Report for Beveridge Williams

Ecological Assessment of 5483 & 5495

Princes Highway, Traralgon

September 2023

[redacted]

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Disclaimer

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Contents

Executive Summary

Project Description

ID Ecological Management has been commissioned by Beveridge Williams to undertake an assessment of native vegetation and biodiversity values of 5483 and 5495 Princes Highway, Traralgon which is proposed to be rezoned for from Farming Zone to General Residential and Commercial Zone.

The project's study area includes vacant parcels of land that contain a number of locally indigenous scattered trees over a ground layer of predominantly exotic pasture grass, with areas of wetlands / dams and waterways present throughout the site. Assessment of all native vegetation within the study area was completed by ID Ecological Managenebt on the 7th of December 2021 and 5th July 2023, along with the Bradford Drive and Regan Road , road reserves and the Princes Highway Road reserve.

Study Area- Ecological Values

Vegetation across the study area was found to comprise thirteen native patches and locally indigenous scattered trees, alongside planted exotic and Victorian native trees. The ground storey is mostly degraded, and pasture grasses dominate for utilisation by rotational grazing and agricultural land use within the freehold title.

A threatened species likelihood determination was completed following the initial field survey in 2021. Due to confirmed presence, suitable habitat and legislative implications, a number of targeted surveys were completed in spring / summer 2022 and Spring 2023 to determine the presence or absence of threatened flora and fauna species which received an initial greater than moderate likelihood of occurrence. These included:

- Targeted *Eucalyptus strzeleckii* (Strzelecki Gum), *Dianella amoena* (Matted Flax-lily) and *Craspedia canens* (Grey Billy Buttons) survey within the Bradford Drive / Regan Road and Princes Highway road reserves.
- Targeted survey of water bodies including the wetlands / dams and waterways for *Litoria raniformis* (Growling Grass Frog), *Galaxiella pusilla* (Dwarf Galaxias) and *Nannoperca sp.1* (Flinders Pygmy Perch); and
- A habitat assessment / targeted survey of wetlands / dams and waterways for threatened avian species including *Ardea modesta* (Eastern Great Egret) to determine habitat suitability, species presence/absence and to provide additional mitigation measures to minimise any impacts.

One fauna species listed as threatened was identified within the study area during a targeted aquatic survey being Flinders Pygmy Perch. This targeted survey also determined that the likelihood of occurrence assessment be amended for Growling Grass Frog and Dwarf Galaxias from moderate to unlikely.

An avifauna likelihood and site assessment determined that nine threatened bird species identified in the database searches had a moderate likelihood of occurrence: Eastern Great Egret, *Aythya australis* (Hardhead), *Biziura lobata* (Musk Duck), *Callocephalon fimbriatum* (Gang-gang Cockatoo), *Gallinago*

hardwickii (Latham's Snipe), *Haliaeetus leucogaster* (White-bellied Sea-Eagle), *Hirundapus caudacutus* (White-throated Needletail), *Oxyura australis* (Blue-billed Duck) and *Spatula rhynchotis* (Australasian Shoveler). Eastern Great Egret, Hardhead and White-bellied Sea-Eagle had also been previously recorded or observed on or around the larger wetland / dam within the study area.

All other fauna species had a low likelihood determination or were considered unlikely to utilise the study area.

One flora species listed as threatened was identified within the study area during the site survey, Strzelecki Gum within the Bradford Drive / Regan Road road reserve. The likelihood of occurrence assessment determined that two other threatened flora species identified in the database searches had a moderate likelihood of occurrence within the study area: Matted Flax-lily and Grey Billy Buttons in the Bradford Drive / Regan Road reserve and Princes Highway Road reserve, however this was revised to unlikely following targeted surveys completed in 2023. All other flora species had a low likelihood determination or were considered unlikely to utilise the study area.

No threatened ecological communities listed under the commonwealth *Environment Protection & Biodiversity Conservation Act 1999* nor under Victoria's *Flora & Fauna Guarantee Act 2019* were found to be present on site.

Legislation/Policy Implications

Implications of the proposal against both state and federal legislation are provided below.

Legislation and Policy	Relevant Ecological Feature on Site	Report/Approval required
Environment Protection and Biodiversity Conservation (EPBC) Act 1999	Nine flora or fauna species, listed as threatened under the EPBC Act, were either previously identified on site or were determined to have greater than low likelihood to occur.	Targeted surveys for Growling Grass Frog and Dwarf Galaxias failed to detect the species within the site and concluded that they are unlikely to be present. Targeted Survey for Strzelecki Gum confirmed 4 individuals present on site, but no Matted Flax-lily. The avifauna targeted assessment concluded that the study area does not provide important habitat for any of the EPBC Act species, however, given the limitations of the single survey, follow-up surveys at an appropriate time would provide a more complete picture of this determination, the species that occur, their number and likelihood. Further consideration of impacts will be required once development plans are finalised to determine if there would be a significant impact on any species and require referral to the Commonwealth government.
Flora and Fauna Guarantee (FFG) Act 2019	Due to this proposal primarily being located on private land an application for a Permit to Take Protected Flora or threatened fauna would not be required. However, potential future road access	Targeted Survey for Strzelecki Gum confirmed 4 individuals present on the public land adjacent to the site. Targeted survey did not find Matted Flax-lily or Grey Billy Buttons on site.

Legislation and Policy	Relevant Ecological Feature on Site	Report/Approval required
	may cause impacts to protected flora or fauna within the adjacent Bradford Drive / Regan Road and Princes Highway reserves.	Targeted aquatic surveys identified the FFG Act protected Flinders Pygmy Perch as being present in the waterways and wetlands / dams. The avifauna assessment found recent observation records of Eastern Great Egret, Hardhead and White-bellied Sea-Eagle on or around the larger wetland / dam and concluded that the site does provide valuable habitat for state listed species. Further consideration of impacts and the application for an FFG permit may be required for future development of the site.
Planning and Environment Act 1987	Overall, approximately 2.0471 hectares of native vegetation (patches) and 27 large trees are located within the site.	Under Clause 52.17 of the Latrobe Planning Scheme, a planning permit is required to clear or disturb native vegetation within the study area.
Catchment and Land Protection Act 1994	The following noxious weeds were present on the site: - *Cirsium vulgare* (Spear Thistle) (Regionally Controlled; - *Crataegus monogyna* (Hawthorn) (Regionally Controlled); - *Genista monspessulana* (Montpellier Broom) (Regionally Controlled); - *Lycium ferocissimim* (African Boxthorn) (Regionally Controlled); - *Oxalis pes-caprae* (Soursob) (Restricted); - *Rubus fruticosus spp. agg.* (Blackberry) (Regionally Controlled); - *Salix fragilis (*Crack Willow) (Restricted) and - *Watsonia meriana var. bulbillifera (*Watsonia) (Regionally Controlled)	The landowner must comply with the requirements of the Act to control/eradicate and avoid spreading these weeds onsite or to other areas.
Environmental Effects Act 1978	Additional survey work may be required to determine if impacts to rare or threatened species may occur due to future development, however the site is unlikely to be a significant portion of remaining habitat. Approximately 2.0471 hectares of native vegetation (patches) with a Bioregional Conservation Status of Endangered is located within the site. This amount is under the referral threshold (10 ha)	No further consideration required.
State Wildlife Act 1979	27 large size class trees and wetlands / waterbodies are found on site.	Decommissioning or dewatering of either wetlands / dams / waterways will need to address the salvage and translocation of fish and other aquatic fauna and their relocation to other suitable habitat.

Legislation and Policy	Relevant Ecological Feature on Site	Report/Approval required
		Persons engaged to remove, salvage, hold or relocate any native fauna must have a permit or approval issued by the DELWP.
Water Act 1989	Within the boundary of the study area lies a Mapped Wetland, Boyds Creek and associated tributaries.	Further discussion with the WGCMA will be required for any future impacts to waterways to determine approval requirements, buffers to be applied and application of stormwater, sediment and pollution controls.

Avoid/Minimise Principles

Specific avoidance and minimisation measures should be applied to the future development of the site to avoid impacts and provide adequate buffers for the wetlands / dams, Boyds Creek, associated tributaries and threated species, including:

- The two wetlands / dams and waterways (including Boyd's Creek) support a range of aquatic habitats and aquatic wetland fauna species such as the FFG Act listed Flinders Pygmy Perch. These areas also have past records onsite or in close proximity of Eastern Great Egret, Hardhead and White-bellied Sea Eagle and the potential of an additional six threatened avifauna species. The aquatic assessment recommends that the existing wetlands / dams and waterways are retained and a minimum 30 metre buffer to ensure adequate protection of aquatic fauna. The avifauna assessment concluded that there would be a loss of aquatic habitat leading to a reduction of biodiversity if the wetlands / dams were reshaped and reduced and also recommends a buffer of 30 metre between the wetlands / dams, waterways and any development. The West Gippsland Catchment Management Authority's Waterway Strategy recommends a vegetated buffer (riparian corridors) at least 30 metre wide on each side of a waterway be retained and improved as part of any new urban development.
- Downstream impacts associated with the change of land use, particularly those around possible increase volumes of stormwater, sediments and pollutants and changes to hydrology must be considered. Sensitive Water Urban Design principles should be utilised to minimise the impact of this development on the surrounding environment and waterways through treating and reducing stormwater flows, removing rubbish, pollutants and silt before it enters the wetlands / waterways.
- Maintenance of fish passage between known populations of fish and other aquatic fauna upstream and downstream of the site, on all waterways will be required.
- Avoid remnant native vegetation patches contained within the Bradford Drive, Regan Road and Princes Highway road reserves.
- Avoid impacts to the identified Strzelecki Gums in the Regan Road unused road reserve.
- Avoid and retain the native patches, 4 large scattered trees and the DEECA mapped wetlands located within the site including tree protection zones (12 x their diameter) within open space.

Additional Works

The following additional works are recommended for this proposal:

- Follow-up avifauna surveys undertaken once per season, to provide a more complete picture of the species that occur in the study site and what habitats they utilise. These should occur at an appropriate time in the overall planning process and will assist in further determining the presence threatened bird species, particularly those who may be non-resident seasonal visitors to the site and build population information on these species.
- Consideration against the commonwealth EPBC Significant Impact Criteria once development plans have been finalised to determine if any impacts have the potential to be significant for Commonwealth listed species such as Strzelecki Gum and avian species.

1 Introduction

1.1 Project Background

ID Ecological Management has been commissioned by Beveridge Williams to undertake an assessment of native vegetation and biodiversity values of 5483 and 5495 Princes Highway, Traralgon which is proposed to be rezoned for Farming to General Residential and Commercial. The future development of the site is anticipated to facilitate a staged multi-lot residential subdivision (indicatively around 520 lots). The rezoning will also support a commercial area of 2.14 hectares.

A single access to the residential component of the land is anticipated from the Princes Highway and that Bradford Drive will facilitate multiple access points to the commercial and residential areas of the site. The future development will include open space reserves and will also utilise the existing waterways on site to facilitate drainage.

The project's study area includes vacant parcels of land containing a number of locally indigenous scattered trees over a ground layer of predominantly exotic pasture grass, with areas of wetlands / dams and waterways present throughout the site. Assessment of all native vegetation within the study area was completed by ID Ecological Management on the 7th of December 2021 and 5th July 2023 along with the Bradford Drive and Regan Road , road reserves and the Princes Highway Road reserve.

An initial Ecological Assessment was completed in 2011 by Biosis (Franco, 2011) for an area in the SE corner of the site.

1.2 Objectives

The objectives of this assessment include:

- Undertake a search of the Victorian Biodiversity Atlas (VBA) and the Protected Matters Search Tool (PMST) databases to identify threatened state or federally listed fauna species and potential habitat recorded within a 5km radius of the study area; and
- Review EVC mapping for the study area and assign appropriate EVC;
- Undertake site assessment of the study area, including:
  - Recording a complete flora list;
  - Recording a fauna list of incidental observations;
  - Photographs of the site (with locations recorded);
  - Identification, mapping and assessment of any native vegetation patches;
  - Map and record gps locations and diameter at breast height of all scattered and large trees in patches to accuracy of <1m (where practicable); and
  - Identification and mapping of the location or extent of any species or communities protected by either the EPBC or FFG Acts.

Prepare a report that includes the following:

- Information on any native vegetation present on site as per the requirements of Clause 52.17 and the *Guidelines for the removal, destruction or lopping of native vegetation* including:

  - A description of the native vegetation.
    - Maps showing the native vegetation and property context.
    - Location of scattered trees, including their size.
    - An avoid and minimise statement describing how to avoid the removal of and minimise the impacts on the biodiversity and other values of native vegetation and how these efforts focussed on areas of native vegetation that have the most value.
- Complete an assessment of the likelihood of occurrence for all threatened species identified in a 5km database search area;
- Identify mitigation measures for any Matters of National Significance considered to have potential to be impacted by the proposal. This would only be completed for any species or communities confirmed to occur within the site or considered likely to possibly occur on site;
- Identify any permits, approvals or management plans that may be required for the project under any applicable State or Federal legislation;
- Provide recommendations for any further works or investigations such as targeted threatened species surveys or the like;
- Prepare maps to DEECA standards that show the locations of all ecological features identified; and
- Provide details and recommendations were applicable for each of the items listed above.

1.3 Study Area

The study area (*Figure 1*) is located 5 km west of the Traralgon town centre, approximately 180 km east of Melbourne and falls within the Gippsland Plains Bioregion.

Land surrounding the study area has been predominantly cleared for residential blocks and lifestyle properties within the township of Traralgon, with scattered remnants of native vegetation remaining within reserves and along some roadsides and waterways.

The condition of vegetation across the site is highly modified. It has been mostly cleared of its original native overstorey and ground storey and has historically and is currently being used for rotational grazing.

Boyds creek runs through the centre of the property, including two tributaries which all hold remnant native vegetation and a large wetland located near the centre of the site covers a total area of approximately 4.4ha. The wetland is mapped on the DELWP's *Current wetlands map*.

The Princes Highway Road reserve runs along the southern boundary of the study area and contains a linear patch of native vegetation, with the canopy layer and mid storey relatively intact. The ground storey has been modified with a large proportion of exotic species. The eastern side of the study area is bordered by Bradford Drive and Regan Road , with an unmade road reserve connecting them. Road side plantings have been established here, along with a scattering of remnant canopy trees and minimal native understorey present.

Areas that contain larger tracts of remnant native vegetation within the surrounds of the study area include:

- The La Trobe River which is located approximately 3km north of the study area;
- Traralgon Creek which is located approximately 5km east of the study area;
- The Traralgon South Flora and Fauna Reserve which is located approximately 10km south of the study area; and
- Further afield, Moondarra State Park approximately 20km northwest of the study area holds 7000ha of intact remnant vegetation.

The site is subject to the following planning provisions:

Clauses

Clause 52.17 - Native Vegetation

Planning Zones

Farming Zone (FZ)

Planning Overlays

Design and Development Overlay- Schedule 10 (DDO10); and
Design and Development Overlay – Schedule 8 (DDO8)
(Department of Planning, 2021)

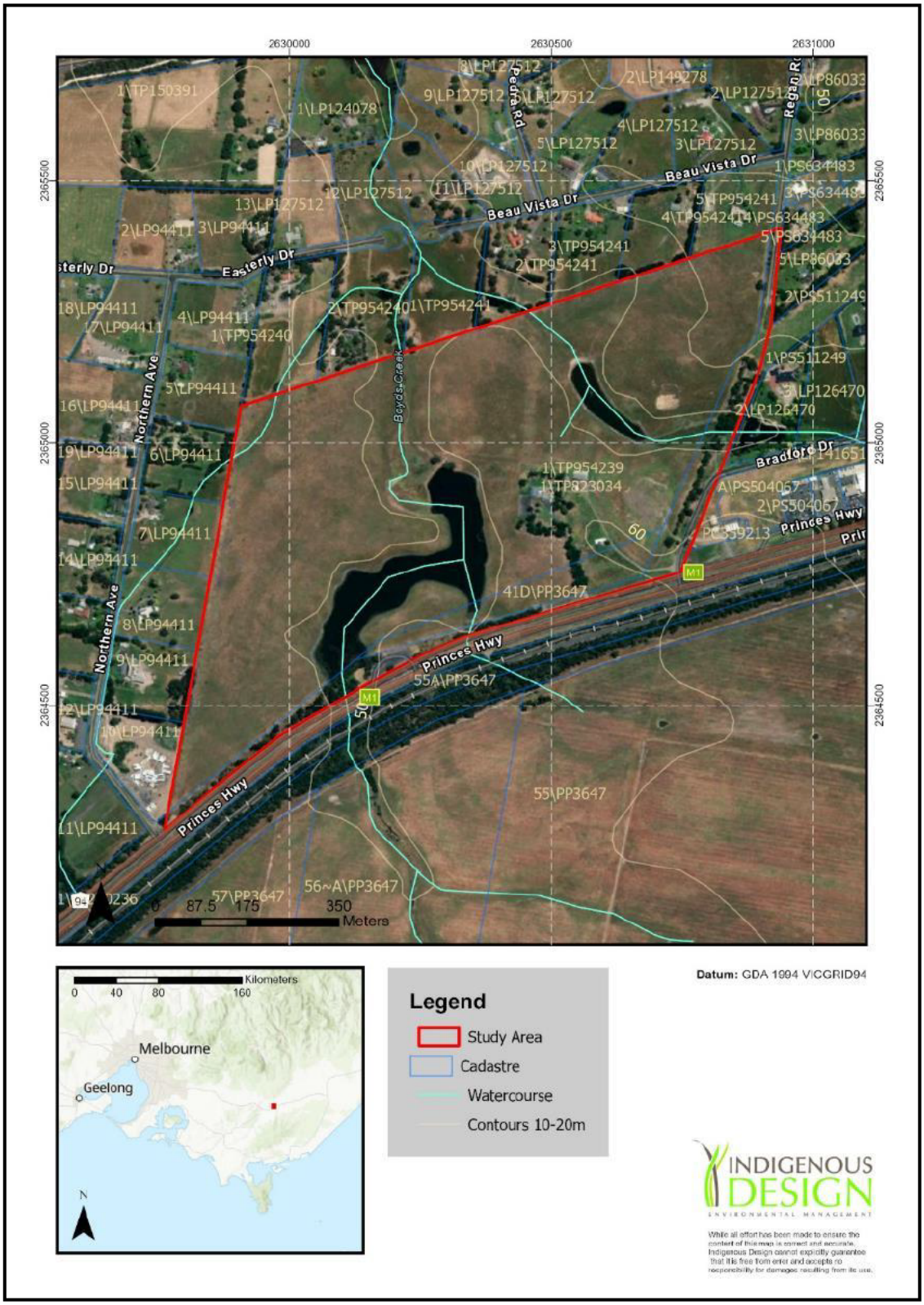

Figure 1: Study area

2 Description of Methods

2.1 Data and Literature Review

The DEECA's online interactive map, *Naturekit* (DEECA, 2021a) was used to gain an insight into the overall distribution of native vegetation on the site and the Ecological Vegetation Class (EVC) to which any remnant vegetation may belong.

The following resources were also used to determine if any taxa listed or protected under the Victorian *Flora and Fauna Guarantee Act 2019* (FFG Act), or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) have been, or potentially could be, located at the site:

- DEECA's *NatureKit Victoria* (DEECA, 2021a);
- DEECA's *Victorian Biodiversity Atlas* (VBA) (DEECA, 2021b); and
- The Commonwealth's Protected Matters Search Tool (PMST) (DCCEEW, 2021).

In addition, a due diligence ecological assessment of a portion of the site completed by Biosis Research in 2011 (Franco, 2011) was reviewed to identify any previously recorded ecological values and to provide additional background to this assessment.

2.2 Field Survey

Field surveys of the site were undertaken in December 2021 and July 2023. During these surveys, all flora present on the site was recorded and vegetation quality assessments were carried out using the methods described below.

The surveys were completed by the following participants:

- Antares Fuhrmann- B. Earth Science, DEECA accredited native vegetation assessor, 8 years' experience in environmental consultancy and flora and fauna assessments.
- Ben Imbery – B. Env. Mgt, DEECA accredited native vegetation assessor, 15 years' experience in environmental consultancy and flora and fauna assessments.

The survey included:

- Recording all flora present. Flora species were recorded following the species nomenclature requirements of the VBA;
- Completion of a Vegetation Quality Assessment (VQA) for all native patches. These areas were Digital GPS (DGPS) mapped and assessed using the habitat hectare method described by DSE (2004) in the *Vegetation Quality Assessment Manual – Guidelines for applying the habitat hectares scoring method - Version 1.3*;
- Recording all scattered and large old trees including collecting data on species, DBH and any habitat features (i.e. nests or hollows);
- Identification and recording of any flora and fauna communities including threatened, protected species / communities or habitat;

- Completing a fauna assessment that included the opportunistic observation of scats, footprints, diggings, burrows, tracks, incidental bird and other fauna observations and listening for frog and bird calls;
- Identifying and recording notes on any habitat features including vegetation type and structure, proximity to water, the presence of hollow bearing trees and stags, logs and other ground debris. The surrounding landscape was also observed, and notes taken regarding its habitat provision, intactness of native vegetation and connectivity with the study site; and
- Recording notes on specific issues such as noxious weed infestations and any evidence of pest animal disturbance including any active warrens or dens.

GPS mapping was completed using the ArcCollector application paired with a handheld Android device. An average recording accuracy of approximately +/- 4m was achieved.

The mapping included:

- Walking and recording a GPS location of the extent of all native vegetation patches within the assessment footprint;
- Walking and recording a GPS location of all scattered trees, Large trees within patches and any Large trees immediately adjacent to the assessment footprint;
- Walking and recording a GPS location of any threatened or protected flora species;
- Walking and recording a GPS location of the extent of any threatened ecological communities; and
- Walking and recording a GPS location of any pest animal activity locations and any noxious weed infestations.

2.2.1 Vegetation Quality Assessment

Native vegetation is defined in the Victoria Planning Provisions (Definitions – Clause 72) as *'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'*. DELWP's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) (the Guidelines) further defines native vegetation into two categories: 'remnant patches' and 'scattered trees' outlined below.

A 'remnant patch' of native vegetation is either:

- An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or
- Any area with three of more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy; or
- any mapped wetland included in the *Current wetlands map*, available in DELWP systems and tools.

A 'scattered tree' is:

- A native canopy tree that does not form part of a remnant patch.

Following these definitions all native vegetation on site was categorised as either 'remnant patches' or 'scattered trees'.

Remnant patches were further categorised into EVCs and furthermore into habitat zones. These areas were DGPS mapped and assessed using the habitat hectare method described by DSE (2004) in the *Vegetation Quality Assessment Manual – Guidelines for applying the habitat hectares scoring method - Version 1.3.*

All large size class trees within and immediately adjacent to the study area corridor and all scattered trees on site were identified to species level, GPS mapped and had their Diameter at Breast Height (DBH) and any other relevant data recorded.

2.3 Definitions of Significance

The significance of a species or ecological community described in this report follows its listing status under Commonwealth or State legislation.

- **National** significance includes all species listed as critically endangered, endangered or vulnerable under the EPBC Act 1999;
- **State** listed as critically endangered, endangered or vulnerable on the FFG Act Threatened List 2019.

2.4 Likelihood of Occurrence

In determining the likelihood of presence of a listed species a likelihood rating of present, high, moderate, low or unlikely is assigned. This rating is based on consideration of the following factors:

- Was the species recorded on site or has it been previously recorded on the site;
- Is there likely to be a resident population within the local area (5km radius);
- Is suitable habitat present on site or is habitat modified but aspects of suitable habitat present;
- Is it possible the species may seasonally or opportunistically use resources within the local area; and
- Are there any records for the species within the local area within the last 5, 10 or 25 years.

2.5 Legislation and Policy

Any biodiversity related implications for the project were assessed against the following biodiversity legislation and policy:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) including related listing advice, recovery plans and significant impact guidelines;
- *Flora and Fauna Guarantee (Amendment) Act 2019* (FFG Act) including related action statements and listing advice;
- *Planning and Environment Act 1987* including *Clause 52.17* and any overlays applicable to the study area under the South Gippsland Planning Scheme;
- The DEECA's *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017);

- *Catchment and Land Protection Act 1994* (CaLP Act) including noxious weed and pest animal listings;
- *Water Act 1989;*
- *Wildlife Act 1979;*
- *Environmental Effects Act 1987*.

2.6 Limitations

The assessments were undertaken in December of 2021 and July 2023. It is, therefore, possible that some annual, deciduous or dormant taxa may not have been visible. Additionally, some taxa have not been identified to specific or infraspecific rank due to the absence of flowering, or other material typically used for identification.

The assessment of fauna likelihood did not involve a targeted fauna survey for all species (aquatic and avifauna surveys undertaken). Consequently, further species are likely to be recorded given further time and or the undertaking of more targeted survey.

The timing of the survey (early Summer and Winter) and level of survey effort are considered satisfactory to assess the general habitat values of the study area and identify any threatened or protected perennial flora species or habitat, threatened ecological communities or habitat and assess the likelihood of occurrence of any, threatened or protected fauna species.

3 Results

3.1 Database and Literature Review

3.1.1 Flora

Interrogation of the DEECA's *Victorian Biodiversity Atlas* (VBA) (DEECA, 2021b) identified 10 flora species within a 5 km radius of the study area that are listed as threatened in Victoria (*Appendix 1*). Records of threatened flora species identified within or close to the study area include:

- *Craspedia canens* (Grey Billy-buttons), listed as Critically Endangered on the FFG Act Threatened list. Records are located 100m from the study area within Princes Highway roadside reserve from 2019;
- *Dianella amoena* (Matted Flax-lily), listed as Critically Endangered on the FFG Act Threatened List and Endangered under the EPBC Act 1999. One record located 3km east of the study area in 2017;
- *Eucalyptus strzeleckii* (Strzelecki Gum), listed as Critically Endangered on the FFG Act Threatened List and Vulnerable under the EPBC Act 1999. Numerous records found from 100m south of the study area from 2017 to 100 records found 3km north of the study area in 2021.

Interrogation of the EPBC Act *Protected Matters Search Tool* (DCCEEW, 2021) identified within a 5km search radius the potential presence of 11 significant flora species that are listed as threatened at the Federal level (*Appendix 2*).

The Biosis report (Franco, 2011) did not identify any significant flora species within the SE corner of the study area.

3.1.2 Fauna

Interrogation of the DEECA's VBA (DEECA, 2021b) identified 20 fauna species within a 5 km radius of the study area that are listed as threatened in Victoria (*Appendix 3*). Records of threatened fauna species identified within or close to the study area include:

- *Ardea modesta* (Eastern Great Egret) listed as vulnerable under the FFG Act Threatened List and on the Commonwealth JAMBA& CAMBA Agreements. One record located within the study area in 2019;
- *Galaxiella pusilla* (Dwarf Galaxias) listed endangered under the FFG Act Threatened List and Vulnerable under the EPBC Act 1999. Records located 2km from the study area within Boyds Creek in 2020;
- *Litoria raniformis* (Growling Grass Frog) listed as vulnerable under the FFG Act Threatened List and Vulnerable under the EPBC Act 1999. Records located 2km northwest of the study area; and
- *Nannonperca sp. 1* (Flinders Pygmy Perch) listed as vulnerable under the FFG Act Threatened List. Records located within 3km of the study area in 2020.

Interrogation of the EPBC Act Protected Matters Search Tool (DCCEEW, 2021) identified within a 5km search radius the potential presence of 28 significant fauna species that are listed as threatened at the Federal level (*Appendix 3*).

The Biosis report (Franco, 2011) did not identify any significant fauna species within the SE corner of the study area. However it did note that "*.immediately adjacent to the study area boundary there were additional habitat areas, suitable for significant fauna. These habitats include water bodies, grassland and large remnant trees. Care must be taken to avoid activities that may affect these habitats*." These habitat types are contained within the current study area boundary.

3.1.3 Threatened Ecological Communities

Interrogation of the EPBC Act Protected Matters Search Tool (DCCEEW, 2021), *Appendix 2*, identified the possible presence of one listed threatened ecological community within a 5km search radius of the study area that are listed under the EPBC Act.

- *Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland* listed as Critically Endangered under the EPBC Act.

Native patches were assessed against the flow charts contained within the following documents that are used to determine if the ecological community was present on site. These assessments are outlined in *Section 3.4.3*.

- *Gippsland Red Gum Grassy Woodland and Associated Grassland. A nationally threatened ecological community Environment Protection and Biodiversity Conservation Act 1999 Policy Statement 3.22* (DCCEEW, 2010)

3.1.4 Wetlands of National Importance (Ramsar)

Interrogation of the EPBC Act Protected Matters Search Tool (DCCEEW, 2021), identified the presence of the Gippsland Lakes, a Wetland of National Importance, within a proximity of 40-50km of the study area (*Appendix 3*).

The Gippsland Lakes Ramsar site is located in coastal Victoria, east of the Latrobe Valley and south of the Eastern Highlands. It consists of a group of coastal lagoons and marsh environments that are separated from the sea by a barrier system of sand dunes and fringed on the seaward side by the Ninety Mile Beach (DCCEEW, 2021).

The study area is not located within the coastal lagoon or marsh environment and this community is not present.

3.2 Flora Species

3.2.1 Flora Species Recorded

A total of 153 vascular plants were found to occur on site during site assessments. Of these, 83 are considered to be taxa native to Victoria. *Appendix 5* provides the results of the flora survey.

3.2.2 Significant Flora Species

The site assessment identified one threatened flora species, Strzelecki Gum, located within the unused road reserve between Bradford Drive and Regan Road . *Map 1a* shows the location of the individuals located.

Assessment of the Likelihood of Presence of Significant Flora Species within the Study Area

A description of the range of vegetation types and potential habitats for threatened flora species that are found within the study area are described in *Section 3.4.2.*

Appendix 5 provides a summary of the assessment of likelihood of presence for all threatened flora species found in both the EPBC Act Protected Matters Search Tool (DCCEEW, 2021) and the Victorian Biodiversity Atlas (DEECA, 2021c) within five kilometres of the study area.

In summary, the site assessment and likelihood assessment determined:

- *Craspedia canens* (Grey Billy-buttons) listed on the FFG Threatened List as Critically Endangered had a **moderate** likelihood of occurring on site;
- *Dianella amoena* (Matted Flax-lily) listed on the FFG Threatened List as Critically Endangered and Endangered under the EPBC Act had a **moderate** likelihood of occurring on site; and
- *Eucalyptus strzeleckii* (Strzelecki Gum) listed on the FFG Threatened List as Critically Endangered and under the EPBC Act as Vulnerable was **present** on site within the Bradford Road reserve.

All other threatened flora species identified in the database searches had a low likelihood of occurrence determination or were considered unlikely to occur within the study area.

Targeted Flora Survey Results

<u>Bradford Drive/ Regan Road</u>

A targeted survey for Grey Billy Buttons, Matted Flax Lily and Strzelecki Gum was completed in October 2022 (Brooker, 2023).

The five originally recorded Strzelecki Gums within Bradford Drive / Regan Road was revised to four, due to the death of one tree and identification was not able to be confirmed. No other Strzelecki Gums were identified within the targeted survey area.

Both Matted Flax Lily and Grey Billy Buttons were not found within the survey area, despite the survey timing and effort deemed to be adequate to detect the species if it were present (Brooker, 2023).

<u>Princes Highway Road reserve</u>

A targeted survey for Grey Billy Buttons, Matted Flax Lily and Strzelecki Gum was completed in September 2023 along the Princes Highway Road reserve (Brooker, 2023).

No Grey Billy Buttons, Matted Flax Lily or Strzelecki Gums were found within the study area, despite the survey timing and effort deemed to be adequate to detect the species if it were present (Brooker, 2023).

Following the targeted surveys, Grey Billy-buttons and Matted Flax-lily have been revised to a **low** likelihood of occurring on site.

3.3 Fauna Species

3.3.1 Fauna Species Recorded

A total of 12 fauna species were incidentally observed on site during site assessments. *Appendix 6* lists all fauna observed on site. Fauna species observed included ten native bird species and two native amphibian (frog) species.

3.3.2 Significant Fauna Species

The initial survey of the study area did not identify any threatened fauna species on site. One record of *Ardea modesta* (Eastern Great Egret) was found for the site from 2019. This species is listed as vulnerable on the FFG Act Threatened List.

A description of the range of vegetation types and potential habitats for threatened fauna species that are found within the study area are described in *Section 3.5.*

Assessment of the Likelihood of Presence of Significant Fauna Species within the Study Area – Desktop Assessment

Appendix 7 provides a summary of the assessment of likelihood of presence for all threatened fauna species found in both the EPBC Act Protected Matters Search Tool and the Victorian Biodiversity Atlas within 5km of the study area. In summary, the field survey and likelihood assessment determined:

- *Ardea modesta* (Eastern Great Egret) listed on the FFG Act Threatened List as Vulnerable had a **moderate** likelihood of occurring on site;
- *Galaxiella pusilla* (Dwarf Galaxias) listed on the FFG Act Threatened List as Endangered and Vulnerable under the EPBC Act had a **moderate** likelihood of occurring on site;
- *Litoria raniformis* (Growling Grass Frog) listed on the FFG Act Threatened List as vulnerable and Vulnerable under the EPBC Act had a **moderate** likelihood of occurring on site; and
- *Nannoperca sp. 1* (Flinders Pygmy Perch)) listed on the FFG Act Threatened List as vulnerable had a **moderate** likelihood of occurring on site.

In addition to the above, DEECA identified the potential for *Lissolepis coventryi* (Swamp Skink) to be present on site, based on records over 10 kms to the East on the Morwell River.

All other threatened fauna species identified in the database searches had a low likelihood of occurrence determination or were considered unlikely to occur within the study area.

Assessment of the Likelihood of Presence of Significant Fauna Species within the Study Area – Targeted Fauna Survey Results

A targeted survey for Growling Grass Frog, Dwarf Galaxias and Flinders Pygmy Perch was completed in December 2022 (Jenkin, 2022). The FFG Act protected Flinders Pygmy Perch was found to be present

in the site's waterways and wetlands / dams, as well as those immediately upstream and downstream of the site.

Dwarf Galaxias was determined as unlikely to be present due to a lack of detection despite significant survey effort. However, an important population occurs a short distance downstream from the site and consideration will need to be given to the potential impacts of development of the site on those downstream receiving waterways (i.e. site discharge of reduced water quality, sediments and pollutants, and changes to hydrology).

Growling Grass Frog was determined as unlikely to be present due to a lack of ideal habitat, nearby records and lack of detection on the site despite the species being detected at similar times under similar conditions (i.e. the spaces should have been detectable if present). The likelihood determination for both Growling Grass Frog and Dwarf Galaxias have subsequentially been amended to Unlikely.

Based on Aquatica Environmental's limited experience, habitat fringing the aquatic environments on the site did not appear to provide the structure, type or density of habitat characteristics required to likely support Swamp Skink. Further, heavy trampling by cattle where there is slightly denser areas of vegetation would seem a significant impediment to the species' presence on the site (Jenkin, 2022).

A targeted survey for avian species and habitat was completed in December 2022 (Harris, 2023) which identified nine species as having a **Moderate** likelihood of occurrence:

- Eastern Great Egret listed on the FFG Act Threatened List as vulnerable;
- *Aythya australis* (Hardhead) listed on the FFG Act Threatened List as vulnerable;
- *Biziura lobata* (Musk Duck) listed on the FFG Act Threatened List as vulnerable;
- *Callocephalon fimbriatum* (Gang-gang Cockatoo) listed as Endangered under the EPBC Act;
- *Gallinago hardwickii* (Latham's Snipe) listed as Migratory / Marine under the EPBC Act;
- *Haliaeetus leucogaster* (White-bellied Sea-Eagle) listed on the FFG Act Threatened List as vulnerable and Marine under the EPBC Act;
- *Hirundapus caudacutus* (White-throated Needletail) listed on the FFG Act Threatened List as vulnerable and Vulnerable under the EPBC Act;
- *Oxyura australis* (Blue-billed Duck) listed on the FFG Act Threatened List as vulnerable; and
- *Spatula rhynchotis* (Australasian Shoveler) listed on the FFG Act Threatened List as vulnerable.

The FFG Act threatened species Eastern Great Egret, Hardhead and White-bellied Sea-Eagle have also observed on or around the larger wetland within the study area (Harris, 2023).

3.4 Vegetation

Appendix 4 lists the results of the flora survey and includes all flora species identified within native patches and degraded areas dominated by exotic pasture as identified during the site inspection.

Within the study area, native vegetation is represented by a small number of scattered locally indigenous canopy trees, *Eucalyptus viminalis* (Manna Gum) with a variety of planted mid-storey

species occurring within the Bradford Road reserve such as Acacias, Allocasuarina and Hakea (*Figure 2*).

The majority of the ground storey within the study area consists of sown pasture grass utilized for grazing and agricultural land use, with rotational paddocks for livestock (cattle) the current land practice.

Native ground storey species exists within the margins of the wetland / dams, waterways and low-lying ephemeral areas with common wetland species *Juncus australis* (Austral Rush), *Alisma plantago-aquatica* (Water Plantain) and *Eleocharis acuta* (Common Spike-sedge) persisting.

Minor occurrences of environmental weeds are found scattered throughout the site including *Cirsium vulgare* (Spear Thistle) and *Rubus fruticosus spp. agg.* (Blackberry), while planted rows of mature of *Pinus radiata* (Radiata Pine) are located within and alongside the current dwelling/domestic area.

Figure 2: Example of typical vegetation within the study site

3.4.1 Ecological Vegetation Classes

Ecological Vegetation Classes (EVC) are a type of vegetation classification which aims to group plant communities according to common flora species, vegetation structure and common environmental factors such as elevation, soils and average rainfall.

The study area is located within the Gippsland Plains Bioregion. The DEECA's *NatureKit* (DEECA, 2021a) displays the study area and its adjacent surrounds as being covered by two modelled pre-1750s EVC; EVC 55: Plains Grassy Woodland and EVC 53: *Swamp Scrub* (*Figure 3*).

Extant EVC mapping (DEECA, 2021a) shows the coverage of EVC 55: *Plains Grassy Woodland* to be significantly depleted within the study area and highly fragmented throughout the wider surrounds, while EVC 53: *Swamp Scrub* remains relatively intact across the wetlands / dams and waterways.

The site inspection confirmed EVC 55: *Plains Grassy Woodland* and EVC 53: *Swamp Scrub* as the most appropriate EVC to assign across areas of the site that is consistent with the DEECA's EVC modelling. EVC assignment was made through the identification of typical life forms in the understorey remnants that remain, common ecological characteristics and an inferred fidelity to particular environmental attributes identified in the benchmarks.

Figure 3 displays the assigned distribution of EVCs, consistent with the DEECA's modelled EVC distribution. *Table 1* provides the DELWP's Bioregional Conservational Status and description for all assigned EVCs (DEECA, 2021b).

Table 1: DELWP Bioregional Conservation Status and Descriptions for Assigned Ecological Vegetation Classes-

Bioregion	Ecological Vegetation Class	Bioregional Conservation Status	The DELWP's Ecological Vegetation Classes Description
Gippsland Plain	EVC 53: Swamp Scrub	Endangered	Closed scrub to 8m at low elevations on alluvial deposits along streams or on poorly drained sites with higher nutrient availability. The EVC is dominated by Swamp Paperbark *Melaleuca ericifolia* (or sometimes Woolly Tea-tress *Leptospermum lanigerum*) which often forms a dense thicket, out-competing other species. Occasional emergent eucalypts may be present. Where light penetrates to ground level, a moss/lichen.\/liverwort or herbaceous ground cover is often present. Dry variants have a grassy/herbaceous ground layer.
	EVC 55: Plains Grassy Woodland	Endangered	An open, eucalypt woodland to 15 m tall occurring on a number of geologies and soil types. Occupies poorly drained, fertile soils on flat or gently undulating plains at low elevations. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer.

(DEECA, 2021b)

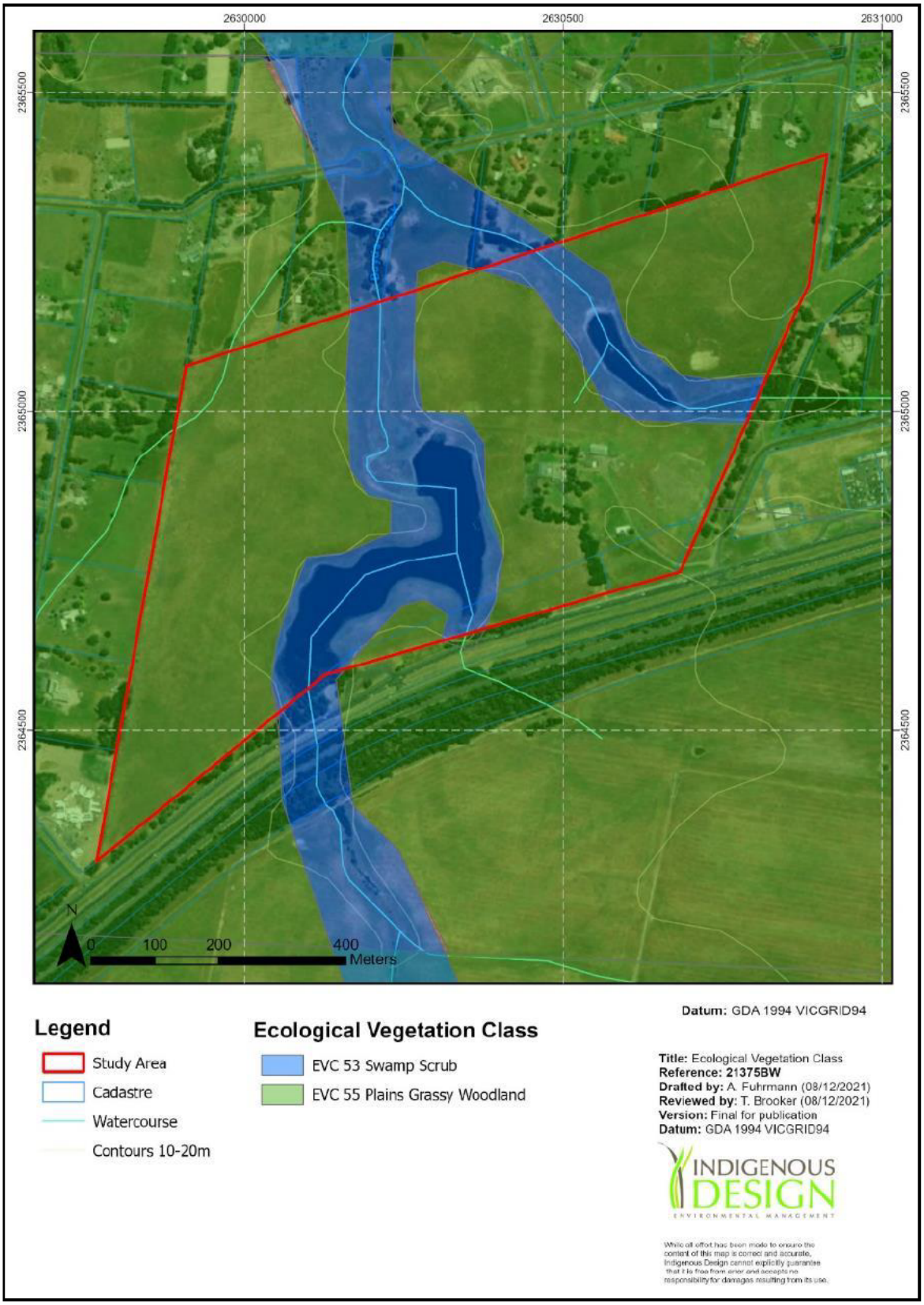

Figure 3: Distribution of the Department of Environment, Land, Water and Planning's assessed Ecological Vegetation Classes within the Study Area

3.4.2 Native Vegetation Quality Assessment

Assessment of native vegetation within the study area identified:

- One mapped wetland, three remnant native patches and six scattered trees within the property boundary;
- Four remnant patches and four scattered trees within Bradford Drive and Regan Road reserves; and
- Six remnant patches and eight scattered trees within the Princes Highway road reserve.

All native vegetation identified on site is shown in *Maps 1, 1a-1e* and *Map 2.*

3.4.2.1 Native Patches

Five native patches on site were assigned EVC 53: *Swamp Scrub* – Habitat Zones 1, 2, 3, 7 and 8 while eight native patches were assigned EVC 55: *Plains Grassy Woodland* – Habitat Zones 4, 5, 6, 9, 10, 11, 12 and 13 as described below. In total 2.0471 hectares of native patches were identified.

Habitat hectare assessments were completed against the benchmarks for the EVCs and a quality score was assigned to all habitat zones which are provided in *Table 2 and Table 3*.

Table 2: Results of Vegetation Quality Assessments for Habitat Zones 1 - 7

			Habitat Zone 1	Habitat Zone 2	Habitat Zone 3	Habitat Zone 4	Habitat Zone 5	Habitat Zone 6	Habitat Zone 7
Bioregion - Gippsland Plain			**Swamp Scrub**	**Swamp Scrub**	**Swamp Scrub**	**Plains Grassy Woodland**	**Plains Grassy Woodland**	**Plains Grassy Woodland**	**Swamp Scrub**
EVC Name (initials)			**SS**	**SS**	**SS**	**PGW**	**PGW**	**PGW**	**PGW**
EVC Number			**53**	**53**	**53**	**55**	**55**	**55**	**53**
Bioregional Conservation Status			**Endangered**	**Endangered**	**Endangered**	**Endangered**	**Endangered**	**Endangered**	**Endangered**
		Max Score	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Site Condition	Large Old Trees	10	-	-	-	2	2	0	-
	Canopy Cover	5	0	0	0	4	4	0	4
	Understorey	25	15	5	5	5	5	5	5
	Lack of Weeds	15	9	4	2	6	0	7	4
	Recruitment	10	0	0	0	5	3	0	3
	Organic Matter	5	3	0	0	3	3	2	4
	Logs	5	0	0	0	0	0	0	0
	Total Site Score	75	**27**	**9**	**7**	**25**	**17**	**14**	**20**
	Site score out of?	eg 55	65	65	65	75	75	75	65
	Adjusted Site Score		**31**	**10**	**8**	**25**	**17**	**14**	**23**
Landscape value	Patch Size	10	1	1	1	1	1	1	1
	Neighbourhood	10	0	0	0	0	0	0	0
	Distance to Core	5	0	0	0	0	0	0	0
Habitat points out of 100		**100**	**32**	**11**	**9**	**26**	**18**	**15**	**24**
Habitat Score (hab points/100)			**0.32**	**0.11**	**0.09**	**0.26**	**0.18**	**0.15**	**0.24**
Total area of the Zone (ha)			0.9500	0.0300	0.0400	0.0300	0.0300	0.0100	0.0200
Total HHA in the zone			**0.3055**	**0.0034**	**0.0036**	**0.0078**	**0.0054**	**0.0015**	**0.0048**
Catchment			**West Gippsland Catchment Management Authority**						

Table 3: Results of Vegetation Quality Assessments for Habitat Zones 8-13

			Habitat Zone 8	Habitat Zone 9	Habitat Zone 10	Habitat Zone 11	Habitat Zone 12	Habitat Zone 13
Bioregion - Gippsland Plain			**Swamp Scrub**	**Plains Grassy Woodland**	**Plains Grassy Woodland**	**Plains Grassy Woodland**	**Plains Grassy Woodland**	**Plains Grassy Woodland**
EVC Name (initials)			**SS**	**PGW**	**PGW**	**PGW**	**PGW**	**PGW**
EVC Number			**53**	**55**	**55**	**55**	**55**	**55**
Bioregional Conservation Status			**Endangered**	**Endangered**	**Endangered**	**Endangered**	**Endangered**	**Endangered**
		Max Score	**100**	**100**	**100**	**100**	**100**	**100**
Site Condition	Large Old Trees	10	-	2	0	2	2	2
	Canopy Cover	5	2	4	2	4	2	2
	Understorey	25	15	5	15	15	15	20
	Lack of Weeds	15	4	4	4	7	7	0
	Recruitment	10	10	5	3	5	10	10
	Organic Matter	5	5	5	5	5	5	3
	Logs	5	5	0	5	2	4	5
	Total Site Score	75	**41**	**25**	**34**	**40**	**45**	**42**
	Site score out of?	eg 55	65	75	75	75	75	75
	Adjusted Site Score		**47**	**25**	**34**	**40**	**45**	**42**
Landscape value	Patch Size	10	1	1	1	1	1	1
	Neighbourhood	10	0	0	0	0	0	0
	Distance to Core	5	0	0	0	0	0	0
Habitat points out of 100		**100**	**48**	**26**	**35**	**41**	**46**	**43**
Habitat Score (hab points/100)			**0.48**	**0.26**	**0.35**	**0.41**	**0.46**	**0.43**
Total area of the Zone (ha)			0.3913	0.0199	0.0084	0.0403	0.2622	0.2150
Total HHA in the zone			**0.1890**	**0.0052**	**0.0029**	**0.0165**	**0.1206**	**0.0925**
Catchment			**West Gippsland Catchment Management Authority (CMA)**					

Habitat Zone 1- Swamp Scrub

Habitat Zone 1 is an ephemeral waterway that runs from the eastern boundary of the site into a wetland / dam surrounded by native aquatic vegetation. This vegetation consists of sedges and rushes such as *Carex appressa* (Tall Sedge) and *Juncus australis* (Austral Rush) intermixed with aquatic wetland species including *Crassula helmsii* (Swamp Crassula) and *Lycopus australis* (Australian Gipsywort).

The canopy layer within this zone comprises one Eucalyptus species of unknown origin (dead) and a small cluster of exotic species within the centre island of the dam consisting of Radiata Pine and *Quercus canariensis* (Algerian Oak).

The vegetation quality assessment assigned an overall score of 29 points out of 100 (0.29) to the zone, indicative of its modified state.

The zone scored poorly for its lack of a canopy layer and low diversity in the mid storey. It has limited habitat features in the form of organic litter, logs or coarse woody debris and scored relatively poorly for these elements. The overall coverage of weeds was low-moderate, however the coverage was dominated by high threat weeds such as pasture grasses *Anthoxanthum odoratum* (Sweet Vernal-grass) and *Holcus lanatus* (Yorkshire Fog) with scattered patches of the woody weed, Blackberry.

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 4: Habitat Zone 1

Habitat Zone 2 - Swamp Scrub

Habitat Zone 2 is an ephemeral waterway that runs from the northern boundary of the site which eventually tapers out and is surrounded by native semi-aquatic sedges and rushes such as Tall Sedge and Austral Rush intermixed with aquatic wetland species including Swamp Crassula and Australian Gipsywort.

The vegetation quality assessment assigned an overall score of 10 points out of 100 (0.10) to the zone, indictive of its modified state.

The zone scored poorly for its lack of a canopy layer, which was absent, and low diversity in the mid storey. It has limited habitat features in the form of organic litter, logs or coarse woody debris and scored relatively poorly for these elements. The overall coverage of weeds was low however the coverage was dominated by high threat weeds such as pasture grasses *Phalaris aquatica (Toowoomba Canary Grass*) and *Holcus lanatus* (Yorkshire Fog).

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 5: Habitat Zone 2

Habitat Zone 3 - Swamp Scrub

Habitat Zone 3 is an ephemeral patch of native vegetation located in close proximity to the larger wetland. It is surrounded by native semi-aquatic vegetation of sedges and rushes such as Austral Rush and *Machaerina rubiginosa s.l.* (Soft Twig-rush), intermixed with aquatic wetland species including *Stellaria angustifolia* (Swamp Starwort), *Cotula australis* (Common Cotula) and *Myriophyllum spp*. (Water Milfoil).

The vegetation quality assessment assigned an overall score of 8 points out of 100 (0.08) to the zone, indicative of its highly modified state.

The zone scored poorly for its lack of a canopy layer, which was absent, and low diversity in the mid storey. It has limited habitat features in the form of organic litter, logs or coarse woody debris and scored relatively poorly for these elements. The overall coverage of weeds was low however the coverage was dominated by high threat weeds such as *Paspalum distichum* (Water Couch) and *Aponogeton distachyos* (Cape Pondlily).

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 6: Habitat Zone 3

Habitat Zone 4- Plains Grassy Woodland

Habitat Zone 4 is characterised by a patch of canopy sized and small tree sized Eucalypt species over a ground layer dominated by exotic pasture grasses.

The vegetation quality assessment assigned an overall score of 26 points out of 100 (0.26) to the zone, indicative of its modified state.

The zone scored low for its canopy layer and low diversity in the mid storey. It has a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively moderately for these elements. The overall coverage of weeds was low, however the coverage was dominated by high threat weeds such as *Ehrharta erecta* (Panic Veldt-grass) and *Solanum nigrum* (Black Nightshade).

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 7: Habitat Zone 4

Habitat Zone 5 - Plains Grassy Woodland

Habitat Zone 5 is characterised by a scattered locally indigenous trees and planted Victorian Natives trees and shrubs over a ground layer of exotic pasture grass intermixed with small occurrences of native grasses and herbaceous species.

The vegetation quality assessment assigned an overall score of 18 points out of 100 (0.18) to the zone.

The zone scored moderately for its canopy layer and diversity in the mid storey. It has a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively moderately for these elements. The overall coverage of weeds was low, however the coverage was dominated by high threat weeds such as *Cenchrus clandestinus* (Kikuyu), *Anthoxanthum odoratum* (Sweet Vernal-grass) and *Sonchus oleraceus* (Common Sow-thistle).

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 8: Habitat Zone 5

Habitat Zone 6 – Plains Grassy Woodland

Habitat Zone 6 is characterised by a small number of native grasses and herbaceous species.

The vegetation quality assessment assigned an overall score of 15 points out of 100 (0.15) to the zone.

The zone scored poorly for all elements including lack of a canopy layer and diversity in the mid storey. The understorey was comprised of three species, being *Rhytidosperma* sp. (Wallaby Grass) and *Microleana stipoides* (Weeping Grass) and the native *Plantago varia* (Plantain). It scored moderately for lack of weeds, however organic litter, logs or coarse woody debris scored poorly. Again, the zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 9: Habitat Zone 6

Habitat Zone 7 – Plains Grassy Woodland

Habitat Zone 7 is characterised by a single large Manna Gum, over a ground layer of exotic pasture grass intermixed with small occurrences of native grasses and herbaceous species.

The vegetation quality assessment assigned an overall score of 21 points out of 100 (0.21) to the zone.

The zone scored moderately for canopy and organic litter, but poorly for all other elements. The overall coverage of weeds was low, however the coverage was dominated by high threat weeds such as Sweet Vernal-grass and Panic Veldt-grass.

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 10: Habitat Zone 7

Habitat Zone 8 - Swamp Scrub

Habitat Zone 8 is an ephemeral waterway that connects to the existing DEECA mapped wetland located within the property parcel. It is characterised by thickets of *Melaleuca ericifolia* (Swamp Paperbark) intermixed with Manna Gums and *Eucalyptus angophoroides* (Applebox) alongside riparian species such as *Persicaria decipiens* (Slender Knotweed) and *Carax gaudichaudiana* (Fen Sedge).

The vegetation quality assessment assigned an overall score of 48 points out of 100 (0.48) to the zone.

The zone scored high for its understory and recruitment features. It has a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively high for these elements. The overall coverage of weeds was moderate, with the coverage dominated by high threat weeds such as *Salix fragilis* (Crack Willow), Blackberry and a number of encroaching pasture grasses including *Ehrharta erecta* (Panic Veldt-grass) and *Ehrharta longiflora* (Annual Veldt-grass).

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure11: Habitat Zone 8

Habitat Zone 9, 10 and 11 - Plains Grassy Woodland

Habitat Zone 9, 10 and 11 all display similar characteristics including their relatively small size. They contain a canopy of Eucalypts over a mid-storey of Acacias, Allocasuarina and *Kunzea ericoides* (Burgan), with a ground story retaining native grasses including Spear Grass, *Themeda triandra* (Kangaroo Grass) and Weeping Grass.

The vegetation quality assessment assigned the following overall scores:

- 26 points out of 100 (0.26) to habitat zone 9;
- 35 points out of 100 (0.35) to habitat zone 10; and
- 41 point out of 100 (0.41) to habitat zone 11.

The zone scored high for their canopy layer and diversity in the mid storey. They had a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively moderately for these elements. The overall coverage of weeds was moderate, with species present including Sallow Wattle and a suite of common pasture grasses.

The zones scored low for their landscape values given their fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 12: Habitat Zone 11

Habitat Zone 12 - Plains Grassy Woodland

Habitat Zone 12 is characterised by a scattered locally indigenous trees and shrubs over a ground layer of exotic pasture grass intermixed with small occurrences of native grasses and herbaceous species.

The vegetation quality assessment assigned an overall score of 46 points out of 100 (0.46) to the zone.

The zone scored high for its recruitment and diversity in the mid storey. It has a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively moderately for these elements. The overall coverage of weeds was low, however the coverage was dominated by high threat weeds such as common pasture grass and woody species including Sallow Wattle, *Crataegus monogyna* (Hawthorn) and Blackberry.

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 13: Habitat Zone 12

Habitat Zone 13 - Plains Grassy Woodland

Habitat Zone 13 is characterised by a canopy of Eucalypts over a mid-storey of Acacias, including *Acacia melanoxolyn* (Blackwood) and *Acacia dealbata* (Silver Wattle). The ground storey retains herbs and native grasses such as Spear Grass, Wallaby Grass and Weeping Grass.

The vegetation quality assessment assigned an overall score of 43 points out of 100 (0.43) to the zone.

The zone scored moderately for its canopy layer and diversity in the mid storey. It has a modest amount of habitat features in the form of organic litter, logs or coarse woody debris and scored relatively moderately for these elements. The overall coverage of weeds was high and dominated by high threat weeds such as Blackberry, Hawthorn and Radiata Pine.

The zone scored low for its landscape values given its fragmented connection to other native vegetation patches and the sparse coverage of native vegetation within a 1 to 5 kilometre radius of the site.

Figure 14: Habitat Zone 13

3.4.2.2 Scattered / Large / Significant Trees

Table 4 lists the sixty-six (66) locally indigenous scattered / large or significant trees identified on site and located within the Bradford Drive and Regan Road reserves and the Princes Highway Road reserve. The ID numbers correspond with those depicted in *Maps 1a to 1e. Please note:* Tree No.'s in brackets (*) align with arborist report tree numbering (Far East Arboriculture, 2023).

Table 4: Tree id & Size Categories according to Ecological Vegetation Classes benchmarks

Tree ID No	Botanical Name	Common Name	Origin	Type	Diameter at Breast Height (DBH)	Size Category
1 (58)	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Scattered	92	Large
2 (90)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	123	Large
3 (91)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	87	Large
4 (92)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	101	Large
5 (86)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	95	Large
6 (87)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	85	Large
7 (1)	*Eucalyptus melliodora*	Yellow Box	Locally Indigenous	Scattered	85	Large
8 (46)	*Eucalyptus bridgesiana*	But But	Locally Indigenous	Scattered	46	Small
9 (59)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	85	Large
10	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Scattered	91	Large
11	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	61	Small
12	*Eucalyptus radiata*	Narrow-leaf Peppermint	Locally Indigenous	Scattered	27	Small
13	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Scattered	103	Large
14 (128)	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Scattered	28	Small
15	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	65	Small
16	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	65	Small
17	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Scattered	15	Small
18	*Eucalyptus ovata*	Swamp Gum	Locally Indigenous	Scattered	80	Large
19 (39)	*Eucalyptus strzeleckii*	Strzelecki Gum	Locally Indigenous	Patch	32	Small
20 (35)	*Eucalyptus strzeleckii*	Strzelecki Gum	Locally Indigenous	Patch	39	Small
21 (37)	*Eucalyptus strzeleckii*	Strzelecki Gum	Locally Indigenous	Patch	36	Small
22 (33)	*Eucalyptus strzeleckii*	Strzelecki Gum	Locally Indigenous	Scattered	55	Small
23 (232)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	110	Large
24	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	98	Large
25	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	117	Large
26	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	68	Small
27	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	48	Small
28	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	28	Small
29	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	75	Small
30	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	45	Small
31	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	100	Large
32	*Eucalyptus sp.*	Unknown (Dead)	Locally Indigenous	Patch	40	Small
33	*Eucalyptus sp.*	Unknown (Dead)	Locally Indigenous	Patch	45	Small
34	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	55	Small
35	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	45	Small
36	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	52	Small
37	*Eucalyptus sp.*	Unknown (Dead)	Locally Indigenous	Patch	106	Large
38	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	32	Small
39	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	29	Small

Tree ID No	Botanical Name	Common Name	Origin	Type	Diameter at Breast Height (DBH)	Size Category
40	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	32	Small
41	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	42	Small
42	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	35	Small
43	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	32	Small
44	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	43	Small
45	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	30	Small
46	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	40	Small
47 (147)	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	60	Small
48 (144)	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	80	Large
49	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	96	Large
50	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	45	Small
51	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	50	Small
52	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	45	Small
53	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	43	Small
54	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	40	Small
55 (151)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	80	Large
56 (152)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	60	Small
57	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	96	Large
58	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	163	Large
59	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	75	Small
60	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	90	Large
61	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	80	Large
62	*Eucalyptus sp.*	Unknown (Dead)	Locally Indigenous	Patch	85	Large
63	*Eucalyptus angophoroides*	Applebox	Locally Indigenous	Patch	125	Large
64	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	143	Large
65	*Eucalyptus sp.*	Unknown	Locally Indigenous	Patch	63	Small
66 (57)	*Eucalyptus viminalis*	Manna Gum	Locally Indigenous	Patch	140	Large

3.4.3 Significant Vegetation Communities

The EPBC Act Protected Matters 5km radius search (*Appendix 3*) identified the possible presence of the *Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland* listed as Critically Endangered under the EPBC Act.

To determine if this community was present within the study area, the native patches assigned as *EVC 55: Plains Grassy Woodland* (Habitat Zone 4, 5, 6, 9, 10, 11, 12 and 13) were assessed against the flow charts contained within the *Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland* community (DCCEEW, 2010) (*Figure 15* provides the flow chart).

In summary, these determinations found that neither the woodland or derived grassland form of this community was present on the site due to the absence of Gippsland Red-Gum and lack of species diversity, or the perennial ground layer comprising a high coverage of exotic species.

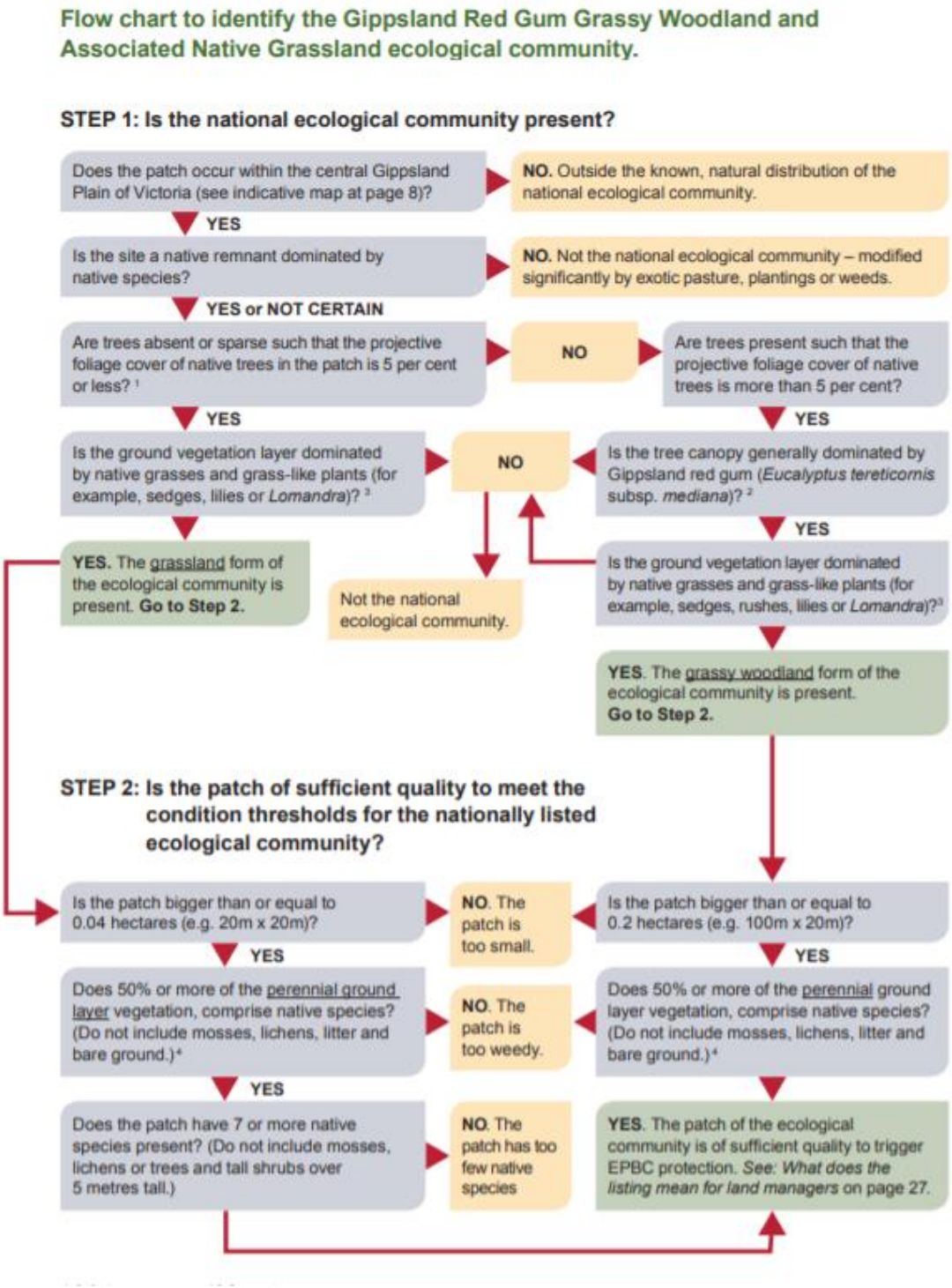

Figure 15: Flow chart to identify if the Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland community is present

3.5 Habitat Values

Native vegetation within the study area forms only limited connections with surrounding remnant vegetation, as the surrounding land has been largely cleared for agricultural land use and residential development. Native aquatic vegetation aligns with the wetlands / dams and tributaries which flow from the northern boundary south through the site. These tributaries are mostly modified and have scattered fragments of native vegetation along them.

Additional descriptions of habitat types found within the study area are described below.

Scattered Trees

Scattered canopy trees across the site are characterised by locally indigenous Eucalypt species such as Manna Gums, *Eucalyptus melliodora* (Yellow Box) and *Eucalyptus bridgesiana* (ButBut), alongside planted Victorian Native scattered within the Bradford Drive / Regan Road road reserve which entail *Eucalyptus globulus* (Southern Blue Gum) and *Eucalyptus tricarpa* (Red Ironbark), planted in uniform lines reaching heights of approximately 15 meters (*Figure 16*).

This habitat type is likely to be utilized as a stopover point and act as a 'stepping stone' for relatively common birds such as *Corvus coronoides* (Australian Raven) and *Gymnorhina tibicen* (Australian Magpie) in their movements throughout the wider landscape, but are unlikely to form part of an important habitat network for any significant bird or mammal species.

The hollows in these trees provide breeding habitat for local parrots such as *Platycercus eximius* (Eastern Rosella) but also for the introduced *Acridotheres tristis* (Common Myna), both observed leaving hollows during the avifauna assessment (Harris, 2023).

The mid-storey contains planted native trees and shrubs including Acacia's, Allocasuarina' s, Hakea and Melaleuca species up to 8 meters high while the ground layer is dominated by pasture grasses and common exotic broadleaf species. Small passerine birds such as *Rhipidura leucophrys* (Willie Wagtail) are likely to utilize the understorey as a stopover in their wider movements across the landscape, while the more degraded sections provide minimal habitat value.

The habitat has a low coverage of organic litter likely to support various invertebrates that in turn would provide a food source for reptiles and foraging birds.

Figure 16: Provides an example of a scattered tree

Open Pasture

This habitat type is found across the majority of the study area and is currently used for grazing (*Figure 17*). It offers negligible habitat value and is unlikely to support any fauna other than being occasionally visited by relatively common native birds such as the Australian Raven and Magpie. Birds of prey may also utilise this open pasture on occasion for hunting and foraging as part of their movement along the Boyds Creek corridor.

Figure 17: Provides an example of open pasture

Woodland

The Bradford Drive / Regan Road and Princes Highway road reserves contain some aspects of this habitat type including native grass species and remnant Eucalypt species forming a disjointed canopy (Habitat zones 4-6, 7, 9, 10-13) (*Figure 18*).

Whilst of poor to moderate diversity and quality, these remnants have the potential to provide habitat for threatened flora species such as the Matted Flax-lily and Grey Billy Buttons, both of which have been recorded in close proximity and can persist within degraded vegetation, however they were not recorded as part of targeted surveys.

Common passerine birds may utilize these areas for foraging and nesting and as stepping-stones to native vegetation corridors further afield, with species such as Rainbow Lorikeets and Willie Wagtails seen throughout the zones.

Figure 18: Provides an example of grassy woodland

Boyds Creek/Waterways

Boyds Creek and associated tributaries run across the study area (*Map 2*) and supports aquatic sedges and rushes but they are not connected by riparian vegetation to surrounding waterways (*Figure 19*). In addition, Strzelecki Gum was found to be present within this habitat type on the eastern boundary of the site.

Common amphibian species such as *Crinia signifera* (Common Froglet) and *Limnodynastes peronii* (Striped Marsh Frog) were heard throughout these areas during the site assessment.

The avifauna assessment found that birds likely to, or potential to use the waterway habitat include a range of wetland species such as Latham's Snipe, ducks, herons, egrets, and rails . Some of these birds like Latham's Snipe may utilise these areas in mid-late summer when these areas have less standing water (Harris, 2023).

This habitat has the potential to support populations of Growling Grass Frog, however the targeted survey for this species completed in December 2022 (Jenkin, 2022) concluded that the habitat within the waterways would at best potentially represent dispersal habitat if there was a resident or nearby population. In addition, Swamp Skink inhabits densely vegetated, wet environments and is usually restricted to the densely vegetated fringes and near riparian margins of swamps, wetland, stream and associated watercourses. There is very little in the way of densely vegetated fringing or riparian habitats on the site, due to intensive grazing and trampling by cattle and very little in the way of rocks, logs and other structures that could be utilised by the species for shelter or basking (Jenkin, 2022).

The aquatic survey (Jenkin, 2022) also confirmed that this habitat supports the threatened fish species *Nannoperca sp. 1* (Flinders Pygmy Perch) which can be found in small systems with low flow rates and vegetated areas and may use the passages opportunistically as dispersal corridors. Whilst Dwarf Galaxias utilise a similar habitat type , it was not detected during the targeted surveys (Jenkin, 2022).

Figure 19: Provides an example of Boyds Creek

Wetland / Dams

This habitat type is characterised by a large open wetland body and adjacent dam (*Map 2*) which hold stands of native aquatic vegetation and supports common aquatic avian species including *Chenonetta jubata* (Australian Wood Duck) and *Fulica atra* (Eurasian Coot) observed on site during the assessment (*Figure 20*). In addition, the avifauna assessment (Harris, 2023) observed a total of 14 species on site, with nearly half of the native species associated with wetland habitats, such as *Tachybaptus novaehollandiae* (Australasian Grebe), *Porphyrio melanotus* (Australasian Swamphen)*, Anas castanea* (Chestnut Teal) and *Cygnus atratus* (Black Swan). *Ardea modesta* (Eastern Great Egret) has been observed on site along the margins of the wetland in 2019 and was deemed to have a moderate likelihood of again utilizing the wetland.

The smaller wetland provides roosting habitat amongst the trees on the middle island, for species like cormorants, darters and ducks and breeding may also occur within the branches of these trees due to the presence of sticks in the forks (Harris, 2023).

The open water and shoreline of the wetlands can support many avifauna species including duck, cormorants, Eurasian Coot, Australian Pelican, White-bellied Sea-eagle, plovers and dotterels and other wetland species. Some of these species like the dotterels and snipe are partly or wholly dependent on the water levels exposing the shoreline to provide suitable habitat (Harris, 2023).

The aquatic survey (Jenkin, 2022) also confirmed that this habitat also supports the threatened fish species, Flinders Pygmy Perch being found within the larger dam, Boyd's Lake.

Figure 20: Provides an example of the large open wetland body

The avifauna targeted survey (Harris, 2023) concluded that of the variety of habitats available within the study site, it is only the wetland habitats that are expected to reliably provide the resources available for threatened species to utilise due to their extent. Threatened non-wetland dependent species may utilise the other habitats but this is likely to be on an irregular basis due to the limited extent, possibly as they are passing through the area to other more suitable sites.

4 Policy and Legislative Implications

4.1 Commonwealth – *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act establishes a Commonwealth process for assessment of proposed actions that are likely to have a significant impact on Matters of National Environmental Significance (MNES) or on Commonwealth land. An action (i.e. project, development, undertaking, activity, or series of activities), unless otherwise exempt, requires approval from the Commonwealth Environment Minister if they are considered likely to have an impact on any MNES. A referral under the EPBC Act is required if a proposed action is likely to have a 'significant impact' on any of the following MNES:

- World Heritage properties;
- National heritage places;
- Ramsar wetlands of international significance;
- Threatened species and ecological communities;
- Migratory and marine species;
- Commonwealth marine area;
- Nuclear actions (including uranium mining);
- Great Barrier Reef Marine Park; and
- A water resource, in relation to coal seam gas development and large coal mining development.

4.1.1 Implications (Significant Impact Criteria)

Nine MNES have been identified that warrant further consideration under the proposal:

Strzelecki Gum

- Five *Eucalyptus strzeleckii* (Strzelecki Gum) were identified within the Bradford Drive / Regan Road unmade road reserve to the immediate east of the study area, however the targeted survey for the species revised this figure to four (Brooker, 2023).
- Impacts to this species should be avoided, however if impacts are unavoidable, the number to be impacted should be confirmed and an assessment against the commonwealth EPBC Significant Impact Criteria completed to determine if the impact has the potential to be significant and require referral to the Commonwealth government to determine if the action should be controlled.

Matted Flax-lily

- *Dianella amoena* (Matted Flax-lily) initially had a moderate likelihood of occurrence determination.
- A targeted survey for Matted Flax-lily was completed within potentially suitable habitat in the adjacent road reserves of Bradford Drive / Regan Road and it was not found to be present (Brooker, 2023).
- A targeted survey for Matted Flax-lily was completed within potentially suitable habitat in the Princes Highway Road reserve and it was not found to be present (Brooker, 2023).

- The likelihood has been revised to **low** and no further consideration for this species required.

Growling Grass Frog

- *Litoria raniformis* (Growling Grass Frog) initially had a moderate likelihood of occurrence determination with the waterways and wetlands / dams providing potential habitat.
- Targeted survey for Growling Grass Frog did not detect this species and concluded that it is unlikely to be present on site (Jenkin, 2022).
- No further consideration for this species required.

Dwarf Galaxias

- *Galaxias pusilla* (Dwarf Galaxias) initially had a moderate likelihood of occurrence determination, with the waterways and wetlands / dams providing potential habitat.
- Targeted survey for Dwarf Galaxias did not detect this species and concluded that it is unlikely to be present on site (Jenkin, 2022).
- No further consideration for this species required.

Eastern Great Egret

- *Ardea modesta* (Eastern Great Egret) has a moderate likelihood of occurring on site and was recorded on site previously. This taxon may not be listed under the EPBC Act at the species level, due to it being previously considered a sub-species of the Great Egret (*Ardea alba*), which is a listed EPBC Marine species.
- It prefers shallow waters, like those areas close to a shoreline, creeks and pools. It is a commonly observed waterbird across permanent and ephemeral wetlands across much of Victoria where suitable habitat exists and has previously been recorded from the study site. If water levels were to reduce further, more habitat may become available for this species to occupy (Harris, 2023).
- While there are limitations to the avifauna survey conducted and threatened species have previously been recorded or have the potential to occur within the study area, it is believed that the study area does not provide important habitat for any of the EPBC Act species (Harris, 2023).

Gang Gang Cockatoo

- *Callocephalon fimbriatum* (Gang Gang Cockatoo) has a moderate likelihood of occurring on site (Harris, 2023). This species was added to the EPBC Act list in March 2022.
- Its closest record to the study area was from the Big 4 Traralgon Park Lane Holiday Park in December 2018 (eBird 2022) while the most recent record is from the Traralgon Golf Course in March 2021. Gang-gangs are known to be regular visitors to urban areas especially when Hawthorn *Crataegus monogyna* and Cotoneaster *Cotoneaster* spp. bushes and White Cedar trees *Melia azedarach* are in fruit (Harris, 2023).
- While there are limitations to the avifauna survey conducted and threatened species have previously been recorded or have the potential to occur within the study area, it is believed that the study area does not provide important habitat for any of the EPBC Act species (Harris, 2023).

Latham's Snipe

- *Gallinago hardwickii* (Latham's Snipe) has a moderate likelihood of occurring on site (Harris, 2023).
- This species is migratory from the northern hemisphere during spring-summer. The snipe is a wary, cryptic species that may go unnoticed unless disturbed and feeds in muddy, often well-grassed areas where it blends into its environment, so a lack of records may not indicate its absence from the study area. Given that there was little muddy edge along the two wetlands and the waterways contained water during the December 2022 site assessment, it was not unexpected to find none of this species present. As the summer dries out and more edge becomes available, this species may visit the study area (Harris, 2023).
- While there are limitations to the avifauna survey conducted and threatened species have previously been recorded or have the potential to occur within the study area, it is believed that the study area does not provide important habitat for any of the EPBC Act species. However, follow up surveys to record numbers of individuals of species like Latham's Snipe would help to determine if the site does contain important habitat for the species (Harris, 2023).

White Bellied Sea-eagle

- *Haliaeetus leucogaster* (White-bellied Sea-Eagle) has a moderate likelihood of occurring on site (Harris, 2023).
- Numerous records of White-bellied Sea-eagle over the past 10 years from within the five kilometre buffer and further afield in the Latrobe Valley, indicate that wetlands across the area are visited by this species.
- The avifauna survey determined that the wetlands on site do not provide important habitat for the sea-eagle, however, they do provide suitable habitat even if for only short periods of time (Harris, 2023).

White-throated Needletail

- *Hirundapus caudacutus* (White-throated Needletail) has a moderate likelihood of occurring on site (Harris, 2023). It is a migratory swift and would only be using the 'air space' above the study area, up to 1.8km above ground catching flying insects. They seldom roost while in Australia, being primarily on the wing the whole time. As such, this species would have little to no dependence on the habitats within the study area (Harris, 2023).
- No further consideration for this species required.

4.1.2 Summary

Given the difficulty in assessing the suite of avifauna that may use the Boyd's Creek wetlands and surrounding habitats from a single site visit and the determination that this site does not provide important habitat for EPBC listed species, it is recommended that a series of follow-up avifauna surveys be undertaken, at least once per season, to provide a more complete picture of the species that occur in the study site and what habitats they utilise. These follow-up surveys should occur at an appropriate time in the overall planning process and would help determine the presence of threatened species and numbers of individuals of each (Harris, 2023).

There are no additional MNES than those identified above that warrant further consideration under the proposal. In summary:

- All other fauna species identified in database searches, within a 5 km search radius, that are listed as threatened under the EPBC Act are considered unlikely to occur or be reliant on habitat within the study area;
- No threatened species or ecological communities listed as threatened under the EPBC Act were found to occur within the study area during the site inspection; and
- All other flora species identified in database searches, within a 5 km search radius, that are listed as threatened under the EPBC Act are considered unlikely to occur within the study area.

4.2 State – *Flora and Fauna Guarantee Act 1998*

The *Flora and Fauna Guarantee Act 1988* (FFG Act) and *Fauna Guarantee (Amendment) Act 2019* (FFG Act) is the primary State legislation for the protection of native plants, native animals and ecological communities on public land and waters in Victoria. The 2019 amendment to the Act lists species and ecological communities as threatened based on assessments by an independent Scientific Advisory Committee. Threatening processes may also be listed.

Under the FFG Act a permit is required from the DEECA to 'take' 'protected' flora species, 'listed communities' or 'threatened species' from public land. Removal of any protected flora taxa, listed flora species or listed communities may not be undertaken until this permit has been issued.

The FFG Act now defines three types of 'take', these include 'incidental take', 'take for sale' and 'take for personal use'. Two types of categories for protected flora have also been defined 'generally protected flora' and 'restricted use protected flora'. 'Generally protected flora' require a permit under any situation while 'restricted use protected flora' don't need a permit for 'incidental take'.

The FFG Act also provides specific protection of fish passage by noting that the '*prevention of passage of aquatic biota as a result of the presence of instream structures*' is s potentially threatening process and that '*there should be no further preventable decline in the viability of any rare species'*.

4.2.1 Implications

A number of flora and fauna species listed under the FFG Act were either recorded on site or have a moderate likelihood of occurrence (Sections 3.2 & 3.3).

An application for a Permit to Take Protected Flora (or threatened fauna) would not be required within the private land. However, impacts associated with any road access network may require an FFG permit, such as impacts to Strzelecki Gum or *Thelymitra* sp. (Sun Orchids) identified in the targeted flora surveys (Brooker, 2023) or any threatened fauna once designs have been progressed.

DEECA identified the potential for *Lissolepis coventryi* (Swamp Skink) to be present on site. The aquatic assessment (Jenkin, 2022), whilst not a targeted survey for the species, did include an assessment of habitat suitability and concluded that the habitat within the waterways of the site were not suitable due to lack of cover and current cattle access. The species was therefore revised to be unlikely to occur on site.

The FFG Act protected Flinders Pygmy Perch is present within the site's waterways and wetlands / dams, as well as those immediately upstream and downstream of the site and development will need to factor the uninterrupted maintenance of fish passage between known populations of fish and other aquatic fauna upstream and downstream of the site (Jenkin, 2022).

The FFG Act protected species Eastern Great Egret, Hardhead and White-bellied Sea-Eagle have been observed on or around the larger wetland within the study area (Harris, 2023). In addition, the open water duck species Musk Duck, Blue-billed Duck, Hardhead and Australasian Shoveler are reliant on submerged aquatic vegetation and invertebrates for food resources. Given that both of these components were not assessed as part of the avifauna survey, it is not possible to determine if the required resources are available to enable the regular occurrence of these species within the two wetlands found on site. It is expected that these species may be irregular visitors rather than residents, given they have been recorded within 5km of the study site, at the Traralgon Railway Reserve Conservation Reserve (Harris, 2023).

As previously discussed, there is difficulty in assessing the suite of avifauna that may use the Boyd's Creek wetlands and surrounding habitats from a single site visit. The recommendation for a series of follow-up avifauna surveys is re-iterated here for FFG listed species (Harris, 2023).

4.3 State – Catchment and Land Protection Act 1994

In accordance with Section 20 of the CaLP Act, landholders and managers have a responsibility to take all reasonable steps to:

- Avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner;
- Eradicate regionally prohibited weeds;
- Prevent the growth and spread of regionally controlled weeds on their land; and
- Prevent the spread of, and as far as possible, eradicate established pest animals.

4.3.1 Implications

Eight weeds declared noxious under the Catchment and Land Protection Act 1994 (CaLP Act) were identified on site during assessments (*Table 5*). Two of these weeds are categorised within the West Gippsland Catchment Management Authority region as 'Restricted' and six as "Regionally Controlled' (Agriculture Victoria, 2021).

Table 5: Declared noxious weeds proclaimed under the Catchment and Land Protection Act 1994

Scientific Name	Common Name	Classification
Cirsium vulgare	Spear Thistle	Regionally Controlled
Crataegus monogyna	Hawthorn	Regionally Controlled
Genista monspessulana	Montpellier Broom	Regionally Controlled
Lycium ferocissimum	African Boxthorn	Regionally Controlled
Oxalis pes-caprae	Soursob	Restricted
Rubus fruticosus spp. agg.	Blackberry	Regionally Controlled
Salix fragilis	Crack Willow	Restricted

Scientific Name	Common Name	Classification
Watsonia meriana var. bulbillifera	Watsonia	Regionally Controlled

To prevent the spread of noxious weeds listed in *Table 5*, the landowner should undertake works to limit their spread. Appropriate site weed hygiene practices will need to be employed to limit the spread of any existing noxious weeds once the site begins development. Similarly, vehicle hygiene practice must be employed to prevent the import or export of any noxious weeds to or from the construction area.

4.4 State - *Water Act 1987*

Catchment Management Authorities have statutory responsibilities under Section 67 of the Water Act to monitor, manage, enforce, and administer control over all works which may impact upon designated waterways to ensure works undertaken do not adversely affect the health of those waterways.

A permit is required to undertake works on a designated waterway and can include activities such as:

- Crossings – bridges, fords, culverts;
- Deviations – waterway realignments;
- Extractions – sand, silt or gravel;
- Stabilisation – bank protection, retaining structures;
- Vegetation – fallen timber and vegetation removal, revegetation projects;
- Works – stormwater outlets, service crossings; and
- Other – jetty, river mouth opening, boardwalks.

4.4.1 Implications

Within the study area there is a large wetland that is mapped on the DEECA's *Current wetlands map* along with Boyds Creek and associated tributaries/waterways.

Further discussion with the WGCMA will be required for future development of the site and to determine any future approval requirements. Development will need to factor downstream impacts associated with the change of land use, particularly those around possible increase volumes of stormwater, sediments and pollutants and changes to hydrology. Sensitive Water Urban Design principles should be utilised to minimise the impact of this development on the surrounding environment and waterways through treating and reducing stormwater flows, removing rubbish, pollutants and silt before it enters the wetlands / dams and waterways. Wetland enhancement works

The West Gippsland Catchment Management Authority's Waterway Strategy recommends a vegetated buffer (riparian corridors) at least 30 metre wide on each side of a waterway be retained and improved as part of any new urban development.

4.5 State – *Wildlife Act 1979*

The Wildlife Act 1975 provides the primary legislation for the protection and management of wildlife, the purposes of this Act are:

- To establish procedures in order to promote the protection and conservation of wildlife, the prevention of taxa of wildlife from becoming extinct and the sustainable use of and access to wildlife; and
- To prohibit and regulate the conduct of persons engaged in activities concerning or related to wildlife.

4.5.1 Implications

Future development of the site will need to address the salvage and translocation of fish and other aquatic fauna if impacts are proposed to wetlands / dams and their relocation to other suitable habitat.

Persons engaged to remove, salvage, hold or relocate any native fauna species during proposed construction works must have a permit under this Act to undertake such actions and ensure any actions to manage wildlife must be undertaken in accordance with the requirements of the Act or at the direction of DEECA.

4.6 State – *Environmental Effects Act 1978*

In Victoria, environmental impact assessments of proposed development projects are conducted through the Environmental Effects Statement (EES) process under the *Environment Effects Act 1978* (EE Act). The Minister for Planning (the Minister) administers the EES process through the *Ministerial Guidelines for Assessment of Environmental Effects* (Ministerial Guidelines), whilst DELWP manages this process (Victorian Auditor Generals Report, 2017).

A proponent should ask the Minister administering the Act whether an EES is required for projects or amended projects that could have a significant effect on the environment. If the Minister decides that an Environment Effects Statement (EES) is required, the project proponent is responsible for preparing the EES and undertaking the necessary investigations (Victorian Government, the Department of Sustainaibility and Environment, 2006).

Referral criteria is based on either individual potential environmental effects or a combination of potential environmental effects.

4.6.1 Implications

Assessment of referral requirements for relevant criteria are outlined below.

Individual Potential Environmental Effects

Potential long-term loss of a significant proportion (e.g. 1 to 5 percent depending on the conservation status of the species) of known remaining habitat or population of a threatened species within Victoria

One ‘known’ population of Strzelecki Gum occurs on site, however only four individuals were recorded (Brooker, 2023) which does not represent a significant proportion of known remaining habitat. The

waterways and wetlands / dams provide potential habitat for Growling Grass Frog, Dwarf Galaxias and Eastern Egret, while the grassy woodland zones also having the potential for Matted Flax-lily and Grey Billy Buttons to be present. Where possible, these areas should be avoided.

In the context of known populations of these six species and the remaining extent of suitable habitat across wider Gippsland, it is considered unlikely the degree of impact to habitat for this development.

Potential clearing of 10 ha or more of native vegetation from an area that is of an EVC identified as endangered.

Overall, approximately 2.0471 hectares of native vegetation (patches) with a Bioregional Conservation Status of Endangered (EVC 53: Swamp Scrub & EVC 55: Plains Grassy Woodland) is found within and adjacent to the site. This amount is under the referral threshold and likely would not all be removed as part of any development of the site, therefore, no referral is required under this criterion.

4.7 State – *Planning and Environment Act 1987*

Planning Overlays

There are no overlays with environmental or vegetation protection implications that apply to the site.

Clause 52.17 -Native Vegetation

Under *Clause 52.17* of the Latrobe Planning Scheme, a planning permit is required to clear or disturb native vegetation within the study area. Application of the '*Guidelines*' to obtain a planning permit for any removal of native vegetation in the future will be necessary.

5 Victoria's Native Vegetation Removal Regulations

The purpose of the Guidelines is to set out and describe the application of Victoria's statewide policy in relation to assessing and compensating for the removal of native vegetation. The Guidelines implement Clause 12.01-2S (Biodiversity) of the Planning Provisions objective 'To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation (DELWP, 2017).

The Guidelines also detail the three step approach of Avoid, Minimise and Offset as a key component of the policy. This approach aims to ensure that the removal of native vegetation is restricted to only what is reasonably necessary, and that biodiversity is appropriately compensated for any removal approved.

A combination of site-based and landscape information is used to calculate the biodiversity value (being a general or species habitat score) of native vegetation to be removed. This is calculated by the extent and condition score, combined to determine the site-based measure of biodiversity value.

The assessment pathway for an application to remove native vegetation reflects its potential impact on biodiversity and is determined by combining the location and extent of the native vegetation proposed to be removed, in accordance with Table 3 of the Guidelines.

The pathways are:

Basic - limited impacts on biodiversity.
Intermediate - could impact on large trees, endangered EVC's, and sensitive wetlands and coastal areas.
Detailed - could impact on large trees, endangered EVC's, sensitive wetlands and coastal area and could significantly impact on habitat for rare or threatened species. (DELWP, 2017)

5.1 Avoiding and Minimising Impacts on Native Vegetation (and Significant Species or Communities)

Avoiding the removal of native vegetation and fauna habitat can be achieved by locating or designing a development so that native vegetation is not removed. Minimising losses to native vegetation can be achieved by siting to minimise total losses, restrict to areas of native vegetation that have the least biodiversity or other values or managing the use or development to minimise impacts on surrounding vegetation (DELWP, 2017).

Site Level Planning

Specific avoidance and minimisation measures should be applied to the future development of the site to avoid impacts and provide an adequate buffer for the wetlands / dams, Boyds Creek, associated tributaries and threated species, including:

- The two wetlands / dams and waterways (including Boyd's Creek) support a range of aquatic habitats and aquatic wetland fauna species such as the FFG Act listed Flinders Pygmy Perch. These areas also have past records onsite or in close proximity of Eastern Great Egret,

Hardhead and White-bellied Sea Eagle and the potential of an additional six threatened avifauna species. The aquatic assessment recommends that the existing wetlands / dams and waterways are retained and a minimum 30 metre buffer to ensure adequate protection of aquatic fauna. The avifauna assessment concluded that there would be a loss of aquatic habitat leading to a reduction of biodiversity if the wetlands / dams were reshaped and reduced and also recommends a buffer of 30 metre between the wetlands / dams, waterways and any development. The West Gippsland Catchment Management Authority's Waterway Strategy recommends a vegetated buffer (riparian corridors) at least 30 metre wide on each side of a waterway be retained and improved as part of any new urban development.

- Downstream impacts associated with the change of land use, particularly those around possible increase volumes of stormwater, sediments and pollutants and changes to hydrology must be considered. Sensitive Water Urban Design principles should be utilised to minimise the impact of this development on the surrounding environment and waterways through treating and reducing stormwater flows, removing rubbish, pollutants and silt before it enters the wetlands / waterways.
- Maintenance of fish passage between known populations of fish and other aquatic fauna upstream and downstream of the site, on all waterways will be required.
- Avoid remnant native vegetation patches contained within the Bradford Drive, Regan Road and Princes Highway road reserves.
- Avoid impacts to the identified Strzelecki Gums in the Regan Road unused road reserve.
- Avoid and retain the native patches, 4 large scattered trees and the DEECA mapped wetlands located within the site including tree protection zones (12 x their diameter) within open space.

5.2 Topographic & Land Information

The following provides topography and information (DEECA, 2017) specific to the native vegetation proposed to be removed under the current Indicative Development Plan.

1. Role of native vegetation in protecting water quality, waterways and riparian ecosystems particularly within 30m of a wetland, waterway or special catchment
   - Boyds Creek and tributaries run from the northern boundary of the study area, branching east and south throughout the site.
   - A large wetland mapped on the DELWP's *Current wetlands map* is located within the study area.
   - Native vegetation is confined to the periphery of the wetlands / dams and waterways and canopy trees that are scattered across the site.
2. Preventing land degradation including soil erosion and instability, particularly where slopes are greater than 20%, land subject to slippage or soil erosion, harsh environments - alpine, coastal.
   - The majority of the site is uniformly flat with a land slope less than 5%, whilst the land slopes down to the tributaries and wetland bodies.
   - Impacts to natural banksides, bankside vegetation or natural waterway flows are recommended be avoided.
3. Preventing adverse effects on groundwater quality, saline discharge, recharge area.
   - Any impacts to existing wetland areas are yet to be determined.

- Stormwater and drainage assessments of the future development of the site will be required.

4. Need to preserve identified landscape values.
   - Only a small amount of native vegetation remains on site.
5. Is native vegetation protected under Aboriginal Heritage Act 2006?
   - No.

6 Conclusion & Recommendations

ID Ecological Management has been commissioned by Beveridge Williams to undertake an assessment of native vegetation and biodiversity values of 5483 and 5495 Princes Highway, Traralgon which is proposed to be rezoned from Farming Zone to General Residential and Commercial Zone.

One fauna species listed as threatened was identified within the study area during the site and targeted species surveys, Flinders Pygmy Perch. An avifauna likelihood and site assessment determined that nine threatened fauna species identified in the database searches had a moderate likelihood of occurrence: Eastern Great Egret, Hardhead, Musk Duck, Gang Gang Cockatoo, Lathams Snipe, White-Bellied Sea-Eagle, White-Throated Needletail, Blue-Billed Duck and Australasian Shoveler. Eastern Great Egret, Hardhead and White-bellied Sea-Eagle had also been previously recorded or observed on or around the larger wetland / dam within the study area. All other fauna species had a low likelihood determination or were considered unlikely to utilise the study area.

One flora species listed as threatened was identified within the study area during the site survey, (Strzelecki Gum) within the Bradford Drive / Regan Road reserve. All other flora species had a low likelihood or were considered unlikely to utilise the study area.

No threatened ecological community listed under the commonwealth *EPBC Act 1999* nor under Victoria's *FFG Act 2019* were determined to be present on site.

The following recommendations to further avoid and minimise impacts from this development include:

- The two wetlands / dams and waterways (including Boyd's Creek) support a range of aquatic habitats and aquatic wetland fauna species such as the FFG Act listed Flinders Pygmy Perch. These areas also have past records onsite or in close proximity of Eastern Great Egret, Hardhead and White-bellied Sea Eagle and the potential of an additional six threatened avifauna species. The aquatic assessment recommends that the existing wetlands / dams and waterways are retained and a minimum 30 metre buffer to ensure adequate protection of aquatic fauna. The avifauna assessment concluded that there would be a loss of aquatic habitat leading to a reduction of biodiversity if the wetlands / dams were reshaped and reduced and also recommends a buffer of 30 metre between the wetlands / dams, waterways and any development. The West Gippsland Catchment Management Authority's Waterway Strategy recommends a vegetated buffer (riparian corridors) at least 30 metre wide on each side of a waterway be retained and improved as part of any new urban development.
- Downstream impacts associated with the change of land use, particularly those around possible increase volumes of stormwater, sediments and pollutants and changes to hydrology must be considered. Sensitive Water Urban Design principles should be utilised to minimise the impact of this development on the surrounding environment and waterways through treating and reducing stormwater flows, removing rubbish, pollutants and silt before it enters the wetlands / waterways.
- Maintenance of fish passage between known populations of fish and other aquatic fauna upstream and downstream of the site, on all waterways will be required.

- Avoid remnant native vegetation patches contained within the Bradford Drive, Regan Road and Princes Highway road reserves.
- Avoid impacts to the identified Strzelecki Gums in the Regan Road unused road reserve.
- Avoid and retain the native patches, 4 large scattered trees and the DEECA mapped wetlands located within the site including tree protection zones (12 x their diameter) within open space.

The following additional works are recommended for this proposal:

- Follow-up avifauna surveys undertaken once per season, to provide a more complete picture of the species that occur in the study site and what habitats they utilise. These should occur at an appropriate time in the overall planning process and will assist in further determining the presence threatened bird species, particularly those who may be non-resident seasonal visitors to the site and build population information on these species.
- Consideration against the commonwealth EPBC Significant Impact Criteria once development plans have been finalised to determine if any impacts have the potential to be significant for Commonwealth listed species such as Strzelecki Gum and avian species.

7 Photos

Photos 1 - 5 provide examples of scattered trees found on site. These photos were taken during the site visit ion the 7th of December 2021.

Photo 1 – Large scattered tree (Tree #1)

Photo 2 – Large scattered tree (Tree #2)

Photo 3 – Large scattered tree (Tree #3)

Photo 4 – Large scattered tree (Tree #4)

Photo 5 – Large tree in Patch (Tree #18)

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Glossary

Avoid	Avoiding removing any native vegetation when undertaking a use or development. This can be either by not permitting or not going ahead with the use or development, or locating it elsewhere so that removing native vegetation is not required.
Bioregion	Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values.
Bioregional Conservation Status (BCS of an EVC)	A state-wide classification of the degree of depletion in the extent and/or quality of an Ecological Conservation Class (EVC) within a bioregion in comparison to the State's estimation of its pre-1750 extent and condition.
Canopy Tree	A tree, greater than five meters in height, that is normally found in the upper layer of a vegetation type. A tree, greater than five meters in height, that is normally found in the upper layer of a vegetation type.
Diameter at Breast Height (DBH)	The diameter of the trunk of a tree measured over bark at 1.3m above ground level.
Ecological Vegetation Class (EVC)	A type of native vegetation classification that is described through a combination of its floristic, life form and ecological characteristics, and through an inferred fidelity to particular environmental attributes. Each EVC includes a collection of floristic communities (i.e. lower level in the classification that is based solely on groups of the same species) that occur across a biogeographic range, and although differing in species, have similar habitat and ecological processes operating.
EVC Benchmark	A standard vegetation-quality reference point relevant to the vegetation type that is applied in habitat hectare assessments. Represents the average characteristics of a mature and apparently long-undisturbed state of the same vegetation type.
General offset	An offset that is required when a proposal to remove native vegetation is not deemed, by application of the specific-general offset test, to have a significant impact on habitat for any rare or threatened species.
Habitat Hectares	Combined measure of condition and extent of native vegetation. This measure is obtained by multiplying the site's condition score (measured between 0 and 1) with the area of the site (in hectares).
Habitat Score	The score assigned to a habitat zone that indicates the quality of the vegetation relative to the Ecological Vegetation Class (EVC) benchmark – sum of the site condition score and landscape context score usually expressed as a percentage or on a scale of zero to 1.
Habitat Zone	A discrete area of native vegetation consisting of a single vegetation type (EVC) with an assumed similar quality. This is the base spatial unit for conducting a habitat hectare assessment.
High Threat Weed	Introduced plant species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term, assuming on-going current site characteristics and disturbance regime.
Large Tree (LT)	A tree with a Diameter at Breast Height equal to or greater than the large tree diameter as specified in the relevant EVC benchmark.

Loss	Loss in the contribution to Victoria's biodiversity when native vegetation is fully or partially removed, as measured in biodiversity equivalence scores or units.
Minimise	Locating, designing or managing a use or development to reduce the impacts on biodiversity from the removal of native vegetation.
Native vegetation	Native vegetation is defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'.
Native vegetation condition	A site-based measure of how close native vegetation is to its mature natural state, as represented by a benchmark reflecting pre-settlement circumstances.
Offset	Protection and management (including revegetation) of native vegetation at a site to generate a gain in the contribution that native vegetation makes to Victoria's biodiversity. An offset is used to compensate for the loss to Victoria's biodiversity from the removal of native vegetation.
Permitted clearing	Removal of native vegetation for which a planning permit has been granted to remove native vegetation.
Remnant patch	Either: • An area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native; or • Any area with three of more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy; or • any mapped wetland included in the *Current wetlands map*, available in DELWP systems and tools.
Scattered Trees	An indigenous canopy tree that does not form part of a remnant patch of native vegetation (see definition of remnant patch of native vegetation).
Small Tree (ST)	A tree with a Diameter at Breast Height (DBH) equal to or greater than 0.25 of the large tree diameter in the relevant EVC benchmark but less than the DBH for a medium old tree.
Strategic biodiversity score	A score that quantifies the relative value of a location in the landscape with regard to its condition, extent, connectivity and the support function it plays for species.
Understorey	The lower layers of vegetation, including the shrub layer, grass layer and ground layer. The understorey may comprise native and non-native species.
Vegetation Quality Assessment (VQA)	The Vegetation Quality Assessment (VQA) otherwise known as the habitat hectare assessment method is the standard approach of assessing vegetation quality in Victoria. Consistency in the application of the method by assessors is essential to support the delivery of Victoria's native vegetation removal regulations.

Appendices

Appendices commence on the next page.

Appendix 1: Victorian Biodiversity Atlas 5 kilometre radius search for flora species (2021)

Scientific Name	Common Name	FFG Threatened List	Conservation Status / Origin	Count of Sightings	Last Record
Acacia howittii	Sticky Wattle	vulnerable	Native but some stands may be alien		4/03/2009
Amphibromus fluitans	River Swamp Wallaby-grass				15/01/2004
Caladenia orientalis	Eastern Spider-orchid	endangered	en		1/02/1981
Craspedia canens	Grey Billy-buttons	critically endangered	cr	10	17/09/2019
Dianella amoena	Matted Flax-lily	critically endangered	cr	1	31/10/2017
Eucalyptus crenulata	Buxton Gum	endangered	Native but some stands may be alien	1	23/09/2006
Eucalyptus strzeleckii	Strzelecki Gum	critically endangered	cr	100	19/03/2021
Eucalyptus yarraensis	Yarra Gum	critically endangered	cr	1	01/01/1770
Hakea dactyloides	Finger Hakea	endangered	en		17/04/2019
Lachnagrostis semibarbata var. semibarbata	Purple Blown-grass	endangered	en	1	23/10/2000

Key to Conservation Status and Origin

Taxon Origin	
#	Native species that may be considered alien in some circumstances
*	Exotic species

Flora and Fauna Guarantee Act 1988	
L	Listed as a Threatened in Victoria
N	Nominated for listing as Threatened in Victoria
I	Invalid or ineligible to be a Threatened species in Victoria
D	Delisted as Threatened in Victoria

Commonwealth Environment Protection and Biodiversity Conservation Act 1999	
X	Listed as Nationally Extinct
CR	Listed as Nationally Critically Endangered
EN	Listed as Nationally Endangered
VU	Listed as Nationally Vulnerable
CD	Listed as Conservation Dependent

Advisory List of Rare or Threatened Plants in Victoria (VROTS) (DEPI, 2014)	
x	Listed as Presumed Extinct in Victoria
rx	Listed as Regionally Extinct in a geographic range of Victoria
ew	Listed as Extinct in the Wild in Victoria
cr	Listed as Critically Endangered in Victoria
en	Listed as Endangered in Victoria
vu	Listed as Vulnerable in Victoria
nt	Listed as Near Threatened in Victoria
r	Listed as Rare in Victoria
dd	Listed as Data Deficient in Victoria
k	Listed as Poorly Known in Victoria

Appendix 2: EPBC Act Protected Matters 5 kilometre radius search

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Dec-2021

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	29
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	1
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	14
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Gippsland lakes	40 - 50km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities			[Resource Information]
For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps. Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.			
Community Name	Threatened Category	Presence Text	Buffer Status
Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana) Grassy Woodland and Associated Native Grassland	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species			[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Grantiella picta			
Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus			
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor			
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxiella pusilla			
Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species habitat known to occur within area	In feature area
Prototroctes maraena			
Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria aurea			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area	In feature area
Litoria raniformis			
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area	In feature area
Isoodon obesulus obesulus			
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dianella amoena Matted Flax-lily [64886]	Endangered	Species or species habitat known to occur within area	In feature area
Eucalyptus strzeleckii Strzelecki Gum [55400]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pomaderris vacciniifolia Round-leaf Pomaderris [4256]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Prasophyllum spicatum Dense Leek-orchid [55146]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterostylis chlorogramma Green-striped Greenhood [56510]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Senecio psilocarpus Swamp Fireweed, Smooth-fruited Groundsel [64976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thelymitra epipactoides Metallic Sun-orchid [11896]	Endangered	Species or species habitat may occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Heritage Places			[Resource Information]
Name	State	Status	Buffer Status
Historic			
Traralgon Post Office	VIC	Listed place	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included.	
RFA Name	State	Buffer Status
Gippsland RFA	Victoria	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Installation of replacement crude-condensate pipeline, Vic	2014/7202	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Latrobe River Bridge Replacement Project, Tyers Road, Vic	2017/8052	Controlled Action	Post-Approval	In buffer area only
Star of the South Offshore Wind Farm Project	2020/8650	Controlled Action	Guidelines Issued	In buffer area only
Thomson River Mercury Recovery Project	2010/5734	Controlled Action	Completed	In feature area
Yallourn Combined Cycle Gas Trubine (CCGT) Power Station	2010/5516	Controlled Action	Completed	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Line of Sight Clearing on the Eastern Corridor, Regional Fast Rail	2010/5481	Not Controlled Action	Completed	In feature area
Proposed development of Dalkeith Heights	2007/3825	Not Controlled Action	Completed	In buffer area only
Rebuild of Existing Bleached Pulp Facilities at Maryvale Mill	2005/2234	Not Controlled Action	Completed	In feature area
Regional Fast Rail Project - Latrobe Valley Country Works Package	2002/654	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Gippsland Rail Line Upgrade - Longwarry East to Traralgon	2019/8564	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Regional Fibre Optic Project (RFOP)	2003/916	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Gippsland	Gippsland Basin	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Appendix 3: Victorian Biodiversity Atlas 5 kilometre radius search for fauna species (2021)

Scientific Name	Common Name	FFG Threatened List	Conservation Status / Origin	Count of Sightings	Last Record
Accipiter novaehollandiae	Grey Goshawk	endangered	en	1	22/06/2004
Anthochaera Phrygia	Regent Honeyeater	critically endangered	cr		1/01/1970
Ardea alba modesta	Eastern Great Egret	vulnerable	vu	1	22/05/2019
Aythya australis	Hardhead	vulnerable	vu	10	31/07/2019
Biziura lobata	Musk Duck	vulnerable	vu	6	4/03/1995
Galaxiella pusilla	Dwarf Galaxias	endangered	en	8	16/07/2020
Haliaeetus leucogaster	White-bellied Sea-Eagle	endangered	en	2	1/04/2019
Hieraaetus morphnoides	Little Eagle	vulnerable	vu	1	3/12/2004
Hirundapus caudacutus	White-throated Needletail	vulnerable	vu		20/11/1998
Litoria raniformis	Growling Grass Frog	vulnerable	vu		15/02/1973
Melanodryas cucullate	Hooded Robin	vulnerable	vu		1/01/1973
Nannoperca sp. 1	Flinders Pygmy Perch	vulnerable	vu	2	16/07/2020
Ornithorhynchus anatinus	Platypus	vulnerable	vu	1	19/07/1979
Oxyura australis	Blue-billed Duck	vulnerable	vu	1	28/09/2018
Prototroctes maraena	Australian Grayling	endangered	en	2	23/03/2010
Spatula rhynchotis	Australasian Shoveler	vulnerable	vu	20	24/02/1991
Trapezites luteus luteus	Yellow Ochre Butterfly	endangered	en	1	5/02/1972

Appendix 4: Flora survey results

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Acacia baileyana	Cootamundra Wattle	Introduced			+	+
Acacia dealbata	Silver Wattle				+	
Acacia longifolia	Sallow Wattle	Native but some stands may be alien			+	
Acacia mearnsii	Black Wattle				+	+
Acacia melanoxylon	Blackwood				+	
Acacia mucronata subsp. longifolia	Narrow-leaf Wattle				+	
Acacia pycnantha	Golden Wattle				+	
Acaena echinata	Sheep's Burr				+	
Acaena novae-zelandiae	Bidgee-widgee				+	+
Agapanthus praecox subsp. orientalis	Agapanthus	Introduced			+	
Agrostis capillaris	Brown-top Bent	Introduced			+	+
Aira spp.	Hair Grass	Introduced			+	+
Alisma plantago-aquatica	Water Plantain				+	
Allocasuarina littoralis	Black Sheoak				+	
Allocasuarina verticillata	Drooping Sheoak				+	
Anthoxanthum odoratum	Sweet Vernal-grass	Introduced			+	+
Aponogeton distachyos	Cape Pondlily	Introduced			+	
Arctotheca calendula	Cape Weed	Introduced				+
Arthropodium strictum s.l.	Chocolate Lily					+
Austrostipa spp.	Spear Grass				+	+
Avena fatua	Wild Oat	Introduced				+
Banksia marginata	Silver Banksia					+
Brassica spp.	Turnip	Introduced			+	+
Briza maxima	Large Quaking-grass	Introduced				+
Briza minor	Lesser Quaking-grass	Introduced			+	+

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Bromus diandrus	Great Brome	Introduced			+	+
Callistemon spp.	Bottlebrush				+	+
Callitris rhomboidea	Oyster Bay Pine	Native but some stands may be alien				+
Carex appressa	Tall Sedge				+	
Carex gaudichaudiana	Fen Sedge				+	+
Cenchrus clandestinus	Kikuyu	Introduced			+	+
Cerastium glomeratum s.l.	Common Mouse-ear Chickweed	Introduced			+	+
Cirsium vulgare	Spear Thistle	Introduced			+	+
Coprosma repens	Mirror Bush	Introduced				+
Correa glabra var. glabra	Rock Correa				+	
Corymbia ficifolia	Flowering Gum	Introduced				+
Corymbia maculata	Spotted Gum	Native but some stands may be alien	Vulnerable			+
Cotula australis	Common Cotula	Native but some stands may be alien			+	+
Crassula helmsii	Swamp Crassula				+	
Crassula sieberiana s.s.	Sieber Crassula					+
Crataegus monogyna	Hawthorn	Introduced			+	
Cycnogeton spp.	Water Ribbons				+	
Cynodon dactylon	Couch	Native but some stands may be alien			+	
Cyperus eragrostis	Drain Flat-sedge	Introduced				
Dactylis glomerata	Cocksfoot	Introduced			+	+

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Dianella revoluta s.l.	Black-anther Flax-lily				+	+
Dichondra repens	Kidney-weed				+	
Ehrharta erecta	Panic Veldt-grass	Introduced			+	+
Ehrharta longiflora	Annual Veldt-grass	Introduced			+	+
Einadia nutans	Nodding Saltbush				+	+
Eleocharis acuta	Common Spike-sedge				+	
Epilobium billardiereanum	Variable Willow-herb					+
Erigeron sumatrensis	Tall Fleabane	Introduced				+
Eucalyptus angophoroides	Apple Box				+	+
Eucalyptus baxteri s.s.	Brown Stringybark					+
Eucalyptus botryoides	Southern Mahogany	Native but some stands may be alien				+
Eucalyptus bridgesiana s.s.	But But					+
Eucalyptus dives	Broad-leaf Peppermint					+
Eucalyptus globulus	Southern Blue-gum	Native but some stands may be alien			+	
Eucalyptus melliodora	Yellow Box				+	+
Eucalyptus ovata	Swamp Gum				+	+
Eucalyptus radiata s.l.	Narrow-leaf Peppermint				+	+
Eucalyptus strzeleckii	Strzelecki Gum		Critically Endangered	Vulnerable	+	
Eucalyptus tricarpa	Red Ironbark					+
Eucalyptus viminalis	Manna Gum				+	+
Euphorbia peplus	Petty Spurge	Introduced				+
Festuca arundinacea	Tall Fescue	Introduced				+
Fraxinus angustifolia	Desert Ash	Introduced				+
Fumaria spp.	Fumitory	Introduced			+	+

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Galium aparine	Cleavers	Introduced			+	+
Gamochaeta americana	Spiked Cudweed	Introduced				+
Genista monspessulana	Montpellier Broom	Introduced				+
Geranium molle	Dove's Foot	Introduced				+
Geranium spp.	Crane's Bill				+	
Gladiolus spp.	Gladiolus	Introduced			+	
Gonocarpus tetragynus	Common Raspwort				+	
Grevillea spp.	Grevillea					+
Hakea spp.	Hakea				+	
Hardenbergia violacea	Purple Coral-pea				+	
Holcus lanatus	Yorkshire Fog	Introduced			+	+
Hordeum spp.	Barley Grass	Introduced				+
Hypochaeris radicata	Flatweed	Introduced			+	+
Isolepis spp.	Club Sedge				+	
Juncus australis	Austral Rush				+	+
Juncus gregiflorus	Green Rush				+	
Juncus pallidus	Pale Rush					+
Kunzea ericoides s.l.	Burgan				+	+
Laphangium luteoalbum	Jersey Cudweed					+
Lemna spp.	Duckweed				+	
Lepidium africanum	Common Peppercress	Introduced				+
Lepidosperma laterale	Variable Sword-sedge				+	
Leptospermum continentale	Prickly Tea-tree				+	
Lolium spp.	Rye Grass	Introduced			+	+
Lomandra filiformis	Wattle Mat-rush				+	+
Lomandra longifolia	Spiny-headed Mat-rush				+	
Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush				+	+
Lotus creticus	Lotus	Introduced			+	+

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Lycium ferocissimum	African Box-thorn	Introduced				+
Lycopus australis	Australian Gipsywort				+	
Lysimachia arvensis var. arvensis	Scarlet Pimpernel	Introduced			+	
Lysimachia arvensis var. caerulea	Blue Pimpernel	Introduced				+
Lythrum hyssopifolia	Small Loosestrife				+	+
Machaerina rubiginosa s.l.	Soft Twig-rush				+	
Malva spp.	Mallow					+
Medicago arabica	Spotted Medic	Introduced				+
Melaleuca ericifolia	Swamp Paperbark	Native but some stands may be alien			+	
Melaleuca styphelioides	Prickly Paperbark	Introduced			+	
Microlaena stipoides var. stipoides	Weeping Grass				+	+
Myriophyllum spp.	Water Milfoil				+	
Oxalis perennans	Grassland Wood-sorrel				+	+
Oxalis pes-caprae	Soursob	Introduced				+
Paspalum dilatatum	Paspalum	Introduced			+	+
Paspalum distichum	Water Couch	Introduced			+	
Persicaria decipiens	Slender Knotweed				+	
Phalaris aquatica	Toowoomba Canary-grass	Introduced			+	+
Phytolacca octandra	Red-ink Weed	Introduced				+
Pinus radiata	Radiata Pine	Introduced			+	+
Plantago lanceolata	Ribwort	Introduced			+	+
Plantago varia	Variable Plantain				+	+
Poa annua s.l.	Annual Meadow-grass	Introduced				+
Poa pratensis	Kentucky Blue-grass	Introduced				+
Polygonum arenastrum	Wireweed	Introduced				+
Potamogeton spp.	Pondweed				+	

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Pteridium esculentum subsp. esculentum	Austral Bracken				+	+
Quercus canariensis	Algerian Oak	Introduced			+	
Ranunculus repens	Creeping Buttercup	Introduced			+	
Romulea rosea	Onion Grass	Introduced			+	+
Rubus fruticosus spp. agg.	Blackberry	Introduced			+	+
Rumex spp. (naturalised)	Dock (naturalised)	Introduced			+	+
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass					+
Rytidosperma spp.	Wallaby Grass				+	+
Salix fragilis	Crack Willow	Introduced			+	+
Schoenus apogon	Common Bog-sedge					+
Senecio glomeratus	Annual Fireweed				+	+
Senecio minimus	Shrubby Fireweed				+	
Senecio quadridentatus	Cotton Fireweed				+	
Senecio vulgaris	Common Groundsel	Introduced			+	
Sisyrinchium micranthum	Striped Rush-leaf	Introduced				+
Solanum nigrum s.l.	Black Nightshade	Introduced			+	+
Sonchus oleraceus	Common Sow-thistle	Introduced			+	+
Sporobolus africanus	Rat-tail Grass	Introduced			+	+
Stellaria angustifolia (s.l.)	Swamp starwort				+	
Symphyotrichum subulatum	Aster-weed	Introduced			+	
Thelymitra spp.	Sun Orchid					+
Themeda triandra	Kangaroo Grass				+	+
Tricoryne elatior	Yellow Rush-lily					+
Trifolium repens var. repens	White Clover	Introduced			+	+
Typha domingensis	Narrow-leaf Cumbungi					+
Vicia sativa	Common Vetch	Introduced				+
Vulpia bromoides	Squirrel-tail Fescue	Introduced			+	+

Scientific Name	Common Name	Origin	FFG Act Status	EPBC Act Status	Native Patch	Degraded
Watsonia meriana var. bulbillifera	Bulbil Watsonia	Introduced			+	+
Xanthorrhoea minor subsp. lutea	Small Grass-tree				+	
Yucca gloriosa var. recurvifolia	Palm Lily	Introduced			+	

Conservation Status Key

Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999	
VU	Listed as Nationally Vulnerable
EN	Listed as Nationally Endangered
EX	Listed as Nationally Extinct
CR	Listed as Nationally Critically Endangered
Victorian FFG Act 1988 Listing (DELWP 2022)	
x	Presumed Extinct in Victoria
cr	Listed as Critically Endangered in Victoria
en	Listed as Endangered in Victoria
vu	Listed as Vulnerable in Victoria
cd	Conservation Dependant in Victoria
Bilateral migratory bird agreements	
JAMBA	Japan-Australia Migratory Bird Agreement (JAMBA)
CAMBA	China-Australia Migratory Bird Agreement (CAMBA)
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
BONN	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
RAMSAR	Ramsar Convention on Wetlands
ACAP	Agreement on the Conservation of Albatrosses and Petrels (ACAP)

Appendix 5: Assessment of likelihood of presence for threatened flora species identified within 5km database searches.

Taxon Name	Taxon Common Name	Conservation Status	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
Wetlands of National Importance								
Gippsland Lakes								Community not present
Listed Threatened Ecological Communities								
Gippsland Red Gum (Eucalyptus tereticornis subsp. Mediana) Grassy Woodland and Associated Native Grasslands		**Critically Endangered**					Unlikely	DAWE Flow Chart used to determine that the community is not present on site
Flora								
Acacia howittii	Sticky Wattle	vu		4/03/2009	In it natural habitat this plant is restricted to a portion of the southern Gippsland Hills , between Yarram and Tarra Valley in Victoria. It appears to be very hardy in a wide range of soils. (ANBG 2021)	VBA	Unlikely	No suitable habitat present
Amphibromus fluitans	River Swamp Wallaby-grass	VU		15/01/2004	Natural and man-made water-bodies, including swamps, lagoons, billabongs and dams (DSEWPC 2021).	PMST / VBA	Low	Limited aspects of habitat present or habitat highly modified
Caladenia orientalis	Eastern Spider Orchid	en		1/02/1981	Endemic to Victoria where found in coastal heathland and heathy woodlands between the Mornington Peninsula and Yarram, on well-drained soil. (VICFLR 2021)	VBA	Unlikely	No suitable habitat present
Caladenia tessellata	Thick-lipped Spider-orchid	VU			Apparently confined to eastern Victoria from near-coastal heathy woodlands to open forests on well-drained sandy soils (RBG 2021)	PMST	Unlikely	No suitable habitat present

Taxon Name	Taxon Common Name	Conservation Status	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
Craspedia canens	Grey Billy-buttons	cr	10	17/09/2019	Known in Victoria only from grassland (often bordering swamps) at low altitude between Cranbourne and Traralgon (RBG 2021a).	VBA	Low	Aspects of habitat present but may be modified. Not detected during targeted surveys.
Dianella amoena	Matted Flax-lily	EN cr	1	31/10/2017	Grassland and grassy woodland habitats, on well drained to seasonally wet fertile sandy loams to heavy cracking clay soils derived from Silurian or Tertiary sediments, or from volcanic geology (DSE 2021).	PMST / VBA	Low	Aspects of habitat present but may be modified. Not detected during targeted surveys.
Eucalyptus crenulata	Buxton Gum	en	1	23/09/2006	Yering population occurs in low-lying wet/swampy habitats that are seasonally cold, having a high number of frosts per year. Deep alluvial loams and general topography is flat with scattered, periodically inundated depressions. The Buxton population occupies a poorly drained hollow on alluvial terraces adjacent to the Acheron River. (DEE 2021)	VBA	Unlikely	No suitable habitat present
Eucalyptus strzeleckii	Strzelecki Gum	VU cr	100	19/03/2021	Eucalyptus strzeleckii is a large forest tree component of Herb-rich Foothill Forest and Gippsland Plains Grassy Woodland Ecological Vegetation Classes (John Davies, DPI, pers. comm) of the Strzelecki Ranges. It also occurs on flatter terrain at the edges of the Strzelecki Ranges, where it is largely restricted to the banks of	PMST / VBA	**Present**	Species has been confirmed as present onsite during field work and targeted survyes within the Bradford Road and Regan Roadside reserves.

Taxon Name	Taxon Common Name	Conservation Status	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
					watercourses or on river flats where soils are seasonally waterlogged (DSE 2021a).			
Eucalyptus yarraensis	Yarra Gum	cr	1	01/01/1770	Heavy clay soils on river flats and flood plains, tolerates some inundation. Frost resistant. Full sun or partial shade (SoYR 2021).	VBA	Unlikely	No suitable habitat present
Glycine latrobeana	Clover Glycine	VU			Grassland and grassy woodland habitats, less often in dry forests, and only rarely in heathland. Populations occur from sea level to c. 1,200 m altitude on a range of soil types including alluvial soils, and those derived from sandstones, mudstones, granite and basalt. Soils are usually clay, but may also have high loam content (DSE 2021b).	PMST	Unlikely	No suitable habitat present
Hakea dactyloides	Finger Hakea	en		17/04/2019	Confined in Victoria to the far east, and there rather rare, occurring on rocky ridges and peaks (RBG 2021b)	VBA	Unlikely	No suitable habitat present
Lachnagrostis punicea subsp. punicea	Purple Blown-grass	en	1	23/10/2000	Grey clay drainage-line Aggregate, Plains Grassland, Plains Grassy Wetland (FOM 2021)	VBA	Low	Limited aspects of habitat present or habitat highly modified
Pomaderris vacciniifolia	Round-leaf Pomaderris	CR			Disjunct occurrences on the northern outskirts of the La Trobe Valley between Tyers and the	PMST	Unlikely	No suitable habitat present

Taxon Name	Taxon Common Name	Conservation Status	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
					Toongabbie-Cowwarr district (DSEWPC 2021a).			
Prasophyllum spicatum	Dense Leek-orchid	VU			Grows in coastal heath and sandhills. Localised across southern Victoria in coastal heathland and near-coastal heathy forest on sandy soils (RBG 2021c)	PMST	Unlikely	No suitable habitat present
Pterostylis chlorogramma	Green-striped Greenhood	VU			Grows in moist areas of heathy and shrubby forest on well-drained soils (RBG 2021d)	PMST	Unlikely	No suitable habitat present
Senecio psilocarpus	Swamp Fireweed	VU			Occurs on high quality herb-rich wetlands on plains. During winter such sites can be inundated with up to 60cm or more of water but are almost dry in summer. A tree canopy is absent from most sites or rarely, River Red Gum is the overstory species in a woodland formation. (DEE 2021a)	PMST	Low	Limited aspects of habitat present or habitat highly modified
Thelymitra epipactoides	Metallic Sun-orchid	EN			Primarily in mesic coastal heathlands, grasslands and woodlands, but also in drier inland heathlands, open forests and woodlands. (DSE 2021c).	PMST	Unlikely	No suitable habitat present
Xerochrysum palustre	Swamp Everlasting	VU			Swamp Everlasting grows in wetlands including sedge-swamps and shallow freshwater marshes, often on heavy black clay soils. (DEE 2021b)	PMST	Low	Limited aspects of habitat present or habitat highly modified

References

SPECIES	TAG	Title	Detail
Acacia howittii	ANBG 2021	Acacia Howittii	http://www.anbg.gov.au/gnp/gnp10/acacia-howittii.html
Amphibromus fluitans	DSEWPC 2021	Amnphibromus fluitans- River Swamp Wallaby-grass	http://www.environment.gov.au/biodiversity/threatened/species/pubs/19215-conservation-advice.pdf
Caladenia orientalis	VICFLRe	Eastern Spider Orchid	https://vicflora.rbg.vic.gov.au/flora/taxon/81160424-e10f-432a-af82-c9cdd681d30d
Caladenia tessellata	RBG 2021	Thick-lipped Spider-orchid	https://vicflora.rbg.vic.gov.au/flora/taxon/bca2495d-3325-4c1b-b2c3-782566fb6bce
Craspedia canens	RBG 2021a	Craspedia canens	http://data.rbg.vic.gov.au/vicflora/flora/taxon/5f491eed-c364-4a50-81c2-6e714fe74198
Dianella amoena	DSE 2021	National Recovery Plan for the Matted Flax-lily Dianella amoena	Oberon Carter
Eucalyptus crenulata	DEE 2021	Buxton Gum	http://www.environment.gov.au/system/files/resources/b81ca902-6249-490e-9fa5-7aebb40b5448/files/e-crenulata.pdf
Eucalyptus strzeleckii	DSE 2021a	National Recovery Plan for the Strzelecki Gum Eucalyptus strzeleckii	Oberon Carter
Eucalyptus yarraensis	SoYR 2021	Eucalyptus yarraensis	http://fe.yarraranges.vic.gov.au/Residents/Trees_Vegetation/Yarra_Ranges_Plant_Directory/Yarra_Ranges_Local_Plant_Directory/Upper_Storey/Trees_5m/Eucalyptus_yarraensis
Glycine latrobeana	DSE 2021b	National Recovery Plan for the Clover Glycine Glycine latrobeana	Oberon Carter and Geoff Sutter
Hakea dactyloides	RBG 2021b	Finger Hakea	https://vicflora.rbg.vic.gov.au/flora/taxon/0ead1cc4-c935-4cf2-b133-e32aed814bd3
Lachnagrostis punicea subsp. punicea	FOM 2021	Purple Blown-grass	Marilyn Bull
Pomaderris vacciniifolia	DSEWPC 2021a	Species Profile and Threats Database; Pomaderris vaccinifolia (Round-leaf Pomaderris)	http://www.environment.gov.au/biodiversity/threatened/species/pubs/4256-conservation-advice.pdf
Prasophyllum spicatum	RBG 2021c	Dense Leek-orchid	https://vicflora.rbg.vic.gov.au/flora/taxon/85788803-5305-482d-8092-0c8da8f9f89b
Pterostylis chlorogramma	RBG 2021d	Green-striped Greenhood	https://vicflora.rbg.vic.gov.au/flora/taxon/c78519e2-4099-4eb7-8007-35dde25e13e6
Senecio psilocarpus	DEE 2021a	Swamp Fireweed	http://www.environment.gov.au/biodiversity/threatened/species/pubs/64976-conservation-advice.pdf
Thelymitra epipactoides	DSE 2021c	RECOVERY PLAN FOR TWENTY-FIVE THREATENED ORCHID TAXA OF	Fiona Coates1 , Jeff Jeanes2 and Andrew Pritchard3

SPECIES	TAG	Title	Detail
		VICTORIA, SOUTH AUSTRALIA AND NEW SOUTH WALES 2003 - 2007	
Xerochrysum palustre	DEE 2021b	Swamp Everlasting	https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=76215

Key to Likely Occurrence

Likelihood	Comments
Present	Species has been confirmed as present on site during field work
High	Suitable habitat present on site
	Likely to be a resident population/s in the local area*
	Previously recorded on site
	Numerous records within the local area within the past 5 years
Moderate	Aspects of habitat present but may be modified
	Species may be resident in the local area or it forms part of the species' range
	May seasonally or opportunistically use resources within the local area
	Less than 10 year old records within local area
Low	Limited aspects of habitat present or habitat highly modified
	Species may occur rarely or as an opportunistic visitor in the area
	Few records within the local area within the past 25 years
Unlikely	No suitable habitat present
	Site is located outside of species natural range
	Considered locally extinct
	No records of the species within the local area in the last 25 years

* Local area = within a 5km range of the site.

Conservation Status Key

Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999	
VU	Listed as Nationally Vulnerable
EN	Listed as Nationally Endangered
EX	Listed as Nationally Extinct
CR	Listed as Nationally Critically Endangered
Victorian FFG Act 1988 Listing (DELWP 2022)	
x	Presumed Extinct in Victoria
cr	Listed as Critically Endangered in Victoria
en	Listed as Endangered in Victoria
vu	Listed as Vulnerable in Victoria
cd	Conservation Dependant in Victoria
Bilateral migratory bird agreements	
JAMBA	Japan-Australia Migratory Bird Agreement (JAMBA)
CAMBA	China-Australia Migratory Bird Agreement (CAMBA)
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
BONN	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
RAMSAR	Ramsar Convention on Wetlands
ACAP	Agreement on the Conservation of Albatrosses and Petrels (ACAP)

Appendix 6: Fauna survey results

Scientific Name	Common Name	Origin	Treaties	FFG Act Status	EPBC Act Status
Chenonetta jubata	Australian Wood Duck				
Corvus coronoides	Australian Raven				
Crinia signifera	Common Froglet				
Fulica atra	Eurasian Coot				
Gymnorhina tibicen	Australian Magpie				
Limnodynastes peronii	Striped Marsh Frog				
Malurus cyaneus	Superb Fairy-wren				
Porphyrio melanotus	Australasian Swamphen				
Rhipidura leucophrys	Willie Wagtail				
Threskiornis molucca	Australian White Ibis				
Trichoglossus molucannus	Rainbow Lorikeet				
Vanellus miles	Masked Lapwing				

Fauna Conservation Status Key

Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999	
VU	Listed as Nationally Vulnerable
EN	Listed as Nationally Endangered
EX	Listed as Nationally Extinct
CR	Listed as Nationally Critically Endangered
Victorian FFG Act 1988 Listing (DELWP 2022)	
x	Presumed Extinct in Victoria
cr	Listed as Critically Endangered in Victoria
en	Listed as Endangered in Victoria
vu	Listed as Vulnerable in Victoria
cd	Conservation Dependant in Victoria
Bilateral migratory bird agreements	
JAMBA	Japan-Australia Migratory Bird Agreement (JAMBA)
CAMBA	China-Australia Migratory Bird Agreement (CAMBA)
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
BONN	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
RAMSAR	Ramsar Convention on Wetlands
ACAP	Agreement on the Conservation of Albatrosses and Petrels (ACAP)

Appendix 7: Assessment of likelihood of presence for threatened fauna species identified within 5km database searches.

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
Birds									
Accipiter novaehollandiae	Grey Goshawk	en		1	22/06/2004	Found in most forest types, especially tall closed forests (Day and Simpson 2010)	VBA	Unlikely	No suitable habitat present
Actitis hypoleucos	Common Sandpiper		CAMBA JAMBA ROKAMBA BONN			Found in coastal or inland wetlands, both saline or fresh. It is found mainly on muddy edges or rocky shores (Day and Simpson 2010)	PMST	Low	Limited aspects of habitat present but may be modified
Anthochaera phrygia	Regent Honeyeater	CR cr			1/01/1970	Occur mainly in dry box ironbark open-forest and woodland areas. feeding on the nectar from eucalypts such as the Mugga Ironbark, White Box and Yellow Box, and Blakeley's Red Gum on which they are reliant (DSEWPC 2021).	PMST / VBA	Unlikely	No suitable habitat present
Apus pacificus	Fork-tailed Swift					They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with	PMST	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						spinifex, open farmland and inland and coastal sand-dunes (DEE 2021)			
Ardea modesta	Eastern Great Egret	vu		1	22/05/2019	Prefer shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands (DSE 2021).	VBA	**Moderate**	Aspects of habitat present but may be modified. May seasonally or opportunistically use resources within the local area. Less than 10 year old records within local area
Aythya australis	Hardhead	vu		10	31/07/2019	Found in freshwater swamps and wetlands and occasionally in sheltered estuaries. They prefer deep, fresh open water and densely vegetated wetlands for breeding .(Day and Simpson 2010)	VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Biziura lobata	Musk Duck	vu		6	4/03/1995	Found in deep freshwater lagoons, with dense reed beds (Birdlife 2021).	VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Botaurus poiciloptilus	Australasian Bittern	EN				Frequents reedbeds, and other vegetation in water such as cumbungi, lignum and sedges. The	PMST	Low	Limited aspects of habitat present but may be modified

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						nest is a shallow structure of dry or green reeds, within a clump of reeds in water or a swamp (SA-MDB 2021).			
Calidris acuminata	Sharp-tailed Sandpiper					Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms (DEE 2021a)	PMST	Low	Limited aspects of habitat present but may be modified
Calidris ferrunginea	Curlew Sandpiper	CR				intertidal mudflats of estuaries, lagoons, mangroves, as well as beaches, rocky shores and around lakes, dams and floodwaters (Birdlife 2021a)	PMST	Unlikely	No suitable habitat present
Calidris melanotos	Pectoral Sandpiper		BONN JAMBA ROKAMBA			Found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open	PMST	Low	Limited aspects of habitat present but may be modified

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire (DEE 2021b)			
Callocephalon fimbriatum	Gang Gang Cockatoo	Endangered				Primarily occur within the temperate eucalypt forests and woodlands of mainland south-east Australia (Menkhorst et al 2017). Known to migrate seasonally preferring the wet sclerophyll forests during the summer months and inhabits woodland assemblages at lower, drier altitudes during the winter months (Higgins 1999). Will feed from both native and introduced ornamental species.	PMST	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Falco hypoleucos	Grey Falcon	VU				Found in shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where	PMST	Low	Limited aspects of habitat present but may be modified

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						surface water attracts prey (NSW- OoEHb).			
Gallinago hardwickii	Latham's Snipe		CAMBA JAMBA ROKAMBA BONN			Found in small groups or singly in freshwater wetlands on or near the coast, generally among dense cover. They are found in any vegetation around wetlands, in sedges, grasses, lignum, reeds and rushes and also in saltmarsh and creek edges on migration. They also use crops and pasture (Day and Simpson 2010)	PMST	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Grantiella picta	Painted Honeyeater	VU				Found in dry open forests and woodlands, and is strongly associated with mistletoe. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large eucalypts are available (Day and Simpson 2010)	PMST	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
Haliaeetus leucogaster	White-bellied Sea-Eagle	en	CAMBA	2	1/04/2019	Usually seen high in a tree, or soaring over waterways and adjacent land. The nest can be located in a tree up to 30m above the ground, but may also be placed on the ground or on rocks (Day and Simpson 2010) .	VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Hieraaetus morphnoides	Little Eagle	vu		1	3/12/2004	The Little Eagle is seen over woodland and forested lands and open country, extending into the arid zone. It tends to avoid rainforest and heavy forest (Birldlife 2021b)	VBA	Unlikely	No suitable habitat present
Hirundapus caudacutus	White-throated Needletail	VU vu	CAMBA JAMBA ROKAMBA		20/11/1998	In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground (Coventry 1989; Tarburton 1993; Watson 1955). Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable (Cramp 1985), but there are, nevertheless, certain	PMST / VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						preferences exhibited by the species. Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland (Higgins 1999). (DSEWPC 2021a).			
Lathamus discolor	Swift Parrot	CR				Found in dry sclerophyll forests and woodlands, suburban parks and gardens and flowering fruit trees (Day and Simpson 2010)	PMST	Low	Limited aspects of habitat present or habitat highly modified
Melanodryas cucullata	Hooded Robin	vu			1/01/1973	Home range 10 ha. Found in lightly timbered woodland, mainly dominated by acacia and/or eucalypts. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of	VBA	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						moderately tall native grasses (Day and Simpson 2010).			
Monarcha melanopsis	Black-faced Monarch					Mainly occurs in rainforest ecosystems, including semi-deciduous vine-thickets, complex notophyll vine-forest, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest (DEE 2021c)	PMST	Unlikely	No suitable habitat present
Motacilla flava	Yellow Wagtail					Occurs in mainly salt works, paddocks, marshes, grassy wetlands (Day and Simpson 2010)	PMST	Low	Limited aspects of habitat present or habitat highly modified
Myiagra cyanoleuca	Satin Flycatcher					Occurs mainly in wetter, denser forests often at high elevations (Day and Simpson 2010)	PMST	Unlikely	No suitable habitat present
Numenius madagascariensis	Eastern Curlew	CR	CAMBA JAMBA ROKAMBA BONN			Found on intertidal mudflats and sandflats, often with beds of seagrass, on sheltered coasts, especially estuaries, mangrove swamps, bays, harbours	PMST	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						and lagoons (Day and Simpson 2010)			
Oxyura australis	Blue-billed Duck	vu		1	28/09/2018	Found mainly in deep freshwater marshes with dense vegetation. More open water in non-breeding season (Day and Simpson 2010)	VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Pandion haliaetus	Osprey					Mainly occurs in mangroves, rivers and estuaries, inshore seas, coastal islands (Day and Simpson 2010)	PMST	Unlikely	No suitable habitat present
Rhipidura rufifrons	Rufous Fantail		BONN			Mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts, usually with a dense shrubby understorey often including ferns. (DEE 2021d)	PMST	Unlikely	No suitable habitat present
Rostratula australis	Australian Painted Snipe	CR	CAMBA			Inhabits inland and coastal shallow freshwater wetlands, occurring in both ephemeral and permanent wetlands, particularly where there is grass. Individuals have been spotted in artificial dams, sewage ponds and	PMST	Low	Limited aspects of habitat present or habitat highly modified

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						waterlogged grasslands (DSEWPC 2021b).			
Spatula rhynchotis	Australasian Shoveler	vu		20	24/02/1991	All kinds of wetlands, preferring large undisturbed heavily vegetated freshwater swamps. It is also found on open waters and occasionally along the coast. Nests are built on the ground in dense vegetation, sometimes on a stump or hollow of a tree that is standing in water (Birdlife 2019a).	VBA	**Moderate**	Aspects of habitat present but may be modified. Species may occur rarely or as an opportunistic visitor in the area
Amphibians and Reptiles									
Lissolepis coventryi	Swamp Skink	en		1	2007	The Swamp Skink is widely distributed across southern Victoria. It is most commonly found in swampy habitats near the coast but has also been recorded from the Grampians. (MV 2016a)	VBA	Low	Limited aspects of habitat present or habitat highly modified
Litoria aurea	Green and Golden Bell Frog	VU				In Victoria, the Green and Golden Bell Frog has been recorded in a range of lentic (still water) and terrestrial habitats in the coastal plains and low foothills of the	PMST	Unlikely	Limited aspects of habitat present or habitat highly modified

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						hinterland including lowland forest, Banksia woodland, wet heath land, riparian scrub complex, riparian forest, damp forest, shrubby dry forest, limestone box woodland and cleared pastoral areas (Gillespie 1996) (DSEWPC 2021c).			
Litoria raniformis	Growling Grass Frog	VU vu			15/02/1973	Need still or slow moving water with emergent vegetation around the edges and mats of floating and submerged plants (DSE 2021a).	PMST / VBA	Unlikely	Aspects of habitat present but may be modified. Not detected during targeted surveys.
Mammals									
Dasyurus maculatus maculatus	Spot-tailed Quoll	EN				Home range 100 to 200 ha. Trees with hollows, hollow logs on the ground, rocky outcrops, caves or rock crevices (Menkhorst, Knight 2010).	PMST	Unlikely	No suitable habitat present
Isoodon obesulus obesulus	Southern Brown Bandicoot	EN				Home range 1 to 6 ha. Eucalypt woodlands and forests that have a dense shrubby understorey. Bandicoots often inhabit blackberry thickets (Menkhorst, Knight 2010).	PMST	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
Ornithorhynchus anatinus	Platypus	vu		1	19/07/1979	Platypus occur in freshwater systems from tropical rainforest lowlands and plateaus of far northern Queensland to cold, high altitudes of Tasmania and the Australian Alps. he presence of logs, twigs, and roots, as well as cobbled or gravel water substrate result in increased microinvertebrate fauna (a main food source), and the Platypus also tends to be more abundant in areas with pool-riffle sequences. (AM 2021a)	VBA	Unlikely	No suitable habitat present
Petauroides volans	Greater Glider	VU				Arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows (Andrews et al., 1994; Smith et al., 1994, 1995; Kavanagh 2000; Eyre	PMST	Unlikely	No suitable habitat present

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						2004; van der Ree et al., 2004; Vanderduys et al., 2012).			
Potorous tridactylus tridactylus	Long-nosed Potoroo	VU				Home range 2 to 4 ha. Requires open, floristically diverse areas for foraging in conjunction with dense, complex shrubby vegetation for shelter from predators (Menkhorst, Knight 2010).	PMST	Unlikely	No suitable habitat present
Pteropus poliocephalus	Grey-headed Flying-fox	VU				Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy (Menkhorst, Knight 2010).	PMST	Low	Limited aspects of habitat present or habitat highly modified
Fish									
Galaxiella pusilla	Dwarf Galaxias	VU en		8	16/07/2020	Broad habitat requirements and occurs in slow flowing and still, shallow, permanent and temporary freshwater habitats such as swamps, drains and the backwaters of streams and creeks, often (but	PMST / VBA	Unlikely	Aspects of habitat present but may be modified. Not detected during targeted surveys.

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						not always) containing dense aquatic macrophytes and emergent plants (Cadwallader & Backhouse 1983; McDowall 1996; Hammer 2002a). In larger pools, the species is usually found amongst marginal vegetation. Wetlands connected to a more permanent waterbody (such as river or creek) may also be vital to their long-term survival (particularly during extended dry conditions) and must therefore be considered as part of the habitat requirement critical to survival (DSEWPC 2021d)			
Nannonperca sp. 1	Flinders Pygmy Perch	vu		2	19/07/2020	Often found in small systems with a low flow rate and quiet vegetated areas in streams, billabongs, lakes and even irrigation channels. Not usually found in open water, prefers covered habitats. Often seems to	VBA	**Present**	Detected in all wetlands / dams bodies and waterways during targeted surveys.

Scientific Name	Common Name	Conservation Status	Treaty	Count of Sightings	Date of Last Record	Preferred Habitat Notes	Database Source	Likelihood of occurrence	Comments
						form loose aggregations (nativefish 2021)			
Prototroctes mareana	Australian Grayling	VU en		1	23/03/2010	Inhabit cool, clear, freshwater streams with gravel substrate and areas alternating between pools and riffle zones. The species has been found over 100 km upstream from the sea (DSEWPC 2021e)	PMST / VBA	Unlikely	No suitable habitat present
Insects									
Trapezites luteus luteus	Yellow Ochre Butterfly	en		1	5/02/1972	Eucalypt woodlands and grasslands, subalpine woodlands and open woodlands (ALA 2021)	VBA	Unlikely	No suitable habitat present

References

SPECIES	TAG	Title	Detail
Birds			
Accipiter novaehollandiae	Day and Simpson 2010	Field Guide to the Birds of Australia	
Actitis hypoleucos	Day and Simpson 2010	Field Guide to the Birds of Australia	
Anthochaera phrygia	DSEWPC 2021	Regent Honeyeater	https://www.environment.gov.au/biodiversity/threatened/publications/factsheet-regent-honeyeater-xanthomyza-phrygia
Apus pacificus	DEE 2021	Fork-tailed Swift	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=678

SPECIES	TAG	Title	Detail
Ardea modesta	DSE 2021	Action Statement No 120	http://www.depi.vic.gov.au/__data/assets/pdf_file/0004/251185/Great_Egret_Ardea-alba.pdf
Aythya australis	Day and Simpson 2010	Field Guide to the Birds of Australia	
Biziura lobata	Birdlife 2021	Musk Duck	http://www.birdlife.org/datazone/speciesfactsheet.php?id=363
Botaurus poiciloptilus	SA-MDB 2021	Australasian Bittern	http://root.ala.org.au/bdrs-core/mdnrm/fieldguide/taxon.htm?id=29026
Calidris acuminata	DEE 2021a	Sharp-tailed Sandpiper	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=874
Calidris ferrunginea	Day and Simpson 2010	Field Guide to the Birds of Australia	
Calidris melanotos	DEE 2021b	Pectoral Sandpiper	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=858
Falco hypoleucos	NSW- OoEH2021	Grey Falcon	http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10330
Gallinago hardwickii	Day and Simpson 2010	Field Guide to the Birds of Australia	
Grantiella picta	Day and Simpson 2010	Field Guide to the Birds of Australia	
Haliaeetus leucogaster	Day and Simpson 2010	Field Guide to the Birds of Australia	
Hieraaetus morphnoides	Birdlife 2021a	Little Eagle	
Hirundapus caudacutus	DSEWPC 2021a	White-throated Needletail	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=682
Lathamus discolor	Day and Simpson 2010	Field Guide to the Birds of Australia	
Melanodryas cucullata	Day and Simpson 2010	Field Guide to the Birds of Australia	
Monarcha melanopsis	DEE 2021c	Black-faced Monarch	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=609
Motacilla flava	Day and Simpson 2010	Field Guide to the Birds of Australia	
Myiagra cyanoleuca	Day and Simpson 2010	Field Guide to the Birds of Australia	
Numenius madagascariensis	Day and Simpson 2010	Field Guide to the Birds of Australia	
Oxyura australis	Day and Simpson 2010	Field Guide to the Birds of Australia	
Pandion haliaetus	Day and Simpson 2010	Field Guide to the Birds of Australia	
Rhipidua ruffrons	DEE 2021d	Rufous Faintail	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=592
Rostratula australis	DSEWPC 2021b	Australian Painted Snipe	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=77037
Spatula rhynchotis	Birdlife 2021b	Australasian Shoveler	http://datazone.birdlife.org/species/factsheet/22680243
Amphibians & Reptiles			
Litoria aurea	DSEWPC 2021c	Green and Golden Bell Frog	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1870

SPECIES	TAG	Title	Detail
Litoria raniformis	DSE 2021a	Growling Grass Frog	http://www.dse.vic.gov.au/__data/assets/pdf_file/0016/103408/GGF_fact_sheet.pdf
Mammals			
Dasyurus maculatus maculatus	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Isoodon obesulus obesulus	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Ornithorhynchus anatinus	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Petauroides volans	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Potorous tridactylus tridactylus	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Pteropus poliocephalus	Menkhorst, Knight 2010	A Field Guide to the Mammals of Australia, Third Edition, 2010. Oxford University Press.	
Fish			
Galaxiella pusilla	DSEWPC 2021d	Dwarf Galaxias	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=56790
Nannonperca sp. 1	Nativefish 2021	Southern Pygmy Perch	http://www.nativefish.asn.au/southern-pygmy-perch.html
Prototroctes mareana	DSEWPC 2021e	Australian Grayling	http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26179
Insects			
Trapezites luteus luteus	ALA 2021	Yellow Ochre Butterfly	https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:adb8fe1a-c440-4527-bf0f-424e21cd8e55

Key to Likely Occurrence

Likelihood	Comments
Present	Species has been confirmed as present on site during field work
High	Suitable habitat present on site
	Likely to be a resident population/s in the local area*
	Previously recorded on site
	Numerous records within the local area within the past 5 years
Moderate	Aspects of habitat present but may be modified
	Species may be resident in the local area or it forms part of the species' range
	May seasonally or opportunistically use resources within the local area
	Less than 10 year old records within local area
Low	Limited aspects of habitat present or habitat highly modified
	Species may occur rarely or as an opportunistic visitor in the area
	Few records within the local area within the past 25 years
Unlikely	No suitable habitat present
	Site is located outside of species natural range
	Considered locally extinct
	No records of the species within the local area in the last 25 years

* Local area = within a 5km range of the site.

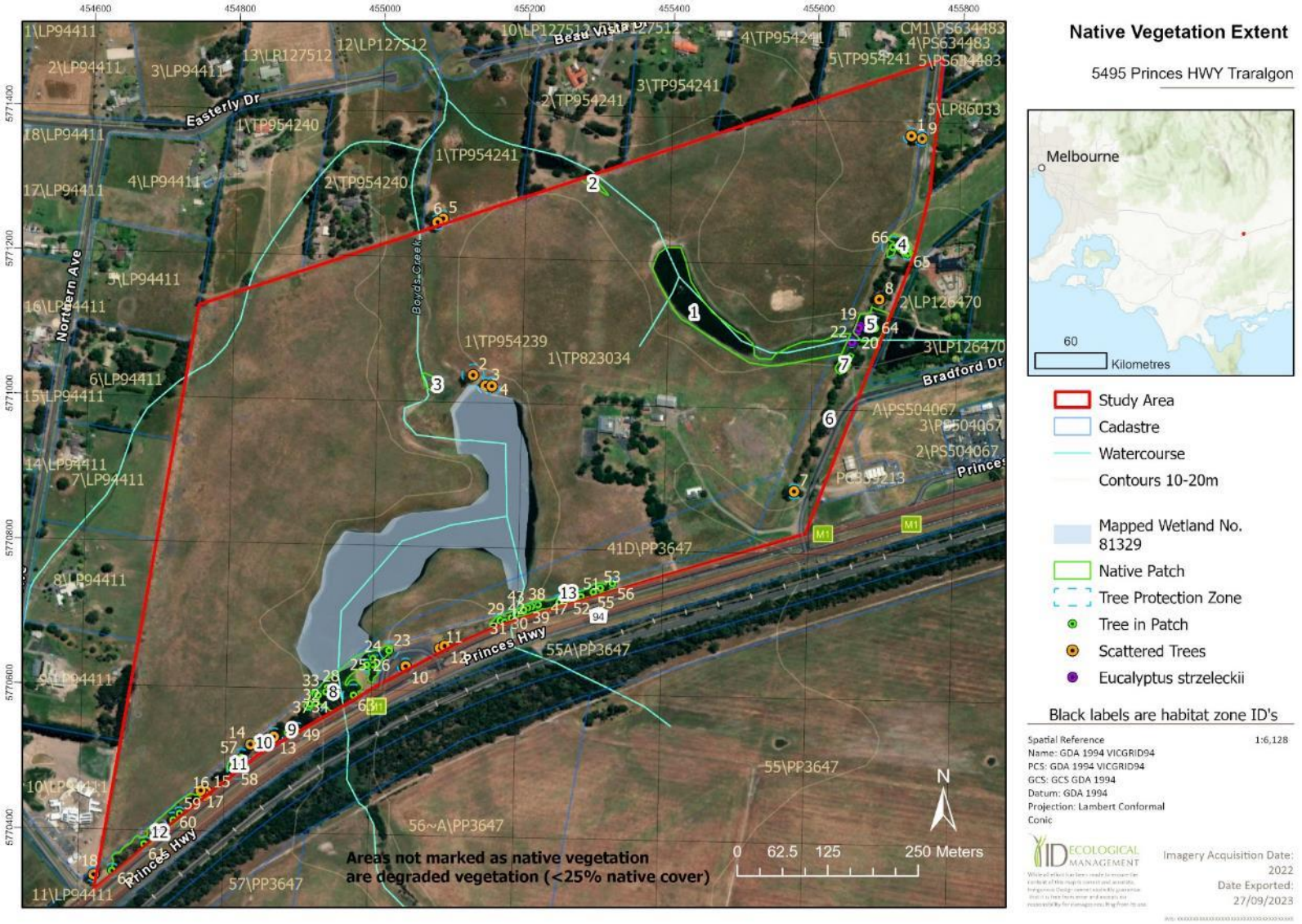
Conservation Status Key

rigin	
*	Exotic species
#	Native but some stands may be alien
Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999	
VU	Listed as Nationally Vulnerable
EN	Listed as Nationally Endangered
EX	Listed as Nationally Extinct
CR	Listed as Nationally Critically Endangered
Victorian FFG Act 1988 Listing (DELWP 2022)	
x	Presumed Extinct in Victoria
cr	Listed as Critically Endangered in Victoria
en	Listed as Endangered in Victoria
vu	Listed as Vulnerable in Victoria
cd	Conservation Dependant in Victoria
Treaties- Bilateral migratory bird agreements	
JAMBA	Japan-Australia Migratory Bird Agreement (JAMBA)
CAMBA	China-Australia Migratory Bird Agreement (CAMBA)
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
BONN	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
RAMSAR	Ramsar Convention on Wetlands
ACAP	Agreement on the Conservation of Albatrosses and Petrels (ACAP)

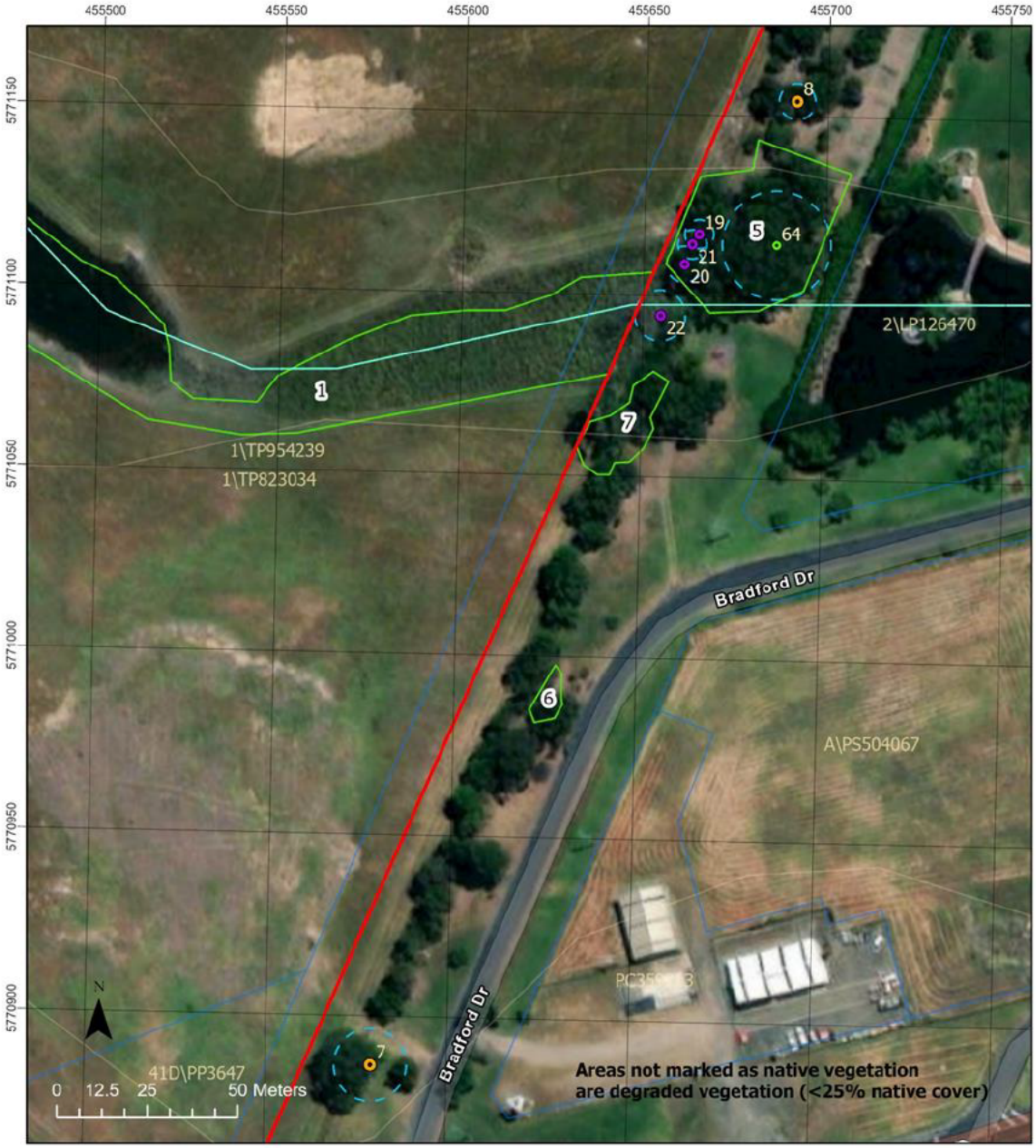
Maps

Maps commence on the next page.

Map 1– Location and Extent of Native Vegetation (See Maps 1a to 1e for Roadside Details)



Map 1a – Location and Extent of Native Vegetation - Bradford Road and Regan Road Reserve



Study Area
Cadastre
Watercourse
Contours 10-20m

Mapped Wetland No. 81329
Native Patch
Tree Protection Zone
Tree in Patch
Scattered Trees
Eucalyptus strzeleckii

Black labels are habitat zone ID's

Native Vegetation Extent

5495 Princes Hwy Traralgon

Spatial Reference
Name: GDA 1994 VICGRID94
PCS: GDA 1994 VICGRID94
GCS: GCS GDA 1994
Datum: GDA 1994
Projection: Lambert Conformal Conic

1:1,388

ID ECOLOGICAL MANAGEMENT

Imagery Acquisition Date: 2022
Date Exported: 18/07/2023

Map 1b – Location and Extent of Native Vegetation - Bradford Road and Regan Road Reserve

Study Area
Cadastre
Watercourse
Contours 10-20m

Mapped Wetland No. 81329
Native Patch
Tree Protection Zone
Tree in Patch
Scattered Trees
Eucalyptus strzeleckii

Black labels are habitat zone ID's

Native Vegetation Extent

5495 Princes Hwy Traralgon

Spatial Reference
Name: GDA 1994 VICGRID94
PCS: GDA 1994 VICGRID94
GCS: GCS GDA 1994
Datum: GDA 1994
Projection: Lambert Conformal Conic

1:888

ID ECOLOGICAL MANAGEMENT

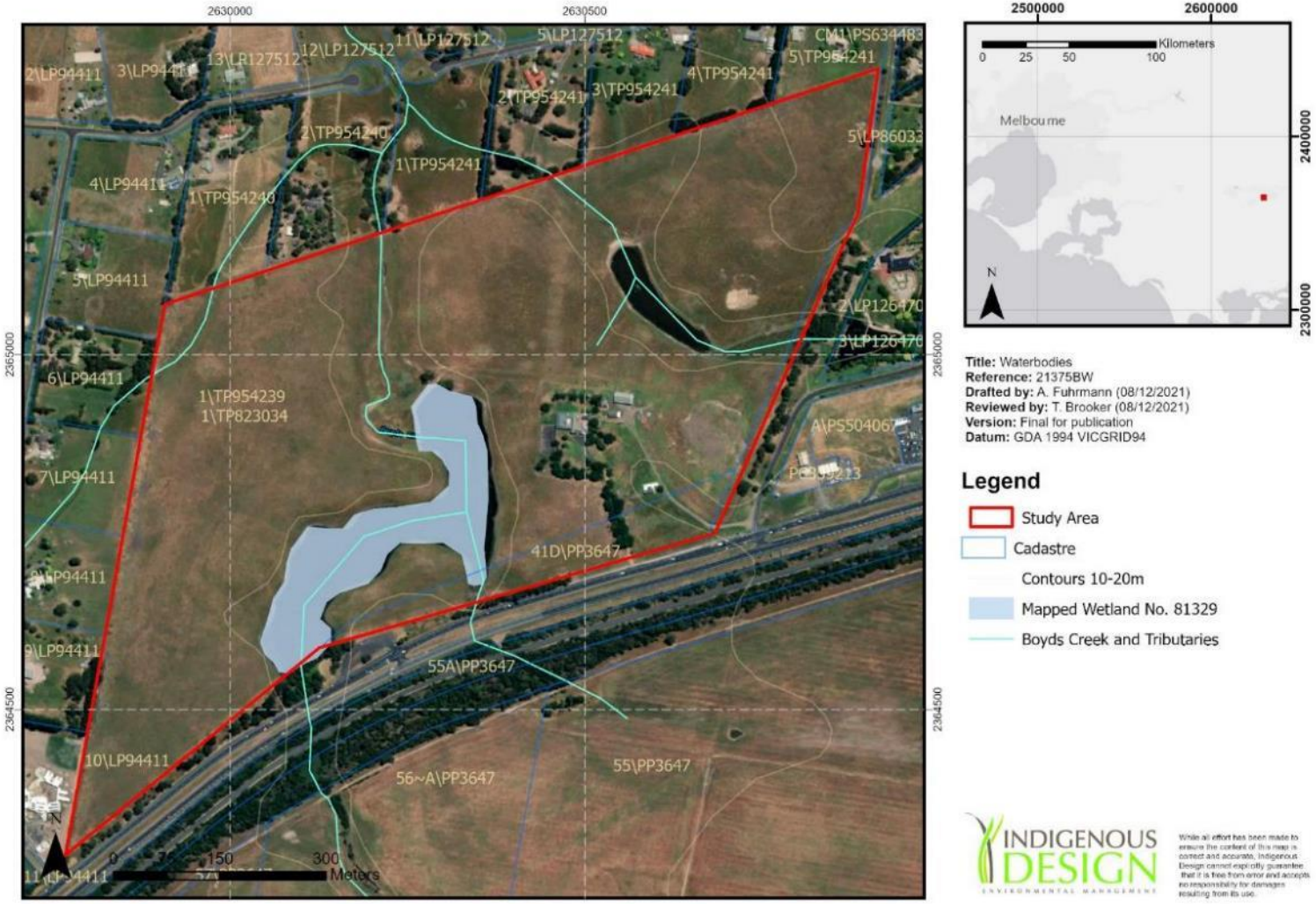
Imagery Acquisition Date: 2022
Date Exported: 18/07/2023

Map 1c – Location and Extent of Native Vegetation – Princess Highway Road Reserve

Map 1d – Location and Extent of Native Vegetation – Princess Highway Road Reserve

Map 1e – Location and Extent of Native Vegetation – Princess Highway Road Reserve

Map 2– Wetlands / Dams and Waterways



ID ECOLOGICAL MANAGEMENT
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