STAM).	GNWF (including accessible portions of the OTL)
Targeted EPBC listed threatened plant surveys.	4 to 7 March and 18 to 22 March 2024	Undertake on-ground searches for targeted threatened plant species along proposed OTL Disturbance Footprint in suitable habitat.	GNWF

Survey Type	Dates	Aim	Project Area Covered
On-ground flora assessment	12 February to 22 March 2024 (discontinuous)	Native vegetation surveys on additional proposed access and infrastructure areas for GNWF (White Hill Road, Gum Hill Road, Belcunda Road, OTL remaining/ adjusted alignment, Bundey Substation).	GNWF
Targeted Iron-grass Natural Temperate Grassland (INTG) Surveys	14 to 18 October 2024	Survey patches of INTG intersecting the Disturbance Footprint according to the criteria outlined in the Conservation Advice and National Recovery Plan.	GNWF including OTL
Offset Area Assessment	September 2024	Broad survey of several properties in the region to assess suitability for SEB and / or EPBC Offset.	Various
WF Design update flora assessment	September 2024	Survey of vegetation north of White Hill Road according to BAM.	GNWF
OTL Design update flora assessment	February 2024	Targeted vegetation survey including BAM and targeted threatened flora searches in section of new alignment.	OTL
FAUNA			
Spring Bird and Bat Utilisation Surveys (BBUS)	20 to 24 November 2023	Establish permanent monitoring sites across the Project Area and undertake a morning (AM) and afternoon (PM) survey at each site. Nine bird monitoring sites and three bat monitoring sites established.	WF
Targeted Mallee Bird Community (MBC) surveys	20 to 24 November 2023	On-ground targeted spring MBC bird surveys within suitable patches of mallee vegetation along the OTL within the MDD Bioregion.	OTL / Bundey
Summer BBUS surveys	12 to 16 February 2024	Survey established BBUS sites (AM / PM) and establish additional monitoring sites to ensure broader coverage of the Project Area. Installed seven additional bird monitoring sites (total 16 bird sites).	WF
Targeted Pygmy Blue-tongue Lizard (PBTL) surveys	12 February – 7 March 2024	Undertake targeted PBTL surveys within proposed Disturbance Footprint (including hardstands, access tracks, OTL, BESS, substation, laydown areas) (current at 12/02/2024).	GNWF
Autumn BBUS surveys (survey 3 of 8)	14 to 16 May 2024	Survey established BBUS sites.	WF
Winter BBUS surveys (survey 4 of 8)	16 to 18 July 2024	Survey established BBUS sites. Scope / implement new Vehicular Transect method (4 new transects mapped and surveyed).	WF
Spring BBUS surveys (survey 5 of 8)	30 September to 3 October 2024	Survey established BBUS sites and Vehicular Transects.	WF

Survey Type	Dates	Aim	Project Area Covered
Summer BBUS surveys (survey 6 of 8)	17 to 20 February 2025	Survey established BBUS site and Vehicular Transects.	WF
Flinders Ranges Worm-lizard Targeted Survey	April 2025	Refine habitat mapping for FRWL, including undertaking targeted searches along transects and quadrats in suitable habitat.	GNWF
PBTL Targeted Survey (Disturbance Footprint design updates)	April 2025	Targeted search transects for PBTL in updated Disturbance Footprint.	WF – design variation
Autumn BBUS surveys (survey 7 of 8)	12 to 15 May 2025	Survey established BBUS site and Vehicular Transects.	WF
Targeted Flora Survey (design updates)	22 May 2025	Targeted survey for threatened flora species in suitable habitat along updated OTL access track design.	OTL
Winter BBUS surveys (survey 8 of 8)	21 to 24 July 2025	Survey established BBUS site and Vehicular Transects.	WF

3.3.1 Vegetation Surveys

Several flora assessments have been conducted to compile the data in this report. These assessments were carried out in accordance with the Bushland Assessment Method (BAM) (NVC, 2024a) and the Scattered Tree Assessment Method (STAM) (NVC, 2024b), as required. Additionally, broad vegetation mapping and targeted surveys for specific species and threatened ecological communities were performed. Survey periods are outlined in **Table 3.2** above and detailed further in the following sections.

3.3.1.1 Bushland Assessment Method

The BAM is derived from the Nature Conservation Society of South Australia's Bushland Condition Monitoring (BCM) methodology (Croft, Pedler, & Milne, 2007; NVC, 2024a). The BAM is used to assess areas of native vegetation requiring clearance and calculate the Significant Environmental Benefit (SEB) offset requirements.

Details of site selection/stratification and assessment protocols, and the biodiversity value components assessed and the factors that influence these components are outlined in the Bushland Assessment Manual (NVC, 2024a). Briefly, methodology involves:

- Selecting representative (i.e. vegetation type and condition) 1-hectare quadrats across the survey site.
- Traversing each site on foot, recording all native and introduced plants (annual and perennial) that occur within the quadrat and noting abundance of any threatened species detected.
- Noting features as required on the scoresheet including dominant species, regeneration of individual species, cover estimate for weed species and native plant life forms, tree dieback, native: exotic biomass, hollow bearing trees, presence of fallen timber / debris, canopy coverage and mature tree density.

The methodology requires that vegetation be divided into 'Blocks' of contiguous vegetation which determine the Landscape Context Score of the site. Given the size of the Project Area and contiguous nature of the vegetation, for simplicity Blocks have been divided based on the Interim Biogeographical Regionalisation of Australia (IBRA) Association as follows:

- Block A - Region: FLB; Subregion: Broughton; Association: Burra Hill
- Block B - Region: FLB; Subregion: Olary Spur; Association: Terowie
- Block C - Region: MDD; Subregion: Murray Mallee; Association: Sutherlands
- Block D – Region: FLB; Subregion: Broughton; Association: Hansen.

The Conservation Significance Scores were calculated from direct observations of flora and direct and historical observations of fauna species of conservation significance. All fauna identified as known or likely to occur in the Protected Matters Search Tool (PMST), fauna with a BDBSA record since 1995 and with a spatial reliability of less than (<) 1 km, within the Search Area were included in the BAM scoresheets. Species determined as unlikely to occur within the Project Area will be removed by the Native Vegetation Branch if the finding is supported. Marine and wetland species were omitted from the scoresheets given the Project Area is terrestrial.

3.3.1.2 Scattered Tree Assessment Method

The STAM is derived from the Scattered Tree Clearance Assessment in South Australia: Streamlining, Guidelines for Assessment and Rural Industry Extension report (Cutten & Hodder, 2002). The STAM is suitable for assessing scattered trees in the following instances:

- Individual scattered trees (i.e., canopy does not overlap). The spatial distribution of trees may vary from approaching what would be considered their original distribution (pre-European) through to single isolated trees in the middle of a paddock. Or,
- Dead trees (when a dead tree is considered native vegetation). Or,
- Clumps of trees (contiguous overlapping canopies) if the clump is small (approximately <0.1 ha). And,
- For both scattered trees and clumps:
    - The ground layer comprises wholly or largely of introduced species.
    - Some scattered colonising native species may be present but represent <5% of the ground cover. And,
    - The area around the trees consists of introduced pasture or crops.

Details of the scattered tree Point Scoring System are outlined in the Scattered Tree Assessment Manual (NVC, 2024b).

The Scattered Tree Scoresheet is a key component of the STAM. In addition to recording tree attributes (such as height, diameter, and the number and size of hollows), the scoresheet also requires the expected number of 'uncommon or threatened scattered tree-using fauna species' to be entered. This information is used to calculate fauna habitat and biodiversity scores for the trees being assessed. The number of 'uncommon and threatened scattered tree-using fauna species' entered into the scoresheet was determined by cross-referring the BDBSA data extract with the list of scattered tree-using fauna provided in the Scattered Tree Assessment Manual (NVC, 2024b). When assessing each tree's suitability for supporting threatened fauna, the specific resource use of each species was taken into account. For example, species that rely exclusively on tree hollows were only associated with scattered trees that contained hollows.

3.3.1.3 Department of Infrastructure and Transport (DIT)

Several state-maintained roads, managed by DIT, intersect with Project Area access points, including the Barrier Highway and Goyder Highway. Where vegetation is not considered as native under the NV Act, DIT will assess this as amenity vegetation or Declared Plants / weeds. In these locations, vegetation is assessed according to the Vegetation Survey Guidelines (DIT, 2021). A description of the removal and pruning offset requirements for amenity vegetation and native vegetation are presented in **Table 3.3**.

Table 3.3 Offset Requirements for Amenity Vegetation in DIT Maintained Road Reserves

Activity	Description	Offset
New Works – Pruning or removing of amenity vegetation	Amenity vegetation – that is part of an amenity planting, including windbreaks. All amenity vegetation, regardless of size, requires approval and an offset.	1:1
	Amenity vegetation – Removal/pruning of the vegetation may cause adverse public opinion (including Local Government).	1:1
	Native vegetation (not covered by NV Act) – regardless of size, requires approval and an offset.	2:1
	Native vegetation (not covered by NV Act) – Removal/pruning of the vegetation may cause adverse public opinion (including Local Government).	2:1

3.3.1.4 Targeted Threatened Flora

Based on the results of database searches, previous studies and knowledge of the vegetation and habitats occurring within the Project Area, several nationally listed threatened plant species were determined as likely or possible to occur in the GNWF (hereafter, target species):

- *Acacia glandulicarpa* (Hairy-pod Wattle); EPBC Act Vulnerable, NPW Act Endangered.
- *Acacia spilleriana* (Spiller's Wattle); EPBC Act Endangered, NPW Act Endangered.
- *Codonocarpus pyramidalis* (Slender Bell-fruit); EPBC Act: Vulnerable; NPW Act: Endangered.
- *Dodonaea subglandulifera* (Peep Hill Hop-bush); EPBC Act Endangered, NPW Act Endangered.
- *Dodonaea procumbens* (Trailing Hop-bush); EPBC Act Vulnerable, NPW Act Vulnerable.
- *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush); EPBC Act Vulnerable, NPW Act Vulnerable.
- *Senecio megaglossus* (Superb Groundsel); EPBC Act Vulnerable, NPW Act Endangered.

No specific survey guidelines for Australia's threatened plants, or individual survey guidelines for the above plant species are available, and as such a combination of best practice methodology was utilised to search for threatened plant species, based around field survey techniques outlined Iin:

- NSW Government Department of Planning, Industry and Environment (DPIE) NSW survey guide: *Biodiversity Assessment Method* (DPIE, 2020a).
- DPIE survey guide: *Surveying Threatened Plants and their habitats*, NSW guide for the Biodiversity Assessment Method (DPIE, 2020b).

Initially, any observations of the target species that were first observed incidentally, while undertaking other elements of the field survey (i.e. traversing the site on foot or by vehicle or undertaking BAM assessments), were recorded. These methods equated to the recommended minimum methods of random meanders and random quadrats (DPIE, 2020b), however, were not considered adequate to confirm presence / absence within the Disturbance Footprint.

Subsequently, the GNWF Disturbance ensure that all areas of the proposed Disturbance Footprint have equally high confidence in survey results.

Detectability of threatened plants is increased using the parallel Footprint (current February 2024) was traversed during field surveys to ground truth vegetation and search for threatened fauna and flora species. Additional targeted surveys using parallel traverses were undertaken in the updated Disturbance Footprint (current August 2025) during April and May 2025 to

field traverse method because it systematically covers the entire area of suitable habitat within a site and can be simultaneously applied to a diverse range of species, habitats and sites (DPIE, 2020b). Given that all threatened plant species of interest are perennial shrubs, these parallel field transects were considered suitable for detection **Table 3.4**.

Using a combination of opportunistic and targeted survey methods, high coverage of the Project Area was achieved and thus, high confidence in the likelihood assessment for all EPBC listed threatened flora species.

Table 3.4 Maximum Distance Between Parallel Field Traverses Per Life Form and Vegetation Density, from DPIE (2020)

Lifeform	Target Species	Max. Distance Between Field Traverse (m) in Open Vegetation	Max. Distance Between Field Traverse (m) in Dense Vegetation
Trees / Mallee / Tall Shrubs (>6 m)	*Codonocarpus pyramidalis*	40	20
Medium shrubs (1–6 m)	*Acacia glandulicarpa* *Acacia spilleriana* *Dodonaea subglandulifera* *Olearia pannosa ssp. pannosa*	20	10
Sub-shrubs (including chenopods <1 m)	*Dodonaea procumbens* *Senecio megaglossus*	15	10
Herbs and forbs	NA	10	5
Ferns (<1 m), grasses/sedges/ rushes/ orchids etc	NA	10	5
Aquatic plants	NA	Search the appropriate parts of the waterbody using a traverse coverage that equates to the relevant growth form.	

A corridor width of 80 m was assessed with moderate to high confidence based on open vegetation and parallel transects walked with two to four ecologists in suitable habitat (minimum 596 km based on parallel traverse across WF and OTL excluding driven tracks, areas traversed during BAM surveys, BBUS and opportunistically while on site, or where >2 individuals traversed). A search area of 1 ha is assumed for all BAM sites, and a search area of 2 ha is assumed for all BBUS sites.

It should be noted that the moderate to high confidence is based on the lower confidence associated with small (<1 m) perennial shrub species such as *Dodonaea procumbens*, which is also susceptible to heavy grazing and therefore may not be as readily visible in that search range, while high confidence is applied to medium (>1 m) or otherwise showy shrubs. Areas outside of this, within the broader Project Area have a lower confidence, and analysis of potential impact considers this area conservatively as unknown.

In addition to the abovementioned targeted surveys, any known locations with historical records of threatened flora species within the Project Area were verified on ground by visiting the site location and searching in the immediate surrounding location, until either a) the species was detected and confirmed to be present, or b) the species was not detected, and a more thorough search of the general location was undertaken to account for any inaccuracy in location of the record. This included a search for unverified records (Atlas of Living Australia; ALA) of *Acacia menzelii* in the east of the WF, which was found not to be present, as well as records of *Senecio megaglossus* (not present) and *Dodonaea procumbens* (not present outside of Mokota CP fenced areas).

3.3.1.5 Targeted Surveys for Iron-grass Natural Temperate Grassland

A targeted field survey was undertaken from 14–18 October 2024, to determine the condition class of Iron-grass Natural Temperate Grassland (INTG) in patches of previously mapped Lomandra Grassland (VA6) using BAM, and to ground-truth and refine any existing INTG boundaries.

The survey was undertaken within the recommended survey window for INTG TEC, in mid spring, within two months of effective rain (23.2 mm on 16 August 2024, Clare High School Station 021131). Specific disturbance factors (such as grazing, slashing and fire) were unable to be specifically accommodated for the survey, due to the broad agricultural uses of the Project Area, the large number of landholders involved, and the Project timelines.

Surveys in areas of INTG followed the criteria outlined in:

- EPBC Act Policy Statement 3.7: Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia (DEWR, 2007); and
- National Recovery Plan for the Iron-grass Natural Temperate Grassland of South Australia ecological community (Turner, 2012).

A 50 m tape was laid at all sites and surveyed 25 m either side by two ecologists walking approximately 5- to 10 m apart. All species (including weeds) encountered within the quadrat were recorded. All species observed within the quadrats were then categorised (i.e. broad-leaved herbaceous plant, perennial grass / tussock, disturbance resistant species) and compared against the benchmark criteria for Classes A to C, as outlined in the EPBC Act Policy Statement (DEWR, 2007) (**Table 3.5**).

To obtain a measure of the number of perennial native tussocks per metre, observers walked along the length of the 50 m transect and counted the number of grass tussocks which intersected the line. An estimate of Lomandra tussock density was made for each quadrat.

Survey areas were prioritised first according to where patches of INTG intersected with the proposed Disturbance Footprint or Development Envelope, and then, if not found to meet the criteria, additional surveys were undertaken within the same contiguous patch, to determine if any better-quality areas occurred, which met the criteria.

Table 3.5. INTG Listing and Condition Class Criteria (Turner, 2012)

Condition Class	Minimum Patch Size (ha)	Native Species Diversity[1]	No. Broad Leaved Herbaceous Species[1] (Excl. DRS[2])	No. Perennial Grass Species[1]	Average Tussock Count[3]
Listed TEC					
A	0.1	>30	≥10	≥5	1/m
B	0.25	>15	≥3	≥4	1/m
Degraded patches amenable to rehabilitation					
C	No minimum	>5	No minimum	≥1	No minimum

Notes:
[1] As measured in a 50 m x 50 m quadrat, (or equivalent to make 2,500 m^2 if patch is narrower – e.g. roadside corridor).
[2] Disturbance resistant species (DRS): *Ptilotus spathulatus*; *Sida corrugata*; *Oxalis perennans*; *Euphorbia drummondii*, *Maireana enchylaenoides*.
[3] Average count as measured along a 50 m transect, including all native perennial tussock species i.e. true grasses, as well as species of Lomandra, Dianella, Gahnia, Lepidosperma and other perennial sedges and rushes.

3.3.1.6 Provisional List of Threatened Ecosystems

The Provisional List of Threatened Ecosystems (DEH, 2005a) was reviewed to determine whether any vegetation associations impacted, meet the criteria for listing as a threatened ecosystem at the state level.

3.3.2 Fauna Surveys

Fauna surveys undertaken within the Project Area were done in accordance with the *Clean Energy Council* (CEC) *Best Practice Guidelines* (CEC, 2018). According to the guidelines, the aim of the fauna habitat survey should be to identify significant habitats and habitat components on the site, including:

- Vegetation communities that support a particular suite of fauna e.g., native grassland species and specific fauna species e.g., Pygmy Blue-tongue Lizard.
- Trees with hollows which provide shelter sites for arboreal mammals, nest sites for birds and roost / maternity sites for bats.
- Lakes, dams, ponds, and streams that may provide habitat for water birds, frogs, and migratory species.

Several other nationally or state approved guidelines were utilised to plan and conduct targeted fauna surveys including:

- *Survey guidelines for Australia's threatened bats: Guidelines for detecting bats listed as threatened under the EPBC Act* (DEWHA, 2010b).
- *Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act* (DEWHA, 2010a).
- *Survey guidelines for Australia's threatened reptiles. EPBC Act survey guidelines 6.6* (DSEWPaC, 2011).
- *Guidelines for Vertebrate Surveys in South Australia Using the Biological Survey of South Australia* (NPWSA, 2000).

Fauna surveys undertaken within the Project Area are summarised in **Table 3.2** and detailed in the following sections.

3.3.2.1 Targeted Pygmy Blue-tongue Lizard Surveys

A total of six targeted field surveys have been conducted within the Project Area as of June 2025 (**Table 3.6**), each contributing to the knowledge and understanding of the distribution of PBTLs within the Project Area. The primary survey (Field Survey 2) was undertaken within the proposed Disturbance Footprint current at the time of the survey (February 2024). Subsequent surveys were conducted with specific goals including micro siting for design, mitigation for geotechnical works and to survey additional areas added to the early Disturbance Footprint.

The survey method was consistent with the Survey guidelines for Australia's threatened reptiles: Guidelines for detecting reptiles listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (DSEWPaC, 2011). However, given the limited details provided in these guidelines, additional technical knowledge on the species behaviour and ecology was utilised to ensure a more robust survey method was applied.

Experienced and suitably qualified ecologists were rotated throughout each survey period. Survey timing for Field Survey 2 was planned for late summer to enable maximum visibility in grassland vegetation (i.e. low grass and exotic pasture cover). Late summer is the typical birthing time for PBTL, with females and their young sharing burrows from mid-January to mid-March, and some juvenile dispersal during this time. Subsequent surveys were also undertaken within the optimal time for surveying PBTLs.

An assessment of the appropriateness and validity of the approach in terms of survey methodology, survey effort, described limitations, habitat suitability mapping and population estimates, as detailed below, has been validated by PBTL Recovery Team Chair, Professor Mike Gardner.

Table 3.6 Field Survey Summary

Survey	Timing	Duration	Staff	Description
Field Survey 1	November 2023	1 day	2	Micro siting for early works (met mast)
Field Survey 2	February 12 to 8 March 2024	20 days	4	Intensive targeted survey of entire Disturbance Footprint (Current February 2024).
Field Survey 3	18 to 22 March 2024	5 days	2	Targeted survey at six alternative WTG locations and proposed access road, Belcunda Road.
Field Survey 4	July 2024	1 day	2	Micro siting for early works (met mast)
Field Survey 5	January 30 to 3 March2025	10 days	2	Targeted surveys at multiple test pits and boreholes at WTGs, access roads, substation and OTL.
Field Survey 6	15 to 17 April 2025	3 days	2	Targeted survey of areas added to the Disturbance Footprint since Field Survey 1 (current April 2025), including MV cables, and the updated Disturbance Footprint including WTGs and access roads.

Survey Parameters

Prior to conducting the field survey, the most current infrastructure layout for GNWF was downloaded onto an offline ESRI ArcGIS Field Map, which was developed specifically to capture targeted PBTL

survey data. Prior to undertaking the field survey, parameters were developed to define survey confidence based on grassland visibility, as detailed in **Table 3.7.**

Table 3.7 PBTL Survey Transect Confidence Definition

Visibility	Description	Example Image
Poor (low confidence) (i.e. <50% of burrows within the immediate search area detected)	Thick covering of thatched or tall grasses (i.e. oat grass). Ground not visible unless parted at each step.	
Moderate (moderate confidence) (i.e. estimated up to 75% of burrows within the immediate search area detected).	Moderate coverage of native and introduced grasses, ground between tussocks generally visible.	
Good (high confidence) (i.e. estimated >90% of burrows within the immediate search area detected).	Very low covering of grasses, almost completely open, especially areas which have been heavily grazed.	

Field Survey Method

All infrastructure which occurred within suitable (i.e. grassland) or marginal habitat (i.e. shrubland with grassy understorey) was assessed in detail during the field survey, using two surveyors systematically searching parallel transects 5 m to 10 m apart on foot, and searching all encountered

potential burrows (i.e. observed spider holes with diameter >8 mm) with an optic fibre endoscope (Yateks M Series). Within the infrastructure layout, search effort included:

- A single pass (i.e. two transects 5 m to 10 m apart) along all access tracks and turn-around bays.
- Parallel transects at 5 m to 10 m intervals across all WTG hardstand, BESS, and substation infrastructure.
- A single pass along the OTL.

Where time permitted, surveys were also conducted where the infrastructure layout intersected habitat considered unsuitable for PBTL, such as mallee woodland. Several additional areas, outside of the current Disturbance Footprint were surveyed to enable potential micro siting to avoid mallee woodland habitat.

At the start of each walking transect, one team member used the ESRI Field Map to start a 'live stream' track, which detailed the level of confidence as well as the surveyors, date of survey, and any relevant notes on survey conditions. Simultaneously, both surveyors would use the tracking function on their GARMIN GPS 62/64 handheld device to record all tracks walked. Each time the visibility / confidence level changed, or at any other logical time, a new ESRI Field Map track was started.

Each burrow encountered along the survey transect was searched using an optic fibre endoscope (Yateks M Series) to determine whether burrows were occupied by PBTLs. The endoscope is an illuminated articulating probe, approximately 8 mm (or less, <) in diameter, with a digital video display screen. The probe can be easily directed into the burrow and bent around corners with the use of a 'joystick'. The optic fibre was slowly fed into each burrow, until a PBTL, spider or other fauna was observed, or until the bottom of the burrow was reached.

A handheld GPS was used to mark each burrow searched to provide an indication of burrow density and survey effort. Each time a PBTL was encountered the point was marked in the GPS as 'PBTL'.

Data Processing

Habitat suitability was mapped using vegetation associations and conditions assessed throughout the windfarm. Habitat suitability terminology and definitions are listed in **Table 3.8**.

Table 3.8 Habitat Suitability Definitions

Habitat Suitability	Definition
Known	All areas within 50 m of a known location of a PBTL including recent and historical records. Records include those collected by Umwelt and historical records sourced from the Biological Database of South Australia (BDBSA) (Recordset number: DEWNRBDBSA240207-2).
Likely	Vegetation associations in which there are no PBTL records but are considered potentially suitable habitat and preferred habitat parameters are available (including slopes and hills, suitable soil types without dense surface rock cover).
Unlikely	Vegetation associations in which there are no PBTL records and are otherwise not considered suitable habitat (i.e. mallee, woodland, areas with no grass component, rock outcrops, flats and plains, Murray Darling Depression Bioregion, areas with high surface rock cover). .

Areas that were surveyed were assessed for the risk of impacting PBTL through the construction of GNWF infrastructure. Areas were mapped as either high risk, moderate risk, or low risk, with risk levels defined in **Table 3.9**. The assessment was based on the presence and proximity of PBTL records, both recorded during the survey and historical records, habitat suitability, and the confidence / visibility level of the search effort undertaken during the field survey.

GPS points of burrows and PBTL were correlated with the survey confidence parameters to assess the risk of a significant impact occurring on PBTL from the construction of infrastructure in the surveyed areas.

In summary, a 50 m buffer (conservatively based on typical 20 m foraging range of PBTL), was applied to all current and historical records of PBTL, determined to be 'high risk' areas. Where the survey confidence was high (i.e. minimal grass cover and good visibility) and no current or historical PTBL records were present, the survey area was determined to be 'low risk'. Mapped vegetation associations with no dominant grassy component to the understorey (i.e. woodland and chenopod shrublands) were also considered 'low risk'.

Additionally, the Murray Darling Depression (MDD) bioregion is considered to not be within the known range of the species, and several vegetation associations do not provide suitable habitat resources for PBTL. These areas were also mapped as 'low risk' as indicated in **Table 3.9**.

This mapping can then be utilised in conjunction with technical considerations, when determining micro siting options to minimise and avoid impacts to PBTL population hotspots.

Note: that it was not possible to assess risk of significant impact in areas of suitable habitat that have not been systematically surveyed. The risk within unsurveyed areas is not known, however, all vegetation associations not listed as 'low risk' in **Table 3.9** are considered likely habitat for PBTL.

Table 3.9 PBTL Habitat Suitability and Risk, Based on Proximity of Records, Survey Confidence and Habitat Type

Survey Confidence	Recent PBTL Records (50 m Buffer)	Historical PBTL Records (50 m Buffer)	No PBTL Records High Burrow Density	No PBTL Records Low Burrow Density	Low Risk Vegetation Association (VA) / IBRA Bioregion Exclusions
Low Confidence	High risk	High risk	Moderate risk	Moderate risk	VA1, VA2, VA3, VA14, VA15, VA16, VA18, V19, VA20, VA21, VA22, VA23, Cropped. Murray Darling Depression (MDD) Bioregion. Other parameters: flats and plains, high rocky cover or unsuitable soil (i.e. sand / shale / rock outcrop).
Medium Confidence	High risk	High risk	Moderate risk	Low risk	
High Confidence	High risk	High risk	Low risk	Low risk	
Risk Level	**Risk Definition**				
High Risk	Impact (death or injury) to individual PBTL almost certain. Removal and fragmentation of critical habitat almost certain. Significant impact to PBTL.				
Moderate Risk	Impact (death or injury) to individual PBTL possible. Removal and fragmentation of critical habitat likely or possible. Significant impact to PBTL without undertaking mitigation measures.				
Low Risk	Impact (death or injury) to individual PBTL unlikely. Removal and fragmentation of critical habitat unlikely. No significant impact to PBTL.				

Population Estimates

Population estimates were based on a density index, which is a measure used to estimate the relative abundance of a species within a given area. It is not an exact count of individuals, but rather an indicator of population density. The density index was derived from the number of PBTL encountered

per hectare of vegetation surveyed in each potentially suitable vegetation association, and extrapolated out to fit the Disturbance Footprint, Development Envelope and Project Area. To obtain minimum and maximum estimates, a range of parameters were explored, including average and weighted density calculations and exclusion of outliers (i.e. hotspots, records in 'unsuitable' habitat). A number of key considerations for the estimates include:

- Search Corridor: The density estimates are based on an estimated 10 m search corridor (i.e. 2.5 m either side of each surveyor) within each vegetation association (VA). However, it is acknowledged that the likelihood of observing every lizard within this corridor reduces at greater distances from the observer, in poor and moderate visibility (**Table 3.7**) vegetation, and by only surveying in one direction.
- Hotspot Population: The highest density in VA9 is elevated by a hotspot population in one isolated location, resulting in an inflated population estimate for that VA.
- Patchy Distribution: The population estimates do not factor in the patchy distribution of PBTL across the landscape, characterized by dense hotspots, sparsely distributed individuals, and large tracts with no known individuals.
- Environmental Conditions: PBTL populations are known to fluctuate depending on environmental conditions, and therefore any estimates represent a snapshot in time.
- Habitat Suitability: Habitat within the Disturbance Footprint (DF) is generally considered less suitable than other parts of the Project Area and therefore the Maximum Estimate of PBTL in the GNWF is likely to be lower than in actuality.
- Visibility Conditions: The initial targeted survey was conducted under excellent visibility conditions, preceded by at least two years of good seasonal conditions.
- Known and Likely Habitat: excludes some areas of vegetation associations which are otherwise considered 'suitable' and includes small areas of vegetation associations which are otherwise considered 'unsuitable' due to the application of a generic 50 m buffer around records. This additional area (1.07 ha) has been included in the sum for exotic vegetation in all calculations.

3.3.2.2 Targeted Flinders Ranges Worm-lizard Surveys

Flinders Ranges Worm-lizard (FRWL) habitat was broadly mapped within the Project Area based on the listed habitat requirements for the species which includes:

- Open woodland, native tussock grassland, riparian habitats and rocky isolates; and
- Stony or clay soils with a stony surface.

More specifically, habitat is considered at three levels of suitability:

- Known FRWL habitat is mapped as areas where FRWL have been previously recorded, with areas extended to incorporate adjacent areas that generally contain numerous stones of suitable size. If no FRWL are found within an area, but the habitat is otherwise considered to be moderate to high quality for FRWL (as above), the area is marked as possible habitat.
- Possible FRWL habitat is recorded in areas where no FRWL have been found, however a number of suitable stones are present, and the vegetation is considered to be moderate to low quality and / or cover for FRWL.
- Unlikely FRWL habitat is recorded in areas lacking large stones and areas containing dense ground cover vegetation, or areas outside of the known range of the species such as in the MDD Bioregion.

Using the above mapping, targeted FRWL field surveys were undertaken in accessible areas mapped as known or possible habitat for FRWL within the Disturbance Footprint, Development Envelope and OTL.

The survey was undertaken using diurnal searches, with searches undertaken systematically within defined survey quadrats and on transects, as summarised in **Table 3.10**. The recommended survey methods for the FRWL according to the *Survey guidelines for Australia's threatened reptiles* (DSEWPaC, 2011) are also summarised in the table.

Table 3.10 Recommended and Utilized Survey Methodology to Detect Flinders Ranges Worm-lizard

Recommended Survey Methods (DSEWPaC, 2011)	Survey Methods Utilized (Umwelt)
Searches should be restricted to areas of relatively homogenous habitat	All surveys were undertaken in areas previously mapped as suitable habitat, according to vegetation association. Habitat suitability was further assessed on site, with surveys targeted to homogenous areas of stony cover. Where habitat variables such as stone cover density or vegetation cover differed, additional survey quadrats and transects were established to capture the range of potentially suitable habitat types in the Project Area.
Stone cover density rather than fixed area should determine survey quadrat size. 150–200 rocks need to be turned to be confident of determining species presence.	Transects – were conducted throughout the Project Area and within the Mallee Woodlands where potentially suitable habitat was identified. Ten walking transects were surveyed, with a minimum of 150 rocks or rotting logs turned during each transect. Quadrats – at areas of suitable habitat, an approximate20 m x 20 m quadrat was established, within which a minimum of 150 suitable rocks (at least 10 cm diameter) were turned in each quadrat, with more turned if the area was extremely rocky. Where there was a lower density of rocks, additional area was covered outside of the quadrats until at least 150 rocks had been turned. A total of 52 survey quadrats were surveyed. Each quadrat was photographed, and its location recorded using FieldMaps. Each quadrat was photographed, and its location recorded on FieldMaps. If a FRWL or skin was observed, its location was recorded on FieldMaps and the handheld GPS device. After turning a rock, it was placed back as close as possible to its original position, in such a way as to not harm any FRWL or other species present.
Search success is likely to be highest in spring and early summer on warm (not hot) days, preferably after a period of rainfall.	The survey occurred in autumn, outside of the optimal spring / summer period.
During late autumn and winter, surveys should occur on clear sunny days as the warming of rocks appears to attract lizards to the soil surface.	Weather during the survey represented the ideal autumn survey conditions for the FRWL. This included mild to warm days and mostly sunny mornings and afternoons.

3.3.2.3 Targeted Mallee Bird Community TEC Surveys

Approximately (~) 9.5 km in the south of the proposed OTL alignment was determined to be within the MDD Bioregion, in which mallee vegetation patches meet certain criteria which may qualify as a nationally listed TEC – Mallee Bird Community (MBC) of the Murray Darling Depression (MDD) Bioregion. The TEC is identified based on the size and quality of the mallee vegetation patch and the

presence of an assemblage of specialist and mallee dependant bird species, recorded within 20 km within the last 10 years.

Targeted bird surveys were undertaken in suitable patches of mallee vegetation occurring within the MDD bioregion and intersecting or occurring nearby the proposed OTL and Bundey Substation expansion.

A total of seven MBC sites were surveyed over four days in spring 2023 (November 15 and 20 to 23). Only one survey was undertaken at each site, and the surveys were not necessarily timed to coincide with early morning or late afternoon activity periods. All other methodology was undertaken in accordance with BBUS survey methodology and is described in **Section 3.3.2.4**.

As condition criteria for MBC were already met, additional repeat surveys, as outlined in the *Approved Conservation Advice for the Mallee Bird Community of the Murray Darling Depression Bioregion* (DAWE, 2021a), were not considered necessary.

Targeted bird surveys were undertaken according to the guidelines for systematic bird surveys presented in the Approved Conservation Advice for the Mallee Bird Community of the Murray Darling Depression Bioregion (DAWE, 2021a), detailed in **Table 3.11**.

Table 3.11 Recommended and Utilised MBC TEC Survey Methodology

Recommended Survey Method (DAWE, 2021a)	Survey Method Utilised (Umwelt)
All bird species observed should be recorded, not just species linked to the Mallee Bird Community.	All bird species detected during the field survey were recorded. Opportunistic observations of bird species were also recorded during all field surveys. These records were then collated to determine the bird species present within 20 km of the site, in addition to desktop findings.
Multiple standardised surveys should be undertaken with sufficient surveys to account for variable conditions. • 2 ha 20-minute surveys • 500 metre area searches >30-minute duration (preferred). A minimum of three repeat surveys should be undertaken in each area sampled, taking note of how large and fragmented the site is.	Seven targeted Mallee Bird Community (MBC) surveys were completed across five days in Spring 2023 (November 15 and 20 to 23). Surveys methods were standardised 2 ha 20-minute surveys, as detailed in for Bird Utilisation Surveys in **Section 3.3.2.4**. Repeat surveys were not deemed necessary as the minimum requirement for MBC TEC had already been met using the combination of field survey results and desktop results.
Surveys should be timed to maximise the diversity of bird species recorded: • Survey during August to November • Only survey in optimal weather conditions (low wind <25 km/hr, not too hot <32˚C, avoid rainy days). • Survey in the morning, ideally between 30 mins before sunrise to 6 hours after sunrise.)	Surveys were undertaken during the recommended survey period from 20 to 24 November 2023. Survey conditions were optimal at this time, with clear, mild days and low wind. Where possible, surveys were undertaken in the morning or late afternoon.

Recommended Survey Method (DAWE, 2021a)	Survey Method Utilised (Umwelt)
Adjust the number of sites sampled by size of the mallee woodland fragment: • < 200 ha = three sites • >200–1,000 ha = 10 sites • >1,000 ha = >20 sites. Select sites that are representative of the broader patch. • Avoid surveys on the edge of patches, especially in smaller patches that adjoin modified landscapes.	Within the Project Area <200 ha of potential MBC vegetation occurs within the Project Area (Block C, within the MDD), connected to larger fragments further afield, including up to 698.73 ha within 1 km of the Project Area. Only 0.76 ha is proposed to be impacted. Seven survey sites are considered sufficient to meet the recommended sample size. Where possible, surveys were done on the interior of blocks, however, this was not always possible due to access permissions.
Where possible, avoid surveys in areas recently burnt (<1year) or affected by other recent disturbances.	No parts of the surveyed area had been recently burnt at the time of the survey.
In times and areas affected by drought, survey effort should be increased to account for the potential impacts of drought on the bird community.	Surveys were done in 2023 during reasonable spring conditions. Although it had been a drier than average year, drought conditions were not impacting on the vegetation at the time of the surveys.

3.3.2.4 Bird and Bat Utilisation Surveys (BBUS)

As per the *Onshore Wind Farm Guidance – Best practise approaches when seeking approval under Australia's national environmental law* (DCCEEW, 2024 - in draft), bird and bat utilisation surveys (BBUS) are a requirement of all newly proposed wind farm projects in Australia and aim to provide a risk assessment for the cumulative impact wind farm infrastructure (such as WTGs) may pose to susceptible species, particularly EPBC listed threatened and migratory species.

Bird surveys were conducted utilising methods consistent with Birdlife Australia Systematic Bird Surveys (2-ha, 20-minute search) recommended survey method (as per the *Guidelines for Detecting Birds Listed as Threatened under the Environment Protection and Biodiversity Conservation Act 1999* (DEWHA, 2010a) and Department of Environment and Water (DEW) biological survey methods (NPWSA, 2000).

Targeted 20 minute 2-ha bird surveys were undertaken in the morning and afternoon at nine sites in dominant vegetation associations within WF Project Area during the first field survey in spring 2023. Surveys were again repeated at these sites in summer 2024, and an additional seven sites were established, bringing the total to 16 surveys sites (**Table 3.12** and **Figure 3.1**). Neoen has committed to undertaking seasonal BBUS for 24-months to fulfil expected requirements of the EPBC referral process. **Table 3.13** summarises the dates of the BBUS surveys undertaken to date and proposed future surveys.

Table 3.12 Location and Description of Targeted GNWF BBUS Sites

Site ID	Vegetation Association	Habitat	Latitude	Longitude
1	*Maireana rohrlachii* Low Open Shrubland over Austrostipa spp. and exotic grasses	Shrubland	-33.6317	139.0248
2	Mixed *Austrostipa* spp. Grassland	Grassland	-33.5704	138.9518
3	Mixed *Austrostipa* spp. Grassland	Grassland	-33.604	138.9386
4	*Juncus* spp. Sedgeland associated with minor drainage lines and depressions	Sedgeland	-33.6045	138.9753

Site ID	Vegetation Association	Habitat	Latitude	Longitude
5, (BAT 3)	'Smooth-barked Mixed Mallee' (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods	Mallee Woodland	-33.5344	139.0499
6	Mixed *Austrostipa* spp. Grassland	Grassland	-33.5552	139.0275
7	*Lomandra multiflora* spp. *Dura* +/- *Lomandra effusa* Grassland	Lomandra grassland	-33.5783	139.0358
8	*Lomandra* multiflora spp. *Dura* +/- *Lomandra effusa* Grassland	Lomandra grassland	-33.556	139.0002
9	*Lomandra multiflora* spp. *Dura* +/- *Lomandra effusa* Grassland	Lomandra grassland	-33.6031	139.0062
10	*Maireana rohrlachii* Low Open Shrubland over Austrostipa spp. and exotic grasses	Shrubland	-33.5335	139.0262
11, (BAT 1)	Mixed *Austrostipa* spp. Grassland + emergent *E. porosa*	Grassland	-33.6115	139.0461
12	Mixed *Austrostipa* spp. Grassland	Grassland	-33.5870	138.9927
13	Mixed *Austrostipa* spp. Grassland / Agricultural land currently or historically used for cropping	Grassland / Cropped	-33.5476	138.9702
14	'Smooth-barked Mixed Mallee' (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods	Mallee woodland	-33.6158	139.0666
15, (BAT 2)	*Eucalyptus leucoxylon* ssp. *pruinosa* Woodland	Gum woodland	-33.6262	138.9478
16	'Smooth-barked Mixed Mallee' (E. *gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods	Mallee woodland	-33.5603	139.0511

Table 3.13 BBUS Field Survey Dates

Survey	Dates	Comments
Spring 2023	20 to 24 November 2023	Survey and reporting completed.
Summer 2024	12 to 16 February 2024	Survey and reporting completed.
Autumn 2024	14 to 16 May 2024	Survey and reporting completed.
Winter 2024	16 to 19 July 2024	Survey and reporting completed.
Spring 2024	30 September to 3 October 2024	Survey and reporting completed.
Summer 2025	17 to 20 February 2025	Survey and reporting completed.
Autumn 2025	12 to15 May 2025	Survey and reporting completed.
Winter 2025	21 to 24 July 2025	-

Targeted Threatened Bird Species

Six sites have been placed within habitat considered suitable for the EPBC listed Southern Whiteface (*Aphelocephala leucopsis leucopsis*), known to occur in the Project Area (Site 1, 5, 10, 14, 15 and 16).

2-ha 20-minute Point Count

Data collected for each point count observation were as follows:

- Species observed.
- Number of individuals.
- Behaviour:
    - flying in a single direction – FLM.
    - flying (hovering or circling) over or around a single point – FLH.
    - foraging (feeding) on ground – FOG.
    - perching/resting/walking on ground – ROG.
    - perching/resting/climbing on trees or shrubs – ROT; and
    - direction and height of flight where possible.

Behaviour was 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. If birds were heard or observed outside the survey area, they were recorded as 'offsite'.

Flight height details can be used to help assess the potential collision risk of bird species. As such, flight height details were recorded for all bird species observed flying during the BBUS surveys.

Vehicular Transects

The winter 2024 BBUS introduced a new survey methodology based on the recommendations of the autumn 2024 report which sought to better capture the abundance of grassland birds, particularly raptors, over such a large Project Area (EBS Ecology, 2024d). Based on the guidelines for surveying Australia's birds via vehicular methods (DEWHA, 2010a), the following techniques were applied:

- Four x 5 km long vehicle transects were created within grassland habitat and distributed across the Project Area to best represent the conditions and prevalence of avian fauna.
- The transects were traversed at 10–20 km/h, stopping only if required to identify birds.
- Each time a bird was sighted, a GPS point as made, and standard observations were recorded.

The location of the four vehicular transects are provided in **Figure 3.1** with location details provided below in **Table 3.14**.

Table 3.14 Vehicular Transect Sites

Transect	Starting Coordinate	End Coordinate
1	-33.6181, 139.0242	33.6181, 139.0242
2	-33.5487, 138.9651	-33.5852, 138.9614
3	-33.5661, 138.9991	-33.6032, 138.9808
4	-33.5556, 139.0294	-33.5653, 139.0215

Migratory Birds

Desktop assessments identified that migratory species Fork-tailed Swift may occur. BBUS surveys were also undertake in accordance with the survey techniques outlined in the *Migratory Birds Draft Referral Guideline* (DotE, 2015) in **Table 3.15**.

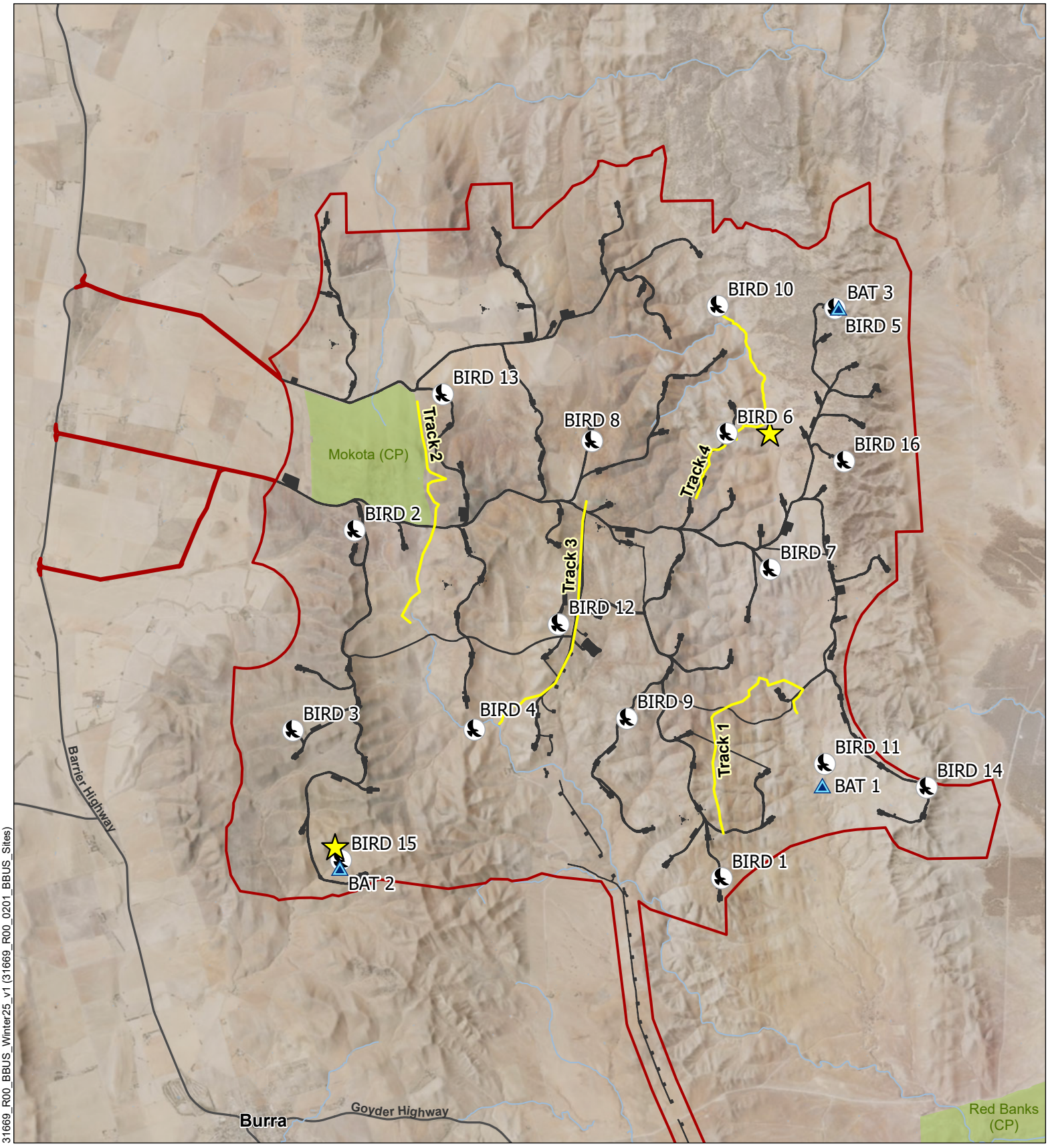
Table 3.15 Methods Utilised for Migratory Bird Detection

Recommended Survey Guidelines	Accordance With Survey Guidelines
Surveys by experienced person from elevated viewpoints during Austral summer	Two summer BBUS surveys have been undertaken in the Project Area (February 2024 and February 2025), including 13 sites which occurred on elevated viewpoints. Surveys used 2-ha 20-minute point counts. Significant additional survey work has been undertaken during summer months in the Project Area during which any opportunistic records of the species would have been recorded if present.
Note prevailing weather conditions	Survey conditions were recorded during each session.
Examine long-term databases to find relevant historical records.	Searches of relevant databases including BDBSA and Atlas of Living Australia (ALA) were undertaken for the Project Area.
Counts per hour can be used on multiple days during migration period to calculate numbers of	No counts per hour were undertaken in the Project Area, as no evidence of significant or important populations were detected in desktop assessments or during the course of BBUS surveys or other field work.

Bat Survey Sites

Although no threatened bat species are known to occur within the Project Area, microbat ultrasonic call capture was also used simultaneously during BBUS. At each survey period, three AnaBat recorders are deployed at three sites for one night each (**Figure 3.1**). Information regarding bat calls for each of the seasonal surveys will be collated at the conclusion of the BBUS monitoring program and will be analysed in accordance with the reporting standards developed by the Australasian Bat Society (DEWHA, 2010b).

Figure 2.1 BBUS Monitoring Site Locations and Vehicular Transects at GNWF



Goyder North Wind Farm
Disturbance Footprint
Main road
Water course
Water body
NPWSA reserve

Wedge-tailed Eagle (*Aquila audax audax*) nest
Bird and Bat Survey - Umwelt
Bird sites
Bat sites
Vehicle transects

Data Source: Umwelt (2024), ESRI (2024), DEW (2022), DIT (2022)

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GDA2020 MGA Zone 54

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31669_R00_BBUS_Winter25_v1 (31669_R00_0201_BBUS_Sites)

3.3.2.5 Opportunistic Observations

All native and exotic fauna species opportunistically encountered, at least for the first time, were recorded across the Project Area during all field surveys, including signs of animal presence (scats, burrows, nests, diggings and other traces). For each opportunistic observation, the species, number of individuals, GPS location, detection methodology (sight, sound, or sign) and habitat were recorded, resulting in a general species list for the Project Area.

Threatened species and raptors with a high risk of avian collision, were recorded at each encounter, with additional information collected as outlined in the BBUS survey methodology (refer to **Section 3.3.2.4**).

Habitat was broadly assessed for species suitability, including presence of hollows, leaf litter, food resources and refuge structures. Particular attention was paid to identifying habitat for threatened species.

3.4 Field Survey Limitations

Due to the large size of GNWF, surveys were aligned as closely as possible to the Disturbance Footprint as the design progressed, rather than covering the entire GNWF Project Area in detail on all occasions. However, given the number of surveys undertaken and the spread of survey sites across the Project Area, it is well understood. Targeted on-ground flora and fauna surveys for MNES were based on the design layout at the time of each survey, with efforts expanding to cover any subsequent refinements to the Disturbance Footprint (up to May 2025). Although targeted surveys have not been conducted in all locations of the Project Area, ecologists have extensively traversed the area during numerous survey sessions since 2022. Consequently, ecological knowledge of the entire site is of moderate to high confidence, increasing to high confidence in proximity to the Development Envelope and Disturbance Footprint.

Whenever possible, surveys were conducted under conditions favourable to the task and representative of the expected seasonal conditions. However, due to the timeframes and the need for advance planning, this was not always feasible. Over a three-year period, numerous surveys were carried out, encompassing a wide range of seasonal conditions. While climatic conditions during some survey periods may have affected the diversity of flora and fauna observed, the multiple site visits likely mitigated these impacts.

The survey period includes a period of drought, with 2024 noted to be one of the driest years on record for the agricultural region of South Australia (Bureau of Meteorology, 2025). Since all threatened flora species with potential to occur in the Project Area are long lived and larger perennial species, seasonal conditions are not expected to have impacted their detectability. For INTG, condition class assessment relies on the number of species present, which is likely to be lower during times of drought. In cases where INTG were on the cusp of classification as Class B INTG and other more stable measures such as density of Lomandra tussocks met the criteria, the precautionary approach was taken.

All surveys were conducted using methods outlined in the relevant and appropriate survey guidelines. Where necessary, these methods were modified to suit specific conditions or requirements, as detailed in the relevant sections above. This approach ensured that the surveys were both rigorous and adaptable, providing reliable data while accommodating the unique aspects of each survey situation.

The survey effort has been extensive, employing appropriate survey methods throughout the Project Area. However, there remains a possibility that some flora and fauna species may not have been detected or identifiable at the time of surveys. Consequently, the actual number of species present in the entire Project Area is likely more extensive than recorded. While threatened species assessed as possible, likely, or highly likely to occur have not been observed during field surveys to date, this does not categorically confirm their absence from the Project Area.

3.5 Impact Assessment

Project design overlays including the GNWF Development Envelope and Disturbance Footprint were used to calculate areas of impact to vegetation associations and subsequently, to preferred habitat for conservation significant species. Areas of permanent and temporary impacts are proposed (defined in **Table 3.16**) within which, a scale of impacts may be proposed. Direct (i.e. clearance of habitat or loss of individuals) and indirect (i.e. construction and operation disturbance) impacts are considered in detail for each relevant species in **Section 6.0** and **Section 7.0**. Impacts are divided into several categories, described in **Table 3.17**, each of which may be relevant in different ways to threatened flora and / or fauna species.

Table 3.16 Impact Definitions in Relation to the Project

Disturbance Type	Definition
The Action	The Action includes both construction and operation of the proposed Project, and any change from existing activities which are required to undertake these tasks safely and effectively. Both direct and indirect impacts of the Action are considered in the assessment of potential impacts presented in this report.
Permanent disturbance	The areas within the GNWF DF (up to 307.56 ha) which will not be rehabilitated following construction. These areas are required to locate the infrastructure, and to provide safe and efficient access throughout the life of the infrastructure, including for the operation and maintenance of the WTGs, transmission infrastructure and BESS for all Project elements. These areas will require either land acquisition and/or an easement agreement with landowners and will likely result in changes to existing land use.
Temporary Disturbance	The areas within the GNWF DF (up to 229.26 ha) that are proposed to be cleared during construction to enable access of heavy machinery and construction related activities but rehabilitated following construction where it is reasonable and practical to do so. The Temporary Disturbance areas will be rehabilitated following construction, with the objective of returning the area (where practicable) to native vegetation cover of similar composition, to the pre-disturbance vegetation associations present.

Table 3.17 Types of Impact Resulting from the Proposed GNWF Project

Type	Terminology	Definition
Permanent Disturbance	**Direct Impact**	Adverse impacts that occur as a result of the action either during construction or operation or both. Includes immediate observable effects of the action such as clearance of vegetation, loss of individual flora or fauna species from construction or from operation of wind turbine generators or disruption of fauna behaviours (such as nesting) within the Disturbance Footprint because of noise and increased activity during construction

Type	Terminology	Definition
	Indirect Impact	Adverse impacts that could reasonably be predicted to follow from the action during construction and / or operation, whether these impacts are within the control of the proponent proposing to take that action or not. Indirect impacts may include encroachment of weeds into disturbed areas or change in water runoff / catchments.
Temporary Disturbance	**Direct Impact Rehabilitated**	Vegetation impacts which involve initial clearance followed by dedicated rehabilitation measures to return the cleared area to its previous state or better where practical and reasonable to do so. Rehabilitation actions are proposed to be undertaken within three years of the initial impact.

4.0 Desktop Assessment Results

4.1 Environmental Setting

The GNREF primarily occurs within the Flinders Lofty Block (FLB) bioregion, with approximately 9.5 km of the southern end of the OTL (including Bundey Substation) within the Murray Darling Depression (MDD) bioregion. Within the FLB, the GNREF is dominated by ridges, plains, and undulating low hills, with occasional rocky outcrops that fall away to low foot slopes and drainage channels at regular intervals. Native vegetation is comprised predominantly of grasslands, with large tracts of Iron-grass (Lomandra spp.) in the middle and eastern sections. Remnant mallee woodland associations occur along the eastern side of the site, where they drop steeply into chenopod dominated plains. The OTL traverses low grassy hills and plains, chenopod dominated plains, and an area of the steep, mallee dominated Hallelujah Hills, before dropping again into chenopod shrublands and mallee plains in the MDD.

The following sections outline the environmental setting for the GNREF to provide a broader context for the GNWF Project.

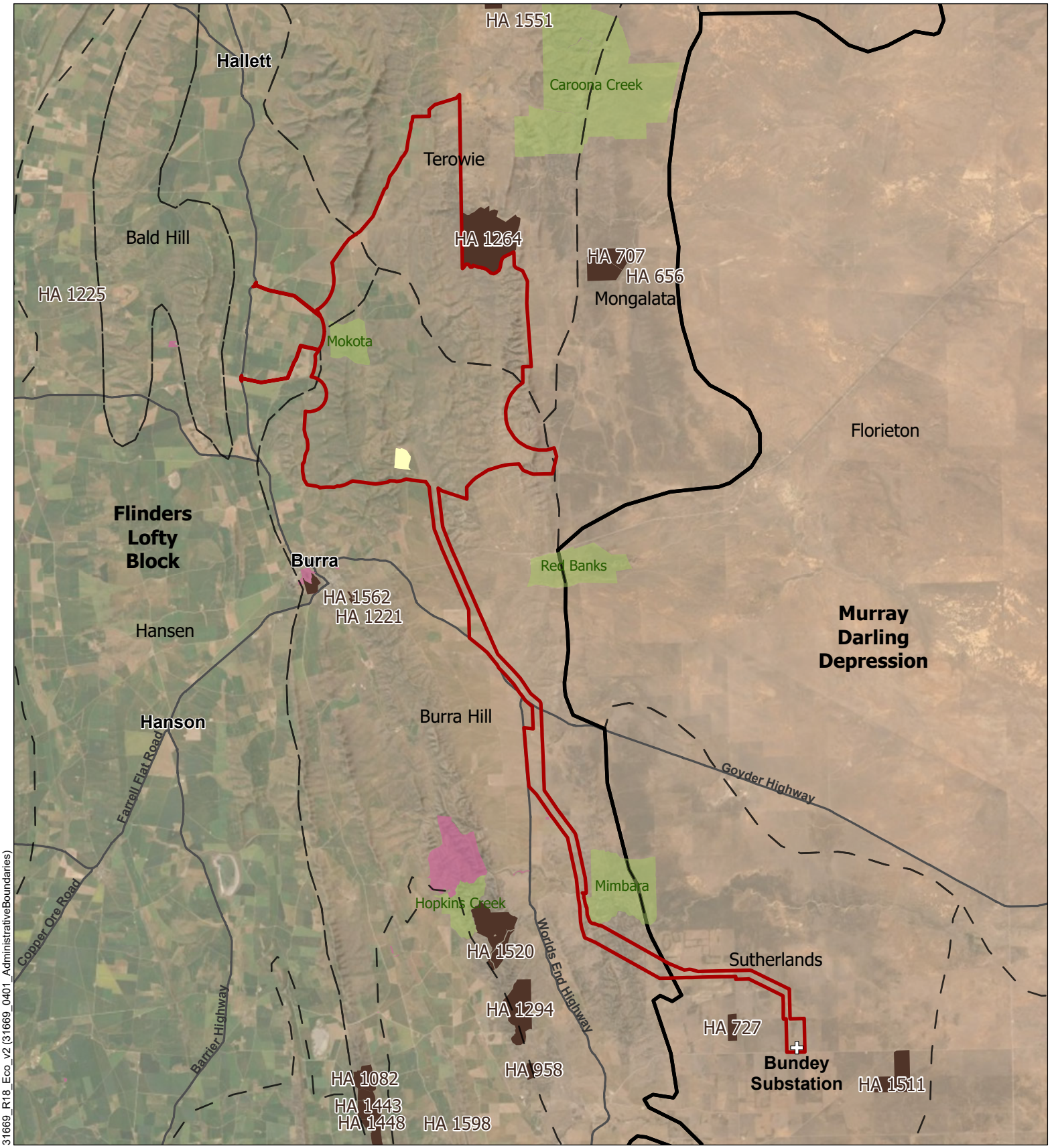
4.1.1 Administrative Boundaries

The GNREF is in the administrative regions of SA as outlined in **Table 4.1**.

Table 4.1 Administrative Boundaries Relevant to the Project Area

Administration	Region / Boundary	Project Element
State Government Region	Yorke and Mid North	WF, OTL
Local Government Area	The Regional Council of Goyder	WF, OTL
Landscape Management Region (LMR)	Northern and Yorke LMR	WF, OTL
Soil Conservation District	Hummocks, Eastern Districts	WF
	Hummocks, West Broughton	GNREF
	Hummocks, Eastern Districts, Lower North	OTL
Hundred (s)	Kingston, Mongolata, Kooringa, Baldina	WF
	Hallett, Kingston, Mongolata	GNREF
	Kingston, Kooringa, Baldina, Bright, Bundey	OTL
Interim Biogeographical Region of Australia (IBRA)	Flinders Lofty Block (FLB)	WF, OTL
	Murray Darling Depression (MDD)	OTL,
IBRA Environmental Association	Burra Hill, Terowie, Hansen	WF
	Burra Hill, Sutherlands	OTL

Figure 4.1 Administrative Boundaries Relevant to the GNREF



GNREF
IBRA region
IBRA association
Tiliqua Nature Reserve
Vegetation Heritage Agreement
SEB
NPWSA reserve
Bundey Substation (existing)

31669_R18_Eco_v2 (31669_0401_AdministrativeBoundaries)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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GDA2020 MGA Zone 54

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4.1.2 Interim Biogeographical Regionalisation of Australia

The IBRA is a landscape-based approach to classifying the land surface across a range of environmental attributes, which is used to assess and plan for the protection of biodiversity.

The GNREF falls within the FLB and MDD bioregion, further split into smaller subregions of Olary Spur, Broughton, and Murray Mallee based on the local characteristics on the area. GNWF occurs across four environmental associations: Burra Hill (Block A), Terowie (Block B), Sutherlands (Block C) and Hansen (Block D). The characteristic features of the bioregion, subregions are described in **Table 4.2**. Detailed information on environmental associations is presented in **Table 4.2**. Detailed information on Olary Spur and South Olary Plain Sub-Region Environmental Associations is limited due to changes in IBRA Version 7.0.

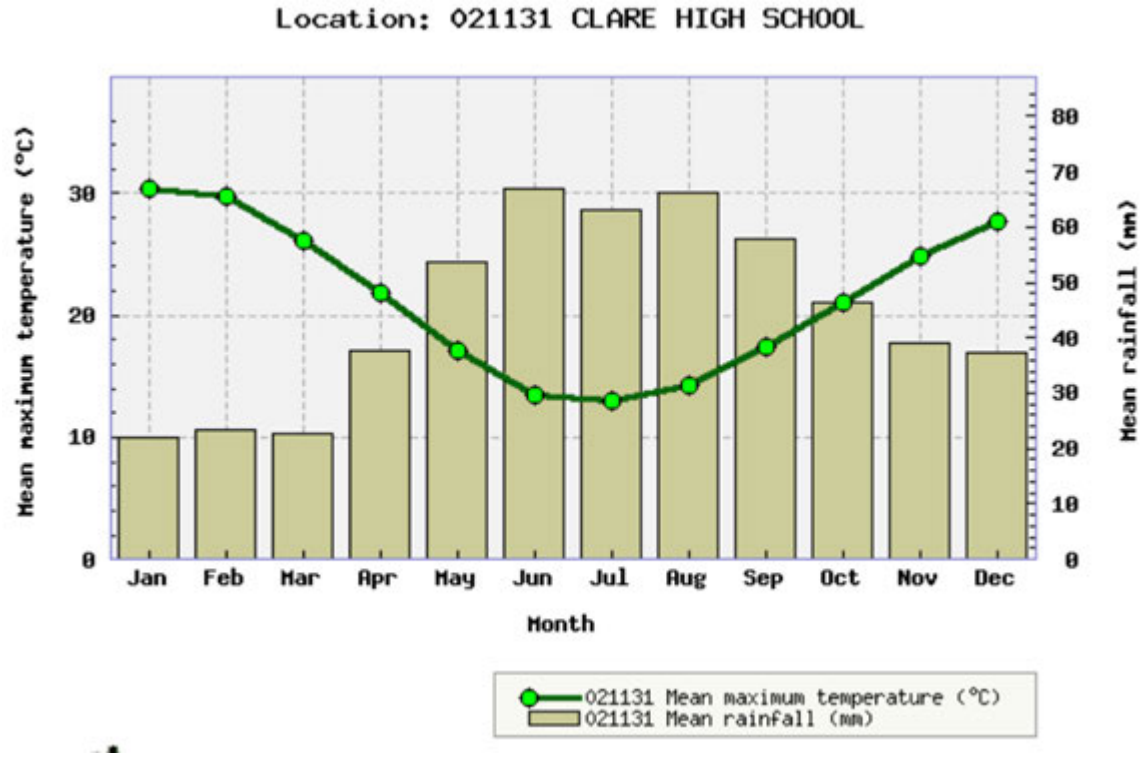
Table 4.2 Summary of IBRA Bioregions and Subregions Within the Project Area

Flinders Lofty Block IBRA Bioregion	
Temperate to arid Proterozoic ranges, alluvial fans, and plains, and some outcropping volcanics, with the semi-arid to arid north supporting native cypress, black oak (Belah) and mallee open woodlands, *Eremophila* and *Acacia* shrublands, and *Maireana* spp. (Bluebush) / *Atriplex* spp. (Saltbush) chenopod shrublands on shallow, well-drained loams and moderately deep, well-drained red duplex soils. The increase in rainfall to the south corresponds with an increase in low open woodlands of *Eucalyptus obliqua* (Messmate stringybark) and *E. baxteri* (Brown Stringybark) on deep lateritic soils, and *E. fasciculosa* (Pink Gum) and *E. cosmophylla* (Cup Gum) on shallower or sandy soils.	
Broughton IBRA Subregion	
This subregion is characterised by a series of wide undulating intra-montane basins with red duplex soils, separated by low but distinct northerly trending strike ridges. In the north the region leads into the Southern Flinders Ranges with no sharply defined landform boundary but a land use boundary marking the northern extremity of wheat cultivation. Due to widespread clearing for farming the only significant remnant of native vegetation is found in the Mt Remarkable area, where an open forest dominated by *Eucalyptus cladocalyx* (Sugar Gum) or by *E. goniocalyx* (Long-leaved Box) and *E. leucoxylon* (SA Blue gum) on reddish dense loams remains. Degraded remnants of *E. leucoxylon* and *E. odorata* (Peppermint Box) woodlands can still be found on stony crests and steep slopes.	
Remnant vegetation	Approximately 10% (106,330 ha) of the subregion is mapped as remnant native vegetation, of which 3% (3,064 ha) is formally conserved.
Landform	Hills and valleys; alternating subparallel hilly ridges and valleys with a general N-S trend in the north. In the south, hilly dissected tableland.
Geology	Dissected lateritized surface in south.
Soil	Hard setting loams with red clayey subsoils, highly calcareous loamy earths, hard setting loams with mottled yellow clayey subsoil, coherent sandy soils, cracking clays.
Vegetation	Assumed native vegetation cover.
Conservation significance	55 species of threatened fauna, 113 species of threatened flora. No wetlands of national significance.
Olary Spur IBRA Subregion	
Characterised by gentle foot-slopes and plains dominated by chenopod shrublands, hogback rides with Mallee in the south to Mulga shrublands in the west. The sub-region consists of calcareous plains with low shrubland of *Maireana sedifolia* (pearl bluebush); plains of *Myoporum platycarpum* (Sugar wood) open woodland over *Atriplex vesicaria* (bladder saltbush) or *A. vesicaria* low shrubland with *Atriplex stipitata* (bitter saltbush); low hills of bladder saltbush low shrubland; watercourse plains of *Nitraria billardiera* (Nitre bush) and *Maireana pyramidata* (black bush) with *Eucalyptus camaldulensis* (River Red Gum) creeks.	
Remnant vegetation	Approximately 0.94% (16,393 ha) of the subregion is formally conserved.

Murray Darling Depression IBRA Bioregion	
An extensive gently undulating sand and clay plain of Tertiary and Quaternary age frequently overlain by aeolian dunes. Vegetation consists of semi-arid woodlands of Black Oak / Belah (*Allocasuarina* sp.), Rosewood (*Alectryon oleifolius*) and *Acacia* spp., mallee shrublands and heathlands and savanna woodlands.	
Braemer IBRA Subregion	
Remnant vegetation	Approximately 100% (957,367 ha) of the subregion is mapped as remnant native vegetation, of which 0% (3,461 ha) is formally conserved.
Landform	Plains with variable dune cover, from dune formations with relatively small plains between to plains with isolated tracts of dunes. Claypans, saline soils, swamps, and intermittent lakes in low-lying areas.
Geology	Exposed caliche & crusty loamy soils; colluvial sand, silt, clay & gravel along foot slopes of Olay Spur. Evaporite deposits; gypsum & halite.
Soil	Brown calcareous earths, highly calcareous loamy earths, cracking clays, yellow grey, hard setting loamy soils with red clayey subsoils.
Vegetation	Chenopod shrublands.
Conservation significance	29 species of threatened fauna, 14 species of threatened flora. 0 wetlands of national significance.
Murray Mallee IBRA Subregion	
Extensive calcrete plains overlain by a series of sand dunes. The calcrete ridges which form the undulating plain have a distinct west-north-westerly trend. The soils are shallow reddish sands on the plains and deep yellowish sands on the dunes. Fans bordering the Mt Lofty Ranges with low isolated hills rising above them have red duplex soils and calcareous earths subject to sheet erosion. Mallee is the dominant vegetation of the subregion. Its species composition reflects the diminishing coastal influence towards the north, especially in the understorey: Broombush (*Melaleuca uncinata*) gives way here to saltbush and bluebush (*Atriplex* and *Maireana* spp.) and hummock grass (*Triodia irritans*). Blue gum (*E. leucoxylon*) and Peppermint Box (*E. odorata*) are characteristic species in the west of the region. Although tracts of mallee still occur, most of the original vegetation has been cleared for agriculture.	
Remnant vegetation	Approximately 21% (444,401 ha) of the subregion is mapped as remnant native vegetation, of which 17% (76,180 ha) is formally conserved.
Landform	Very gently undulating, to flat aeolian sand covered depositional plain of the central-southern Murray Basin.
Geology	East-west linear dunes, regularly spaced with cusp-like crests which are consistently steeper on the southern side. Up to four buried paleosols within the dune. Dunes composed of pale to dark reddish-brown calcareous sand with some clay fraction.
Soil	Brown calcareous earths and highly calcareous brown loamy earths, hard setting loamy soils with red clayey subsoils, cracking clays.
Vegetation	Mallee heath and shrublands.
Conservation significance	101 species of threatened fauna, 136 species of threatened flora. 9 wetlands of national significance.

4.1.3 Climate

Climate data was sourced from the Clare High School Weather Station (site number: 021131), located approximately 40 km south of the southern boundary of the GNREF. The area surrounding Burra reaches relatively hot maximum temperatures in summer, with mean maximum temperatures highest in January (30.4 degrees) and February (29.7 degrees). The wettest months are June (66.9 millimetres (mm)), August (66.3 mm) and July (63.0 mm) (BOM, 2024) **Graph 4.1**. The Project Area occurs to the east of this permanent weather station, whereby conditions transition into drier, semi-arid conditions. The western extent of the WF occurs in the 401–500 mm rainfall zone, the eastern extent and OTL are within the 301–400 mm zone.



Graph 4.1 Mean Maximum Monthly Temperatures and Mean Monthly Rainfall Recorded at Clare High School Weather Station (Site number 021131) from 1994 to 2024

4.1.4 Protected Areas

Several Protected Areas occur within the Search Area (shown in **Figure 4.1** and listed in **Table 4.3**), including:

- Four state protected Conservation Parks.
- Twelve privately managed Heritage Agreements / nature reserves.

The relevance of these protected areas in relation to the GNWF, are discussed below, however, Neoen has applied an exclusion zone around all infrastructure, and therefore no protected areas are within the Disturbance Footprint.

Conservation Parks

Mokota Conservation Park (CP) is a 445-hectare park was gazetted in October 2000, with the aim to protect important native grassland vegetation (DEH, 2003). Mokota CP is known to contain over 150 native plant species, including 32 species of state conservation significance. The CP also provides habitat for up to 28 animal species including the Nationally Vulnerable Flinders Ranges Worm-lizard

(*Aprasia pseudopulchella*). Mokota CP occurs within GNWF, on the northwestern boundary of the WF. It is bounded to the north by White Hill Road, and an additional main windfarm access road is proposed along its southern boundary. A Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) developed by Neoen will address any potential indirect impacts to the CP from dust generation and water runoff.

Caroona Creek CP is approximately 5,422 ha in size and was proclaimed under the NPW Act in 2010 (Government of South Australia, 2010) for its representative sample of the transitional zone between the rounded hills of the Mid North to the beginning of the rocky gorge country of the Flinders Ranges (DENR, 2011). It hosts a range of unique flora including the EPBC listed *Codonocarpus pyramidalis* (Slender Bell-fruit). Caroona Creek CP occurs to the northeast of GNREF and will not be impacted directly or indirectly by the Project.

Red Banks CP is 1,035 ha in size and characterised by low undulating hills dominated by chenopod shrubland (DEH, 2005b). It conserves nationally listed threatened ecological communities including Iron-grass Natural Temperate Grassland (INTG) of South Australia and Plains Mallee Box Woodland of the Murray Darling Depression, as well as state listed threatened plant species, and a rich palaeontological history. Baldina Creek passes through the CP, which is known to provide small areas of permanent riparian habitat for several birds of conservation significance. Red Banks CP occurs over 5 km southeast of the WF boundary and approximately 5 km east of the OTL at its nearest point.

Mimbara CP is 2,176 ha in size and was proclaimed under the NPW Act in 2015 (Government of South Australia, 2015). It is bounded by Thomas Road in the north, Eagle Hawke Gate Road to the east and Burra Creek in the south. It occurs directly to the east of the OTL, within the Development Envelope, however, an exclusion applies around infrastructure development in this area. It contains predominantly Mallee vegetation and is known to protect over 46 bird species (BirdsSA, 2021). No direct impacts are proposed. However, a CEMP and OEMP developed by Neoen will address any potential indirect impacts.

Heritage Agreements

A Heritage Agreement is defined as a conservation area on private land, which is established by agreement (or contract) between a landholder and the Minister for Sustainability, Environment and Conservation, under the NV Act. Agreements are ongoing or perpetual and are binding on future landholders. Even if the property is sold or ownership is transferred, the conservation status of the land under agreement will continue. Native plants and animals within the specified Heritage Agreement area must be protected from the time the agreement is made. If an activity could adversely impact native flora and/or fauna in a Heritage Agreement area, then the Minister will need to grant approval before it can be performed.

Twelve Heritage Agreements (HA) have been listed as part of the PMST results within the Search Areas. Three out of the 12 HAs were determined to be outside of the Project Area and are not displayed on the map in **Figure 4.1**. One out of the 12 HAs occurs within the Project Area, Tiliqua Nature Reserve however the Disturbance Footprint and Development Envelope avoids this HA and is excluded from the involved parcels of land. The remaining seven HAs are outside of the Project Area.

Tiliqua Nature Reserve is a privately owned and managed reserve within the Project Area, dedicated to the protection of PBTL. The reserve is not officially listed on NatureMaps but occurs in the south-central part of the Project Area on Wandilah Station, where it protects an 85-ha area known to support a population of PBTL and is dedicated to protecting and researching the species, through its long-running partnership with Flinders University (located in Adelaide, South Australia).

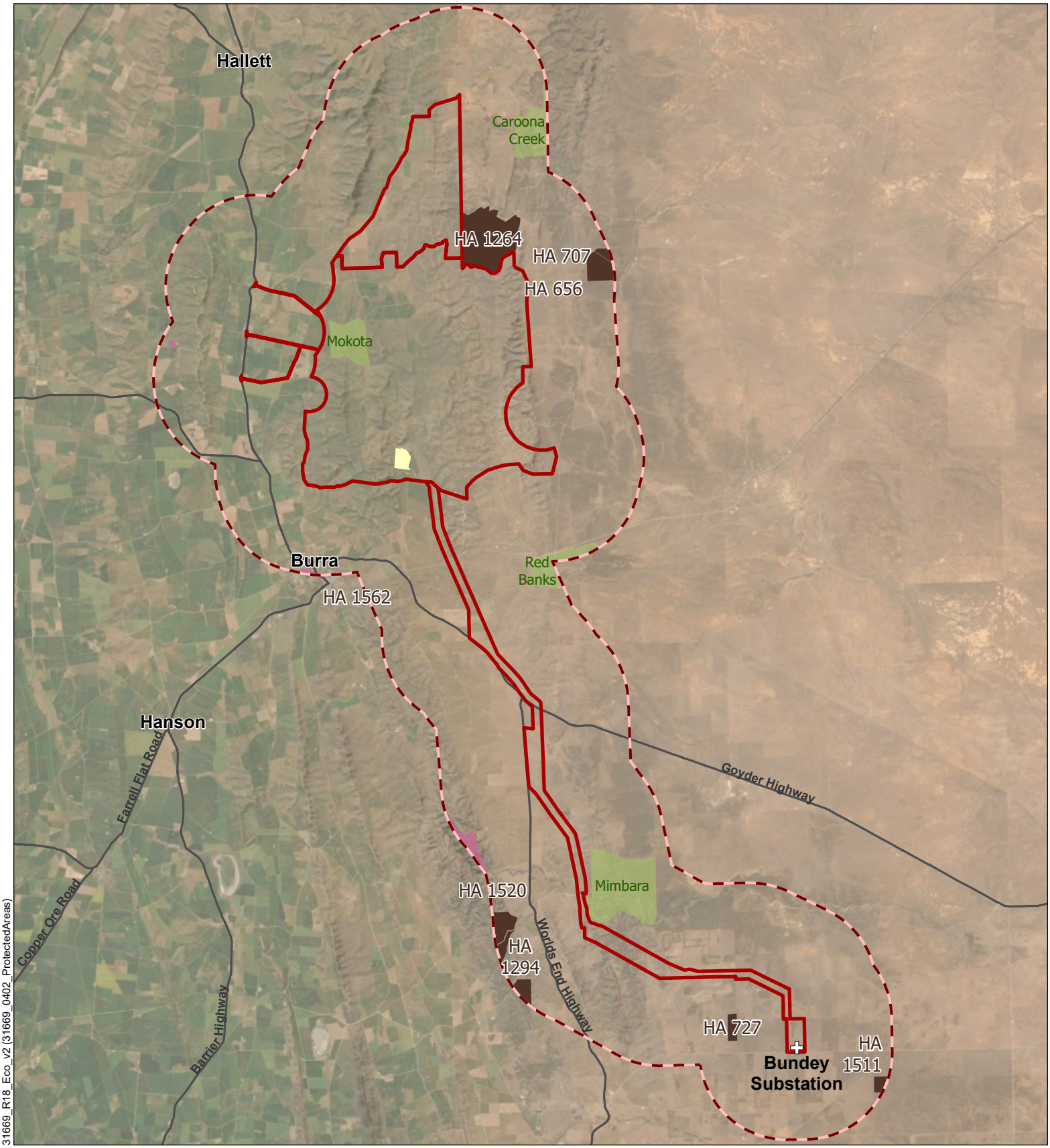
Table 4.3 Protected Areas within Search Area

Heritage Agreement ID #	Establishment Date	Area (ha)	Location Within Search Area
Tiliqua Nature Reserve	2010	85.00	Wandilah Station (not marked), owned and managed by Nature Foundation.
HA 1221*	2001	25.51	East of Burra township.
HA 1264	21/3/2002	913.53	Central (eastern outskirts, overlaps with Project Area for Goyder North Extension.
HA 1551*	11/5/2016	44.00, 168.60	Goyder North Extension (two polygons).
HA 1562	21/11/2016	62.91	Burra township.
HA 656	18/06/1992	231.71	To the east of the Project Area.
HA 707	29/10/1992	151.12	To the east of the Project Area.
HA 277*	14/7/1989	152.59	Goyder North Extension.
HA1520	03/05/2012	481.10	West of OTL and World End Highway in the Hallelujah Hills
HA1294	24/9/2004	413.92	West of OTL and World End Highway in the Hallelujah Hills
HA727	17/12/1992	79.16	South of OTL, west of Junction Road.
HA1511	04/01/2013	315.88	Southeast of OTL end, south of Salford Road.

Source: NatureMaps Heritage Agreements layer (DEW, 2025).

*Indicates HAs identified in PMST but not found to be within Search Area or displayed on maps.

Figure 4.2 Protected Areas Mapped within Search Area



GNREF
Search Area
Tiliqua Nature Reserve
Vegetation Heritage Agreement
SEB
NPWSA reserve
Bundey Substation (existing)

31669_R18_Eco_v2 (31669_0402_ProtectedAreas)

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 11:56 AM
Created by: sophie.haswell

GDA2020 MGA Zone 54

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4.1.5 Watercourses and Wetlands

The south and western extent of the GNREF is within the Upper Burra Creek surface water sub-catchment area. No large natural water bodies occur in the GNREF; however, numerous constructed farm dams occur alongside an intersecting network of small named and unnamed ephemeral watercourses, fed by runoff from surrounding hills and ranges. Named watercourses and waterbodies within the Search Area which intersect each Project element, is listed in **Table 4.4**. All named watercourses within the Search Area are indicated in **Figure 4.3**.

Table 4.4 Watercourses and Wetlands Intersecting Each Section of the GNREF

Project Element	Watercourses	Wetlands
WF	Newikie Creek North Wiry Creek South Wiry Creek Wandalla Creek Baldina Creek	None
OTL	Wandalla Creek Baldina Creek Stone Chimney Creek Burra Creek	None
GNREF (north)	Mont Bryan Creek Newikie Creek	None

Creeks

Most watercourses within the GNREF, except for Burra Creek, are relatively small, eroded creeks or drainage lines which do not hold permanent water and are likely to have degraded vegetation, impacted by erosion and long-term agricultural practices. Several named creeks have Environment Protection Authority (EPA) water monitoring sites, with characteristics described further below.

Burra Creek is a large stream which rises north of Burra and flows in a south easterly direction, connecting to the Murray River, east of Morgan. Flows disappear underground in the lower reaches, except during flooding. Monitoring in 2010 showed it to be in fair condition, with evidence of human disturbance such as nutrient enrichment and fine sediment deposition, however, some areas of intact riparian vegetation still occur (EPA, 2025).

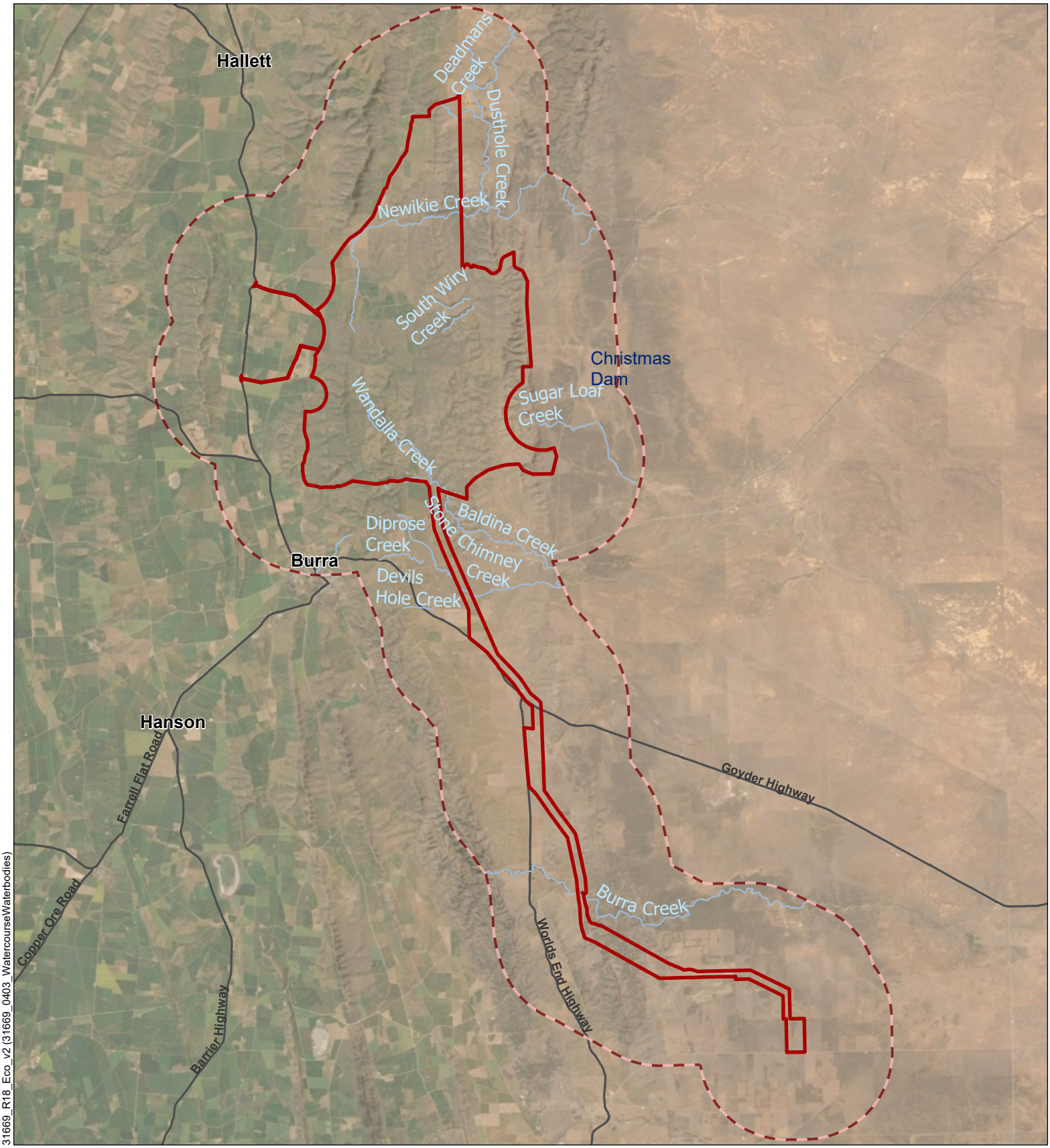
Baldina Creek is a small stream which rises north of Burra and drains in an easterly direction through Red Banks CP, where it includes several permanent springs, and then disappears underground into surrounding mallee vegetation. It is generally in poor condition, typically dry except following rainfall, with evidence of human disturbance, lack of remnant vegetation and impacts from livestock and erosion (EPA, 2025).

Stone Chimney Creek is a small stream which rises east of Burra and drains in an easterly direction through Red Banks CP, before disappearing underground in the mallee. The creek is in fair condition, typically dry, retaining some riparian vegetation, but showing signs of erosion, stock damage and weed encroachment (EPA, 2025).

Wetlands and Other Waterbodies

No wetlands occur within the Search Area. Waterbodies are limited to small farm dams and watering troughs.

Figure 4.3 Waterbodies and Named Watercourses Within the Search Area



GNREF
Search Area
Watercourses
Waterbodies

31669_R18_Eco_v2 (31669_0403_WatercourseWaterbodies)

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 11:59 AM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

4.2 Matters of National and State Environmental Significance

The results of the PMST report (with a buffer of 5 km from the boundary of the GNREF), including other matters protected by the EPBC Act, identified that five of the eight potential MNES might occur in the Project Area and / or Search Area including:

- National Heritage Places.
- Wetlands of International Importance – 150–200 km upstream from the Coorong and Lakes Alexandra and Albert Wetland (Ramsar site number 25).
- Listed Threatened Ecological Communities.
- Listed threatened species.
- Listed Migratory species protected under International Agreements.

National Heritage Places are not considered further in this Ecological Assessment Report. The relevant ecological MNES, other matters protected under the EPBC Act, and threatened species listed under the NPW Act with records in the Search Area, are discussed in detail in the following sections.

4.2.1 Wetlands of International Importance

The Coorong, and Lakes Alexandrina and Albert Wetland was identified within the PMST results as being a Wetland of National Importance, although its proximity to the Search Area was described as 150–200 km upstream. The Coorong and Lakes Alexandrina and Albert Ramsar site is located at the downstream end of the Murray River, in south-east South Australia. The Murray River flows into Lake Alexandrina and out to the Southern Ocean through the Murray Mouth Estuary. Lake Albert is a terminal lake connected to Lake Alexandrina by a narrow channel. Its primary source of water is from Lake Alexandrina, supplemented by groundwater discharge and surface water runoff.

The Coorong, and Lakes Alexandrina and Albert Wetland will not be impacted upon by any proposed development for GNWF.

4.2.2 EPBC Act Threatened Ecological Communities

The database searches indicated that up to four TEC may occur within the GNREF:

- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia.
- Iron-grass Natural Temperate Grassland of South Australia.
- Mallee Bird Community of the Murray Darling Depression Bioregion.
- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions.

Vegetation in the Project Area has been assessed against the definitions of each TEC identified in **Table 4.5**. The assessment found that two TECs occur in GNWF.

Table 4.5 Assessment for the Presence of TECs in the Project Area

Threatened Ecological Community	Conservation Status	Definition	Assessment
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia (PBGW)	Critically Endangered	PBGW is restricted to SA and consists of an open to dense woodland dominated by Eucalyptus *odorata* and typically occurs with other tree species including *E. leucoxylon*, *E. microcarpa* or *E. porosa*. Canopy height comprises low trees, 5–10 m tall with an understorey comprised of diverse grasses and herbs including *Austrostipa* sp., *Lomandra* sp. and *Acacia* pycnantha. (DEWHA 2008; Turner 2012). This TEC can be categorised under three different condition classes (A, B and C), based on remnant patch size and native species diversity and composition. Class C does not make up the TEC but is of sufficient biodiversity value to target for restoration (DEWR 2007; Turner 2012).	Does not occur – no vegetation matching this description was recorded within the GNWF or GNREF. One area (VA8) was assessed against the criteria, but was found not to constitute the TEC. This VA was excluded from the DF in early designs as a precautionary measure.
Iron-grass Natural Temperate Grassland of South Australia (INTG)	Critically Endangered	INTG is endemic to SA and consists of tussock-forming perennial grasses, Iron-grasses (*Lomandra effusa* and/or *L. multiflora* ssp. *dura*) and a low presence (<10%) of trees and tall shrubs (DEWR 2007; Turner 2012). This TEC can be categorised under three different condition classes (A, B and C), based on patch size, native species diversity and composition, and tussock density. Class A and Class B, make up this TEC, while Class C does not make up the TEC but is of sufficient biodiversity value to target for restoration (DEWR 2007; Turner 2012, DEWHA 2008).	Known to occur – INTG was mapped throughout the GNREF including GNWF. Best efforts have been made to reduce impacts in these areas, including relocating WTGs and access tracks as necessary, however 6.14 ha of Class B INTG is known to occur within the current Disturbance Footprint.
Mallee Bird Community (MBC) of the Murray Darling Depression Bioregion (MDD)	Endangered	A fauna community found in the Murray Darling Depression (MDD) bioregion comprising an assemblage of twenty bird species that are dependent on the mallee vegetation that characterizes the bioregion. Criteria for listing includes being within the MDD, containing at least 5 ha dominated by mallee habitats and at least 3 MBC bird species recorded within 20 km in the last 10 years (DAWE 2021a).	Known to occur – this TEC occurs only in the south of the Project Area associated with the southern extent of the OTL within the MDD. Best efforts have been made to avoid this TEC, and only one small patch (0.76 ha) is now proposed to be impacted by the OTL Disturbance Footprint. Considered placement of transmission towers will avoid this vegetation and the need for maintenance of taller vegetation.

Threatened Ecological Community	Conservation Status	Definition	Assessment
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Woodland communities where Buloke (*Allocasuarina luehmannii*) is the dominant or co-dominant tree species. Co-dominant species include *Callitris gracilis*, *Callitris glaucophylla*, *Eucalyptus largiflorens* and *Eucalyptus leucoxylon* ssp. *pruinosa*. In SA, the community is only known from the Bordertown district (Cheal, Lucas, & Macaulay 2011).	Does not occur – no vegetation matching this description was detected within the Project Area and the Project Area is not within its known distribution.

4.2.3 EPBC Act Listed Threatened Species

A PMST search identified that 34 threatened species listed under the EPBC Act might (Known, Likely, May) occur in the Search Area, Development Envelope and/or Disturbance Footprint for GNWF. This included 13 flora and 21 fauna species (including three listed as migratory only). Fourteen of these were found to have historical BDBSA records.

One additional species was reported from BDBSA records, White-throated Needletail (*Hirundapus caudacutus caudacutus*) (EPBC Act: Vulnerable, Migratory (Marine)) however, the single record has low spatial reliability (1-5 km) and is outside of the DCCEEW (SPRAT 2024) listed range for the species, which occurs further to the south. As the species is a Migratory aerial forager and the record is over 50 km from the WF boundary, it is considered unlikely to occur or be impacted by the GNWF Project and is not considered further in this report.

Following field surveys, each species was assessed for its likelihood of occurrence in the Disturbance Footprint and broader GNWF Project Area. This assessment determined that seven flora and six fauna species, that are threatened under the EPBC Act, are either known to occur, highly likely to occur, likely to occur or possible in the Disturbance Footprint or broader Project Area. These species are listed in **Table 4.6**.

Species listed as marine under the EPBC Act were excluded, since the protection afforded to these species, is restricted to within Commonwealth marine areas which do not occur in the Project Area.

The likelihood assessments for all 36 species, identified by the database searches, are provided in **Appendix A**.

Table 4.6 Threatened Species Assessed as Potentially Occurring in the GNWF DF or Project Area

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in GNWF Project Area
FLORA						
Acacia glandulicarpa (Hairy-pod Wattle)	VU	E	Known, 1977	1, 2	Unlikely	Possible
Acacia spilleriana (Spiller's Wattle)	EN	E	Known, 1994, 2024	1, 2, 3	Unlikely	Known
Codonocarpus pyramidalis (Slender Bell-fruit)	VU	E	Likely	1	Unlikely	Possible

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in GNWF Project Area
Dodonaea procumbens (Trailing Hop-bush)	VU	V	Known, 2021	1, 2	Possible	Known
Dodonaea subglandulifera (Peep Hill Hop-bush)	EN	E	Known, 2007	1, 2	Unlikely	Possible
Olearia pannosa ssp. *pannosa* (Silver Daisy-bush)	VU	V	Known, 2023	1, 2	Unlikely	Possible
Senecio megaglossus (Superb Groundsel)	VU	E	Likely, 1993	1, 2	Unlikely	Possible
FAUNA						
Aphelocephala leucopsis leucopsis (Southern Whiteface)	VU	-	Known, 2017	1, 2	Highly likely / known	Highly likely / known
Melanodryas cucullata cucullata (Hooded Robin (YP, MN, AP, MLR, MM, SE))	EN	R	Known, 2012	1, 2	Highly likely / known	Highly likely / known
Neophema chrysostoma (Blue-winged Parrot)	VU	V	Known	1	Possible	Possible
Stagonopleura guttata (Diamond Firetail)	VU	V	Known, 2010	1, 2, 3	Possible	Highly likely / known
Aprasia pseudopulchella (Flinders Ranges Worm-lizard)	VU		Known, 2016	1, 2	Highly likely / known	Highly likely / known
Tiliqua adelaidensis (Pygmy Blue-tongue Lizard)	EN	E	Known, 2021, 2023, 2024	1, 2, 3	Highly likely / known	Highly likely / known

EPBC Act (*Environment Protection and Biodiversity Conservation Act 1999*). NPW Act (*National Parks and Wildlife Act 1972*). Conservation codes: CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.
Source:
1. EPBC Act PMST (DCCEEW, 2024) – 5 km buffer applied to GNREF.
2. BDBSA extract (DEWNRBDBSA240207-21, DEWNRBDBSA240403-42) – 5 km buffer applied to GNREF.
3. Recorded by EBS / Umwelt during the field surveys.

4.2.4 EPBC Act Listed Migratory Species

The database searches identified eight species listed as Migratory under the EPBC Act. Of these, three are also listed as threatened under the EPBC Act and are not addressed in this section.

Of the remaining five migratory species, one has been assessed as known or highly likely to occur, in the GNWF Development Envelope and/or Disturbance Footprint (**Table 4.7**) and was detected during field surveys within the WF.

The remainder of the species are uncommon migrants and /or require wetland habitats. As no such habitat occurs in the GNWF Disturbance Footprint or Development Envelope, and they are considered unlikely to occur. The likelihood assessments for all migratory species, identified by the database searches, are provided in **Appendix A**.

Table 4.7 Migratory Species Assessed as Potentially Occurring in the GNWF DF or DE

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Apus pacificus (Fork-tailed Swift)	Mi	-	Likely, 2006, 2024	1, 2, 3	Highly likely / known	Highly likely / known

EPBC Act (*Environment Protection and Biodiversity Conservation Act 1999*). NPW Act (*National Parks and Wildlife Act 1972*). Conservation codes: CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.
Source:
1. EPBC Act PMST (DCCEEW, 2024) – 5 km buffer applied to GNREF.
2. BDBSA extract (DEWNRBDBSA240207-21, DEWNRBDBSA240403-42) – 5 km buffer applied to Project Area.
3. Recorded by EBS / Umwelt during the field surveys.

4.2.5 NPW Act Listed Threatened Species

The database searches identified 51 threatened species, listed under the NPW Act, with historical records in the Search Area, that might occur in the GNWF Development Envelope and/or Disturbance Footprint (in addition to nationally listed species which also have a state rating that are already addressed in **Section 4.2.3** and **4.2.4**). This included 36 flora and 15 fauna species.

Following field surveys, each species was assessed for its likelihood of occurrence in GNWF Development Envelope and Disturbance Footprint. This assessment found that 28 flora and 14 fauna species (so 42 out of the potential 51), threatened under the NPW Act, are either known to occur, considered highly likely to occur, likely to occur or as possible occurrences in the GNWF Disturbance Footprint and/ or Development Envelope. These species are listed in **Table 4.8**.

The likelihood assessments for all 51 NPW Act species, identified by the database searches, are provided as **Appendix A**.

Table 4.8 State Listed Threatened Flora and Fauna Assessed as Potentially Occurring in the GNWF DF or DE

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
FLORA						
Acacia iteaphylla (Flinders Ranges Wattle)	-	R	2004	2	Unlikely	Possible
Asperula syrticola (Southern Flinders Woodruff)	-	R	2005	2	Possible	Possible
Austrostipa gibbosa (Swollen Spear-grass)	-	R	2013	2, 3	Likely	Known
Crassula sieberiana (Sieber's Crassula)	-	E	2009	2	Possible	Possible
Cryptandra campanulata (Long-flower Cryptandra)	-	R	2021	2, 3	Likely	Known
Cullen parvum (Small Scurf-pea)	-	V	2005	2, 3	Known	Known
Dianella longifolia var. *grandis* (Pale Flax-lily)	-	R	2013	2, 3	Known	Known

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Diuris behrii (Behr's Cowslip Orchid)	-	V	2016	2	Possible	Likely
Eremophila subfloccosa ssp. *glandulosa* (Green-flower Emubush)	-	R	1993	2	Unlikely	Possible
Eryngium ovinum (Blue Devil)	-	V	2019	2, 3	Known	Known
Eryngium vesiculosum (Prostrate Blue Devil)		R	1993	2	Possible	Possible
Eucalyptus percostata (Ribbed White Mallee)	-	R	2014	2	Unlikely	Possible
Juncus australis (Austral Rush)	-	R	2004	2	Possible	Possible
Juncus radula (Hoary Rush)	-	R	1993	2	Possible	Possible
Lepidium pseudotasmanicum (Shade Peppercress)	-	V	1997	2	Possible	Possible
Logania saxatilis (Rock Logania)	-	R	2008	2	Unlikely	Possible
Maireana excavata (Bottle Fissure-plant)	-	V	2019	2	Likely	Likely
Maireana rohrlachii (Rohrlach's Bluebush)	-	R	2014	2, 3	Known	Known
Mentha satureioides (Native Pennyroyal)		R	1988	2	Possible	Possible
Myoporum parvifolium (Creeping Boobialla)	-	R	2008	2	Unlikely	Possible
Olearia picridifolia (Rasp Daisy-bush)		R	1993	2	Possible	Possible
Phebalium glandulosum ssp. *macrocalyx* (Glandular Phebalium)	-	E*	2008	2	Unlikely	Possible
Poa drummondiana (Knotted Poa)	-	R	2004	2	Possible	Possible
Ptilotus erubescens (Hairy-tails)	-	R	2019	2, 3	Likely	Known
Rhodanthe anthemoides (Chamomile Everlasting)	-	E	2008	2	Unlikely	Possible
Rumex dumosus (Wiry Dock)	-	R	2019	2, 3	Known	Known
Rytidosperma tenuius (Short-awn Wallaby-grass)	-	R	1999	2	Possible	Possible
Swainsona behriana (Behr's Swainson-pea)	-	V	2013	2, 3	Likely	Known

Scientific Name (Common Name)	EPBC Act	NPW Act	PMST Likelihood / Last Sighting Year	Source	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
FAUNA						
Anhinga novaehollandiae novaehollandiae (Australasian Darter)	-	R	1998	2	Possible	Possible
Ardeotis australis (Australian Bustard)	-	V	2009	2	Possible	Possible
Cinclosoma castanotum (Chestnut-backed Quailthrush)	-	R	2010	2,3	Likely	Likely
Cladorhynchus leucocephalus (Banded Stilt)	-	V	2004	2	Possible	Possible
Corcorax melanorhamphos (White-winged Chough)	-	R	2017	2, 3	Highly likely / known	Highly likely / known
Coturnix ypsilophora australis (Brown Quail)		V	2015	2	Likely	Likely
Falco peregrinus macropus (Peregrine Falcon)	-	R	2012	2	Likely	Likely
Falco subniger (Black Falcon)	-	R	2008	2, 3	Highly likely / known	Highly likely / known
Hieraaetus morphnoides (Little Eagle)	-	V	2016	2	Highly likely	Highly likely
Microeca fascinans fascinans (Jacky Winter (MLR, SE))	-	R	2017	2	Possible	Possible
Myiagra inquieta (Restless Flycatcher)	-	R	2012	2,3	Likely	Likely
Neophema elegans elegans (Elegant Parrot)	-	R	2012, 2023	2, 3	Highly likely / known	Highly likely / known
Plectorhyncha lanceolata (Striped Honeyeater)	-	R	2015	2	Likely	Likely
Trichosurus vulpecula (Common Brushtail Possum)		R	2023	2	Possible	Likely

EPBC Act (*Environment Protection and Biodiversity Conservation Act 1999*). NPW Act (*National Parks and Wildlife Act 1972*). Conservation codes: CE: Critically Endangered. EN/E: Endangered. VU/V: Vulnerable. R: Rare.
Source:
1. EPBC Act PMST (DCCEEW, 2024) – 5 km buffer applied to GNREF.
2. BDBSA extract (DEWNRBDBSA240207-21, DEWNRBDBSA240403-42) – 5 km buffer applied to Project Area.
3. Recorded by EBS / Umwelt during the field surveys.

4.2.6 Maps of Historic Threatened and Migratory Species

The locations of historical records of listed threatened species in the Search Area are indicated on the maps in **Figure 4.4** to **Figure 4.8.** The maps do not show observations made by Umwelt during the field survey. Results of the field survey are documented in **Section 5.0.**

Figure 4.4 BDBSA Records for EPBC Act Flora

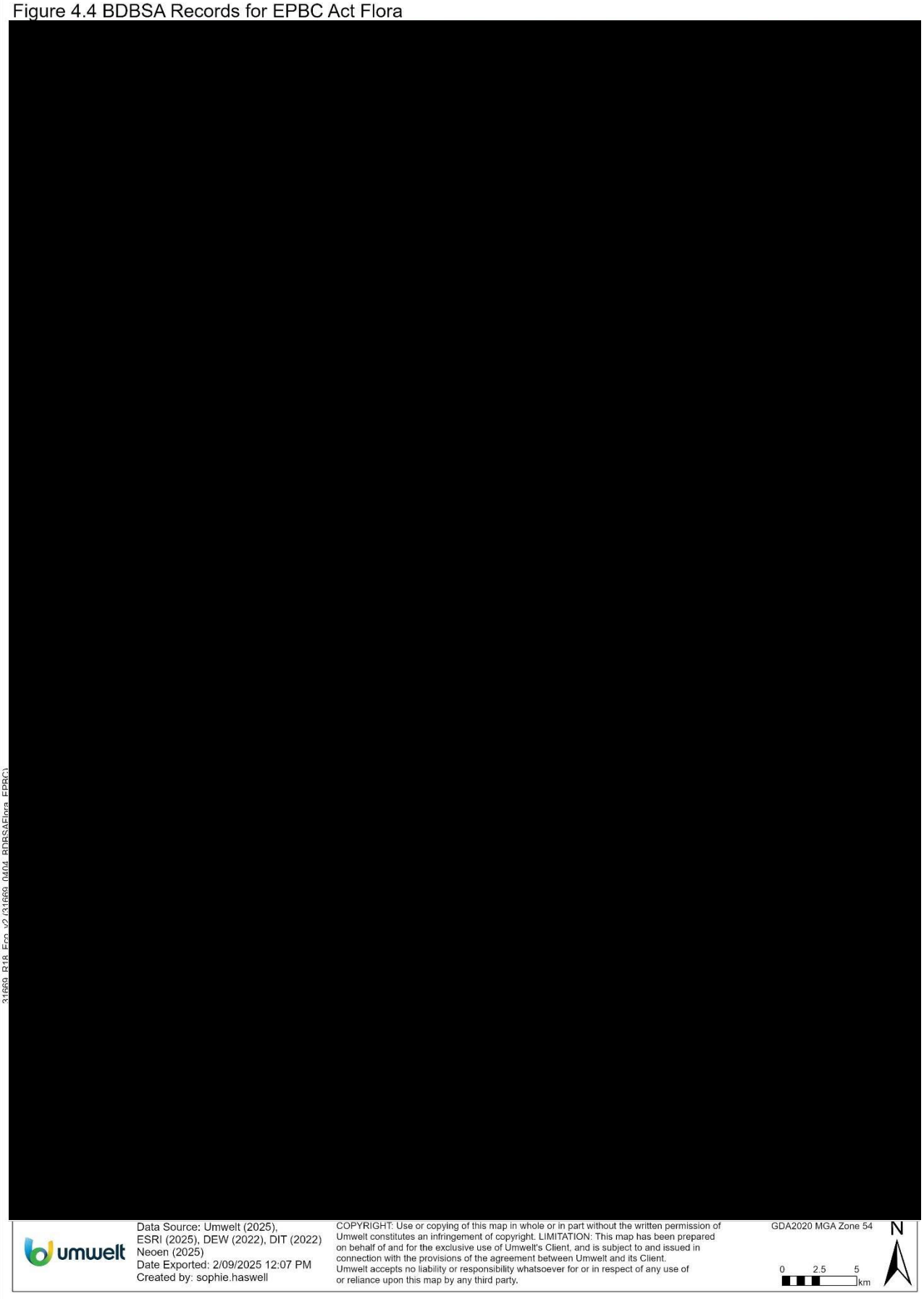
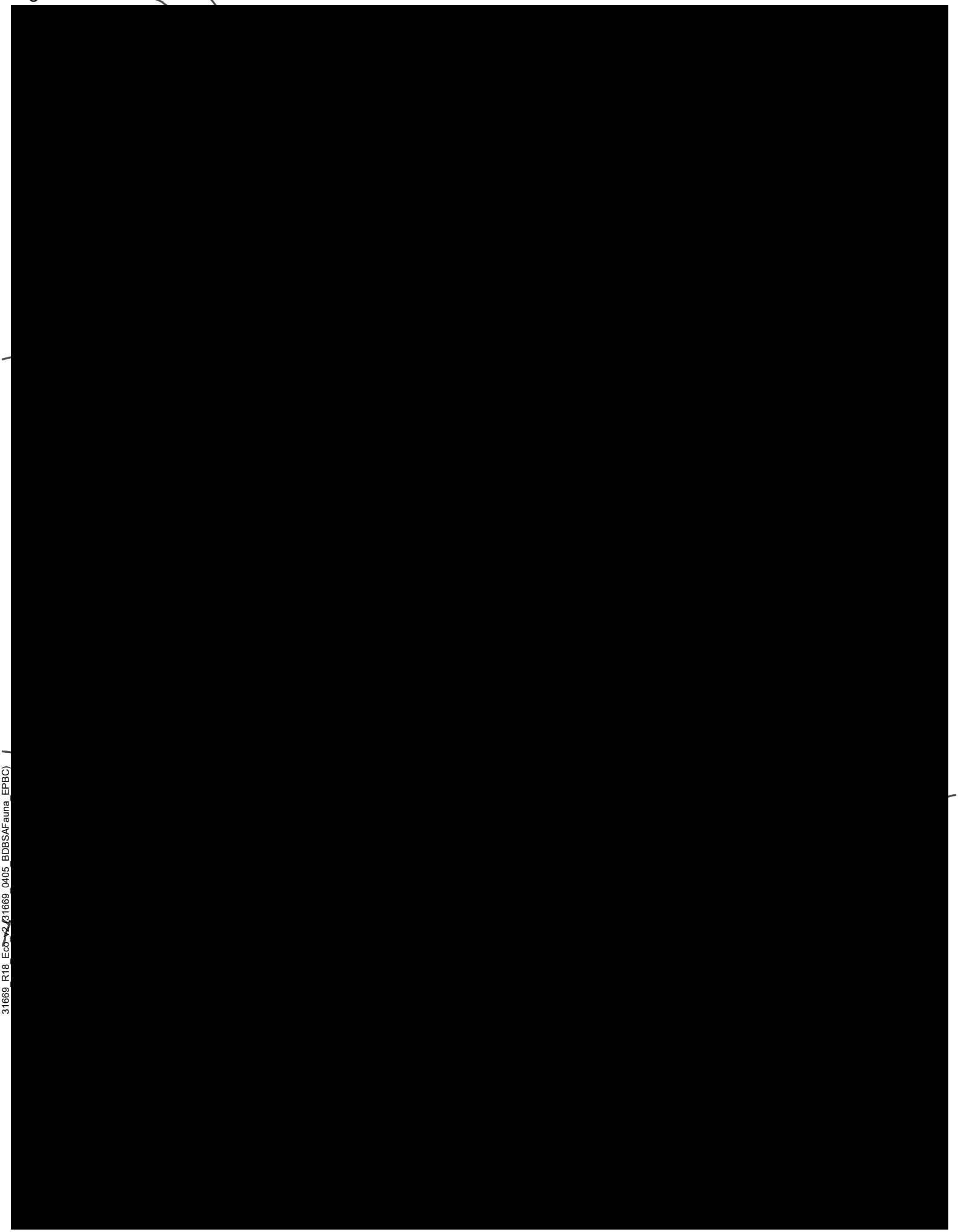


Figure 4.4 BDBSA Records for EPBC Act Flora

Figure 4.5 BDBSA Records for EPBC Act Fauna



31669_R18_Eco_v2_31669_0405_BDBSAFauna_EPBC)

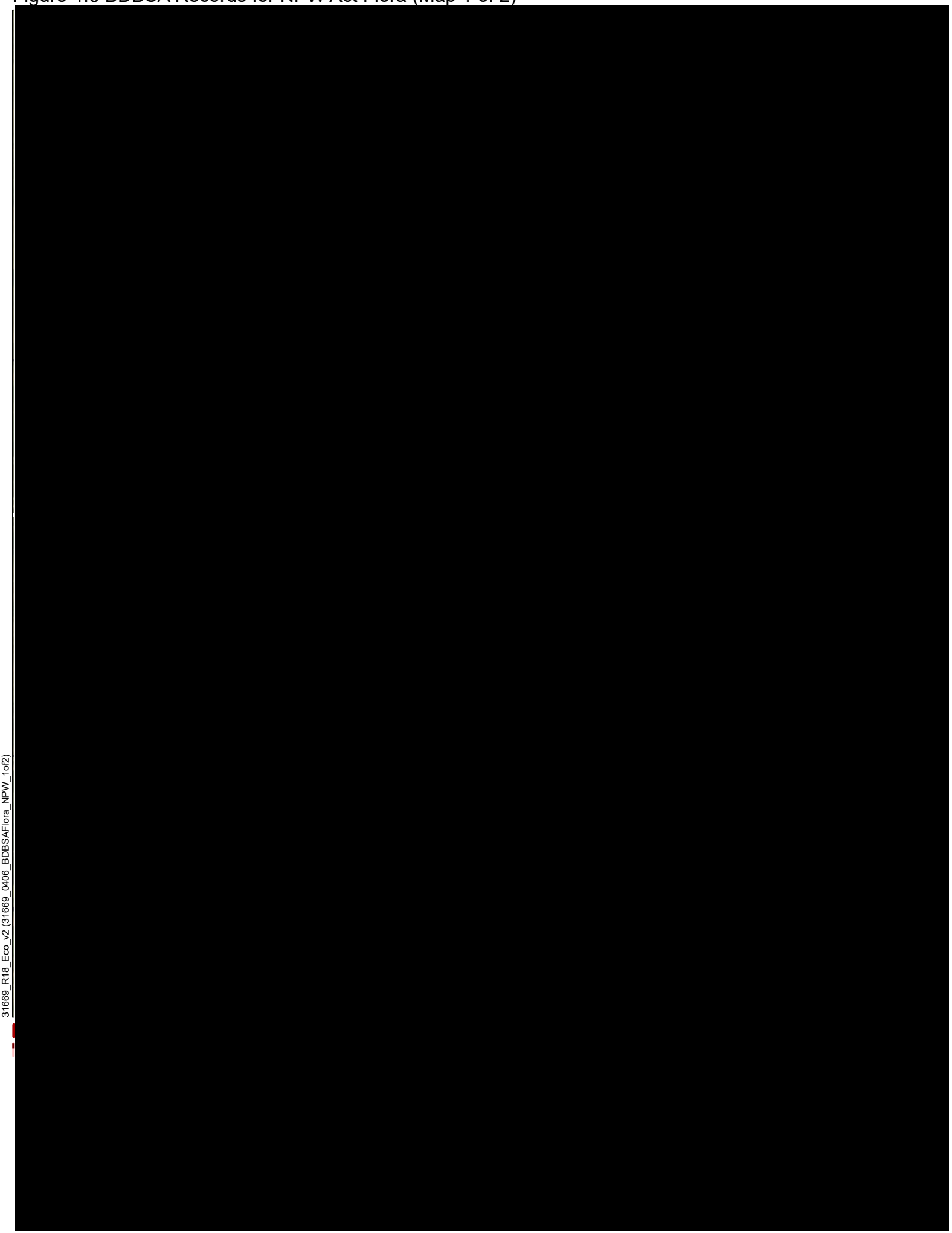
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:06 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 4.6 BDBSA Records for NPW Act Flora (Map 1 of 2)



31669_R18_Eco_v2 (31669_0406_BDBSAFlora_NPW_1of2)

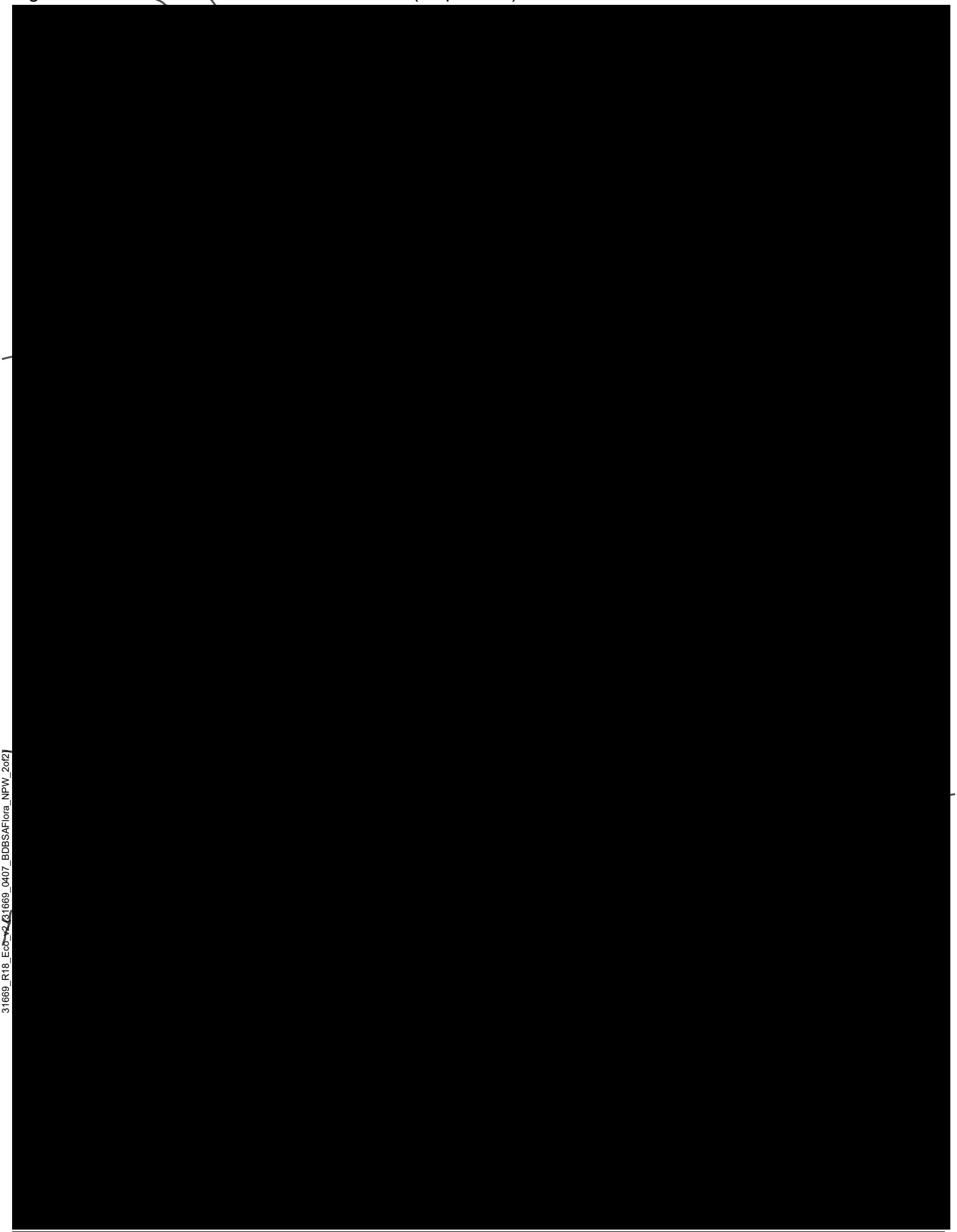
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:06 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 4.7 BDBSA Records for NPW Act Flora (Map 2 or 2)



31669_R18_Eco_v2_20250903_31669_0407_BDBSAFlora_NPW_2of2

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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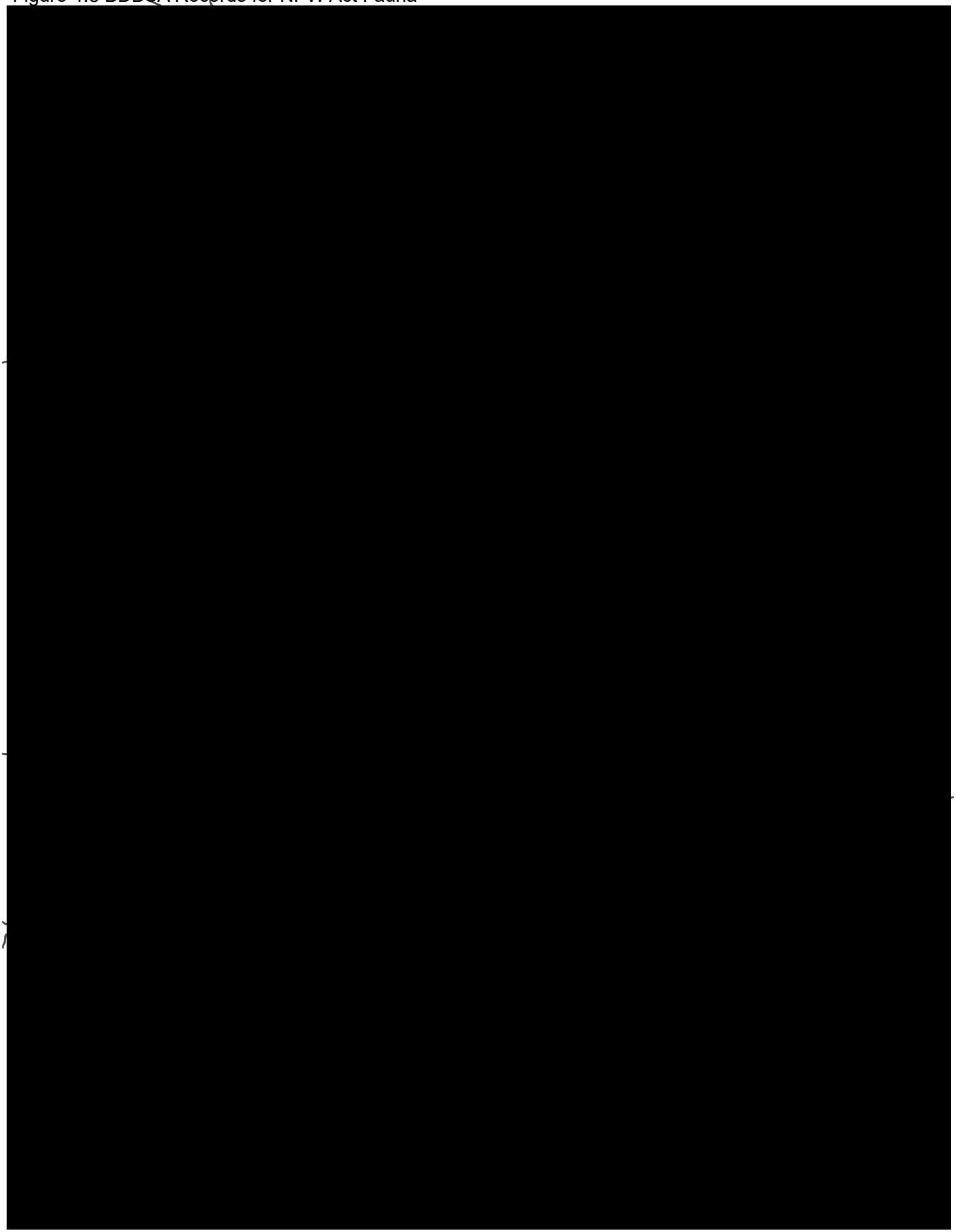
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 4.8 BDBSA Records for NPW Act Fauna



Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

5.0 Field Survey Results

5.1 Vegetation Survey Results

5.1.1 General Description of Vegetation, the Site and Matters of Significance

A total of 23 native Vegetation Associations (Vas) have been mapped across the GNREF, of which 21 associations are being impacted in the current Disturbance Footprint. Across all vegetation surveys, up to 268 species of native plants have been identified (including some specimens not identified to species level). A full list of native flora species is presented in **Appendix B**.

Native vegetation throughout the GNREF is comprised predominantly of grasslands, with large tracts of Iron-grass (*Lomandra* spp.) in the central and eastern sections. Remnant mallee woodland associations occur along the eastern side of the site, where they grade into chenopod dominated plains. The OTL alignment traverses a variety of landscapes, and includes *Austrostipa* grassland, *Lomandra* grassland, Chenopod shrubland, and Mallee woodland.

Vegetation was surveyed according to methodology accepted under State legislation NV Act and NV Regulations. Blocks relevant to BAM survey sites (described in **Section 3.3.1.1**) are Block A, B, C and D.

Vegetation Associations, their associated BAM sites, and summary of area (ha's), within the GNWF Project Area and Disturbance Footprint, is presented **Table 5.1**.

Table 5.1 Summary of Vegetation Associations and Disturbance Footprint

VA	VA Description	BAM Sites	Permanent (ha)	Temporary (ha)	Total (ha)
VA1	*Eucalyptus porosa* +/- *E. gracilis* / *E. brachycalyx* Woodland over Chenopods.	A1a, B1a, B1b	11.96	7.60	19.56
VA2	'Smooth-barked Mixed Mallee' (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods.	A2a, A2b, B2a, B2b	4.24	1.10	5.34
VA3	*E. porosa* Woodland over *Senna artemisioides* sp. coriacea and Sclerophyllous Shrubs.	B3a	0.81	0.68	1.49
VA4	*Acacia pycnantha* tall shrubland over grass	A4	0.03	0.03	0.06
VA5	*Maireana aphylla* low shrubland	A5	0.30	0.39	0.69
VA6	*Lomandra* spp. Grassland.	A6a, A6b, A6c, A6d, A6e, A6f, A6g, B6a, B6b, D6a, D6b	3.57	5.02	8.59
VA7	*Acacia spilleriana* Shrubland	B7a	0.00	0.00	0.00
VA8	*Eucalyptus leucoxylon* ssp. *pruinosa* Woodland over native and exotic grasses +/- *E. odorata*	A8	0.99	0.18	1.17

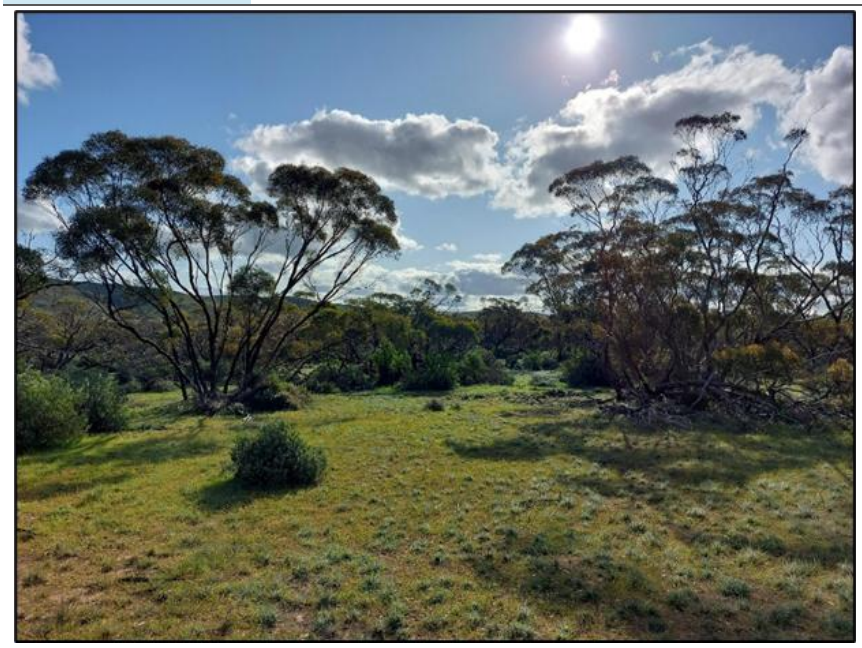
VA	VA Description	BAM Sites	Permanent (ha)	Temporary (ha)	Total (ha)
VA9	*Maireana rohrlachii* open shrubland over *Austrostipa* sp. and exotics +/- *Lomandra* spp.	A9a, A9b, A9c, B9a, B9b, B9c	10.15	6.39	16.54
VA10	*Allocasuarina verticillata* over *Cymbopogon ambiguus* and herbs on steep rocky slopes.	A10	0.30	0.37	0.67
VA11a	Mixed *Austrostipa* spp. and *Rytidosperma* spp. Grassland	A11a, A11b, A11c, A11d, A11e, A11f, A11g, A11h, A11i, A11l, A11m, A11n, A11o, A11q, A11r, A11s, A11t, A11v, A11y, A11z, B11k, B11p, C11a, D11a, D11b, D11c	202.40	146.68	349.08
VA11b	Mixed *Austrostipa* spp. and *Rytidosperma* spp. Grassland +/- emergent *Eucalyptus* (*E. porosa* / *E. socialis*) trees.	B11u	0.90	0.61	1.50
VA12	Mixed Chenopod Shrubland of *Maireana pyramidata* and *Atriplex stipitata* over native and exotic grasses +/- *Lomandra* spp.	A12a, A12b, A12c, C12a, C12b, C12c, C12d, C12e	18.41	8.94	27.35
VA13	VA13: *Hakea leucoptera* ssp. *leucoptera* tall shrubland	A13	0.07	0.14	0.22
VA14	*Eucalyptus camaldulensis* Riparian Woodland over reeds and sedges	A14a	0.00	0.05	0.05
VA15	*Juncus* spp. Sedgeland +/- *Typha domingensis* associated with minor drainage lines and creeks.	A15b	0.01	0.01	0.02
VA16	*Acacia nyssophylla* shrubland	C16	0.58	1.02	1.61
VA17	*Cryptandra* spp. Shrubland +/- *Lomandra* spp.	A17	0.00	0.00	0.00
VA18	Mixed Mallee (inc. *E. oleosa* dominant) over Chenopods and native grasses.	A18c, A18d, A18e, A18e, A18f, A18g, C18a, C18b, C18c	2.92	3.99	6.92
VA19	*Dodonaea lobulata* Shrubland +/- Scattered Mallee *Eucalyptus* spp.	A19a, A19b	1.01	0.83	1.84
VA20	*Alectryon oleifolius* Low Woodland over Chenopods	A20a, A20b	0.27	0.63	0.91
VA21	*Senna* spp. Shrubland	A21a	0.02	0.07	0.09
VA22	*Scaevola spinescens* Shrubland over Grass	A22a	0.13	0.14	0.27
VA23	*Nitraria billardiera* Shrubland	A23a, A23b	2.21	7.69	9.91

VA	VA Description	BAM Sites	Permanent (ha)	Temporary (ha)	Total (ha)
Amenity	Vegetation planted for shelterbelts, revegetation or ornamental purposes.	NA	0.03	0.03	0.05
Exotic	Pastures dominated by exotic grasses (i.e., Hordeum vulgare, Barley Grass)	NA	8.07	9.66	17.73
Cropped	Agricultural land currently or historically utilised for cropping.	NA	11.56	17.30	28.85
Cleared / Unsurveyed	Existing cleared land such as roads or infrastructure which have not been surveyed for native vegetation.	NA	26.60	9.72	36.32
		Total	**307.56**	**229.26**	**536.82**

5.1.2 Overview of Vegetation Associations

Vegetation Associations within the Project Area are described in **Table 5.2** to **Table 5.23**.

Table 5.2 Summary of VA1: *Eucalyptus porosa* +/- *E.* gracilis / *E. brachycalyx* Woodland Over Chenopods

Vegetation Association	**VA1: *Eucalyptus porosa* +/- *E. gracilis* / *E. brachycalyx* Woodland over Chenopods.**		
Benchmark Community	NA5: Mallee & Woodlands with Open Chenopod and Sclerophyll Shrub Understorey		
BAM Sites	A1a, B1a, B1b		
	 **VA1 looking northwest (spring 2022).**		
General Description	Mallee woodland was patchily distributed throughout the landscape with a network of low open chenopod shrublands and open grassland areas. The diversity of native plants was highest around the understorey of tree species, where it commonly occurred as dense clumps. Herbaceous species were scattered throughout. Where this VA moved from the lower western slopes to the higher hills, the vegetation condition in the understorey deteriorated, with evidence of heavy grazing and erosion from runoff. A high diversity of native species was recorded within this site. The area contained important fauna habitat values, including numerous tree hollows of varying sizes and scattered mistletoe and is likely to provide important nesting habitat for avifauna.		
	Over storey	**Mid storey**	**Under storey**
	Eucalyptus porosa (Mallee Box)	*Atriplex stipitata* (Bitter Saltbush), *Rhagodia parabolica* (Mealy Saltbush), *Maireana brevifolia* (Small-leaf Bluebush)	*Austrostipa drummondii* (Cottony Spear-grass), *Enchylaena tomentosa* (Ruby Saltbush), *Lomandra multiflora* ssp. *dura* (Hard mat-rush)
Weeds	*Lycium ferocissimum* (African Boxthorn) (WoNS), *Echium plantagineum* (Salvation Jane)		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) (sparsely scattered) **Threatened species likely to occur:**		

Vegetation Association	VA1: *Eucalyptus porosa +/- E. gracilis / E. brachycalyx* Woodland over Chenopods.
	• Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare) • White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable) • Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare) • Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable).

Table 5.3 Summary of VA2: 'Smooth-barked' Mixed Mallee (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods

Vegetation Association	**VA2: 'Smooth-barked' Mixed Mallee (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods.**
Benchmark Community	A2a, A2b, B2b
BAM Sites	NA5: Mallee & Woodlands with Open Chenopod and Sclerophyll Shrub Understorey

VA2 looking south

BAM Site A2e looking south

General Description

Vegetation was in fair to moderate condition with widespread evidence of grazing in the understorey, particularly on the more exposed hill slopes. The area contained important fauna habitat values, including numerous tree hollows of varying sizes, and is likely to provide important nesting habitat for avifauna.

Over storey	Mid storey	Under storey
Eucalyptus gracilis +/- *E. brachycalyx* +/- *E. socialis* +/- *E. leptophylla* +/- *E. leucoxylon* ssp. *pruinosa*.	*Rhagodia parabolica* (Mealy Saltbush), *Atriplex stipitata* (Bitter Saltbush), *Maireana pyramidata* (Black Bluebush) +/- *Alectryon oleifolius* (Rosewood)	*Enchylaena tomentosa*, *Rytidosperma* sp. (Wallaby Grass), *Roepera glauca* (Pale Twinleaf), *Austrostipa nitida*

Weeds

Lycium ferocissimum, *Carrichtera annua* (Wards Weed), *Mesembryanthemum nodiflorum* (Slender Iceplant), *Echium plantagineum* (Salvation Jane).

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

- *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) (sparsely scattered)

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare)
- White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable)
- Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)
- Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare)

Vegetation Association	**VA2: 'Smooth-barked' Mixed Mallee (*E. gracilis* +/- *E. brachycalyx* +/- *E. dumosa* +/- *E. leptophylla* +/- *E. socialis*) over Chenopods.**
	• Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.4 Summary of VA3: *E. porosa* Woodland over *Senna artemisioides* sp. *coriacea* and Sclerophyllous Shrubs

Vegetation Association	**VA3: *E. porosa* Woodland over *Senna artemisioides* sp. *coriacea* and Sclerophyllous Shrubs.**		
Benchmark Community	NA5: Mallee & Woodlands with Open Chenopod and Sclerophyll Shrub Understorey		
BAM Sites	B3b		
	 **VA3 looking south, with *D. baueri* and *Senna* sp. densely present in the understorey.**		
General Description	Vegetation was in moderate condition, with some dieback occurring in the upper storey. The area contained important fauna habitat values, including numerous tree hollows of varying sizes, and is likely to provide important nesting habitat for avifauna.		
	Over storey	**Mid storey**	**Under storey**
	E. porosa	*Senna artemisioides* ssp. *coriacea*	*Dodonaea baueri* (Crinkled Hop Bush),
Weeds	*Lycium ferocissimum, Carrichtera annua, Sisymbrium* sp. (Mustard).		

Vegetation Association	VA3: *E. porosa* Woodland over *Senna artemisioides* sp. *coriacea* and Sclerophyllous Shrubs.
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) (sparsely scattered) **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare) • White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable) • Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare) • Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.5 Summary of VA4: *Acacia pycnantha* Tall Shrubland over Native and Exotic Grass

Vegetation Association	**VA 4: *Acacia pycnantha* Tall Shrubland over native and exotic grass**
Benchmark Community	NA6: Inland Tall Shrublands
BAM Sites	A4a

***Acacia pycnantha* over native grass in creek line.**

General Description

This VA comprised scattered *Acacia pycnantha* (Golden Wattle) in a rocky creek line with a diverse understorey of native grasses, several forbs and a minor chenopod shrub component. The site provides foraging areas for seed eating birds and shelter / perching for birds coming to drink. Vegetation provides stabilisation on the banks.

Note: Due to small area, only one BAM was done in this VA. Clearance falls within Block A, despite BAM located in Block B boundary. Block scores have been adapted to suit.

Over storey	Mid storey	Under storey
Acacia pycnantha, Myoporum platycarpum (False Sandalwood)	*Maireana brevifolia* (Short-leaved Bluebush), *Rhagodia parabolica, Enchylaena tomentosa*	*Cymbopogon ambiguus* (Lemon-grass), *Themeda triandra* (Kangaroo Grass), *Austrostipa* spp., *Rytidosperma* spp., *Crassula* sp. *Oxalis* sp.

Weeds

Lycium ferocissimum, Reseda lutea, Arctotheca calendula, Carrichtera annua, Echium plantagineum, Avena barbata.

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.6 Summary of VA5: *Maireana aphylla* Shrubland Over Native and Exotic Grasses

Vegetation Association	**VA5: *Maireana aphylla* Shrubland over native and exotic grasses.**
Benchmark Community	MDBSA 2.2: Chenopod Open Shrublands
BAM Sites	B5a

***Maireana aphylla* along creek line in Project Area.**

General Description	This VA occurred along Newikie Creek and along exposed low slopes and hillsides to the south of the creek where it merged into mixed chenopod shrubland of VA12 towards White Hill Road. Patches of this VA also occurred on low lying floodplain areas of the OTL. This VA was generally in poor condition, with *Lycium ferocissimum* the dominant mid-storey shrub in some locations. *Maireana aphylla* was most dense along the banks of Newikie Creek (pictured).		
	Over storey	**Mid storey**	**Under storey**
	Maireana aphylla (Leafless Bluebush)	*Lomandra effusa* (Scented Mat-rush),	*Maireana aphylla* (Leafless Bluebush)
Weeds	*Lycium ferocissimum, Cynara cardunculus, Reseda lutea.*		
Threatened species or communities likely to occur	**Threatened Ecological Communities**: This VA did not meet criteria for any TEC. **Threatened species known to occur:** No threatened species were observed within this VA. **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare).		

Table 5.7 Summary of VA6: *Lomandra* spp. Grassland

Vegetation Association	VA6: *Lomandra* spp. Grassland
Benchmark Community	NA 3.2: Grasslands
BAM Sites	A6a, A6b, A6c, A6d, A6e, B6a, B6b, D6a, D6b, D6f

BAM site A6a looking south during dry conditions in Spring 2023.

BAM site D6b looking north in Spring 2024.

General Description	Lomandra grassland condition ranged from poor to good. Grazing was evident across the Project Area which is likely to have reduced the visibility of spring annual species during the field surveys. Targeted surveys were undertaken in areas of Lomandra Grassland which intersected with the Disturbance Footprint to determine if any areas met the criteria for listing as Iron-grass Natural Temperate Grassland TEC. Condition across the Project Area ranged from Class A to Class C, with the majority in condition Class B. The entire area mapped as Lomandra Grassland is considered of high conservation value as even those in poor condition (C-class) are considered amenable to rehabilitation, given their ability to improve with careful management.		
	Over storey	**Mid storey**	**Under storey**
	NA	*Melicytus angustifolius divaricatus* (Gruggly Bush) *Cryptandra campanulata* (Long-flowered Cryptandra)	*Lomandra multiflora* ssp. *dura*, *Lomandra effusa*, *Austrostipa* spp., *Rytidosperma* spp.
Weeds	*Lycium ferocissimum, Onopordum acaulon, Echium plantagineum, Marrubium vulgare*		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** Parts of this vegetation community qualify as the nationally listed critically endangered TEC, Iron-grass Natural Temperate Grassland (INTG), including Class A and Class B INTG. **Threatened species known to occur:** • *Cryptandra campanulata* (Long-flower Cryptandra) (NPW Act: Rare) • *Dodonaea procumbens* (Trailing Hop-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable) • *Eryngium ovinum* (Blue Devil) (NPW Act: Vulnerable) • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) • *Rumex dumosus* (Wiry Dock) (NPW Act: Rare) • *Swainsona behriana* (Behr's Swainson Pea) (NPW Act: Vulnerable). • Pygmy Blue-tongue Lizard *(Tiliqua adelaidensis)* (EPBC Act: Endangered, NPW Act: Endangered) **Threatened species likely to occur:**		

Vegetation Association	VA6: *Lomandra* spp. Grassland
	• Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)

Table 5.8 Summary of VA7: *Acacia spilleriana* Shrubland

Vegetation Association	**VA7: *Acacia spilleriana* Shrubland**
Benchmark Community	NA 6: Inland Tall Shrublands
BAM Sites	A7

Example of *Acacia spilleriana* ssp. *Wirrabra* Shrubland.

General Description

Shrubland dominated by *Acacia spilleriana* ssp. *Wirrabra*, occurring on rocky hillslope nearby an ephemeral creek on the side of White Hill Road. A small patch of shrubland occurring along the roadside but extending south into GNWF. This VA was regenerating, having undergone historical disturbance, evidenced by young *Eucalyptus* species. The shrubland was in fair condition at the time of the survey, with grazed grassy understorey

Over storey	Mid storey	Under storey
Eucalyptus oleosa	*Acacia spilleriana* (Spillers Watte) *Senna artemisioides* ssp. *artemisioides* *Pittosporum angustifolium* *Rhagodia parabolica*	*Maireana rohrlachii* *Austrostipa* sp. *Roepera aurantiaca*

Weeds

Lycium ferocissimum, Marrubium vulgare, Medicago sp. and *Carrichtera annua*

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet the criteria for any TEC

Threatened species known to occur:

EPBC listed Endangered plant species *Acacia spilleriana* (Spillers Wattle) was the dominant species in this small patch of vegetation. Consultation with the SA Herbarium confirmed this likely to be *A. spilleriana* ssp. *Wirrabra* due to the locality, which is not listed in the Conservation Advice.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)

Vegetation Association	VA7: *Acacia spilleriana* Shrubland
	• Peregrine Falcon (Falco *peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.9 Summary of VA8: *Eucalyptus leucoxylon* ssp. *pruinosa* Open Woodland over Native and Exotic Grasses +/- *E. odorata*

Vegetation Association	**VA8: *Eucalyptus leucoxylon* ssp. *pruinosa* Open Woodland over Native and Exotic Grasses +/- *E. odorata*.**
Benchmark Community	NA 3.1: Woodlands with an Open Grassy Understorey
BAM Sites	A8

BAM site A8 looking north to sparsely treed hill slope.

General Description

This VA was a very open woodland dominated by *Eucalyptus leucoxylon* ssp. *pruinosa,* with a very depleted understorey of native and exotic grassland with few forbs present. Trees were generally mature, with evidence of dieback and historical wood harvesting / clearing in the surrounding grasslands. Trees were mostly mature, with limited regeneration occurring. Trees were utilised for shelter by livestock, and some trees had clusters of African Boxthorn in the understorey. This VA provided valuable nesting habitat for fauna, with numerous hollows in the old trees and large spreading branches to support nests and perching, including a large intact Wedge-tailed Eagle nest (which has not been observed to be active during the time of survey between 2022 and present).

Over storey	Mid storey	Under storey
Eucalyptus leucoxylon ssp. *pruinosa* (SA Inland Bluegum), *Eucalyptus odorata* (Peppermint Box)	NA	*Austrostipa* spp., *Rytidosperma* spp., *Oxalis perennans, Vittadinia gracilis, Einadia nutans, Maireana enchylaenoides*

Weeds

Lycium ferocissimum, Onopordum acaulon, Echium plantagineum, Marrubium vulgare

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA was assessed against the criteria for Peppermint Box Grassy Woodland of SA, but was found not to meet the criteria, due to the dominance of *E. leucoxylon* ssp. *pruinosa*, and the low diversity of native species present in the understorey. Though it does not meet the criteria for EPBC listed TEC, it is listed as Vulnerable under the Provisional List of Threatened Ecosystems of South Australia.

Threatened species known to occur:

No threatened species were detected in this VA.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)

Vegetation Association	VA8: *Eucalyptus leucoxylon* ssp. *pruinosa* Open Woodland over Native and Exotic Grasses +/- *E. odorata*.
	• Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare) • White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable) • Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare) • Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable) • Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered, NPW Act: Endangered)

Table 5.10 Summary of VA9: *Maireana rohrlachii* open shrubland over *Austrostipa* sp. and exotics +/- *Lomandra* spp.

Vegetation Association	**VA9: *Maireana rohrlachii* open shrubland over *Austrostipa* sp. and exotics +/- *Lomandra* spp.**		
Benchmark Community	NA 3.2: Grasslands		
BAM Sites	A9a, A9b, A9c, B9a, B9b, B9c		
 **BAM A9b, *Maireana rohrlachii* Shrubland with *Lomandra* spp.**			
General Description	This vegetation association was dominated by State Rare *Maireana rohrlachii*. It had a grassy understorey which also contained a high cover of *Lomandra* ssp. In some locations. Spider holes were found to be abundant where this VA occurred in the Project Area. Targeted surveys found a high density of nationally threatened Pygmy Blue-tongue Lizards in this location.		
	Over storey	**Mid storey**	**Under storey**
	NA	*Maireana rohrlachii* (Rohrlach's Bluebush), Maireana *pyramidata* (Black Blue-bush), *Maireana aphylla* (Leafless Bluebush).	*Vittadinia megacephala* (Big-headed New Holland Daisy), *Salsola australis* (Roly-poly), *Austrostipa nitida* (Balcarra Grass), *Austrostipa scabra* (Rough Spear-grass).
Weeds	*Marrubium vulgare, Echium plantagineum, Lycium ferocissimum*		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) (sparsely scattered) • Pygmy Blue-tongue Lizard (Tiliqua adelaidensis) (EPBC Act: Endangered, NPW Act: Endangered) **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable).		

Table 5.11 Summary of VA10: *Allocasuarina verticillata* over *Cymbopogon ambiguus* on steep rocky slopes

Vegetation Association	**VA10: *Allocasuarina verticillata* over *Cymbopogon ambiguus* on steep rocky slopes.**
Benchmark Community	NA 3.2: Grasslands
BAM Sites	A10

VA10 looking south with dense covering of surface rock

General Description

VA was in good condition with good cover and abundance of native grassland species. Woody debris was evident, suggesting a historically higher coverage of overstorey species, *Allocasuarina verticillata*. Substantial rock cover likely to provide suitable habitat for a range of reptile species including the EPBC listed Flinders Ranges Worm-lizard. Weed species were limited to common grassland pasture weeds including *Carthamus lanatus* (Saffron Thistle).

Over storey	Mid storey	Under storey
Allocasuarina verticillata (Drooping Sheoak)	NA	*Cymbopogon ambiguus* (Lemon-scented Grass), *Anthosachne scabra* (Wheatgrass), *Crassula decumbens* (Spreading Stonecrop), *Gonocarpus tetragynus* (Common Raspwort).

Weeds

Echium plantagineum

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

- *Rumex dumosus* (Wiry Dock) (NPW Act: Rare) (sparsely scattered)

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)
- Pygmy Blue-tongue Lizard *(Tiliqua adelaidensis)* (EPBC Act: Endangered, NPW Act: Endangered)

Table 5.12 Summary of VA11a/b: Mixed *Austrostipa* spp. and *Rytidosperma* spp. Grassland +/- Emergent *Eucalyptus* (*E. porosa / E. socialis*) Trees

Vegetation Association	**VA11a/b: Mixed *Austrostipa* spp. and *Rytidosperma* spp. Grassland +/- emergent Eucalyptus (*E. porosa / E. socialis*) trees**
Benchmark Community	NA 3.2: Grasslands
BAM Sites	A11a, A11b, A11c, A11d, A11e, A11f, A11g, A11h, A11i, A11l, A11m, A11n, A11o, A11q, A11r, A11s, A11t, A11u, A11v, A11y, B11k, B11p, C11a, D11a, D11b, D11c

***Austrostipa* grassland in good condition with high tussock density and diversity of species.**

Scattered trees on outwash plains.

General Description	Grasslands occurred in poor to good condition across the site. A total of 26 BAM sites were done in this VA across the Project Area to account for varying condition and quality observed, including across different seasons. Final scores for calculating offsets are based on averaged conditions across all the BAM sites. VA11b occurred predominantly on outwash flats, where a remnant overstorey of scattered E. porosa and E. socialis trees occurred. The understorey comprised grassland species.		
	Over storey	**Mid storey**	**Under storey**
	+/- E. porosa, E. socialis	NA	*Austrostipa* spp., *Oxalis perennans, Ptilotus spathulatus, Vittadinia gracilis*
Weeds	*Lycium ferocissimum, Echium plantagineum, Marrubium vulgare*		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** • *Austrostipa gibbosa* (Swollen Spear-grass) (NPW Act: Rare) • *Cryptandra campanulata* (Long-flower Cryptandra) (NPW Act: Rare) • *Cullen parvum* (Small Scurf-pea) (NPW Act: Vulnerable) • *Dodonaea procumbens* (Trailing Hop-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable) • *Eryngium ovinum* (Blue Devil) (NPW Act: Vulnerable) • *Maireana excavata* (Bottle Fissure-plant) (NPW Act: Vulnerable) • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) • *Ptilotus erubescens* (Hairy-tails) (NPW Act Rare) • *Rumex dumosus* (Wiry Dock) (NPW Act: Rare) • *Swainsona behriana* (Behr's Swainson Pea) (NPW Act: Vulnerable).		

Vegetation Association	VA11a/b: Mixed *Austrostipa* spp. and *Rytidosperma* spp. Grassland +/- emergent Eucalyptus *(E. porosa / E. socialis)* trees
	• Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered, NPW Act: Endangered) • **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable).

Table 5.13 Summary of VA12: Mixed Chenopod Shrubland of *Maireana pyramidata* and *Atriplex stipitata* over native and exotic grasses +/- *Lomandra* spp.

Vegetation Association	**VA12: Mixed Chenopod Shrubland of *Maireana pyramidata* and *Atriplex stipitata* over native and exotic grasses +/- Lomandra spp.**		
Benchmark Community	MDBSA 2.2 Chenopod Open Shrublands		
BAM Sites	A12a, A12b, B12a, C12a, C12b, C12c, C12d, C12e		
 **Mixed chenopod shrubland with Lomandra in WF.**		 **Mixed chenopod shrubland with *M. aphylla* component along OTL.**	
General Description	VA12 comprised a variety of shrublands with variation in dominant chenopod shrub species. Typically, the dominant species *was M. brevifolia, M. pyramidata* or *A. stipitata*, often with grassy understorey. This association occurred on plains and low hills, particularly in the east of GNWF and along the OTL, usually associated with patches of mallee vegetation, which may have previously been more widespread		
	Over storey	**Mid storey**	**Under storey**
	NA	*Maireana pyramidata, Maireana brevifolia, Atriplex stipitata*	*Rytidosperma* sp.,
Weeds	*Echium plantagineum, Lycium ferocissimum*		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** • *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)		

Table 5.14 Summary of VA13: *Hakea leucoptera* ssp. *leucoptera* Shrubland

Vegetation Association	**VA13: *Hakea leucoptera* ssp. *leucoptera* Shrubland**
Benchmark Community	NA6: Tall Inland Shrubland
BAM Sites	B13a

***Hakea leucoptera* Shrubland looking south in WF.**

General Description

This VA was only present in a small area north of White Hill Road and patchily distributed in rocky habitat along the OTL. It contains a diversity of species including species not found elsewhere in the Project Area. In some cases, small patches of densely occurring *Hakea leucoptera* along the OTL were incorporated into surrounding VA due to their small size.

Over storey	Mid storey	Under storey
NA	*Hakea leucoptera* ssp. *leucoptera* (Needlewood), *Bursaria spinosa* (Sweet Bursaria)	*Lomandra multiflora* ssp. *dura, L. effusa*, *Oxalis perennans*, *Themeda triandra*, *Austrostipa drummondii*, *Stackhousia monogyna* (Creamy Candles), *Rhodanthe pygmaea* (Pygmy Daisy).

Weeds

Echium plantagineum, Arctotheca calendula (Capeweed)

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

No threatened species were detected in this VA.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.15 Summary of VA14: *Eucalyptus camaldulensis* Riparian Woodland over reeds and sedges

Vegetation Association	**VA14: *Eucalyptus camaldulensis* Riparian Woodland over reeds and sedges**
Benchmark Community	NA7.1: Riparian Woodland
BAM Sites	A14

VA14 at Burra Creek along the OTL alignment, facing north.

***E. camaldulensis* woodland in Burra Creek, view from above.**

General Description

Only present in a small section of the Project Area, associated with Burra Creek and a small section in the southwest corner of GNREF. This VA contains important habitat value with large remnant trees as associated habitat features. Some very large River Red Gum trees present. Some areas mapped as this VA may have also had some planted *E. camaldulensis* interspersed with remnant vegetation. In some areas the understorey was sparse, but in the Burra Creek, native aquatic species were dominant

Over storey	**Mid storey**	**Under storey**
Eucalyptus camaldulensis var. camaldulensis	*Duma florulenta* (Lignum), *Bursaria spinosa* (Sweet Bursaria), *Myoporum montanum* (Native Myrtle)	*Cyperus gymnocaulos* (Spiny Flat Sedge), *Cymbopogon ambiguus* (Lemon-scented grass), *Typha domingensis* (Narrow-leaf Bulrush), *Phragmites australis* (Common Reed), *Juncus subsecundus* (Finger Rush).

Weeds

Lycium ferocissimum, Cotula coronopifolia.

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

No threatened species were detected in this VA.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare)
- White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable)

Vegetation Association	VA14: *Eucalyptus camaldulensis* Riparian Woodland over reeds and sedges
	• Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare) • Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable) • Pygmy Blue-tongue Lizard *(Tiliqua adelaidensis)* (EPBC Act: Endangered, NPW Act: Endangered)

Table 5.16 Summary of VA15: *Juncus spp*. Sedgeland +/- *Typha* domingensis +/- *Phragmites australis* associated with minor drainage lines and creeks

Vegetation Association	**VA15*: Juncus* spp. Sedgeland +/- *Typha domingensis* +/- *Phragmites australis* associated with minor drainage lines and creeks.**
Benchmark Community	NA 7.1: Riparian Woodland
BAM Sites	A15a, A15b

Creek containing summer water supply, with degraded slopes, dominated by *Rosa canina*.

General Description	Scattered patches of Juncus spp. in low-lying drainage depressions, with areas of higher diversity and some ephemeral water holes in deeper eroded creeks. Generally low species diversity intermixed with pasture weeds. Scattered remnant, planted and regenerating Eucalyptus in some locations, however considered unique from VA14 due to lack of diversity and overstorey. Likely provides suitable habitat for a number of common amphibian species, and natural water and sheltering resources for birds.		
	Over storey	**Mid storey**	**Under storey**
	Planted: *E. camaldulensis*	NA	*Juncus subsecundus., Austrostipa* spp., *Cymbopogon ambiguus, Phragmites australis, Typha domingensis*
Weeds	*Rosa canina* (Dog Rose), *Echium plantagineum, Cynara cardunculus* (Artichoke Thistle)		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** No threatened species were detected in this VA. **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)		

Table 5.17 Summary of VA16: *Acacia nyssophylla* shrubland +/- emergent Mallee

Vegetation Association	**VA16: *Acacia nyssophylla* shrubland +/- emergent Mallee**
Benchmark Community	NA6: Inland Tall Shrublands
BAM Sites	C16

VA16 facing north into tall shrubland.

General Description	This VA was an isolated patch along the southern end of the OTL, surrounded by mixed chenopod shrubland (VA12), native grassland (VA11) and Mixed mallee woodland (VA18). It is likely to provide suitable nesting habitat for a range of birds. Plant diversity was relatively low and comprised an overstorey of *Acacia nyssophylla* over chenopods.		
	Over storey	**Mid storey**	**Under storey**
	E. oleosa	*Acacia nyssophylla, Atriplex stipitata, Chenopodium desertorum, Maireana aphylla*	*Sclerolaena obliquicuspis, Austrostipa* sp.
Weeds	NA – no weeds were detected in this site at the time of the survey. Weeds such as *Carrichtera annua* (Wards Weed) are likely to be present, but not visible.		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** No threatened species were detected in this VA. **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)		

Table 5.18 Summary of VA17: *Cryptandra* spp. Shrubland +/- *Lomandra* spp.

Vegetation Association	**VA17: *Cryptandra* spp. Shrubland +/- *Lomandra* spp.**
Benchmark Community	NA 3: Grasslands
BAM Sites	A17

Example of sparse shrubland, heavily grazed facing south.

General Description

Appeared heavily grazed, however there was a high diversity of understorey species. The VA itself was dominated by state rare species, *Cryptandra campanulata* and *Maireana rohrlachii*, lending it a higher conservation value.

Over storey	Mid storey	Under storey
NA	*Cryptandra campanulata*	*Austrostipa nitida* *Austrostipa scabra* *Scleranthus pungens*

Weeds

Lycium ferocissimum, Carthamus lanatus, Salvia verbenaca, Avena barbata, Moraea setifolia

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA was assessed against the criteria for INTG, however, due to the low Lomandra tussock density (<1%) and higher shrub cover (>10%), it did not meet criteria.

Threatened species known to occur:

- *Cryptandra campanulata* (Long-flower Cryptandra) (NPW Act: Rare); and
- *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare).

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Peregrine Falcon (Falco *peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered, NPW Act: Endangered).

Table 5.19 Summary of VA19: *Dodonaea lobulata* Shrubland +/- Scattered Mallee *Eucalyptus* spp.

Vegetation Association	**VA19: *Dodonaea lobulata* Shrubland +/- Scattered Mallee *Eucalyptus* spp.**
Benchmark Community	NA6: Inland Tall Shrublands
BAM Sites	A19a, A19b

***Dodonaea lobulata* shrubland on steep hills with scattered mallee.**

***Dodonaea lobulata* shrubland on steep rocky rises and outcrops.**

General Description

This VA only occurred on the steeper hills and rises in the central south of the OTL route. It occurred on rocky hills and was associated with rock outcrops. Overstorey component varied but included scattered Eucalyptus oleosa as well as patches dominated by Callitris gracilis (with high dieback).

Over storey	Mid storey	Under storey
Eucalyptus oleosa, Callitris gracilis, Alectryon oleifolius	*Dodonaea lobulata, Beyeria leschenaultii, Cassinia laevis* ssp. *laevis*	*Lomandra multiflora, Austrostipa* sp., *Atriplex stipitata*

Weeds

Carthamus lanatus, Medicago sp.

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare)
- Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)

Threatened species likely to occur:

- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Chestnut-backed Quailthrush (*Cinclosoma castanotum*) (NPW Act: Rare)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable)
- Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Striped Honeyeater (*Plectorhyncha lanceolata*) (NPW Act: Rare)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.20 Summary of VA20: *Alectryon oleifolius* Low Woodland over Chenopods

Vegetation Association	**VA20: *Alectryon oleifolius* Low Woodland over Chenopods**
Benchmark Community	NA5: Mallee & Woodlands with Open Chenopod and Sclerophyll Shrub Understorey
BAM Sites	A20a, A20b

A20a, *Alectryon oleifolius* low woodland with heavily grazed understorey.

A20b, *Alectryon* low woodland over heavily grazed understorey.

General Description

This VA occurred in between areas of mallee vegetation, generally on low rocky rises. The understorey was typically sparse, comprising grasses and chenopod shrubs. Heavy grazing was evident.

Over storey	Mid storey	Under storey
Alectryon oleifolius, Eucalyptus porosa	*Atriplex stipitata, Maireana brevifolia, Maireana rohrlachii,*	*Alectryon oleifolius, Eucalyptus porosa*

Weeds

Carrichtera annua, Carthamus lanatus

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

- *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare)

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Little Eagle (*Hieraaetus morphnoides*) (NPW Act: Vulnerable)
- Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)

Table 5.21 Summary of VA21: *Senna* spp. Shrubland

Vegetation Association	VA21: *Senna* spp. Shrubland
Benchmark Community	NA6: Inland Tall Shrublands
BAM Sites	A21a

***Senna* shrubland along roadside (Thomas Road).**

General Description	This VA was only found to occur along roadsides intersecting the OTL primary. Its coverage is likely to have been more widespread prior to agricultural clearance and it is likely that its composition is of disturbance resistant species. Native species diversity was high for the Benchmark community NA6: Inland Tall Shrublands and this VA received a high biodiversity score as a result.		
	Over storey	**Mid storey**	**Under storey**
	NA	*Senna artemisioides* ssp. *artemisioides*, *Senna artemisioides* ssp. *coriacea*	*Atriplex stipitata, Austrostipa* sp., *Maireana rohrlachii, Sclerolaena obliquicuspis*
Weeds	Carrichtera annua, Salvia verbenaca, Asphodelus fistulosus		
Threatened species or communities likely to occur	**Threatened Ecological Communities:** This VA did not meet criteria for any TEC. **Threatened species known to occur:** No threatened species were detected in this VA. **Threatened species likely to occur:** • Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable) • Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare) • Black Falcon (*Falco subniger*) (NPW Act: Rare) • Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare) • Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)		

Table 5.22 Summary of VA22: *Scaevola spinescens* Shrubland over Grass

Vegetation Association	**VA22: *Scaevola spinescens* Shrubland over Grass**
Benchmark Community	MDBSA 2.2 Chenopod Open Shrublands
BAM Sites	A22a

BAM A22a, highly degraded *Scaevola spinescens* shrubland looking south.

General Description

This VA occurred on a large flat clay plain, subject to heavy grazing. It was in very poor condition with significant dieback (>90%) in all shrubs.

Over storey	Mid storey	Under storey
NA	*Scaevola spinescens, Maireana rohrlachii*	*Austrostipa* sp.

Weeds

Carrichtera annua, Carthamus lanatus

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

- *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare)

Threatened species likely to occur:

- Southern Whiteface (Aphelocephala leucopsis leucopsis) (EPBC Act: Vulnerable)
- Peregrine Falcon (Falco peregrinus macropus) (NPW Act: Rare)
- Black Falcon (Falco subniger) (NPW Act: Rare)
- Elegant Parrot (Neophema elegans elegans) (NPW Act: Rare)

Table 5.23 Summary of VA23: *Nitraria billardiera* Shrubland

Vegetation Association	VA23: *Nitraria billardiera* Shrubland
Benchmark Community	MDBSA 2.2 Chenopod Open Shrublands
BAM Sites	A23a, A23b

Nitrebush Shrubland on low lying clay plains.

General Description

This VA occurred on flat, low lying clay plains along areas of the OTL. It had low species diversity. The shrubs are likely to provide suitable nesting habitat for a range of bird species.

Over storey	Mid storey	Under storey
NA	*Nitraria billardiera, Enchylaena tomentosa, Maireana pyramidata, Scaevola spinescens*	*Austrostipa* sp.

Weeds

Avena barbata, Hordeum vulgare

Threatened species or communities likely to occur

Threatened Ecological Communities:

This VA did not meet criteria for any TEC.

Threatened species known to occur:

No threatened species were detected in this VA.

Threatened species likely to occur:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)
- Peregrine Falcon (*Falco peregrinus macropus*) (NPW Act: Rare)
- Black Falcon (*Falco subniger*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)

5.1.3 Scattered Trees (STAM)

A single scattered tree was recorded along White Hill Road, which has been proposed as a potential site access to the Project Area. The tree was a naturally regenerated *Eucalyptus camaldulensis* (River Red Gum) growing on the roadside. Tree attributes are described in **Table 5.24**.

Table 5.24 Details of Scattered Tree Assessed During Field Surveys

Tree ID:	Tree 1	
Tree species:	*Eucalyptus camaldulensis* var. *camaldulensis*	
Number of trees:	1	
Height (m):	3	
Hollows:	0	
Diameter (cm):	5	
Location:	Latitude: - 33.53093783 Longitude: 138.9088406	
Tree 1 had naturally regenerated on roadside vegetation, occurring over exotic grasses. No threatened fauna was entered into the STAM scoresheet due to the small size and stature of the tree and lack of suitable habitat features such as hollows or perching branches. The tree obtained a Total Biodiversity Score of 0.10. The tree is not within the current Project Disturbance Footprint.		

5.1.4 DIT Vegetation

Planted vegetation occurs on the corner of White Hill Road and the Barrier Highway, in an area proposed as a potential access for GNWF. The vegetation includes eight mature planted *Eucalyptus camaldulensis* var. *camaldulensis* (River Red Gum) trees, listed in **Table 5.25** and shown in **Figure 5.1**. None of these occur within the current proposed Disturbance Footprint, however, some trimming may be required to allow access. Major or minor trimming will be confirmed prior to construction occurring.

Table 5.25 Planted Amenity Trees Occurring on DIT Managed Road Reserves

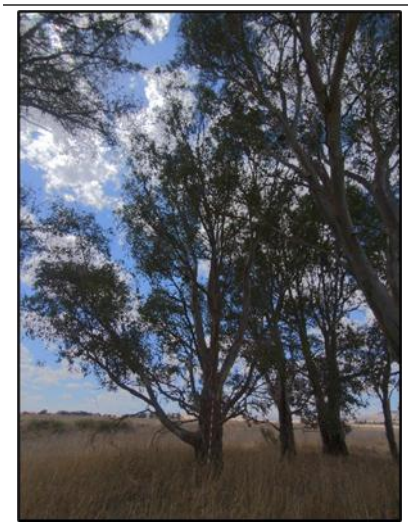
ID	Species	Circum. (cm)	Height (m)	Latitude	Longitude
DIT1	*Eucalyptus camaldulensis* var. *camaldulensis*	242.00	10.50	-33.52801602	138.8973425
DIT2	*Eucalyptus camaldulensis* var. *camaldulensis*	117.00	8.00	-33.52795108	138.8973102
DIT3	*Eucalyptus camaldulensis* var. *camaldulensis*	173.00	12.00	-33.52797732	138.897387
DIT4	*Eucalyptus camaldulensis* var. *camaldulensis*	255.00	10.50	-33.52793455	138.897451
DIT5	*Eucalyptus camaldulensis* var. *camaldulensis*	170.00	10.50	-33.52789822	138.8975116

ID	Species	Circum. (cm)	Height (m)	Latitude	Longitude
DIT6	*Eucalyptus camaldulensis* var. *camaldulensis*	310.00	13.00	-33.52786601	138.8975677
DIT7	*Eucalyptus camaldulensis* var. *camaldulensis*	96.00	9.00	-33.52792027	138.8975525
DIT8	*Eucalyptus camaldulensis* var. *camaldulensis*	269.00	13.00	-33.52795429	138.8974982

DIT1

DIT2

DIT3



DIT4

DIT5

DIT6

DIT7 DIT8

Figure 5.1 DIT Amenity Vegetation Recorded on the Corner of White Hill Road and Barrier Highway at Proposed Site Access Option

5.1.5 Threatened Ecological Communities

A total of 3,107.35 ha of vegetation was mapped as VA6: Lomandra Grassland in the GNREF, during field surveys, in which 11 BAM sites were undertaken. Within GNWF, a total of 1,931.24 ha of VA6 (*Lomandra* spp. Grassland) was mapped predominantly in the WF (1,792.07 ha), but also along the OTL (139.17 ha).

Due to the poor seasonal conditions present at the time of the initial detailed vegetation survey, patches of Lomandra Grassland were not assessed using criteria listed in the National Recovery Plan for the Iron-grass Natural Temperate Grassland of South Australia (Turner, 2012) (**Table 3.5**).

Indicators such as number of perennial grass species was difficult to assess, as grasses could not be distinguished to species level due to factors such as poor seasonal conditions, presence of heavy grazing and in some areas, previous fire impacts. Similarly, native species diversity counts were not limited to a 50 m x 50 m quadrat but assessed using BAM methodology in a 1-ha area. Despite the poor conditions, half of the sites surveyed were determined as close to meeting Condition Class B requirements (based on BAM assessments), detailed further in **Table 5.26**.

Table 5.26 Lomandra Grassland Site Assessment Based on BAM (spring 2023)

Site	Minimum Patch Size (ha)	Native Species Diversity[1]	No. broad Leaved Herbaceous Species[2] (Excl. DRS[2])	No. Perennial Grass Species[3]	% Cover Estimate[4]	Unit Biodiversity Score	Condition Class (Estimated Based on 100 m x100 m Quadrat)
A6a	>0.25	17	6	7	>50%	74.77	B
A6b	>0.25	20	8	5	>50%	80.69	B
A6c	>0.25	9	2	4	>25%	54.59	C
A6d	>0.25	9	1	3	>25%	54.26	C
A6e	>0.25	17	6	4	>50%	69.83	B
A6f	>0.25	11	5	4	>50%	62.23	C
A6g	>0.25	13	5	5	25-50%	51.76	C
B6a	>0.25	19	11	4	25-50%	46.06	B
B6b	>0.25	18	10	5	>50%	51.61	B
D6a	>0.25	11	5	4	>50%	67.81	C

Notes:
[1] As measured in a 100 m x 100 m quadrat utilised for BAM survey methodology.
[2] Disturbance resistant species (DRS): Ptilotus spathulatus; Sida corrugata; Oxalis perennans; Euphorbia drummondii, Maireana enchylaenoides.
[3] Includes true grasses, as well as species of Lomandra, Dianella, Gahnia, Lepidosperma and other perennial sedges and rushes.
[4] Based on cover rating given for grasses and sedges in BAM scoresheet.

Subsequently, additional targeted surveys were undertaken in spring 2024, targeted to assessing the condition of patches of Lomandra Grassland which intersected with the Disturbance Footprint. A total of 23 sites were assessed for INTG condition class according to the criteria outlined in the Conservation Advice and National Recovery Plan (detailed in **Section 3.3.1.5**. Full details of the INTG Targeted Assessment are presented in Umwelt (2025c).

In summary, 72 native flora species and 41 introduced flora species (totalling 113 species) were recorded across 23 targeted survey sites. One site was determined to be Class A INTG, 14 sites were determined to be Class B INTG, and the remaining 8 sites were determined to be Class C INTG.

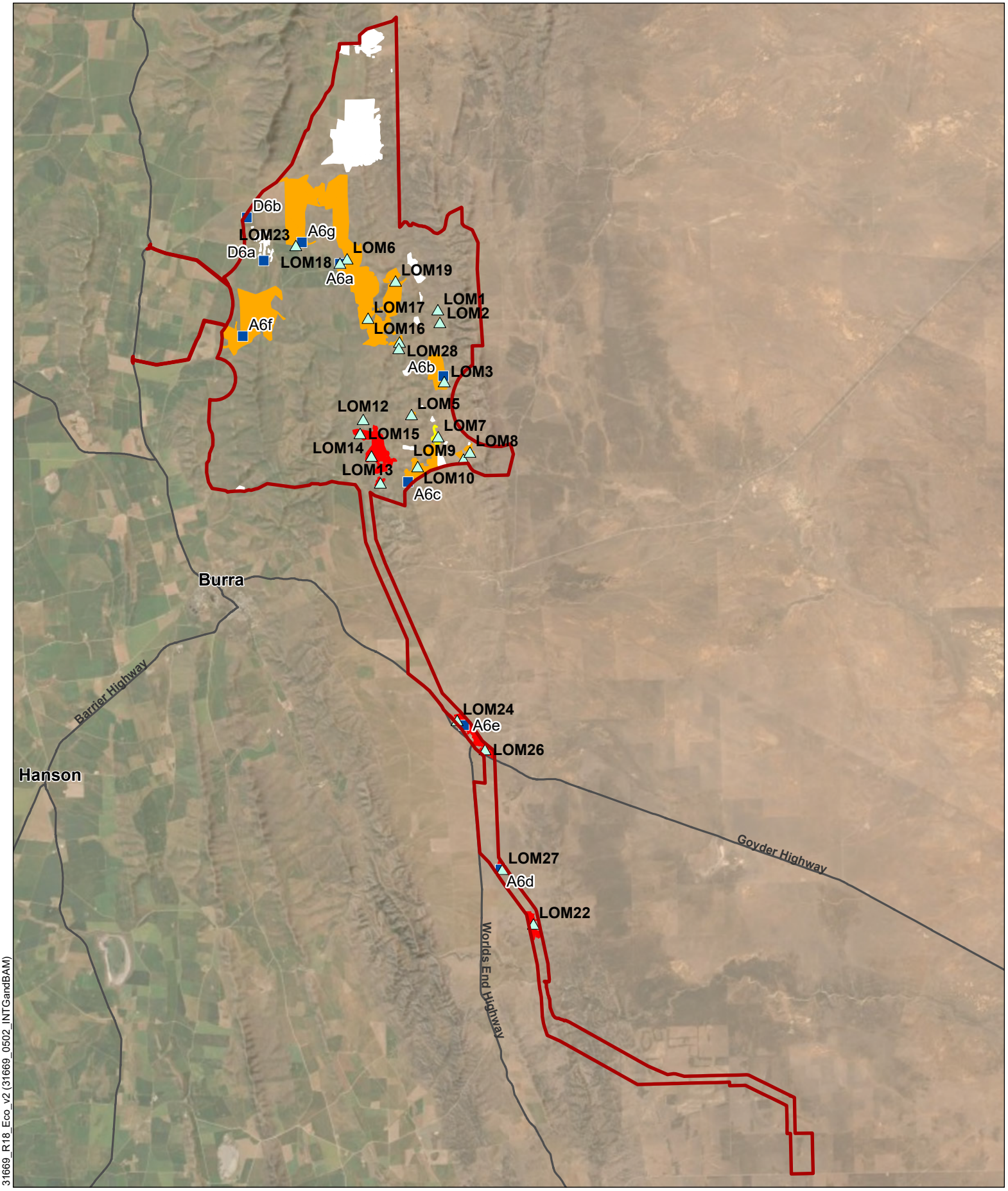
One site (LOM12) was found not to meet the criteria for listing as INTG, as it did not contain a high enough coverage of Lomandra spp. (>10%). LOM22 was mapped as Class C INTG due to the high relative cover of Lomandra spp., however the site did not meet the typical structural description of the community, having high cover (>10%) of chenopod shrub species including *Maireana rohrlachii* and *Maireana brevifolia,* with intermittent dense patches of *Hakea leucoptera*. Vegetation mapping for the Project Area was adjusted to incorporate these changes.

The precautionary principle was applied to two sites which came close to meeting the condition criteria for listing as Class B INTG. LOM10 met all criteria except the number of disturbance resistant broad-leaf herb species, containing only two of the three required to meet the criteria for Class B INTG.

An overview map of the INTG, the 23 targeted INTG sites, and Bushland Assessment sites within the Project Area is provided in **Figure 5.2**.

A total of 6.14 ha of the Critically Endangered TEC (INTG Class B) may be impacted by the Disturbance Footprint including 2.43 ha of permanent clearance and 3.72 ha of temporary clearance.

Figure 5.2 INTG and BAM Site Locations and Condition Class Assessment for GNWF



GNREF
Lomandra survey site
Lomandra BAM site

INTG Condition
Class A
Class B
Class C
Unsurveyed

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:08 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

0 2 4 km

N

31669_R18_Eco_v2 (31669_0502_INTGandBAM)

5.1.6 Threatened Flora

Twelve threatened flora species were recorded in the Project Area during field surveys, including two EPBC listed species:

- **Acacia spilleriana* (Spillers Wattle) (EPBC Act: Endangered; NPW Act: Endangered).
- *Austrostipa gibbosa* (Swollen Spear-grass) (NPW Act: Rare).
- *Cryptandra campanulata* (Long-flower Cryptandra) (NPW Act: Rare).
- **Cullen parvum* (Small Scurf-pea) (NPW Act: Vulnerable).
- *Dianella longifolia* var. *grandis* (NPW Act: Rare).
- *Dodonaea procumbens* (Trailing Hop-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable).
- **Eryngium ovinum* (Blue Devil) (NPW Act: Vulnerable).
- *Maireana excavata* (Bottle Fissure-plant)
- **Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare).
- *Ptilotus erubescens* (Hairy-tails) (NPW Act Rare).
- **Rumex dumosus* (Wiry Dock) (NPW Act: Rare).
- *Swainsona behriana* (Behr's Swainson Pea) (NPW Act: Vulnerable).

Of these, five species occur within the GNWF Project Disturbance Footprint (indicated by *), with the remainder being recorded in the Development Envelope or broader GNREF. *Austrostipa gibbosa* was only detected in the north of the GNREF, however, is likely to occur elsewhere in GNWF. Distribution and abundance of each species is described in **Section 6.3** (EPBC Act) and **Section 7.1** (NPW Act). All Umwelt records of Nationally and State listed threatened flora species are presented in **Section 7.1**.

5.1.7 Introduced Flora

A total of 106 species of introduced flora (weeds) have been recorded throughout the Project Area during field surveys. This includes 14 weeds listed as Declared under the LSA Act and two species also listed as a Weed of National Significance (WoNS) (**Table 5.27**).

A full list of weeds observed in the Project Area is presented in **Appendix C**.

Common and widespread weeds across the Project Area included *Avena* sp. (Oat Grass), *Carrichtera annua* (Wards Weed), *Carthamus lanatus* (Saffron Thistle), *Hordeum* sp. (Barley Grass), *Medicago* sp. (Burr Medic) and *Salvia verbenaca* (Wild Sage). Other more serious invasive species included:

- *Echium plantagineum* (Salvation Jane) - which was widespread in most grassy vegetation associations during spring surveys
- *Lycium ferocissimum* (African Boxthorn) - which was dominant in some shrubland areas and otherwise scattered throughout; and
- *Marrubium vulgare* (Horehound) which formed dense thickets on the tops and sides of hill slopes in many locations.

Xanthium spinosum (Bathurst Burr) was primarily detected growing in creeks and drainage lines, especially in the south-east of GNWF.

Table 5.27 Declared Weeds and WoNS detected in the Project Area During Field Surveys and the Relevant Landholder Responsibilities as Stated Under the LSA Act

Scientific Name	Common Name	WoNS	NRM Act Weed Status	Landholder Responsibilities Under the LSA Act.
Chondrilla juncea	Skeleton Weed		Declared	• Take reasonable steps to kill plants and prevent their spread. • Must not be sold or traded, including as a contaminant of anything. • Must not be transported on a public road, including as a contaminant of anything.
Chrysanthemoides monilifera	Boneseed	Yes	Declared	
Lycium ferocissimum	African Boxthorn	Yes	Declared	
Marrubium vulgare	Horehound		Declared	
Moraea flaccida	One-leaf Cape Tulip		Declared	
Reseda lutea	Cut-leaf Mignonette		Declared	
Rosa canina	Dog Rose		Declared	
Tribulus terrestris	Caltrop		Declared	
Xanthium spinosum	Bathurst Burr		Declared	
Convolvulus arvensis	Field Bindweed		Declared	• Must not be sold or traded, including as a contaminant of anything. • Must not be transported on a public road, including as a contaminant of anything.
Echium plantagineum	Salvation Jane		Declared	
Gazania linearis	Gazania		Declared	
Silybum marianum	Variegated Thistle		Declared	
Olea europaeus	Olive		Declared	• Take reasonable steps to kill plants and prevent their spread.

5.2 Fauna Survey Results

In total, 128 species of native fauna have been recorded within GNREF by Umwelt (formerly EBS) during field surveys (targeted and opportunistic) between September 2022 and March 2025. This includes 104 species of bird, four mammals, four native frogs, 15 reptiles and one crustacean. Additionally, up to eight species of bat have been detected, however their positive identification is pending specialist data analysis to confirm.

A further 12 non-native fauna species have been detected on site, including four bird and eight mammal species. A full list of fauna species recorded on site is presented in **Appendix D**.

5.2.1 Threatened and Migratory Fauna

Eleven fauna species listed as threatened or migratory were recorded during field surveys, including five EPBC listed species and one migratory species:

- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable).
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)
- Fork-tailed Swift (*Apus pacificus*) (EPBC Act: Migratory).
- Chestnut Quail-thrush (*Cinclosoma castanotum*) (NPW Act: Rare)

- White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare).
- Black Falcon (*Falco subniger*) (NPW Act: Rare).
- South-eastern Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare).
- Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare)
- Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare).
- Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable; NPW Act: Vulnerable).
- Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered, NPW Act: Endangered).

Distribution and abundance of each threatened species is described in detail in **Section 6.2** (EPBC Act) and **Section 7.2** (NPW Act).

5.2.2 Pygmy Blue-tongue Lizard Targeted Surveys

Five targeted PBTL surveys have been undertaken across GNWF between February 2024 and April 2025, including:

- Targeted surveys for PBTL were undertaken across the GNWF proposed layout (as defined 5 February 2024) in areas of suitable and marginal habitat.
- Additional micro siting surveys were undertaken outside of the proposed layout to enable potential micro siting of infrastructure to be located outside of known PBTL habitat, and other vegetation of high conservation value such as woodland.
- Micro siting surveys were undertaken for several minor early works including met masts and geotechnical investigations.
- Additional targeted surveys for PBTL were undertaken in the updated proposed Disturbance Footprint in March 2025.

A total of 186 PBTL have been detected across all survey periods (**Photo 5.1**), from 21,641 surveyed burrows (**Photo 5.2**), detailed in **Table 5.28** and displayed in **Figure 5.3**.

Table 5.28 Summary of PBTL Targeted Survey Results

Survey	Timing	Number of PBTL	Number of Burrows Searched
Disturbance Footprint Targeted	February / March 2024	138	15,534
Micro siting in Development Envelope	February / March 2024	16	758
Geotechnical Investigations	January to March 2025	19	3,270
Updated Disturbance Footprint Targeted	April 2025	10	1,795
Other micro siting	Various	3	284

Photo 5.1 PBTL Detected Using Fibre Optic Endoscope During Field Survey in February 2024

Photo 5.2 Example of Spider Hole Searched in Field Surveys

PBTL's were predominantly detected in Grassland habitats, native *Austrostipa* sp. Grassland (VA11), and *Lomandra* Grassland (VA6). A vegetation association of limited coverage within the WF, but high density of PTBL, was VA9 *Maireana rohrlachii* Shrubland, in which 29 PBTL were detected, including 13 within the hardstand and turning bay of a WTG (WTG098) and a further 16 within a proposed alternate location.

During Geotechnical investigations (Umwelt, 2025g), at least four of these records were in locations where PBTL had previously not been detected, with the remainder occurring within previously surveyed areas of the Disturbance Footprint. Multiple surveys in overlapping locations may represent duplicate records of the same individual(s). Thus, records from Geotechnical investigations, or other repeat surveys at the same location have been eliminated from any density calculations.

Risk mapping based on the methodology outlined in **Section 3.3.2.1** (**Table 3.7, Table 3.8** and **Table 3.9**) is presented in **Figure 5.4**, which also illustrates the search effort (survey tracks) in WF. No PBTL were detected along the OTL outside of the WF boundary, and therefore, despite search effort occurring along its length (in the FLB), is not shown on **Figure 5.4**.

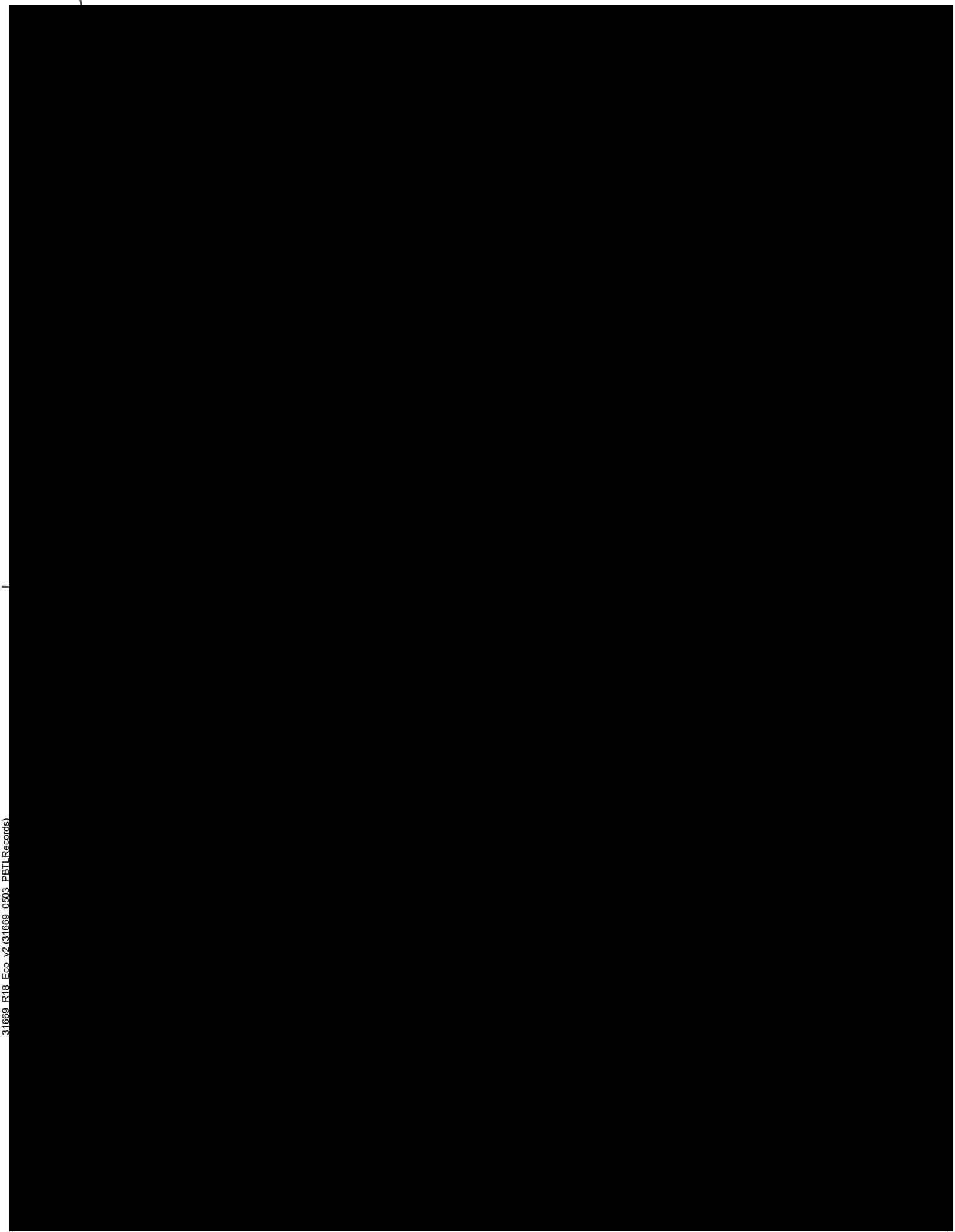
Following survey work, data was interrogated to determine if factors such as slope, aspect, altitude, soil type, landform and a range of other factors could explain the distribution of PBTL within otherwise suitable habitat. There was no strong link between the location of PBTL records, or burrows, which was explained by these factors. Given the patchy distribution of PBTL across the WF, habitat suitability mapping indicates that most of the WF will be considered as 'likely' PBTL habitat, with 'known' habitat restricted to within 50 m of known recent and historical records of PBTL (**Table 5.29**). Unlikely PBTL habitat is restricted to patchy areas of cropped land, drainage lines and densely wooded mallee vegetation in the east of the WF and southern half of the OTL, as well as grassland areas which otherwise did not meet the criteria as described in **Table 3.8**.

For full results and habitat / risk mapping, refer to Goyder North Wind Farm Targeted Pygmy Blue-tongue Lizard Survey Report (Umwelt, 2025b).

Table 5.29 Summary of Likely and Known Habitat within the Disturbance Footprint, Development Envelope and GNWF Project Area

Habitat Classification	Description	Area of Habitat in Disturbance Footprint (ha)	Area of Habitat in Development Envelope (ha)	Area of Habitat in GNWF (ha)
Unlikely / Unsuitable	• Areas where no burrows were detected. • Non-grassy shrubland, woodland and mallee vegetation associations. • Habitat which otherwise meets the suitability criteria but occurs within the MDD bioregion. • Habitat which otherwise meets the criteria but occurs on flats / plains, or on sandy / shaley soil, or which high surface rock density.	168.71	1,883.46	6,268.85
Likely	• Areas where habitat meets criteria and numerous potential burrows occur. • Overlapping with low and moderate confidence tracks.	348.06	2,806.13	10,972.26
Known	• Within 50 m of known record and extending as far as suitable burrows occur.	20.04	82.43	181.86

Figure 5.3 PBTL Records Within the GNWF Project Area Including Umwelt and Historical BDBSA Records



Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:13 PM
Created by: sophie.haswell

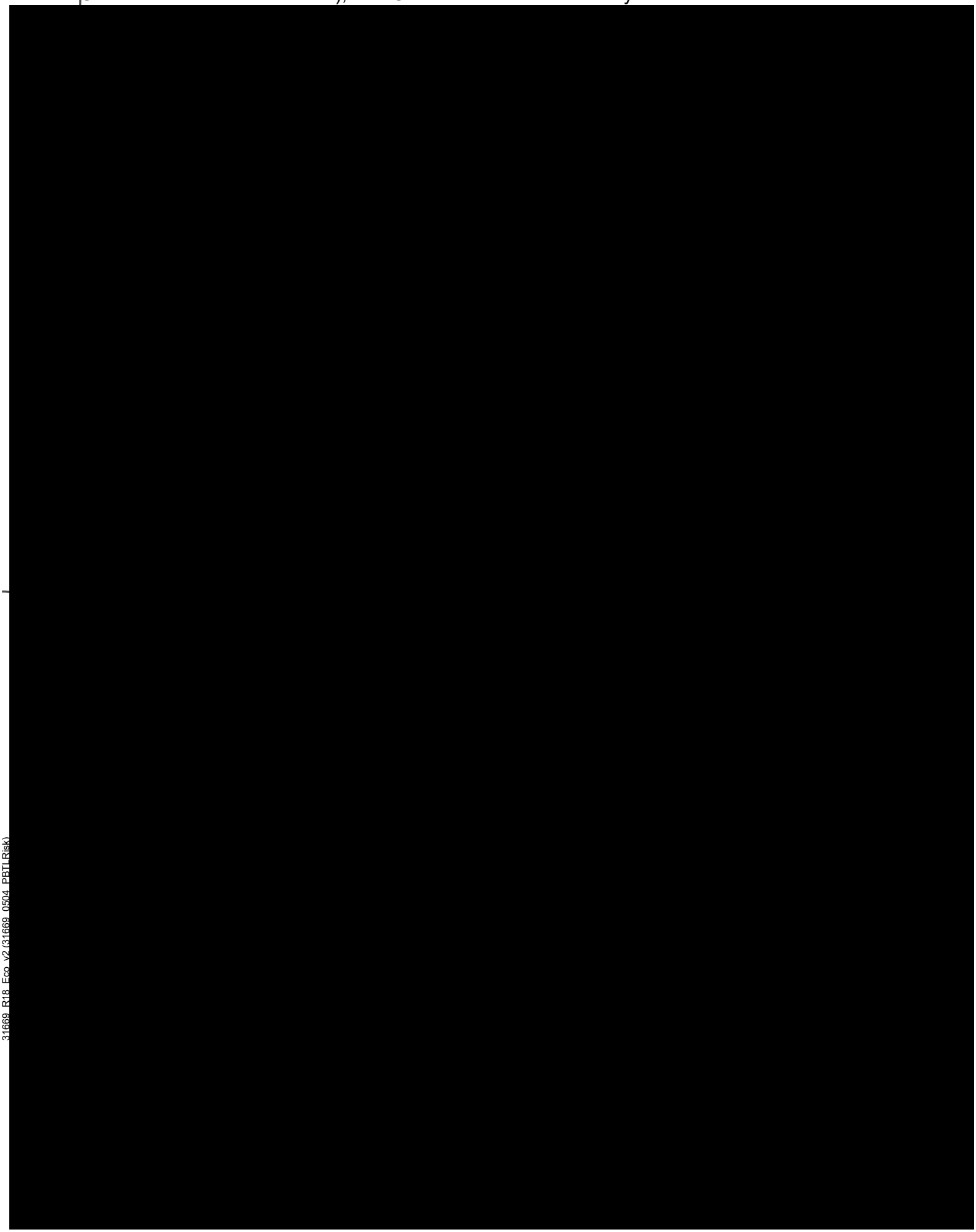
GDA2020 MGA Zone 54

N

0 1 2 km

31669_R18_Eco_v2 (31669_0503_PBTL Records)

Figure 5.4 PBTL Risk Mapping within WF Disturbance Footprint, Based on Presence of PBTL (50m Buffer around Umwelt and BDBSA Records), and Confidence Level of Surveyed Area



31669_R18_Eco_v2 (31669_0504_PBTL Risk)

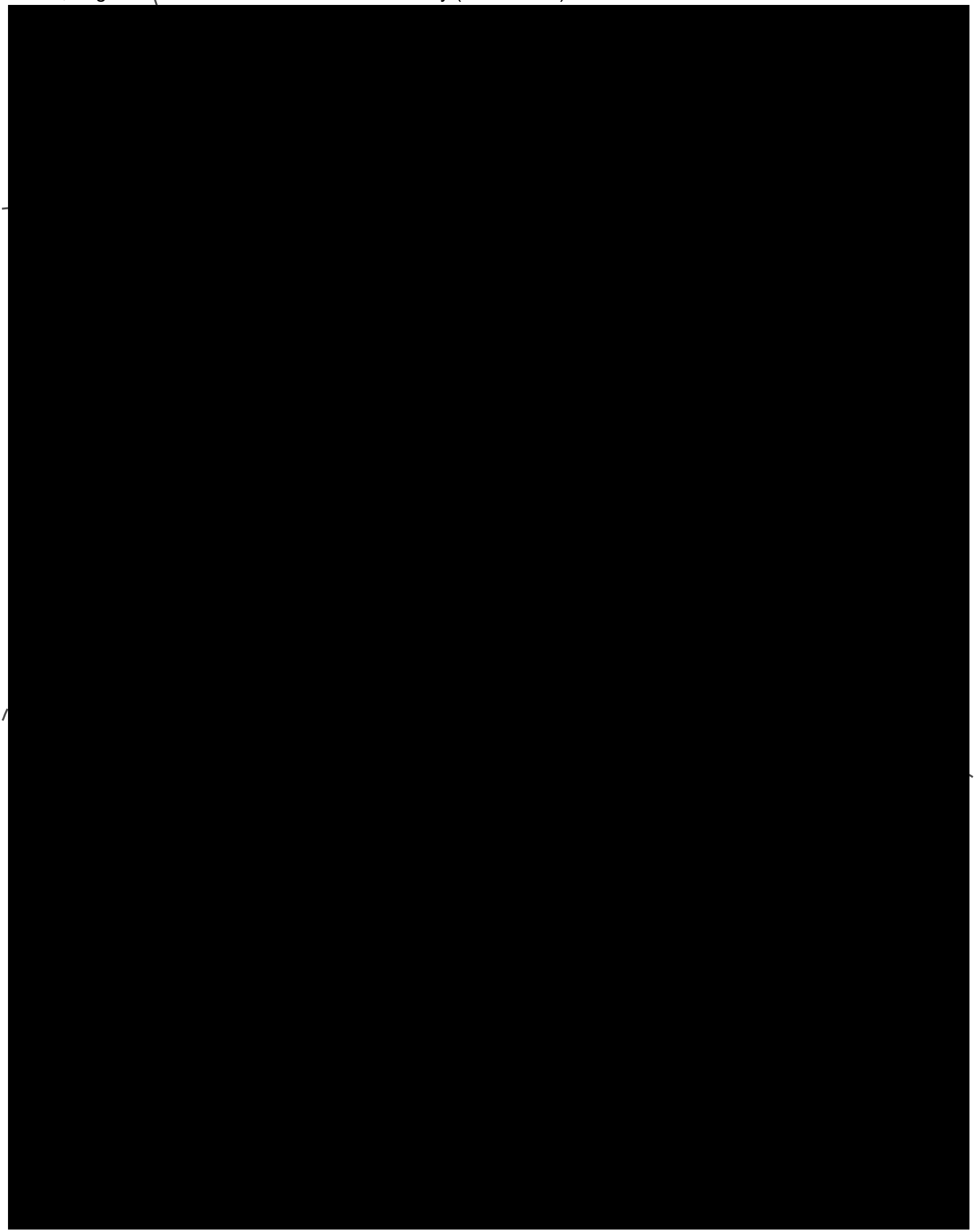
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:20 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 1 2 km

Figure 5.5 PBTL Habitat Suitability Mapping Within the GNWF Project Surveyed Area, Based on Presence of PBTL, Vegetation Association and IBRA Boundary (FLB / MDD)



Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:22 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

5.2.3 Flinders Ranges Worm-lizard Targeted Surveys

Fifty-two search quadrats and 10 additional transects of varying length were surveyed for suitable FRWL habitat within the Project Area (**Figure 5.6**). Based on the criteria of turning a minimum of 150-200 rocks per quadrat, an estimated 9,300 to 12,400 potentially suitable rocks were turned during the survey period, with walking transects totalling approximately 33.68 km between the two observers.

A total of five individual FRWL were observed during the survey period **Photo 5.3**, and twenty shed skins (**Photo 5.4**). The live FRWL were recorded at Q1, T2, Q5, Q14 and Q33. The additional locations where FRWL and shed skins were observed are shown on the map in **Figure 5.6**.

All FRWL were located beneath rocks and within or close to ant and termite tunnels. The rocks that FRWL were found under were partly embedded in the soil, generally with a flat bottom surface. Rocks containing FRWL varied considerably in size, however, the smallest rock under which a FRWL was found measured approximately 12 cm in diameter. All FRWL were found alone under the rocks.

All but one FRWL were recorded on a north-facing slope during sunny, mild midday conditions. The exception was a single FRWL located on a hilltop during a late, overcast afternoon.

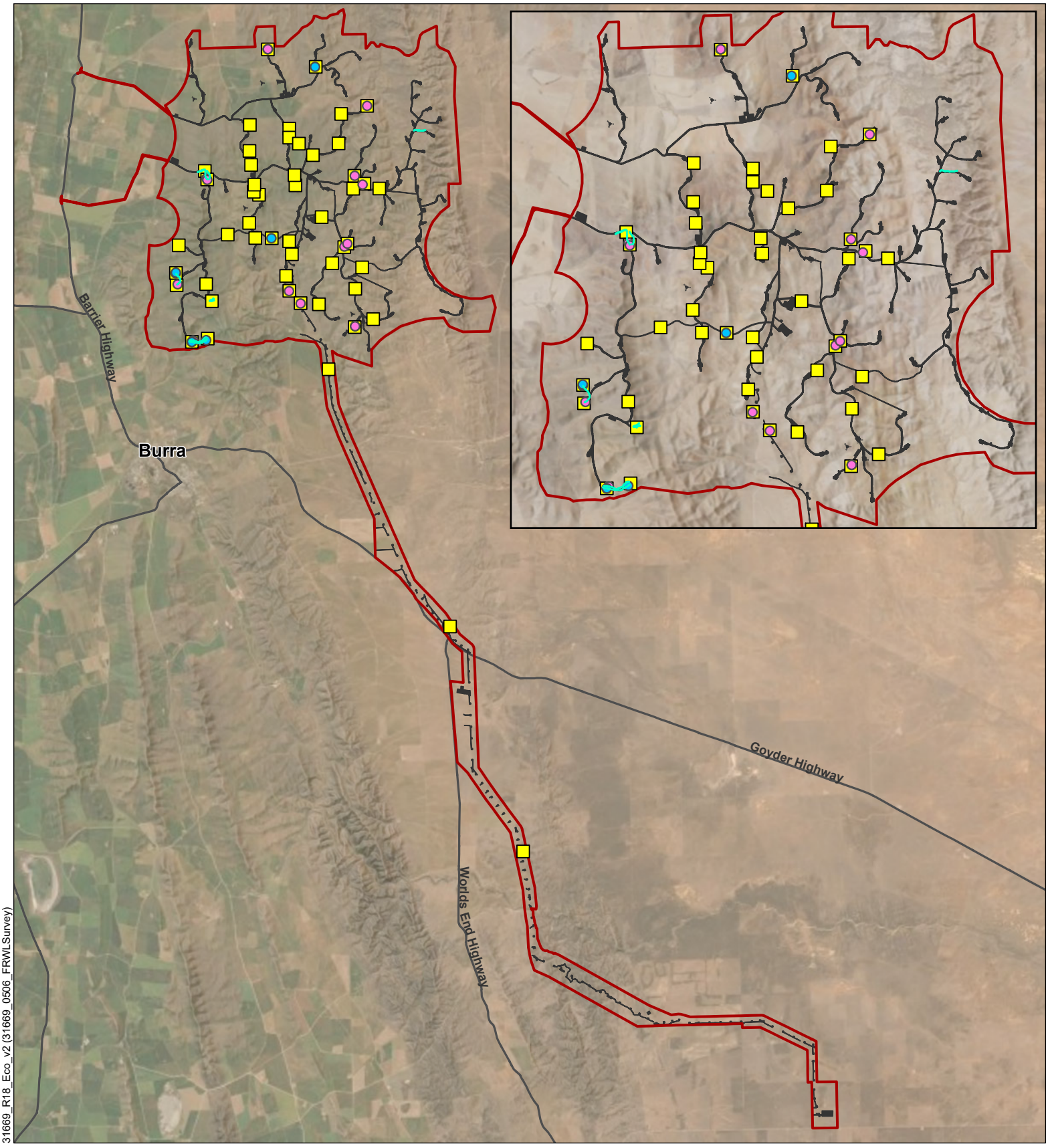
The FRWL and shed skins were all recorded in rocky grasslands, with no records being found within the Mallee Woodlands located in the northwest corner of the Project Area. The species is not known to occur in those parts of the Project Area outside the FLB IBRA Bioregion; however, no survey effort was targeted here to confirm, and habitat is generally considered unsuitable.

Although most individuals were found on a north-facing slope, FRWL were also all located during similar weather conditions during midday (i.e. mild, sunny periods during the warmest part of the day). This is likely to represent the ideal autumn survey conditions for the species. Given that some areas were surveyed outside this ideal time, during cool, and overcast early mornings, the non-detection of FRWL elsewhere may be due in part to weather conditions and time of day, rather than their absence from a site/area. The detection of other signs of presence, for example shed skin of FRWL, is considered a proxy for presence of FRWL.

Photo 5.3 All FRWLs Were Located Beneath Lightly Embedded Rocks

Photo 5.4 The Shed Skin of a FRWL Found Beneath a Rock

Figure 5.6 Location of Survey Transects, FRWL and Shed Skins Recorded Across the Project Area



GNWF Project Area

Disturbance Footprint

Flinders Rangers Worm-lizard survey

- FRWL
- FRWL skin
- Survey quadrat location
- Survey Transect

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:24 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

31669_R18_Eco_v2 (31669_0506_FRWLSurvey)

5.2.4 Mallee Bird Community Threatened Ecological Community

Seven targeted Mallee Bird Community (MBC) surveys were completed across two survey periods in Spring 2023 to determine if mallee vegetation patches, occurring within the MDD Bioregion adjacent to the OTL and Bundey Substation Expansion were likely to qualify as MBC TEC.

Within the GNWF Project Area, the MDD bioregion covers the southern portion of the OTL (~9.5 km). Within the MDD bioregion, the following additional criteria must be met for an area to be listed as the MBC TEC:

- Contains a patch of mallee vegetation association at least 5 ha in size (with varying understorey components including Triodia, chenopod and tussock grass, shrubby, heathy).
- Contains at least three MBC species (**Table 5.30**) (any mix of specialist or dependent) within 20 km of the Project Area (within the last 10 years).

A total of 36 bird species were identified at MBC survey sites during the field surveys, including three species listed in the Approved Conservation Advice (DAWE, 2021a) as mallee dependent species.

A BDBSA search within 20 km of the Bundey Substation and OTL in the last 10 years includes nine mallee dependent species (no mallee specialists). Three of these species have been detected within the GNWF during field surveys (**Table 5.30**). Thus, mallee vegetation patches >5 ha in size within the MDD are considered to meet the criteria for MBC. With five MBC species identified, connected mallee vegetation patches are likely to qualify as Category A (high quality) MBC.

Table 5.30 MBC Specialist and Dependent Species and Records Within 20 km of the MDD Section of the Project Area Within the Last 10 Years

MBC Status	Species Name	Common Name	EPBC Act	NPW Act	Year of Last Sighting	Detected During Field Surveys?
Mallee Specialist	*Amytornis striatus*	Striated Grasswren		R		
	Cinclosoma castanotum	Chestnut Quail-thrush		R		
	Leipoa ocellata	Malleefowl	VU	V		
	Manorina melanotis	Black-eared Miner	EN	E		
	Neophema splendida	Scarlet-chested Parrot		R		
	Pachycephala rufogularis	Red-lored Whistler	VU	R		
	Psophodes nigrogularis	Mallee Western Whipbird	VU	E		
	Stipiturus mallee	Mallee Emu-wren	EN	E		
Mallee Dependant	*Calamanthus cautus*	Shy Heathwren		R	2015	
	Drymodes brunneopygia	Southern Scrub-robin				
	Lichenostomus cratitius	Purple-gaped Honeyeater				
	Malurus splendens	Splendid Fairy-wren			2018	
	Microeca fascinans	Jacky Winter			2018	Yes
	Nesoptilotis leucotis	White-eared Honeyeater			2023	Yes
	Oreoica gutturalis	Crested Bellbird			2016	
	Pardalotus punctatus	Spotted Pardalote			2023	
	Polytelis anthopeplus	Regent Parrot	VU	E		

MBC Status	Species Name	Common Name	EPBC Act	NPW Act	Year of Last Sighting	Detected During Field Surveys?
	Ptilotula ornata	Yellow-plumed Honeyeater			2021	Yes
	Ptilotula plumula	Grey-fronted Honeyeater			2018	
	Purnella albifrons	White-fronted Honeyeater			2023	

Conservation status: Aus.: Australia (*Environment Protection and Biodiversity Conservation Act 1999*). SA: South Australia (*National Parks and Wildlife Act 1972*). Conservation Codes: EN/E: Endangered. VU/V: Vulnerable. R: Rare. Data sourced from BDBSA Recordset Number: DEWNRBDBSA240403-4).

5.2.5 BBUS Surveys

Below is a summary of the findings from each of the seven BBUS survey sessions completed to date. For full results of targeted BBUS surveys to date, refer to the documents listed in **Table 5.31**.

Table 5.31 BBUS Reports

BBUS Survey	Report Reference
Spring 2023	EBS Ecology (2024a) Goyder North Stage 1 Bird and Bat Utilisation Survey – Spring 2023. Adelaide: Report to Neoen by EBS Ecology.
Summer 2024	EBS Ecology (2024b) Goyder North Stage 1 Bird and Bat Utilisation Survey – Summer 2024. Adelaide: Report to Neoen by EBS Ecology.
Autumn 2024	EBS Ecology (2024c) Goyder North Stage 1 Bird and Bat Utilisation Survey – Autumn 2024. Adelaide: Report to Neoen by EBS Ecology.
Winter 2024	EBS Ecology (2024d) Goyder North Stage 1 Bird and Bat Utilisation Survey – Winter 2024. Adelaide: Report to Neoen by EBS Ecology.
Spring 2024	Umwelt (2024a) Goyder North Stage 1 Bird and Bat Utilisation Survey – Spring 2024. Adelaide: Report to Neoen by Umwelt (Australia) Pty Ltd.
Summer 2025	Umwelt (2025d) Goyder North Stage 1 and Stage 2 Bird and Bat Utilisation Survey – Summer 2025. Adelaide: Report to Neoen by Umwelt (Australia) Pty Ltd.
Autumn 2025	Umwelt (2025f – in draft) Goyder North Wind Farm Bird and Bat Utilisation Survey – Autumn 2025. Adelaide: Report to Neoen by Umwelt (Australia) Pty Ltd.
Winter 2025	Umwelt – yet to be prepared

5.2.5.1 BBUS Summary

Across all BBUS surveys to date (7 of 8 completed as of June 2025, with data from the final July 2025 survey yet to be analysed), a total of 4,180 individual birds and 72 species have been recorded at the 16 dedicated bird monitoring sites. This has included 2,930 individuals from 68 native species and 1,250 individuals from four introduced species. Amongst the natives, the most abundant species have been the Galah (*Eolophus roseicapilla*) with 620 individuals recorded and the Little Raven (*Corvus mellori*) with 368 individuals recorded, accounting for 14.83% and 8.80% inclusively of all bird sightings. The most abundant species overall at BBUS sites has been the introduced Common Starling (*Sturnus vulgaris vulgaris*) with 838 individuals recorded, accounting for 20.05% of all bird sightings.

Grassland BBUS sites (which account for six out of the 16 BBUS sites), represent the majority of bird utilisation of habitat with 1,086 individuals recorded within grassland habitats, representing 25.98% of all avian observations. This has been followed by mallee woodland sites (861 individuals recorded or 20.60%), sedgelands (618 individuals recorded or 14.78%), shrublands (612 individuals recorded or 14.64%), gum woodlands (563 individuals recorded or 13.47%), and *Lomandra* grasslands (440 individuals recorded or 10.53%).

Avian abundance has been greatest at Site 4 (sedgeland) (618 individuals recorded), representing 14.78% of all bird records, and lowest at Site 12 (grassland) (80 individuals recorded or 1.91%). Avian diversity is highest at Site 5 (mallee woodland) (38 species recorded) and lowest at Site 7 (*Lomandra* grassland) (7 species recorded).

A brief summary of each BBUS undertaken to date is provided below.

Spring 2023 (1 of 8)

Weather conditions during the spring 2023 surveys were generally suitable for bird surveys, although overcast skies were present for 11 of the 18 survey sessions and may have affected identification.

In total, 413 birds of 32 species were recorded at nine monitoring sites in the WF during the field survey, including 29 native species (EBS Ecology, 2024a). Three raptor species were reported, including Australian Kestrel (*Falco cenchroides*), Black-shouldered Kite (*Elanus axillaris*) and Wedge-tailed Egale (*Aquila audax*). Raptors are recorded and reported on specifically due to their heightened risk of bird strike with WTG rotors, due to their flight behaviour.

Summer 2024 (2 of 8)

An additional seven monitoring sites were established in the WF in summer 2024 to provide more comprehensive coverage of the wind farm and its vegetation associations.

Weather conditions during the summer 2024 surveys were suitable for bird surveys, although overcast skies, fog, strong winds and high temperatures may have impacted identification on one of the survey days.

In total, 648 individuals from 35 species were observed at 16 monitoring sites during the field survey, including 33 native species (EBS Ecology, 2024b). Three raptor species were detected at BBUS sites, including the Australian Kestrel, Black-shouldered Kite and Wedge-tailed Eagle, as well as an Australian Hobby (*Falco longipennis*) observed opportunistically while traversing the site.

For a full description of the methods used to increase BBUS sites from 9 to 16, refer to (EBS Ecology, 2024b).

Autumn 2024 (3 of 8)

The third survey evaluated the selection of sites across the Project Area, considering the large size of the site, the representation of vegetation types and accessibility. As a result, 23 x 20-minute 2-ha surveys were conducted, with each of the 16 sites surveyed at least once during the survey duration, and sites within grassland habitats (Sites: 2, 3, 6, 7, 8, 9, 12, 13), surveyed only once.

Weather conditions during the autumn 2024 BBUS were ideal for bird surveys, with cool morning temperatures, mild to warm day time temperatures, clear skies, and low wind speeds.

A total of 798 individual birds and 43 species were observed at the 16 monitoring sites during the field survey, including 364 individuals from 39 native bird species, and 434 individuals from four non-native bird species, predominantly represented by large flocks of Common Starling (EBS Ecology, 2024c).

Three raptor species were observed during the autumn 2024 survey, including 12 Wedge-tailed Eagles and a single Brown Falcon during BBUS, as well as an Australian Kestrel observed opportunistically.

A preliminary assessment of acoustic bat data was collated for autumn 2024 which found that up to five species of bat were active at the site, including Goulds Wattled Bat (*Chalinolobus gouldii*), *Mormopterus* sp., *Scotorepens* sp., White-striped Free-tailed Bat (*Austronomus australis*) and Inland Broad-nosed Bat (*Scotorepens balstoni*). A comprehensive assessment of bat calls from each seasonal survey will be compiled at the conclusion of the BBUS monitoring program.

Winter 2024 (4 of 8)

The fourth survey introduced a new survey methodology based on the recommendations of the autumn 2024 report (EBS Ecology, 2024d), with the aim to better capture the abundance of grassland birds, particularly raptors, over such a large Project Area. The survey methods included the establishment of four 5-km long vehicular transects, as per the *Guidelines for Surveying Australia's Threatened Birds* (DEWHA, 2010a) using vehicular methods.

Weather conditions during the winter 2024 BBUS were suboptimal for bird surveys due to overcast skies, cold weather, rain and intermittent fog impacting bird identification.

In total 357 individuals of 31 species were observed, including 231 individuals from 28 native bird species and 126 individuals from three introduced species (EBS Ecology, 2024d). Vehicular transects reported 253 individuals and 14 species including 106 individuals from 12 native species. This included two species that had not been encountered at BBUS sites or opportunistically, including Australasian Grebe (*Tachybaptus novaehollandiae*) and Grey Teal (*Anas* gracilis).

Three raptor species were identified during BBUS surveys, including Australian Kestrel (Site 5) and Wedge-tailed Eagle (Sites 6, 12,13, 14) at BBUS's, and Australian Hobby, encountered opportunistically.

Spring 2024 (5 of 8)

Weather conditions during the spring 2024 surveys were ideal for avian surveys, with low windspeed, warm temperatures and clear skies.

A total of 716 individuals from 40 species were recorded during the BBUS, including 614 individuals from 36 native species and 102 individuals from four introduced species. The vehicular transect survey recorded 420 birds from 18 species including 353 individuals from 14 native species and 67 individuals from four introduced species (Umwelt, 2024a).

Three raptor species were observed at BBUS including 15 Australian Kestrels, six Wedge-tailed Eagles and one Australian Hobby. Brown Falcon was observed opportunistically. All four species were observed on vehicular transects. No nesting activity was reported at the Wedge-tailed Eagle nest near to Site 15.

Summer 2025 (6 of 8)

Weather conditions during the summer 2025 surveys were dry, but otherwise ideal for avian bird surveys, with excellent visibility, low windspeed and warm temperatures.

A total of 369 individual birds from 34 species were recorded at BBUS, including 32 native and two introduced species. A further 719 birds of 30 species were recorded opportunistically across the Project Area including ten which had not been observed at a BBUS (Umwelt, 2025d).

Three commonly occurring raptor species were observed including Australian Kestrel, Wedge-tailed Eagle and Brown Falcon.

Autumn 2025 (7 of 8)

Weather conditions during the autumn 2025 surveys were dry, but otherwise ideal for avian bird surveys during the autumn 2025 survey, with low windspeed, good visibility and seasonally warm conditions.

A total of 772 individual birds and 36 species were recorded at BBUS sites including 32 native species and four introduced species (Umwelt, 2025f – in draft). Vehicular transects reported 270 birds from 14 species including 12 native and two introduced species. A further 114 birds from seven species were reported opportunistically across the duration of the survey within the GNWF Project Area.

Three commonly occurring raptor species were reported during the autumn BBUS, Australian Hobby, Nankeen Kestrel and Wedge-tailed Eagle. The previously identified Wedge-tailed Eagle nest near Site 15 was found to be inactive at the time of survey, however two birds were observed in the nearby vicinity. A previously unknown nest was also identified in the east of the Project Area, however it was found to be in poor condition and likely to be inactive, though the presence of a Wedge-tailed Eagle nearby suggests it has potential for future use.

A preliminary assessment of acoustic bat data was collated for autumn 2025 which found that up to eight species of bat were active across three sites in the GNWF Project Area, including White-striped Free-tailed Bat (*Austronomus australis*), Goulds Wattled Bat (*Chalinolobus gouldii*), Chocolate Wattled Bat (*Chalinolobus morio*), *Mormopterus* sp., Lesser Long-eared Bat (*Nyctophilus geoffroyi*), Inland Broad-nosed Bat (*Scotorepens balstoni*), Southern Forest Bat (*Vespadelus regulus*)and Inland Forest Bat (*Vespadelus baverstocki*). A comprehensive assessment of bat calls from each seasonal survey will be compiled at the conclusion of the BBUS monitoring program and verified by a bat call specialist.

5.2.5.2 Threatened Species Recorded during BBUS

Two species listed under the EPBC Act have been recorded at designated bird monitoring sites:

- Pacific Swift (*Apus pacificus pacificus*) - listed as Migratory under the EPBC Act
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*) - listed as Vulnerable under the EPBC Act

A further two species listed under the NPW Act have been recorded at designated bird monitoring sites:

- White-winged Chough (*Corcorax melanorhamphos*) – listed as Rare under the NPW Act. This species was observed opportunistically during the Summer 2024, Winter 2024 and Summer 2025 BBUS events.
- Chestnut Quailthrush (*Cinclosoma castanotum*) – listed as Rare under the NPW Act. This species was heard at Site 16 in Summer 2024.

Southern Whiteface

Across the seven BBUS surveys to date, 184 Southern Whiteface have been recorded (**Table 5.32**). This includes the following:

- 102 individuals recorded across 3 of the 16 targeted bird sites – Site 5 (mallee woodland, 26 individuals), Site 10 (shrubland, 70 individuals), and Site 16 (mallee woodland, 6 individuals),
- 23 individuals recorded across 1 of the 4 vehicular transects (Transect 4),
- 59 individuals opportunistically observed across the seven BBUS surveys to date.

Given the sedentary nature of Southern Whiteface, these are likely to represent repeat observations of the same individuals over mulitple survey periods.

Seasonal detections of Southern Whiteface are summarised below, with site-specific records and opportunistic observations presented in **Table 5.32**.

- In Spring 2023, 12 individuals were recorded at Site 5 (mallee woodland). No detections were made at other sites, along vehicular transects, or opportunistically.
- In Summer 2024, 24 individuals were recorded at Site 10 (*Maireana rohrlachii* low open shrubland). No individuals were recorded at other sites or vehicular transects. An additional 17 individuals were recorded opportunistically.
- In Autumn 2024, 20 individuals were recorded at Site 10 (shrubland), and 4 individuals were recorded at Site 16 (mallee woodland). No individuals were recorded along vehicular transects. An additional 5 individuals were recorded opportunistically.
- In Winter 2024, no individuals were recorded at targeted BUS sites. However, 2 individuals were observed along Vehicular Transect 4, with additional birds recorded opportunistically.
- In Spring 2024, 7 individuals were recorded at Site 5 (Lomandra grassland), 2 individuals were recorded at Site 10 (shrubland), and 2 individuals were recorded at Site 16 (mallee woodland). Additionally, 4 individuals were recorded along Vehicular Transect 4 and 20 individuals were recorded opportunistically.
- In Summer 2025, 13 individuals were recorded at Site 10 (shrubland), 5 individuals were recorded along Vehicular Transect 4, and a further 15 individuals were recorded opportunistically.
- In Autumn 2025, 7 individuals were recorded at Site 5 (mallee woodland), 11 individuals were recorded at Site 10 (shrubland), and 12 individuals were recorded along Vehicular Transect 4. Additional individuals were recorded opportunistically.

These results confirm consistent seasonal presence of Southern Whiteface across key habitat types, particularly at Site 10 (shrubland), which has repeatedly recorded the largest numbers.

Pacific Swift

One Pacific Swift was recorded as a fly-over at Site 12 (grassland) in Summer 2024.

Table 5.32 Southern Whiteface Recorded During BBUS

	BUS Sites																Transects				Opp.	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	T1	T2	T3	T4	-	-
Spring 2023 (1 of 8)	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**12**
Summer 2024 (2 of 8)	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	17	**41**
Autumn 2024 (3 of 8)	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	4	-	-	-	-	5	**29**
Winter 2024 (4 of 8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1*	**3**
Spring 2024 (5 of 8)	-	-	-	-	7	-	-	-	-	2	-	-	-	-	-	2	-	-	-	4	20	**35**
Summer 2025 (6 of 8)	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	5	15	**33**
Autumn 2025 (7 of 8)	-	-	-	-	7	-	-	-	-	11	-	-	-	-	-	-	-	-	-	12	1*	**31**
Total	**0**	**0**	**0**	**0**	**26**	**0**	**0**	**0**	**0**	**70**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**23**	**59**	**184**

Opp. = Opportunistic

*Present but not counted

5.2.6 Southern Hairy-nosed Wombats

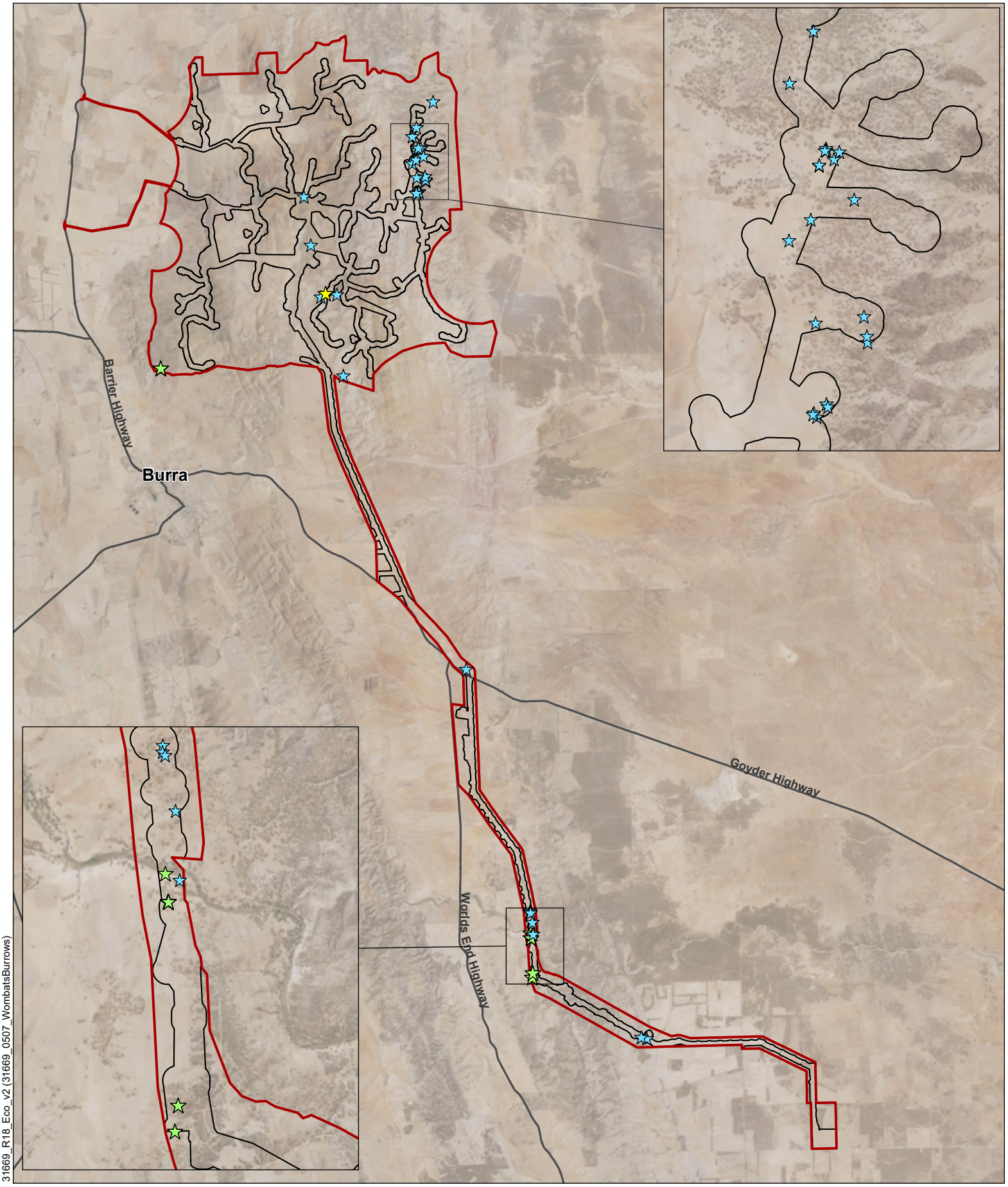
Southern Hairy-nosed Wombat (*Lasiorhinus latifrons*) have additional protections under the NPW Act (Section 68AA). Burrows are common and widespread throughout the GNREF, particularly in or edging on mallee woodland communities, in the east of the GNREF and along the OLT (**Figure 5.7**). Within the vicinity of the Disturbance Footprint, a total of 35 locations have been identified as having active wombat burrows (**Photo 5.5**), of which most locations contained more than a single entrance. Three observations of live wombats have been made, including at BBUS site 5 and 16 and along the OTL (**Photo 5.6**). A list of the GPS coordinates of all wombat burrows detected is presented in **Appendix E**.

Photo 5.5 Southern Hairy-nosed Wombat Burrow in the WF

Photo 5.6 Southern Hairy-nosed Wombat Along OTL

Typically, wombats are found in drainage lines and at lower elevations, however, in the Project Area warrens were concentrated on the eastern mallee hills, before the hills drop steeply to the flat, eastern chenopod plains. The wombat warrens encountered during the field survey are not likely to constitute the full extent of warren systems found across the Project Area. The number of individual burrows found are not representative of the number of wombats which may occupy the site, as a single wombat may utilise over eight different warrens / burrows (South Australian Murray-Darling Basin Natural Resources Management Board, 2011).

Figure 5.7 Location of Southern Hairy-nosed Wombats and Burrows Detected in GNWF



GNWF Project Area
Development Envelope

Umwelt
Southern Hairy-nosed Wombat
Southern Hairy-nosed Wombat (Burrow)

BDBSA
Southern Hairy-nosed Wombat

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:27 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

0 2 4 km

N

31669_R18_Eco_v2 (31669_0507_WombatsBurrows)

5.2.7 Wedge-tailed Eagles

Wedge-tailed Eagles (WTE) are commonly recorded across the GNWF, both opportunistically and as part of targeted field surveys. WTE are not a listed threatened species, however, they are assessed as an at-risk species when considering their flight patterns and the potential for impact with WTG rotor blades (see **Section 7.4**). To minimise potential impacts to this species, a 1 km buffer around active nest sites is recommended. A single nest was recorded (WTE1) (near BBUS site 15) (**Figure 3.1**, **Photo 5.7**) however, despite being intact and with evidence of whitewash, the nest was not active during the 2023 or 2024 breeding seasons. Details of the nest are presented in **Table 5.33**.

In autumn 2025 an additional potential nest site was detected (WTE2), consisting of a highly dilapidated nest on the far eastern boundary of the Project Area, along BBUS vehicular Track 4. A juvenile WTE was observed perching in the tree near the dilapidated nest. It is unlikely that this nest is utilised, however, its presence indicates that an additional active nest may be present nearby. Additional searches in the area did not uncover the location of any additional nest sites.

Table 5.33 WTE Nest Details at GWNF

Nest ID	Tree Species	Height (m)	Depth (m)	Width (m)	Condition	Whitewash Y/N	Eastings	Northings	Comments
WTE1	*Eucalyptus leucoxylon* ssp. *pruinosa*	10	1	1.2	Intact	N	309527.37	6277640.68	Nest inactive.
WTE2	*Eucalyptus porosa*	10	1	2	Degraded	N	317701.82	6285433.28	Nest dilapidated, inactive.

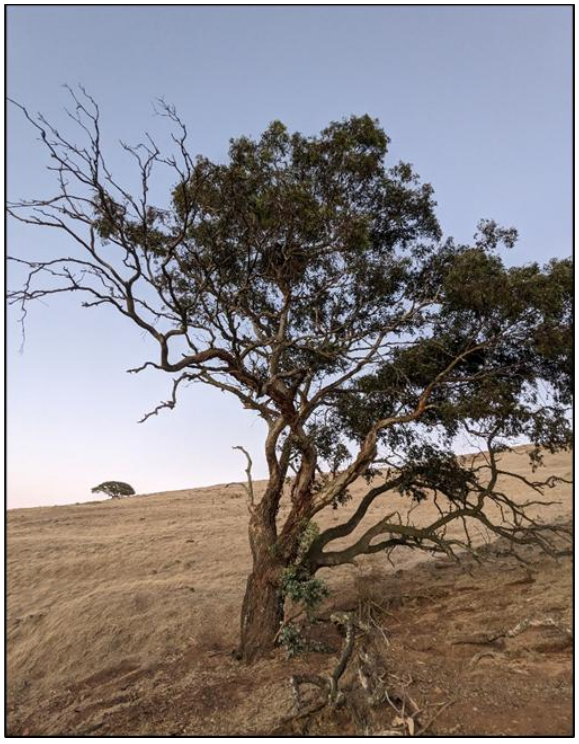


Photo 5.7 WTE nest, High in *E. leucoxylon* ssp. *pruinosa* Tree Near Bird Site 15

5.2.8 Undescribed Worm

During the November 2023 field survey, a large species of earth worm was observed in the Project Area (GNWF), emerging after unusual weather conditions including significant overnight rainfall and high humidity. Over 100 individuals were estimated, over two days. The worms ranged in length from approximately (~) 30 centimetres (cm) to over 2 metres (m) (**Photo 5.8**, **Photo 5.9**). The species was observed in three separate locations across GNWF, both in Mallee Woodland and Grassland habitats.

Expert opinion was sought from leading earthworm expert Dr. Geoff Dyne, who confirmed that the species is likely to be undescribed, with no similar species defined in the literature in South Australia (pers. comms G. Dyne, 15 March 2024). Dr. Dyne acknowledged the likely difficulties in obtaining a specimen, given the sporadic nature of potential breeding events. However, he requested that if the species was detected again, to collect two mature live specimens.

Two subsequent surveys in similar conditions proved unsuccessful in finding specimens. In October 2024, during similar conditions while undertaking targeted INTG surveys, the worm species was detected again at GNWF. During this observation, only two specimens were found, at locations separated by over 13 kilometres. It is not known if these were the same species of worm, however, both were collected as live specimens and stored in a large open box filled with moist soil from each of the collection sites. The worms were then transported to the South Australian Museum. Further investigations have been passed over to the SA Museum and Dr. Dyne.

Photo 5.8 Juvenile Undescribed Earthworm Species Detected During Field Surveys in Spring 2023

Photo 5.9 Mature Individual Nearing Two Metres in Length

6.0 Potential for Impact to National Matters

Potential impacts to MNES have been assessed based on survey results, including species observations collected during flora and fauna surveys and vegetation mapping. Potential impacts are summarised in **Table 6.1**, with the extent of impact to individual MNES quantified further in the following sections.

Impacts have been quantified based on the area of potentially suitable habitat mapped in the Disturbance Footprint, split into each GNWF Project element, including WF and OTL. Where relevant, local context is given to impact areas using a comparison of mapped suitable vegetation in the broader GNWF Project Area as a whole.

Unless otherwise specified, all potential direct impacts are considered, including permanent and temporary clearance. For the following summations, site access areas are incorporated into WF calculations, however, it is likely that not all these options will be utilised, and therefore this represents a maximum possible impact.

BDBSA records within the Search Area are reported for each species, however, given the large proportion of land (which is privately managed farmland), and thus, there is a lack of ecological survey work, these numbers are not necessarily representative of their occurrence. Records collected by Umwelt are also presented; however, surveys have been primarily targeted to the Disturbance Footprint and Development Envelope areas and therefore do not represent equal search effort over the entire Project Area.

Table 6.1 Summary of Potential Impacts to MNES Within Current Proposed DF for Each Element

MNES	Impact Description	WF (ha)	OTL (ha)
Threatened Ecological Communities			
Iron-grass Natural Temperate Grassland (Class A or B)	• Reduction in total area of INTG and other, lower quality Lomandra Grassland. • Potential for introduction or spread of weed species from construction / operation into surrounding grassland resulting in further degradation to vegetation. • Runoff from construction and operation areas causing degradation to vegetation.	6.14	0.00
Mallee Bird Community of the Murray Darling Depression Bioregion	• Reduction in total area of MBC. • Disturbance to local MBC bird species in adjacent areas during construction.	0.00	0.76
Threatened and Migratory Fauna			
Southern Whiteface (*Aphelocephala leucopsis leucopsis*)	• Reduction in total area of potential and important habitat for the species (including foraging and nesting sites). • Potential disturbance to species during construction	45.41	12.55

MNES	Impact Description	WF (ha)	OTL (ha)
Fork-tailed Swift (*Apus pacificus*)	• Potential for bird strike during operation resulting in loss of individuals. • Displacement of birds from potential foraging habitat for the species due to avoidance behaviours related to presence of WTGs.	NA	NA
Hooded Robin (*Melanodryas cucullata cucullata*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction.	28.81	12.24
Blue-winged Parrot (*Neophema chrysostoma*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction	430.95	40.91
Diamond Firetail (*Stagonopleura guttata*)	• Reduction in total area of potential habitat for the species. • Potential disturbance to species during construction.	23.53	7.89
Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*)	• Potential loss of individuals occurring in Disturbance Footprint during construction. • Loss of and fragmentation of suitable habitat. • Noise and vibration disturbance during construction and operation. • Increased risk of mortality during operation due to increase in vehicular movement at the site.	35.34 (known) 115.50 (possible)	0.07 (known) 2.19 (possible)
Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)	• Potential loss of individuals occurring in DF during construction. • Loss of and fragmentation of habitat. • Noise and vibration disturbance during construction and operation. • Runoff from construction areas leading to sedimentation build up in and / or around burrows. • Division and isolation of populations caused by the construction of access tracks and infrastructure. • Disturbance from turbine blade shadow flicker during operation.	18.98 ha (known) 338.41 ha (likely)	1.06 ha (known) 9.65 ha (likely)
Threatened Flora			
Acacia spilleriana (Spillers Wattle)	• No direct impacts likely. • Potential indirect impact to nearby known populations or individuals	Known individuals planted along Gum Hill Road	None detected

MNES	Impact Description	WF (ha)	OTL (ha)
Dodonaea procumbens (Trailing Hop-bush)	caused by increased dust and / or change in hydrology related to construction of and/ or increased use of roads.	Population in Mokota Conservation Park outside of Disturbance Footprint.	None detected
Acacia glandulicarpa (Hairy-pod Wattle) *Codonocarpus pyramidalis* Slender Bell-fruit) *Dodonaea procumbens* (Trailing Hop-bush) *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush) *Senecio megaglossus* (Superb Groundsel)	• No direct or indirect impacts likely. • However, potential loss of individuals or populations during construction, if not detected and / or ground truthing is not undertaken following any required design changes in areas of moderate risk.	None detected	None detected

6.1 Threatened Ecological Communities

6.1.1 Iron-grass Natural Temperate Grassland TEC

Iron-grass Natural Temperate Grassland of South Australia is listed nationally as Critically Endangered under the EPBC Act, effective from 21 June 2007. INTG is classified as a grassland dominated by tussock forming perennial grasses and iron-grasses with a range of herbaceous plant species in the inter-tussock spaces, and an absence (<10% cover) of trees or shrubs.

Within the GNWF Project Area a total of 1,931.24 ha, of vegetation has been mapped as VA6: Lomandra Grassland, of which 259.66 ha occurs within the Development Envelope. Examples of INTG mapped within the Project Area are shown in **Figure 6.1** and **Figure 6.2**.

Photo 6.1 Example 1 of INTG in the Project Area (Spring 2024, Site LOM 10, south)

Photo 6.2 Example 2 of INTG in the Project Area (Spring 2022, BAM B6b, south)

Targeted surveys have classified Lomandra Grassland patches intersecting with the Disturbance Footprint according to the criteria outlined in the Conservation Advice and National Recovery Plan, detailed in **Section 3.3.1.5**. A total of 23 sites were surveyed for INTG condition class within the Project Area (GNWF) on 16 to 18 October 2024. One site was determined to be Class A INTG, 14 sites were determined to be Class B INTG, and the remaining 8 sites were determined to be Class C INTG.

A total of 6.14 ha of the Critically Endangered TEC (INTG Class B) may be impacted by the Disturbance Footprint (**Table 6.2**).

Table 6.2 Occurrence of INTG Within the GNWF Project Area and Disturbance Footprint

INTG Class (A, B or C)	INTG TEC (Yes/No)	GNWF Project Area (ha)	GNREF Total (ha)	Impacted by DF (yes/no)	DF (ha)	% of GNWF INTG Impacted
INTG Class A	Yes	18.02	18.02	No	-	0
INTG Class B	Yes	1,480.07	1923.32	Yes	6.14	0.42
INTG Class C	No	307.63	307.63	Yes	2.44	0.79
Unsurveyed Lomandra Grassland	-	125.51	858.38	No	0	0
Total Area of Lomandra Grassland in GNWF		**1,931.24**	**3,107.35**	**-**	**8.59**	**0.44**
Total Maximum TEC (includes Class A, B)		1,498.09	1941.34	-	6.14	0.41

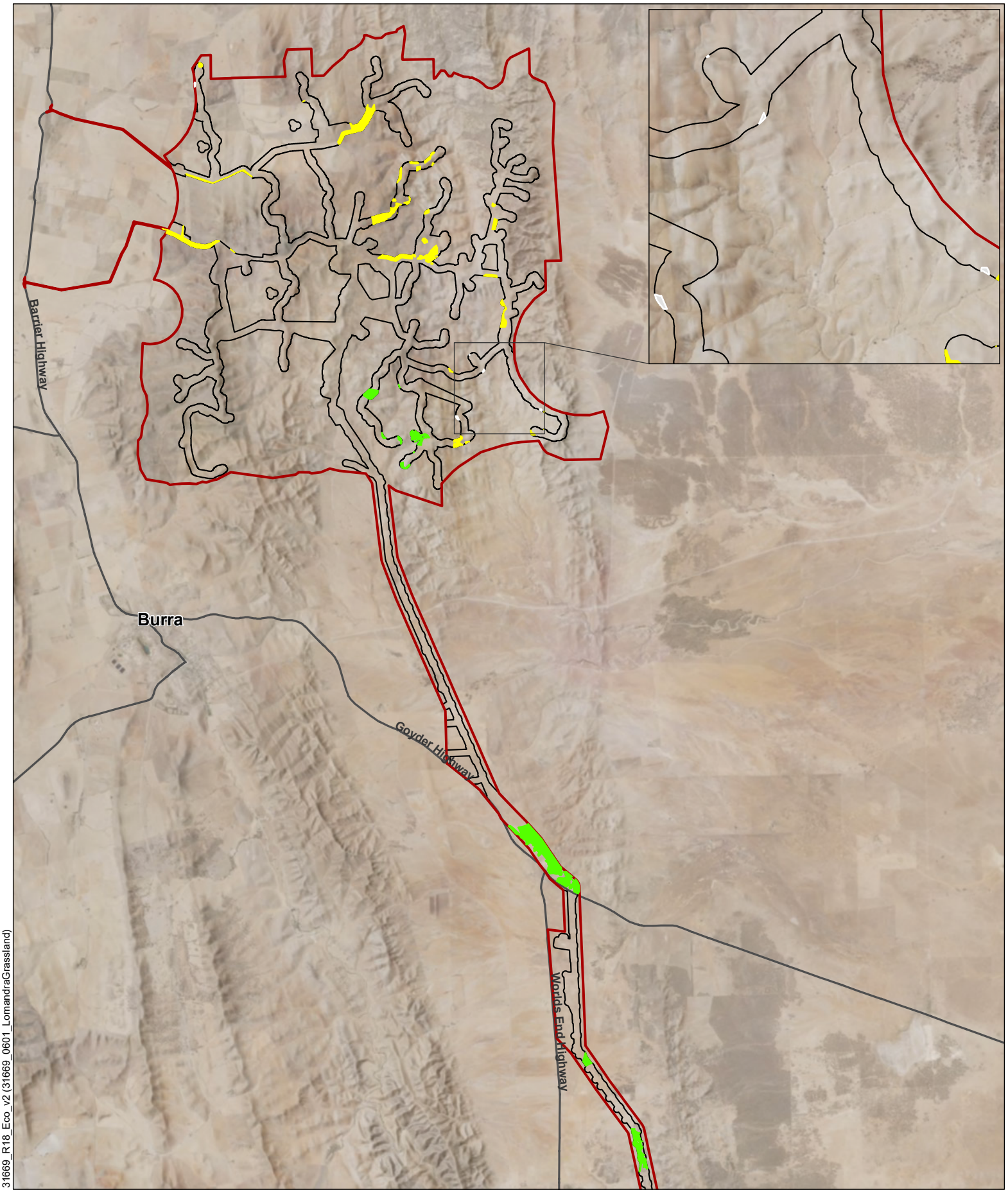
The proposed clearance of up to 2.43 ha of permanent, and 3.72 ha of temporary disturbance to Class B INTG for the GNWF Project (GNWF and OTL), in total represents 0.41% of the total area of INTG mapped in GNWF (**Table 6.3**).

Lomandra Grassland, including likely TEC is also found more widely in the Mid North region, outside of the Project Area, with an estimated 50,000 ha in the region, of which an estimated 5,000 ha constitutes the TEC (Turner 2012).The clearance of up to 6.14 ha of INTG equates to 0.12% of this TEC and up to 0.02% of the Lomandra Grassland (all condition classes) in the region.

Table 6.3 INTG Within the Proposed GNWF Disturbance Footprint

Project Element	Permanent (ha)	Temporary (ha)	Grand Total (ha)	Comments
WF	2.43	3.72	6.14	Areas temporarily cleared will be allowed to regenerate following clearance required for construction.
OTL	0.00	0.00	0.00	No impacts to INTG along OTL, as all Lomandra Grassland in the alignment was classified as Class C which does not meet the criteria for listing as a TEC. Impacts to Class C INTG totals 2.63 ha.

Figure 6.1 Lomandra Grassland in GNWF Development Envelope



GNWF Project Area
Development Envelope

Condition
Class B
Class C
Unsurveyed

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:29 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

0 2 4 km

N

31669_R18_Eco_v2 (31669_0601_LomandraGrassland)

6.1.2 Mallee Bird Community of the Murray Darling Depression Bioregion TEC

The Mallee Bird Community of the MDD Bioregion is listed as nationally Endangered under the EPBC Act, effective from 7 December 2021. The MBC relates to an assemblage of 20 bird species which are strongly linked to and dependent on mallee vegetation within the MDD bioregion.

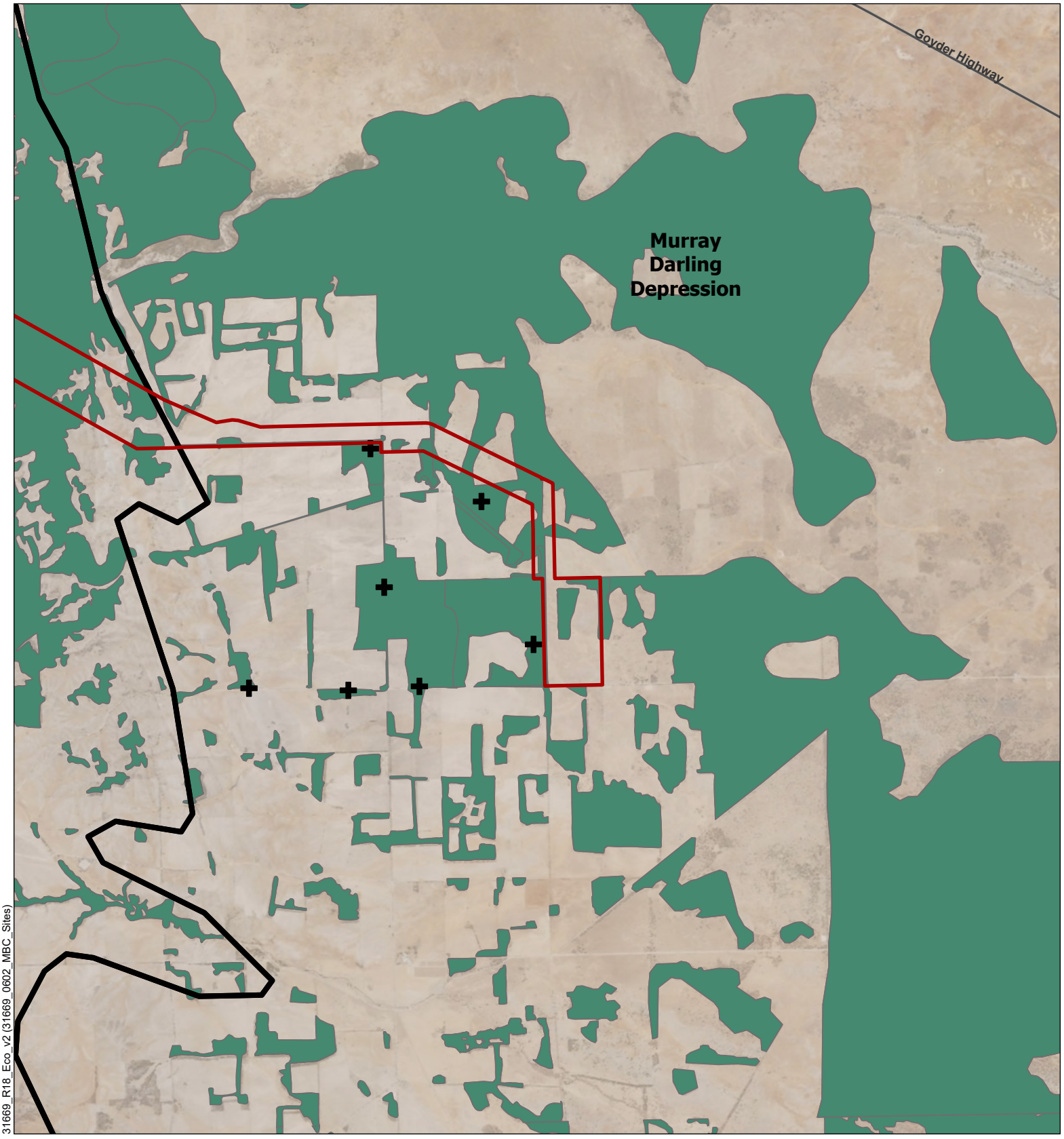
Within the GNWF, this TEC only occurs within the MDD bioregion which impacts the southern portion of the OTL (~9.5 km) (in Block C). Within the GNWF, vegetation associations which are likely to support MBC TEC and approximate areas within the Disturbance Footprint of each element of the windfarm, is presented in **Table 6.4** (where impacted). Disturbance within VA18 includes 0.44 ha of permanent and 0.32 ha of temporary clearance.

Within the Project Area of Block C (MDD) there is up to 108.85 ha of vegetation mapped as VA18. In the landscape more broadly, vegetation mapped as 'mallee woodland' within one kilometre of the Disturbance Footprint, is estimated to be 698.73 ha. Clearance of 0.76 ha is equivalent to 0.70% and 0.11% of these local areas respectively. Aerial imagery shows potential MBC to be widespread to the north and southeast of the OTL, within the MDD (**Figure 6.2**).

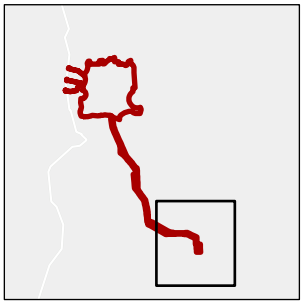
Table 6.4 Vegetation Associated with MBC and Resulting Impact Area Within Each Project Element

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**MDD**		**Block C**	
Habitat Requirement	Mallee woodlands and shrublands with a more developed tree canopy and projected foliage cover of 10 to over 30%, and Mallee open woodlands and sparse mallee shrublands with very open to sparse tree canopy with projected foliage cover of <10%.	**VA18**	0.00	0.76
	Associated understorey components include Triodia, chenopod and tussock grass, shrubby mallee and / or heathy mallee.	**Total**	**0.00**	**0.76**
	Native vegetation patches must be over 10 ha in size (including areas separated by non-native vegetation <100 m) and contain at least 5 ha of mallee vegetation as described above.			

Figure 6.2 MBC sites and Areas Mapped as Mallee Vegetation which are Likely to Constitute MBC within the MDD



GNWF Project Area
IBRA region
Mallee vegetation
MBC Survey Sites



31669_R18_Eco_v2 (31669_0602_MBC_Sites)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 12:30 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 1 2 km

6.2 Threatened and Migratory Fauna

6.2.1 Southern Whiteface (*Aphelocephala leucopsis leucopsis*)

Photo 6.3 Southern Whiteface (Source: Umwelt 2024)

The Southern Whiteface (**Photo 6.3**) was listed as Vulnerable under the EPBC Act on 31 March 2023. Known and critical habitat requirements for the Southern Whiteface are documented in the conservation advice for the species (DCCEEW, 2023). These are summarised in **Table 6.5**.

Southern Whiteface was predominantly detected in Mallee Woodland associations and fringing chenopod shrublands in the eastern extent of the WF and along the OTL, particularly in the southern woodlands. Since the commencement of the BBUS program (start date to May 2025), 184 Southern Whiteface have been recorded across the GNWF during BBUS surveys (this includes all individuals recorded at BUS sites, along vehicular transects and as opportunistic observations during BBUS events) with additional individuals observed opportunistically during other survey works. Six BBUS are considered to provide suitable habitat for this species, including Mallee Woodland (Site 5 and 16), Eucalyptus Open Grassy Woodland (Site 15) and *Maireana rohrlachii* Shrubland (Site 1 and Site 10). Southern Whiteface have been detected at three of these BBUS sites (Site 5 and Site 10 and Site 16, **Figure 6.3**). It is likely that the actual number of individuals is lower than reported due to the high likelihood of repeated observations of the same sedentary groups or individuals over multiple surveys. The activity associated with all observations to date, have been foraging on the ground or resting in shrubs, with a maximum flight height recorded of 10 m (see **Section 7.4**). Historical BDBSA records within the Search Area reported 80 observations of at least 266 individuals (where counted), between 1986 and 2023.

Southern Whiteface and their preferred habitats are widely distributed in SA, and nationally throughout the southern portions of Australia. They do not have a state (NPW Act) listing status. All habitats within the GNWF are considered potential habitat for this species, and they have been widely reported during field surveys and historically. Within the GNWF, the eastern and southern woodlands and shrublands are considered the preferred habitat for this species and represent areas where most of the opportune records have been made.

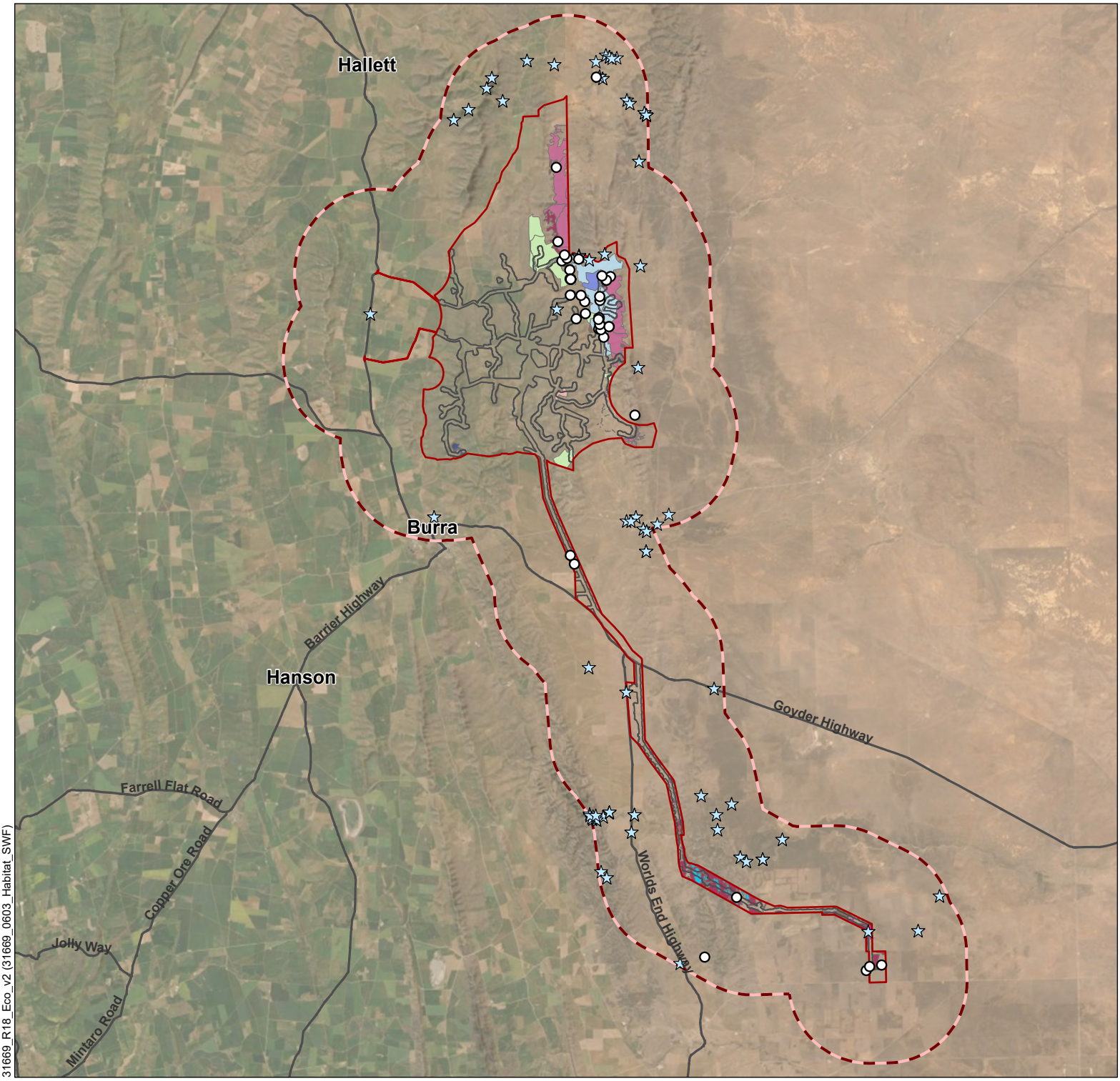
Although the species is known to utilise a wide variety of habitats for foraging; grasslands, and other associations lacking a tall shrub or tree stratum are not considered critical habitat for the species and do not provide nesting habitat. **Table 6.5** highlights VAs which are considered important for the species, representing a maximum of 57.96 ha (WF and OTL) of potential habitat in the DF. Within the broader GNREF, 3,487.94 ha is mapped in these associations, with impacts representing up to 1.66% of potentially important habitat in GNREF. These calculations include all areas mapped as these associations as potentially suitable habitat; however, it is likely that not all patches constitute critical habitat based on the features listed below. For example, many areas mapped as mallee woodland are lacking a grassy component to the understorey or comprise areas of high tree density which are not preferred for foraging. Additionally, given the long history of disturbance from agricultural grazing practices, most areas are lacking an herbaceous understorey. Based on the critical habitat criteria, up to 28.81 ha in the WF and 9.94 ha in the OTL contain at least one feature of the listed critical habitat.

The species is distributed in both the Flinders Lofty Block (FLB) and Murray Darling Depression (MDD) IBRA Bioregions, and for this reason, habitat impacts for this species have not been divided by Block.

Table 6.5 Habitat for Southern Whiteface within the Disturbance Footprint for GNWF

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB, MDD**		**Block A/B/C/D**	
Habitat Requirement	Open woodland and shrubland habitat with an understorey of grasses and / or low shrubs. Suitable habitat is usually dominated by *Acacia* spp. or *Eucalyptus* spp. Critical habitat for the Southern Whiteface includes areas of: • Relatively undisturbed open woodlands and shrublands with an understorey of grasses or shrubs or both. • Habitat with low tree densities and an herbaceous understorey litter cover which provides essential foraging habitat, indicated by '^'. • Living and dead trees with hollows and crevices which are essential for roosting and nesting. Vegetation associations which may contain nesting habitat are indicated by '*'.	VA1*	19.15	0.41
		VA2*	5.34	0.00
		VA3*^	1.49	0.00
		VA4	0.06	0.00
		VA7	0.00	0.00
		VA8*	1.17	0.00
		VA9	16.54	0.00
		VA10^	0.67	0.00
		VA11b*	0.90	0.60
		VA13^	0.00	0.22
		VA14*	0.05	0.00
		VA16	0.00	1.61
		VA18*	0.04	6.88
		VA19*	0.00	1.84
		VA20	0.00	0.91
		VA21	0.00	0.09
		Total	**45.41**	**12.55**

Figure 6.3 Suitable Habitat for Southern Whiteface within the Development Envelope and Broader GNREF and Known Records within the Search Area (BDBSA and Umwelt)



GNREF
Development Envelope
Search Area
Southern Whiteface record (Umwelt)
Southern Whiteface record (BDBSA)

Southern Whiteface habitat

- VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
- VA2: Smooth Barked mixed mallee
- VA3: *E. porosa* low woodland over *Schlerophyllous* shrubs
- VA4: *Acacia pycnantha* tall shrubland over grass
- VA7: *Acacia spilleriana* Shrubland
- VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- VA9: *Maireana rohrlachii* open shrubland
- VA10: *Allocasurina verticillata* over native grasses and herbs
- VA11b: Native grassland and emergent trees
- VA13: *Hakea leucoptera ssp. leucoptera* tall shrubland
- VA14: *E. camaldulensis* Riparian Woodland
- VA16: *Acacia nysophylla* shrubland
- VA18: Mixed Mallee over Chenopods and native grasses
- VA19: *Dodonaea lobulata* shrubland on rocky hills
- VA20: *Alectryon oleifolius* Low Woodland over Chenopods
- VA21: *Senna* spp. Shrubland

31669_R18_Eco_v2 (31669_0603_Habitat_SWF)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:42 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

6.2.2 Fork-tailed Swift (*Apus pacificus*)

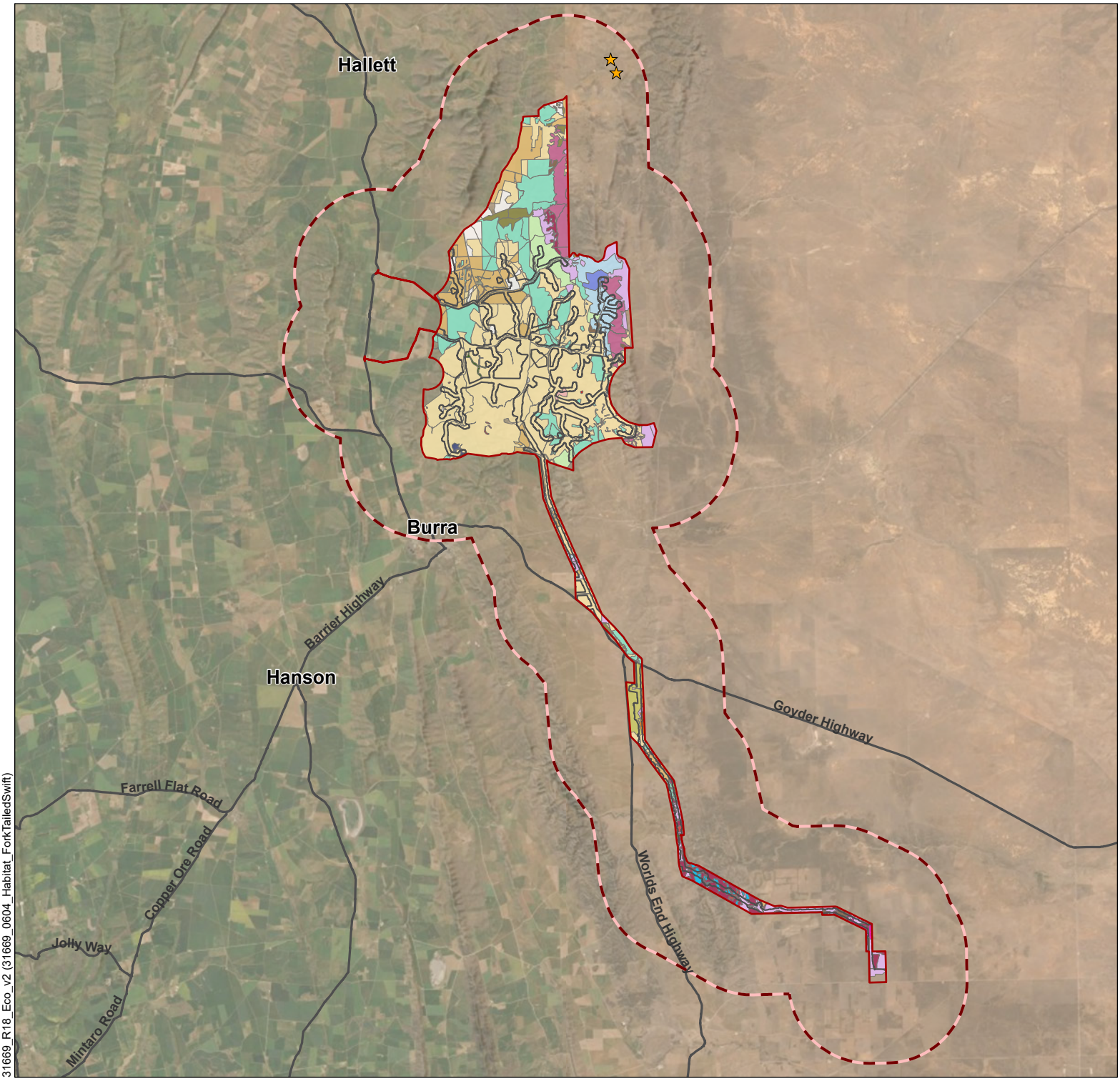
The Fork-tailed Swift is listed under the EPBC Act as a Migratory Marine species. Known habitat requirements for the Fork-tailed Swift are documented in the Species Profile and Threats Database for the species (DCCEEW, 2025b).

The species is a non-breeding migrant to Australia between October and May. It is almost exclusively aerial, flying at heights from less than 1 m to at least 300 m above the ground. The Fork-tailed Swift mostly occurs over dry and open habitats including woodland, shrubland, heath and saltmarsh. However, they may also occur over treeless grassland and open farmland. They occasionally feed amongst treetops, but instances of birds using terrestrial habitat while in Australia are rare.

One Fork-tailed Swift was observed flying briefly overhead grassland in WF during targeted BBUS (Site 12) in summer 2024. Four historical BDBSA records are reported within the Search Area for the species ranging from 2006 to 2012. The Fork-tailed Swift is likely to frequent the aerial space above all habitats in the GNWF and Disturbance Footprint, including in areas that are not mapped as native vegetation such as crops and exotic grassland. **Figure 6.4** shows all vegetation mapped within the GNWF, Development Envelope and broader GNREF considered suitable fly-over habitat and known records within the Search Area (BDBSA and Umwelt).

Given the aerial nature of this species, impacts to vegetation are unlikely to constitute impact, rather impacts are likely to be restricted to air-strike from WTGs during operational phase. There is not an abundance of BDBSA records of this species, and therefore it is considered unlikely that the aerial habitats over GNWF represent an important foraging area for this species. Disturbance to terrestrial habitat is not assessed for this species.

Figure 6.4 Fly-over Habitat for Fork-tailed Swift within the Development Envelope and Broader GNREF and BDBSA Records within the Search Area



GNREF
Development Envelope
Search Area
Fork-tailed Swift (BDBSA)

Fork-tailed Swift habitat

- VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
- VA2: Smooth Barked mixed mallee
- VA3: *E. porosa* low woodland over *Schlerophyllous* shrubs
- VA4: *Acacia pycnantha* tall shrubland over grass
- VA5: *Maireana aphylla* low shrubland
- VA6: Lomandra Grassland
- VA7: *Acacia spilleriana* Shrubland
- VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
- VA9: *Maireana rohrlachii* open shrubland
- VA10: *Allocasurina verticillata* over native grasses and herbs
- VA11a: Native grassland
- VA11b: Native grassland and emergent trees
- VA12: Mixed Chenopod shrubland
- VA13: *Hakea leucoptera ssp. leucoptera* tall shrubland
- VA14: *E. camaldulensis* Riparian Woodland
- VA15: *Juncus sp.* sedgeland in minor drainage pipe
- VA16: *Acacia nysophylla* shrubland
- VA17: *Cryptandra companulata* open shrubland
- VA18: Mixed Mallee over Chenopods and native grasses
- VA19: *Dodonaea lobulata* shrubland on rocky hills
- VA20: *Alectryon oleifolius* Low Woodland over Chenopods
- VA21: *Senna* spp. Shrubland
- VA22: *Scaevola spinescens* Shrubland
- VA23: *Nitraria billardiera* Shrubland
- Amenity Vegetation
- Cropped
- Exotic

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:42 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

31669_R18_Eco_v2 (31669_0604_Habitat_ForkTailedSwift)

6.2.3 South-eastern Hooded Robin (*Melanodryas cucullata cucullata*)

The South-eastern Hooded Robin (**Photo 6.4**) was listed as Endangered under the EPBC Act on 31 March 2023. Known and critical habitat requirements for the Hooded Robin are documented in the conservation advice for the species (DCCEEW, 2023b). These are summarised in **Table 6.6.**

Photo 6.4 South-eastern Hooded Robin (Source: BirdLife 2024)

Hooded Robin was detected in the far south of the OTL during MBC targeted surveys, and opportunistically along Black Peake Road, as well as in adjacent land surveyed during offset scoping surveys. Eight individuals were observed across three survey observations. A total of 24 historical BDBSA records for the species are reported between 1987 and 2005. No records of the species have been reported from within the WF, despite extensive survey effort and seasonal BUS surveys in suitable habitat (including BBUS 5, 15, and 16).

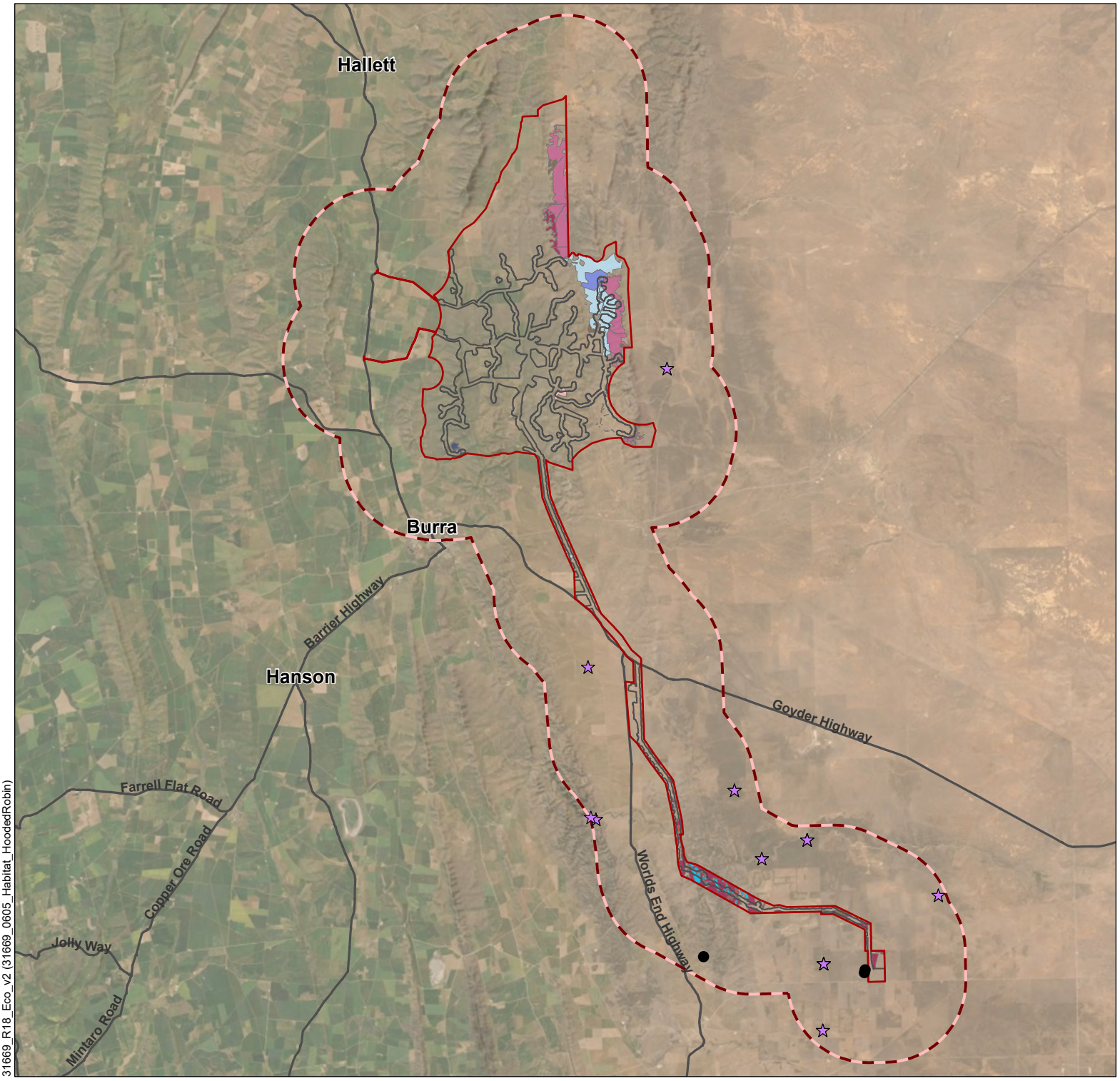
Suitable habitat in the Disturbance Footprint for GNWF is listed in **Table 6.6** by vegetation association, with Hooded Robin habitat mapped in **Figure 6.5**. There is a total of 2,795.87 ha of potentially suitable habitat in the broader GNREF. Of this, a maximum of 41.05 ha (or 1.47%) is inside the Disturbance Footprint and impacted by the Project. Impacted areas include both permanent (24.02 ha) and temporary (17.03 ha) clearance. Of the potentially suitable habitat, not all areas meet the critical habitat criteria, and the estimated impact is conservative. The long history of agricultural grazing has reduced the complexity of the ground layer, and few tall native grasses remain due to grazing pressure. Additionally, areas of mallee, especially in VA18 are included in their entirety, though it is likely that only the outer edge of these patches where they intergrade with clearings or open areas are considered critical habitat.

The species is distributed in both the Flinders Lofty Block (FLB) and Murray Darling Depression (MDD) IBRA Bioregions, and for this reason, habitat impacts for this species have not been divided by Block.

Table 6.6 Habitat for South-eastern Hooded Robin within the Disturbance Footprint for GWNF.

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB, MDD**		**Block A/B/C/D**	
Habitat Requirement	Dry *Eucalyptus* and *Acacia* woodlands and shrublands with an open or grassy understorey. Hooded Robins generally avoid woodlands with tall trees or dense tree cover and prefer patches greater than 10 hectares (ha) in agricultural landscapes. Critical habitat for the Hooded Robin includes areas of (DCCEEW, 2023b): • Dry eucalypt and acacia woodlands and shrublands remnants with an open understorey, some grassy areas, and a complex ground layer, often in or near clearings or open areas. • Structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs, and a ground layer of moderately tall native grasses. • Standing dead or live trees and tree stumps are also essential for nesting, roosting, and foraging. • Moderately deep to deep soils, rocks and fallen timber which provides essential foraging habitat.	VA1	19.15	0.41
		VA2	5.34	0.00
		VA3	1.49	0.00
		VA4	0.06	0.00
		VA8	1.17	0.00
		VA10	0.67	0.00
		VA11b	0.90	0.60
		VA16	0.00	1.61
		VA18	0.04	6.88
		VA19	0.00	1.84
		VA20	0.00	0.91
		Total	**28.81**	**12.24**

Figure 6.5 Preferred Habitat for Hooded Robin within the Development Envelope and Broader GNREF and Known Records within the Search Area



GNREF
Development Envelope
Search Area
Hooded Robin record (Umwelt)
Hooded Robin record (BDBSA)

Hooded Robin habitat

VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
VA2: Smooth Barked mixed mallee
VA3: *E. porosa* low woodland over *Schlerophyllous* shrubs
VA4: *Acacia pycnantha* tall shrubland over grass
VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
VA10: *Allocasurina verticillata* over native grasses and herbs
VA11b: Native grassland and emergent trees
VA18: Mixed Mallee over Chenopods and native grasses
VA19: *Dodonaea lobulata* shrubland on rocky hills
VA20: *Alectryon oleifolius* Low Woodland over Chenopods

31669_R18_Eco_v2 (31669_0605_Habitat_HoodedRobin)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:42 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

6.2.4 Blue-winged Parrot (*Neophema chrysostoma*)

The Blue-winged Parrot (**Photo 6.5**) was listed as Vulnerable under the EPBC Act on 31 March 2023. It is a non-breeding migrant to SA from autumn to early spring. Known and critical habitat requirements for the Blue-winged Parrot are documented in the conservation advice for the species (DCCEEW, 2023). These are summarised in **Table 6.7.**

Photo 6.5 Blue-winged Parrot (Source: DCCEEW 2023)

Blue-winged Parrot was listed within the PMST as 'known to occur'. Red Banks CP is purported to provide habitat for this species (DEH, 2005b), however, no BDBSA records have been reported within the Search Area for this species. Red Banks CP occurs over 5 km southeast of the WF boundary and approximately 5 km east of the OTL at its nearest point.

As it is a cryptic species and other species with similar habitat requirements such as the state listed Elegant Parrot (*Neophema elegans elegans*) are also known to occur, Blue-winged Parrot is considered as a precautionary measure, when considering impacts on MNES.

Potentially suitable habitat in the Disturbance Footprint for the GNWF Project is limited to foraging habitat only and does not include preferred wetland habitat nor any breeding habitat. Given the broad description of foraging and staging habitats, almost all vegetation within their mapped extent of occurrence could be considered critical habitat. However, given the limited number of records of Blue-winged Parrot in the surrounding region, and other factors such as the predominantly steep and hilly topography of the WF portion of the Project Area, they are considered to possibly occur in low numbers on occasion, and the habitat is unlikely to be critical in the sense of long-term maintenance of the species.

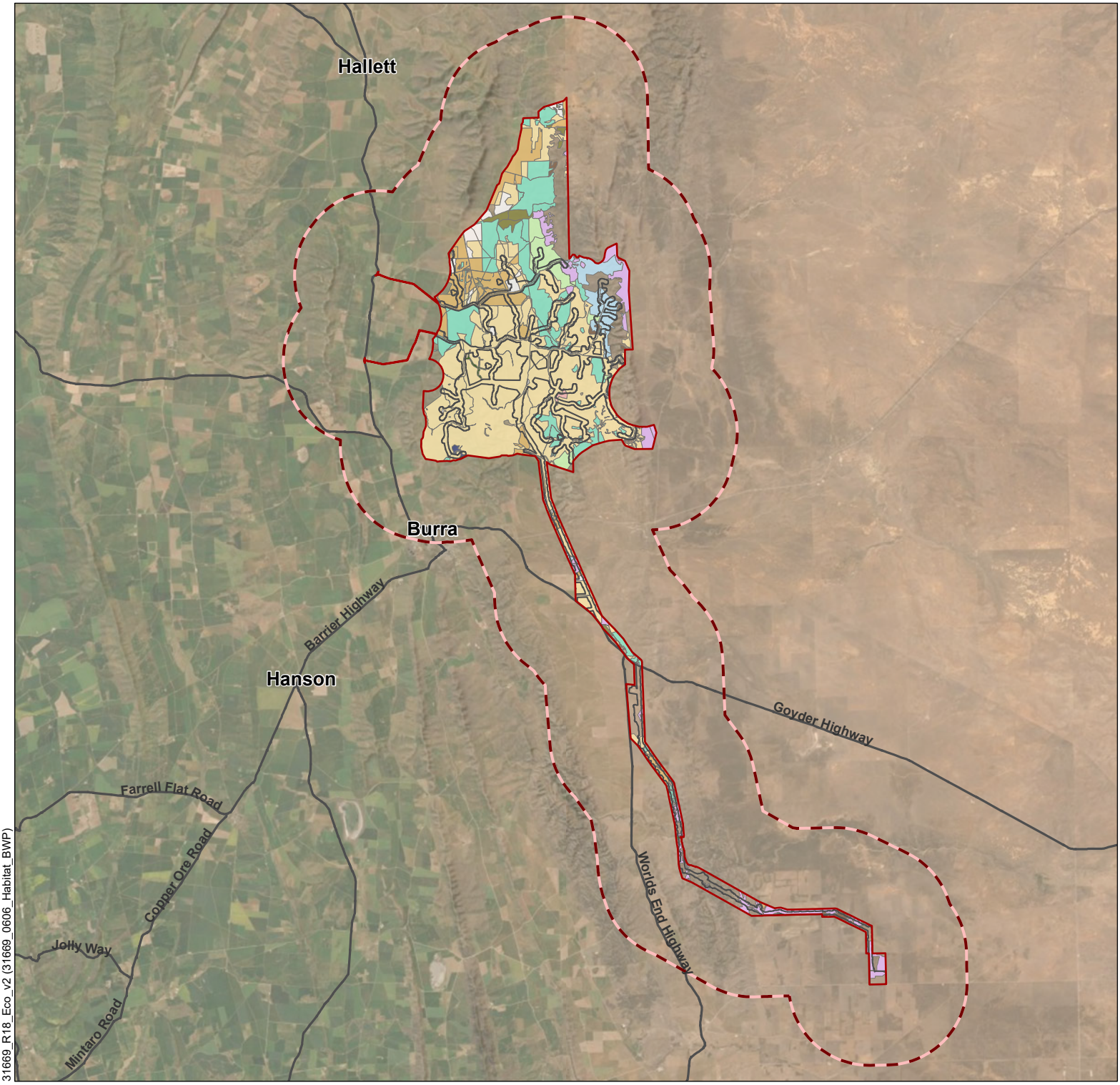
Vegetation Associations which broadly match the description for foraging habitats are listed in **Table 6.7**, with Blue-winged Parrot habitat mapped in **Figure 6.6**. There is a total of 18,580.55 ha of potentially suitable habitat in the broader GNREF, of which a maximum of 471.86 ha is inside the GNWF Disturbance Footprint and potentially impacted by the Project equating to ~2.54% of the suitable vegetation mapped. This includes 268.65 ha of permanent clearance and 203.22 ha of temporary clearance. Vegetation occurring along the OTL is likely to represent more suitable habitat than the WF, due to the lower topography. Furthermore, within the GNWF, preferred habitats are likely to be those within proximity of creek lines or other low-lying areas which have not been specifically mapped.

The species is distributed in both the FLB and MDD IBRA Bioregions, and for this reason, habitat impacts for this species have not been divided by Block.

Table 6.7 Habitat for Blue-winged Parrot Within the Disturbance Footprint for GWNF Elements

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB, MDD**		**Block A/B/C/D**	
Habitat Requirement	Habitat critical to the survival of the Blue-winged Parrot incorporate areas that include: • Foraging and staging habitats found from coastal, sub-coastal and inland areas, right through to semi-arid zones including grasslands, grassy woodlands, and semi-arid chenopod shrubland with native and introduced grasses, herbs, and shrubs. • Wetlands both near the coast and in semi-arid zones used for foraging and staging. • Eucalypt forests and woodlands within the breeding range in Tasmania, coastal southeastern SA, and southern Victoria. • Live and dead trees and stumps with suitable hollows within the breeding range. The species forages predominantly near or on the ground in a range of native and introduced herbs, grasses, and shrubs. They are also known to utilise altered environments such as airfields, golf courses, paddocks and cropped land.	VA1	19.15	0.41
		VA4	0.06	0.00
		VA5	0.00	0.69
		VA6	7.22	1.37
		VA8	1.17	0.00
		VA9	16.54	0.00
		VA10	0.67	0.00
		VA11a/b	331.82	18.77
		VA12	11.41	15.94
		VA14	0.05	0.00
		VA15	0.02	0.00
		Exotic grassland	16.77	0.96
		Cropped	26.07	2.78
		Total	**430.95**	**40.91**

Figure 6.6 Blue-winged Parrot Potential Foraging Habitat within the Development Envelope and Broader GNREF



GNREF
Development Envelope
Search Area

Blue-winged Parrot habitat

VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
VA4: *Acacia pycnantha* tall shrubland over grass
VA5: *Maireana aphylla* low shrubland
VA6: Lomandra Grassland
VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
VA9: *Maireana rohrlachii* open shrubland
VA10: *Allocasurina verticillata* over native grasses and herbs
VA11a: Native grassland
VA11b: Native grassland and emergent trees
VA12: Mixed Chenopod shrubland
VA14: *E. camaldulensis* Riparian Woodland
VA15: *Juncus sp.* sedgeland in minor drainage pipe
Cropped
Exotic

31669_R18_Eco_v2 (31669_0606_Habitat_BWP)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:42 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

6.2.5 Diamond Firetail (*Stagonopleura guttata*)

Photo 6.6 Diamond Firetail (Source: Dedman J., Birdlife Australia 2025)

The Diamond Firetail (**Photo 6.6**) was listed as Vulnerable under the EPBC Act on 31 March 2023. Known and critical habitat requirements for the Diamond Firetail are documented in the conservation advice for the species (DCCEEW, 2023). These are summarised in **Table 6.8**.

Diamond Firetail was detected outside of GNWF, but within the Search Area during MBC targeted surveys along Black Peake Road in *Eucalyptus porosa* open grassy woodland (VA1). Additionally, 11 BDBSA historical records are reported between 1987 and 2017 (see **Figure 6.7**).

Within the GNWF, several vegetation associations broadly match the description for this species, however, based on on-ground field surveys, most areas mapped as mallee woodland, contain a high tree density and chenopod / sclerophyll dominated shrub understorey, that is unlikely to provide preferred habitat for this species (i.e. comprising grassy / herbaceous understorey component). Edges of mallee woodland (VA1 and VA18) which adjoin grassland (VA11a/b) or chenopod shrubland (VA12) with a grassy understorey are likely to provide the most suitable locations (see **Figure 6.7**). VA8 and VA11b contain both suitable lightly timbered foraging habitats and large logs, with higher grass cover suitable for foraging roosting and breeding.

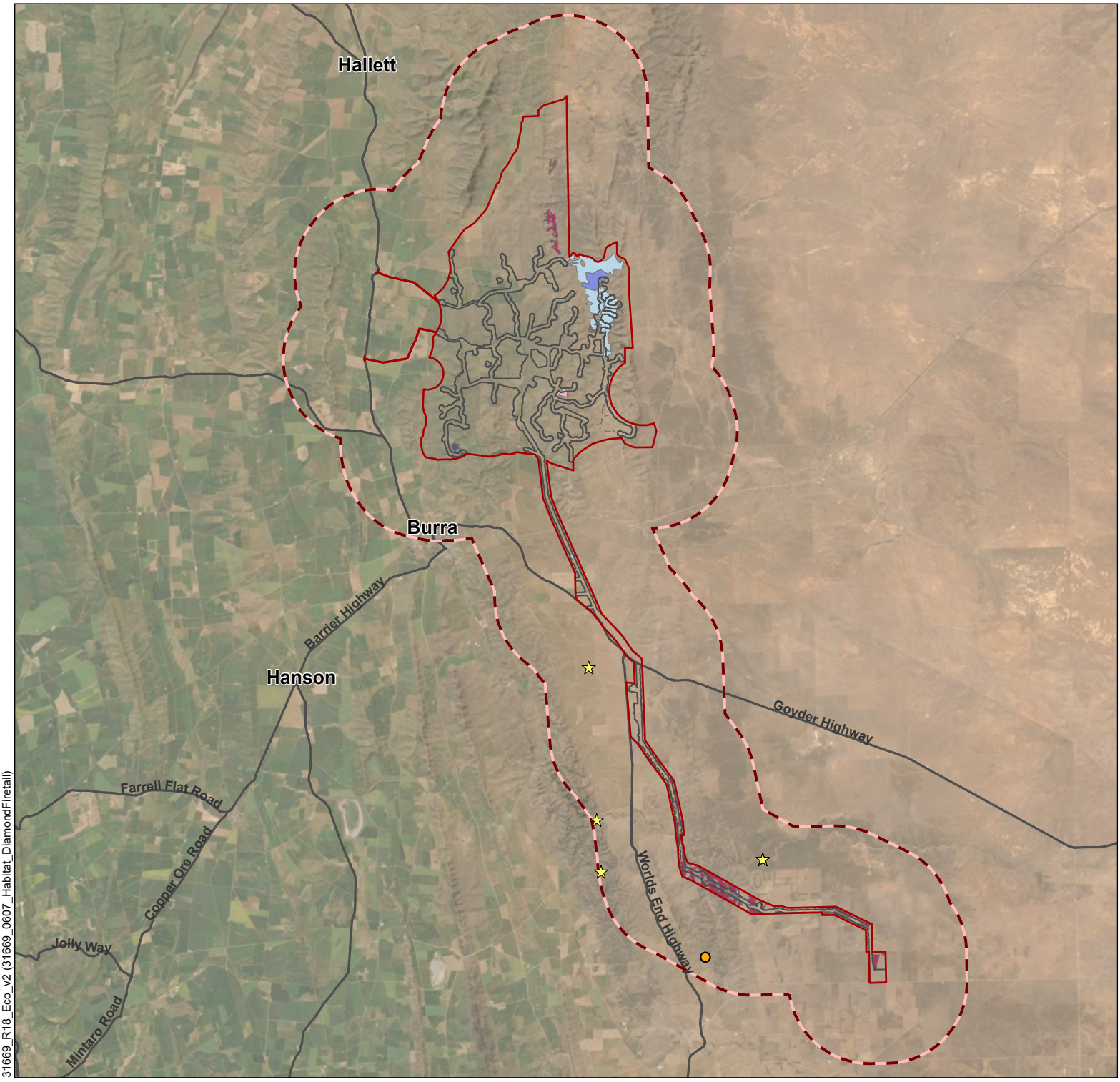
Potentially suitable habitat in the Disturbance Footprint for the GNWF Project is listed in **Table 6.8** by VA, with Diamond Firetail habitat mapped in **Figure 6.7.** There is a total of 1,599.40 ha of potentially suitable habitat in the broader GNREF. Of this, a maximum of 31.42 ha (or 1.96%), including 17.91 ha permanent and 13.50 ha temporary clearance, is inside the Disturbance Footprint and potentially impacted by the GNWF Project. Of this, 3.45 ha of the Disturbance Footprint includes elements which contain features listed as critical habitat, indicated in **Table 6.8.**

The species is distributed in both the FLB and MDD IBRA Bioregions, and for this reason, habitat impacts for this species have not been divided by Block.

Table 6.8 Habitat for EPBC Listed Diamond Firetail with Disturbance Footprint for GWNF Elements

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB, MDD**		**Block A/B/C/D**	
Habitat Requirement	Prefers open grassy woodland, farmland and grassland with scattered trees. Critical habitat for the Diamond Firetail includes areas of: • *Eucalyptus, Acacia* or *Casuarina* woodlands, open forests, and other lightly timbered habitats. * • Low tree density, few large logs, and little litter cover but high grass cover for foraging, roosting, and breeding. ^	VA1	19.15	0.41
		VA3	1.49	0.00
		VA4*	0.06	0.00
		VA8*^	1.17	0.00
		VA10*	0.67	0.00
		VA11b*^	0.90	0.60
		VA14*	0.05	0.00
		VA18	0.04	6.88
		Total	**23.53**	**7.89**

Figure 6.7 Diamond Firetail Potential Habitat within the Development Envelope and Broader GNREF and Known Records within the Search Area



GNREF
Development Envelope
Search Area
Diamond Firetail record (Umwelt)
Diamond Firetail record (BDBSA)

Diamond Firetail habitat

VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
VA3: *E. porosa* low woodland over *Schlerophyllous* shrubs
VA4: *Acacia pycnantha* tall shrubland over grass
VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
VA10: *Allocasurina verticillata* over native grasses and herbs
VA11b: Native grassland and emergent trees
VA14: *E. camaldulensis* Riparian Woodland
VA18: Mixed Mallee over Chenopods and native grasses

31669_R18_Eco_v2 (31669_0607_Habitat_DiamondFiretail)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:48 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

6.2.6 Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*)

FRWL (**Photo 6.7**) was listed as Vulnerable under the EPBC Act on 16 July 2000. Known and critical habitat requirements for the FRWL documented in the conservation advice for the species (DEWHA, 2008). These are summarised in **Table 6.9.**

Photo 6.7 Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (Photo: Umwelt 2025)

A single FRWL was detected opportunistically under a large flat rock, which was flipped during targeted INTG surveys in spring 2024. There are large areas of suitable habitat, containing rocky surface covering and / or woody debris within the Project Area. Historical BDBSA records occur, with 56 observations in the Search Area between 1965 and 2023. Additional targeted field surveys were conducted in April 2025 in which an estimated 9,300 to 12,400 suitable rocks upturned, to search for FRWL. A total of five individual FRWL were observed during the survey period, including 20 shed skins. All were recorded in rocky grasslands, with no records being found within the Mallee Woodlands located in the northeast corner of the Project Area. The species is not known to occur in those parts of the Project Area outside the FLB IBRA Bioregion.

Suitable habitat in the Disturbance Footprint for the GNWF Project is listed in **Table 6.9** by vegetation association, indicating that a total of 406.82 ha which may be considered suitable habitat. Targeted surveys in areas of potentially suitable vegetation were undertaken to refine suitable habitat based on presence of suitable surface rock cover. These areas were then classified into areas of Known and Possible habitat based on the presence of FRWL and / or suitability of the habitat **Table 6.10.**

The resulting impact area includes a maximum of 153.10 ha (or 4.86%) which is inside the GNWF Project Disturbance Footprint, and a total of 3,152.81 ha of potentially suitable habitat in the broader GNWF Project Area. Surveys did not extend to map suitable ground cover for the entire GNREF, due to the size of the Project Area. Temporary clearance is likely to result in a loss of or disturbance to the rocky surface layer and would be considered a permanent impact to this species.

The species is not known to occur in those parts of the Project Area outside the FLB IBRA Bioregion.

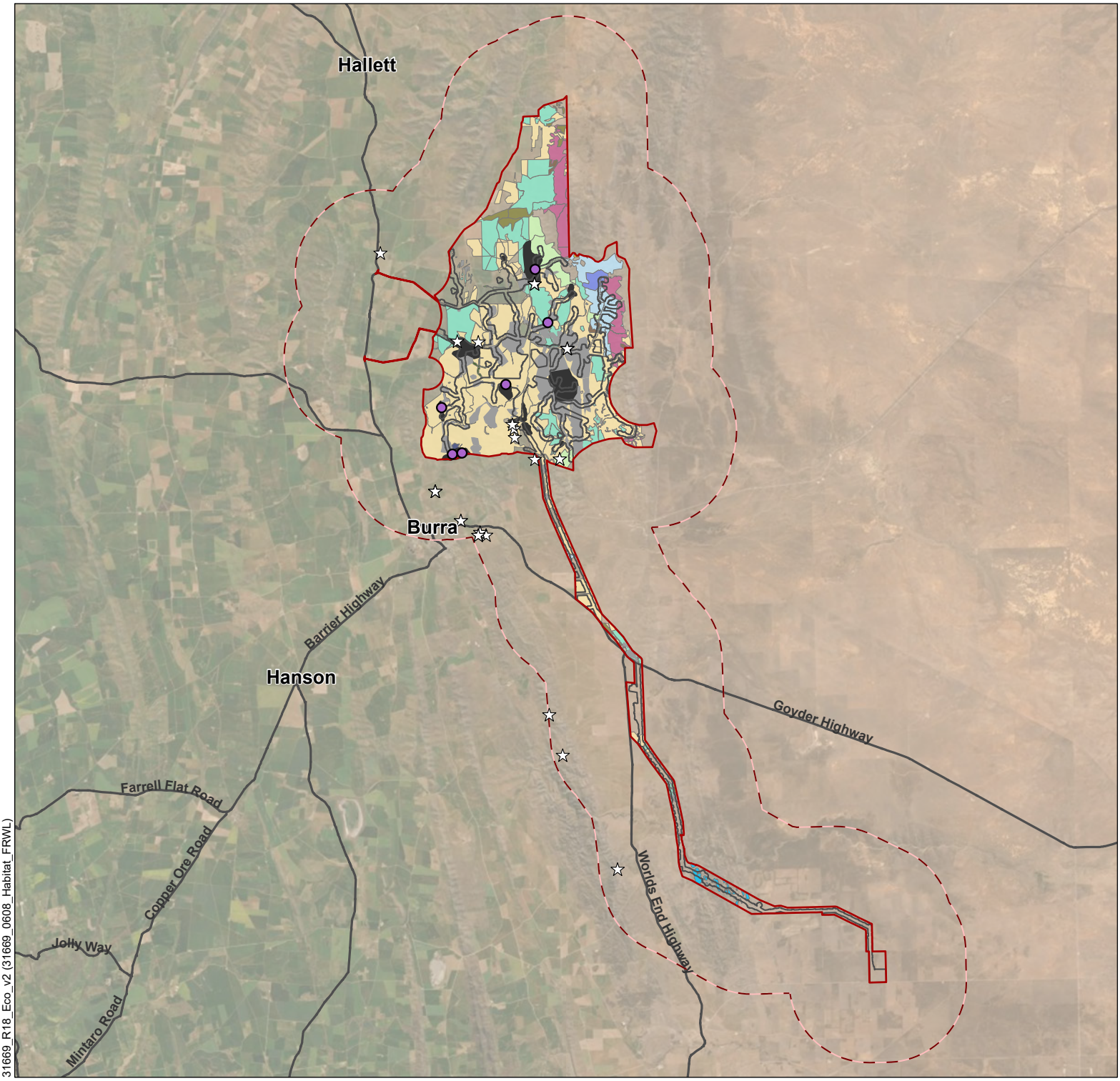
Table 6.9 Habitat for EPBC Listed Flinders Ranges Worm-lizard with Disturbance Footprint for GWNF Elements

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB**		**Block A/B/D**	
Habitat Requirement	Open woodland, native tussock grassland, riparian habitats, and rocky isolates. The species prefers stony or clay soils with a stony surface where it shelters beneath stones and rotting timber. No critical habitat is defined for the species.	VA1	19.15	0.41
		VA2	5.34	0.00
		VA3	1.49	0.00
		VA4	0.06	0.00
		VA5	0.00	0.69
		VA6	7.22	1.37
		VA7	0.00	0.00
		VA8	1.17	0.00
		VA9	16.54	0.00
		VA10	0.67	0.00
		VA11a	330.92	18.16
		VA11b	0.90	0.60
		VA13	0.00	0.22
		VA14	0.05	0.00
		VA15	0.02	0.00
		VA17	0.00	0.00
		VA19	0.00	1.84
		Total	**383.53**	**23.29**

Table 6.10 FRWL Known and Possible Habitat Based on Mapped Surface Rock Overlay

Habitat Type	Description	WF	OTL	Grand Total
Known	FRWL record (recent, historical or sign) intersects with suitable vegetation association and stony surface covering polygon.	35.34	0.07	35.41
Possible	Habitat mapped as being suitable vegetation association and with stony or other suitable surface covering.	115.50	2.19	117.69
Grand Total		**150.84**	**2.26**	**153.10**

Figure 6.8 Flinders Rangers Worm-Lizard Potential Habitat within the Development Envelope and Broader GNREF and Known Records in the Search Area, with Surface Rock Overlay



GNREF
Development Envelope
Search Area
Flinders Ranges Worm-Lizard record (Umwelt)
Flinders Worm-lizard (BDBSA)

Flinders Rangers Worm-lizard Surveyed Habitat

Known
Possible

Flinders Rangers Worm-lizard habitat

VA1: *Eucalyptus porosa +/- E. gracilis* woodland over Chenopods
VA2: Smooth Barked mixed mallee
VA3: *E. porosa* low woodland over *Schlerophyllous* shrubs
VA4: *Acacia pycnantha* tall shrubland over grass
VA5: *Maireana aphylla* low shrubland
VA6: Lomandra Grassland
VA7: *Acacia spilleriana* Shrubland
VA8: *Eucalyptus leucoxylon ssp. Pruinosa* (Inland South Australian Bluegum) Open Woodland
VA9: *Maireana rohrlachii* open shrubland
VA10: *Allocasurina verticillata* over native grasses and herbs
VA11a: Native grassland
VA11b: Native grassland and emergent trees
VA13: *Hakea leucoptera ssp. leucoptera* tall shrubland
VA14: *E. camaldulensis* Riparian Woodland
VA15: *Juncus sp.* sedgeland in minor drainage pipe
VA17: *Cryptandra companulata* open shrubland
VA19: *Dodonaea lobulata* shrubland on rocky hills

31669_R18_Eco_v2 (31669_0608_Habitat_FRWL)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 1:48 PM
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GDA2020 MGA Zone 54

N

0 2.5 5 km

6.2.7 Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)

PBTL (**Photo 6.8**) was listed as Endangered under the EPBC Act on 16 July 2000. Known and critical habitat requirements for PBTL are documented in the recovery plan for the species (Duffy, Pound, & How, 2012). These are summarised in **Table 6.11**.

Photo 6.8 PBTL captured and translocated at Goyder South Wind Farm in 2022 (Source: EBS, 2022).

PBTL were recorded across the WF within GNWF in Grassland and Grassy Shrubland habitats. Umwelt targeted field surveys in February-March 2024 found 138 individuals in the GNWF Disturbance Footprint (current at the time of the survey), and a further 16 during subsequent micro siting surveys in the broader Development Envelope. Additional targeted surveys were undertaken in February, March and April 2025 for micro siting works and to cover updates to the Disturbance Footprint. A total of 186 individual PBTL have been recorded from approximately 21,641 spider burrows during targeted PBTL surveys in GNWF. No PBTL have been detected along the OTL route outside of the WF. A total of 3,898 historical BDBSA records of PBTL are reported from within the Search Area between 1950 and 2023.

The status of known PBTL records within the current (August 2025) Disturbance Footprint, Development Envelope and GNWF Project Area, based on a compilation of recent Umwelt, University and historical BDBSA records, include a total of 55 known records in the Disturbance Footprint, 119 in the Development Envelope, and 1,466 in the Project Area. These data are likely to be an overestimation as they reflect numbers of individuals at the time of the record collection, noting that records may no longer be current given that population numbers are known to fluctuate, and may also represent duplicate records of the same individuals on separate survey occasions.

Potentially suitable habitat in the Disturbance Footprint of GNWF (August 2025), based on the habitat description in the Conservation Advice, is listed in **Table 6.11** by VA, paired with known and likely habitat mapped on site, and mapped in **Figure 6.9**. There is a total of 11,154.12 ha of potentially suitable habitat (mapped as likely or known) in the broader GNWF Project Area, and up to 13,302.89 ha incorporating the GNREF. Of this, a maximum of 368.10 of likely and known habitat is inside the GNWF Disturbance Footprint and potentially impacted by the Project.

Impacts listed as temporary, which require the removal of / disturbance to topsoil are likely to be equivalent in impact to permanent clearance for this species, and ground disturbance is likely to alter soil conditions and preclude development of appropriate spider burrows for the medium to long term.

Nevertheless, PBTL have been detected utilising highly degraded areas including compacted access tracks, eroded livestock trails and edges of previously disturbed cropland.

The species does not occur in those parts of the Project Area outside the FLB IBRA Bioregion.

Table 6.11 Vegetation Associations that Provide Habitat for EPBC Listed PBTL with Disturbance Footprint for GWNF Elements

Distribution and Habitat Requirements		VA	WF (ha)	OTL (ha)
IBRA Bioregion	**FLB**		**Block A/B/D**	
Habitat Requirements	Patches of native temperate grassland, occasionally featuring a sparse overstorey of trees, supporting a high abundance of arthropod prey. The condition of grasslands supporting the PBTL is highly variable, ranging from grasslands that are highly degraded and dominated by exotic grasses to grasslands with a high diversity of native plant species.	VA6	7.22	1.37
		VA9	16.54	-
		VA11a	330.92	18.16
		VA11b	0.90	-
		Exotic	16.77	0.96
		Total	**372.35**	**20.49**

Within these broadly suitable vegetation associations, further refinement of PBTL habitat in the Project Area identified areas of known, likely and unlikely habitat, based on results of targeted field surveys (**Table 6.12**). This mapping indicates that up to 368.10 ha of known or likely PBTL habitat occurs in the Disturbance Footprint, from a total of 11,154.12 ha in the broader GNWF Project Area.

Table 6.12 PBTL Known, Likely and Unlikely Habitat in Project Area

Row Labels	Description	WF	OTL	Total in DF	Total in GNWF
Known	• Within 50 m of known record and extending as far as suitable burrows occur.	18.98	1.06	20.04	181.86
Likely	• Areas where habitat meets criteria and numerous potential burrows occur. • Overlapping with low and moderate confidence tracks.	338.41	9.65	348.06	10,972.26
Subtotal		357.38	10.71	368.10	11,154.12
Unlikely	• Areas where no burrows were detected. • Non-grassy shrubland, woodland and mallee vegetation associations. • Habitat which otherwise meets the suitability criteria but occurs within the MDD bioregion. • Habitat which otherwise meets the criteria but occurs on flats / plains, or on sandy / shaley soil, or which high surface rock density.	109.48	59.23	168.71	6,268.85
Grand Total		**466.86**	**69.94**	**536.81**	**17,422.97**

A coarse estimate of PBTL density (i.e. number of PBTL per hectare in each VA) has been calculated based on the area searched within each vegetation association (10 m search corridor) and the number of PBTL detected within each VA (**Table 6.13)**. The highest density per ha of PBTL was found in VA9 (*Maireana rohrlachii* Shrubland) (1.63 PBTL / ha), elevated by a hotspot population in one isolated location. VA6 (Lomandra Grassland) and VA11 (Native *Austrostipa* sp. Grassland) were similar with 0.55 PBTL/ha and 0.54 PBTL/ha respectively. Based on these figures, the GNWF Project may directly impact an estimated 206 individuals (range 192 to 274), equivalent to 3.12% of the local GNWF population, from an estimated total of 6,519 potential individuals (range 5,596 to 8,991). Estimates of habitat and individual impacts are summarised in **Table 6.14.**

These population estimates do not factor in the patchy distribution of PBTL across the landscape, characterised by dense 'hotspots' of PBTL, sparsely distributed individuals, and large tracts with no known individuals. For example, a conservative population for Tiliqua Nature Reserve (comprising 83 ha of high-quality habitat) is estimated at 1,723 (+/- 298) individuals. Similarly, landscape parameters including, but not limited to slope, soil type, vegetation condition, topography, altitude and aspect have been considered as potential predictors of PBTL distribution, however, none have been identified as consistently relevant to location of known individuals.

Habitat within the Disturbance Footprint, concentrated on tops of hills and ridges, is generally considered less suitable than other parts of the Project Area, and thus, estimates of PBTL from the search effort within the DF may represent a lower density than expected elsewhere, where conditions are more favourable, such as in Tiliqua Nature Reserve. Similarly, PBTL populations are known to fluctuate depending on environmental conditions, and therefore any estimates represent a snapshot in time, and may not be indicative of PBTL density at the time of Project commencement. At the time of the initial targeted survey, conditions were excellent for visibility, and preceded at least two years of good seasonal conditions, and are therefore likely to represent a healthy population estimate.

Table 6.13 Coarse Estimate of Number of PBTL Impacted Based on Field Survey and Worst-case Disturbance Footprint for GNWF Project (WF and OTL).

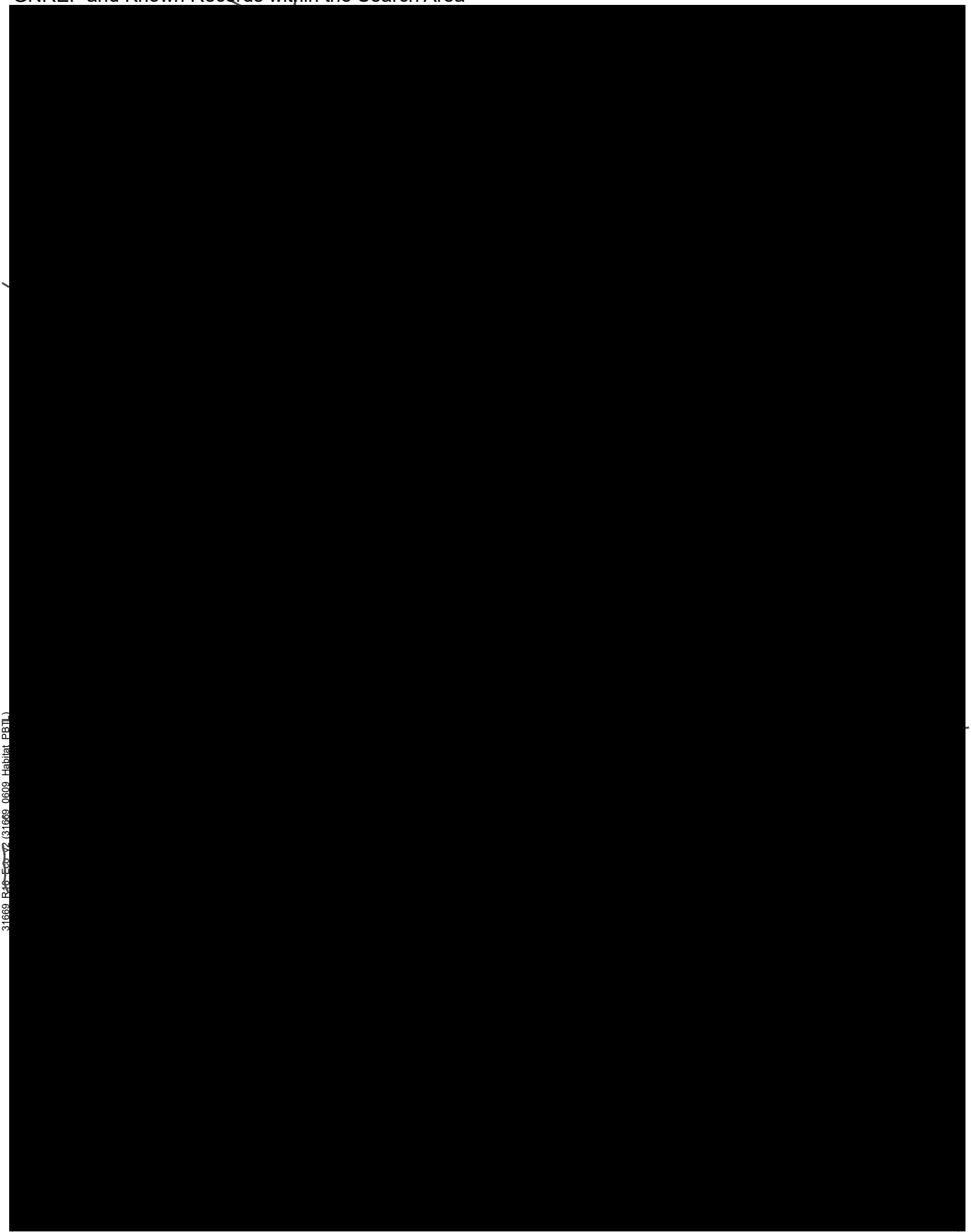
Vegetation association	Approx search area (ha)	No. PBTL detected	PBTL density estimate per ha	Impacted (permanent and temporary) (ha) WF and OTL	Maximum estimate of impacted PBTL	Maximum estimate of PBTL in GNWF
VA6	14.47	8.00	0.55	7.22	3.99	955.56
VA9	17.78	29.00	1.63	16.54	26.98	887.70
VA11a	262.43	141.00	0.54	325.44	174.86	4,673.99
VA11b	0.50	0.00	0.00	0.9	0.00	0.00
Exotic	10.24	0.00	0.00	17.39	0.00	0.00
Cropped	5.54	2.00	0.36	0.01	0.00	0.71
Existing clearance*	24.99	3.00	0.12	0.6	0.07	0.36
All other VAs	24.39	0.00	0.00	168.72	0.00	0.00
Total or average (^)	**360.33**	**183.00**	**0.51^**	**536.82**	**205.90**	**6,519.04**

Vegetation association	Approx search area (ha)	No. PBTL detected	PBTL density estimate per ha	Impacted (permanent and temporary) (ha) WF and OTL	Maximum estimate of impacted PBTL	Maximum estimate of PBTL in GNWF
Key Considerations: Search Corridor: The density estimates are based on an estimated 10-meter search corridor within each vegetation association (VA). Hotspot Population: The highest density in VA9 is elevated by a hotspot population in one isolated location, resulting in an inflated population estimate for that VA. Patchy Distribution: The population estimates do not factor in the patchy distribution of PBTL across the landscape, characterized by dense hotspots, sparsely distributed individuals, and large tracts with no known individuals. Environmental Conditions: PBTL populations are known to fluctuate depending on environmental conditions, and therefore any estimates represent a snapshot in time. Habitat Suitability: Habitat within the Disturbance Footprint (DF) is generally considered less suitable than other parts of the Project Area and therefore the *Maximum Estimate of PBTL in the GNWF* is likely to be lower than in actuality. Visibility Conditions: The initial targeted survey was conducted under excellent visibility conditions, preceded by at least two years of good seasonal conditions. Known and Likely Habitat: excludes some areas of vegetation associations which are otherwise considered 'suitable' and includes small areas of vegetation associations which are otherwise considered 'unsuitable' due to the application of a generic 50 m buffer around records. This additional area (1.07 ha) has been included in the sum for exotic vegetation.						

Table 6.14 PBTL Habitat and Popoulation Estimate Assumptions

Parameter	Upper Estimate	Assumptions	Lower Estimate	Assumptions
PBTL known and likely habitat in Disturbance Footprint (ha)	368.10 ha	Includes all likely and known mapped habitat in VA6, VA9, VA11a/b, Exotic grassland, and other minor occurrences. Based on habitat description.	349.20	Mapped likely and known habitat, further excluding exotic grassland, VA11b and other minor occurrences as no PBTL were detected in those VAs despite otherwise being considered potentially suitable.
PBTL habitat in Project Area	11,154.14	As above but for GNWF Project Area.	10,971.67	As above, but for GNWF Project Area.
Number of PBTL estimated in Disturbance Footprint	273.78	Not proportional to VA, based on the overall average density of PBTL per area searched (0.51) multiplied by the total Disturbance Footprint (536.82 ha) (not related to known and likely habitat)	191.75	Not proportional to VA, based on the overall average density of PBTL per area searched in known and likely habitat (0.52) multiplied by the total Disturbance Footprint within known and likely habitat (368.09 ha).
Number of PBTL in GNWF	8,991.03	Overall average density of PBTL per area searched (0.51) *total Project Area (17,703.63)	5,595.55	Average density of PBTL per area searched (0.51) in VA6/9/11a only * total DF in suitable habitat (based on known / likely mapping: 10,971.67 ha)

Figure 6.9 Pygmy Blue-tongue Lizard Potential Habitat within the Development Envelope and Broader GNREF and Known Records within the Search Area



31669_R16_Fig6-9 (31669_0609_Habitat_PBT).

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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GDA2020 MGA Zone 54

N

0 2.5 5 km

6.3 Threatened Flora

Up to seven EPBC listed threatened flora species have been assessed as potentially occurring within the Project Area. Two species have been detected within the GNWF during field surveys, including several planted *Acacia spilleriana* along Gum Hill Road (access route option) and a cluster of *Dodonaea procumbens* within the GNWF Development Envelope at Mokota CP, protected by herbivore-proof fencing. No records of these species are within the current GNWF Disturbance Footprint, and no impacts are expected to these species following application of measures to avoid any potential indirect impacts caused by proximity to the Project Area. On ground field surveys within the majority of the GNWF Disturbance Footprint have not located any individuals of other species considered to potentially occur within GNWF based on desktop assessments.

Additionally, VA7 was dominated by *A. spilleriana* which was determined to be Wirrabara subspecies, which is not the EPBC listed threatened species (pers comms. SA Herbarium 2024). This VA is not within the current Disturbance Footprint or Development Envelope for the GNWF Project.

Habitat preferences for each species are described in detail in **Table 6.15**. Umwelt has created a habitat suitability map for each species within the broader Development Envelope (**Figure 6.10** to **Figure 6.16**) and Project Area. The maps utilise potentially suitable vegetation associations for each species, based on the habitat descriptions provided in relevant conservation advice, and on ground survey effort, in combination with presence of known records to determine if unsurveyed areas have potential to host each species. Details of unsurveyed areas within the Development Envelope are presented in **Table 6.16** for each species.

An 80 m 'high-confidence' search area, based on the on-ground field surveys and methodology described in **Section 3.3.1.4**, is presented as 'searched – not present' or 'known' if found to occur. This search area totals 3,781.61 ha within GNWF. In the event of changes to the Disturbance Footprint, because of micro siting works during construction, areas which fall outside of the 'searched- not present' area, within 'likely' or 'possible' habitat for each species, are considered at risk areas and should be assessed on ground to ensure no threatened species occur in those locations. Pre-clearance survey controls will be detailed in a Project specific CEMP.

Areas within 50 m of known records (mapped as 'known' if record verified) should be considered 'high risk', due to their proximity to known records, and controls will be documented in a CEMP to be implemented by Neoen's contractor to avoid potential indirect impacts.

Given the nature of most species, being medium to large shrubs or otherwise therefore readily visible, it is considered likely that each of these species would have been detected in the GNWF during extensive surveys, if present, and therefore the unsurveyed areas of possible habitat presented **Table 6.16** and **Figure 6.10** to **Figure 6.16** and the recommendation to ground-truth these areas if intended to impact, are conservative.

Table 6.15 EPBC Listed Flora Species, Habitat Requirements and Potentially Suitable VA's in the Project Area

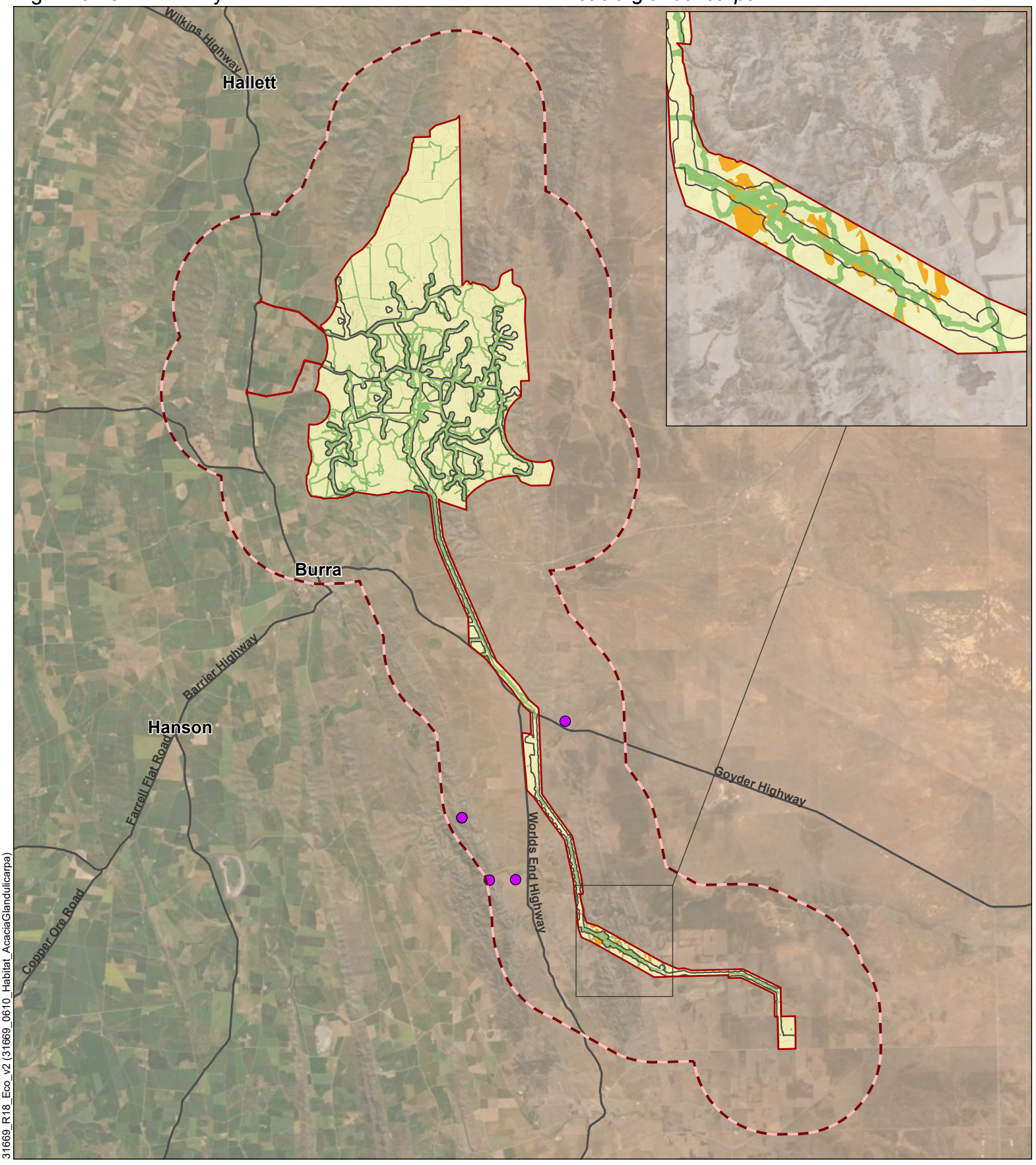
Species	EPBC	NPW	Habitat Description	Potentially Suitable VAs
Acacia glandulicarpa (Hairy-pod Wattle) **Figure 6.10**	VU	E	Occurs in a range of woodland, shrubland and open mallee communities. In South Australia the species grows in shrublands of *Dodonaea viscosa* ssp. *angustissima* (Slender Hop-bush) and *Beyeria lechenaultii* (Pale Turpentine-bush) on light sandy clay loams; shrubby woodlands co-dominated by *Acacia carnei* (Purple-wood Wattle) and *Sida ammophila* (Sand Sida); and tall shrublands of *Acacia pycnantha* (Golden Wattle) on skeletal soils with outcropping shales (DAWE, 2021b; Carter, 2011).	VA4, VA7, VA19
Acacia spilleriana (Spiller's Wattle) **Figure 6.11**	EN	E	The species grows on rocky hills and alongside watercourses and roadsides (DEWHA, 2009). Herbarium records for the species report it to occur in well drained soils on alkaline loams to heavy loams (DCCEEW, 2025b). It has been recorded mainly in mallee vegetation communities, (co)dominated by *Eucalyptus brachycalyx, E. gracilis,* and *E. socialis,* with open shrubby understory including *Melaleuca lanceolata* (Dryland Teatree), *Beyeria lechenaultii* (Pale Turpentine Bush), *Acrotriche patula* and *Westringia rigida*). One population at the Burra Creek occurs in a *Eucalyptus camaldulensis* ssp. riparian woodland.	VA1, VA2, VA3, VA4, VA7, VA14, VA18, VA19
Codonocarpus pyramidalis (Slender Bell-fruit) **Figure 6.12**	VU	E	Occurs in a large range of habitats, but thought to preference shaley hill slopes and crests, ridges, hills and along creeks or areas of skeletal soil including loamy sand. Associated with shrubland communities of *Senna, Eremophila, Dodonaea* or *Acacia victoriae* and *Acacia tetragonophylla* (SAAL NRM, 2010).	VA3, VA16, VA19, VA21
Dodonaea procumbens (Trailing Hop-bush) **Figure 6.13**	VU	V	Occurs in low-lying often winter-wet areas in woodlands, low open forests, heathlands and grasslands often on sand and cracking grey clays (Carter, 2010). Grows in Mokota CP in herbaceous grasslands on rocky outcrops in shallow soils.	VA6, VA8, VA10, VA11, VA17 (selected areas)
Dodonaea subglandulifera (Peep Hill Hop-bush) **Figure 6.14**	EN	E	Occurs on low hills on loamy soils associated with rocky outcrops, on the east of the range country before the vegetation changes to mallee flats. It has been recorded in records include *Eucalyptus porosa +/- Callitris gracilis +/- Acacia calamifolia*; *E. dumosa +/- Allocasuarina verticillata*; *E. oleosa; E. phenax* with *C. gracilis* and *Beyeria lechenaultii*; *C. gracilis* with *Alectryon oleifolius* and *B. lechenaultii; Acacia argyrophylla*; and *A. hakeoides*. The understorey is quite variable at most sites (Moritz & Bickerton, 2010).	VA1, VA2, VA3, VA18, VA19, VA20

Species	EPBC	NPW	Habitat Description	Potentially Suitable VAs
Olearia pannosa ssp. pannosa (Silver Daisy-bush) **Figure 6.15**	VU	V	Listed preferred habitat types of Mallee and Shrubland and known to occur in a range of soil types including sandy flat areas and hilly rocky areas. Vegetation mapping in the Mid North indicates that known populations occur in areas mapped as Peppermint Box low Woodland, *Eucalyptus brachycalyx, E. oleosa* mid mallee woodland and *E. leucoxylon* ssp. *pruinosa* open grassy woodland (DEW, 2025). In the Murray Darling Basin it is reported from Mallee woodlands (many associated Eucalypt species) and Pink Gum (*E. fasciculosa*) woodland (Obst, 2005; Pobke, 2007).	VA1, VA2, VA3, VA7, VA18, VA19
Senecio megaglossus (Superb Groundsel) **Figure 6.16**	VU	E	The species is known to grow in rocky gorges, valley slopes and creek beds in a variety of habitats including tall open shrubland, woodland and open woodland, on variable soils of loam and clay loam (South Australian Seed Conservation Centre, 2025). Associated species include *Pittosporum angustifolium, Alectryon oleifolius*, *Acacia calamifolia*, *Eremophila longifolia*, *Cassinia laevis*, *Bursaria spinosa* as well as in association with Spinifex (*Triodia* spp.), *Callitris columellaris*) *E. camaldulensis* (DEH, 2008a; DEWHA, 2008a).	VA14, VA19, VA20 (restricted to rocky gorges, valley slopes and creek beds)

Table 6.16 Searched Area and Likelihood of Occurrence in Each Vegetation Associations for Each Species

VA	Area of Habitat in GNWF	Searched Area in GNWF	DF% of GNWF Area	% of VA Searched in DE	% of VA Searched in DF	*Acacia glandulicarpa* EPBC: Vulnerable	*Acacia spilleriana* EPBC: Endangered	*Codonocarpus pyramidalis* EPBC: Vulnerable	*Dodonaea procumbens* EPBC: Vulnerable	*Dodonaea subglandulifera* EPBC: Endangered	*Olearia pannosa* ssp. *pannosa* EPBC: Vulnerable	*Senecio megaglossus* EPBC: Vulnerable
VA1	725.89	145.18	2.69	48.44	63.59		Possible			Possible	Likely	
VA2	453.77	26.72	1.18	21.80	30.19		Possible			Possible	Likely	
VA3	119.53	26.50	1.25	51.54	93.57		Possible	Possible		Likely	Likely	
VA4	0.07	0.07	81.15	100.00	100.00	Likely	Likely					
VA5	17.99	8.97	3.84	49.84	58.89							
VA6	1,931.24	367.58	0.44	52.28	77.02				Possible			
VA7	4.02	2.40	0.00	-	-	Possible	Known					
VA8	28.37	16.98	4.12	62.45	96.89				Possible		Likely	
VA9	544.57	108.23	3.04	59.70	95.00							
VA10	33.16	13.93	2.01	60.87	100.00				Possible			
VA11a	9486.27	2659.12	3.68	55.07	89.88		Planted only		Possible			
VA11b	74.66	16.17	2.01	49.90	78.38							
VA12	1103.46	135.36	2.48	25.15	25.66							
VA13	13.91	2.48	1.56	41.73	100.00							
VA14	10.42	0.83	0.51	31.95	100.00		Likely					Possible
VA15	33.16	7.09	0.06	18.28	100.00							
VA16	42.65	5.06	3.76	14.75	31.54			Likely				
VA17	1.38	0.87	0.00	71.34	0.00				Possible			
VA18	519.66	106.11	1.33	40.89	84.18		Possible			Possible	Likely	
VA19	104.77	28.58	1.76	61.34	100.00	Possible	Likely	Likely		Possible	Possible	Possible
VA20	30.55	7.80	2.97	48.72	60.99					Likely		Possible
VA21	16.06	14.95	0.55	93.53	45.49			Likely				
VA22	30.52	1.00	0.89	0.36	-							
VA23	325.20	16.13	3.05	8.87	8.29							
Total	**15,651.28**	**3,718.11**	**2.90**	**49.77**	**81.93**							

Figure 6.10 Potentially Suitable Habitat and Risk Areas for *Acacia glandulicarpa*



GNREF
Development Envelope
Search Area
Acacia glandulicarpa (BDBSA)

***Acacia glandulicarpa* habitat**
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0610_Habitat_AcaciaGlandulicarpa)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
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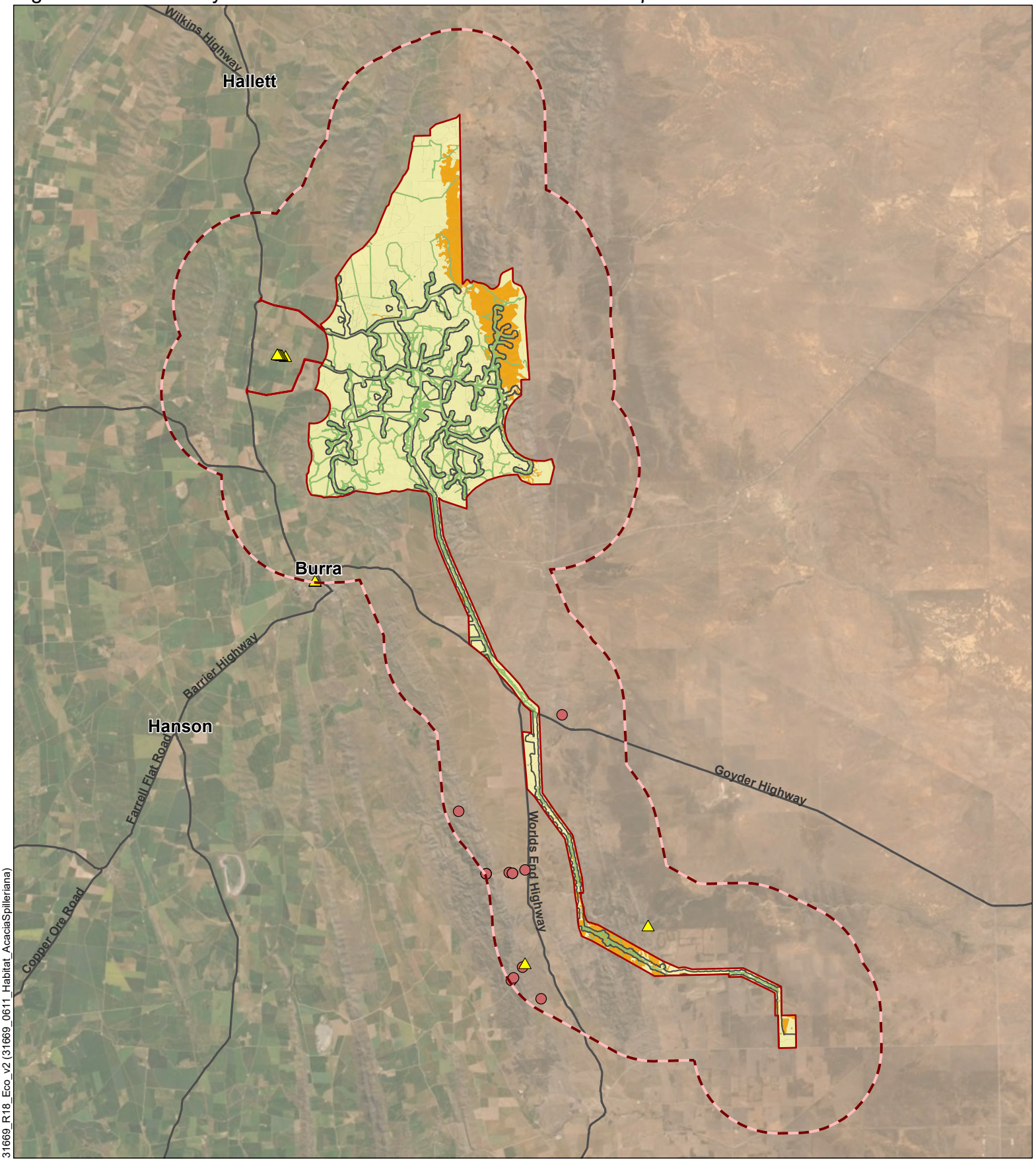
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.11 Potentially Suitable Habitat and Risk Areas for *Acacia spilleriana*



GNREF
Development Envelope
Search Area
Acacia spilleriana (Umwelt)
Acacia spilleriana (BDBSA)

Acacia spilleriana habitat
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0611_Habitat_AcaciaSpilleriana)

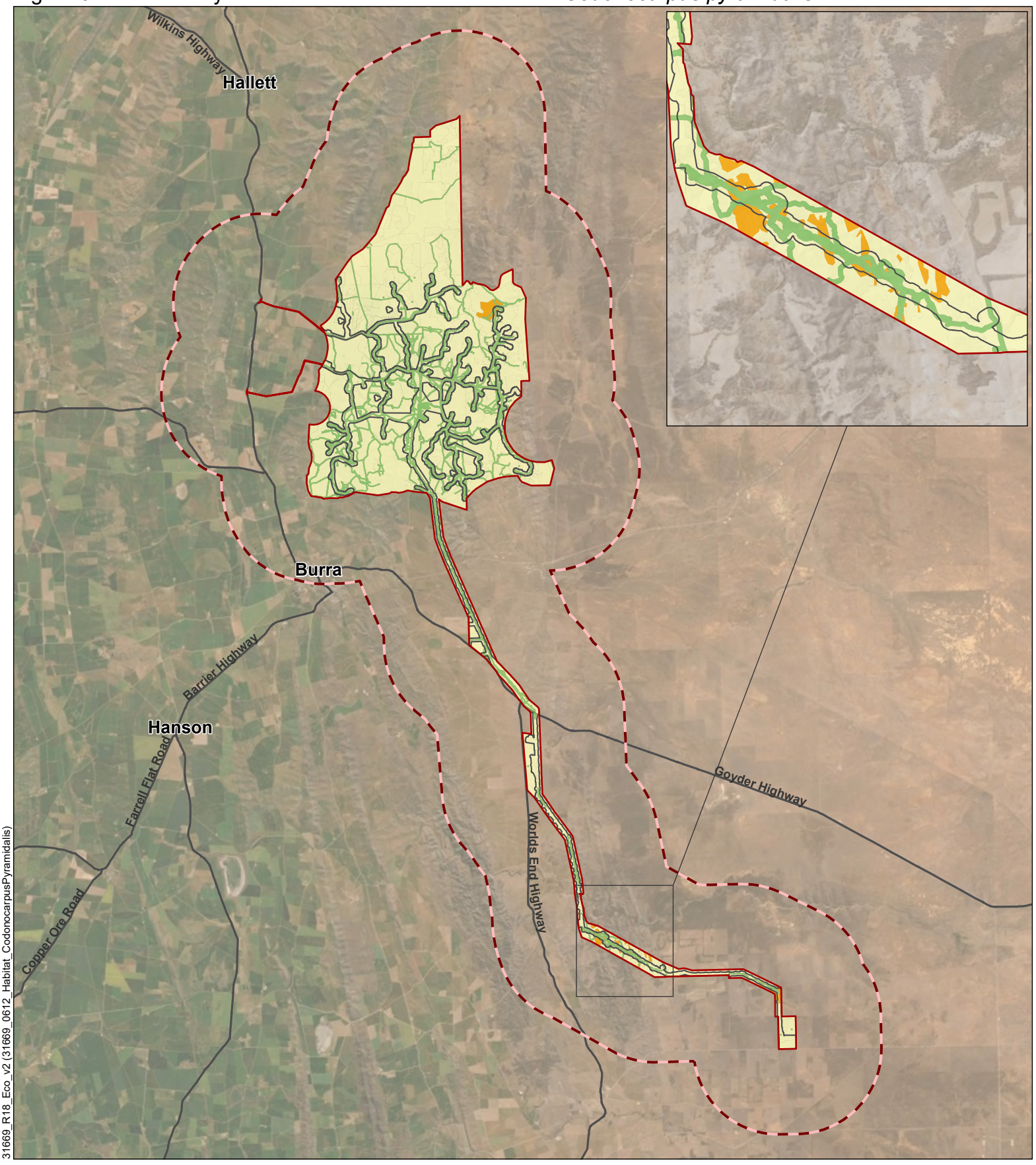
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:14 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.12 Potentially Suitable Habitat and Risk Areas for *Codonocarpus pyramidalis*



GNREF
Development Envelope
Search Area

***Codonocarpus pyramidalis* habitat**
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0612_Habitat_CodonocarpusPyramidalis)

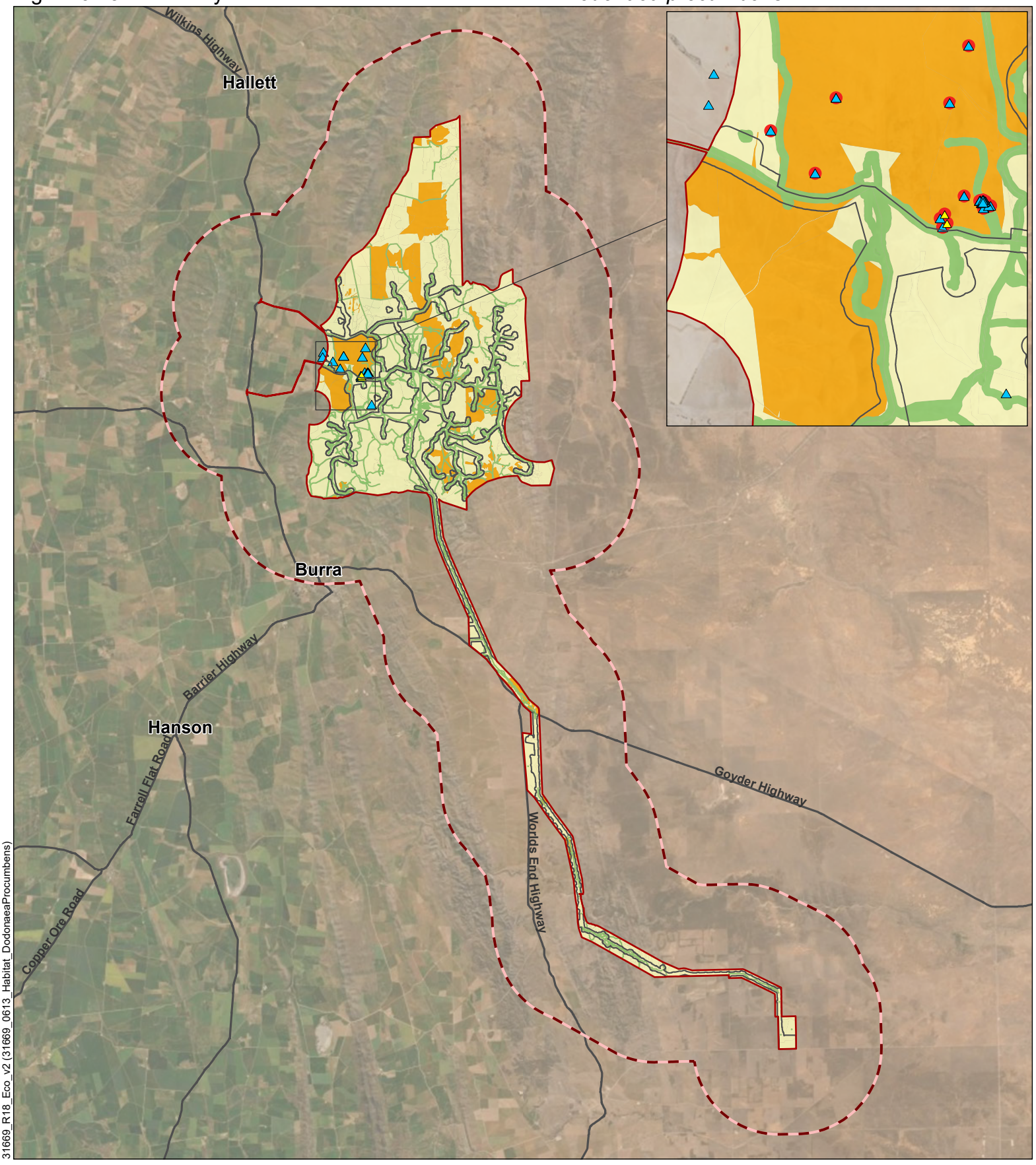
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:14 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.13 Potentially Suitable Habitat and Risk Areas for *Dodonaea procumbens*



GNREF
Development Envelope
Search Area
Dodonaea procumbens (Umwelt)
Dodonaea procumbens (BDBSA)

***Dodonaea procumbens* habitat**
Known
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0613_Habitat_DodonaeaProcumbens)

umwelt

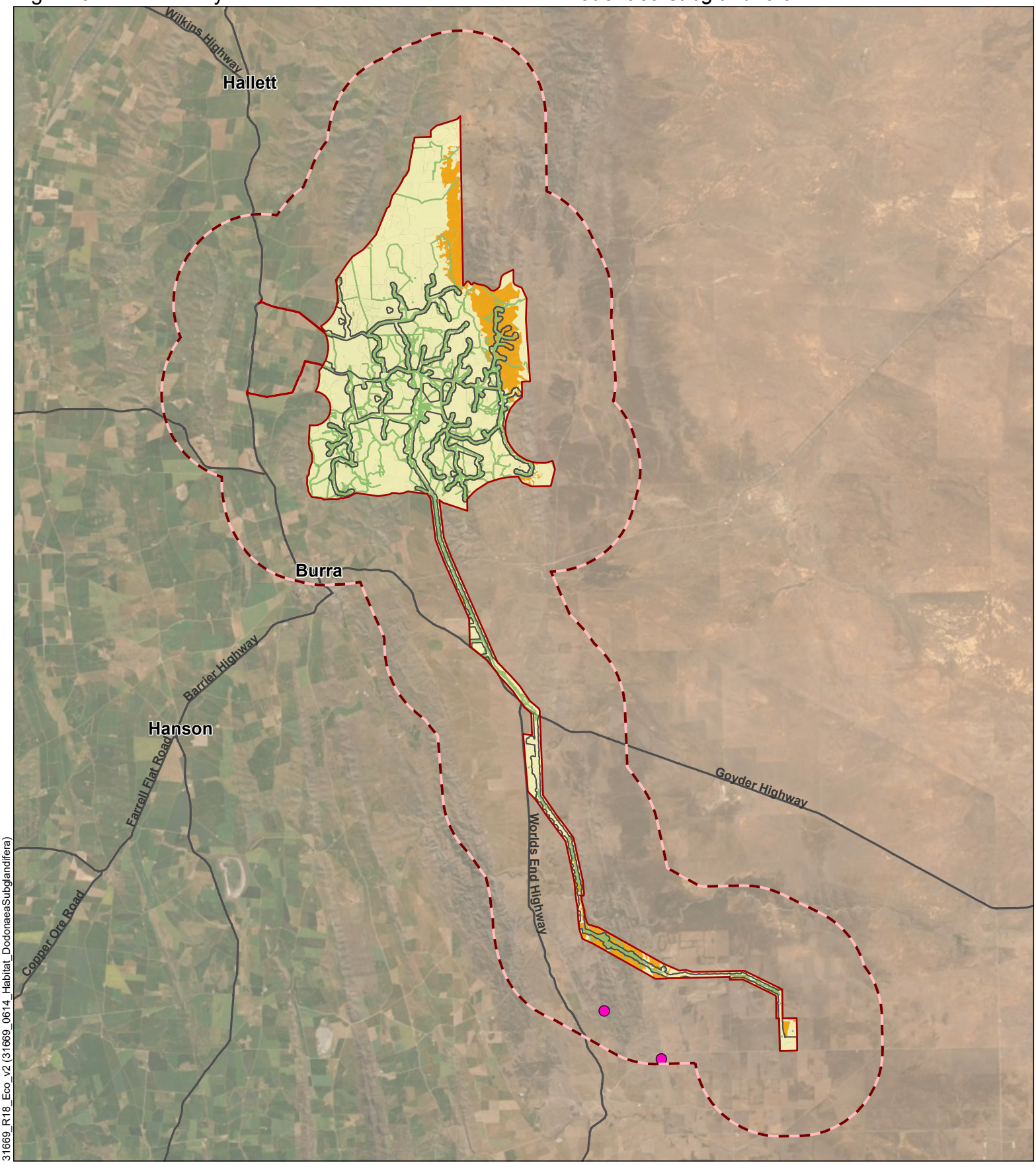
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:14 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.14 Potentially Suitable Habitat and Risk Areas for *Dodonaea subglandifera*



GNREF
Development Envelope
Search Area
Dodonaea subglandulifera (BDBSA)

***Dodonaea subglandulifera* habitat**
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0614_Habitat_DodonaeaSubglandifera)

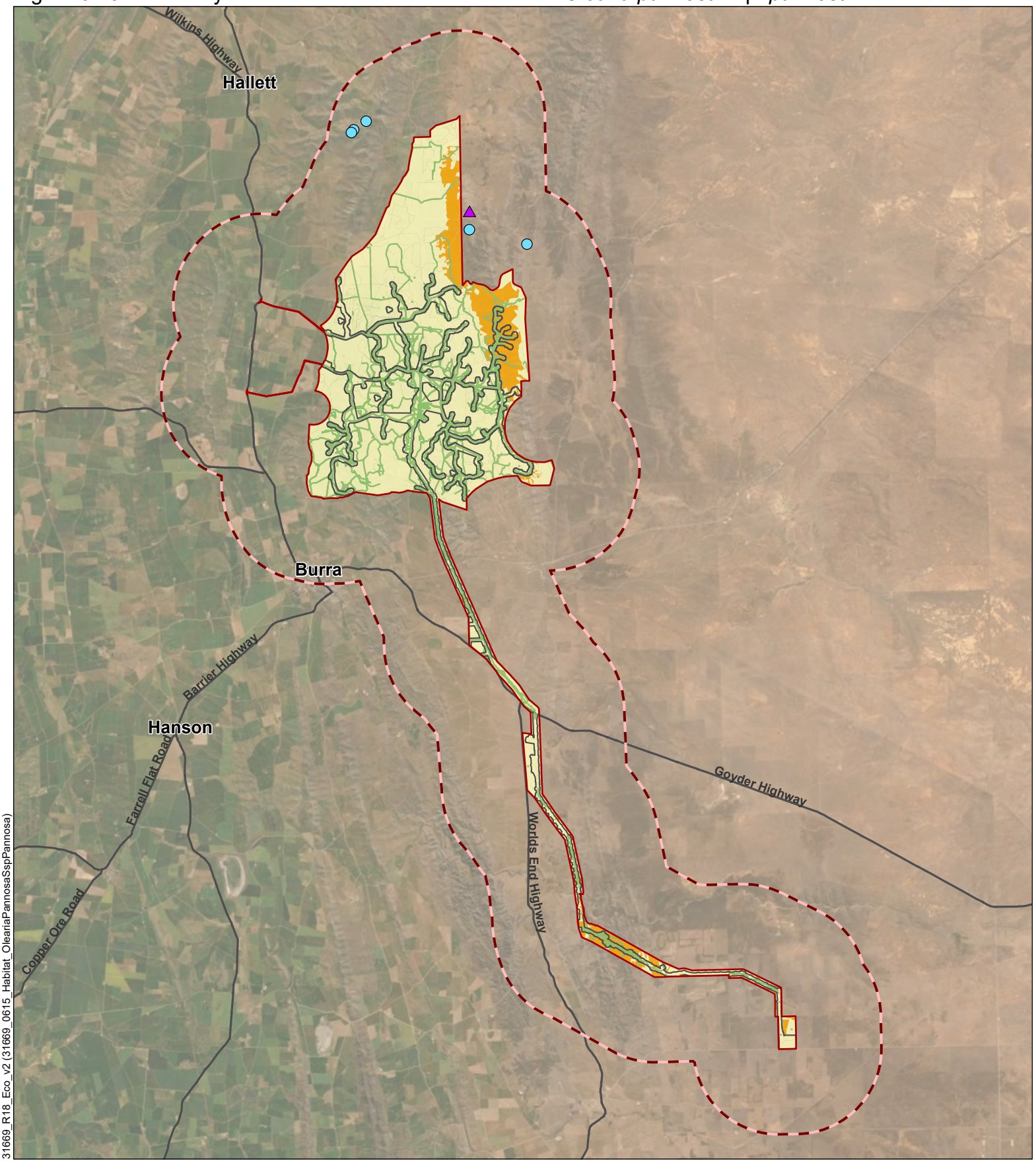
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:17 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.15 Potentially Suitable Habitat and Risk Areas for *Olearia pannosa* ssp. *pannosa*



GNREF
Development Envelope
Search Area
Olearia pannosa ssp. pannosa (Umwelt)
Olearia pannosa ssp. pannosa (BDBSA)

***Olearia pannosa* ssp. *pannosa* habitat**
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0615_Habitat_OleariaPannosaSspPannosa)

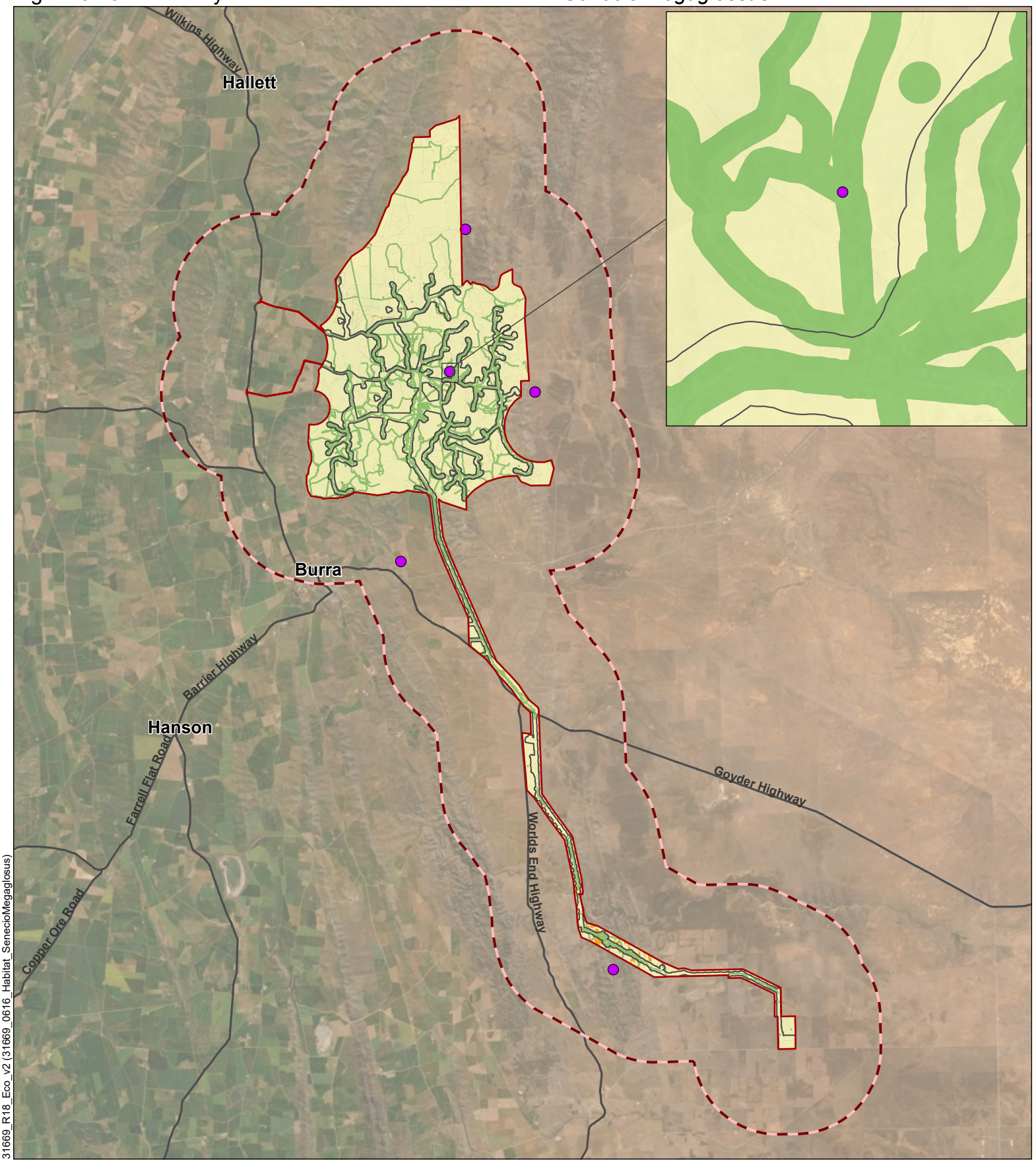
Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:17 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

Figure 6.16 Potentially Suitable Habitat and Risk Areas for *Senecio megaglossus*



GNREF
Development Envelope
Search Area
Senecio megaglossus (BDBSA)

***Senecio megaglossus* habitat**
Possible
Unlikely
Searched - not present

31669_R18_Eco_v2 (31669_0616_Habitat_SenecioMegaglosus)

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:18 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

7.0 Potential for Impact to Other Matters

The following section outlines the distribution of, and potential impacts to state listed threatened flora and fauna and other relevant ecological matters which have been identified within the GNREF during the field surveys conducted since spring 2022. Other state listed threatened flora and fauna which have not been detected on site during field surveys are discussed in the Desktop Assessment in **Section 4.0**, and in **Appendix F**.

7.1 State Listed Threatened Flora

Nine species of state listed threatened flora have been identified within the GNREF during field surveys, conducted since spring 2022. Their distribution and abundance are described in the following section and EBS records indicated in **Figure 7.1**.

Austrostipa gibbosa (Spurred Spear-grass) (NPW Act: Rare)

Austrostipa gibbosa is found in the Southern Flinders Ranges, Mount Lofty Ranges and South-east in SA, growing on rich loamy soil along creeks and seasonally wet areas in woodland and grassland (South Australian Seed Conservation Centre, 2025). Within the GNREF *Austrostipa gibbosa* was identified in good condition Grassland in GNREF (north) during the broad spring 2022 field surveys. It has not been detected since, but targeted surveys have not been undertaken, and it is likely it occurs elsewhere within the GNREF, including in GNWF. Up to 94 historical records of the species have been reported in the Search Area between 1993 and 2013.

Cryptandra campanulata (Long-flowered Cryptandra) (NPW Act: Rare)

Cryptandra campanulata is a small woody shrub which grows in rocky habitats of the northern Mount Lofty Ranges and Southern Flinders Ranges (Kellerman, 2020). Within the Project Area it was found in low numbers, in Lomandra Grassland vegetation association (VA6) and within *Hakea leucoptera* Shrubland (VA13), scattered individuals in Mokota CP, and was the dominant shrub species in VA17, occurring in a small patch along the OTL. In most instances, the shrub was subjected to heavy grazing impacts, and it is likely that it is more widespread than indicated in mapping. Historical records show 146 observations between 1991 and 2021 within the Search Area.

Cullen parvum (Small Scurf-pea) (NPW Act: Vulnerable)

Cullen parvum is a small perennial herb associated with a range of habitats including alluvial plains, creeks, ephemeral pools, grassy woodlands, and grasslands. Within the Project Area, *Cullen parvum* (**Photo 7.1**) was found to occur at a proposed met mast location (already under NV application), in addition to a section of access track (west of WTG015) in GNWF as well as scattered sparsely throughout Grassland (VA11) and Lomandra grassland (VA6) associations. Given the small size of this species, it is likely that its occurrence is more widespread than records suggest. Eight historical records of the species are also known from in the Search Area between 1993 and 2005.

Photo 7.1 ***Cullen parvum***

Dianella longifolia var. *grandis* (Pale Flax-lily) (NPW Act: Rare)

Dianella longifolia var. *grandis* occurs in a variety of grassy Eucalypt woodland communities. It is currently under taxonomic revision (South Australian Seed Conservation Centre, 2025). It was detected sparsely in BAM site B1a (*Eucalyptus porosa* over chenopods), which occurs in the eastern edge of GNWF. There are also historical records from within Mokota CP, however these were not observed at the time of the survey. Three historical records between 1988 and 2013 have been reported in the Search Area.

Eryngium ovinum (Blue Devil) (NPW Act: Vulnerable)

Eryngium ovinum is a small short-lived perennial species which grows in open woodland and grasslands of the Mount Lofty Ranges. At the time of the surveys the species was not flowering, and therefore difficult to detect, however it was observed as scattered individuals in spring 2022 and spring 2023 in its vegetative state in Grassland and Lomandra Grassland within the WF (BAM sites A6f, A11s, A11r and D6a). It is likely some of these individuals occur within the Disturbance Footprint as well as being more widely spread in the Development Envelope and GNREF. Between 1993 and 2019, 263 historical observations of the species have been made in the Search Area.

Maireana excavata (Bottle Fissure-plant) (NPW Act: Rare)

Maireana excavata is a small herbaceous chenopod that was found in low numbers in Lomandra Grassland during INTG surveys in spring 2024. Given its inconspicuous nature, it is likely to be more widespread in the Project Area than records suggest. Historical records report 88 observations between 1992 and 2019.

Maireana rohrlachii (Rohrlach's Bluebush) (NPW Act: Rare)

Maireana rohrlachii is a small chenopod shrub typically found in heavy soils (eFlora SA, 2022). It was found to occur frequently within WF and OTL, as an understorey species in Mallee / Woodland dominated vegetation associations (VA1, VA2, VA18, VA19, VA20) and formed the dominant shrub in minor association *Maireana rohrlachii* Very Open Shrubland (VA9). Minor occurrences were observed in Grasslands (VA6 and VA11) and Chenopod Shrublands (VA12, VA22). The species is apparently under-reported as only eight records of the species are reported between 1987 and 2014 in the Search Area.

Ptilotus erubescens (Hairy-tails) (NPW Act: Rare)

Ptilotus erubescens is found mainly in the Southern Flinders Ranges and Mount Lofty Ranges, growing in fertile soil in grassy woodland (South Australian Seed Conservation Centre, 2025). It was detected during spring 2022 broad vegetation surveys within the WF. It was noted, but unconfirmed (due to state of deterioration) along the northeastern boundary of Mokota CP and at BAM site A11o. Due to its inconspicuous nature, it is likely to be more common in the GNREF than EBS records suggest. Historical records report 134 observations between 1993 and 2019 within the Search Area.

Rumex dumosus (Wiry Dock) (NPW Act: Rare)

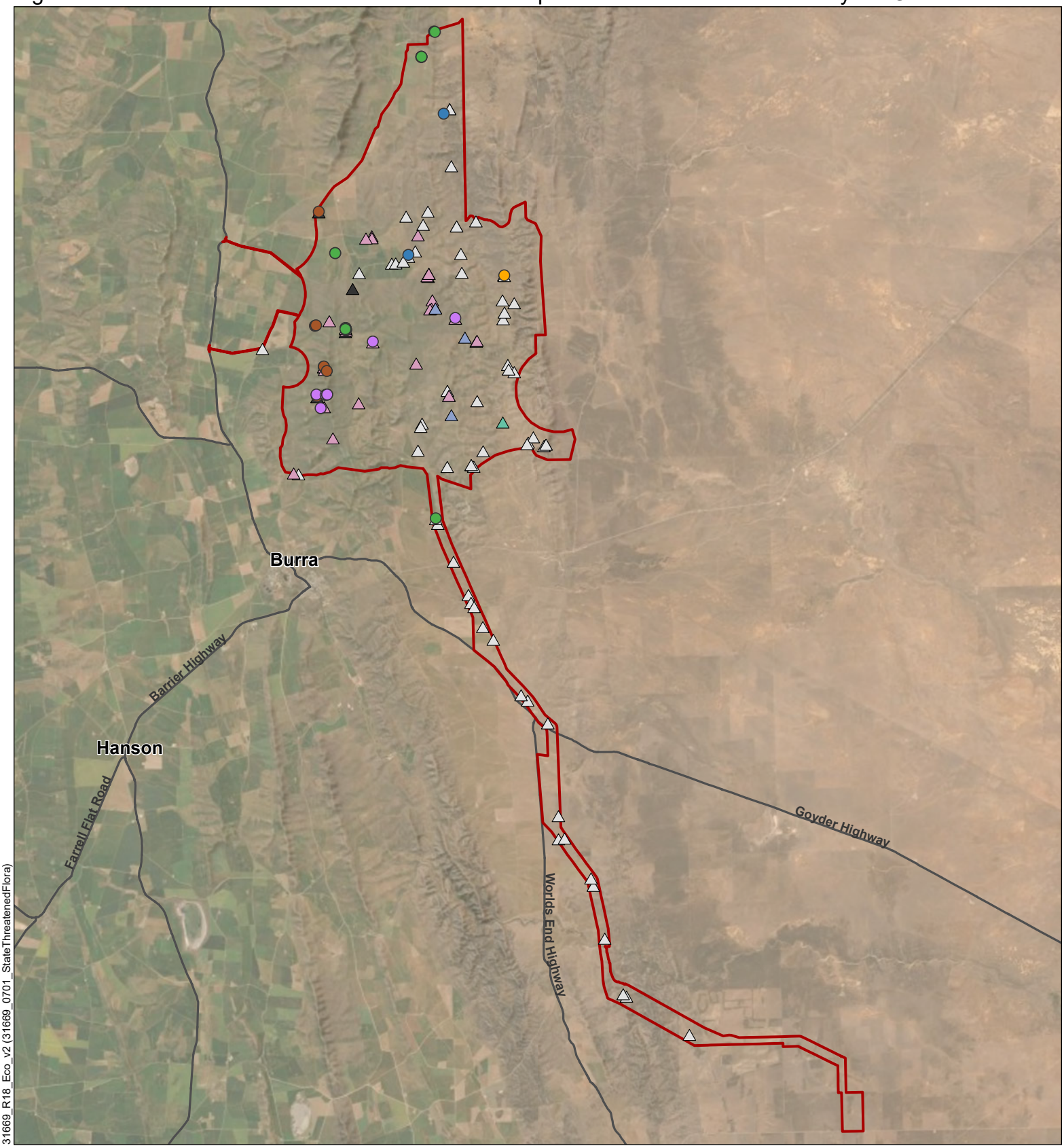
Rumex dumosus is a small, many-branched dock species which breaks at the base following the withering of leaves, and is blown by wind, like a tumbleweed. Though difficult to detect at most times of the year, in GNWF it was found to be locally common in patches of Grassland vegetation (VA6, VA10 and VA11). Given its widespread and frequent occurrence, it is unlikely that the Project would have a significant impact on this species. A total of 66 historical records between 1981 and 2019 have been reported in the Search Area.

Swainsona behriana (Behr's Swainson Pea) (NPW Act: Vulnerable)

Swainsona behriana (**Photo 7.2**) is a small perennial pea-flowered herb which occurs in grassland habitats. The species was detected in 2022 spring surveys in Mokota CP and scattered in higher quality Grassland and Lomandra Grassland associations. Protection of vegetation mapped as Lomandra Grassland is therefore the best way to conserve this species and minimise impacts within the GNWF. Historical records report 113 observations of this species between 1981 and 2013.

Photo 7.2 ***Swainsona behriana***

Figure 7.1 Location of State Listed Threatened Flora Species Detected on Field Surveys in GNREF



GNREF

- *Austrostipa gibbosa* (Swollen Spear-grass) NPW: R
- *Cryptandra campanulata* (Long-flowered Cryptandra) NPW: R
- *Cullen parvum* (Small Scurf-pea) NPW: V
- *Dianella longifolia var. grandis* (Pale Flax-lily) NPW: R
- *Dodonaea procumbens* (Trailing Hop-bush) NPW: V
- *Eryngium ovinum* (Blue Devil) NPW: V
- *Maireana excavata* (Bottle Fissure-plant) NPW: V
- *Maireana rohrlachii* (Rohrlach's Bluebush) NPW: R
- *Ptilotus erubescens* (Hairy-tails) NPW: R
- *Rumex dumosus* (Wiry Dock) NPW: R
- *Swainsona behriana* (Behr's Swainson-pea) NPW: V

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:24 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

0 2.5 5 km

N

31669_R18_Eco_v2 (31669_0701_StateThreatenedFlora)

7.2 State Listed Threatened Fauna

A total of 14 state listed threatened fauna species were found to be known, likely or possible to occur within GNWF based on a desktop assessment and subsequent field surveys, conducted since spring 2022. Habitat descriptions and likelihood justification are provided for each species in **Appendix F**. Five of these species (in addition to the nationally listed species already discussed) have been observed during field surveys, discussed further below.

Chestnut Quail-thrush (*Cinclosoma castanotum*) (NPW Act: Rare)

Chestnut Quail-thrush utilise open, semi-arid woodland with a sparse shrub layer and litter debris, where they fossick on the ground in the leaf litter, usually in parts of small families of 3–5 (Morcombe, 2011). One individual was detected, recorded at BBUS 16 during the spring 2024 field survey. Habitat at the BBUS 16 was typical of their habitat preferences, with the observation reported from mallee woodland with sparse shrubs and a leaf litter layer. No further records of this species have been reported.

White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare)

White-winged Choughs form large social groups which practice cooperative breeding to raise young. They are ground foraging species which maintain large territories up to 1,000 ha in size (BirdLife Australia, n.d.). They utilise forest and woodland habitat preferring leaf litter for feeding and nearby water sources from which to seek mud for nest building. The species has declined in SA, due to habitat clearance, resulting in fragmentation of larger patches which are required to support their family groups (DEH, 2008b).

White-winged Choughs were detected in several family groups in Mallee vegetation, predominantly along the OTL and in the eastern wooded area of the WF. Up to 90 individuals have been observed across 19 survey observations, conducted since spring 2022. One nest was also detected along the OTL. The largest family group observed in the Project Area to date was 10 individuals, during the summer 2024 BBUS.

Black Falcon (*Falco subniger*) (NPW Act: Rare)

Black Falcons are a medium-large raptor, sparsely distributed semi-arid and arid interior, across northern, eastern, southern, and central Australia. Typically, they are found along tree-lined watercourses and in isolated woodlands, roosting in trees at night and sometimes using manmade structures such as power poles, to hawk from during the day. They forage over low vegetation of surrounding plains, grassland, chenopod shrublands and wetlands (Morcombe, 2011).

One individual of this species was detected in the south of the WF during the spring 2022 field survey and it is likely they utilise the open grasslands for foraging and tree-lined watercourses, especially of taller *E. camaldulensis* (VA14) within the Project Area. This species is likely to be naturally sparse in the landscape. Bird utilisation surveys are likely to provide a better understanding of how this species utilises the Project Area, however any further individuals have not been recorded to date.

Restless Flycatcher (*Myiagra inquieta*) (NPW Act: Rare)

Restless Flycatchers occur in open forests, woodland and fringing farmland. They utilise perching branches in the mid-canopy level, to hawk insect prey from the leaves. They build small nests made of grass and cobwebs on an exposed tree branch, often over water, where a male and female pair work together to incubate eggs and feed the young (Birdlife Australia, n.d.).

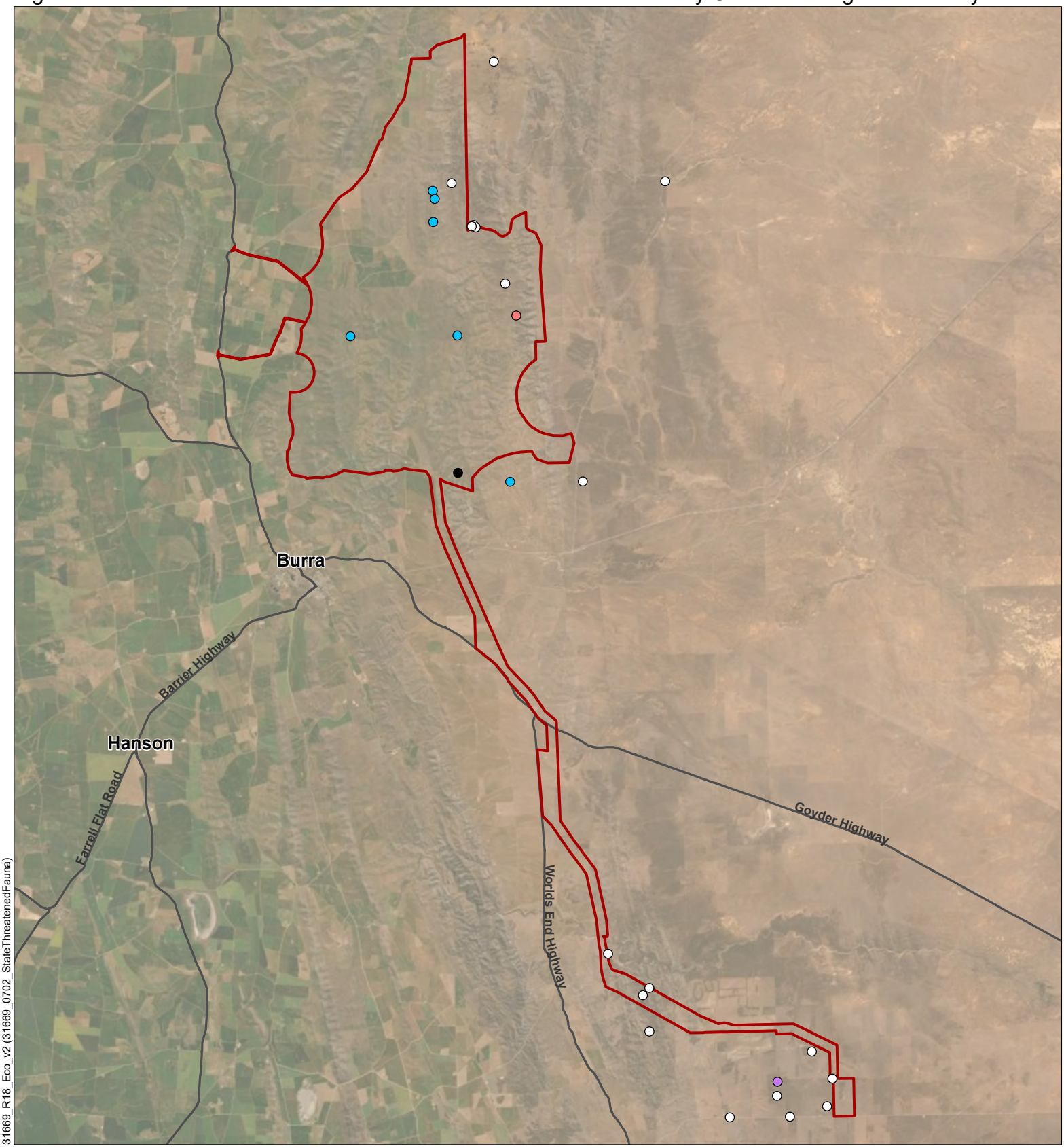
One individual was observed in the far south of the OTL during MBC targeted surveys in spring 2023. This species has not been detected within the WF.

Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)

Elegant Parrots are small, ground-foraging species, which occur across western Victoria, south-western NSW, eastern SA, north to the Flinders Ranges and west to the Eyre Peninsula and across to Western Australia. They are known to utilise a wide variety of open habitats from grassland to mallee woodlands, chenopod shrublands and farmland and use hollow tree branches to nest.

Thirteen individuals of this species were detected across five locations throughout the field survey in spring 2022, flying low over open grassland or chenopod shrublands. One further observation was made in February 2025 on a drainage line in the southeast of the WF, with seven individuals observed foraging on the ground for introduced plant species *Heliotropium* ssp. (Potato-weed). It is likely that Elegant Parrots utilise the Project Area for both foraging and breeding, with plentiful resources available, particularly in and around the mallee woodlands and chenopod shrublands in the east of the WF and along the OTL. Results of the BBUS to date indicate that the species is not a resident at the site, but rather an infrequent visitor.

Figure 7.2 Location of State Listed Threatened Fauna Records Made by Umwelt During Field Surveys



GNREF
- Black Falcon NPW: R
- Chestnut Quailthrush NPW: R
- Elegant Parrot NPW: R
- Restless Flycatcher NPW: R
- White-winged Chough NPW: R

31669_R18_Eco_v2 (31669_0702_StateThreatenedFauna)

umwelt

Data Source: Umwelt (2025), ESRI (2025), DEW (2022), DIT (2022) Neoen (2025)
Date Exported: 2/09/2025 2:25 PM
Created by: sophie.haswell

GDA2020 MGA Zone 54

N

0 2.5 5 km

7.3 Southern Hairy-nosed Wombat (*Lasiorhinus latifrons*)

Wombats are the largest burrowing mammals in the world. They spend over 75% of their time in their burrows, which allow them to survive in the harsh, seasonally changing, and unpredictable environment of semi-arid and arid Australia (Finlayson, Shimmin, Temple-Smith, Handasyde, & Taggart, 2005; Sparrow, Parsons, & Blumstein, 2016). In suitable environmental conditions (e.g., calcareous soils on calcrete, intermediate surface rockiness), wombats construct large warren complexes that allow long-term occupation (Marshall, Taggart, & Ostendorf, 2018).

The large warrens and digging and foraging behaviour of wombats can cause conflict with agricultural (and other) operations, with wombats burrowing in cropping paddocks and under infrastructure such as fences, access tracks and water tanks, creating safety concerns (i.e., farm machinery falling into collapsed burrows) and leading to loss of water for stock, stock escaping or financial loss due to damaged equipment (Sparrow, Parsons, & Blumstein, 2016). Other impacts caused by wombats include erosion and grazing competition.

These identified conflicts with wombats are likely to impact on the construction and operation of the Project, posing similar constraints on infrastructure and access. Southern Hairy-nosed Wombats are not threatened in South Australia but are protected as a native species under the NPW Act and additionally under Section 68AA. As they are sedentary animals with established and long-term warrens, appropriate action must be considered to either avoid or mitigate impacts to this species. Direct and indirect impacts to wombats caused by construction of a wind farm may include:

- Direct loss of individuals during construction.
- Noise and vibration disturbance during construction and operation.
- Damage to burrows during construction.
- Displacement of individuals around infrastructure.
- Increased risk of vehicular strike on wind farm roads.
- Risks to the wind farm construction and operation may include:
- Damage to infrastructure from burrows.
- Reduction in structural integrity of infrastructure from burrows.
- Damage to vehicles and construction plant, as well as safety hazard, from hard-to-see burrows.

Typically, wombats are found in drainage lines and at lower elevations. The wombat warrens recorded during field surveys since spring 2022, are not likely to constitute the full extent of warren systems found across the Project Area. The number of individual burrows found are not representative of the number of wombats which may occupy the site, as a single wombat may utilise over eight different warrens / burrows (SA MBD, 2011). Implementation of buffer zones from known wombat warren locations to proposed infrastructure should be investigated and implemented, to minimise likelihood of impacts. Newly detected warren systems should continue to be recorded across the Project Area to inform a thorough understanding of their potential impact on the Project. A Southern Hairy-nosed Wombat Management Plan will be prepared by a suitably qualified ecological consultant prior to the commencement of construction. The plan will outline measures to mitigate impacts on wombats and will be implemented by all construction contractors engaged by Neoen.

7.4 Wind Farm Impacts on Avifauna and Microbats

The *EPBC Policy Act Statement 2.3 Wind Farm Industry* (DEWHA, 2009) states that the primary environmental concern arising from wind farm developments in Australia and overseas has been the mortality of bird and bat species from collision with WTGs. Potential impacts of wind farms on avifauna include:

- Rotor strikes (bird mortality).
- Barotrauma (i.e., rapid air-pressure reduction near moving turbines causing tissue damage to air-containing structures) (bat mortality).
- Clearance and degradation of habitat.
- Acoustic masking (i.e., adverse impacts on songbird communications caused by noise from WTG's).
- Behavioural avoidance (i.e., causing displaced territories and reduced breeding success).

BBUS are a requirement for all newly proposed wind farm projects in Australia and form part of the advice in the Onshore Wind Farm Guidance – Best Practice Approaches When Seeking Approval Under Australia's National Environmental Law (DCCEEW 2024 - in draft). These guidelines assist wind farm proponents under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) by establishing an ecological baseline for the assessment area, identifying potential impacts of the proposed development, and guiding the development of mitigation strategies as part of a Bird and Bat Management Plan (BBMP) — where required by DCCEEW.

The guidelines aim to provide a risk assessment of the cumulative impacts that wind farm infrastructure, such as wind turbine generators (WTGs), may pose to susceptible species, particularly EPBC-listed threatened and migratory species (DCCEEW 2024 - in draft). Species / groups which may be particularly susceptible (Smales, 2006) include:

- All threatened, uncommon and naturally sparse bird species.
- Migratory birds such as waders and seabirds.
- Flocking species including those that travel at night.
- All bats.
- Larger, less agile birds such as eagles and other raptors, cranes, swans, geese, and pelicans.

A total of 549 observations of 10 species of raptors were identified across all field surveys to date (June 2025), including state listed Rare Black Falcon (*Falco subniger*). Five of these species have only been reported on a single occasion. Australian Kestrel (*Falco cenchroides*) were the most commonly sighted raptor over the course of the surveys, with 164 observations (221 individuals), followed by Wedge-tailed Eagles (*Aquila audax*), with 120 observations (272 individuals), Brown Falcon (*Falco berigora*) (26 observations, 29 individuals), Black-shouldered Kite (*Elanus axillaris*) (11 observations, 14 individuals), and Australian Hobby (Falco longipennis) (8 observations, 8 individuals). However, this may not represent the number of individuals in the Project Area, as the same bird(s) may have been observed on multiple occasions. Nevertheless, the number of observations indicate that this site contains favourable habitat for a range of raptor species. Two other state listed raptor species have nearby records, including Peregrine Falcon (*Falco peregrinus macropus*) and Little Eagle (*Hieraaetus morphnoides*), however, these have not been reported during field surveys and no nesting sites of these species have been detected.

No threatened microbat species were found to have records in the Search Area. The nationally Vulnerable Corben's Long-eared Bat (*Nyctophilus corbeni*) has been determined as unlikely to occur, based the Project Area being on the extremity of its known range and not containing preferred box, ironbark, and cypress pine woodland habitat, though the mallee vegetation in the east of the GNREF contains an abundance of suitable roosting hollows.

Several migratory bird species were listed in the PMST search as possibly occurring within the Project Area, however all but one of these species (Fork-tailed Swift, discussed in **Section 6.2.2**) was determined unlikely to occur, due to the lack of suitable wetland habitat within GNWF. The closest suitable wetland destination for these migratory wetland species is Hiles Lagoon, which lies over 38 km to the north of the northern boundary of GNWF (i.e. White Hill Road). Additionally, the OTL infrastructure itself is not expected to have significant impact on any migratory species, with the primary concern arising for risk of bird strike by WTGs.

Except for Burra Creek, water sources in the Project Area are unreliable and restricted to ephemeral creeks, many of which are highly eroded with steep banks, and exposed farm dams. Some small permanent waterholes are known to occur along Baldina Creek within Red Banks CP; however, this is outside of the GNWF Project Area.

Seven of the eight required BBUS over a period of two years have been completed. Following finalisation of these surveys, a summary and risk assessment will be compiled to provide an understanding of the minimum and maximum flight heights of at-risk species and the likely level of risk to these species. This will include raptor species, birds known to occur within the Project Area and BDBSA determined as likely to occur within the Project Area. This will further assist Neoen to understand the level of risk to birds and bats.

In the interim, a preliminary analysis of flight height data collected during BBUS events has been undertaken for this report. For the purposes of this analysis, flight heights of 20 m and above are considered 'at-risk movements', as this airspace corresponds with the Rotor Swept Area (RSA) of the currently proposed wind turbine generators (WTGs). Based on this threshold, 29 bird species were identified as being at risk (**Table 7.1**), including 25 native species (four of which were raptors) and four introduced species. This summary will be included in the preliminary documentation for EPBC 2024/09929, to assist DCCEEW in deciding whether a Bird and Bat Adaptive Management Plan is likely to be required for the Project.

Table 7.1 Flight Height Data Recorded for Avian Species During the BBUS Program

Scientific Name	Common Name	Min Flight Height	Max Flight Height	At Risk Flights Recorded
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	0	3	No, below RSA
Acanthiza apicalis	Inland Thornbill	0	10	No, below RSA
Acanthiza chrysorrhoa	**Yellow-rumped Thornbill**	**0**	**25**	**Yes, in RSA**
Acanthiza uropygialis	Chestnut-rumped Thornbill	0	10	No, below RSA
Acrocephalus australis australis	Australian Reed Warbler	0	0	No, below RSA
Aegotheles cristatus	Australian Owlet-nightjar	0	0	No, below RSA
Alauda arvensis arvensis	**Eurasian Skylark***	**0**	**150**	**Yes, at RSA**
Anas gracilis gracilis	Grey Teal	0	0	No, below RSA
Anas superciliosa	Pacific Black Duck	0	0	No, below RSA
Anthus australis	**Australian Pipit**	**0**	**30**	**Yes, at RSA**

Scientific Name	Common Name	Min Flight Height	Max Flight Height	At Risk Flights Recorded
Aphelocephala leucopsis leucopsis	Southern Whiteface	0	10	No, below RSA
Apus pacificus pacificus	**Pacific Swift**	**0**	**50**	**Yes, at RSA**
Aquila audax audax	**Wedge-tailed Eagle**	**0**	**1000**	**Yes, at RSA**
Artamus cyanopterus	Dusky Woodswallow	0	10	No, below RSA
Barnardius zonarius	**Australian Ringneck**	**0**	**30**	**Yes, at RSA**
Chenonetta jubata	Maned Duck	1	5	No, below RSA
Cheramoeca leucosterna	**White-backed Swallow**	**0**	**100**	**Yes, at RSA**
Cincloramphus cruralis	**Brown Songlark**	**0**	**100**	**Yes, at RSA**
Climacteris picumnus picumnus	Brown Treecreeper	1	5	No, below RSA
Colluricincla harmonica	Grey Shrikethrush	0	6	No, below RSA
Columba livia	**Rock Dove***	**0**	**80**	**Yes, at RSA**
Coracina novaehollandiae	Black-faced Cuckooshrike	0	0	No, below RSA
Corcorax melanorhamphos	White-winged Chough	0	7	No, below RSA
Corvus coronoides	**Australian Raven**	**0**	**300**	**Yes, at RSA**
Corvus mellori	**Little Raven**	**0**	**200**	**Yes, at RSA**
Coturnix pectoralis	Stubble Quail	0	2	No, below RSA
Cracticus torquatus leucopterus	Grey Butcherbird	0	10	No, below RSA
Daphoenositta chrysoptera	Varied Sittella	2	5	No, below RSA
Dicaeum hirundinaceum hirundinaceum	Mistletoebird	0	5	No, below RSA
Dromaius novaehollandiae	Emu	0	0	No, below RSA
Egretta novaehollandiae	**White-faced Heron**	**0**	**60**	**Yes, at RSA**
Elanus axillaris	Black-shouldered Kite	0	10	No, below RSA
Eolophus roseicapilla	**Galah**	**0**	**100**	**Yes, at RSA**
Epthianura albifrons	White-fronted Chat	0	15	No, below RSA
Epthianura aurifrons	Orange Chat	0	4	No, below RSA
Falco berigora berigora	**Brown Falcon**	**0**	**100**	**Yes, at RSA**
Falco cenchroides cenchroides	**Australian Kestrel**	**0**	**90**	**Yes, at RSA**
Falco longipennis murchisonianus	**Australian Hobby**	**0**	**120**	**Yes, at RSA**
Fulica atra	Eurasian Coot	0	0	No, below RSA
Gavicalis virescens	**Singing Honeyeater**	**0**	**100**	**Yes, at RSA**
Grallina cyanoleuca cyanoleuca	**Magpielark**	**0**	**40**	**Yes, at RSA**
Gymnorhina tibicen	**Australian Magpie**	**0**	**150**	**Yes, at RSA**
Hirundo neoxena neoxena	**Welcome Swallow**	**0**	**50**	**Yes, at RSA**
Malurus assimilis assimilis	Purple-backed Fairywren	0	0	No, below RSA
Malurus leucopterus leuconotus	White-winged Fairywren	0	5	No, below RSA

Scientific Name	Common Name	Min Flight Height	Max Flight Height	At Risk Flights Recorded
Manorina flavigula	**Yellow-throated Miner**	**0**	**30**	**Yes, at RSA**
Manorina melanocephala	Noisy Miner	0	10	No, below RSA
Mirafra javanica	**Horsfield's Bushlark**	**0**	**40**	**Yes, at RSA**
Ocyphaps lophotes lophotes	Crested Pigeon	0	8	No, below RSA
Pardalotus sp.	Pardalote sp.	0	0	No, below RSA
Pardalotus striatus	**Striated Pardalote**	**0**	**20**	**Yes, at RSA**
Passer domesticus domesticus	**House Sparrow***	**0**	**25**	**Yes, at RSA**
Petrochelidon nigricans	**Tree Martin**	**2**	**35**	**Yes, at RSA**
Petroica goodenovii	Red-capped Robin	0	10	No, below RSA
Phaps chalcoptera	Common Bronzewing	0	0	No, below RSA
Phylidonyris albifrons	White-fronted Honeyeater	0	0	No, below RSA
Pomatostomus superciliosus	White-browed Babbler	0	4	No, below RSA
Psephotellus varius	Mulga parrot	0	5	No, below RSA
Psephotus haematonotus	Red-rumped Parrot	0	0	No, below RSA
Ptilotula penicillata	White-plumed Honeyeater	0	15	No, below RSA
Pyrrholaemus brunneus	Redthroat	0	5	No, below RSA
Rhipidura albiscapa	Grey Fantail	0	15	No, below RSA
Rhipidura leucophrys leucophrys	**Willie Wagtail**	**0**	**50**	**Yes, at RSA**
Smicrornis brevirostris	Weebill	0	15	No, below RSA
Strepera versicolor	Grey Currawong	0	5	No, below RSA
Struthidea cinerea cinerea	Apostlebird	0	3	No, below RSA
Sturnus vulgaris vulgaris	**Common Starling***	**0**	**100**	**Yes, at RSA**
Tachybaptus novaehollandiae	Australasian Grebe	0	0	No, below RSA
Taeniopygia guttata castanotis	Zebra Finch	0	10	No, below RSA
Todiramphus pyrrhopygius	Red-backed Kingfisher	1	2	No, below RSA
Trichoglossus moluccanus	**Rainbow Lorikeet**	**20**	**50**	**Yes, at RSA**
Vanellus tricolor	Banded Lapwing	0	10	No, below RSA
Zosterops lateralis	**Silvereye**	**0**	**40**	**Yes, at RSA**

*Introduced species

8.0 Summary of Ecological Constraints

The GNWF Project has the potential to impact several matters of National and State significance. Based on the desktop assessment and field surveys undertaken to date, Umwelt expects that the proposed GNWF Project, is **likely to impact** on the following MNES:

- Iron-grass Natural Temperate Grassland of South Australia TEC.
- Mallee Bird Community of the Murray Darling Depression Bioregion TEC.
- Southern Whiteface (*Aphelocephala leucopsis leucopsis*).
- Hooded Robin (*Melanodryas cucullata cucullata*).
- Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*).
- Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*).

The proposed GNWF Project **may impact** on:

- Blue-winged Parrot (*Neophema chrysostoma*).
- Diamond Firetail (*Stagonopleura guttata*).
- *Acacia spilleriana* (Spiller's Wattle).
- *Dodonaea procumbens* (Trailing Hop-bush).

The proposed GNWF Project is **unlikely to impact** on:

- *Acacia glandulicarpa* (Hairy-pod Wattle).
- *Codonocarpus pyramidalis* (Slender Bell-fruit).
- *Dodonaea subglandulifera* (Peep Hill Hop-bush).
- *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush).
- *Senecio megaglossus* (Superb Groundsel).

Additionally, the desktop and field surveys find that GNWF is likely to impact on several matters of state significance:

- Native vegetation (~453.87 ha) including 261.31 ha permanent and 192.55 ha temporary.
- State threatened fauna including three species known to occur and a further 14 species identified in the desktop assessment as likely or possible to occur.
- State threatened flora including nine species known to occur and a further 19 species identified in the desktop assessment as likely or possible to occur.

Other ecological matters which are relevant to the Project from a state regulator or project development perspective includes:

- Known presence of Southern Hairy-nosed Wombats within the Project Area which may be impacted by construction and /or impact infrastructure integrity.
- Occurrence of Wedge-tailed Eagle nest, with unknown occupation status, which may be impacted during operation of the wind farm.
- Presence of Declared weeds throughout the Project Area which must be managed (under LSA Act) to prevent their spread.

- Discovery of undescribed large worm in the Project Area which may require further investigation.

Application of the mitigation hierarchy to any proposed Project is considered highly by both state (NVC) and national regulator (DCCEEW). The mitigation hierarchy considers the application of avoidance measures first, followed by minimisation and then mitigation. Umwelt has worked with Neoen throughout the design process to date to apply these measures.

Most recently, during the detailed design process, Neoen interrogated the parameters of the design and investigated non-conventional approaches to construction methods (i.e. for OTL stringing). Neoen have been working toward an ultimate design evolving from the design referred to DCCEEW in 2024, to the Referral Variation design in March 2025. Adding to new information obtained from subsequent targeted field surveys and related refinements, these measures have significantly reduced the area of impact for several MNES, detailed in **Table 8.1**.

Table 8.1 Application of Mitigation Hierarchy (Avoid, Minimise, Mitigate) Between EPBC Referral (October 2024) and Variation (March 2025) and the Current DF (August 2025)

MNES	EPBC Referral (ha)	EPBC Variation (ha)	Difference (%) Referral vs Variation	Current DF (as of August 2025)	Difference (%) Referral vs Current DF
Iron-grass Natural Temperate Grassland TEC	29.64	12.43 (7.7 TEC)	-58.06	8.59 (6.14 TEC)	-71.02
Mallee Bird Community TEC	2.31	0.73	-68.40	0.76	-67.10
Southern Whiteface habitat	94.82	57.61	-39.24	57.96	-38.87
South-eastern Hooded Robin habitat	85.31	40.76	-52.22	41.05	-51.88
Blue-winged Parrot habitat*	554.04	479.57	-13.44	471.86	-14.83
Diamond Firetail habitat	67.28	30.86	-54.13	31.42	-53.30
Flinders Ranges Worm-lizard habitat^	463.08	438.24 (157.56)^	-5.36 (-65.97)	406.82(153.10)	-12.15 (-66.94)
Pygmy Blue-tongue Lizard habitat	459.14	367.98~	-19.85	368.10	-19.83%
Trailing Hop-bush	0 individuals	0 individuals	0.00	0 individuals	0.00
Spillers Wattle	5 individuals	0 individuals	-100.00	0 individuals	-100.00

*Note: previous habitat mapping in EBS Ecology (2024) was reassessed and thus, habitat suitability mapping has resulting in higher area of potentially suitable habitat for Blue-winged Parrot. The EPBC Referral area is retrospectively entered to represent the equivalent vegetation associations.

^Not directly comparable as FRWL habitat suitability mapping and targeted surveys had not been undertaken at the time of Referral submission. 153.10 ha represents the current known and likely habitat based on further surveys.

~ Not directly comparable as mapping refinements have been implemented.

Neoen has applied and is committed to ongoing application of the mitigation hierarchy to first avoid, then minimise and lastly mitigate impacts to matters of significance throughout construction and operation of the GNWF Project. **Table 8.2** outlines the nature of ecological constraints relevant to GNWF, as well as specific measures taken to date to minimise these impacts, and ongoing or future proposed measures to continue to minimise impacts on MNES and other matters identified in this report.

A Significant Impact Assessment has been undertaken (Lathwida, 2025) to address the potential impacts to MNES, and an EPBC Referral has been submitted for this Project (EPBC number 2024/09929). Neoen was provided a notification of referral decision, that the Project was declared a controlled action, to be assessed via preliminary documentation (14 November 2024). The impact on MNES and other specific items requested will be addressed as part of the preliminary documentation for the referral. Additionally, a Native Vegetation Application (Application Number 2025/3099/422) has been submitted to NVC.

Table 8.2 Summary of Ecological Constraints Relevant to the GNWF Project

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
Matters of National Environmental Significance				
Nationally threatened fauna (including migratory species)	Southern Whiteface (*Aphelocephala leucopsis leucopsis*) (EPBC Act: Vulnerable)	Common across the GNWF. Present in most vegetation associations, most common in mallee woodland, shrublands and fringing habitats.	• 82.95 ha (46.24 ha permanent, 36.71 ha temporary) (or ~15.45%) of the total impact area occurs in non-native vegetation. • Where possible, access roads have been aligned with existing farm tracks to minimise native vegetation clearance and potential impacts to PBTL / FRWL habitat. • Historically known locations of PBTL (BDBSA records) have been avoided during the design process. • Targeted PBTL surveys have been undertaken across the Disturbance Footprint to determine potential density. Additional micro siting of infrastructure was undertaken to relocate proposed infrastructure away from known populations. • A PTBL management plan has been drafted for the Project to further manage potential impacts to the species during construction and operation. • Targeted FRWL surveys undertaken in suitable habitat	• Minimise impact to fauna habitat by continuing to apply the mitigation hierarchy during the evolution of the Project design. • Implement a CEMP and OEMP to mitigate risk of impact during construction and operation phase – include requirements for micro siting and pre-clearance surveys. • Finalise BBUS surveys to meet the requirements of the *Onshore Wind Farm Guidance – best practice approaches when seeking approval under Australia's national environmental law* (DCCEEW 2024 – in draft). • Loadings applied to all native vegetation clearance applications for species listed in PMST as 'known' to occur and / or for species with records since 1995 within the Search Area (5 km). • Continue to investigate EPBC Offset sites and strategies for MNES likely to have significant residual impact, including PBTL and INTG.
	Pacific Swift (*Apus pacificus*) (EPBC Act: Migratory Marine)	Observed as a flyover in GNWF. May be present as a flyover in all habitats in the GNWF including exotic and cropped land. Only one observation across all surveys including seven targeted BBUS.		
	Flinders Ranges Worm-lizard (*Aprasia pseudopulchella*) (EPBC Act: Vulnerable)	BDBSA records within the GNWF and potentially suitable habitat within the FLB.		
	Hooded Robin (*Melanodryas cucullata cucullata*) (EPBC Act: Endangered, NPW Act: Rare)	BDBSA and Umwelt records from OTL. Suitable mallee woodland habitat throughout.		
	Blue-winged Parrot (*Neophema chrysostoma*) (EPBC Act: Vulnerable; NPW Act: Vulnerable)	Potentially suitable seasonal foraging habitat in GNWF, though unlikely to be preferred. No known records within Search Area.		
	Diamond Firetail (*Stagonopleura guttata*) (EPBC Act: Vulnerable, NPW Act: Vulnerable)	BDBSA and Umwelt records in south of GNWF (OTL). Small patches of potentially suitable open grassy woodland habitat.		
	Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered, NPW Act: Endangered)	Common and widespread in grassland and grassy shrubland habitats within WF including BDBSA records and up to 55 Umwelt records within the surveyed portion		

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
		of the current Disturbance Footprint inside the WF. Potentially suitable habitat is widespread.	in DF to determine potential risk to species. • Non-conventional methods adopted to significantly reduce impact to high quality vegetation or MNES habitat along the OTL stringing corridor resulting in no requirement for vegetation maintenance zones under wires and no stringing corridor. • Civil design parameters refined through consultation with construction contractors.	
Nationally threatened flora known to occur in DE	*Acacia spilleriana* (Spillers Wattle) (EPBC Act: Endangered; NPW Act: Endangered)	Planted specimens occur along Gum Hill Road. Specimens are on the southern side of the road and not proposed to be impacted.	• Gum Hill Road Access track has been removed from current preferred main access route to avoid impacts to planted population of *Acacia spilleriana*. • The current Disturbance Footprint has avoided all historical (BDBSA) recorded locations of threatened flora. • Neoen engaged EBS/Umwelt to undertake targeted surveys for flora (and fauna) across the Disturbance Footprint (February 2024), during which, no additional threatened flora species were located. • Neoen will implement a CEMP which will address measures to further avoid, minimise and mitigate impacts to threatened	• Minimise impact to native vegetation by applying the mitigation hierarchy during the evolution of the Project design, including avoiding known populations of threatened flora. • Implement a CEMP and OEMP to mitigate risk of impact during construction and operation phase for high-risk and moderate risk areas and include requirements for ground-truthing surveys in moderate risk areas and implementation of ecological no-go zones. • Investigate approaches to minimse indirect impacts to known populations of species such as *Acacia spilleriana* and *Dodonaea procumbens,* in ‘high
Nationally threatened flora with potential to occur (in unsurveyed areas of DE)	*Dodonaea procumbens* (Trailing Hop-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable)	Population known to occur in Mokota CP directly adjacent to the Disturbance Footprint. At least two historical records occur within the Development Envelope.		
	Acacia glandulicarpa (Hairy-pod Wattle (EPBC Act: Vulnerable; NPW Act: Endangered) *Codonocarpus pyramidalis* (Slender Bell fruit) (EPBC Act: Vulnerable; NPW Act: Endangered) *Dodonaea subglandulifera* (Peep-hill Hop-bush) (EPBC Act:	None of these species have been detected in the Disturbance Footprint, GNWF or broader GNREF during the field surveys. Field surveys have not extensively covered the Development Envelope, and some ‘at risk’ locations remain for these species if the current Disturbance Footprint is altered.		

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
	Endangered; NPW Act: Endangered) *Olearia pannosa* ssp. *pannosa* (Silver Daisy-bush) (EPBC Act: Vulnerable; NPW Act: Vulnerable). *Senecio megaglossus* (Superb Groundsel) (EPBC Act: Vulnerable, NPW Act: Endangered).		flora should any populations be detected during the construction phase. • Loadings applied to all native vegetation clearance applications for flora species recorded within the Project Area during the field survey.	risk' areas for example, sealing roads in vicinity of threatened plant populations to reduce dust impacts and reducing speed limits in sensitive locations.
Threatened Ecological Communities	Iron-grass Natural Temperate Grassland of South Australia (EPBC Act: Critically Endangered)	1,931.24 ha of Lomandra Grassland (VA6) is known to occur within the GNWF, of which 1,498.09 ha is mapped as meeting the criteria for listing and INTG TEC. GNWF will impact up to 8.59 ha of Lomandra Grassland (0.44% of mapped area in GNWF). This includes 6.14 ha of Class B INTG (0.41% of TEC mapped in GNWF), of which 2.43 ha is permanent, and 3.72 ha is temporary clearance.	• Neoen reduced the number of WTGs impacting Lomandra Grassland (all condition classes) from 41 (July 2023) to 16 (September 2023), which included removing all WTGs occurring in higher quality Lomandra grassland (likely Class B). • Targeted surveys were undertaken in October 2024 to determine the condition of INTG. • Further micro siting has resulted in a residual impact of 6.14 ha of B Class INTG and 2.44 ha of C Class INTG. This results from one WTG which encroaches on the edge of Class B INTG and where access roads are required to cross patches or widen existing tracks for access. • Additional micro siting has subsequently been undertaken	• Continually apply the mitigation hierarchy during Project design evolution to further avoid, minimise and mitigate impacts to INTG. • Implement a CEMP and OEMP with a range of INTG specific construction measures to mitigate risk of impact during construction and operation phase for high-risk areas and include requirements for ground-truthing surveys and implementation of ecological no-go zones where required, as well as speed limits and more general construction measures. • Rehabilitation of any temporary impact areas proposed in INTG.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
			to minimise impacts of existing WTGs and access roads. • Where possible, access roads and MV cables avoid impacts to potential INTG. • Where possible, access roads have been aligned with existing farm tracks to minimise native vegetation clearance and potential impacts to PBTL habitat. • Native Vegetation Clearance Application Loadings applied to all vegetation associations classed as a TEC. • Neoen is developing an INTG Management Plan specific to the Project to further manage potential impacts to the TEC.	
	Mallee Bird Community of the Murray Darling Depression Bioregion (EPBC Act: Vulnerable)	Up to 108.85 ha of potential MBC (VA18) has been mapped in the Project Area (MDD Bioregion, Block C). This includes vegetation mapped within the OTL Development Envelope. The community is more widespread in the local area. Up to 0.76 ha may be impacted as part of the OTL Disturbance Footprint.	• Neoen redesigned the south end of the OTL route, Bundey Substation Expansion and Access Roads to avoid impacts to MBC. The remaining impacts include crossing several small roadside strips of vegetation, required to access the existing Bundey Substation and several fringing impacts to vegetation where OTL changes direction (for brake and winch sites). • Non-conventional conductor stringing methods and strategic design placement of transmission towers has	• Continue to apply mitigation hierarchy by micro siting placement of OTL infrastructure, such as tower pads and access roads. • Native Vegetation Clearance Application Loadings applied to all vegetation associations classed as a TEC (VA18).

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
			eliminated the requirement for a dedicated vegetation maintenance zone, which further reduces impacts, such as trimming and regular disturbance, on this TEC.	
Matters of State Environmental Significance				
Native Vegetation	Clearance of native vegetation is proposed within Disturbance Footprint.	Total Disturbance Footprint of 536.82 ha including 307.56 ha permanent and 229.26 ha temporary). • WF (including Site Access options): 466.86 ha (275.96 ha permanent; 190.90 ha temporary) • OTL (including Bundey Substation Expansion): 69.96 ha (31.60 ha permanent, 38.36 ha temporary).	• 82.95 ha (46.25 ha permanent, 36.71 ha temporary) (or ~15.45%) of the total impact area occurs in non-native vegetation. • A large portion of the Disturbance Footprint (WF and OTL) (350.59 ha or 77.25% of all native vegetation impacted) is situated in grassland which has been utilised for ongoing agricultural grazing practices and is considered degraded from a native vegetation perspective. • Preliminary designs increased the number of WTGs to be situated in non-native vegetation from 8 (July 2023) to 13 (September 2023), demonstrating minimisation. • Non-conventional methods have been investigated to minimise clearance of high-quality vegetation along the OTL, previously required for stringing corridor.	• Continue to apply the mitigation hierarchy to avoid, minimise and mitigate impacts to native vegetation, with a focus on high ecological value vegetation associations or vegetation which supports threatened species. • Implement a CEMP and OEMP to minimise indirect impacts to native vegetation such as dust, weed encroachment and impacts from changes to water distribution. • Investigate additional on ground options for suitable Significant Environmental Benefit (SEB) offsets, to offset Stage 2 of development.

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
			• A Native Vegetation Clearance Application has been submitted to NVC. • Acquisition of SEB Offset property for Stage 1 of development has been finalised.	
NPW Act listed flora	*Austrostipa gibbosa* (Swollen Spear-grass) (NPW: Rare) *Cryptandra campanulata* (Long-flower Cryptandra) (NPW: Rare) *Cullen parvum* (Small Scurf-pea) (NPW: Vulnerable) *Dianella longifolia* var. *grandis* (Pale Flax-lily) (NPW: Rare) *Eryngium ovinum* (Blue Devil) (NPW: Vulnerable) *Maireana excavata* (Bottle Fissure-plant) (NPW: Rare) *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW: Rare) *Ptilotus erubescens* (Hairy-tails) (NPW: Rare) *Rumex dumosus* (Wiry Dock) (NPW: Rare) *Swainsona behriana* (Behr's Swainson Pea) (NPW: Vulnerable)	Known records of ten NPW Act listed threatened species (in addition to EPBC species) within the GNWF (plus one additional GNREF). Based on the suitability of habitat and proximity of recent nearby records, it is highly likely that up to 19 other listed threatened flora species will occur.	• Neoen has applied the mitigation hierarchy throughout the design process, avoiding, minimising, and mitigating potential impacts to native vegetation. • The SEB Offset property for native vegetation reported three State listed threatened flora species on site, including two which have been observed at GNWF: • *Cryptandra campanulata* (NPW Act Rare) (GNWF) • *Daviesia devito* (Mallee Bitter Pea) (NPW Act: Rare). • *Maireana rohrlachii* (NPW Act: Rare) (GNWF) • A further 12 EPBC and /or NPW flora species were assessed as likely or possibly occurring.	• Consider the mitigation hierarchy at all stages of the project design phase. • Where possible, microsite infrastructure to avoid impacts to known locations of NPW Act listed threatened flora. • Loadings applied to all vegetation associations which contain known records of threatened flora. • Consider presence or likely presence of NPW Act listed threatened flora in proposed future Offset sites.
NPW Act listed fauna	White-winged Chough (*Corcorax melanorhamphos*) (NPW Act: Rare) Black Falcon (*Falco subniger*) (NPW Act: Rare)	Known records of four NPW Act listed threatened species (in addition to EPBC species) within the Project Area. Based on the suitability of habitat and proximity of recent nearby records, it is highly	• Neoen has applied the mitigation hierarchy throughout the design process, avoiding, minimising, and mitigating potential impacts to native	• Consider the mitigation hierarchy at all stages of the project design phase. • Loadings applied to all vegetation associations which

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
	Restless Flycatcher (Myiagra inquieta) (NPW Act: Rare) Elegant Parrot (*Neophema elegans elegans*) (NPW Act: Rare)	likely that up to nine other listed threatened species will also occur.	vegetation and high value fauna habitat. • The SEB Offset property for native vegetation reported two EPBC/State listed threatened fauna species on site: ○ Southern Whiteface ○ South-eastern Hooded Robin • A further 11 EPBC and / or NPW fauna species were assessed as likely or possibly occurring.	have potential to support threatened fauna species. • Consider presence or likely presence of listed threatened fauna in proposed future Offset sites.
Wedge-tailed Eagle Nest	NVC and other state authorities recommend wind farms implement avoidance buffers be placed around sensitive or vulnerable raptor species including Wedge-tailed Eagle and Peregrine Falcon. These recommendations are not legislated.	One Wedge-tailed Eagle Nest has been detected within the GNWF Project Area. It has not been reported as active during the field survey period since 2022.	• WTGs are located >500 m from known WTE nest location.	• If found to be active in future, address management measures in CEMP / OEMP.
NPW Act: Section 68AA	Burrows, digging and foraging behaviour of Wombats can undermine infrastructure and cause safety issues. Under the NPW Act, Section 68AA prohibits the destruction, damage, or disturbance of wombat burrows except in certain circumstances.	Wombats and wombat burrows known within the Project Area. Within the vicinity of the Disturbance Footprint a total of 35 locations have been identified as having active wombat burrows.		• Consider implementing buffer zones from known wombat warren locations to proposed infrastructure to minimise likelihood of impacts. Newly detected warren systems should continue to be recorded across the Project Area to inform a thorough understanding of their potential impact on the Project. • Investigate requirements under Section 68AA of the NPW Act, including the location of

Constraint Summary	Constraint Details		Measures Undertaken to Avoid and Minimise Impacts	Ongoing and Future Measures to Avoid and Minimise Impacts
				'Wombat Burrow Protection Zones' declared by the Minister. • Microsite infrastructure during construction to avoid impacting known locations of wombat warrens. • Implement Southern Hairy-nosed Wombat Management Plan in accordance with best practice methods and through consultation with qualified ecologists and wildlife handlers.
Undescribed species	Undescribed worm species detected in Project Area.	Over 100 individuals of a large earthworm species were detected during an unusual weather event at several locations in GNWF. The species was considered unusual, however subsequent investigations determined it as likely to be an undescribed species.	• Neoen acknowledges the presence of this record andproposese to continue investigations as necessary. • Samples have been collected and sent to the SA Museum for further investigation.	• Neoen will respond accordingly based on information received in the investigation process.
Declared Weeds	Within the Project Area 14 weeds listed as Declared under the LSA Act and two species also listed as a Weed of National Significance (WoNS) have been identified.	*Chondrilla juncea, Chrysanthemoides monilifera* ssp. *monilifera, Convolvulus arvensis, Echium plantagineum, Gazania linearis, Lycium ferocissimum, Marrubium vulgare, Moraea flaccida, Olea europaeus, Reseda lutea, Rosa canina, Silybum marianum, Tribulus terrestris, Xanthium spinosum*.		• Comply with any legislative requirements under the LSA Act during construction and operation. • Neoen will obtain any required permits. • Neoen will implement biosecurity measures as part of their CEMP and OEMP.

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Appendix A

Threatened Flora and Threatened and Migratory Fauna Likelihood Assessment

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Flora and Fauna Likelihood of Occurrence Assessment for Project including Disturbance Footprint and Project Area

Red shading indicates species highly likely / known to occur, orange indicates species likely to occur and green indicates species which possibly occur.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
PLANTS							
Acacia glandulicarpa (Hairy-pod Wattle)	VU	E	1	Known, 1977	Found in two small populations in SA, with the main population in the northern MLR, in the Burra Gorge on rocky hillside in open scrub vegetation and in the SE near Victoria. In SA, it grows in shrubland dominated by *Dodonaea viscosa ssp. angustissima, Olearia decurrens* and *Beyeria lechenaultii* on light sandy clay loams; shrubby woodland with dominant *Acacia carnei* and *Sida ammophila* and subdominant *Hakea leucoptera* ssp. *leucoptera* and *Acacia tetragonophylla*; and tall shrubland with *Acacia pycnantha* and subdominant *Cryptandra amara* and *Themeda triandra* on skeletal soils with outcropping shales (SSCC 2023; (Carter, National Recovery Plan for the Hairy-pod Wattle Acacia glandulicarpa, 2011).	Unlikely - species has not been detected during field surveys.	Possible - small pockets of suitable habitat and associated vegetation occurs along the OTL. This species was not detected during field surveys.
Acacia iteaphylla (Flinders Ranges Wattle)		R	2	2023	Naturally occurs in the Flinders Ranges, across to the Gawler Ranges, and on the Eyre Peninsula. Naturalised beyond its native range in some parts of south-eastern and southern SA (SSCC 2018).	Unlikely - species has not been detected during field surveys.	Possible - may occur as planted specimen.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Acacia menzelii (Menzel's Wattle)	VU	V	1	Known	Endemic to SA and found in a small area in the Murray region near Monarto and in the Flinders Ranges. Occurs in open scrub, often associated with *E. socialis* and *E. incrassata*, on grey-brown calcareous loamy soils (DEW, 2022c).	Unlikely - species has not been detected during targeted field surveys.	Unlikely - no suitable habitat occurs in the Project Area and the Project Area is outside of its known distribution.
Acacia spilleriana (Spiller's Wattle)	EN	E	1	Known, 1994	Endemic to SA, this species has severely fragmented populations occurring in the northern Mount Lofty Ranges and in the ranges around Burra and Auburn. Its range extends from Burra, south to Tarlee and east to Robertstown. Most populations are on road verges, except for larger populations that occur in the Burra Gorge/Hallelujah Hills area. Grows on rocky hills, commonly along watercourses and roadsides. Associated with species such as *Acacia calamifolia* (Wallowa) and communities dominated by *Eucalyptus gracilis* (Yorrell), *E. socialis* (Beaked Red Mallee) and *E. brachycalyx* (Gilja) open scrub with a shrubby understorey and *E. camaldulensis* (River Red Gum) woodland (DCCEEW, 2022).	Highly likely /known - Species detected on Gum Hill Road within proposed Access Option, and White Hill Road but current designs indicate it will be avoided by the Disturbance Footprint.	Highly likely / known - some suitable habitat and associated vegetation occurs in the GNWF Project Area. Known to occur on Gum Hill Road. Unlikely to detect additional records in current DE.
Asperula syrticola (Southern Flinders Woodruff)		R	2	2005	Occurs in southeastern SA on and adjacent to the Flinders Ranges and Northern Lofty Ranges. Grows often amongst rocks commonly on limestone in hilly country, in woodland (Thompson 2009)	Possible - some suitable habitat occurs, not detected on field survey, nor within the search area in over 15 years.	Possible - some suitable habitat occurs, not detected on field survey, nor within the search area in over 15 years.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Austrostipa gibbosa (Swollen Spear-grass)		R	2	2022	Occurs in the southern Flinders Ranges, Mount Lofty Ranges and the South-east in SA growing on rich loamy soil along creeks and seasonally wet areas in woodland and grassland (DEW, 2022d).	Likely - this species has been detected within the Project Area during field survey, though not directly in impact area. Likely to occur in places.	Highly likely / known - this species has been detected within the Project Area during field survey, though not directly in impact area. Likely to occur in places.
Caladenia tensa (Greencomb Spider-orchid)	EN		1	Known	Found in the east and upper South-east of SA, including Telowie Gorge, Murray Bridge and Mt Boothby CP. Grows in dry woodland and mallee on red-brown sandy loams in Yellow Gum (*Eucalyptus leucoxylon*) and Cypress (*Callitris preissii*) Woodland (DCCEEW, 2022).	Unlikely - no suitable habitat occurs in the Project Area.	Unlikely - no suitable habitat occurs in the Project Area.
Codonocarpus pyramidalis (Slender Bell-fruit, Camel Poison)	VU	E	1	Likely	Scattered throughout the FR, northern MLR, and eastern regions of SA. Grows on crests of hills and ridges, slopes and along creeks in loamy sand or sandy clay loam (DEWHA, 2008).	Unlikely - limited areas of suitable habitat occur in the Project Area and not detected on field survey.	Possible - potentially suitable habitat occurs in Project Area.
Crassula peduncularis (Purple Crassula)		R	2	1999	Grows in marshy areas which are rarely flooded, occurring mainly in south-eastern Australia. In SA: FR, EP, NL, MU, SL, KI, SE. Also, WA, NSW, Tas. And NZ. (SSCC, 2018).	Unlikely - no preferred habitat within Project impact area. Records over 25 years old.	Unlikely - no preferred habitat within Project impact area. Records over 25 years old.
Crassula sieberiana (Sieber's Crassula)		E	2	2009	Found only in southern Mount Lofty Ranges in South Australia growing on rock ledges and in crevices and on seasonally inundated ground (South Australian Seed Conservation Centre, 2025).	Possible - isolated pockets of suitable habitat may occur. Not detected on field survey.	Possible - isolated pockets of suitable habitat may occur. Not detected on field survey.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Cryptandra campanulata (Long-flower Cryptandra)		R	2	2022	Grows in rocky habitats of the northern Mount Lofty Ranges and Southern FR (Kellerman, 2020).	Likely - this species has been detected within the Project Area during field survey, though not directly in impact area.	Highly likely / known - large populations of this species occur in Mokota CP and likely to occur scattered in suitable habitat throughout the Development Envelope. VA17 (not impacted) is dominated by this species.
Cullen parvum (Small Scurf-pea)		V	2	2005	Found in the southern Flinders Ranges to the Mount Lofty Ranges in South Australia growing in grasslands, grassy woodland or open forest vegetation dominated by *Eucalyptus* species on alluvial plains, creeks, ephemeral pools and river channels (SSCC 2018).	Highly likely / known - this species was detected in low numbers within the Project Area during the field survey within the GNWF Project Area.	Highly likely / known - this species was detected in low numbers within the Project Area during the field survey within the GNWF Project Area.
Dianella longifolia var. *grandis* (Pale Flax-lily)		R	2	2013	Occurs under a variety of overstorey Eucalypt species but is a grassy woodland specialist, e.g., Blue Gum, Candlebark, Manna Gum, Stringybark and Grey Box.	Likely - recent nearby records and areas of suitable habitat in Project Area. Detected in VA2 during field survey, not within Disturbance Footprint.	Highly likely / known - recent nearby records and areas of suitable habitat in Project Area.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Diuris behrii (Behr's Cowslip Orchid)		V	2	2016	Found in the southern Flinders Ranges and the Mount Lofty Ranges with a few records from Eyre Peninsula growing in native grassland, open woodland and grassy forest; grows on more fertile soils, especially amongst *Themeda* sp. (Kangaroo Grass) and *Triodia* on gentle slopes and flats (SSCC 2018).	Possible - recent nearby records and areas of suitable *Themeda* grassland habitat in Project Area on western slopes including Mokota CP. Not detected on field survey.	Likely - recent nearby records and areas of suitable habitat in Development Envelope.
Dodonaea procumbens (Trailing Hop-bush)	VU	V	1, 2	Known, 2022	Occurs in low-lying, often winter-wet areas in woodland, low open forests, health land and grasslands, on sands and clays. Recorded in open River Red Gum (*Eucalyptus camaldulensis*), Pink Gum (*Eucalyptus fasciculosa*) and Blue Gum (*Eucalyptus leucoxylon*) woodlands in low lying areas. Also found in native grasslands where it grows with *Themeda triandra*, *Austrostipa* spp. and shrubs such as *Dodonaea viscosa* and *Bursaria spinosa*. In Mokota CP, within the Project Area, it grows in a herbaceous native grassland (DCCEEW 2023; (Carter, National Recovery Plan for Trailing Hop-bush Dodonaea procumbens, 2010)).	Possible - not detected in Disturbance Footprint during extensive and targeted field surveys, however this is a small plant and often heavily grazed and may have been overlooked if present.	Highly likely / known - this species is known from Mokota CP. No other populations were detected in the impact area during field surveys.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Dodonaea subglandulifera (Peep Hill Hop-bush)	EN	E	1, 2	Known, 2021	*Dodonaea subglandulifera* is endemic to South Australia and has a restricted and disjunct distribution within the state. It has been recorded from semi-arid mallee areas of the Murray Darling Basin, Northern and Yorke Region and the Flinders Ranges. *Dodonaea subglandulifera* occurs in native vegetation associated with rock outcrops including low open woodland, open shrubland and mallee. Habitat records include *Eucalyptus porosa* +/- *Callitris gracilis* +/- *Acacia calamifolia*; *E. dumosa* +/- *Allocasuarina verticillata*; *E. oleosa*; *E. phenax* with *C. gracilis* and *Beyeria lechenaultii*; *C. gracilis* with *Alectryon oleifolius* and *B. lechenaultii*; *Acacia argyrophylla*; and *A. hakeoides* (Moritz & Bickerton, 2010).	Unlikely - this species has not been detected during targeted field surveys in the disturbance footprint.	Possible - associated habitat occurs along the OTL, however this species has not been detected within the impact area.
Eremophila subfloccosa ssp. *glandulosa* (Green-flower Emubush)		R	2	1993	Species can be found in Adelaide and Mount Lofty Ranges, Northern and Yorke, South Australian Arid Lands and South Australian Murray-Darling Basin. Growth is thought to be stimulated by bushfires, and it is known to grow on flats and low-lying mallee woodland in sandy loam over limestone (Esperance Wildflowers 2011).	Unlikely - only one record within search area, and over 30 years old, not detected in Project Area during survey, habitats not preferred.	Possible - only one record within search area, and over 30 years old, not detected in Project Area during survey, habitats not preferred.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Eryngium ovinum (Blue Devil)		V	2	2022	Found in the wetter parts of the Mount Lofty Ranges and a few sites in the lower South-East in South Australia, growing in open woodland on damp clay and sandy soils (SSCC 2018).	Highly likely / known - this species was detected in low numbers nearby to the impact area at GNWF during the field survey.	Highly likely / known - this species was detected in low numbers nearby to the impact area at GNWF during the field survey.
Eryngium vesiculosum (Prostrate Blue Devil)		R	2	1993	Found scattered in South Australia, from the Lake Eyre region to the lower South-east, growing in sandy flats in low-lying damp areas (Seeds of SA, 2024).	Unlikely - few records over 30 years old and no preferred habitat in Project Area. Not detected during field surveys.	Unlikely - few records over 30 years old and no preferred habitat in Project Area. Not detected during field surveys.
Eucalyptus bicostata (Southern Blue Gum)		V	2	2008	Found only on Mount Bryan in South Australia, growing in open grassy woodland on steep upper, south-facing slopes. Also found in New South Wales and Victoria.	Unlikely - this species is isolated to Mount Bryan which occurs to the west of GNWF.	Unlikely - this species is isolated to Mount Bryan which occurs to the west of GNWF.
Eucalyptus percostata (Ribbed White Mallee)		R	2	2014	Mallee species endemic to SA and known on from a few localities in the southern FR including Telowie Gorge, Alligator Gorge and east of Devils Peak. Occurs on hills and slopes on loam soils (Slee et. al., 2019).	Unlikely - not detected within disturbance footprint during field survey.	Possible - not detected within Project Area, however some suitable habitat occurs.
Festuca benthamiana (Bentham's Fescue)		R	2	1993	Restricted to the Flinders Ranges, and near the Barossa Valley, S.A. Apparently occurring in rocky sites but very few collections are known (Seeds of SA, 2024).	Unlikely - few records over 30 years old and no preferred habitat in Project Area. Not detected during field surveys.	Unlikely - few records over 30 years old and no preferred habitat in Project Area. Not detected during field surveys.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Frankenia cupularis (Cupped Sea-heath)		R	2	1993	Found in the north and north-eastern SA, growing on sand flats and salt pans. Also found in the NT, QLD and NSW. Uncommon in SA (Seeds of SA, 2024).	Unlikely - records over 30 years old and has niche habitat requirements which are not present in the Project Area.	Unlikely - records over 30 years old and has niche habitat requirements which are not present in the Project Area.
Juncus australis (Austral Rush)		R	2	2004	Found in the southern MLR and SE in SA, growing in wet or seasonally wet situations in grasslands and woodlands. Also found in NSW, Vic, Tasmania and New Zealand. Common in other states (SSCC 2023)	Possible - some suitable habitat occurs; however, records are over 20 years old and there is minimal suitable habitat being impacted for the Project.	Possible - some suitable habitat occurs; however, records are over 20 years old and there is minimal suitable habitat being impacted for the Project.
Juncus radula (Hoary Rush)		R	2	1993	Found in the southern Flinders Ranges, Mount Lofty Ranges and the upper South-east, growing on seasonally damp areas in depressions and along drainage lines in woodland and open grassland (Seeds of SA, 2024).	Possible - some suitable drainage depressions in Disturbance Footprint, and in Project Area, though mostly highly disturbed. Not detected during field surveys, and nearby records over 30 years old.	Possible - some suitable drainage depressions in Disturbance Footprint, and in Project Area, though mostly highly disturbed. Not detected during field surveys, and nearby records over 30 years old.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Lachnagrostis limitanea (Spalding Blown Grass)	EN	E	1	May	Endemic to the northern MLR of SA, with only four extant subpopulations known. Limited habitat information is known, however from where it has been observed, habitat includes low lying flood-prone clay loam near watercourses in the Northern Lofty region of SA (Robertson and Clarke, 2006).	Unlikely - only isolated records known. No suitable habitat within the Project Area.	Unlikely - only isolated records known. No suitable habitat within the Project Area.
Lachnagrostis robusta (Tall Blown-grass)		R	2	1989	Endemic, found in eastern S.A. Growing on saline ground from coastal marshes to inland swamps.	Unlikely - records over 35 years old and has niche habitat requirements which are not present in the Project Area.	Unlikely - records over 35 years old and has niche habitat requirements which are not present in the Project Area.
Lepidium pseudotasmanicum (Shade Peppercress)		V	2	1997	Found in the southern Flinders Ranges, Mid North and along the Murray River in SA, growing in rocky areas. Also found in WA, NSW, Vic. and Tas (SSCC 2023).	Possible - some suitable habitat occurs; however, records are over 20 years old and there is minimal suitable habitat being impacted for the Project. Not detected during field survey.	Possible - some suitable habitat occurs; however, records are over 20 years old and there is minimal suitable habitat being impacted for the Project. Not detected during field survey.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Logania saxatilis (Rock Logania)		R	2	2008	Occurs in the FR, NL, MU, SL regions of SA. Associated with Grassy Woodlands in the foothills and hills face of the Southern Lofty Ranges. Grows on steep-sided sandstone gorges in open woodland community and in crevices of rocky outcrops in shallow sand or clay-rich soils (SSCC 2024).	Unlikely - species has not been detected during field surveys.	Possible - some suitable habitat occurs in mallee vegetation areas within the Project Area, though this species was not detected on field surveys.
Maireana excavata (Bottle Fissure-plant)		V	2	2019	Occurs in grassland of the less dry southern regions (PlantNET, 2024).	Likely - small species difficult to detect in degraded grasslands. May occur in Disturbance Footprint but was not detected during field survey.	Highly likely / known - known from Mokota CP
Maireana rohrlachii (Rohrlach's Bluebush)		R	2	2022	Species occurs from few locations on EP, but mainly YP, Mid North, Fleurieu Peninsula, Murraylands and western Victoria. Preferred habitat includes heavy clay and calcareous loam soil often fringing lakes in seasonally wet areas (Royal Botanic Gardens Victoria 2020).	Highly likely / known - this species was common in chenopod shrubland sites and was the dominant species at one VA9 at GNWF. Also occurred in VA6, VA12, VA18.	Highly likely / known - this species was common in chenopod shrubland sites and was the dominant species at one VA9 at GNWF. Also occurred in VA6, VA12, VA18.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Mentha satureioides (Native Pennyroyal)		R	2	1988	Found scattered from the Gammon, Flinders and Mount Lofty Ranges, southern Eyre Peninsula and the upper South-east in South Australia, growing on heavy, seasonally wet soils (Seeds of SA, 2024).	Possible - some suitable drainage depressions in Disturbance Footprint, and in Project Area, though mostly highly disturbed. Not detected during field surveys, and nearby records over 35 years old.	Possible - some suitable drainage depressions in Disturbance Footprint, and in Project Area, though mostly highly disturbed. Not detected during field surveys, and nearby records over 35 years old.
Myoporum parvifolium (Creeping Boobialla)		R	2	2008	Subpopulations scattered throughout the EP and throughout southern SA and Vic. Occurs in sandy coastal areas, Red Gum woodlands, *Melaleuca halmaturorum* (Swamp Teatree) very low open forests and dune swales ((eFloraSA), 2007)	Unlikely - not detected within disturbance footprint during field survey.	Possible - no preferred habitat within Project Area, but recent nearby records. May be planted specimens.
Olearia pannosa ssp. *pannosa* (Silver Daisy-bush)	VU	V	1,2	Known, 2023	Endemic to SA, scattered throughout agricultural areas. Occurring in sandy flat areas and in hilly rocky areas in woodland or mallee, including overlapping with Peppermint Box Grassy Woodland of SA (DOE 2013). Widespread but rare species occurring on the FP, YP and in 2 main sub populations on the EP in South Australia. Found in association with *Eucalyptus* spp. such as *Eucalyptus phenax* ssp. *phenax* (Commonwealth Government, 2013).	Unlikely - not detected within disturbance footprint during field survey.	Possible- suitable habitat occurs within Project Area in Mallee vegetation, however it was not detected during field surveys despite adequate search effort.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Olearia picridifolia (Rasp Daisy-bush)		R	2	1993	Found mainly in mallee and heath on alkaline soils derived from limestone or dunes (Seeds of SA 2024).	Possible - nearby records over 30 years old, and the species was not detected in the Project Area during field surveys. Minimal suitable habitat but may be difficult to detect.	Possible - nearby records over 30 years old, and the species was not detected in the Project Area during field surveys. Minimal suitable habitat but may be difficult to detect.
Phebalium glandulosum ssp. *macrocalyx* (Glandular Phebalium)		E*	2	2008	Heath, sclerophyll forest and mallee (PlantNET 2024).	Unlikely - not detected within disturbance footprint during field survey.	Possible- suitable habitat occurs within Project Area in Mallee vegetation, however it was not detected during field surveys despite adequate search effort.
Philotheca angustifolia ssp. *angustifolia* (Narrow-leaf Wax-flower)		R	2	1998	Mostly in mallee on sandy soil and sometimes amongst rocky habitats.	Unlikely - not detected within disturbance footprint during field survey.	Unlikely - no suitable sandy mallee habitats in Project Area.
Poa drummondiana (Knotted Poa)		R	2	2004	Occurs in regions EP, NL, MU, YP. Also, in Vic (eFloraSA 2024)	Possible - not detected in Disturbance Footprint during field surveys, however this is a small plant and often heavily grazed and may have been overlooked if present.	Possible - potentially suitable habitat and records in search area within last 20 years.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Pterostylis despectans (Mt Bryan Greenhood)	EN	E	2	2007	Disjunct distribution in Vic, SA, and NSW, each from very small populations. In SA, recorded from Hallet, Yacka and near Mount Bryan in gently sloping *E. odorata* (Peppermint Box) woodland on hard, stony loam (DCCEEW, 2022).	Unlikely - no suitable *E. odorata* woodland in Project Area, not detected during field survey.	Unlikely - no suitable *E. odorata* woodland in Project Area, not detected during field survey.
Pterostylis xerophila (Desert Greenhood)	VU	V	1	May	Occurs in many areas of inland SA and VIC including the EP. Grows in generally remote locations in semi-desert environments in rocky outcrops under low shrubland (DAWE, 2021j). The Desert Greenhood is a small, deciduous, terrestrial orchid endemic to inland South Australia and Victoria. It occurs in generally remote locations in semi-desert environments, growing mostly on rock outcrops under low shrubs (Duncan 2010).	Unlikely - not within current known distribution and no preferred semi-desert environs.	Unlikely - not within current known distribution and no preferred semi-desert environs.
Ptilotus erubescens (Hairy-tails)		R	2	2019	Occurs in SA in FR, NL, MU, SL and SE where it occurs in fertile soils in grassland, woodland and scrubland communities but not in mallee (Royal Botanic Gardens Victoria 2020).	Likely - detected during field surveys, however not within Disturbance Footprint.	Highly likely / known - detected at GNWF during field surveys.
Rhodanthe anthemoides (Chamomile Everlasting)		E	2	2008	Grows primarily in rocky areas, preferring sandy soils (Australian National Botanic Gardens, 2022).	Unlikely - not detected within disturbance footprint during field survey.	Possible - recent nearby records and some suitable habitat.
Rumex dumosus (Wiry Dock)		R	2	2022	Locally widespread, often occurring in damp areas, grassy sites or rocky outcrops.	Highly likely / known - widespread and abundant in some locations in grassland habitat (VA11) in GNWF.	Highly likely / known - widespread and abundant in some locations in grassland habitat (VA11) in GNWF.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Rytidosperma tenuius (Short-awn Wallaby-grass)		R	2	1999	Grows in altitudes between 5–750 m, usually in somewhat damp habitats, rarely dominant; along the coastal shelf a very common constituent of disturbed road verges (AusGrass2, 2024).	Possible - not detected in disturbance footprint during field surveys, however this is a small plant and often heavily grazed and may have been overlooked if present.	Possible - not detected in disturbance footprint during field surveys, however this is a small plant and often heavily grazed and may have been overlooked if present.
Senecio macrocarpus (Large-fruit Fireweed, Large-fruit Groundsel)	VU	V	1	May	In South Australia, Large-fruit Fireweed occurs most commonly in depressions in low lying closed sedgeland but may occur in sedgeland, herbland, low shrubland to low open woodland where competition from understorey plants is low. The soils range from clay to loamy sand. (Department of Climate Change, Energy, the Environment and Water, 2023c).	Unlikely - no nearby records and no preferred habitat occurs.	Unlikely - no nearby records and no preferred habitat occurs.
Senecio megaglossus (Superb Groundsel)	VU	E	1	Likely, 1993	Confined to the northern MLR and southern FR of SA. Known populations include Orroroo, Black Rock and large population of 1000 plus plants at Newikie Creek (in the Project Area). Mostly confined to rocky creek banks and rocky gorge slopes as well as in creek beds, drainage lines and erosion gullies (Commonwealth Government, 2008a).	Unlikely -potentially suitable habitat occurs but the species has not been detected during field surveys and the Disturbance Footprint does not intersect known records.	Possible - potentially suitable habitat occurs but the species has not been detected during field surveys and the nearest known records are outside of the Development Envelope and are over 30 years old.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Swainsona behriana (Behr's Swainson-pea)		V	2	2013	Once found in the Mount Lofty Ranges and the lower South-east, growing on light or occasionally heavy soils in moist grassland and woodland. Now only found in the northern and eastern side of the Mount Lofty Ranges (SSCC 2018).	Likely - species was detected during spring field surveys in 2022, within the Project Area.	Highly likely / known - species was detected during spring field surveys in 2022, within the Project Area.
Swainsona pyrophila (Yellow Swainson-pea)	VU	R	1	May	Found in Mallee vegetation communities on a variety of soil types including well-drained sands, sandy loams and heavier clay loams. It is usually found after fire growing in association with *Eucalyptus incrassata* (Ridge-fruited Mallee), *E. socialis* (Beaked Red Mallee), *E. brachycalyx* (Gilja), *E. gracilis* (Yorrell), and *E. oleosa* (Red Mallee) mid mallee woodland over *Melaleuca uncinata* (Broombush) tall shrubland (Tonkin and Robertson 2010).	Unlikely - no nearby records and no preferred habitat occurs.	Unlikely - no nearby records and no preferred habitat occurs.
Veronica decorosa (Showy Speedwell)		R	2	1993	Endemic to South Australia and found in rocky gullies and ridges mainly in the Flinders Ranges (Seeds of SA 2024).	Unlikely - record in Search Area over 30 years old, Project Area not within typical distribution of this species, minimal suitable habitat available.	Unlikely - record in Search Area over 30 years old, Project Area not within typical distribution of this species, minimal suitable habitat available.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
BIRDS							
Actitis hypoleucos (Common Sandpiper)	Mi(W)	R	1	May	Varied coastal and interior wetlands: narrow muddy edges of billabongs, river pools, mangroves, among rocks reefs and rocky beaches (Morcombe 2021). Habitat is banks, rocks and sandy beaches near water. Found in coastal or inland wetlands, both saline or fresh (Birdlife 2022).	Unlikely - no suitable wetland habitat in Project Area and no nearby records.	Unlikely - no suitable wetland habitat in Project Area and no nearby records.
Amytornis striatus howei (Murray Mallee Striated Grasswren, Striated Grasswren (sandplain))	EN	R	1	May	In SA restricted to the Murray Mallee at localities such as Gluepot and Calperum reserves, and Danggali CP. Habitat is sandplains dominated by mature spinifex (*Triodia* spp.) with an overstorey of mallee eucalypts (Threatened Species Scientific Committee (TSSC), 2023)	Unlikely - no suitable habitat in Project Area and no nearby records. Outside of current known distribution.	Unlikely - no suitable habitat in Project Area and no nearby records. Outside of current known distribution.
Anhinga novaehollandiae novaehollandiae (Australasian Darter)		R	2	1998	This species prefers smooth, open waters, for feeding, with tree trunks, branches, stumps or posts fringing the water, for resting and drying its wings. Most often seen inland, around permanent and temporary water bodies at least half a metre deep, but may be seen in calm seas near shore, fishing (Birdlife Australia, n.d.).	Possible - no preferred habitat in Project Area and records over 25 years old. Some habitats in the Burra Creek where the OTL crosses may be suitable for this species.	Possible - no preferred habitat in Project Area and records over 25 years old. Some habitats in the Burra Creek where the OTL crosses may be suitable for this species.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Aphelocephala leucopsis leucopsis (Southern Whiteface)	VU		1, 2, 3	Known, 2022	Wide range of open woodlands and shrublands with an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (DCCEEW 2023).	Highly likely / known - recent nearby records and suitable habitat is widespread. Observed in abundance in east of GNWF Project Area during summer 2024 BUS surveys.	Highly likely /known - recent nearby records and suitable habitat is widespread. Observed in abundance in east of GNWF Project Area during summer 2024 BUS surveys.
Apus pacificus (Fork-tailed Swift)	Mi(M)		1, 2, 3	Likely, 2006	Widespread but almost exclusively aerial. Mostly occur over inland plains, over cliffs and beaches and sometimes well out to sea or in dry or open habitats (DCCEEW 2023d).	Highly likely / known - one individual observed as flyover in summer 2024 BUS surveys.	Known - one individual observed as flyover in summer 2024 BUS surveys.
Ardeotis australis (Australian Bustard)		V	2	2009	Bird of open plains usually in grassland, spinifex, arid scrub with saltbush and bluebush, open dry woodland or mulga and mallee heath (Morcombe 2011).	Possible - uncommon migrant in ideal seasonal conditions.	Possible - uncommon migrant in ideal seasonal conditions.
Calidris acuminata (Sharp-tailed Sandpiper)	VU, Mi (W)		1	May	Inhabits tidal mudflats, salt marshes and shallow fresh, brackish or saline wetlands and flood waters. (Pizzey and Knight 2007). Movements occur during the non-breeding period where birds appear to be dispersive, moving to temporary or flooded wetlands and leaving them when they dry. On migration, they forage and roost on rocky and sandy beaches, freshwater habitats and inland saltwater habitats (DCCEEW 2023d).	Unlikely - no suitable wetland habitat in Project Area and no nearby records.	Unlikely - minimal suitable wetland habitat in Project Area and no nearby records.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Calidris ferruginea (Curlew Sandpiper)	CE, Mi (W)	E	1	May	In Australia, Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters (DCCEEW 2023).	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.	Unlikely - minimal suitable wetland habitat in Project Area and no nearby records.
Calidris melanotos (Pectoral Sandpiper)	Mi (W)	R	1	May	Inhabits shallow fresh waters often associated with low grass and other vegetation. Occasionally seen in salt marshes and tidal areas. (Pizzey and Knight 2007). This species prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DCCEEW 2023d).	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Cinclosoma castanotum (NC) (Chestnut-backed Quailthrush (Chestnut Quailthrush))		R	2, 3	2010, 2024	Endemic to arid and semi-arid southern Australia, reaching its northern extent in the south of the Northern Territory. Throughout its distribution it occurs in a wide range of arid and semi-arid habitats; mainly in the low shrubs and undergrowth of mallee scrub, but also in Acacia scrubs, dry sclerophyll woodland, heath, and native pine (OEH 2017).	Likely – recorded in mallee vegetation on east of Project Area, suitable habitat occurs, and species is cryptic. Minor impacts to suitable vegetation in vicinity of record, including placement of WTGs in open areas.	Highly likely / Known- recorded in mallee vegetation on east of Project Area (near BBUS 16) during BBUS surveys.
Cladorhynchus leucocephalus (Banded Stilt)		V	2	2004	Endemic to Australia, mainly in the south and inland. Found mainly in saline and hypersaline (very salty) waters of the inland and coast, typically large, open and shallow (Birds in Backyards 2023).	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.
Corcorax melanorhamphos (White-winged Chough)		R	2, 3	2022	Prefers drier forests, woodlands of *Eucalyptus* sp., crops and pastures (Morcombe, 2011).	Highly Likely / Known - suitable habitat occurs and there are recent nearby records. Recorded on OTL and WF during field surveys.	Highly Likely / Known - suitable habitat occurs and there are recent nearby records. Recorded on OTL and WF during field surveys.
Coturnix ypsilophora australis (Brown Quail)		V	2	2015	Prefers dense grasslands, native or exotic, often on the edges of open forest and bracken. May sometimes be seen alongside roads.	Likely - nearby records over 10 years old, but suitable habitat occurs, and species is cryptic.	Likely - nearby records over 10 years old, but suitable habitat occurs, and species is cryptic.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Falco hypoleucos (Grey Falcon)	VU	R	1	Likely	Arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western. Frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses (DCCEEW 2020).	Unlikely - no recent nearby records and the species is an arid specialist. No preferred habitat in Project Area.	Unlikely - no recent nearby records and the species is an arid specialist. No preferred habitat in Project Area.
Falco peregrinus macropus (Peregrine Falcon)		R	2	2012	Found everywhere from woodlands to open grasslands and coastal cliffs - though less frequently in desert regions. This species prefers open habitats such as grasslands, tundra and meadows and nests on cliff faces and in crevices (Pizzey and Knight 2013).	Likely - suitable habitat occurs and there are recent nearby records.	Likely - suitable habitat occurs and there are recent nearby records.
Falco subniger (Black Falcon)		R	2	2022	Occurs on plains, grasslands, foothills, timbered watercourses and crops (Pizzey and Knight 2007). This species is found along tree-lined watercourses and in isolated woodlands, mainly in arid and semi-arid areas (BirdLife Australia, n.d.).	Highly likely / known - suitable habitat occurs and there are recent nearby records. Observed in GNWF during field surveys.	Highly likely / known - suitable habitat occurs and there are recent nearby records. Observed in GNWF during field surveys.
Gallinago hardwickii (Latham's Snipe, Japanese Snipe)	VU, Mi (W)	R	1	May	Latham's Snipe is a non-breeding visitor to south-eastern Australia, including the Adelaide plains, MLR and EP. They usually inhabit open, freshwater wetlands with low, dense vegetation (DCCEEW 2023).	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Grantiella picta (Painted Honeyeater)	VU	R	1	May	Sparsely distributed from southern Victoria and south-eastern SA to far northern QLD and eastern Northern Territory Forest, woodland, dry scrub, often with abundant mistletoe. (Department of the Environment, 2015a). Forest, woodland, dry scrub, often with abundant mistletoe. Dependent on mistletoe berries (Morcombe, 2011)	Unlikely - uncommon migrant to the Clare region. No recent nearby records and the Project Area does not have an abundance of mistletoe.	Unlikely - uncommon migrant to the Clare region. No recent nearby records and the Project Area does not have an abundance of mistletoe.
Hieraaetus morphnoides (Little Eagle)		V	2	2016	Occurs in sparse populations in eastern South Australia where it prefers grasslands and grassy woodlands but will inhabit a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones (Birds SA , 2024).Widespread over diverse habitats; forest, woodland, open scrub, tree-lined watercourses of interior Australia such as the Murray River. Prefers areas where open country intermixes with wooded or forested hills, as in farmland, irrigated land (Morcombe, 2021).	Likely - suitable habitat occurs and there are recent nearby records, however the species has not been detected on BBUS or opportunistically at the site.	Likely - suitable habitat occurs and there are recent nearby records, however the species has not been detected on BBUS or opportunistically at the site.
Hirundapus caudacutus caudacutus (White-throated Needletail)	VU (Mi, M)	V	2	1905	Non-breeding population widespread in eastern and south-eastern Australia between October and April. Almost exclusively aerial, occurring over most types of habitat, but most commonly over wooded areas including open forest and rainforest, and less commonly above partly cleared pasture, plantations or remnant vegetation at the edge of paddocks	Unlikely - identified as Migratory (Marine) species and known distribution in SA, typically south of Nuriootpa and around the coast. Outlier record, and not nearby to WTGs which may cause impacts to	Unlikely - identified as Migratory (Marine) species and known distribution in SA, typically south of Nuriootpa and around the coast. Outlier record, and not nearby to WTGs which may cause impacts to

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
						aerial foraging species.	aerial foraging species.
Leipoa ocellata (Malleefowl)	VU	V	1	Likely	In SA, the Malleefowl is distributed from the south-east, north to the Murray-Mallee region and west to Streaky Bay. Occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine Callitris woodlands, *Acacia* shrublands, or coastal heathlands (Benshemesh, 2007). Inhabits semi-arid regions of southern Australia. In SA, the Malleefowl is distributed from the south-east, north to the Murray-Mallee region and west to Streaky Bay. Occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine Callitris woodlands, Acacia shrublands, or coastal heathlands. (DAWE 2021m).	Unlikely - no recent nearby records and potentially suitable mallee vegetation is isolated from known populations at Brookfield CP and east of Morgan.	Unlikely - no recent nearby records and potentially suitable mallee vegetation is isolated from known populations at Brookfield CP and east of Morgan.
Lophochroa leadbeateri leadbeateri (Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern))	EN	R	1	May	The Major Mitchell's Cockatoo occurs only in Australia, where it usually inhabits semi-arid and arid regions, mainly inland, but in some coastal areas. They usually inhabit dry woodlands in arid and semi-arid areas, where eucalypts or acacias dominate the vegetation. They require old trees which support hollows that are large enough to be suitable for nesting in (Birdlife Australia, n.d.).	Unlikely - no nearby records and outside of expected range (eastern semi-arid areas).	Unlikely - no nearby records and outside of expected range (eastern semi-arid areas).

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Melanodryas cucullata cucullata (Hooded Robin (YP, MN, AP, MLR, MM, SE))	EN	R	1, 2, 3	Known, 2012	Utilises woodland of eucalypt, mallee, mulga; coastal heath; semi cleared farmland. Sub-populations in SA are recorded from the Barossa, Monarto, Onkaparinga River, Ashbourne, Port Willunga areas as well as isolated records from elsewhere in the hills and Fleurieu. Requires large remnants (>50 ha) with open areas, young eucalypts or shrubs for nesting and numerous perches for foraging (DCCEEW, 2023). Occurs across south-eastern Australia, most of NSW, VIC and south-eastern SA. South-eastern subspecies found in Eucalypt woodland and mallee and Acacia shrubland.	Highly likely / Known - species was observed in southern section of OTL during field surveys in 2023 and 2024. Other historical records occur, and the habitat is suitable.	Highly likely / Known - species was observed in southern section of OTL during field surveys in 2023 and 2024. Other historical records occur, and the habitat is suitable.
Microeca fascinans fascinans (Jacky Winter (MLR, SE))		R	2, 3	2017	Widely distributed throughout mainland Australia. Prefer open woodland (Eucalypt and mallee) with an open shrub layer and bare ground. Often seen in farmland and parks (Morcombe, 2011).	Possible – has been recorded during the MBC field survey, however given the Murray Mallee region, observations are likely to be the non-threatened subspecies *assimilis*.	Possible – has been recorded during the MBC field survey, however given the Murray Mallee region, observations are likely to be the non-threatened subspecies *assimilis*.
Motacilla cinerea (Grey Wagtail)	Mi (T)		1	May	European and Asian species. Migrates south in winter, usually to Indonesia and NG. Rarely reaches Australia, but when it does, favours habitat near freshwater streams, also mown grass, ploughed land or near sewage ponds (Morcombe, 2011).	Unlikely - uncommon migrant, no nearby records and no preferred habitat.	Unlikely - uncommon migrant, no nearby records and no preferred habitat.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Motacilla flava (Yellow Wagtail)	Mi (T)		1	May	Open country near swamps, salt marshes, sewage ponds, grassed surrounds to airfields, bare ground. Occasionally on drier inland plans (Morcombe, 2011).	Unlikely - uncommon migrant, no nearby records and no preferred habitat.	Unlikely - uncommon migrant, no nearby records and no preferred habitat.
Myiagra cyanoleuca (Satin Flycatcher)	Mi (T)	E	1	Known	Inhabitant of forest, woodland, mangroves and coastal heath scrub. Prefers dense, wet gullies of heavy eucalypt forest in breeding season (Morcombe, 2011). Heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests (DCCEEW, 2023d).	Unlikely - Project Area not within known migration areas (EP, SE, SMLR, KI).	Unlikely - Project Area not within known migration areas (EP, SE, SMLR, KI).
Myiagra inquieta (Restless Flycatcher)		R	2, 3	2012, 2023	Found throughout northern and eastern mainland Australia, as well as in south-western Australia. The Restless Flycatcher is found in open forests and woodlands and is frequently seen in farmland (BirdLife Australia, n.d.). Occupies open forests, woodlands and mallee, inland coastal scrubs (Pizzey & Knight, 2007).	Likely - suitable habitat occurs and there are recent nearby records.	Highly likely - suitable habitat occurs and there are recent nearby records. The species was recorded at the southern end of the OTL during targeted MBC surveys in 2023.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Neophema chrysostoma (Blue-winged Parrot)	VU	V	1	Known	This species mainly occurs in Tasmania and Victoria, particularly in southern Victoria and the midlands and eastern areas of Tasmania however sparser populations are also found in western New South Wales and eastern South Australia, extending to south-west Queensland and occasionally into the Northern Territory. Prefers grasslands and grassy woodlands, especially near wetlands, but will inhabit a range of habitats from coastal, sub-coastal and inland areas, right through to semi-arid zones (DCCEEW 2023).	Possible - cryptic species with no recent nearby records, however this species is known to occur in the region and suitable wide-ranging habitat occurs.	Possible - cryptic species with no recent nearby records, however this species is known to occur in the region and suitable wide-ranging habitat occurs.
Neophema elegans elegans (Elegant Parrot)		R	2, 3	2012, 2023	The Elegant Parrot occurs in eastern parts of South Australia, north to the Flinders Ranges and west to the Eyre Peninsula. It can be found in a wide variety of habitats, including grasslands, shrublands, mallee, woodlands and thickets, bluebush plains, heathlands, saltmarsh and farmland (Birdlife Australia 2023).	Highly likely / known - suitable habitat occurs and there are recent nearby records. Species was detected during field surveys in Spring 2023 and in Summer 2025.	Highly likely / known - suitable habitat occurs and there are recent nearby records. Species was detected during field surveys in Spring 2023 and in Summer 2025.
Pedionomus torquatus (Plains-wanderer)	CE	E	1	May	The Plains-wanderer occurs at scattered sites in NSW and Victoria and more marginal habitat in QLD and SA. Inhabits sparse, treeless, lowland native grasslands with approximately 50% bare ground, most vegetation less than 5 cm in height, with some widely spaced plants up to 30 cm high (Department of the Environment , 2015b).Present in very small numbers in SE South Australia occurring in sparse, treeless	Unlikely - grasslands in the Project Area are highly disturbed by grazing and unlikely to be suitable. No recent nearby records occur.	Unlikely - grasslands in the Project Area are highly disturbed by grazing and unlikely to be suitable. No recent nearby records occur.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
					native grasslands and/or low shrubland (Pizzey and Knight, 2007).		
Plectorhyncha lanceolata (Striped Honeyeater)		R	2	2015	The Striped Honeyeater is found in eastern Australia, mainly inland, from the Yorke Peninsula, South Australia to the coast of New South Wales, and north to Charters Towers, Queensland. Utilises drier open forest, woodland, mallee, mulga as well as heath and mangroves (Morcombe, 2021).	Likely - suitable habitat occurs and there are recent nearby records. Non-threatened subspecies may also occur.	Likely - suitable habitat occurs and there are recent nearby records. Non-threatened subspecies may also occur.
Polytelis anthopeplus monarchoides (Regent Parrot (eastern))	VU	V	1	Likely	The eastern Regent Parrot occurs in the lower Murray-Darling basin region of South Australia, New South Wales and Victoria. The Regent Parrot breeds almost entirely in River Red Gum Forest and woodland, and all known breeding colonies are located along the Murray River. Typically occur within 100 km of the river in non-breeding season and can forage in mallee habitats (Baker-Gabb & Hurley 2011).	Unlikely - the Southern extent of Project Area occurs over 30 km from known habitat at the Murray River. Though potentially suitable foraging habitat occurs, it is not within the critical foraging habitat area of the species. It is unlikely to occur in the GNWF Project Area.	Unlikely - the Southern extent of Project Area occurs over 30 km from known habitat at the Murray River. Though potentially suitable foraging habitat occurs, it is not within the critical foraging habitat area of the species. It is unlikely to occur in the GNWF Project Area.
Rostratula australis (Australian Painted Snipe)	EN	E	1	May	Occurs in shallow freshwater (occasionally brackish) wetlands, both ephemeral and permanent, such as lakes, swamps, claypans, inundated or waterlogged grassland/saltmarsh, dams, rice crops, sewage farms and bore drains, rushes and reeds, low scrub, *Muehlenbeckia* spp.	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.	Unlikely - no suitable wetland or coastal habitat in Project Area and no nearby records.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
					(lignum), open timber or samphire (DCCEEW 2023d).		
Stagonopleura guttata (Diamond Firetail)	VU	V	1, 2, 3	Known, 2017	Diamond firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees (Higgins et al. 2007). They prefer areas with relatively low tree density, few large logs, and little litter cover but high grass cover (Antos et al. 2008).	Highly likely / known - suitable habitat occurs and there are recent nearby records including at Goyder South Stage 2 nearby the Project Area.	Highly likely / Known - recorded during targeted MBC surveys in nearby vegetation.
MAMMALS							
Nyctophilus corbeni (Corben's Long-eared Bat, South-eastern Long-eared Bat)	VU	V	1	May	Distributed primarily within the MDD, with occasional records outside of this area. Most commonly occurs in box, ironbark and cypress pine woodland on the NSW western slopes and plains. In SA, the species is associated with Buloke woodlands. The species requires tree hollows, crevices and / or loose bark to roost under.	Unlikely - no preferred Buloke woodlands in Project Area.	Unlikely - no preferred Buloke woodlands in Project Area.
Trichosurus vulpecula (Common Brushtail Possum)		R	2	2023	Habitat for the Common Brushtail Possum incudes anywhere with trees with suitable hollows, including open forests, woodlands, and urban areas.	Likely - suitable habitat occurs in VA14, including for foraging and nesting in large hollows.	Likely - suitable habitat occurs in VA14, including for foraging and nesting in large hollows.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
REPTILES							
Aprasia pseudopulchella (Flinders Ranges Worm-lizard)	VU		1, 2, 3	Known, 2023	Known from the FR of SA, extending south to the western slopes and northern and central MLR. The species inhabits open woodland, native tussock grassland, riparian habitats, and rocky isolates, preferring stony or clay soils with a stony / rocky surface, but has also been found sheltering in soil beneath sones and rotting stumps (Commonwealth Government, 2008b). The Flinders Ranges Worm-lizard is known from the Flinders Ranges of South Australia, extending south to the western slopes and northern and central Mount Lofty Ranges. It occurs in open woodland, native tussock grassland, riparian habitats and rocky isolates (DEWHA, 2008).	Highly likely - suitable habitat is scattered throughout and there are recent nearby records.	Highly likely - suitable habitat is scattered throughout and there are recent nearby records.
Notoscincus ornatus (Desert Glossy Skink)		R	2	2023	Found from the far north WA to NT, QLD and SA (ALA, 2025). No habitat information.	Unlikely - this record is likely to be erroneous based on known distribution of the species being within the Northern Territory.	Unlikely - not within known range of species.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
Tiliqua adelaidensis (Pygmy Blue-tongue Lizard, Adelaide Blue-tongue Lizard)	EN	E	1, 2, 3	Known, 2021, 2023, 2024	Fragmented populations known from across the Mid North of SA, with unknown population size. Occurs in a variety of habitats, ranging from highly degraded grasslands to grasslands of high biodiversity, sparse to moderate coverage, preferably on lower slopes. The species uses empty spider burrows (trapdoor, wolf spider) as refuges and basking sites and requires these to occur in moderate abundance in the landscape. Historically (pre-1992), the species was found in chenopod and mallee scrublands with compacting or crusty sand soils associated with hollow mallee lignotubers and near surface limestone sheets (Duffy et al. 2012).	Highly likely / known - this species is known to be widespread in grassland habitat throughout the Project Area.	Highly likely / known - this species is known to be widespread in grassland habitat throughout the Project Area.
FISH							
Galaxias rostratus (Flathead Galaxias)	CE		1	May	Known only from the southern half of the Murray-Darling Basin system. Inhabits a variety of habitats including billabongs, lakes, swamps and rivers with a preference for still or slow flowing waters (TSSC 2016).	Unlikely - no suitable habitat in Project Area.	Unlikely - no suitable habitat in Project Area.
Maccullochella peelii (Murray Cod)	VU		1	May	Utilises a diverse range of habitats from clear rocky streams to slow-flowing, turbid lowland rivers and billabongs. Considered a main-channel specialist. Tend to occur in floodplain channels and anabranches when they are inundated.	Unlikely - no suitable habitat in Project Area.	Unlikely - no suitable habitat in Project Area.

Species Name (Common Name)	EPBC Act	NPW Act	Source	PMST Likelihood / Last Sighting (Year)	Habitat	Likelihood in Disturbance Footprint	Likelihood in Development Envelope
					Preferred microhabitat consists of complex structural features in streams such as large rocks, snags (pieces of large submerged woody debris), overhanging stream banks and vegetation, tree stumps, logs, branches and other woody structures (DCCEEW 2023).	.	
AMPHIBIANS							
Litoria raniformis (Southern Bell Frog)	VU	V	1	May	Three distinct groups of records in SA. One group is located in the far south-east of the state (to near Keith) and adjoining Victorian populations, one group along the Murray River from Victoria to the coast, and a small group in the MLR. The group in the MLR probably represents an unintentionally introduced population originating from captive stock and is likely to have now died out. Populations in the Murray lower lakes are known to have declined significantly due to drought. This species is found mostly amongst emergent vegetation, including Typha sp. (bullrush), Phragmites sp. (reeds) and Eleocharis sp. (sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams. This species can be found floating in warmer waters in temperatures between 18–25°C. Additionally, this species occurs in; clays or well-watered sandy soils; open grassland, open forest, and ephemeral and permanent non-saline marshes and swamps; steep-banked water edges and gently graded edges containing fringing plants (DCCEEW 2023).	Unlikely - no suitable habitat in Project Area and outside of known range.	Unlikely - no suitable habitat in Project Area and outside of known range.

Appendix B

Native Flora Species Recorded by the Field Surveys

Native Flora Species Recorded in Project Area (Current 22/05/2025)

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Acacia brachybotrya			
Acacia calamifolia	Wallowa		
Acacia hakeoides	Hakea Wattle		
Acacia nyssophylla	Spine Bush		
Acacia oswaldii	Umbrella Wattle		
Acacia provincialis/retinodes			
Acacia pycnantha	Golden Wattle		
Acacia retinodes	Wirilda		
Acacia sclerophylla var. sclerophylla	Hard-leaf Wattle		
Acacia sp.	Wattle		
Acacia spilleriana	Spiller's Wattle	EN	E
Acacia spilleriana ssp. wirrabara	Spiller's Wattle (Wirrabara subspecies)		
Acacia victoriae ssp.	Elegant Wattle		
Acaena echinata	Sheep's Burr		
Acaena sp.	Sheep's Burr		
Actinobole uliginosum	Flannel Cudweed		
Alectryon oleifolius ssp. canescens	Bullock Bush		
Amyema miquelii	Box Mistletoe		
Amyema sp.	Mistletoe		
Anthosachne scabra	Native Wheat-grass		
Apium prostratum var.	Native Celery		
Aristida behriana	Brush Wire-grass		
Arthropodium sp.	Vanilla-lily		
Asperula conferta	Common Woodruff		
Atriplex nummularia ssp.	Old-man Saltbush		
Atriplex semibaccata	Berry Saltbush		
Atriplex stipitata	Bitter Saltbush		
Atriplex vesicaria	Bladder Saltbush		
Austrostipa blackii	Crested Spear-grass		
Austrostipa drummondii	Cottony Spear-grass		
Austrostipa elegantissima	Feather Spear-grass		
Austrostipa eremophila	Rusty Spear-grass		
Austrostipa gibbosa	Swollen Spear-grass		R
Austrostipa mollis	Soft Spear-grass		
Austrostipa nitida	Austral Bear's-ear		
Austrostipa nodosa	Tall Spear-grass		
Austrostipa scabra group	Rough Spear-grass		
Austrostipa scabra ssp.	Rough Spear-grass		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Austrostipa sp.	Spear-grass		
Beyeria lechenaultii	Pale Turpentine Bush		
Beyeria sp.	Turpentine Bush		
Boerhavia dominii	Tar-vine		
Brachyscome lineariloba	Hard-head Daisy		
Brachyscome sp.	Native Daisy		
Bulbine bulbosa	Bulbine Lily		
Bulbine sp.	Bulbine Lily		
Bursaria spinosa ssp.	Bursaria		
Callitris gracilis	Southern Cypress Pine		
Calocephalus citreus	Lemon Beauty-heads		
Cassinia laevis ssp. laevis	Curry Bush		
Cassytha sp.	Dodder-laurel		
Casuarinaceae sp.	Sheoak Family		
Cheilanthes austrotenuifolia	Annual Rock-fern		
Cheilanthes sp.	Rock-fern		
Chenopodiaceae sp.	Goosefoot Family		
Chenopodium desertorum ssp.	Desert Goosefoot		
Chenopodium desertorum ssp. microphyllum	Small-leaf Goosefoot		
Chenopodium sp.	Goosefoot		
Chrysocephalum apiculatum	Common Everlasting		
Chrysocephalum semipapposum	Clustered Everlasting		
Chrysocephalum sp.	Everlasting		
Convolvulus angustissimus	Narrow-leaf Bindweed		
Convolvulus erubescens complex			
Convolvulus remotus	Grassy Bindweed		
Convolvulus sp.	Bindweed		
Cotula vulgaris var. australasica	Slender Cotula		
Crassulaceae sp.	Crassula/Stonecrop Family		
Cryptandra campanulata	Long-flowered Cryptandra		R
Cryptandra propinqua	Silky Cryptandra		
Cryptandra sp.	Cryptandra		
Cullen parvum	Small Scurf-pea		V
Cymbonotus preissianus	Austral Bear's-ear		
Cymbopogon ambiguus	Lemon-grass		
Cymbopogon sp.	Lemon Grass		
Cyperus gymnocaulos	Spiny Flat-sedge		
Cyperus vaginatus	Stiff Flat-sedge		
Dianella longifolia var. grandis	Pale Flax-lily		R

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Dianella revoluta var.	Flax-lily		
Dianella sp.	Flax-lily		
Dissocarpus paradoxus	Ball Bindyi		
Dodonaea baueri	Crinkled Hop-bush		
Dodonaea lobulata	Lobed Hop-bush		
Dodonaea procumbens	Trailing Hop-bush	VU	V
Dodonaea sp.	Hop-bush		
Dodonaea viscosa ssp.	Sticky Hop-bush		
Duma florulenta	Lignum		
Dysphania cristata	Crested Crumbweed		
Einadia nutans ssp.	Climbing Saltbush		
Enchylaena tomentosa var.	Ruby Saltbush		
Enneapogon nigricans	Black-head Grass		
Eremophila alternifolia	Narrow-leaf Emubush		
Eremophila oppositifolia ssp.	Opposite-leaved Emubush		
Eremophila scoparia	Broom Emubush		
Eremophila sp.	Emubush/Turkey-bush		
Erodium crinitum	Blue Heron's-bill		
Erodium sp.	Heron's-bill/Crowfoot		
Eryngium ovinum	Blue Devil		V
Eucalyptus brachycalyx	Gilja		
Eucalyptus camaldulensis var. camaldulensis	River Red Gum		
Eucalyptus cladocalyx ssp.	Sugar Gum		
Eucalyptus gracilis	Yorrell		
Eucalyptus leptophylla	Narrow-leaf Red Mallee		
Eucalyptus leucoxylon ssp. leucoxylon	South Australian Blue Gum		
Eucalyptus leucoxylon ssp. pruinosa	Inland South Australian Blue Gum		
Eucalyptus odorata	Peppermint Box		
Eucalyptus oleosa ssp.	Red-beaked Mallee		
Eucalyptus porosa	Mallee Box		
Eucalyptus socialis ssp.	Beaked Red Mallee		
Eucalyptus sp.			
Euphorbia drummondii group			
Euphorbia sp.	Spurge		
Euphorbia tannensis ssp. eremophila	Desert Spurge		
Eutaxia diffusa	Spreading Eutaxia		
Eutaxia microphylla	Common Eutaxia		
Exocarpos aphyllus	Leafless Cherry		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Galium sp.	Bedstraw		
Geijera linearifolia	Sheep Bush		
Geijera sp.	Sheepbush		
Geraniaceae sp.	Geranium Family		
Geranium retrorsum	Grassland Geranium		
Glycine rubiginosa	Twining Glycine		
Glycine sp.	Glycine		
Gonocarpus sp.	Raspwort		
Gonocarpus tetragynus	Small-leaf Raspwort		
Goodenia blackiana	Native Primerose		
Goodenia pinnatifida	Cut-leaf Goodenia		
Goodenia pusilliflora	Small-flower Goodenia		
Goodenia sp.	Goodenia		
Goodenia willisiana	Silver Goodenia		
Gramineae sp.	Grass Family		
Grevillea huegelii	Comb Grevillea		
Haeckeria punctulata	Sticky Haeckeria		
Hakea leucoptera ssp. leucoptera	Silver Needlewood		
Heliotropium europaeum	Common Heliotrope		
Heliotropium sp.	Heliotrope		
Hyalosperma demissum	Dwarf Sunray		
Hyalosperma glutinosum ssp. glutinosum	Golden Sunray		
Hyalosperma glutinosum/semisterile	Sunray		
Hyalosperma semisterile	Orange Sunray		
Hypoxis sp.	Yellow Star-lily		
Isoetopsis graminifolia	Grass Cushion		
Juncus subsecundus	Finger Rush		
Lagenophora gunniana	Coarse Bottle-daisy		
Lepidium sp.	Peppercress		
Leptorhynchos sp.	Buttons		
Liliaceae sp.	Lily Family		
Lomandra effusa	Scented Mat-rush		
Lomandra multiflora ssp. dura	Many-flowered Mat-rush		
Lomandra ssp.	Iron-grass		
Lycium australe	Australian Boxthorn		
Lycium ferocissimum	African Boxthorn		
Lysiana exocarpi ssp. exocarpi	Harlequin Mistletoe		
Lysiana sp.	Mistletoe		
Lythrum hyssopifolia	Lesser Loosestrife		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Maireana aphylla	Leafless Cotton-bush		
Maireana appressa	Pale-fruit Bluebush		
Maireana brevifolia	Short-leaf Bluebush		
Maireana enchylaenoides	Wingless Fissure-plant		
Maireana erioclada	Rosy Bluebush		
Maireana excavata	Bottle Fissure-plant		V
Maireana georgei	Satiny Bluebush		
Maireana lobiflora	Lobed Bluebush		
Maireana pentatropis	Erect Mallee Bluebush		
Maireana planifolia	Flat-leaf Bluebush		
Maireana pyramidata	Black Bluebush		
Maireana radiata	Radiate Bluebush		
Maireana rohrlachii	Rohrlach's Bluebush		R
Maireana sedifolia	Bluebush		
Maireana sp.	Bluebush/Fissure-plant		
Maireana trichoptera	Hairy-fruit Bluebush		
Maireana triptera	Three-wing Bluebush		
Maireana turbinata	Top-fruit Bluebush		
Marsilea drummondii	Common Nardoo		
Melaleuca brevifolia	Short-leaf Honey-myrtle		
Melaleuca lanceolata	Dryland Tea-tree		
Melaleuca uncinata	Broombush		
Melicytus angustifolius ssp. divaricatus	Tree Violet		
Mentha sp.	Mint		
Minuria leptophylla	Minnie Daisy		
Minuria sp.	Minuria		
Muehlenbeckia gunnii	Coastal Climbing Lignum		
Myoporum montanum	Native Myrtle		
Myoporum platycarpum ssp.	False Sandalwood		
Nitraria billardierei	Nitre-bush		
Olearia decurrens	Winged Daisy-bush		
Olearia pimeleoides	Pimelea Daisy-bush		
Olearia sp.	Daisy-bush		
Oxalis perennans	Native Sorrel		
Pauridia glabella var. glabella	Tiny Star		
Pauridia vaginata var. vaginata	Yellow Star		
Phragmites australis	Common Reed		
Pittosporum angustifolium	Native Apricot		
Pittosporum sp.			
Plantago sp.	Plantain		
Podotheca angustifolia	Sticky Long-heads		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Ptilotus erubescens	Hairy-tails		R
Ptilotus obovatus	Silver Mulla Mulla		
Ptilotus spathulatus	Pussy-tails		
Reopera aurantiacum/eremaeum	Shrubby Twinleaf		
Rhagodia parabolica	Mealy Saltbush		
Rhagodia spinescens	Spiny Saltbush		
Rhagodia ulicina	Intricate Saltbush		
Rhodanthe pygmaea	Pigmy Daisy		
Rhodanthe sp.	Everlasting		
Roepera ammophilum complex	Sand Twin-leaf		
Roepera apiculata	Pointed Twinleaf		
Roepera aurantiaca ssp.	Shrubby Twinleaf		
Roepera glauca	Pale Twinleaf		
Roepera sp.	Twinleaf Family		
Rumex dumosus	Wiry Dock		R
Rumex sp.	Dock		
Rytidosperma auriculatum	Lobed Wallaby-grass		
Rytidosperma caespitosum	Common Wallaby-grass		
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass		
Rytidosperma setaceum	Small-flower Wallaby-grass		
Rytidosperma sp.	Wallaby-grass		
Salsola australis	Buckbush		
Salvia verbenaca	Wild Sage		
Scaevola spinescens	Spiny Fanflower		
Schoenoplectus pungens	Spiky Club-rush		
Scleranthus pungens	Prickly Knawel		
Sclerolaena bicornis var. bicornis	Goat-head Bindyi		
Sclerolaena diacantha	Grey Bindyi		
Sclerolaena obliquicuspis	Oblique-spined Bindyi		
Sclerolaena parallelicuspis	Western Bindyi		
Sclerolaena patenticuspis	Spear-fruit Bindyi		
Sclerolaena sp.	Bindyi		
Sclerolaena uniflora	Small-spine Bindyi		
Senecio glossanthus	Annual Groundsel		
Senecio quadridentatus	Cotton Groundsel		
Senna artemisioides ssp.	Desert Senna		
Senna artemisioides ssp. artemisioides x ssp. coriacea	Desert Senna		
Senna artemisioides ssp. filifolia	Fine-leaf Desert Senna		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Senna artemisioides ssp. X artemisioides	Silver Senna		
Senna artemisioides ssp. X coriacea	Broad-leaf Desert Senna		
Sida corrugata var.	Corrugated Sida		
Sida sp.	Sida		
Sida intricata	Twiggy Sida		
Sida petrophila	Rock Sida		
Solanum quadriloculatum	Plains Nightshade		
Solanum sp.	Nightshade/Potato-bush		
Stackhousia monogyna	Creamy Candles		
Stackhousiaceae sp.			
Swainsona behriana	Behr's Swainson Pea		V
Swainsona sp.	Swainson-pea		
Swainsona tephrotricha	Ashy-haired Swainsona		
Tetragonia sp.	False Spinach		
Teucrium sp.	Germander		
Themeda sp.	Ilintji		
Themeda triandra	Kangaroo Grass		
Thyridia repens	Creeping Monkey-flower		
Thysanotus baueri	Mallee Fringe-lily		
Triglochin striata	Streaked Arrowgrass		
Triptilodiscus pygmaeus	Small Yellow-heads		
Typha domingensis	Narrow-leaf Bulrush		
Velleia sp.	Velleia		
Vittadinia blackii	Narrow-leaf New Holland Daisy		
Vittadinia cervicularis var. cervicularis	Waisted New Holland Daisy		
Vittadinia cuneata var.	Fuzzy New Holland Daisy		
Vittadinia gracilis	Fuzzy New Holland Daisy		
Vittadinia megacephala	Giant New Holland Daisy		
Vittadinia sp.	New Holland Daisy		
Wahlenbergia luteola	Yellow-wash Bluebell		
Wahlenbergia sp.	Native Bluebell		
Wahlenbergia stricta ssp. stricta	Tall Bluebell		
Westringia rigida	Stiff Westringia		
Wurmbea dioica ssp.	Early Nancy		
Zygophyllum glaucum	Pale Twinleaf		

EPBC Act: Environment Protection and Biodiversity Conservation Act 1999; NPW Act: National Parks and Wildlife Act 1972.

Conservation Status: EN/E: Endangered, VU/V: Vulnerable, R: Rare

Appendix C

Introduced Flora Species Recorded by the Field Surveys

Introduced Flora Species Recorded in the Project Area

Scientific Name	Common Name	LSA Act Weed Status	Weed of National Significance
Acacia decurrens	Early Black Wattle		
Aira sp.	Hair-grass		
Ambrosia artemisiifolia	Annual Ragweed		
Apium graveolens	Celery		
Arctotheca calendula	Cape Weed		
Aristida behriana	Brush Wire-grass		
Asphodelus fistulosus	Onion Weed		
Avena barbata	Bearded Oat		
Avena sp.	Bearded Oat		
Brassica sp.	Mustard Weed		
Bromus diandrus	Great Brome		
Bromus hordeaceus ssp. hordeaceus	Soft Brome		
Bromus rubens	Red Brome		
Bromus sp.	Brome		
Buglossoides arvensis	Sheepweed		
Bulbine bulbosa	Bulbous Meadow-grass		
Camelina sativa	False Flax		
Capsella bursa-pastoris	Shepherd's Purse		
Carrichtera annua	Ward's Weed		
Carthamus lanatus	Saffron Thistle		
Centaurium erythraea	Common Centaury		
Chondrilla juncea	Skeleton Weed	Declared - Landscape Act	
Chrysanthemoides monilifera ssp. monilifera	Boneseed	Declared - Landscape Act	Yes
Citrullus lanatus	Wild Melon		
Convolvulus arvensis	Field Bindweed	Declared - Landscape Act	
cotula coronopifolia	Water Buttons		
Cynara cardunculus ssp. flavescens	Artichoke Thistle		
Dittrichia graveolens	Stinkweed		
Echium plantagineum	Salvation Jane	Declared - Landscape Act	
Erodium aureum			
Erodium botrys	Cut-leaf Heron's-bill		
Erodium cicutarium	Cut-leaf Heron's-bill		
Erodium moschatum	Musky Herons-bill		
erodium sp.	Heron's-bill/Crowfoot		
Foeniculum vulgare	Fennel		

Scientific Name	Common Name	LSA Act Weed Status	Weed of National Significance
Galium album			
Galium divaricatum	Slender Bedstraw		
Gazania linearis	Gazania	Declared - Landscape Act	
Heliotropium curassavicum	Smooth Heliotrope		
Heliotropium sp.	Heliotrope		
Helminthotheca echioides	Ox-tongue		
Hordeum sp.	Barley		
Hordeum vulgare	Barley		
Hypochaeris glabra	Smooth Cat's Ear		
Hypochaeris sp.	Cat's Ear		
Juncus capitatus	Dwarf Rush		
Lepidium africanum	Common Peppercress		
Lolium sp.	Ryegrass		
Lomandra effusa	Long Heron's-bill		
Lycium ferocissimum	African Boxthorn	Declared - Landscape Act	Yes
Malva parviflora	Small-flowered Mallow		
Malva sp.	Mallow		
Marrubium vulgare	Horehound	Declared - Landscape Act	
Medicago arabica	Spotted Medic		
Medicago polymorpha	Burr-medic		
Medicago sp.	Medic		
Mesembryanthemum nodiflorum	Slender Iceplant		
Mesembryanthemum sp.	Iceplant		
Moraea flaccida	One-leaf Cape Tulip	Declared - Landscape Act	
Moraea setifolia	Thread Iris		
Moraea sp.			
Neatostema apulum	Hairy Sheepweed		
Nicotiana glauca	Tree Tobacco		
Olea europaeus	Olive	Declared - Landscape Act	
Onopordum acanthium	Scotch Thistle		
Onopordum acaulon	Horse Thistle		
Onopordum sp.	Thistle		
Osteospermum sp.			
Petrorhagia sp.	Pink		
Plantago lanceolata var.	Ribwort		
Poa bulbosa	Bulbous Meadow-grass		

Scientific Name	Common Name	LSA Act Weed Status	Weed of National Significance
Polygonum arenastrum	Wireweed		
Polypogon sp.	Beard-grass		
Reseda lutea	Cut-leaf Mignonette	Declared - Landscape Act	
Reseda sp.	Mignonette		
Romulea minutiflora	Small-flower Onion-grass		
Romulea rosea var. australis	Common Onion-grass		
Romulea sp.	Onion-grass		
Rosa canina	Dog Rose	Declared - Landscape Act	
Rostraria sp.			
Rumex conglomeratus	Clustered Dock		
Rumex crispus	Curled Dock		
Salix sp.	Willow		
Salsola australis	Buckbush		
Salvia sp.	Sage		
Salvia verbenaca var.	Wild Sage		
Scabiosa atropurpurea	Pincushion		
Silybum marianum	Variegated Thistle	Declared - Landscape Act	
Sisymbrium erysimoides	Smooth Mustard		
Sisymbrium irio	London Mustard		
Sisymbrium sp.	Wild Mustard		
Solanum nigrum	Black Nightshade		
Sonchus asper	Rough Sow-thistle		
Sonchus oleraceus	Common Sow-thistle		
Sonchus sp.	Sow-thistle		
Spergularia rubra	Red Sand-spurrey		
Taraxacum sp.	Dandelion		
Tribulus terrestris	Caltrop	Declared - Landscape Act	
Trifolium angustifolium	Narrow-leaf Clover		
Trifolium arvense var. arvense	Hare's-foot Clover		
Trifolium campestre	Hop Clover		
Trifolium fragiferum var.	Strawberry Clover		
Trifolium sp.	Clover		
Valerianaceae sp.	Corn-salad Family		
Vulpia sp.	Fescue		
Xanthium spinosum	Bathurst Burr	Declared - Landscape Act	

Appendix D

Fauna Species Recorded by the Field Surveys

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Native Fauna Species Recorded During Field Surveys

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
AVES			
Acanthagenys rufogularis	Spiny-cheeked Honeyeater		
Acanthiza apicalis	Inland Thornbill		
Acanthiza chrysorrhoa	Yellow-rumped Thornbill		
Acanthiza lineata	Striated Thornbill		
Acanthiza nana	Yellow Thornbill		
Acanthiza reguloides australis	Buff-rumped Thornbill		
Acanthiza uropygialis	Chestnut-rumped Thornbill		
Accipiter cirrocephalus cirrocephalus	Collared Sparrowhawk		
Accipiter fasciatus	Brown Goshawk		
Acrocephalus australis australis	Australian Reed Warbler		
Aegotheles cristatus	Australian Owlet-nightjar		
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	
Apus pacificus	Pacific Swift	Mi	
Aquila audax audax	Wedge-tailed Eagle		
Artamus cyanopterus	Dusky Woodswallow		
Barnardius zonarius	Australian Ringneck		
Barnardius zonarius barnardi	Mallee Ringneck		
Cacomantis pallidus	Pallid Cuckoo		
Chalcites basalis	Horsfield's Bronze Cuckoo		
Chalcites osculans	Black-eared Cuckoo		
Chenonetta jubata	Australian Wood Duck		
Cheramoeca leucosterna	White-backed Swallow		
Cincloramphus cruralis	Brown Songlark		
Cinclosoma castanotum	Chestnut Quailthrush		R
Circus assimilis	Spotted Harrier		
Climacteris affinis	White-browed Treecreeper		
Climacteris picumnus picumnus	Brown Treecreeper		
Colluricincla harmonica	Grey Shrikethrush		
Coracina maxima	Ground cuckoo-shrike		
Coracina novaehollandiae	Black-faced Cuckooshrike		
Corcorax melanorhamphos	White-winged Chough		R
Corvus coronoides	Australian Raven		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Corvus mellori	Little Raven		
Corvus sp.	Raven sp.		
Coturnix pectoralis	Stubble Quail		
Cracticus torquatus leucopterus	Grey Butcherbird		
Daphoenositta chrysoptera	Varied Sittella		
Dicaeum hirundinaceum hirundinaceum	Mistletoebird		
Dromaius novaehollandiae	Emu		
Egretta novaehollandiae	White-faced Heron		
Elanus axillaris	Black-shouldered Kite		
Eolophus roseicapilla	Galah		
Epthianura albifrons	White-fronted Chat		
Epthianura aurifrons	Orange Chat		
Falco berigora	Brown Falcon		
Falco cenchroides cenchroides	Australian Kestrel		
Falco longipennis	Australian Hobby		
Falco subniger	Black Falcon		R
Fulica atra	Eurasian Coot		
Gallirallus philippensis mellori	Buff-banded Rail		
Grallina cyanoleuca	Magpielark		
Gymnorhina tibicen	Australian Magpie		
Haliastur sphenurus	Whistling Kite		
Hirundo neoxena	Welcome Swallow		
Lalage tricolor	White-winged Triller		
Lichenostomus virescens	Singing Honeyeater		
Malurus assimilis assimilis	Purple-backed Fairywren		
Malurus lamberti	Variegated Fairywren		
Malurus leucopterus leuconotus	White-winged Fairywren		
Malurus sp.	Fairywren sp.		
Manorina flavigula	Yellow-throated Miner		
Manorina melanocephala	Noisy Miner		
Melanodryas cucullata	Hooded Robin	EN	R
Merops ornatus	Rainbow Bee-eater		
Microeca fascinans assimilis	Jacky Winter (NW, EP, FR, LNE, MM)		R
Microeca fascinans fascinans	Jacky Winter (NW, EP, FR, LNE, MM)		R
Mirafra javanica	Horsfield's Bush Lark		
Myiagra inquieta	Restless Flycatcher		R
Neophema elegans elegans	Elegant Parrot		R

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Nesoptilotis leucotis depauperata	White-eared Honeyeater (FR, MN, LNE, MM)		
Ocyphaps lophotes lophotes	Crested Pigeon		
Pardalotus sp.	Pardalote sp.		
Pardalotus striatus	Striated Pardalote		
Petrochelidon ariel	Fairy Martin		
Petrochelidon nigricans	Tree Martin		
Petroica goodenovii	Red-capped Robin		
Phalacrocorax melanoleucos	Little Pied Cormorant		
Phaps chalcoptera	Common Bronzewing		
Phylidonyris albifrons	White-fronted Honeyeater		
Podargus strigoides	Tawny frogmouth		
Pomatostomus superciliosus	White-browed Babbler		
Psephotellus varius	Mulga Parrot		
Psephotus haematonotus	Red-rumped Parrot		
Ptilotula ornata	Yellow-plumed Honeyeater		
Ptilotula penicillata penicillata	White-plumed Honeyeater		
Pyrrholaemus brunneus	Redthroat		
Rhipidura albiscapa	Grey Fantail		
Rhipidura leucophrys leucophrys	Willie Wagtail		
Smicrornis brevirostris	Weebill		
Stagonopleura guttata	Diamond Firetail	VU	V
Strepera versicolor	Grey Currawong		
Struthidea cinerea cinerea	Apostlebird		
Sturnus vulgaris vulgaris	Common Starling		
Tachybaptus novaehollandiae	Australasian Grebe		
Tadorna tadornoides	Australian Shelduck		
Taeniopygia guttata castanotis	Zebra Finch		
Todiramphus pyrrhopygius	Red-backed Kingfisher		
Trichoglossus moluccanus	Rainbow Lorikeet		
Vanellus tricolor	Banded Lapwing		
Zosterops lateralis	Silvereye		
MAMMALIA			
Lasiorhinus latifrons	Southern Hairy-nosed Wombat		
Macropus (Osphranter) robustus	Euro		
Macropus (Osphranter) rufus	Red Kangaroo		
Macropus fuliginosus	Western Grey Kangaroo		
REPTILIA			
Aprasia pseudopulchella	Flinders Ranges Worm Lizard	VU	
Ctenophorus modestus	Northern Tawny Dragon		

Scientific Name	Common Name	EPBC Act Status	NPW Act Status
Delma molleri	Adelaide Delma		
Gehyra sp.			
Heteronotia binoei	Bynoe's Gecko		
Menetia greyii	Common Dwarf Skink		
Morethia adelaidensis	Saltbush Morethia Skink		
Morethia boulengeri	South-eastern Morethia Skink		
Pogona sp.	Bearded Dragon		
Pseudonaja textilis	Eastern Brown Snake		
Tiliqua adelaidensis	Pygmy Blue-tongue Lizard	EN	E
Tiliqua rugosa	Sleepy Lizard		
Tiliqua scincoides	Eastern Blue-tongue Lizard		
Tympanocryptis petersi	Lined Earless Dragon		
Varanus gouldii	Sand Goanna		
AMPHIBIA			
Crinia signifera	Common Froglet		
Crinia sp.	Frog		
Limnodynastes dumerilii	Banjo Frog		
Limnodynastes tasmaniensis	Spotted Marsh Frog		
CRUSTACEA			
Cherax destructor	Yabby		

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*; NPW Act: *National Parks and Wildlife Act 1972*.

Conservation Status: EN/E: Endangered, VU/V: Vulnerable, R: Rare, Mi: Migratory

Appendix E

Location of Known Southern Hairy-nosed Wombat Burrows

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Location of Wombat Burrows Identified in the Project Area During Field Surveys

Scientific Name	Common Name	Zone	Easting	Northing
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318713.0357	6286034.147
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318763.7466	6286157.684
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318497.6474	6285497.733
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318714.3216	6286038.371
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318502.2954	6286625.586
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	314679.6673	6279925.129
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	315350.549	6280018.848
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	315621.1643	6276632.457
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	319372.3215	6288075.879
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318764.9542	6286142.396
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	319061.421	6284766.279
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	319056.7801	6284810.553
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	319035.2601	6284952.272
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318688.8697	6284905.562
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	320752.6348	6264372.814
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	323422.2801	6254274.539
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	323419.5939	6254227.216
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	323438.2943	6254203.749
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	323513.2169	6253805.303
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	323543.2365	6253308.202
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318696.8608	6284231.987
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318766.3867	6284325.864

Scientific Name	Common Name	Zone	Easting	Northing
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318776.518	6284304.714
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318676.867	6284260.997
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318654.2922	6285646.97
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318821.2815	6286079.717
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318858.7087	6286132.827
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318673.1544	6286998.149
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	328291.0732	6248957.307
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	328062.9906	6249006.501
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318755.22	6286142
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318669.3663	6284249.873
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	318965.758	6285790.95
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	313977	6284110
Lasiorhinus latifrons (burrow)	Southern Hairy-nosed Wombat (Burrow)	54	314262	6282084

Appendix F

Likelihood of Occurrence Assessment Framework

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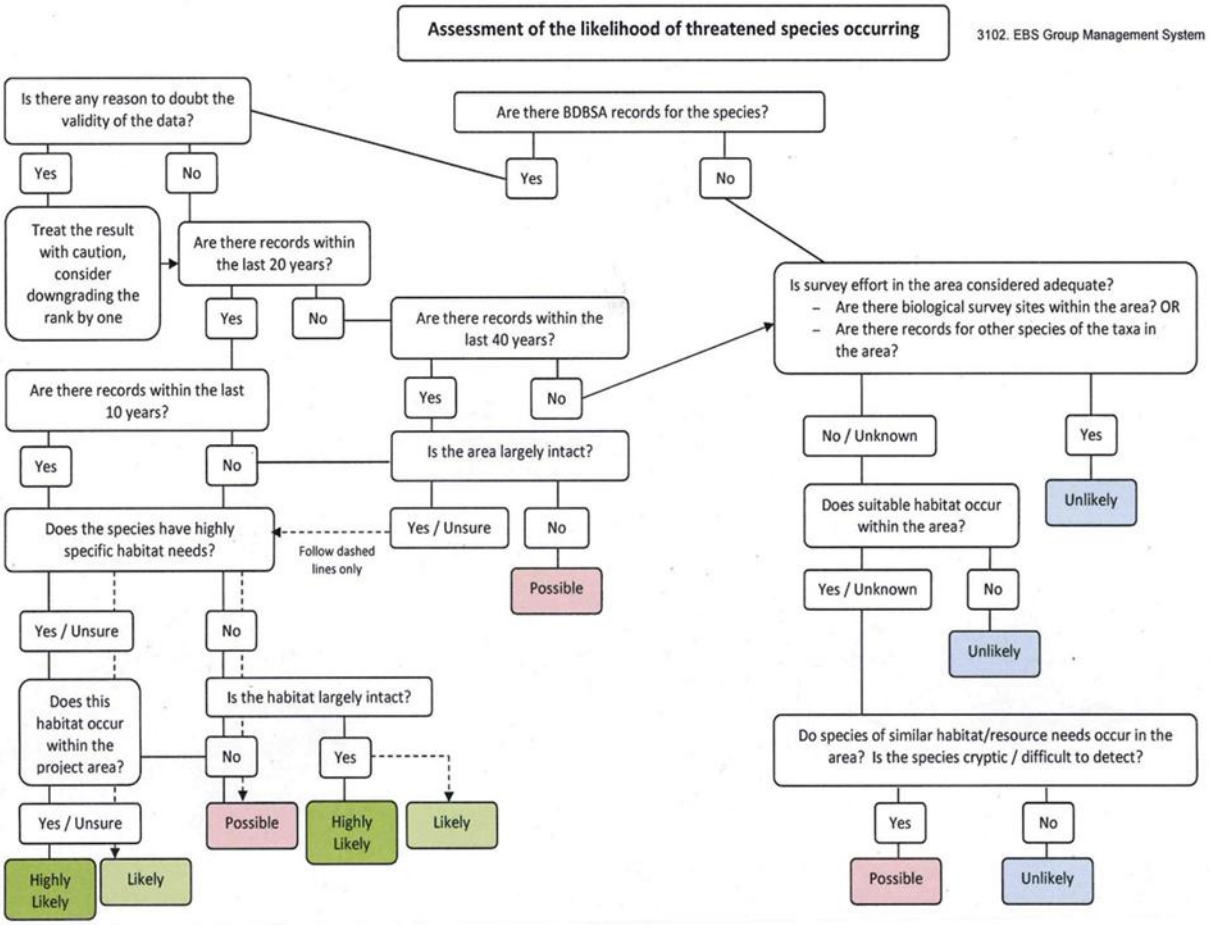
Assessment of the likelihood of threatened species occurring
3102. EBS Group Management System
Is there any reason to doubt the validity of the data?
Yes
No
Treat the result with caution, consider downgrading the rank by one
Are there records within the last 20 years?
Yes
No
Are there records within the last 40 years?
Yes
No
Are there records within the last 10 years?
Yes
No
Is the area largely intact?
Yes / Unsure
No
Possible
Does the species have highly specific habitat needs?
Follow dashed lines only
Yes / Unsure
No
Does this habitat occur within the project area?
Yes / Unsure
Highly Likely
Likely
Is the habitat largely intact?
No
Possible
Yes
Highly Likely
Likely
Are there BDBSA records for the species?
Yes
No
Is survey effort in the area considered adequate?
– Are there biological survey sites within the area? OR
– Are there records for other species of the taxa in the area?
No / Unknown
Yes
Unlikely
Does suitable habitat occur within the area?
Yes / Unknown
No
Unlikely
Do species of similar habitat/resource needs occur in the area? Is the species cryptic / difficult to detect?
Yes
Possible
No
Unlikely

Appendix G

IBRA Environmental Association Description

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IBRA Bioregion, Subregion and Environmental Association Summary for The Project Area

Flinders Lofty Block IBRA bioregion	
Broughton IBRA subregion	
Burra Hill IBRA environmental association (Block A)	
Remnant vegetation	Approximately 45% (32,624 ha) of the association is mapped as remnant native vegetation, of which 5% (1,786 ha) is formally conserved
Landform	Steep strike ridge on metasediments with dissected foot slopes.
Geology	Metasediments and alluvium.
Soil	Reddish powdery calcareous loams, hard pedal red duplex soils and reddish calcareous earths.
Vegetation	Woodland of *E. leucoxylon* ssp. *pruinosa* (SA Blue Gum) and *E. odorata* (Peppermint Box)
Conservation significance	20 species of threatened fauna, 54 species of threatened flora.
Hansen IBRA environmental association (Block D)	
Remnant vegetation	Approximately 3% (3,738 ha) of the association is mapped as remnant native vegetation, of which 1% (28 ha) is formally conserved
Landform	Gentle foot slopes forming extensive intra-montane plains, with occasional narrow strike ridges on metasediments.
Geology	Colluvium, metasediments, and alluvium.
Soil	Hard pedal red duplex soils, reddish powdery calcareous loams, brown self-mulching cracking clays and black self-mulching cracking clays.
Vegetation	Low shrubland of samphire.
Conservation significance	24 species of threatened fauna, 43 species of threatened flora.
Olary Spur IBRA subregion	
Terowie IBRA environmental association (Block B)	
Remnant vegetation	Approximately 1.69% of 328,826 ha is formally conserved.
Landform	A series of deeply dissected northerly trending quartzite and siltstone ridges, separated by narrow pediments and colluvial plains
Geology	Quartzite, siltstone, colluvium, and alluvium.
Soil	Powdery brown calcareous loams, brown calcareous earths, hard pedal red duplex soils and crusty red loams.
Vegetation	Tussock sedgeland of *Lomandra*, *Acacia* (Wattle), *Eremophila* spp. (Emubush), *Dodonaea* (hopbush) and *Senna* spp., tall shrubland of *Eremophila mitchellii* (False Sandalwood), open scrub of *E. socialis* (beaked red mallee) and *E. camaldulensis* (River Red Gum) woodland.
Murray Darling Depression IBRA bioregion	
Murray Mallee IBRA Subregion	
Sutherlands IBRA environmental association (Block C)	
Remnant vegetation	Approximately 47% (32,682 ha) of the association is mapped as remnant native vegetation, of which 0% (159 ha) is formally conserved
Landform	Undulating plain comprising easterly sloping fans and pediments, dissected by streams rising in the Mt Lofty Ranges.
Geology	Colluvium, siltstone, sandstone, and alluvium.
Soil	Red calcareous earths and brown siliceous sands.
Vegetation	Open scrub of beaked red mallee and low open woodland of *Myoporum platycarpum* (false sandalwood) and *Casuarina pauper* (black oak).
Conservation significance	18 species of threatened fauna, 5 species of threatened flora.

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