

## Report for Beveridge Williams

---

Targeted Survey for Matted Flax-lily  
(*Dianella amoena*), *Eucalyptus strzeleckii*  
(Strzelecki Gum) & *Craspedia canens* (Grey  
Billy Buttons) for proposed subdivision at  
5483 & 5495 Princes Highway, Traralgon

October 2023

A solid black rectangular redaction box covering text.

---



## Citation

██████████ (2023), Targeted Survey for *Dianella amoena* (Matted Flax-lily), *Eucalyptus strzeleckii* (Strzelecki Gum) & *Craspedia canens* (Grey Billy Buttons) for proposed subdivision at 5483 & 5495 Princes Highway, Traralgon. *ID Ecological Management*, Research, Victoria.

ID Ecological Management  
██████████  
██████████

## Disclaimer

ID Ecological Management and any associated contractors engaged for this project have endeavoured to provide an accurate and current document. However, this document is not guaranteed to be without flaw or omissions. The information and recommendations provided are current at the time of writing but do not account for any changes in circumstances after the time of publication. ID Ecological Management accepts no liability for any error, loss or other consequence caused or arising from using the information provided within this report.

## Acknowledgements

██████████ Town Planner, Beveridge Williams

██████████ Senior Consultant, ID Ecological Management

██████████ Consultant, ID Ecological Management

## Version Control

Status	Date	Revision type	Reviewed by	Amended by
<b>Draft 1.1</b>	07/11/2022	First draft, first review	██████████	██████████
<b>Draft 1.2</b>	10/11/2022	First draft, second review	██████████	██████████
<b>Draft 2.1</b>	11/11/2022	Released to client for review		
<b>Draft 3.1</b>	13/10/2023	Design updates incorporated into survey area		
<b>Draft 3.2</b>	17/11/2023	Release to client for review		
<b>Final 4.1</b>	04/03/2025	Revised scope to support land rezoning PSA		

# Contents

Contents.....	1
Executive Summary.....	3
1 Introduction .....	4
1.1 Project Background.....	4
1.2 Study Area.....	4
2 Methodology.....	6
2.1 Data and Literature Review .....	6
2.2 Field Survey.....	6
2.3 Limitations.....	6
3 Species Description .....	8
3.1 Matted Flax-lily .....	8
3.1.1 Status .....	8
3.1.2 Description .....	8
3.1.3 Habitat Requirements.....	8
3.1.4 Distribution .....	9
3.1.5 Threats .....	9
3.2 Strzelecki Gum .....	9
3.2.1 Status .....	9
3.2.2 Description .....	9
3.2.3 Habitat Requirements.....	10
3.2.4 Distribution .....	10
3.2.5 Threats .....	11
3.3 Grey Billy Buttons.....	11
3.3.1 Status .....	11
3.3.2 Description .....	11
3.3.3 Distribution .....	12
3.3.4 Threats .....	12
4 Results & Discussion .....	13
4.1 Desktop Review.....	13
4.2 Site Inspection.....	13
4.2.1 Bradford Drive / Regan Road road reserve .....	13
4.2.2 Princes Highway road reserve.....	14

4.2.3	Matted Flax-lily .....	15
4.2.4	Grey Billy-buttons .....	17
4.2.5	Strzelecki Gum .....	17
4.	Conclusion and Recommendations.....	20
	References .....	21
	Photos .....	22
	Appendix .....	26
	Appendix 1 - Flora List.....	26
	Maps .....	29
	Map 1 – Strzelecki Gum locations within Bradford Drive/Regan Road .....	30

## Executive Summary

ID Ecological Management has been commissioned by Beveridge Williams to undertake additional assessment of habitats and conduct targeted surveys for three threatened flora species: the nationally Endangered *Dianella amoena* (Matted Flax-lily); the nationally Vulnerable *Eucalyptus strzeleckii* (Strzelecki Gum) and the state listed *Craspedia canens* (Grey Billy-button) within an area adjacent to a proposed residential subdivision at 5483 & 5495 Princes Highway, Traralgon. An Ecological Assessment of the site identified the presence of Strzelecki Gum within this area and the potential for the presence of Matted Flax-lily and Grey Billy-buttons due to habitat suitability (Fuhrmann & Brooker, 2022).

A targeted field survey for the three species was undertaken on the 11<sup>th</sup> of October 2022. The study area was traversed slowly on foot over a period of two hours by two ecologists, experienced in the identification of the target species. Following updates to the projects design, additional areas were surveyed on the 9<sup>th</sup> October 2023.

During these surveys, a known location of Grey Billy-buttons within five kilometres of the project site was inspected to confirm that the species was flowering and easily identifiable at the time of the targeted survey. Recent targeted surveys for the Matted Flax Lily in the Gippsland area and an inspection of a population in Glengarry, was used to confirm that the species was detectable and about to flower. The base of trees, fence lines and areas of remnant understorey vegetation were paid particular attention as preferred locations for either the Matted Flax-lily or Grey Billy Buttons to occur. Each Eucalypt tree within the roadside identified as potentially Strzelecki Gum had young growth tips removed by extendable loppers to provide confirmation as required.

Both Matted Flax Lily and Grey Billy Buttons were not found within the study area. The survey timing and effort are deemed to be adequate to detect the species if it were present.

Four Strzelecki Gums were found to be present within the study area within the central drainage line, confirmed through the identification of glaucous growth tips. All four of these individuals were originally identified as part of the Ecological Assessment. Given their age, spacing and location in a single row, it is possible that they may have been historically planted.

In order to minimise impacts to Strzelecki Gums confirmed on site as part of any subdivision road access the following are recommended:

- Re-design of the road access network proposed for the future subdivision to avoid the removal of Strzelecki Gum individuals.
- Undertake an EPBC Significant Impact Assessment if impacts to the species cannot be avoided.

# 1 Introduction

## 1.1 Project Background

ID Ecological Management (IDEM) has been commissioned by Beveridge Williams to undertake an assessment of habitat and conduct targeted surveys for the *Dianella amoena* (Matted Flax-lily), *Eucalyptus strzeleckii* (Strzelecki Gum) and *Craspedia canens* (Grey Billy-buttons) within an area adjacent to a proposed residential subdivision at 5483 & 5495 Princes Highway, Traralgon. Access to the subdivision is proposed to be located within the Bradford Drive /Regan Road reserve along the eastern side of the subdivision.

An Ecological Assessment report (Fuhrmann & Brooker, 2022) was completed for the site in early 2022 which identified the potential for these three species to be present and identified up to five Strzelecki Gums within the Bradford Drive / Regan Road reserve.

The scope of this assessment and survey are to:

- Assess the unused road reserve for habitat suitability; and
- Confirm and locate individuals of the three species through targeted spring surveys within this location.

The outcomes of this study are to be used by Beveridge Williams and planning authorities to avoid and minimise impacts on threatened species known locations and identified habitat.

## 1.2 Study Area

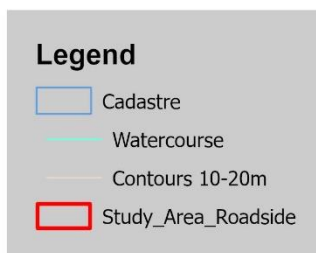
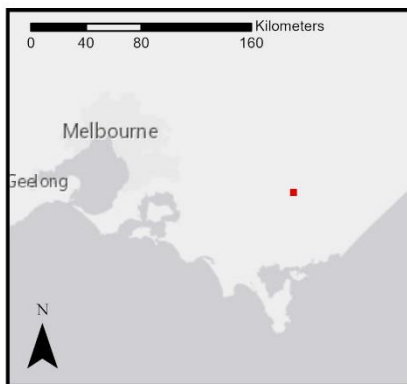
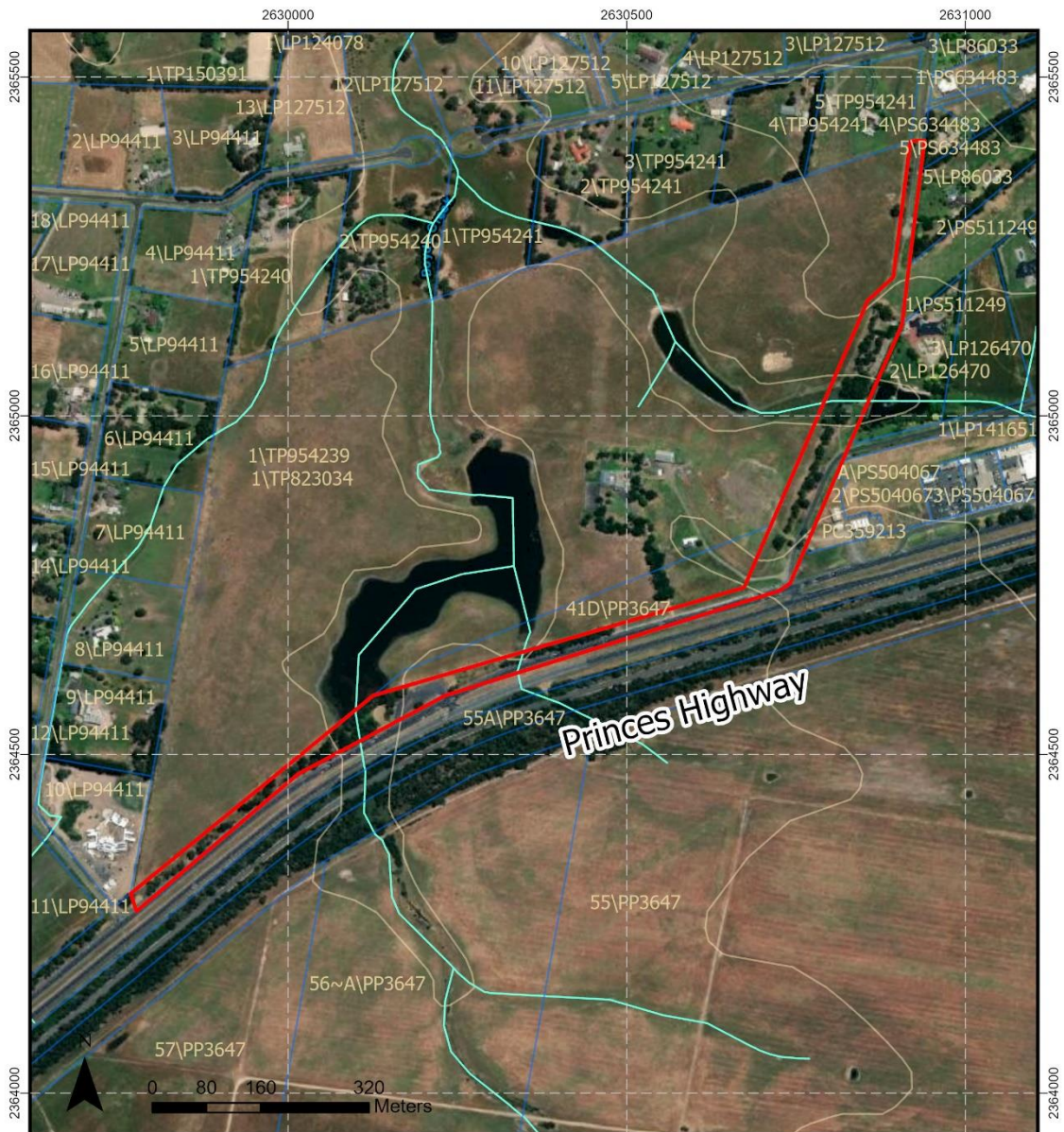
The study area (*Figure 1*) is located 5 km west of the Traralgon town centre, approximately 180 km east of Melbourne and falls within the Gippsland Plains Bioregion.

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 Princes Highway road reserve runs along the southern boundary of the study area and at its western end contains a linear patch of native vegetation, with the canopy layer and mid storey relatively intact, however, the ground storey has been modified with a large proportion of exotic species. The eastern end of this road reserve has been historically cleared of its original native vegetation and is now a mown nature strip. 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.

The future development of the site is anticipated to facilitate a staged multi-lot residential subdivision (indicatively around 520 lots). Entry points to facilitate a subdivision is therefore likely from Bradford Drive / Regan Road which is an unmade road and the Princes Highway road reserve. The study area for this survey focused on these two areas due to the suitability of habitat for all three target species and the potential impacts associated with access to any future subdivision.

The survey area is shown in *Figure 1*.



Datum: GDA 1994 VICGRID94



While all effort has been made to ensure the content of this map is correct and accurate, Indigenous Design cannot explicitly guarantee that it is free from error and accepts no responsibility for damages resulting from its use.

Figure 1: Survey Area

## 2 Methodology

The survey assessment methodology consisted of a desktop review and targeted field survey for the three species.

### 2.1 Data and Literature Review

Relevant literature, on-line resources and numerous databases were reviewed to provide an assessment of the habitat suitability and location of previous records for the three target species. The following were reviewed:

- The Victorian Biodiversity Atlas (DELWP, 2022) for previously documented flora records within the project and Gippsland locality;
- Relevant environmental legislation and policies, including:
  - National Recovery Plans;
  - DAWE Species Profile and Threats Database (SPRAT) (DAWE, 2022)
- Previously completed Ecological Assessment of the site (Fuhrmann & Brooker, 2022).

### 2.2 Field Survey

A targeted field survey for the three species was undertaken on the 11<sup>th</sup> of October 2022 and an additional roadside area on the 9<sup>th</sup> October 2023. The study area (*Figure 1*) was traversed slowly on foot over a period of four hours by two ecologists, experienced in the identification of the target species.

During these surveys, locations of Grey Billy-buttons within five kilometres of the project site were inspected to confirm that the species was currently flowering and easily identifiable. Recent targeted surveys for the Matted Flax Lily in the Gippsland area (Brooker, 2022) and an inspection of a population in Glengarry, was used to confirm that the species was detectable and about to flower (in bud).

The base of trees, fence lines and areas of remnant understorey vegetation were paid particular attention as preferred locations for either the Matted Flax-lily or Grey Billy Buttons to occur. Each Eucalypt tree within the roadside identified as potentially Strzelecki Gum had young growth tips removed by extendable loppers to provide confirmation as required.

Any identified patches or individuals of the three species were GPS recorded using the ArcGIS Collector application and an Android handheld device.

### 2.3 Limitations

The site survey was undertaken in mid October, the flowering season for Grey Billy-buttons, the start of the flowering season for Matted Flax Lily (i.e. flower budding has commenced) and when new growth tips for Strzelecki Gum are present.

The Survey Guidelines (DAWE, 2022) for Matted Flax-lily recommended that surveys be completed between November and February when pollinators are present and active to assist in determining the viability of the population (DAWE, 2022). However, old inflorescence, flower and fruiting material were searched for, as well as leaf sheath characteristics of the species which are well known by the author. Factors which may limit the species detectability include the success of the growing season and climatic conditions, as not all plants will be flowering / fruiting within the spring / summer period. In addition, long grass can hide its presence, especially if no reproductive material is present.

This assessment was based upon the following assumptions and limitations:

- The survey considered the three target species only. Whilst no other flora species were surveyed for, where anything of note was identified it was recorded for later interpretation.
- The findings of the assessment were based on a desktop review of publicly available information and a site inspection undertaken in October 2022 and October 2023.

## 3 Species Description

### 3.1 Matted Flax-lily

#### 3.1.1 Status

The Matted Flax-lily is listed as nationally endangered under the *Environment Protection & Biodiversity Conservation* (EPBC) Act 1999 (DAWE, 2022). In addition to its national listing, the Matted Flax-lily is also listed as Critically Endangered on the Victorian State *Flora and Fauna Amendment Guarantee* (FFG) Act 2019 (DELWP, 2019) threatened list.

#### 3.1.2 Description

Matted Flax-lily is a small, perennial, tufted, mat-forming lily that is rhizomatous and forms loose clumps up to 5m wide (DAWE, 2022) (*Figure 2*). The species primarily reproduces through vegetative reproduction with the production of rhizomes and it can be propagated by division. It flowers from October to April, however recruitment is believed to be extremely low due to habitat disturbance and weed competition (DAWE, 2022).



*Figure 2 - Dianella amoena at Glengarry (28/09/2021)*

#### 3.1.3 Habitat Requirements

The Matted Flax-lily generally occurs in grassland and grassy woodland habitats, on well drained to seasonally wet fertile sandy loams to heavy cracking clay soils. The native grasses *Themeda triandra* (Kangaroo Grass), *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Elymus scaber* var. *scaber* (Common Wheat-grass), *Poa labillardierei* (Common Tussock-grass) and *Rytidosperma racemosum* var. *racemosum* (Striped Wallaby Grass) generally dominate the ground layer at most sites. Associated tree species include Eucalypts and Wattles such as *Acacia melanoxylon* (Blackwood),

*Eucalyptus ovata* (Swamp Gum), *Eucalyptus camaldulensis* (River Red-gum) and *Eucalyptus melliodora* (Yellow Box). However, some sites lack a tree canopy. Most Matted Flax-lily sites also contain a high cover of introduced plant species with commonly occurring introduced species such as pasture grasses (Carter, O, 2010).

### 3.1.4 Distribution

The species is considered to be endemic to Victoria, with a natural range encompassing south-eastern mainland Australia and Tasmania (Carter, O, 2010).

Important Populations necessary for the long term survival and recovery of the species have been identified in Victoria (Carter, O, 2010) and include the following locations in Gippsland:

- Public land Rail reserves: Traralgon Railway Reserve, Latrobe City Council; and
- Other land tenure: Lake Omeo, Benambra.

### 3.1.5 Threats

Threats identified for the conservation of the species include:

- weed invasion with biomass accumulation smothering plants and reducing the available area for rhizome development and preventing seedling recruitment;
- habitat destruction for urban development;
- biomass reduction and inappropriate fire regimes; and
- pollinator replacement of native bees with introduced species (DAWE, 2022).

## 3.2 Strzelecki Gum

### 3.2.1 Status

Strzelecki Gum is listed as nationally Vulnerable under the *Environment Protection & Biodiversity Conservation* (EPBC) Act 1999 (DAWE, 2022). In addition to its national listing, it is also listed as Critically Endangered on the Victorian State *Flora and Fauna Amendment Guarantee* (FFG) Act 2019 (DELWP, 2019) threatened list.

### 3.2.2 Description

Strzelecki Gum is a medium to tall forest swamp gum, with smooth white bark and red-brown mottling on the trunk, with rough, fissured bark persisting on the lower trunk of mature trees (Cater, 2006). Adult leaves are variable but primarily lanceolate, alternate and glossy green and new growth is lightly or conspicuously waxy. The tree can grow up to 30m in height (Rule, 1992) (*Figure 3*).



*Figure 3 – Strzelecki Gum located on the Latrobe River, Traralgon*

### 3.2.3 Habitat Requirements

Strzelecki Gum commonly occurs in floodplains, along river or drainage lines, as well as foothills and drier areas with preferred soils that are grey, deep and fertile. In a few cases it occurs on undulating or flat terrain close to creeks on the periphery of the ranges (Rule, 1992).

### 3.2.4 Distribution

Strzelecki Gum occurs in the South and West Gippsland regions of Victoria extending north to Neerim South, south to Foster, west to the east coast of Westernport Bay and east to Yarram (Cater, 2006). There is little historical data on the distribution of the species prior to European settlement, however it is likely to have been far more prevalent in the landscape and in continuous populations than occur today (Cater, 2006).

The current population of Strzelecki Gum is estimated to be between 5,000 - 15,000 plants at up to 50 locations (Cater, 2006), however work completed by Baw Baw Shire Council (Baw Baw Shire Council, 2008) counted and mapped over 10,000 Strzelecki Gums in West Gippsland alone. It is therefore likely that the numbers estimated in the Recovery Plan are well below the actual Strzelecki Gum population.

### 3.2.5 Threats

The National Recovery Plan (Cater, 2006) identifies several key threats to the long-term viability of the species including:

- Grazing;
- Weed invasion;
- Lack of recruitment;
- Tree removal;
- Fire;
- Changes to hydrology;
- Increased nutrient levels
- Loss of genetic diversity; and
- Climate change.

A number of these threats result in a lack of recruitment for the species and many remnant trees are old, senescing paddock trees (Moxham & Dorrough, 2008).

## 3.3 Grey Billy Buttons

### 3.3.1 Status

Grey Billy Buttons is listed as Critically Endangered on the Victorian State *Flora and Fauna Guarantee Amendment (FFG) Act 2019* (DELWP, 2019) threatened list.

### 3.3.2 Description

It is a small herb with basal leaves in the order of 6-25 cm long, 5-15 mm wide and 1-5 flowering stems that are 15-65 cm high with yellow inflorescence present in spring (*Figure 4*).



Figure 4 – Grey Billy-buttons flowering in the road reserve, Princes Highway Traralgon (11/10/2022)

### 3.3.3 Distribution

The species is known to occur in grasslands (often bordering swamps) at low altitudes between Cranbourne and Traralgon (Royal Botanic Gardens of Victoria, 2022). A known population of this species occurs within a few hundred metres of the proposed subdivision within grasslands to the south of the Princes Highway road reserve.

### 3.3.4 Threats

The key threat to the species is primarily habitat removal or degradation.

## 4 Results & Discussion

### 4.1 Desktop Review

A search of the Victorian Biodiversity Atlas using a 10km search buffer of the site, found:

- 11 records of Matted Flax-lily;
- 56 records of Grey Billy-buttons; and
- 183 records of Strzelecki Gum.

The previously completed Ecological Assessment of the site (Fuhrmann & Brooker, 2022) determined that Matted Flax-lily and Grey Billy Buttons had a moderate likelihood of occurrence within the study area due to habitat suitability (Fuhrmann & Brooker, 2022) and location of nearby records. Strzelecki Gum was also found to be present, with five individual Strzelecki Gum identified. The report recommended targeted survey be completed for these three species within Bradford Drive / Regan Road reserve to assist in avoiding or minimising impacts from the proposed subdivision.

### 4.2 Site Inspection

#### 4.2.1 Bradford Drive / Regan Road road reserve

Vegetation within the Bradford Drive / Regan Road road reserve has been heavily modified, with only four native vegetation patches identified.

A remnant canopy layer is present in some areas, comprising individuals of *Eucalyptus melliodora* (Yellow Box), *Eucalyptus ovata* (Swamp Gum), Strzelecki Gum and *Eucalyptus viminalis* (Manna Gum) reaching 10 to 15 metres in height. The 2021 Ecological Assessment (Fuhrmann & Brooker, 2022) identified 13 remnant canopy trees within this road reserve, with six of these classified as 'large'. However, the majority of trees and large shrubs present have been planted as part of roadside, shelter belt or aesthetics planting. This is supported by the fact that they are species not indigenous to the local area, they are planted in rows of equal spacing and are of the same age.

Scatterings of native graminoids such as *Microlaena stipoides* var. *stipoides* (Weeping Grass), *Themeda triandra* (Kangaroo Grass), *Rytidosperma* sp. (Wallaby Grass) and *Lomandra* sp. (Mat-rush) were sparsely intermingled with exotic pasture species, however very few if any native herbaceous species were observed (Figure 5).

Weed coverage is high across the site from exotic pasture grass such as Kikuyu, Fescue and Sweet Vernal-grass. The site has a history of slashing, however it appeared to have been some weeks since this has occurred, enabling groundlayer species identification to be confirmed.

An ephemeral drainage line runs through the centre of the site, linking to the eastern boundary of the proposed subdivision.



Figure 5 - Vegetation within the road reserve (looking south) sparse canopy with exotic grass dominated interspersed with native understorey species.

#### 4.2.2 Princes Highway road reserve

No native vegetation was identified within the eastern end of the Princes Highway road reserve, with exotic pasture grass dominating.

Vegetation to the West is characterised by a canopy of Eucalypts, with the same species to those found on Regan Road, such as Manna and Swamp Gum. A mid-storey of Acacias, including Blackwood and Silver Wattle are also present, along with a ground storey that retains herbs and native grasses such as Spear Grass, Wallaby Grass and Weeping Grass. Open areas of sparser canopy cover occur at the western end of the study area., with a higher native graminoid cover present.

Weed coverage varies, with some areas dominated by high threat weeds such as *Rubus fruticosus* (Blackberry), *Crataegus monogyna* (Hawthorn), *Prunus radiata* (Radiata Pine) and common pasture grasses.

An ephemeral waterway that connects to the existing DEECA mapped wetland located is also present at the mid point of the study area. It is characterised by thickets of *Melaleuca ericifolia* (Swamp Paperbark) intermixed with Manna Gums and *Eucalyptus angopheroides* (Applebox) alongside riparian species such as *Persicaria decipiens* (Slender Knotweed) and *Carax gaudichaudiana* (Fen Sedge). The overall coverage of weeds was moderate in this area, with *Salix fragilis* (Crack Willow) and Blackberry the most common species.



Figure 6: Typical vegetation on the Princes Hwy road reserve

A list of flora species recorded during the site inspection is provided in *Appendix 1*.

#### 4.2.3 Matted Flax-lily

The Matted Flax-lily was not found within the study area despite the survey timing and effort deemed to be adequate to detect the species if it were present.

One open patch of native grass at the southern end of Regan Road contains species and structure consistent with the Plains Grassy Woodland (PGW), the preferred habitat for Matted Flax-lily, with the patch scoring 15 out of 100 in its (VQA) assessment. Only two native grass and one native herb species was identified in this patch (Fuhrmann & Brooker, 2022). The other 3 patches of native vegetation within the Regan road roadside comprise remnant canopy trees with very little native understorey still remaining. Vegetation from the PGW community was found along the Princes Highway road reserve, with an open canopy area at the western end of the study area. However, these areas were dominated by exotic pasture grass and only few native herbaceous species were found to be present.

During the search for the Matted Flax Lily, all fence lines, drip lines of trees and open bare areas were particularly targeted and one *Dianella* species was found, *Dianella admixta* (Black-anther Flax-lily) along a property fence line (*Figure 7*). In addition, another cryptic species, *Thelymitra* sp. (Sun-orchid) was also identified at two locations (*Figure 8*). The Sun-orchids were unable to be identified to species, as they were yet to flower, however are unlikely to be the threatened *Thelymitra epipactoides* (Metallic Sun-orchid) which occurs along the Gippsland coast line between 50 & 70

kilometres from the site. All Sun-orchids are protected flora under the FFG Act 2019 and require a permit if removed.



Figure 7 – *Dianella admixta* (Black-anther Flax-lily) found within the study area



Figure 78 – *Thelymitra* sp. (Sun orchids) found within the study area

Populations in Glengarry of the Matted Flax-lily had recently been surveyed (in 2022) and confirmation of flower buds made prior to these surveys.

#### 4.2.4 Grey Billy-buttons

The species was not found despite the survey timing and effort deemed to be adequate to detect the species if it were present.

The closest record of Billy Buttons on the Princes Highway road reserve was inspected before both surveys (October 2022 and 2023) and the species found to be flowering and readily identifiable during the targeted survey (*Figure 9*).

The site does not provide suitable habitat for Grey Billy-buttons, given its preference for Kangaroo Grass dominated grassland, which is absent from this site.



*Figure 9 – Grey Billy Buttons found within close proximity to the site on the Princes Highway (11/10/2022)*

#### 4.2.5 Strzelecki Gum

Four Strzelecki Gums were found to be present within the Regan Road / Bradford Drive road reserve, within the central drainage line, confirmed through the identification of glaucous growth tips (*Figures 9 & 10*). All four of these individuals were originally identified as part of the Ecological Assessment (Fuhrmann & Brooker, 2022), however a fifth tree identified in that report has since died and no confirmation that it was Strzelecki Gum was able to be completed as part of this assessment.

Given the age of these trees, their spacing and location in a single row, it suggests that they may have been planted. This is further re-enforced by the fact that a number of other Eucalypt species (some locally indigenous such as *Eucalyptus ovata* (Swamp Gum)) again of a similar age and in rows were also present in this drainage line. However, this suggestion cannot be verified with any available data.

Whilst an ephemeral waterway occurs within the Princes Hwy road reserve, which would provide suitable habitat for Strzelecki Gum, all Eucalypts were identified as Swamp Gums within its vicinity, as no recognisable features associated with Strzelecki Gums were observed (i.e. glaucous growth tips).

The location of the four confirmed Strzelecki Gums is shown in *Map 1*, details provided in *Table 1* and individual photos of each tree contained within the photos section of this report.

*Table 1: Tree Size Categories according to Ecological Vegetation Classes benchmarks*

#	Tree ID No*	Botanical Name	Common Name	Type	Diameter at Breast Height (DBH)	Size Category
1	8	<i>Eucalyptus strzeleckii</i>	Strzelecki Gum	Patch	32	Small
2	9	<i>Eucalyptus strzeleckii</i>	Strzelecki Gum	Patch	36	Small
3	10	<i>Eucalyptus strzeleckii</i>	Strzelecki Gum	Patch	39	Small
4	12	<i>Eucalyptus strzeleckii</i>	Strzelecki Gum	Scattered	55	Small

\*Tree ID No corresponds with Ecological Assessment (Fuhrmann & Brooker, 2022)



*Figure 9 – Glaucous growth tips used to confirm Strzelecki Gum identification*



Figure 10 – Location of Strzelecki Gums confirmed on Regan /Bradford Drive road reserve (note numbers correspond with Fuhrmann & Brooker, 2022)

## 4. Conclusion and Recommendations

Targeted surveys have concluded that Grey Billy Buttons and Matted Flax-lily are not present on site, despite the survey being completed at an appropriate time and effort being proportional to detectability.

Four Strzelecki Gums has been confirmed as present within the Bradford Drive / Regan Road reserve.

In order to minimise impacts to Strzelecki Gums confirmed on site the following are recommended:

- Design the road access network to avoid the removal of Strzelecki Gum individuals; and
- Undertake an EPBC Act Significant Impact Assessment to determine if the impact is significant if impacts to the species cannot be avoided.

In addition to the above, an FFG Act protected flora permit will be required if impacts to the Sun-orchids found on site are proposed and where possible, any large remnant Eucalypts should be retained.

## References

- Baw Baw Shire Council. (2008). *Strzelecki Gum Eucalyptus strzeleckii* project. Warragul: Baw Baw Shire Council.
- Brooker, T. (2022). *LCC Maintenance Area Native Vegetation and Dianella amoena survey - Gippsland Plains Rail Trail*. Research: IDEM.
- Carter, O. (2010). *National Recovery Plan for the Matted Flax-lily Dianella amoena*. Melbourne: Department of Sustainability & Environment.
- Cater, O. (2006). *National Recovery Plan for the Strzelecki Gum Eucalyptus strzeleckii*. Melbourne: DSE.
- DAWE. (2022, September 28). *Species Profile and Threats Database*. Retrieved from Australian Government Department of Agriculture, Water and the Environment: [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=64886](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64886)
- DELWP. (2019). *Flora and Fauna Guarantee Amendment Act - Threatened List*. Retrieved September 12, 2021, from Victorian Government Department of Environment Land Water & Planning: <https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list>
- DELWP. (2022). *Victorian Biodiversity Atlas*. Retrieved from Victorian Government Department of Environment, Land, Water & Planning: <https://vba.dse.vic.gov.au/vba/>
- Fuhrmann, A., & Brooker, T. (2022). *Ecological Assessment of 5483 & 5495 Princes Highway, Traralgon*. Research: Indigenous Design Environmental Management.
- Moxham, C., & Dorrrough, J. (2008). Recruitment of *Eucalyptus strzeleckii* (Myrtaceae) in intensive livestock production landscapes. *Australian Journal of Botany*, pp. 469-476.
- Royal Botanic Gardens of Victoria. (2022, 09 24). *Flora of Victoria*. Retrieved from *Craspedia canens*: <https://vicflora.rbg.vic.gov.au/flora/taxon/5f491eed-c364-4a50-81c2-6e714fe74198>
- Rule, K. (1992). Two New Species of *Eucalyptus* (Myrtaceae) in South-Eastern Victoria. *Mulleria*, pp. 497-505.
- Schinagl, H., Wright, W., & Rayment. (2013). Recruitment of *Eucalyptus strzeleckii* (Myrtaceae) in remnant patches of native vegetation in the Latrobe Valley and South Gippsland, Victoria. *Australian Journal of Botany*, pp. 654-662.

## Photos



*Photo 1 – Strzelecki Gum Tree ID # 8*



*Photo 2 – Strzelecki Gum Tree ID # 9*



*Photo 3 – Strzelecki Gum Tree ID # 10*



*Photo 4 – Strzelecki Gum Tree ID # 12*

## Appendix

### Appendix 1 - Flora List

Scientific Name	Common Name	Origin	Status	Comments
<i>Acacia baileyana</i>	Cootamundra Wattle	Introduced		
<i>Acacia mearnsii</i>	Black Wattle			
<i>Acaena novae-zelandiae</i>	Bidgee-widgee			
<i>Agrostis capillaris</i>	Brown-top Bent	Introduced		
<i>Aira spp.</i>	Hair Grass	Introduced		
<i>Allocasuarina litoralis</i>	Black She-oak			
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Introduced		
<i>Arctotheca calendula</i>	Cape Weed	Introduced		
<i>Arthropodium strictum s.l.</i>	Chocolate Lily			
<i>Austrostipa spp.</i>	Spear Grass			
<i>Avena spp.</i>	Oat	Introduced		
<i>Banksia spp.</i>	Banksia			Planted
<i>Brassica spp.</i>	Turnip	Introduced		
<i>Briza maxima</i>	Large Quaking-grass	Introduced		
<i>Briza minor</i>	Lesser Quaking-grass	Introduced		
<i>Bromus diandrus</i>	Great Brome	Introduced		
<i>Callistemon spp.</i>	Bottlebrush			Planted
<i>Carex gaudichaudiana</i>	Fen Sedge			
<i>Cenchrus clandestinus</i>	Kikuyu	Introduced		
<i>Cerastium vulgare</i>	Common Mouse-ear Chickweed	Introduced		
<i>Cirsium vulgare</i>	Spear Thistle	Introduced		
<i>Coprosma repens</i>	Mirror Bush	Introduced		
<i>Correa spp.</i>	Correa			Planted
<i>Corymbia maculata</i>	Spotted Gum	Native but some stands may be alien		Planted
<i>Corymbia spp.</i>	Bloodwood			Planted
<i>Crassula sieberiana s.l.</i>	Sieber Crassula			
<i>Crataegus monogyna</i>	Hawthorn	Introduced		
<i>Cyperus eragrostis</i>	Drain Flat-sedge	Introduced		
<i>Dactylis glomerata</i>	Cocksfoot	Introduced		
<i>Dianella admixta</i>	Black-anther Flax-lily			
<i>Ehrharta erecta</i>	Panic Veldt-grass	Introduced		
<i>Ehrharta longiflora</i>	Annual Veldt-grass	Introduced		
<i>Erigeron sumatrensis</i>	Tall Fleabane	Introduced		
<i>Eucalyptus botryoides</i>	Southern Mahogany	Native but some stands may be alien		
<i>Eucalyptus dives</i>	Broad-leaf Peppermint			Planted
<i>Eucalyptus melliodora</i>	Yellow Box			
<i>Eucalyptus ovata</i>	Swamp Gum			
<i>Eucalyptus radiata s.l.</i>	Narrow-leaf Peppermint			Planted

Targeted Flora Surveys, 5483 & 5495 Princes Highway, Traralgon | October, 2023

Scientific Name	Common Name	Origin	Status	Comments
<i>Eucalyptus strzeleckii</i>	Strzelecki Gum		Vulnerable	
<i>Eucalyptus tricarpa</i>	Red Ironbark			Planted
<i>Eucalyptus viminalis</i>	Manna Gum			
<i>Euphorbia peplus</i>	Petty Spurge	Introduced		
<i>Festuca arundinacea</i>	Tall Fescue	Introduced		
<i>Fumaria bastardii</i>	Bastard's Fumitory	Introduced		
<i>Galium aparine</i>	Cleavers	Introduced		
<i>Genista monspessulana</i>	Montpellier Broom	Introduced		
<i>Geranium spp.</i>	Crane's Bill			
<i>Grevillea spp.</i>	Grevillea			Planted
<i>Holcus lanatus</i>	Yorkshire Fog	Introduced		
<i>Hordeum spp.</i>	Barley Grass	Introduced		
<i>Hypochaeris radicata</i>	Flatweed	Introduced		
<i>Juncus spp.</i>	Rush			
<i>Kunzea ericoides</i>	Burgan			
<i>Lolium spp.</i>	Rye Grass	Introduced		
<i>Lomandra filiformis</i>	Wattle Mat-rush			
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	Introduced		
<i>Lycium ferocissimum</i>	African Box-thorn	Introduced		
<i>Lythrum hyssopifolia</i>	Small Loosestrife			
<i>Medicago spp.</i>	Medic	Introduced		
<i>Melaleuca ericifolia</i>	Swamp Paperbark			
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass			
<i>Oxalis perennans</i>	Grassland Wood-sorrel			
<i>Paspalum dilatatum</i>	Paspalum	Introduced		
<i>Persicaria decipiens</i>	Slender Knotweed			
<i>Pinus radiata</i>	Radiata Pine	Introduced		
<i>Plantago lanceolata</i>	Ribwort	Introduced		
<i>Poa annua</i> s.l.	Annual Meadow-grass	Introduced		
<i>Poa pratensis</i>	Kentucky Blue-grass	Introduced		
<i>Polygonum aviculare</i> s.l.	Prostrate Knotweed	Introduced		
<i>Romulea rosea</i>	Onion Grass	Introduced		
<i>Rubus fruticosus</i> spp. agg.	Blackberry	Introduced		
<i>Rumex spp.</i>	Dock			
<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Slender Wallaby-grass			
<i>Rytidosperma spp.</i>	Wallaby Grass			
<i>Salix sp.</i>	Willow	Introduced		
<i>Sisyrinchium micranthum</i>	Striped Rush-leaf	Introduced		
<i>Solanum nigrum</i> s.l.	Black Nightshade	Introduced		
<i>Sonchus oleraceus</i>	Common Sow-thistle	Introduced		
<i>Sporobolus africanus</i>	Rat-tail Grass	Introduced		
<i>Thelymitra spp.</i>	Sun Orchid			
<i>Themeda triandra</i>	Kangaroo Grass			

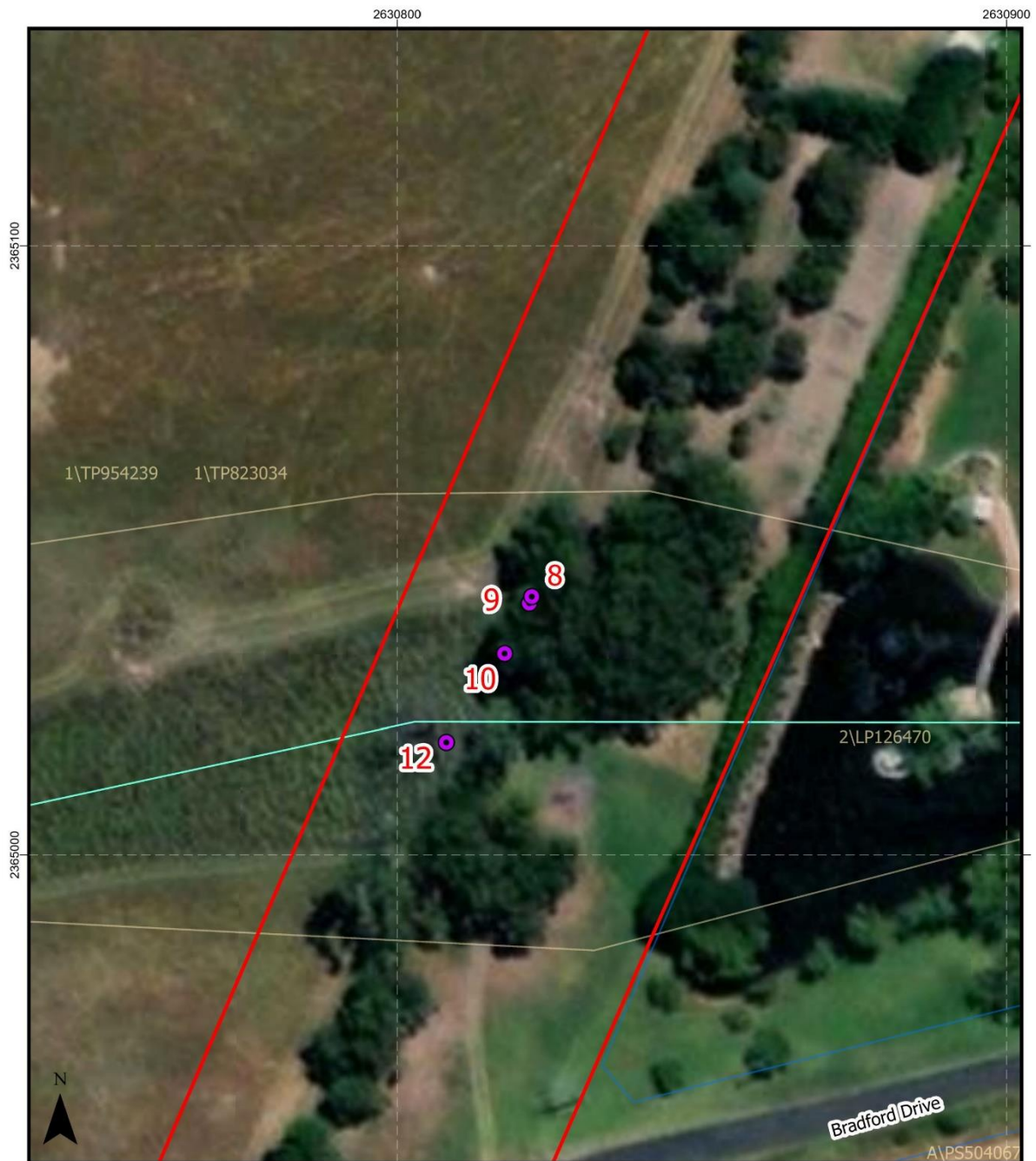
Targeted Flora Surveys, 5483 & 5495 Princes Highway, Traralgon | October, 2023

Scientific Name	Common Name	Origin	Status	Comments
<i>Tricoryne elatior</i>	Yellow Rush-lily			
<i>Trifolium repens var. repens</i>	White Clover	Introduced		
<i>Vicia sativa</i>	Common Vetch	Introduced		
<i>Vulpia bromoides</i>	Squirrel-tail Fescue	Introduced		

## Maps

Maps commence on the next page

Map 1 – Strzelecki Gum locations within Bradford Drive/Regan Road

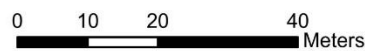


**Strzelecki Gum Locations - Bradford Drive / Regan Road road reserve**



**Legend**

- Cadastre
- Watercourse
- Contours 10-20m
- Study\_Area
- Strzelecki Gum



**Title:** Strzelecki Gum Locations  
**Reference:** 21375BW  
**Drafted by:** T. Brooker (28/10/2022)  
**Reviewed by:** A. Fuhrmann (28/10/2022)  
**Version:** Final for publication  
**Datum:** GDA 1994 VICGRID94

While all effort has been made to ensure the content of this map is correct and accurate, Indigenous Design cannot explicitly guarantee that it is free from error and accepts no responsibility for damages resulting from its use.



ID Ecological Management

[Redacted text]

ABN: 64 081 044 144

[Redacted text]