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Norris & Schoeffel
1295 Bullumwaal Rd
Mount Taylor Victoria 3875
Phone: 0421626051
Email: kennorris49@gmail.com

WA_453 Work Plan Variation

Native Vegetation Removal Report and Ecological Assessment

Version 4

Report to:
Barro Group Pty Ltd

prepared by

Ken Norris
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Summary

- Barro Group Pty Ltd contracted Norris and Schoeffel to complete a Native Vegetation¹ assessment of part of Work Authority WA_453, their 250 Drysdale Rd Little River 3211 property.
- Field inspection and collection of observations/data occurred in May and October 2019.
- On 7 June 2021, a field survey confirmed the presence of the 'Critically Endangered' orchid, Brittle Greenhood (*Pterostylis truncata*) within the proposed Extraction Extension area.
- The vegetation on the proposed Extraction Extension fits the description of EVC CVU_0071: Hills Herb-rich Woodland, a 'Vulnerable' EVC within the Central Victorian Uplands Bioregion.
- The 'Condition Scores' for Native Vegetation 'Patches' ranged from a high of 0.4 to a low of 0.13.
- The proposed quarry extension involves the removal of Native Vegetation of 8.636ha and 21 'Large Trees', generating a 'Native Vegetation Offset' requirement for 4.820 'Species Habitat Units' for *Pterostylis truncata* and the protection of 21 'Large Trees'.
- The Native Vegetation Offsets of Species Habitat Units for *Pterostylis truncata* will be provided through the market for Native Vegetation Offsets and/or within the WA_453 area as 'First Party Offsets'.
- Specimens of the Critically Endangered orchid *Pterostylis truncata* were recorded on the proposed Extraction Extension, in one area of 0.538ha, but outside Patches of Native Vegetation.
- The population area (i.e. habitat) of *Pterostylis truncata* within the proposed Extraction Extension comprises at most about 0.5% of similarly defined areas of habitat within the You Yangs and less than 0.002% of modelled similar or better quality habitat throughout Victoria.
- No other flora taxa classified 'Threatened' were recorded on site or are likely to occur there.
- No flora and fauna taxa recorded within 5km of the site classified as Threatened in either the *Environment Protection and Biodiversity Conservation Act* (EPBC) 1999 or *Flora and Fauna Guarantee Act* (FFG) 1988 lists are likely to use the proposed Extraction Extension as habitat except for *Pterostylis truncata* and perhaps occasionally by nomadic/migratory species of bird.
- No matters identified under the EPBC Act as possible for the site were discovered or are likely.
- The Barro Group offers to relocate *Pterostylis truncata* tubers from the prospective Extraction Extension into a place with similar environmental characteristics elsewhere within WA_453 and/or place genetic material with conservation groups like the Australasian Native Orchid Society.
- The proposed works do not exceed automatic trigger points that would invoke a compulsory referral under the *Environment Effects Act* 1978.

1 Throughout this document, Capitalised Words or Phrases, in single quotes at first use, have specific meaning under various statutes. A source glossary for each term appears on page 49.

1 Introduction

1.1. Project background

Barro Group Pty Ltd contracted Norris and Schoeffel to complete a Native Vegetation assessment of their 250 Drysdale Rd Little River 3211 property, WA_453, to fulfil three objectives:

- To assess the attributes of the site from an ecological perspective;
- To evaluate the potential liability and resultant Native Vegetation Offsets that might apply to any proposed Extraction Extension to their current permitted Extraction Boundary; and
- To determine the potential for an area of WA_453 to be used for Native Vegetation Offsets

The approval process for quarry applications and variations of Work Authorities is administered by the Earth Resources Regulator (ERR) under the *Mineral Resources (Sustainable Development) Act 1990 (MRSDA)*.

ERR is a section of the Department of Environment, Energy and Climate Action (DEECA).

1.2. Objectives

To report on the flora and fauna attributes of the subject site, consistent with Environment Effects Statement (EES) referral criteria (DTP 2023a), and to evaluate the Native Vegetation Offset liability, where one exists, consistent with procedures outlined in *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017).

1.3. Study area

LGA	GREATER GEELONG
CMA Region	MELBOURNE WATER
Locality	LITTLE RIVER
Parish	WURDI-YOANG
Plan	PS344713
SPI	2\PS344713
Address	250 DRYSDALE ROAD LITTLE RIVER 3211
Coordinates (approx.)	LL94 37°55'09.97" S, 144°25'40.48" E
MGA	273912, 5800004 (z55)

The areas surveyed within these properties are shown on Map 1, which shows:

- The Work Authority (WA_453) boundary;
- The proposed Extraction Extension; and
- The Patches and 'Scattered Trees' of Native Vegetation.

2 Methods

2.1. Data and literature review

DEECA's Victorian Biodiversity Atlas (VBA) database provided records of Threatened plants and animals in the Victorian database within 5km of the site. (<https://www.environment.vic.gov.au/biodiversity/Victorian-biodiversity-atlas>).

The Department of Environment and Heritage provides search tools to access details of taxa and communities listed by the *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) as present or possibly present in the vicinity—that included a 5km buffer from WA_453). (<https://www.environment.gov.au/epbc/protected-matters-search-tool>).

Data for birds were augmented by incorporating observations registered in the 'eBird' online facility (eBird 2024), which collects data from the many active bird-observers world-wide, including those of the You Yangs/Greater Geelong area.

2.2. Field survey

Field inspection and collection of observations/data occurred formally in four visits in May and October, 2019 and a fifth visit, in June 2021, which was specifically to look throughout for the 'Critically Endangered' orchid, Brittle Greenhood (*Pterostylis truncata*). The first four visits comprised a thorough search through the proposed Extraction Extension for Patches of Native Vegetation that meet the qualifying criteria viz: 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses' that have a minimum projected cover of 25% of total perennial vegetation and/or are three canopy trees with touching drip lines and/or are isolated Scattered Trees of specified minimum diameter. *The Guidelines* (DELWP 2017) provide the detailed definition for field identification and evaluation of Native Vegetation. The fifth visit targeted the area near the sites of records of *Pterostylis truncata* in 2004–5 in the first instance, but extended through the areas of Patches of Native Vegetation in the proposed Extraction Extension and into adjoining areas of WA_453 with environmental characteristics similar to the record sites.

2.3. Limitations

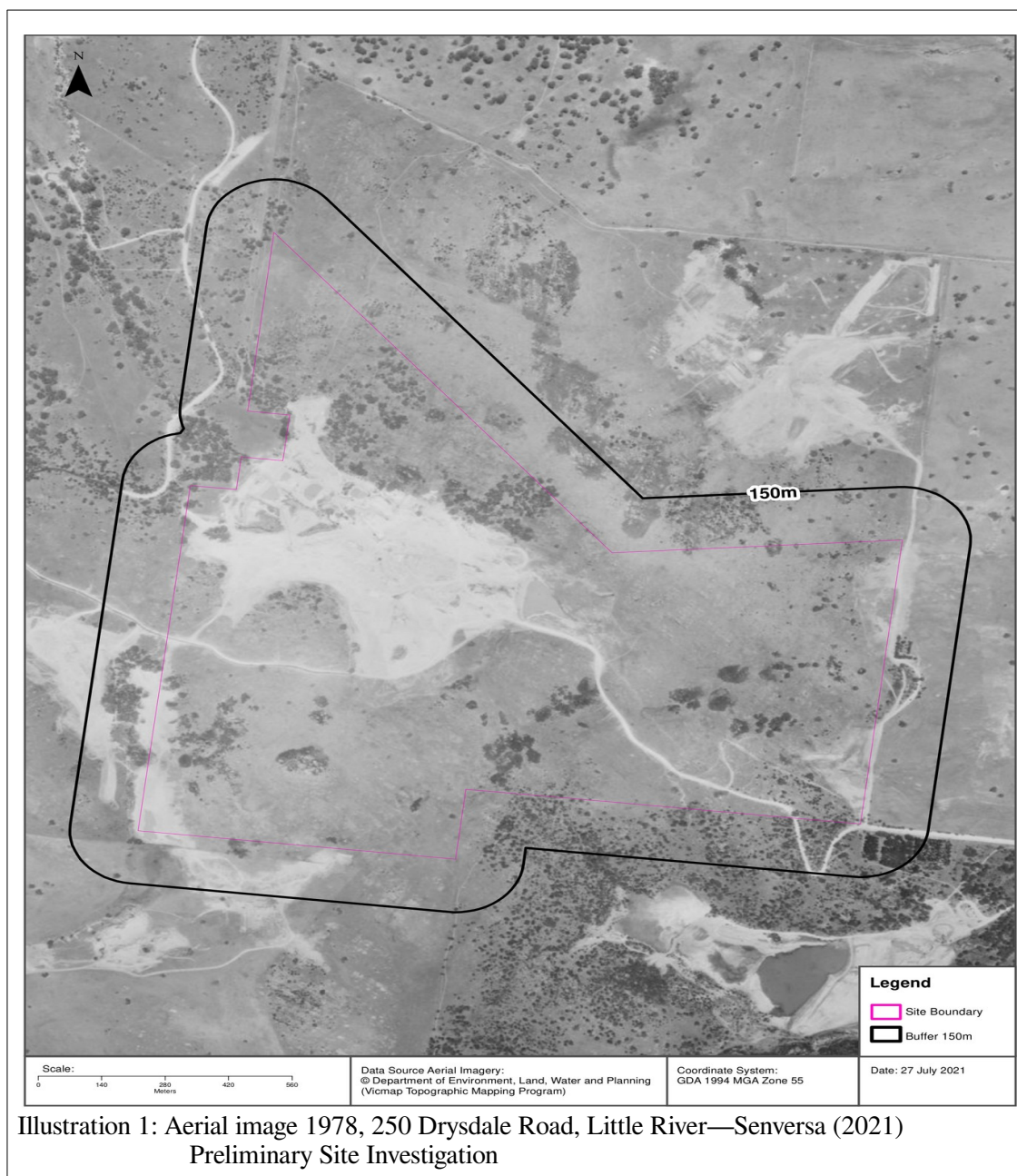
Five visits to a site has inherent limitations to do with seasonality of plants and animals and chance. The poor Autumn and Spring conditions in 2019 probably meant that some cryptic plants, otherwise present, were not visible above ground at the time of inspection. June 2021 was a better season for plant growth and emergence.

3 Results

3.1. History of site

European settlers' use of the You Yangs, in general, commenced in the mid-19th century. Early grazing by stock included sheep, cattle and pigs. Harvesting of timber provided fuel for lime-burning at Lara. Clearing of original vegetation for grazing and use for extractive industries within the main granite massif seems to date from the mid-20th century, beginning with sand extraction, followed by hard-rock extraction and processing.

Through these various industries, little undisturbed areas remained on site (see Illustration 1).



3.2. Vegetation

Field survey data were correlated with views from aerial photography to establish an overall picture of vegetation cover and condition. Regrowth of scattered native shrubs through much of the disturbed or previously grazed area do not constitute Patches of Native Vegetation, because they are less than ten years of age and/or do not constitute >25% 'cover' of the existing perennial plants present—there is a predominance of the weed Boneseed (*Chrysanthemoides monilifera*). The Patches of Native Vegetation are discussed in Section 6.2 below.

Illustration 2: Typical vegetation within proposed Extraction Extension



3.3. EVC/Communities

DELWP mapping (DELWP 2018) suggests the vegetation on the Work Authority might be one of two Ecological Vegetation Classes (EVCs) that are mapped to occur in this general area of the You Yangs:

- EVC_71 Hills Herb-rich Woodland. EVC_71 is listed as a 'Vulnerable' EVC within the Central Victorian Uplands (CVU) Bioregion—referred to in the text as CVU_0071.
- EVC_72: Granitic Hills Woodland. EVC_72 is listed as a 'Depleted' EVC within the Central Victorian Uplands (CVU) Bioregion.

EVC mapping (DELWP 2018), the species present and the form of the vegetation is consistent with EVC CVU_0071. The analysis of Native Vegetation quality is based on the benchmarks for EVC CVU_0071.

3.4. Flora species present

Appendix 1 lists species recorded within the proposed Extraction Extension. Most are widespread species in this type of environment. Of note in the overall vegetation in the proposed Extraction Extension is the preponderance of weeds, many Noxious, both in number of species and in ground cover, that occur throughout the proposed Extraction Extension.

3.4.1 Threatened flora species

Table 1 lists the threatened species of plant recorded within a 5km buffer of, and including, the Little River Quarry WA_453, in the Victorian Biodiversity Atlas database and taxa listed as possibly present under the EPBC Act.

Table 1: Threatened flora taxa.

Scientific Name	Common Name	Status	Recs	Most recent	Comment
<i>Allocasuarina luehmannii</i>	Buloke	cr	1	08/04/2020	Usually growing in woodland with <i>Eucalyptus microcarpa</i> , on non-calcareous soils (Entwisle 1996). WA is not the environment that would naturally support Buloke.
<i>Amphibromus fluitans</i>	River Swamp Wallaby-grass	V			Not present or likely in the environment of WA_453.
<i>Calotis anthemoides</i>	Cut-leaf Burr-daisy	cr	1	01/01/1770	Scattered north and west of Melbourne (e.g. Sunshine, Camperdown, Moyston, Dunkeld, Numurkah regions) on heavy soils prone to waterlogging...(Walsh 1999). Not an environment contained in WA_453.
<i>Comesperma polygaloides</i>	Small Milkwort	cr	4	01/10/1980	Occasional on heavier soils (clays, alluvium) supporting grassland and grassy woodland communities in central and south-western areas (Walsh 1999). Not the environment of WA_453.
<i>Cullen parvum</i>	Small Scurf-pea	en	1	01/01/1770	...it grows mainly in grassland or grassy woodland, often on basalt-derived soils (Jeanes 1996). Not the environment of WA_453.
<i>Dodonaea procumbens</i>	Trailing Hop-bush	V	0		Not present or likely in the environment of WA_453.
<i>Eucalyptus leucoxylon</i> subsp. <i>connata</i>	Melbourne Yellow-gum	vu	2	25/02/2005	Not present or likely in the environment of WA_453.
<i>Euphrasia collina</i> subsp. <i>muelleri</i>	Purple Eyebright	EN en	2	01/11/1853	Formerly widespread in lowland to montane central and western Victoria, but now exceedingly rare through habitat destruction, surviving in heathland and heathy woodland on the Mornington Peninsula and near Jamieson (Barker 1999). Not present or likely.
<i>Glycine latrobeana</i>	Glycine Clover	VU	0		Not present or likely in the environment of WA_453.
<i>Grevillea rosmarinifolia</i> subsp. <i>glabella</i>	Smooth Grevillea	en	1	01/10/1980	Grows in mallee, open woodland and shrub associations, usually on sandy soils (Makinson 2000). Some doubt rests on the taxonomic validity of this taxon. The 'Lara form' of <i>G. rosmarinifolia</i> is presumed extinct (Vicflora 2023). Not relevant.
<i>Grevillea steiglitziana</i>	Brisbane Range Grevillea	en	1	01/01/1770	Virtually restricted to the Brisbane Ranges area between c. Steiglitz and Anakie, and to the southern end of the Werribee Gorge area. A specimen possibly collected from Station (Flinders) Peak, within 5km of the WA (Makinson 1996). Unlikely to be present.
<i>Lepidium aschersonii</i>	Spiny Peppercross	V	0		Not present or likely in the environment of WA_453.
<i>Lepidium hyssopifolium</i>	Basalt Peppercross	EN en	0		Not recorded near the vicinity but known generally from the Basalt Plains. Not relevant.

Scientific Name	Common Name	Status	Recs	Most recent	Comment
<i>Leptorhynchus elongatus</i>	Lanky Buttons	en	1	01/01/1770	Collected once (possibly) at Station (Flinders) Peak in the 19th Century. Otherwise 'Largely confined in Victoria to eastern uplands (Benambra, Omeo, Wulgulmerang, Corryong areas) where occasional in grassy <i>Eucalyptus pauciflora</i> woodlands.' Not likely on WA_453.
<i>Leucochrysum albicans</i> subsp. <i>tricolor</i>	White Sunray	EN en	1	01/11/1853	Very rare in Victoria, the only recent collections from volcanic grassland remnants in the Wickliffe, Willaura, Streatham, Inverleigh and Creswick districts (Short 1999). Not likely on WA_453.
<i>Nicotiana suaveolens</i>	Austral Tobacco	en	14	17/05/2011	Widespread, particularly in drier inland areas, often in rocky places (Jeanes 1999). Possible presence, but not recorded. There remains some confusion over taxonomy.
<i>Pimelea spinescens</i> subsp. <i>spinescens</i>	Spiny Rice-flower	CR en	2	24/02/2020	Grows in grassland, open shrubland and occasionally woodland, often on basalt-derived soils (Entwisle 1996). Not recorded or likely.
<i>Prostanthera nivea</i> var. <i>nivea</i>	Snowy Mint-bush	vu #	13	06/08/2017	Largely confined naturally to shrubland and open woodland associated with granite outcrops (e.g. Mts Hope, Terrick Terrick, Kooyora and Pilot, and the You Yangs), also in Lerderderg Gorge, Barwon Heads and Anglesea areas. Not recorded on site but possible.
<i>Pterostylis cucullata</i>	Leafy Greenhood	VU	0		Not present or likely in the environment of WA_453.
<i>Pterostylis truncata</i>	Brittle Greenhood	cr	811	07/06/2021	Healthy population present in the southeastern part of WA_453 and the proposed Extraction Extension—see assessment below for Brittle Greenhood <i>Pterostylis truncata</i> (Page 12).
<i>Rhagodia parabolica</i>	Fragrant Saltbush	vu #	2	05/06/2017	In Victoria occurs naturally on a few steep rocky slopes and broad ridges between Sunbury and Geelong (e.g. Jacksons Creek, Long Forest, Werribee Gorge, Steiglitz, Buckleys Falls on the Barwon River), but locally rather common,... (Walsh 1996). Not likely on WA_453.
<i>Rutidosia leptorhynchoides</i>	Button Wrinklewort	EN en	4	01/01/1874	In Victoria, confined to basaltic grasslands between Rokewood and Melbourne where endangered due to 'loss of habitat' (Walsh 2018). No basaltic grasslands within WA_453.
<i>Rytidosperma monticola</i>	Small-flower Wallaby-grass	en	1	25/02/2008	Mostly in dryish grassy woodland, chiefly through central and north-eastern Victoria (e.g. Ararat, Warby Range) (Walsh 2016). No confirmed specimen record from You Yangs, yet.
<i>Senecio macrocarpus</i>	Large-headed Fireweed	VU cr	1	01/01/1770	In Victoria, largely confined to remnant <i>Themeda</i> grasslands on loamy clay soils derived from basalt from near Melbourne west to Skipton area (Walsh 1999b). Not the environment of WA_453.
<i>Swainsona behriana</i>	Southern Swainson-pea	en	1	01/01/1770	Rare, widespread but sporadic in Victoria, mostly in lowlands west of Melbourne, but extending to montane areas in the east (e.g. Omeo, Cobungra, Gelantipy) (Jeanes 1996). Possibly present but not recorded.
<i>Xerochrysum palustre</i>	Swamp Everlasting	VU	0		Not present or likely in the environment of WA_453.

Abbreviations: EPBC Act CR—Critically endangered, EN—Endangered, VU—Vulnerable; FFG Act cr—critically endangered en—endangered vu—vulnerable # Native but some stands may be alien; WA_453—Work Authority 453.

Brittle Greenhood *Pterostylis truncata*

The presence of *Pterostylis truncata* within the proposed Extraction Extension was confirmed in 2023 when tubers collected in June 2021 at length flowered (Illustration 4). Four site records of *Pterostylis truncata* (comprising eight individual records) existed for the proposed Extraction Extension, dating from 2004–5 (see Map 3). The confirmation, in 2023, that the tubers collected in 2021 were/are *Pterostylis truncata* validates the plotting of the approximate boundaries of the rosette horde in 2021 as *bona fide Pterostylis truncata* in Map 3, even though no specimens had been positively identified on the proposed Extraction Extension since 2005.

The potential population of *Pterostylis truncata* within WA_453 is significant; to that end, considerable effort was expended to try to confirm its presence, or otherwise, and to map the presence of any *Pterostylis* plants throughout the proposed Extraction Extension.

No sign of *Pterostylis* of any species showed in the vegetation assessment of April and October 2019, possibly due to the dryness of the year—32.8mm of rain for the calendar year to the end of April at Mount Rothwell, about 2km NNE of the proposed Extraction Extension, was the lowest in almost 100 years—in the period when *Pterostylis truncata* would 'normally' be above ground.

Year's rainfall to the end of May 2021 was 273.2mm at Mount Rothwell and, by contrast to 2019, *Pterostylis* rosettes were easy to see (see Illustration 3) and widespread through the southeastern part of WA_453, including the population within the proposed Extraction Extension (Map 3). None of the records within the proposed Extraction Extension, both those of rosettes found in 2021 and those from 2004–5 on the VBA database, fell within Patches of Native Vegetation mapped in 2019. There was no sign of flowering in June 2021, either as fresh flowers, grazed stalks (by goats, rabbits or kangaroos) or desiccated flowers, so validation of identity was accomplished via collection of functional tubers for propagation in suitable, *in vitro* media; the first flowers of that cohort expressed, as expected, in April/May, 2023 (Illustration 4) (per John Jeanes).

In June 2021 and at other times of inspection, no *Pterostylis* rosettes were found anywhere else in the proposed Extraction Extension of WA_453, despite hours of searching. In reporting on surveying and monitoring, the Action Statement for *Pterostylis truncata* under the FFG Act held that '*Only the You Yangs is believed to have been thoroughly surveyed*' (DSE 2003). The thoroughness of these independent surveys, added to the current survey work, makes it unlikely that *Pterostylis truncata* was overlooked in Patches of Native Vegetation and elsewhere within the proposed Extraction Extension. Despite what is implied by the Species Specific Habitat Units deemed necessary as Native Vegetation Offsets for the proposed Extraction Extension, these Patches of Native Vegetation probably do **not** comprise *Pterostylis truncata* habitat, by definition.

Since the start of 1999, from throughout Victoria, 933 records of *Pterostylis truncata* were either lodged in the Victorian Biodiversity Atlas (VBA) database, or were recorded as part of the current survey, of which 26 occur within the proposed Extraction Extension.

Three things should be said about these data:

- 1999 is an arbitrary reference point, but relatively recent, and at the start of a period of active searching and record-keeping by the (Geelong) Australasian Native Orchid Society that concentrated on the You Yangs area;
- 'records' do not give an idea of population (number of plants) at each of the record 'sites'—the number of 'sites' recorded for the population within the proposed Extraction Extension in 2021 is also arbitrary and sought to define extent of area rather than population numbers; and
- individual site records are of doubtful accuracy (except for the current study, which were accurate to the limits of a standard GPS unit) given the tendency of orchid specialists not to broadcast accurate locations.

The only Victorian records for 2021 were those from the proposed Extraction Extension or further south (19 sites) within WA_453, where searching and recording was more perfunctory. There are six other records in the VBA for Victoria more recent than 2010, implying that the thorough survey effort of the early part of the 2000s ceased in about 2008—the late Everett Foster recorded most of the survey work results in the You Yangs from 2000–10.

Defining population as areas of clusters of records lodged with the VBA since the start of 1999 (or collected in the current survey) from in and around the You Yangs, and ignoring isolated records, yields about 113 hectares of total population area, of which the recorded population within the proposed Extraction Extension is 0.538 hectares—no more than 0.5% of the total You Yangs population area (see Map 5). This 0.5% figure should be seen as a maximum, indicative proportion of the existing population in and around the You Yangs, given that the excluded individual site records also indicate a population of unknown but finite area. To this base population area calculated for the You Yangs should be added the less-well-documented Victorian population areas elsewhere, to give a total baseline, Victorian population area that further reduces the percentage of the total Victorian population potentially affected by the proposed Extraction Extension.

The population of *Pterostylis truncata* within the proposed Extraction Extension and elsewhere in WA_453 seems to benefit from the lack of direct competition from indigenous plants (Native Vegetation) and to propagate well in the relatively open environment under the weed Boneseed (see Illustration 3). Given the general propensity of the *Pterostylis* genus to colonise/spread vegetatively (cf. sexual flowering and seed propagation), the 'colony' observed in the proposed Extraction Extension possibly has limited *genetic* diversity, but instead be derived, asexually, from relatively few originating plants. The history of this population and hence its potential genetic makeup is unknowable without genome analysis, but the aerial image of the area in 1978 (Illustration 1) suggests an environment at that time hard-used by grazing and industry, in a low rainfall area, on which any plant species, except Boneseed and some other exotic plants, might struggle to propagate by seed. The existing *Pterostylis truncata* population within the proposed Extraction Extension might have migrated vegetatively from the south-facing, less heavily-used areas to the south within WA_453, where a population still exists, into an area without the competition of Native Vegetation.

Illustration 3: *Pterostylis* rosettes under Boneseed



Illustration 4: *Pterostylis truncata* from collections within the proposed Extraction Extension (John Jeanes photo).

3.5. Fauna

3.5.1 Environment for fauna

WA_453 offers a dry, open and rocky, low forest environment, where Native Vegetation occurs, and a dry, generally denuded area dominated by exotic plant species.

3.5.2 Fauna species present

No Threatened species of fauna were recorded on site. Observable ground fauna include Eastern Grey Kangaroo (*Macropus giganteus*), feral Goat (*Capra hircus*) and European Rabbit (*Oryctolagus cuniculus*).

3.5.3 Threatened fauna species

The footprint of the proposed Extraction Extension to the existing quarry is of about 30ha, of which about 8.6ha is definable Native Vegetation under the terms of *The Guidelines* (DELWP 2017).

All of the 30ha is habitat for something. However, the context of trying to determine impacts on conservation values suggest an exploration of what might be a significant impact on the overall survival prospects of a taxon or definable community of taxa that are Listed as Threatened under the terms of State and Federal Government statutes; this assessment should be a consideration of survival at the local, regional, state and national level.

Table 2 lists Threatened taxa of fauna recorded within a 5km buffer of, and including, the Little River quarry WA_453. None is likely to rely on the environment within WA_453 for habitat, although Southern Whiteface (*Aphelocephala leucopsis*), Painted Honeyeater (*Grantiella picta*), Hooded Robin (*Melanodryas cucullata*), Speckled Warbler (*Pyrrholaemus sagittatus*) and Diamond Firetail (*Stagonopleura guttata*) are possible nomadic species that might utilize the area of WA_453. The rare and recently 'rediscovered' Victorian Grasslands Earless Dragon (*Tympanocryptis pinguicolla*) was collected from the Little River area in 1967 and there are unconfirmed reports for the Kirks Bridge area in 1990, about 2km east of WA_453. These six Threatened species of fauna are assessed below Table 2, starting on page 21.

As described above (Sections 3.1, 3.2 and 3.3), the environment of the proposed Extraction Extension, and WA_453 in general, is much changed from the presumed original. Although that does not necessarily preclude the presence and beneficial survival of Threatened fauna species, it probably makes it less likely.

Notes to Table 2: It is not possible to have certainty in the evaluation of possible affects on the conservation of often mobile and sometimes poorly understood taxa and communities that are known to occur in the vicinity. Hence, the conclusions rest on the balance of probabilities that takes into account all available information. The proposed Extraction Extension is unlikely to represent a threat to conservation of any taxa of Threatened fauna. It is not possible to be more declaratory.

Table 2: Threatened fauna recorded within a 5km buffer of and including the Little River quarry WA_453 in the Victorian Biodiversity Atlas database and taxa listed as possibly present under the EPBC Act. Some additional data in Comments provided through eBird (2024).

<i>Scientific Name</i>	Common Name	Status	Records	Latest	Comments
<i>Accipiter novaehollandiae</i>	Grey Goshawk	en	4	31/10/2018	Possible visitor but the local environment of WA_453 is not consistent with habitat characteristics.
<i>Acrodipsas brisbanensis</i>	Large Ant Blue Butterfly	en	1	1760	No longer present at site (Flinders Peak).
<i>Anseranas semipalmata</i>	Magpie Goose	vu		17/05/2018	Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Anthochaera phrygia</i>	Regent Honeyeater	CR, cr	2	01/05/1989	'Regent Honeyeaters occur mainly in box-ironbark open-forests and riparian stands of Casuarina on the inland slopes of the Great Dividing Range. At times significant numbers also occur in coastal forests in NSW and eastern Victoria.' (Menkhorst <i>et al.</i> 1999). Possibly an occasional visitor to the area however the environment of the proposed extraction area is not consistent with description of habitat given above. There are no records for the area registered in eBird. The proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Antigone rubicunda</i>	Brolga	en	1	01/08/1989	Bird predominantly of wetlands. Not impacted by proposed Extraction Extension.
<i>Aphelocephala leucopsis</i>	Southern Whiteface	VU	275	30/11/2016	Possible/probable visitor to WA_453 but the general state of WA_453 does not offer a suitable environment for habitat. See assessment below.
<i>Ardea alba modesta</i>	Eastern Great Egret	vu	8	01/01/1986	Bird predominantly of wetlands. Not impacted by proposed Extraction Extension.
<i>Aythya australis</i>	Hardhead	vu	9	17/04/2017	Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Biziura lobata</i>	Musk Duck	vu	2	01/01/1980	Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	EN cr	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Burhinus grallarius</i>	Bush Stone-curlew	cr	3	01/01/1960	Once scattered through open bushland remnants in Victoria but now rare and

<i>Scientific Name</i>	Common Name	Status	Records	Latest	Comments
					restricted to northern Victoria. Unlikely to be impacted by proposed Extraction Extension.
<i>Calidris canutus</i>	Red Knot	EN en	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CR cr	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	EN en	0		No records in vicinity but a possible visitor to Eucalypts in WA_453.
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	VU	0		No records in vicinity and unlikely to be a visitor.
<i>Dasyurus maculatus maculatus (SE mainland population)</i>	Spot-tailed Quoll (southeast mainland)	EN en	0		No records in vicinity and unlikely to be a visitor.
<i>Delma impar</i>	Striped Legless Lizard	VU en	0		No records in vicinity and unlikely to be a visitor. Resident of nearby volcanic plains grasslands.
<i>Egretta garzetta</i>	Little Egret	en	5	22/09/2017	Bird of wetlands, primarily coastal. Not impacted by proposed Extraction Extension.
<i>Falco hypoleucos</i>	Grey Falcon	VU vu	0		No records in vicinity but a possible visitor.
<i>Falco subniger</i>	Black Falcon	cr	21	12/01/2019	Possible occasional visitor but the local environment of the WA is not consistent with habitat characteristics. Dark phase Brown Falcons are regularly mistaken for Black Falcons.
<i>Grantiella picta</i>	Painted Honeyeater	VU vu	10	19/10/2015	Occasionally recorded in You Yangs area. The local environment might offer benefits to transitory species. The proposed Extraction Extension is unlikely to represent a threat to conservation. See assessment below.
<i>Hieraaetus morphnoides</i>	Little Eagle	vu	149	27/08/2017	Apparently regular soaring visitor/resident of the area. The proposed Extraction Extension does not represent a significant threat to conservation.
<i>Hirundapus caudacutus</i>	White-throated Needletail	VU vu	9	06/02/2010	Regular aerial, migratory visitor of the area. The proposed Extraction Extension does not represent a significant threat to conservation.

<i>Scientific Name</i>	Common Name	Status	Records	Latest	Comments
<i>Lathamus discolor</i>	Swift Parrot	CR cr	55	03/04/2016	Recorded at sporadic times in the southern You Yangs area including a large flock of about 50 birds in the Winter of 2010 and up to 25 birds in Winter of 2021 (eBird data). The local environment of Eucalypt plantations in the south offers benefits to transitory/migratory species and Swift Parrots utilise them irregularly. There are no similar Eucalypt plantations in WA_453 and the remaining Eucalypts there are not prolific flowerers. The proposed Extraction Extension does not represent a significant threat to conservation.
<i>Lewinia pectoralis</i>	Lewin's Rail	vu	1	16/02/1990	Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Limosa lapponica baueri</i>	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit	VU vu	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Lissolepis coventryi</i>	Swamp Skink	EN en	0		Skink of swampy heathlands. Not impacted by proposed Extraction Extension.
<i>Litoria raniformis</i>	Growling Grass Frog	VU vu	23	17/10/2017	Frog of wetlands. Not impacted by proposed Extraction Extension.
<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo	cr	3	07/06/2005	Rare visitor but the local environment of WA_453 is not consistent with habitat characteristics.
<i>Lophoictinia isura</i>	Square-tailed Kite	vu	1	02/12/2018	Recorded once in You Yangs area (possibly); records often involve misidentified Black Kites. The local environment might offer benefits to transitory species but Square-tailed Kite is mainly a harrier of the tree-tops of forests. Therefore the proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Melanodryas cucullata</i>	Hooded Robin	EN vu	32	08/03/2007	Occasionally recorded in You Yangs area but only twice (one record each in VBA and eBird) since 2000, one of them (2007) a doubtful 'heard'. The local environment might offer benefits to transitory species. The proposed Extraction Extension is unlikely to represent a threat to conservation. See assessment below.
<i>Nannoperca obscura</i>	Yarra Pigmy Perch	EN vu	0		Fish of streams. Not impacted by proposed Extraction Extension.

<i>Scientific Name</i>	Common Name	Status	Records	Latest	Comments
<i>Ninox connivens</i>	Barking Owl	cr	3	03/12/2006	Doubtfully present and then probably as a vagrant. The supposed call of the Barking Owl is regularly identified in error. The proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Numenius madagascariensis</i>	Eastern Curlew	CR cr	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Pedionomus torquatus</i>	Plains-wanderer	CR cr	2	14/02/2013	Doubtfully present and then probably as a vagrant. A bird of grasslands and plains not consistent with the environment of WA_453. The proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	vu	1	01/01/1950	One record only. Doubtfully recorded in 1950 and if legitimate, probably as a vagrant. The proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Prototroctes maraena</i>	Australian Grayling	VU en	0		Fish of streams. Not impacted by proposed Extraction Extension.
<i>Pseudophryne bibronii</i>	Brown Toadlet	en	107	08/12/1989	Frog of wetlands subject to population decline due mainly to disease. Not impacted by proposed Extraction Extension.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	VU vu	0		Unlikely vagrant. Not impacted by proposed Extraction Extension.
<i>Pyrrholaemus sagittatus</i>	Speckled Warbler	en	72	10/12/2018	Often recorded in You Yangs area. The local environment clearly offers characteristic of habitat for the species. However, the proposed Extraction Extension does not represent a significant threat to conservation. See assessment below.
<i>Rostratula australis</i>	Australian Painted Snipe	EN cr	0		Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart	vu	5	19/05/2001	Occasionally recorded in You Yangs area and then probably on the surrounding basalt grasslands where the species is reasonably common. Therefore the proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Sminthopsis murina murina</i>	Common Dunnart	vu	1	08/12/1989	One possible, unlikely record nearby. A species of the W and NW inland of Victoria. The proposed Extraction Extension is unlikely to represent a threat to conservation.

<i>Scientific Name</i>	Common Name	Status	Records	Latest	Comments
<i>Spatula rhynchotis</i>	Australasian Shoveler	vu	9	22/12/2005	Bird of wetlands. Not impacted by proposed Extraction Extension.
<i>Stagonopleura guttata</i>	Diamond Firetail	VU vu	214	15/04/2018	Regularly recorded in You Yangs area and possibly within WA_453. The proposed Extraction Extension is unlikely to represent a threat to conservation. See assessment below.
<i>Sternula nereis nereis</i>	Australian Fairy Tern	VU cr	0		Bird of coastal wetlands. Not impacted by proposed Extraction Extension.
<i>Synemon plana</i>	Golden Sun Moth	VU vu	5	26/11/2018	Occasionally recorded in You Yangs area and then probably on the surrounding grasslands. The proposed Extraction Extension is unlikely to represent a threat to conservation.
<i>Tringa nebularia</i>	Common Greenshank	en	1	1975	Migratory bird of wetlands, chiefly coastal. Not impacted by proposed Extraction Extension.
<i>Tympanocryptis pinguicollis</i>	Victorian Grassland Earless Dragon	CR cr	3	16/02/1990	Recorded on the rocky, volcanic grasslands to the east and southeast of WA_453. The proposed Extraction Extension is unlikely to represent a threat to conservation. See assessment below.
<i>Tyto novaehollandiae</i>	Masked Owl	cr	7	11/01/1985	Doubtfully present and then probably only as a vagrant. The proposed Extraction Extension is unlikely to represent a threat to conservation.

Abbreviations: EPBC Act CR—Critically endangered, VU—Vulnerable; FFG Act cr—critically endangered, en—endangered, vu—vulnerable; WA—Work Authority, WA_453.

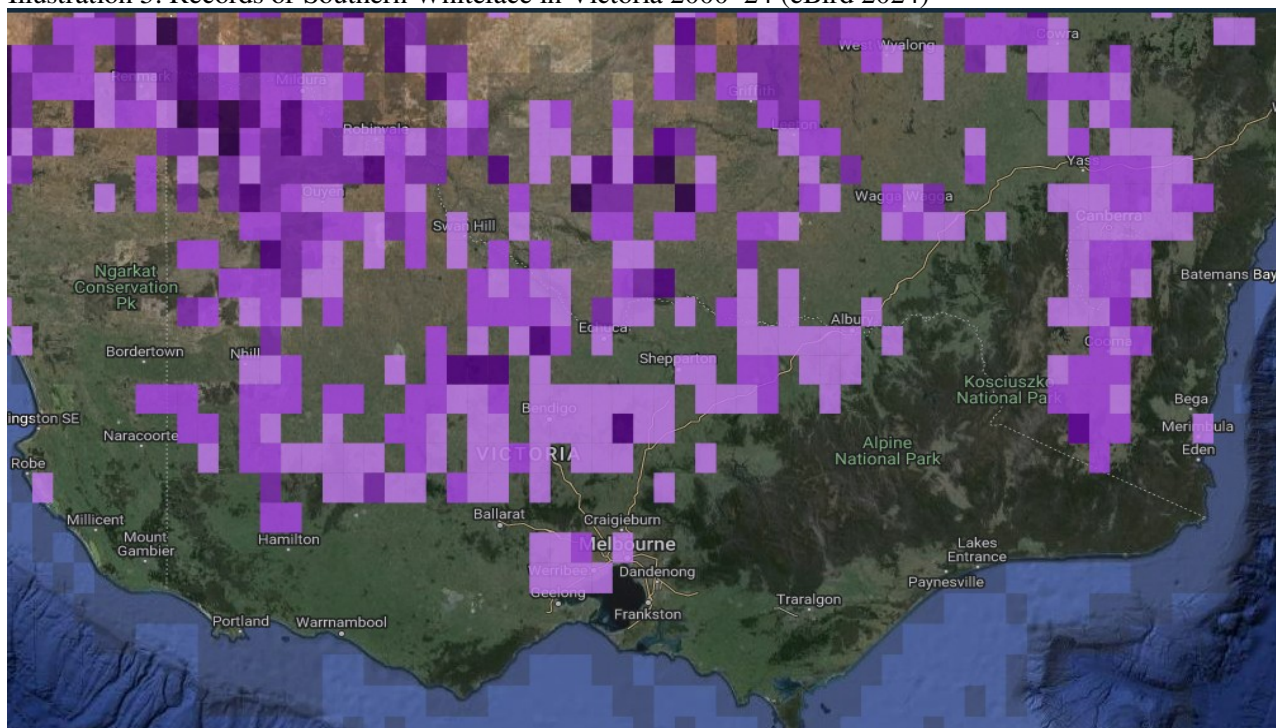
Southern Whiteface *Aphelocephala leucopsis*

Southern Whiteface is not Listed status under the Victorian FFG Act. No Action Statement is available so no review of conservation management or likely threats is possible for Victoria, beyond referencing current texts and extrapolating from DCCEEW (2023). Southern Whiteface is defined as Vulnerable under the EPBC Act from March 2023.

Southern Whiteface is regarded as sedentary by some observers but is clearly nomadic/migratory to some degree; the range in Victoria is predominantly inland of the Great Dividing Range but the nomadism is not well documented.

Southern whitefaces live in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually in habitats dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains (Higgins & Peter 2002).

Illustration 5: Records of Southern Whiteface in Victoria 2000–24 (eBird 2024)



The environment of WA_453 does concur with this description of habitat i.e. it falls within the description of ‘a wide range of open woodlands and shrublands’, but that description also includes much of the uncleared areas of Victoria—it is not definitive.

Southern Whiteface is an apparent visitor to the You Yangs area. The years 2013–16 saw a significant population entry, or at least observation recording, in the general area. Recently (2023–4) recorded at Mount Rothwell, about 2.2km NNE of WA_453 (eBird data). There are no records from WA_453. The one, small, blue location indicator near to WA_453 is a general location record for the area included in that 10’ grid.

Impact of proposed Extraction Extension.

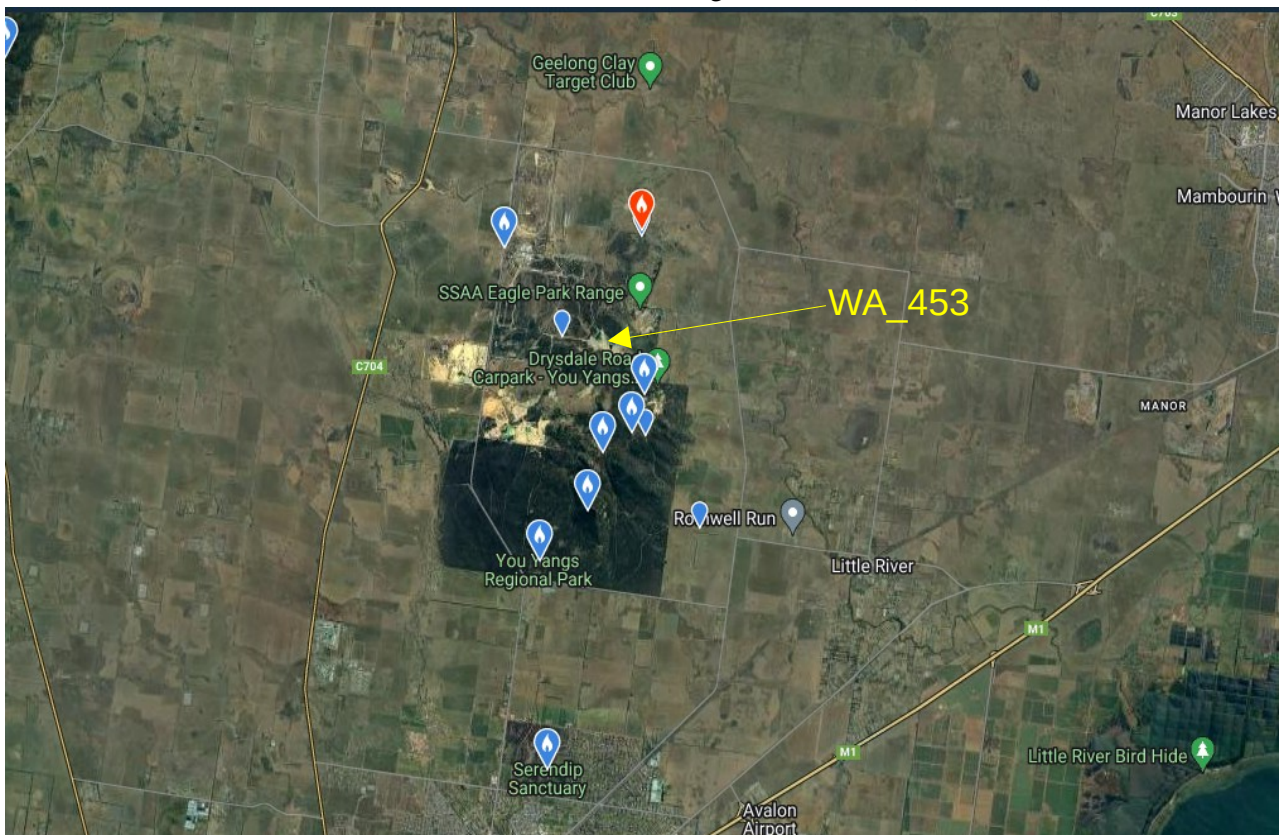
The significance of the proposed Extraction Extension for the conservation of Southern Whiteface under the current circumstances is small to non-existent at a State, Regional and Local level; extraction of the area is

unlikely to affect conservation of the species at any of those levels. The extent of occurrence (EOO) for the species is estimated to be 4,910,000 km² (Australian Government 2021) with a stable trend (Ehmke *et al.* 2021), however the area of occupancy (AOO) is contracting and is estimated to be 70,000 km² (range 34,400–140,000 km²) (Ehmke *et al.* 2021).

Impact on conservation of Southern Whiteface.

WA_453 is unlikely to provide any habitat for Southern Whiteface, but if it did, its area of 287.29ha comprises about 0.004% of the estimated ‘area of occupancy’ in Australia (DCCEEW 2023).

Illustration 6: Records of Southern Whiteface in the You Yangs area 2000–24 (eBird 2024)



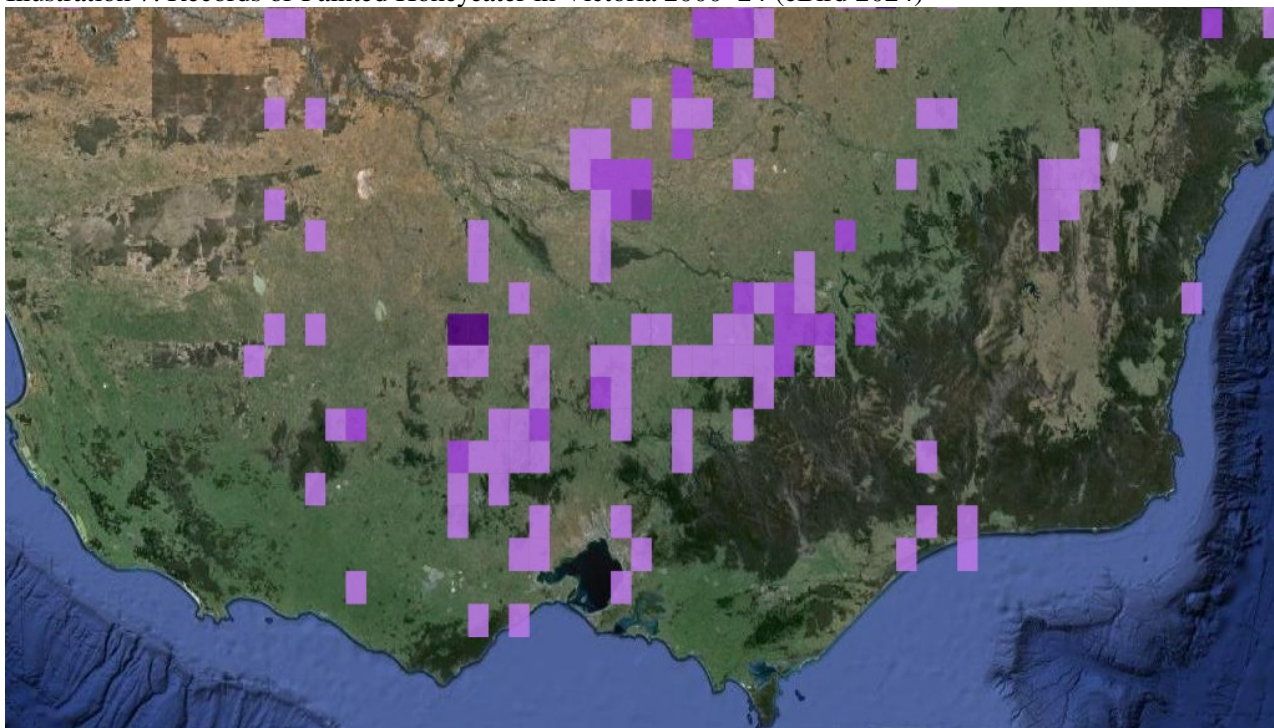
Painted Honeyeater *Grantiella picta*

Painted Honeyeater received Listed status under the Victorian FFG Act in 2000. No Action Statement is available now, despite its requirement under the FFG Act, so no review of conservation management or likely threats is possible for Victoria, beyond referencing current texts.

Painted Honeyeater is highly nomadic/migratory, whose range is predominantly inland of the Great Dividing Range from Victoria to Queensland.

The species' key habitats include Boree/Weeping Myall (Acacia pendula), Brigalow (A. harpophylla) woodlands, box-gum woodlands and box-ironbark forests. The species is a specialist feeder on the fruits of mistletoes growing on eucalypts and acacias. Painted Honeyeaters prefer to feed on mistletoes of the genus Amyema.' (CoA 2021).

Illustration 7: Records of Painted Honeyeater in Victoria 2000–24 (eBird 2024)



Impact of proposed Extraction Extension.

The environment of WA_453 does not concur with this description of habitat. *Amyema spp.* are or were (in 2019) present within WA_453 but most individuals of the predominant host species, Black Wattle (*Acacia mearnsii*), are old and dying with little to no chance of a significant regeneration event through fire.

Impact on the conservation of Painted Honeyeater.

The significance of the proposed Extraction Extension for the conservation of Painted Honeyeater under the current circumstances is small to non-existent at a State, Regional and Local level; extraction of the area is unlikely to affect conservation of the species at any of those levels.

Illustration 8: Records of Painted Honeyeater in the You Yangs area 2000–24 (eBird 2024)

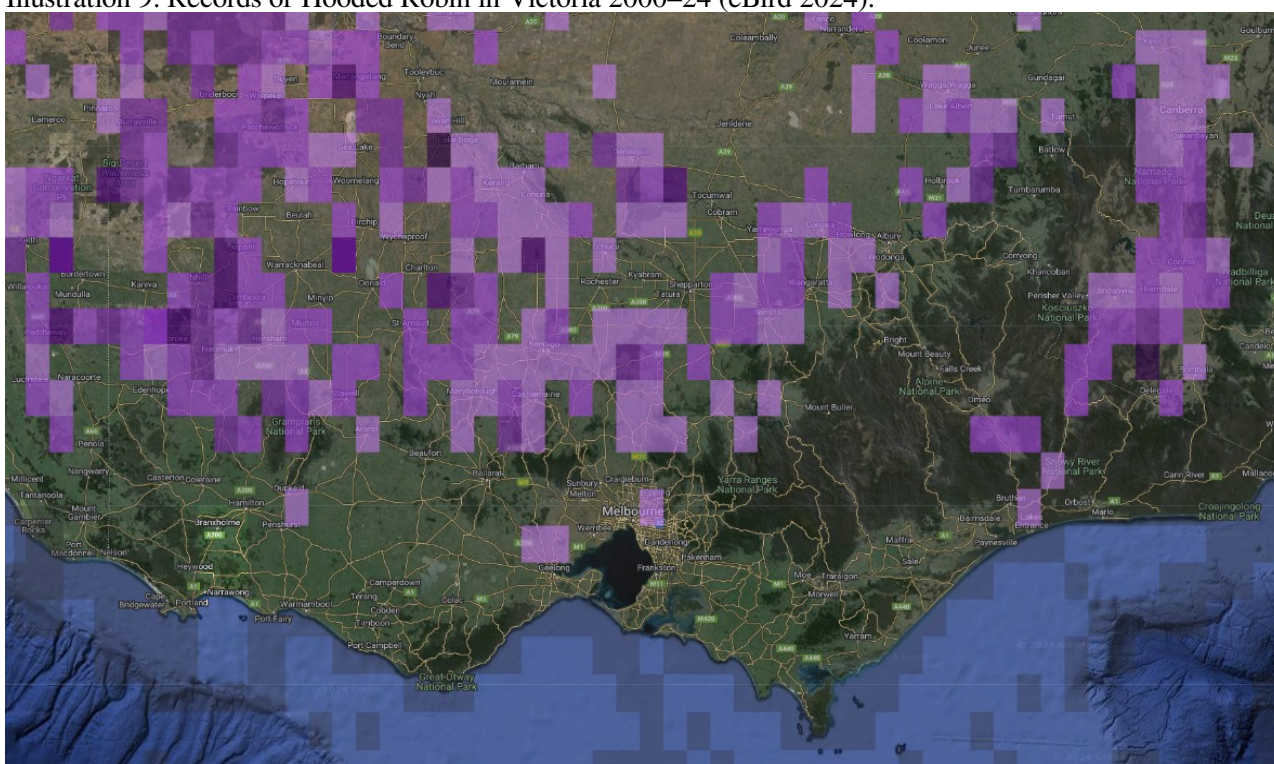


Hooded Robin *Melanodryas cucullata*

Hooded Robin received Listed status under the Victorian FFG Act in 2001. No Action Statement is available or apparently was ever prepared, despite its requirement under the FFG Act, so no review of conservation management or likely threats is possible beyond referencing current texts, considered conjecture and personal experience. Hooded Robin (South-eastern form which includes all of the Victorian population) was Listed as Endangered under the terms of the EPBC Act in 2023. No Recovery Plan is available.

The models indicate a positive association between the presence of the Hooded Robin and the edges of open vegetation dominated by ungrazed or lightly grazed grassy ground cover in which species of native perennial tussock-grass predominate, adjoining timbered native vegetation cover, on moderately deep to deep soils (Friday 2010).

Illustration 9: Records of Hooded Robin in Victoria 2000–24 (eBird 2024).



Records for the You Yangs area (Illustration 10) include one possible site in 2005 (eBird 2024). One other record, about one km SE of WA_453, was lodged in the VBA for 2007, but that record is by call only and should be regarded as doubtful. Except for this, no records are from or near WA_453. The species is subject to periodic movement out of regions, apparently associated with conditions of low rainfall (personal experience in eastern Victoria); Hooded Robin individuals, pairs or small groups might appear within or travel through WA_453.

Impact of proposed Extraction Extension.

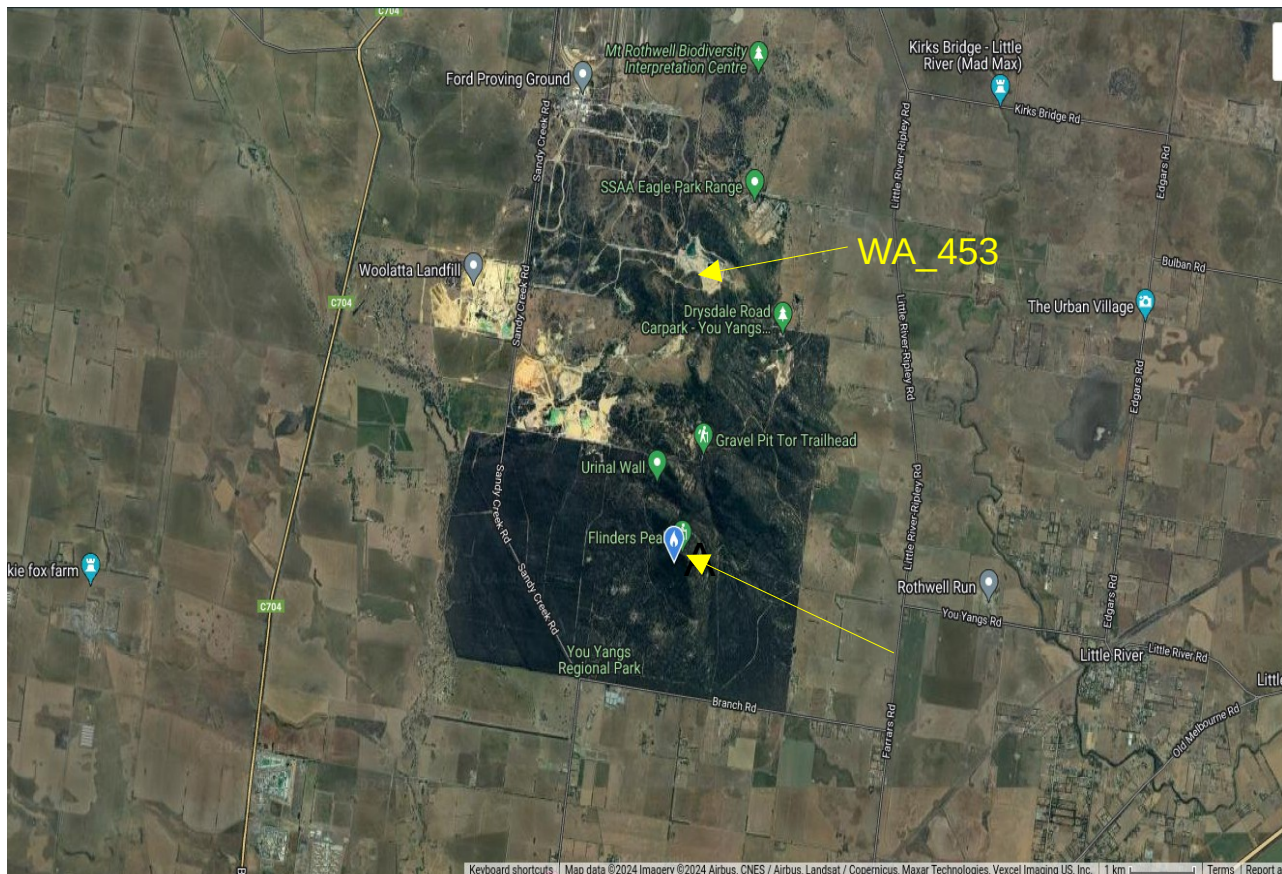
Some requisite habitat components are present within the proposed Extraction Extension but there are no records of presence or nesting there. Changing the environment from that which contains some plants, including some areas of Native Vegetation, to a quarry environment that lacks any vascular plants, will render the proposed Extraction Extension unsuitable for Hooded Robin. But given the history of WA_453 over the

last 100 years, the proposed Extraction Extension area does not provide a meaningful collection of habitat characteristics.

Impact on the conservation of Hooded Robin.

The significance of the site for the conservation of Hooded Robin under the current circumstances is small to non-existent at a State, Regional and Local level; extraction of the area is unlikely to affect conservation of Hooded Robin at any of those levels.

Illustration 10 Record (single blue marker) of Hooded Robin in the You Yangs area 2000–24 (eBird 2024)

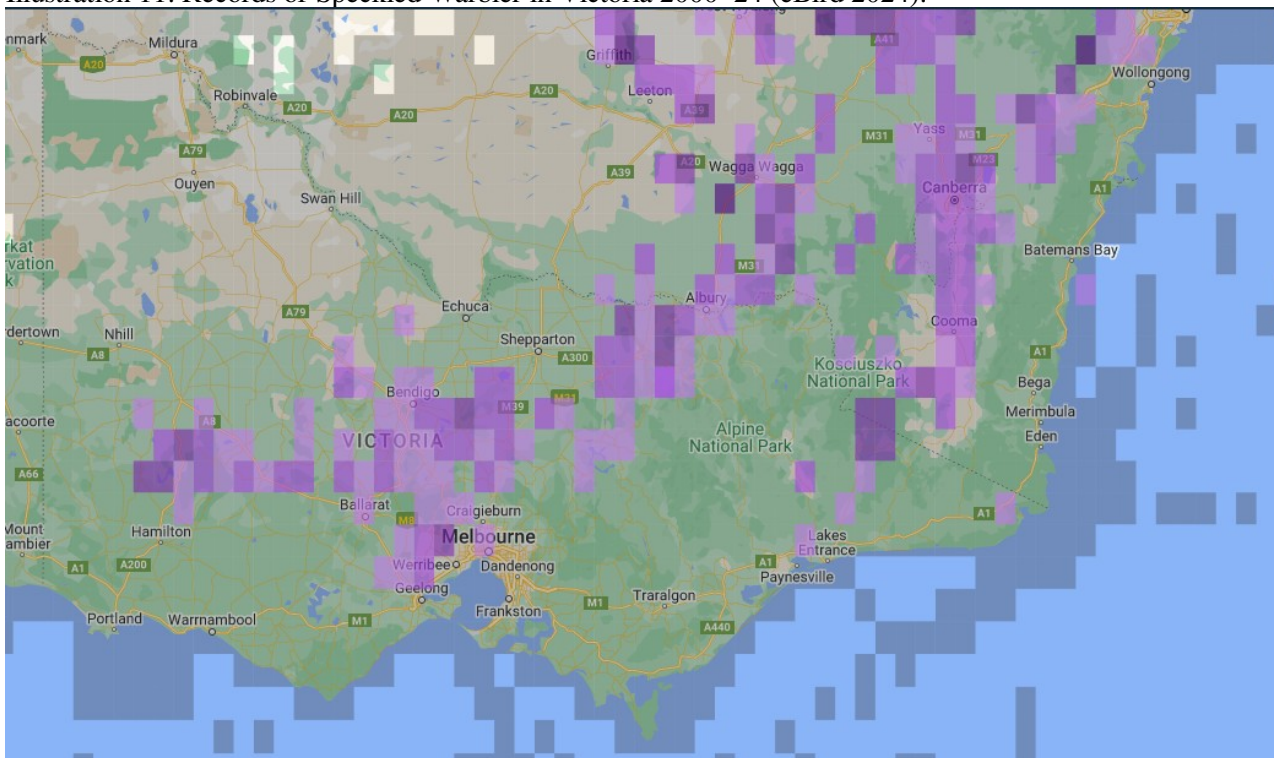


Speckled Warbler *Pyrholaemus sagittatus*

Speckled Warbler received Listed status under the Victorian FFG Act in 2001. No Action Statement is available or apparently was ever prepared, despite its requirement under the FFG Act, so no review of conservation management or likely threats is possible beyond referencing current texts, considered conjecture and personal experience.

The Speckled Warbler lives in dry sclerophyll forests and woodlands (woodlands have fewer trees than forests) dominated by eucalypts. It is mostly seen on the grassy ground layer, when it is foraging.’ (Marsh 2020)

Illustration 11: Records of Speckled Warbler in Victoria 2000–24 (eBird 2024).



Records for the You Yangs area (Illustration 12) show a spread. No records are from or near WA_453—the small blue markers are summary positions for the 10' grid block in which an observation was recorded. The species appears to be relatively sedentary (personal experience); it is possible that Speckled Warbler individuals, pairs or small groups might appear within or travel through WA_453.

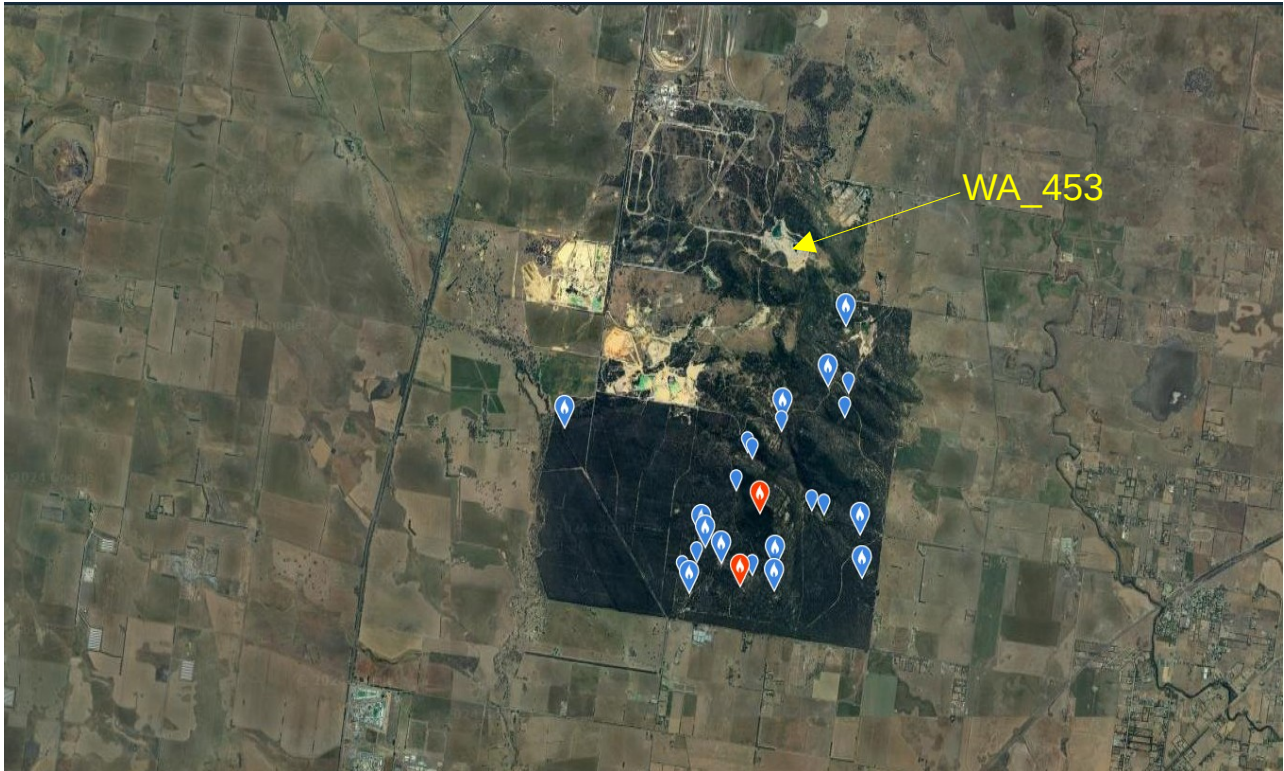
Impact of proposed Extraction Extension.

Some requisite habitat components, like low shrubs for foraging and nesting, are present within the proposed Extraction Extension but there are no records of presence or nesting there. Changing the environment from that which contains some plants, including some areas of Native Vegetation, to a quarry environment that lacks any vascular plants, will render the proposed Extraction Extension unsuitable for Speckled Warbler. But given the history of WA_453 over the last 100 years, the proposed Extraction Extension does not provide a meaningful collection of habitat characteristics.

Impact on the conservation of Speckled Warbler.

The significance of the site for the conservation of Speckled Warbler under the current circumstances is small to non-existent at a State, Regional and Local level; extraction of the area is unlikely to affect conservation of Speckled Warbler at any of those levels.

Illustration 12 Records of Speckled Warbler in the You Yangs area 2000–24 (eBird 2024)

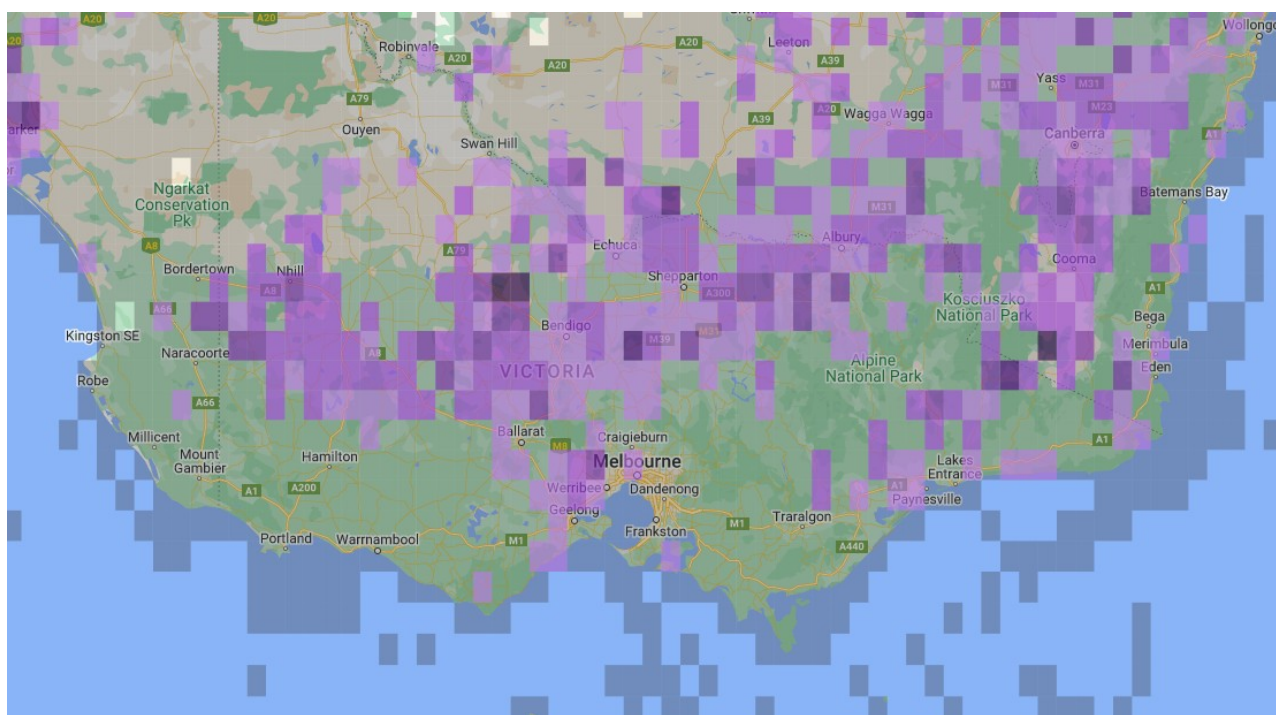


Diamond Firetail *Stagonopleura guttata*

Diamond Firetail received Listed status under the Victorian FFG Act in 2001. No Action Statement is available or apparently was ever prepared, despite its requirement under the FFG Act, so no review of conservation management or likely threats is possible beyond referencing current texts, considered conjecture and personal experience.

Diamond Firetail is, primarily, a granivorous species most commonly found in the grasslands and grassy woodlands and forests of western, northern and eastern Victoria. Illustration 13 shows records since 2000 and, in Illustration 14, those of the You Yangs since the year 2000. These data are from contributors to eBird—the data from the Victorian Biodiversity Atlas (VBA) are poor.

Illustration 13: Victorian Diamond Firetail records 2000–24 (eBird 2024).



Records for the You Yangs area (Illustration 14) show a spread. No records are actually from WA_453—the small blue marker just west of the WA_453 pit is a summary position for the 10' grid block in which the observation was made. The species appears to be highly mobile and will travel either in pairs or small groups, at least on a regional scale (personal experience); it is possible that Diamond Firetail individuals, pairs or small groups might appear within or travel through WA_453 from time to time.

Impact of proposed Extraction Extension.

Some requisite habitat components, like low bushy trees for nesting, are present within the proposed Extraction Extension but there are no records of presence or nesting there. Changing the environment from that which contains some plants, including some areas of Native Vegetation, to a quarry environment that lacks any vascular plants, will render the proposed Extraction Extension unsuitable for Diamond Firetail; but given the history of the WA_453 over the last 100 years and the present lack of a significant grassland ground-cover component, the proposed Extraction Extension does not provide a meaningful collection of habitat characteristics.

Impact on conservation of Diamond Firetail.

The significance of the proposed Extraction Extension for the conservation of Diamond Firetail under the current circumstances is small to non-existent at a State, Regional and Local level; extraction of the area is unlikely to affect conservation of the species at any of those levels.

Illustration 14: Diamond Firetail records in You Yangs area 2020–24 (eBird 2024)



Victorian Grassland Earless Dragon *Tympanocryptis pinguicolla*

A revision of the Grassland Earless Dragons group of reptiles established *Tympanocryptis pinguicolla* as a *bona fide* species restricted to the Basalt Plains west and northwest of Melbourne (Melville *et al.* 2019). The common name applied by these researchers is Victorian Grassland Earless Dragon but, for brevity, the species will be referred to here as *T. pinguicolla*.

The official *T. pinguicolla* records in Victoria listed in the Victorian Biodiversity Atlas is as follows, absent the recent records of 2023 which, although not released, can probably be attributed to the ‘Keilor Plains’, about 40km northeast of WA_453. There are also three possible observations in the Geelong City area reported in the *Geelong Naturalist* of 1969 (Pescott 1969).

Date	Site Location Description	Observer	Type of Record	Reliability	Accuracy
01/01/1760	Essendon	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Essendon	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Essendon	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Essendon	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Mouth of the Yarra River	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Mouth of the Yarra River	Not Supplied	Museum specimen	Acceptable	1800
01/01/1760	Essendon	Not Supplied	Museum specimen	Acceptable	1800
01/01/1872	Prahran	Not Supplied	Museum specimen	Acceptable	900
01/01/1884	Moonee Ponds	Not Supplied	Museum specimen	Acceptable	900
01/04/1884	Essendon	Not Supplied	Museum specimen	Acceptable	1800
19/11/1908	Good Island: Yarra River	Not Supplied	Museum specimen	Acceptable	900
03/07/1912	Port Melbourne	Not Supplied	Museum specimen	Acceptable	900
31/12/1960	Between Rockbank & Werribee	Not Supplied	Museum specimen	Acceptable	9000
06/06/1967	Little River	Not Supplied	Museum specimen	Acceptable	900
1967	Hamlyn Heights	G. Carr	Geelong Naturalist 1969	Possible	
1968	Near Newcombe	Debbie Gellately	Geelong Naturalist 1969	Possible	
1969	Geelong City	Wayne Gladman	Geelong Naturalist 1969	Possible	
18/10/1988	Roughly 2 km NE of Donnybrook	Cam Beardsell	Seen	Acceptable	100
11/01/1990	Roughly 2 km NW of Redstone Hill	Cam Beardsell	Observation	Acceptable	100
22/01/1990	Kirk Bridge	Cam Beardsell	Observation	Acceptable	100
05/02/1990	Kirk Bridge	Cam Beardsell	Observation	Acceptable	100
16/02/1990	Roughly 2 km S of Kirk Bridge	Cam Beardsell	Observation	Acceptable	100

Date: For Museum of Victoria (NMV) specimens, the available date of record for the specimens. 1760 effectively means that the specimen had/has no date of collection or registration associated with it.

Site location: For NMV specimens, locational accuracy is doubtful before the 1960s (sometimes the address of the collector was used) after which greater attention to location data became an important part of curatorial discipline. The location data of observer Cam Beardsell are most likely correct, but see below.

Type of Record: Specimens or other forms of physical evidence are incontrovertible. Other types, namely ‘Seen’ and ‘Observation’ are always less reliable and sometimes prove to be erroneous.

Reliability: Equating the reliability of ‘Museum specimens’ with ‘Observations’ under the appellation ‘Acceptable’ is an error. Specimens are incontrovertible, notwithstanding possible errors of location.

Accuracy: This number, in metres, is generally an estimate, except for the possible records in 1990.

With respect to reports of the rediscovery of *T. pinguicolla* (e.g. DCCEEW 2023a), location data are not available, so whether or not it occurs near WA_453 is conjectural.

The one incontrovertible record near to WA_453 is about 7km southeast at Little River, collected in 1967. The other, possible sightings in 1990 in the Kirks Bridge area about 3km east of WA_453 are not confirmed: ‘Intensive trapping surveys at these locations since 1994 have failed to confirm the sightings as being Grassland Earless Dragon’ (Robertson and Evans 2009/12).

No study of habitat characteristics was ever completed, but there has been a general assumption amongst herpetologists that rocky grasslands of the volcanic plains west of Melbourne is where they occur (red) (e.g. Melville *et al.* 2019) or even, perhaps, in stony areas within or near to Geelong (Pescott 1969).

Insofar as the Action Statement for the Southern Lined Earless Dragon *Tympanocryptis lineata* (now regarded as a former taxonomic aggregation including *T. pinguicolla*) (DSE 2003) is relevant, the description of habitat is as follows:

‘All sightings and records of this species in southern Victoria have been from areas of rocky native tussock grassland where tree and shrub cover is sparse or absent. The recent sightings have all been from open stands of Kangaroo Grass (Themeda spp.) plains grassland on exposed stony crests and rocky stream escarpment (Beardsell pers. comm.). At each site where this species was observed there was an open tussock grassland of Kangaroo Grass, Red-leg Grass and Silky Blue-grass with embedded rocks (Beardsell pers. comm.). These areas were uncultivated and ungrazed or lightly grazed paddocks in broadacre farmland.’

From the recent Draft assessment of the four Grassland Earless Dragon taxa (CoA 2023):

‘Victorian GED records are mostly from the Keilor Plains, which were dominated by tufted grasses such as Rytidosperma penicillatum (slender wallaby-grass), Themeda triandra (kangaroo grass) and Poa labillardierei (tussock poa) (Sutton 1916).’

In the 1760 Ecological Vegetation Class mapping, EVC132—Plains Grassland of the Victorian Volcanic Plain is mapped all round the You Yangs Range and occurs up to the foot of the You Yangs in the east i.e. about 1km northeast and east of WA_453. EVC132 is a vegetation descriptor and does not refer to the underlying substrata on which it grows, which can be manifold. The basalt plains geological component, i.e. that associated with *T. pinguicolla*, also surrounds the You Yangs. EVC132 and basalt plains geomorphology does not occur and is not mapped to occur within WA_453.

Impact of proposed Extraction Extension on *T. pinguicolla*.

The 2023 ‘rediscovery’ of *T. pinguicolla* in Victoria precipitated a *Draft National Recovery Plan for Four Grassland Earless Dragons (Tympanocryptis spp.) of Southeast Australia* (CoA 2023) in which mapping data and habitat description predict that the area of WA_453 is not included in areas of likely population discovery. The large white gap in the habitat likelihood map below (Illustration 15) is the greater You Yangs, which includes WA_453.

Given these observations, the proposed Extraction Extension within WA_453 is unlikely to have any deleterious affect on the conservation prospects of *T. pinguicolla*.

Impact on the conservation of *T. pinguicolla*.

Given that *T. pinguicolla* has not been recorded on WA_453 and the environment of WA_453 is not as the likely habitat of *T. pinguicolla* is described, the proposed Extraction Extension will not have a deleterious affect on the conservation of *T. pinguicolla*.

Illustration 15: Habitat likelihood map of *Tympanocryptis pinguicollis* (CoA 2023)

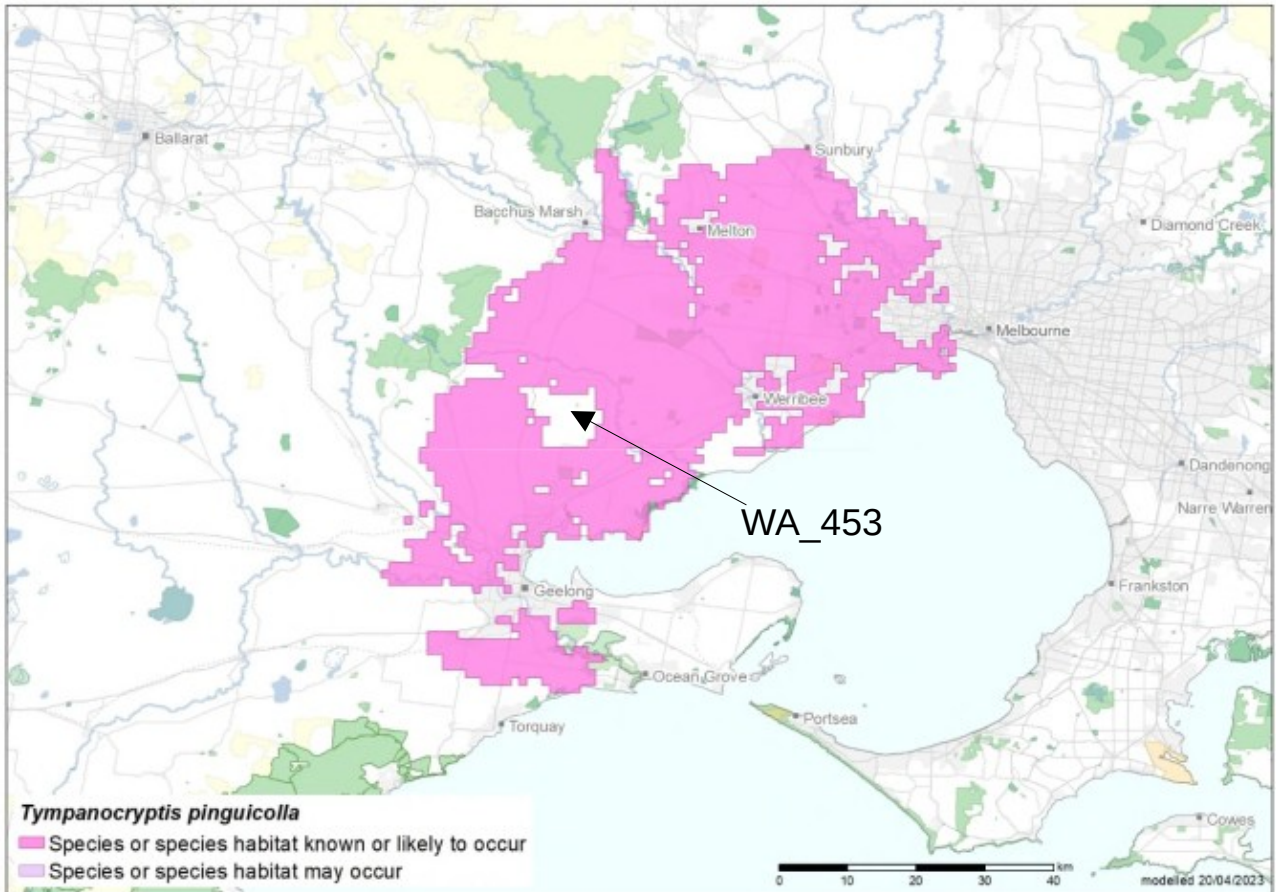
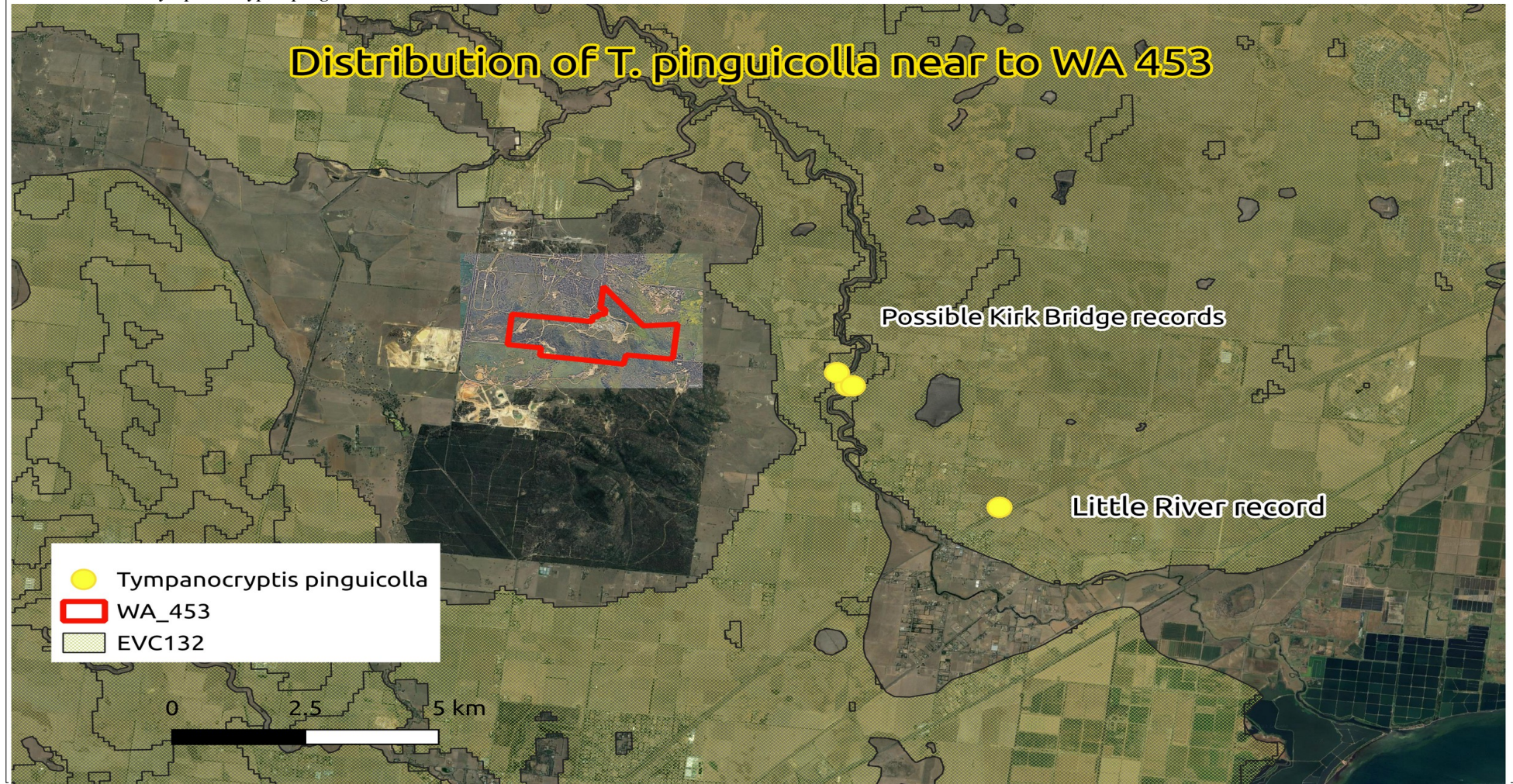


Illustration 16: *Tympanocryptis pinguicollis* records near to WA_453



4 Policy and Legislative Implications

4.1. Commonwealth

4.1.1 EPBC Act

- Is the proposed action likely to have a significant impact on a matter of national environmental significance?
- Is the proposed action likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or actions on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land)?

The 'feature area' referenced below is the extent of the Work Authority area WA_453 plus the 5km buffer surrounding it, a subset of which is the proposed Extraction Extension. The 5km search 'buffer area' outside WA_453 includes an environment substantively different to the proposed Extraction Extension. The 'feature area' as reported in Appendix 4 has apparent liabilities arising from requirements of the *Environment Protection and Biodiversity Conservation Act 1999* but most refer to the buffer area surrounding WA_453 or to wider catchment matters.

EPBC Act data identifies the possible presence of one 'Wetland of International Significance', six 'Listed Threatened Ecological Communities', forty-six 'Listed Threatened Species' and fifteen 'Listed Migratory Species' (Appendix 4). Table 1 and Table 2 contains notes on species recorded within a 5km buffer of, and including, the Little River quarry WA_453, and listed as Vulnerable, Endangered or Critically Endangered under the EPBC Act.

The feature area is in the catchment of Port Philip Bay (western shoreline), a 'Wetland of International Significance' recognised by the RAMSAR protocol.

Of the six 'Listed Threatened Ecological Communities' listed under EPBC in the vicinity, the description of none is consistent with the characteristics of the existing vegetation (EVC CVU_0071) within the proposed Extraction Extension or elsewhere in WA_453. The italicised notes below are summaries from the EPBC report published in full in Appendix 4. The bold and other non-italicised comments following are conclusions as to the relevance of these matters to the proposed Extraction Extension.

Grassy Eucalypt Woodland of the Victorian Volcanic Plain. Critically Endangered. Community known to occur within area.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (CoA 2011) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia. Endangered. Community may occur within area. In buffer area only.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (CoA 2010) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

Natural Damp Grassland of the Victorian Coastal Plains. Critically Endangered. Community may occur within area. In buffer area only.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (DoE 2015) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

Natural Temperate Grassland of the Victorian Volcanic Plain. Critically Endangered. Community likely to occur within area. In feature area.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (CoA 2011) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains. Critically Endangered. Community likely to occur within area. In buffer area only.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (DoSEWPC 2012) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Critically Endangered. Community may occur within area. In feature area.

Not present in WA_453. The description of this Threatened Ecological Community and the landform on which it occurs (DoCCEEW 2023) does not include the vegetation type(s) and landform within WA_453, which are mapped by DELWP (2018) and confirmed by the present survey as aligned to EVC_71 Hills Herb-rich Woodland.

The threatened taxa of flora and fauna identified as threatened under the EPBC Act and possibly affected by the proposed Extraction Extension are discussed in the Flora and Fauna sections above.

4.2. Victorian

4.2.1 Flora and Fauna Guarantee Act 1988 (FFG)

Species 'Listed' under the FFG Act and recorded within 5km of WA_453 or otherwise might be impacted are shown in Table 1 and Table 2. None of the species Listed under FFG, except *Pterostylis truncata*, is likely to be a resident of the site. Some species of fauna, namely Painted Honeyeater, Hooded Robin, Speckled Warbler and Diamond Firetail are possible nomadic species that might utilize the area of WA_453. The rare and recently 'rediscovered' Victorian Grasslands Earless Dragon was collected from the Little River area in 1967 and there are unconfirmed reports for the Kirks Bridge area in 1990, about 2km east of WA_453.

An assessment of these fauna species and the Southern Whiteface, which is Listed under the EPBC Act but not FFG, follows Table 2 on page 21

The FFG Act does not preclude removal of 'Listed' species on Freehold Land but, in the interests of conservation, the Barro Group is prepared to facilitate the relocation of as many plants of *Pterostylis truncata* as possible to:

- Suitable sites within WA_453, that are unlikely ever to be subject to extraction works; and/or
- Gene banks maintained in cultivation by orchid growers and conservation groups like the Australasian Native Orchid Society.

4.2.2 Catchment and Land Protection Act 1994

No erosion matters arise from proposed development. Erosion mitigation is subject to controls administered by ERR under the MRSDA.

The sites investigated contained eight species of Proclaimed Pest Plants (Noxious Weeds) (Appendix 1) for which the land manager has a control obligation. The Barro Group has a Weed Management Plan that addresses the needs of preventing the spread of Noxious Weeds from their operations.

4.2.3 Planning and Environment Act 1987

The site is Zoned Farming and is subject to an Environmental Significance Overlay—Schedule 3, and a Bushfire Management Overlay.

Under the Table of Exemptions for Environmental Significance Overlays (ESOs), removal of Native Vegetation is permitted if for Extractive Industry:

'The vegetation is to be removed, destroyed or lopped to the minimum extent necessary to enable the carrying out of Extractive Industry in accordance with a work plan approved under the Mineral Resources (Sustainable Development) Act 1990 and authorised by a work authority granted under that Act.'

4.2.4 Environment Effects Act 1978

Ministerial Guidelines, 8th edition, 2023, outline the '...assessment of proposed projects that are capable of having a significant effect on the environment (DTP 2023a).' 'The process commences with a screening or referral stage, to determine if assessment under the Act is required.' Two sets of criteria apply: the individual referral criteria and the combined referral criteria.

The Individual referral criteria are:

Individual types of potential effects on the environment that warrant referral of a project.

- Potential removal, destruction or lopping of 10 hectares or more of native vegetation, that consists of, or comprises a combination of:
 - an ecological vegetation class (EVC) classified as endangered; or
 - an EVC that is classified as vulnerable (with a condition score of 0.5 or more) or rare (with a condition score of 0.6 or more); and
 - that is not authorised for removal under an approved forest management plan or fire protection plan.

The proposed removal of Native Vegetation comprises 8.636ha of EVC CVU_0071, listed as a 'Vulnerable' EVC within the Central Victorian Uplands (CVU) Bioregion—the Condition Score of any Patch, called Habitat Zones in the assessment (Appendix 2), does not exceed 0.40 and that Habitat Zone is of 1.153ha.

- Potential clearing of an area determined as 'critical habitat' under the Flora and Fauna Guarantee Act 1988.

*No 'critical habitat' is defined for *Pterostylis truncata* or any other species Listed under the FFG Act (1988).*

- Potential for loss of a significant proportion (e.g. 1 percent or greater) of known remaining habitat or population of a threatened species within Victoria.

While it is impossible to delineate exactly 'known remaining habitat', by using records lodged since the start of 1999, which probably imply an extant population in 2024 and hence an area of 'habitat', the habitat within the proposed Extraction Extension comprises at most about 0.5% of the total, similarly defined habitat, in the You Yangs exclusively (Map 3). This upper estimate of proportion will be further reduced for Victoria by adding the area of the rest of the Victorian population as a base for calculation (see analysis on page 12 above).

DEECA modelling of *Pterostylis truncata* habitat generates a Habitat Importance Map (HIM) that models potential or predicted habitat. Map 6 shows the areas for Victoria. For better perspective at that scale, the entire WA_453 is outlined in Map 6; the proposed Extraction Extension is less than one fifth of that size; and the Patches of Native Vegetation comprise less than one fifth of the proposed Extraction Extension. The actual, documented population extent of *Pterostylis truncata* within the proposed Extraction Extension is 0.538ha—0.19% of WA_453.

In HIM modelling, the population of *Pterostylis truncata* in the proposed Extraction Extension occupies parts of four 'pixels' with Habitat Importance Scores of 0.57, 0.59, 0.60 and 0.63 respectively. Each pixel 'square' is of about 0.563ha. Taken across the entire modelled habitat of *Pterostylis truncata* in Victoria, more than 42,000ha have a Habitat Importance Score of 0.60 or more. The total proposed Extraction Extension is 46.0ha or 0.110% of the total modelled habitat of *Pterostylis truncata* in Victoria with a score of 0.60 or greater. The total area of Native Vegetation Patches in the Extraction Extension is 8.636ha or 0.021% of the total modelled habitat of *Pterostylis truncata* in Victoria with a Habitat Importance Score of 0.60 or greater. The actual, measured area of the *Pterostylis truncata* population (0.538ha) within the proposed Extraction Extension is 0.0013% of the total modelled habitat of *Pterostylis truncata* in Victoria with a Habitat Importance Score of 0.60 or greater.

- Potential for long-term change to the ecological character of a wetland listed under the Ramsar Convention or in A Directory of Important Wetlands in Australia.

Given the location of the proposed Extraction Extension and the general low rainfall of the area, no adverse impact from runoff from the site to the Port Phillip Bay (western shoreline) and Bellarine Peninsula Ramsar area is likely.

- Potential for extensive or major effects on the use and environmental values of water resources due to changes in water quality, water availability, stream flows, water system function, or regional groundwater levels, or the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term.

Given the location of the proposed Extraction Extension and the general low rainfall of the area, no adverse impact from runoff from the site is likely to impact the health or biodiversity of aquatic, estuarine or marine ecosystems, over the long term.

Other individual referral criteria are beyond the scope of an ecological assessment.

- Potential for extensive or major effects to human health or the environment, or displacement of residents, from pollution or waste emitted to air, land, water or groundwater.
- Potential for greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum (direct and indirect) attributable to the operation of the facility.

Combined referral criteria:

A combination of two or more types of potential effects on the environment that warrant referral of a project.

- Potential removal, destruction or lopping of 10 hectares or more of native vegetation, unless it is authorised for removal under an approved forest management plan or fire protection plan.

The proposed removal of Native Vegetation Patches comprises 8.636ha of EVC CVU_0071.

- Matters listed under the Flora and Fauna Guarantee Act 1988:
 - potential loss of a significant area of a listed ecological community; or

Not applicable.

- potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including from loss or fragmentation of habitats; or

*The relative genetic importance of the *Pterostylis truncata* population within the proposed Extraction Extension is unknown, but given the tendency of species of *Pterostylis* to breed vegetatively, the genetic diversity of the population within the proposed Extraction Extension is probably low. That the existing genetic makeup of the population in the proposed Extraction Extension is valuable to the species overall is provided for by the plan of the Barro Group to facilitate transplanting tubers to compatible areas elsewhere within WA_453 and/or to lodge genetic material with groups like the Australasian Native Orchid Society.*

- potentially significant effects on habitat values of a wetland supporting migratory bird species.

Not applicable. WA_453 has small holding dams for quarry operations or to contain runoff that do not comprise important 'habitat values' for migratory bird species.

Other combined referral criteria are beyond the scope of ecological assessment.

- Potential for extensive or major effects on landscape values of regional importance, especially:
 - where recognised by a planning scheme overlay;
 - declared as a distinctive area and landscape under the *Planning and Environment Act 1987*; or
 - within or adjoining land reserved under the *National Parks Act 1975*.
- Potential for extensive or major effects to the environment due to changes in land stability, disturbance of acid sulphate soils or project-induced soil erosion over the short or long term.
- Potential for extensive or major effects on social or economic well-being due to direct or indirect displacement of non-residential land use activities.
- Potential for extensive displacement of residents or severance of residents' access to their community resources.
- Potential for significant effects on the amenity of a substantial number of residents, due to extensive
- or major, long-term changes in visual, noise and traffic conditions.
- Potential for extensive or major effects on Aboriginal cultural heritage values protected under the *Aboriginal Heritage Act 2006*.
- Potential for extensive or major effects on cultural heritage places and sites listed on the Victorian Heritage Register or the Victorian Heritage Inventory under the *Heritage Act 2017*.

5 Summary Assessment of Impacts

5.1. Fauna

It is unlikely that any taxon of fauna identified by the Department of Environment and Heritage search tool and the Victorian Biodiversity database (VBA) as possibly within WA_453 and a 5km buffer surrounding it will be deleteriously affected by the proposed Extraction Extension.

In the 1,044 records of fifty (50) Threatened fauna species from the VBA records in Table 2, ten taxa had ten or more total records, i.e. records since about 1900, at least some of which would be counted as doubtful: Black Falcon, Painted Honeyeater, Little Eagle, Swift Parrot, Growling Grass Frog, Hooded Robin, Brown Toadlet, Speckled Warbler and Diamond Firetail. Southern Whiteface, a species Listed as Vulnerable under the EPBC Act is not Listed under the FFG Act for Victoria.

Of these, Southern Whiteface, Hooded Robin, Speckled Warbler Diamond Firetail and perhaps Painted Honeyeater are the nomadic species most likely to use the proposed Extraction Extension area but, given the general poor quality of Native Vegetation on site, any impact on their populations is likely to be slight.

The Victorian Grassland Earless Dragon *Tympanocryptis pinguicollat* was definitely recorded about 7km southeast of WA_453 at Little River, in 1967. There are other, possible sightings from 1990 in the Kirks Bridge area, about 3km east of WA_453. The environment of WA_453 is not consistent with the habitat description of *T. pinguicollat*.

Seventeen (17) taxa had no records, but were modelled as possibly present by the Department of Environment and Heritage search tool.

With the exception of White-throated Needletail, the remaining 23 taxa on the list can reasonably be attributed to: being usual residents of the surrounding basalt plains or wetlands, from which the records came; vagrancy; and misidentification. White-throated Needletail, an intercontinental migrant, undoubtedly flies over the You Yangs, as it does all other terrestrial environments in Victoria, but WA_453 is unlikely to be an important foraging environment for it.

5.2. Flora

It is unlikely that any taxon of flora identified by the Department of Environment and Heritage search tool and the Victorian Biodiversity database (VBA) as possibly within the WA_453 and a 5km buffer surrounding it will be deleteriously affected by the proposed Extraction Extension.

With the exception of Brittle Greenhood *Pterostylis truncata*, no Listed taxon of flora recorded within 5km was recorded within the proposed Extraction Extension and none is likely, given the general poor quality of the supporting environment.

As discussed in the analyses above, the *Pterostylis truncata* population on site, both within the proposed Extraction Extension and elsewhere in WA_453, seems to be thriving in an environment of exotic plants, some of which are Noxious Weeds. The total area of the surveyed population of *Pterostylis truncata* within the proposed Extraction Extension is 0.538ha, which is no more than 0.5% of the projected area of *Pterostylis truncata* populations in the You Yangs, identified since the beginning of 1999, and about 0.002% of the area of 'habitat' with equal or better Habitat Importance Scores modelled by DEECA for *Pterostylis truncata* throughout Victoria.

5.3. Plant Communities

None of the six plant communities identified by the Department of Environment and Heritage search tool occurs within the proposed Extraction Extension or elsewhere in WA_453 and none will be impacted by the proposed Extraction Extension.

The following two communities are associated with the Volcanic Plains surrounding the You Yangs:

- Grassy Eucalypt Woodland of the Victorian Volcanic Plain.
- Natural Temperate Grassland of the Victorian Volcanic Plain.

The following two communities are associated with lowland and/or coastal environments:

- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains.
- Natural Damp Grassland of the Victorian Coastal Plains.

And the following two communities are more-or-less unknown in this part of Victoria:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia.
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

6 Victoria's Native Vegetation Management

— Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017)

6.1. Three-step approach

6.1.1 Avoiding impacts on Native Vegetation

Rock resource is where you find it. The Extraction Extension proposal is to continue an existing operation utilising proven resources and markets for the building industries of Melbourne and Geelong.

6.1.2 Minimising impacts on Native Vegetation

The minimum amount of vegetation will be removed that fulfils the requirements of the quarry operations. The proposed south-east boundary was shifted north after the survey for *Pterostylis truncata* located many *Pterostylis* plants in that area, i.e. of the same genus, later confirmed to be *Pterostylis truncata* (Map 3).

6.1.3 Offsetting Native Vegetation losses

The proposed losses will be Offset either by purchase from a third party or as 'First Party Offsets' within the existing Work Authority.

None of the records of *Pterostylis truncata* within the proposed Extraction Extension, including the observations from the 2021 assessment, occur within Patches of Native Vegetation. Nevertheless, Native Vegetation Offsets of 4.820 Species Habitat Units for *Pterostylis truncata* apply to the current application.

6.2. Assessing loss of Native Vegetation

6.2.1 Patches of Native Vegetation

The proposed Extraction Extension involves the removal of 8.636ha of Native Vegetation of Ecological Vegetation Class CVU_0071: Hills Herb-rich Woodland, comprising twenty (20) Patches, four (4) Scattered Large Trees and twenty-one (21) Large Trees overall, based on a combination of physical separation and vegetation characteristics (DELWP 2017).

In general, the site is highly disturbed, in that little identifiable original Native Vegetation remains that does not contain a vigorous incursion of weed species. The site has been subject to decades of disturbance from extractive industries and various iterations of grazing (see Illustration 1). Little apparent attempt has been made to control the infestation of Boneseed that dominates most of the area of the You Yangs, including the adjoining Regional Park. Nevertheless, all 'Patches' of Native Vegetation and the Scattered Large Trees can be ascribed the EVC of CVU_0071. Consistent with the disturbed nature of the area with high weed presence, the Condition Scores of the Patches range from a high of 0.4 to a low of 0.13 (see Appendix 2).

6.2.2 NV Loss assessment

Following the *Guidelines* (DELWP 2017), the assessment must follow the Detailed Pathway.

- *At a total of 8.636ha, more than 0.5ha of Native Vegetation is proposed to be removed.*
- *The site is in 'Location 1' for Native Vegetation Offset purposes.*

Twenty-one (21) large trees are proposed to be removed. A report from DELWP systems and tools addresses information about the vegetation proposed to be removed. The Report is presented in Appendix 3. The full DELWP report is an essential component of an application to remove Native Vegetation under the Detailed Assessment Pathway.

6.2.3 Offset proposal

The Barro Group has two options to provide the necessary Native Vegetation Offsets:

- Purchase of Native Vegetation Offsets from a third party; and
- An on-site management agreement to provide First Party Offsets.

Negotiations are currently underway to establish a suitable third party offset site that meets the assessed offset requirements. It is expected that these Native Vegetation Offsets will soon be available to Barro Group.

For WA_453 First Party Offsets, areas of Native Vegetation not required for future extraction occur around the eastern, northern and southern margins of the proposed Extraction Extension. Using estimates of Vegetation Quality and Improvement Scores, the Prospective Offset Area (Map 2) can generate enough Native Vegetation Offsets for *Pterostylis truncata* habitat (4.820 Species Habitat Units) to allow for the projected losses in the proposed Extraction Extension.

7 Management of impacts

The sites are within an existing Work Authority WA_453 overseen by ERR. Operations are described in the approved WA_453 Work Plan and the necessary Native Vegetation Offsets will be implemented through conditions applied to that approved Work Plan.

If the development proposal is approved, a specific Management Plan will be developed for the relocation of *Pterostylis truncata* tubers and/or the distribution of tubers to recognised, registered conservation organisations in consultation with the Australasian Native Orchid Society and DEECA.

8 Conclusions and recommendations

The sites from which Patches of Native Vegetation are to be removed, if approved, are within an existing Work Authority (WA_453). Expansion to supply demand for building materials is an integral part of the quarry's planning.

We contend that the proposal does not trigger any of the individual or combined referral criteria, in relation to ecological considerations, for a referral to the Minister for Planning for consideration under the *Environment Effects Act 1978*.

The affect of the proposed Extraction Extension on fauna conservation is probably insignificant or zero. Five species classified 'Threatened' fauna under the FFG Act are recorded near the proposed extraction area, Painted Honeyeater, Hooded Robin, Speckled Warbler, Diamond Firetail and Victoria Grassland Earless Dragon, but none from WA_453 itself. Southern Whiteface, a species Listed as Vulnerable under the EPBC Act, but not Listed under FFG, is also recorded nearby. The present environmental state of the proposed Extraction Extension does not present characteristics consistent with defined habitat for any of the six species.

The Victorian Grassland Earless Dragon *Tympanocryptis pinguicollat* was definitely recorded about 7km southeast of WA_453 at Little River, in 1967. Other, possible sightings in 1990 in the Kirks Bridge area, about 3km east of WA_453, are not confirmed and are doubtful. The environment of ,WA_453 is not consistent with the habitat description of *T. pinguicolla*.

The Ensym analysis of Native Vegetation loss (Appendix 3) concludes with a requirement for 4.820 Species Habitat Units for the species *Pterostylis truncata*. *Pterostylis truncata* occurs within the WA_453 and within a small area of the proposed Extraction Extension.

The implication that the Native Vegetation Patches in the proposed Extraction Extension of WA_453 comprise habitat for *Pterostylis truncata*, by virtue of the requirement for Species Habitat Units as an Offset, appears to be falsely based—no *Pterostylis truncata* records were found within the Patches of Native Vegetation despite thorough surveys from 2003 to 2021.

The proposed loss of twenty-one (21) Large Trees also must be offset as a separate item either within the area of *Pterostylis truncata* Species Habitat Units or at another site. These additional species or General Habitat Units that contain large trees can be located anywhere in Victoria, if the general and/or species offset amount and attribute requirements have already been met.

Native Vegetation Offsets for the proposed Extraction Extension will be purchased from Third Parties or provided in a First Party Offset management agreement within WA_453.

To limit the impacts to the local population of *Pterostylis truncata*, the Barro Group proposes to aid relocation of the population of *Pterostylis truncata* from the prospective Extraction Extension into places with similar Environment characteristics elsewhere within WA_453 and/or to place genetic material with conservation groups like the Australasian Native Orchid Society.

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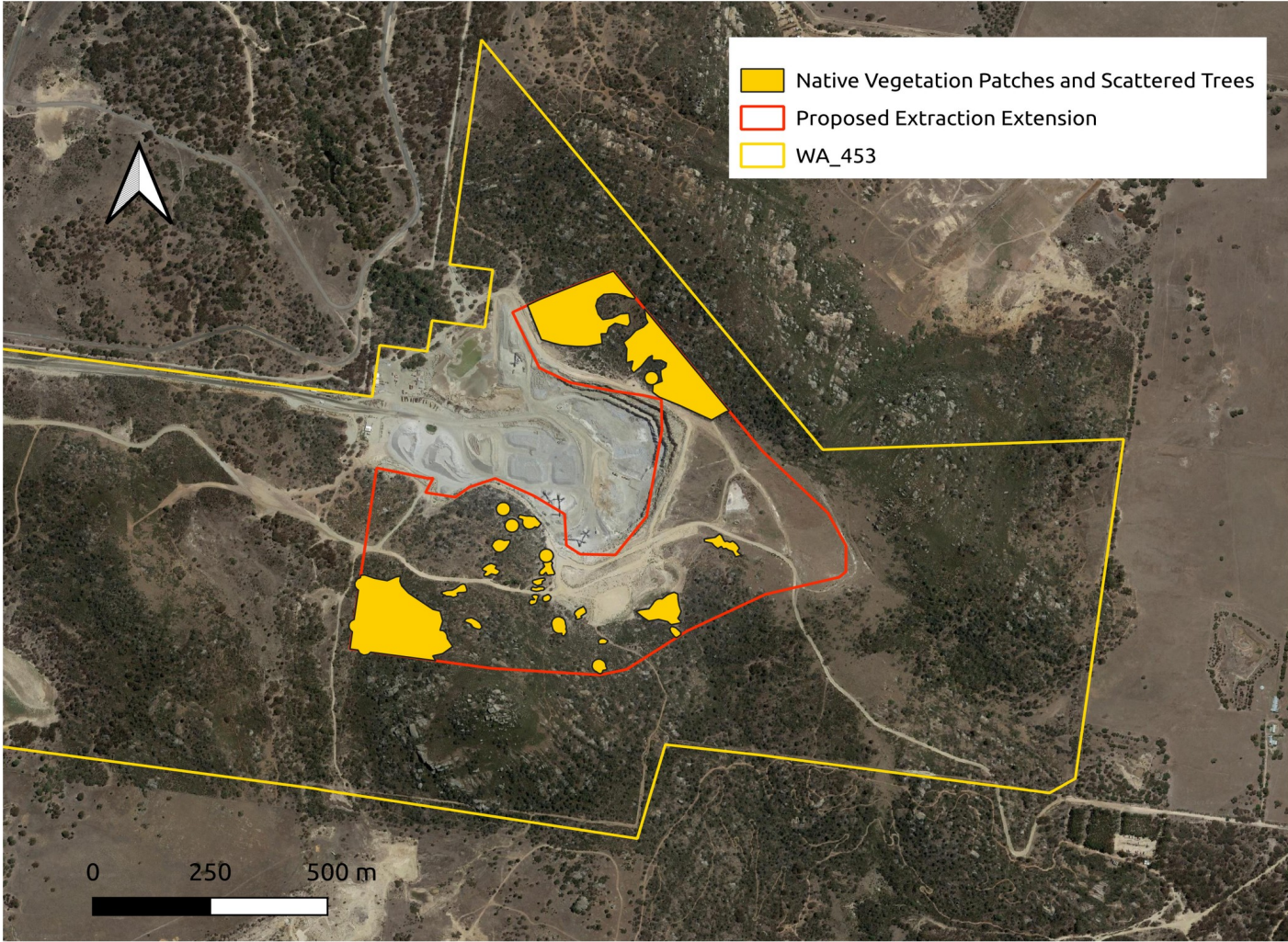
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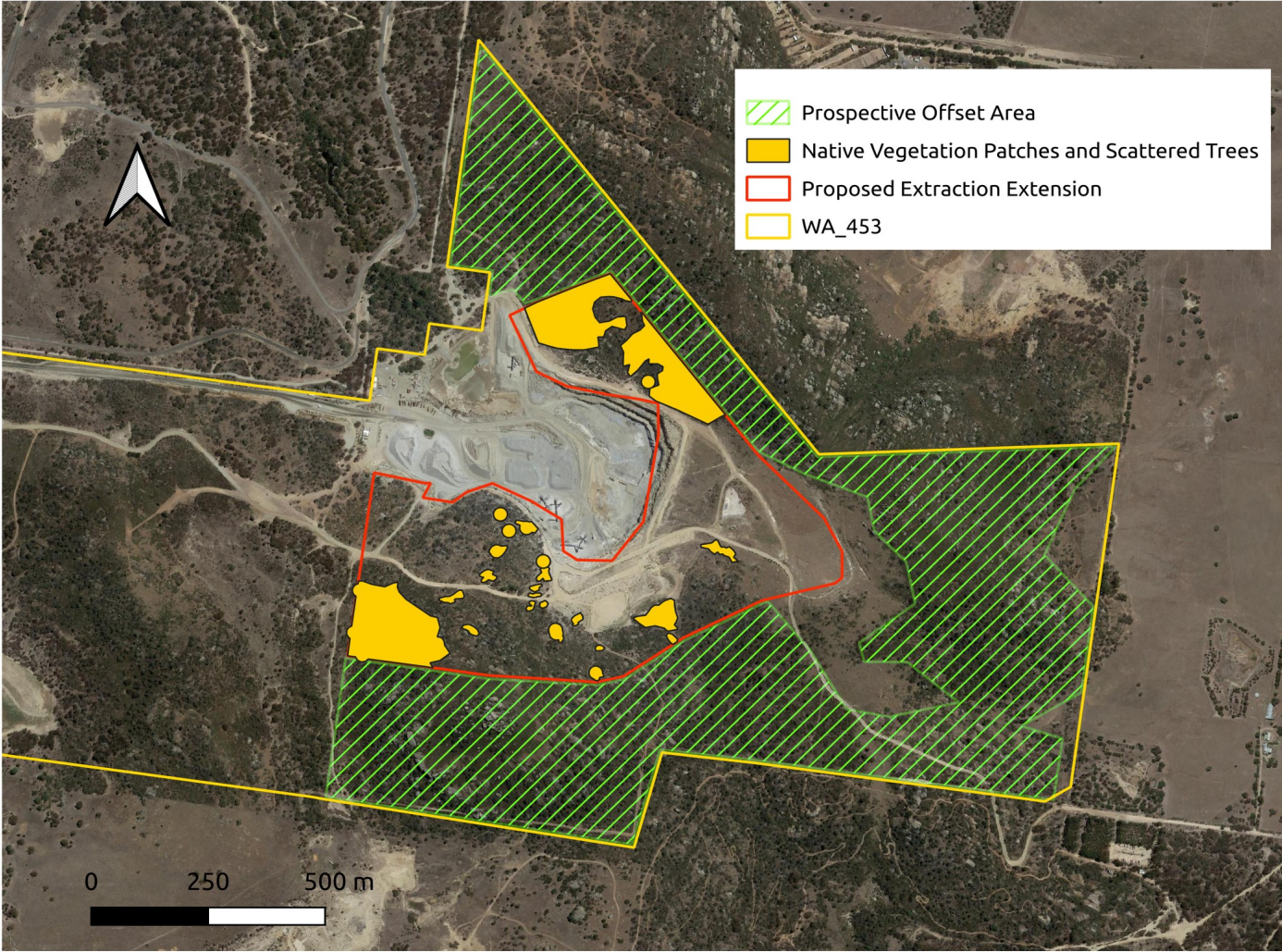
Glossary

- Condition Scores**—A score that describes how close native vegetation is to its mature natural state. The condition score is a value between 0 and 1 and is the Habitat Score divided by 100.
- Critically Endangered**—a category of Threatened under the Flora and Fauna Guarantee Act 1988 or the Environment Protection and Biodiversity Conservation Act 1999.
- Endangered**—a category of Threatened under the Flora and Fauna Guarantee Act 1988 or the Environment Protection and Biodiversity Conservation Act 1999.
- EVC**—Ecological Vegetation Class.
- First Party Offsets**—Offset quantity provided by the party who proposed or caused the loss of Patches of Native Vegetation or Scattered Trees.
- Habitat**—Precisely means the set of Environment characteristics that make up the living space of a taxon or group of taxa but now has a generic, imprecise meaning almost synonymous with environment.
- 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.
- Large Trees**—A large tree is a native canopy tree with a Diameter at Breast Height (1.3m) greater than or equal to the large tree benchmark for the relevant bioregional EVC.
- Native Vegetation**—‘plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses’.
- Native Vegetation Offsets**—Offset quantity used to compensate for the loss of Native Vegetation Patches and/or Scattered Trees.
- Patch (of Native Vegetation)**—Refers to an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or any area with three or 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.
- Threatened**—Flora, Fauna or Communities of flora and fauna that are Listed under the terms of the Flora and Fauna Guarantee Act 1988 and/or Environment Protection and Biodiversity Conservation Act 1999.
- Scattered Tree**—Native Canopy Tree that is not part of a Patch of Native Vegetation that is defined as Large or Small, depending on trunk diameter.
- Species Habitat Units**—Offset quantity specifically to compensate for the loss of habitat of a Threatened species.
- Vulnerable**—Category of Threatened under the *Flora and Fauna Guarantee Act 1988* or the *Environment Protection and Biodiversity Conservation Act 1999*.

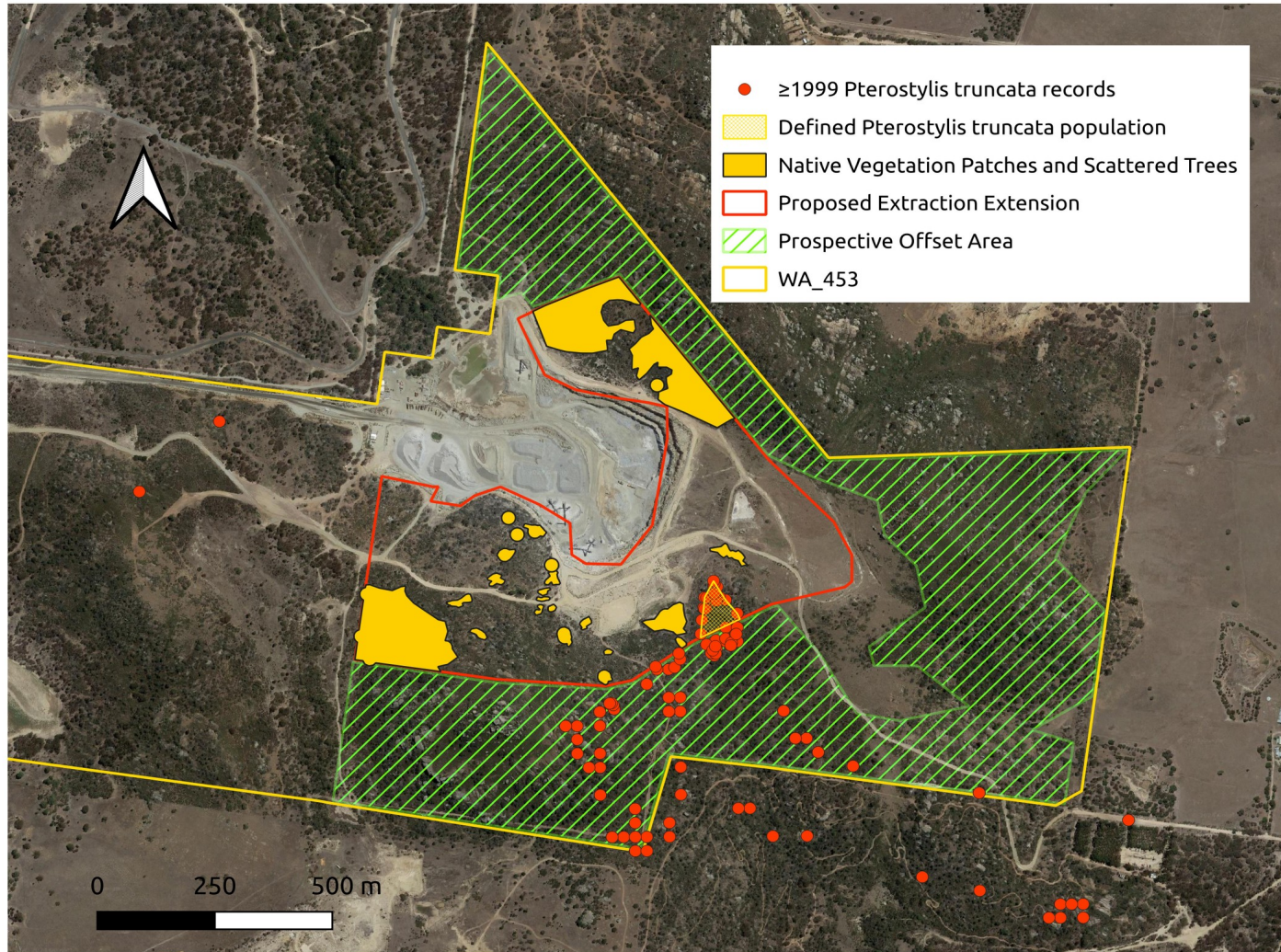
Map 1 Barro Little River proposed Extraction Extension showing Patches/Habitat Zones.



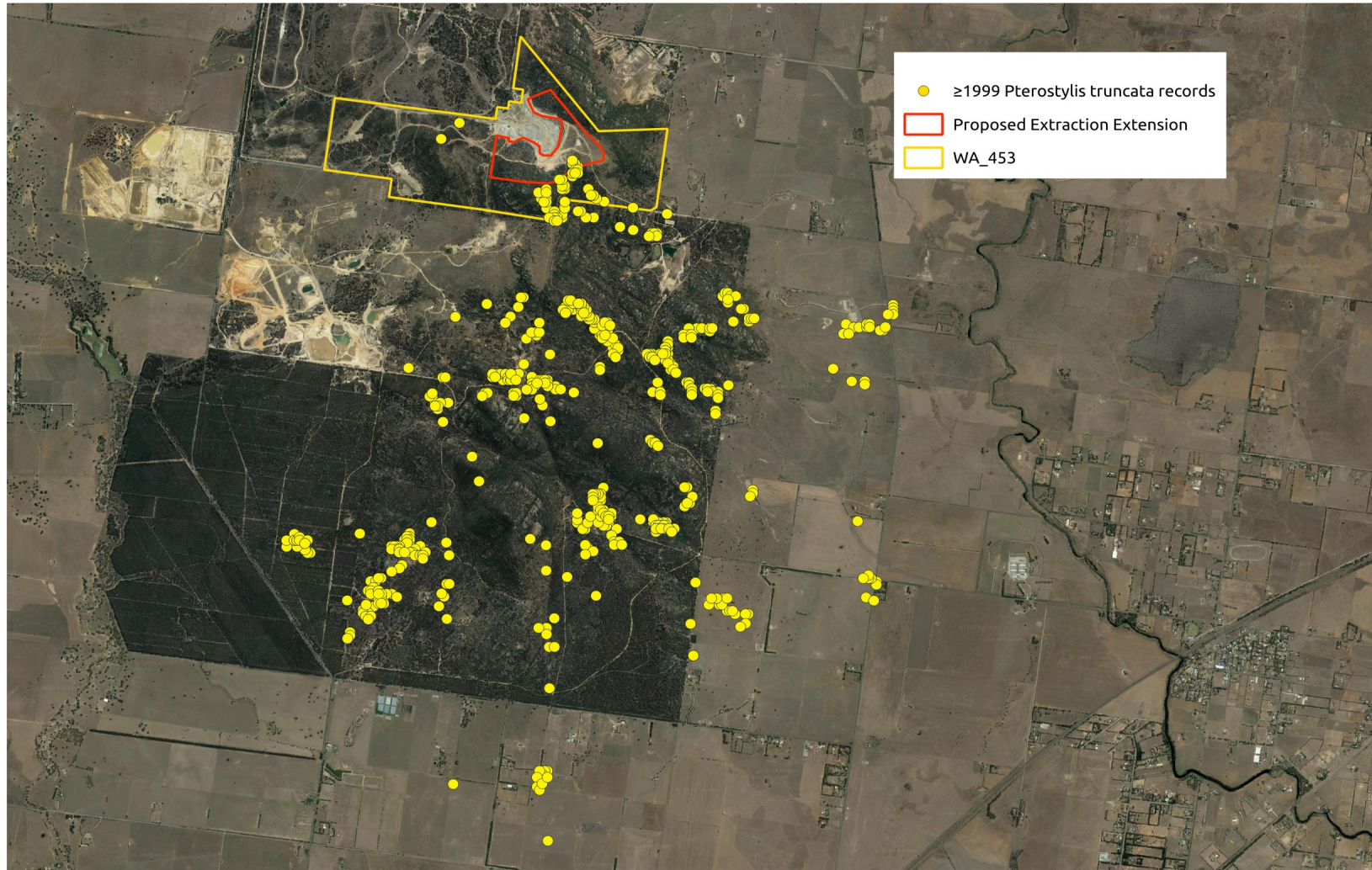
Map 2 Prospective Offset Area (if necessary and practical)



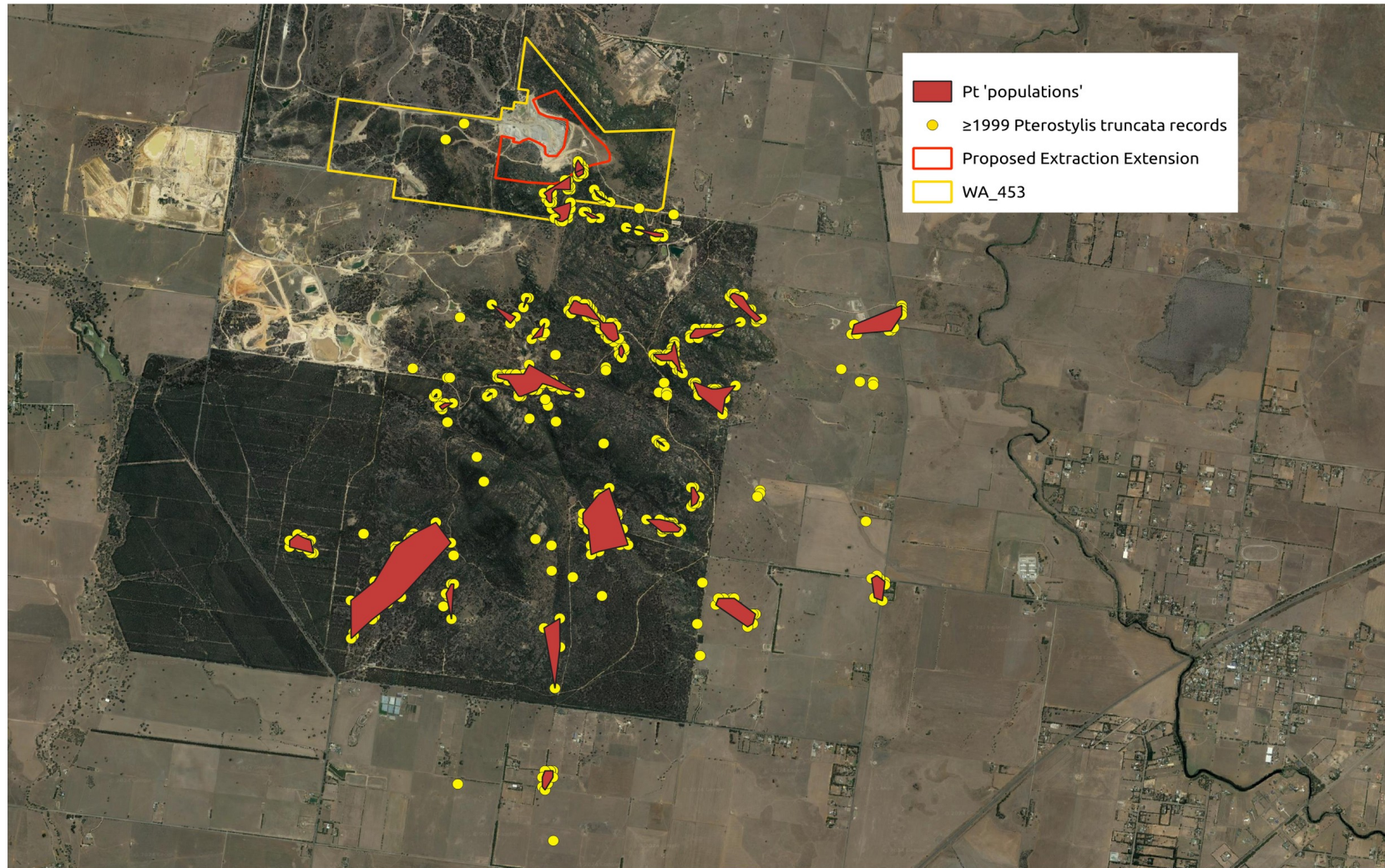
Map 3 Local *Pterostylis truncata* records ≥ 1999



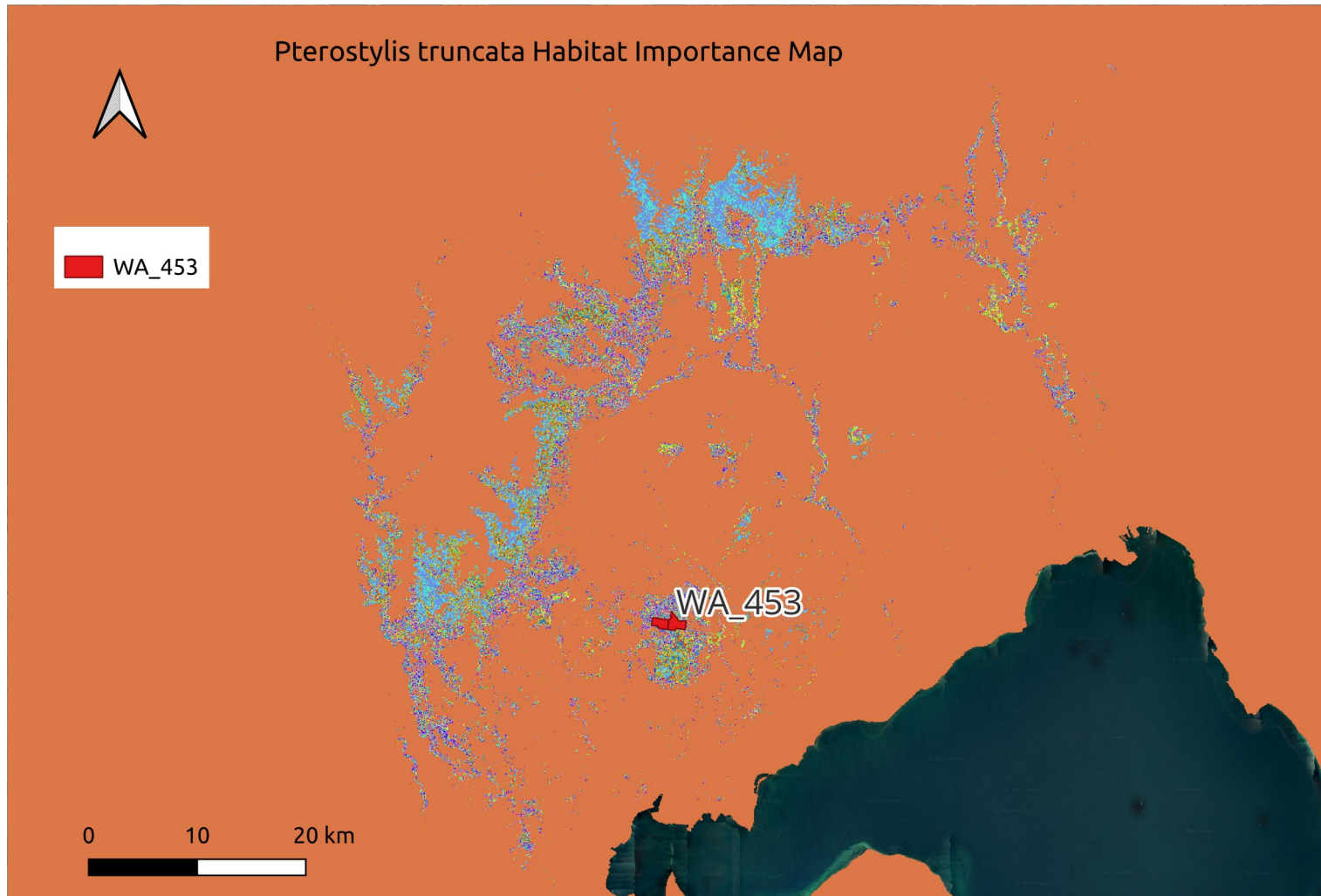
Map 4 District *Pterostylis truncata* records ≥ 1999



Map 5 You Yang District *Pterostylis truncata* 'populations'



Map 6 *Pterostylis truncata* Habitat Importance Map for Victoria



Appendix 1. Species of plant recorded on the Little River site

N—Proclaimed Pest Plant (Noxious Weed) cr—Critically Endangered *—Introduced

Status	Exotics	Species from Vic Flora	Common name	Family
		<i>Acacia implexa</i>	Lightwood	Mimosaceae
		<i>Acacia mearnsii</i>	Black Wattle	Mimosaceae
		<i>Acacia paradoxa</i>	Hedge Wattle	Mimosaceae
		<i>Acacia pycnantha</i>	Golden Wattle	Mimosaceae
		<i>Allocasuarina verticillata</i>	Drooping Sheoke	Casuarinaceae
	N	<i>Amsinckia sp.</i>	Amsinckia	Boraginaceae
		<i>Asplenium flabellifolium</i>	Necklace Fern	Aspleniaceae
		<i>Austrostipa densiflora</i>	Dense Spear-grass	Poaceae
		<i>Cassinia longifolia</i>	Shiny Cassinia	Asteraceae
	*	<i>Centaurium erythraea</i>	Common Centaury	Gentianaceae
		<i>Cheilanthes austrotenuifolia</i>	Green Rock Fern	Adiantaceae
	N	<i>Chrysanthemoides monilifera</i>	Boneseed	Asteraceae
		<i>Clematis microphylla var. microphylla</i>	Small-leaved Clematis	Ranunculaceae
	N	<i>Cynara cardunculus</i>	Artichoke Thistle	Asteraceae
		<i>Dichondra repens</i>	Kidney-weed	Convolvulaceae
	N	<i>Echium plantagineum</i>	Paterson's Curse	Boraginaceae
	*	<i>Ehrharta erecta</i>	Panic Veldt Grass	Poaceae
		<i>Einadia nutans</i>	Nodding Saltbush	Chenopodiaceae
		<i>Eucalyptus melliodora</i>	Yellow Box	Myrtaceae
		<i>Eucalyptus polyanthemus</i>	Red Box	Myrtaceae
		<i>Eucalyptus viminalis</i>	Manna Gum	Myrtaceae
		<i>Exocarpos cupressiformis</i>	Cherry Ballart	Santalaceae
	*	<i>Galenia pubescens</i>	Galenia	Aizoaceae
		<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Asparagaceae
	N	<i>Lycium ferocissimum</i>	African Box-thorn	Solanaceae
	N	<i>Marrubium vulgare</i>	Horehound	Lamiaceae
		<i>Melicytus dentatus</i>	Tree Violet	Violaceae
		<i>Muellerina eucalyptoides</i>	Creeping Mistletoe	Loranthaceae
	N	<i>Nassella trichotoma</i>	Serrated Tussock	Poaceae
	N	<i>Oxalis pes-caprae</i>	Soursob	Oxalidaceae
	*	<i>Phytolacca octandra</i>	Red-ink Weed	Phytolaccaceae
cr		<i>Pterostylis truncata</i>	Brittle Greenhood	Orchidaceae
		<i>Rhagodia candolleana</i>	Seaberry Saltbush	Chenopodiaceae
		<i>Rytidosperma setaceum</i>	Bristly Wallaby-grass	Poaceae
	*	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	Poaceae

The species list is of the vascular plant species observed during the Native Vegetation Patch assessment and search for *Pterostylis* plants. No dedicated list of species was attempted or is expected in a Native Vegetation removal report as outlined in the *Guidelines* (DELWP 2017).

Appendix 2. NV Habitat Zone scoring summary

Habitat Zone		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
EVC		CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71
SITE CONDITION									
Large Old Trees	/10	0	0	8	0	0	0	8	6
Canopy Cover	/5	2	2	2	0	0	0	2	2
Understorey	/25	5	5	5	5	5	5	5	5
Lack of Weeds	/15	4	0	0	0	0	0	0	0
Recruitment	/10	1	1	1	1	1	1	1	1
Organic Matter	/5	3	3	3	3	5	3	3	3
Logs	/5	0	2	0	2	2	0	3	3
Total Habitat Score	/75	15	13	19	11	13	9	22	20
Standardiser		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LANDSCAPE COMPONENTS									
Patch Size	/10	1	1	1	1	1	1		1
Neighbourhood	/10	0	0	0	0	0	0	0	0
Distance to Core	/5	3	3	3	3	3	3	3	3
HABITAT SCORE %	100	19	17	23	15	17	13	25	24
Condition Score	1	0.19	0.17	0.23	0.15	0.17	0.13	0.25	0.24
Area of the quality zone (ha)		0.0779	0.0214	0.1015	0.0682	0.0691	0.0436	0.0814	0.0984
HABITAT HECTARES		0.0148	0.0036	0.0233	0.0102	0.0117	0.0057	0.0204	0.0236
Bioregion		CVU	CVU	CVU	CVU	CVU	CVU	CVU	CVU
EVC Conservation Status		V	V	V	V	V	V	V	V
Large Old Trees present		0	0	2	0	0	0	1	1
Large Old Trees to be Removed		0	0	2	0	0	0	1	1

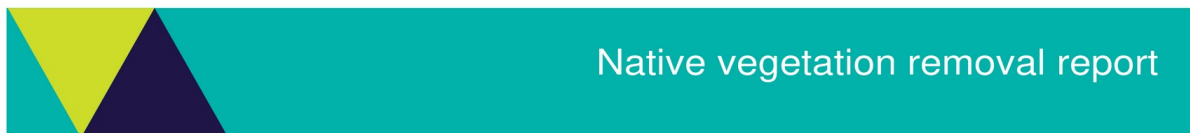
Habitat Zone		Zone 9	Zone 10	Zone 11	Zone 12	Zone 13	Zone 14	Zone 15	Zone 16
EVC		CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71	CVU_71
SITE CONDITION									
Large Old Trees	/10	0	0	8	0	1		0	4
Canopy Cover	/5	2	2	2	3	3		2	4
Understorey	/25	5	5	5	5	15		5	5
Lack of Weeds	/15	0	0	0	0	0		0	0
Recruitment	/10	1	1	1	1	3		1	1
Organic Matter	/5	3	3	3	3	3		3	3
Logs	/5	2	2	4	0	5		0	5
Total Habitat Score	/75	13	13	23	12	30		11	22
Standardiser		N/A	N/A	N/A	N/A	N/A		N/A	N/A
LANDSCAPE COMPONENTS									
Patch Size	/10	1	1	1	1	4		1	1
Neighbourhood	/10	0	0	0	0	2		0	0
Distance to Core	/5	3	3	3	3	4		3	3
HABITAT SCORE %	100	17	17	27	16	40		15	26
Condition Score	1	0.17	0.17	0.27	0.16	0.40		0.15	0.26
Area of the quality zone (ha)		0.0282	0.0221	0.0738	0.0519	2.8821		0.0363	0.3908
HABITAT HECTARES		0.0048	0.0038	0.0199	0.0083	1.1528		0.0054	0.1016
Bioregion		CVU	CVU	CVU	CVU	CVU		CVU	CVU
EVC Conservation Status		V	V	V	V	V		V	V
Large Old Trees present		0	0	2	0	0		1	1
Large Old Trees to be Removed		0	0	2	0	0		1	1

The **Yellow columns** are of Zones incorporated into adjoining Zones

Habitat Zone		Zone 17	Zone 18	Zone 19	Zone 20	Zone 21	Zone 22
EVC		CVU_71	CVU_71		CVU_71	CVU_71	CVU_71
SITE CONDITION							
Large Old Trees	/10	0	1		0	0	0
Canopy Cover	/5	3	3		2	2	0
Understorey	/25	15	15		5	5	5
Lack of Weeds	/15	4	0		0	0	0
Recruitment	/10	3	1		1	1	1
Organic Matter	/5	3	3		3	5	3
Logs	/5	4	5		0	0	2
Total Habitat Score	/75	28	28		11	11	11
Standardiser		N/A	N/A		N/A	N/A	N/A
LANDSCAPE COMPONENTS							
Patch Size	/10	2	2		1	1	1
Neighbourhood	/10	2	2		0	0	0
Distance to Core	/5	4	4		3	3	3
HABITAT SCORE %	100	36	36		15	15	15
Condition Score	1	0.36	0.36		0.15	0.15	0.15
Area of the quality zone (ha)		2.1476	1.9682		0.02	0.1452	0.0275
HABITAT HECTARES		0.7731	0.7086		0.0030	0.0218	0.0041
Bioregion		CVU	CVU		CVU	CVU	CVU
EVC Conservation Status		V	V		V	V	V
Large Old Trees present		0	0		0	0	0
Large Old Trees to be Removed		0	0		0	0	0

The **Yellow columns** are of Zones incorporated into adjoining Zones

Appendix 3. Ensymb Native Vegetation Removal Report



Native vegetation removal report

This report provides information to support an application to remove, destroy or lop native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report **is not an assessment by DELWP** of the proposed native vegetation removal. Native vegetation information and offset requirements have been determined using spatial data provided by the applicant or their consultant.

Date of issue: 08/01/2024
 Time of issue: 12:52 pm

Report ID: GEN_2024_005

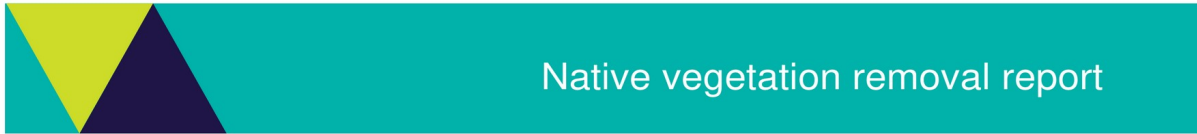
Project ID	2023_NV_losses
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Assessment pathway

Assessment pathway	Detailed Assessment Pathway
Extent including past and proposed	8.636 ha
Extent of past removal	0.000 ha
Extent of proposed removal	8.636 ha
No. Large trees proposed to be removed	21
Location category of proposed removal	Location 1 The native vegetation is not in an area mapped as an endangered Ecological Vegetation Class (as per the statewide EVC map), sensitive wetland or coastal area. Removal of less than 0.5 hectares in this location will not have a significant impact on any habitat for a rare or threatened species

1. Location map





Native vegetation removal report

Offset requirements if a permit is granted

Any approval granted will include a condition to obtain an offset that meets the following requirements:

Species offset amount¹	4.820 species units of habitat for Brittle Greenhood, <i>Pterostylis truncata</i>
Large trees	21 trees

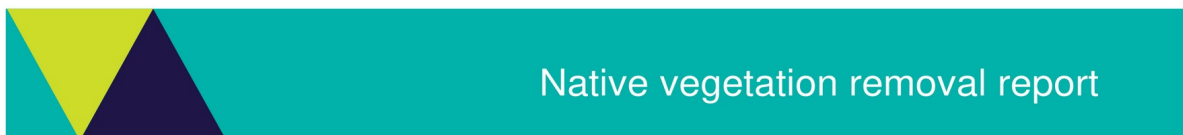
NB: values within tables in this document may not add to the totals shown above due to rounding

Appendix 1 includes information about the native vegetation to be removed

Appendix 2 includes information about the rare or threatened species mapped at the site.

Appendix 3 includes maps showing native vegetation to be removed and extracts of relevant species habitat importance maps

¹ The species offset amount(s) required is the sum of all species habitat units in Appendix 1.



Native vegetation removal report

Next steps

Any proposal to remove native vegetation must meet the application requirements of the Detailed Assessment Pathway and it will be assessed under the Detailed Assessment Pathway.

If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. Council will refer your application to DELWP for assessment, as required. **This report is not a referral assessment by DELWP.**

This *Native vegetation removal report* must be submitted with your application for a permit to remove, destroy or lop native vegetation.

Refer to the *Guidelines for the removal, destruction or lopping of native vegetation* (the Guidelines) for a full list of application requirements. This report provides information that meets the following application requirements:

- The assessment pathway and reason for the assessment pathway
- A description of the native vegetation to be removed (partly met)
- Maps showing the native vegetation and property (partly met)
- Information about the impacts on rare or threatened species.
- The offset requirements determined in accordance with section 5 of the Guidelines that apply if approval is granted to remove native vegetation.

Additional application requirements must be met including:

- Topographical and land information
- Recent dated photographs
- Details of past native vegetation removal
- An avoid and minimise statement
- A copy of any Property Vegetation Plan that applies
- A defensible space statement as applicable
- A statement about the Native Vegetation Precinct Plan as applicable
- A site assessment report including a habitat hectare assessment of any patches of native vegetation and details of trees
- An offset statement that explains that an offset has been identified and how it will be secured.

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Obtaining this publication does not guarantee that an application will meet the requirements of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes or that a permit to remove native vegetation will be granted.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of the Victoria Planning Provisions and Victorian planning schemes.

Appendix 1: Description of native vegetation to be removed

The species-general offset test was applied to your proposal. This test determines if the proposed removal of native vegetation has a proportional impact on any rare or threatened species habitats above the species offset threshold. The threshold is set at 0.005 per cent of the mapped habitat value for a species. When the proportional impact is above the species offset threshold a species offset is required. This test is done for all species mapped at the site. Multiple species offsets will be required if the species offset threshold is exceeded for multiple species.

Where a zone requires species offset(s), the species habitat units for each species in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{Species habitat units} = \text{extent} \times \text{condition} \times \text{species landscape factor} \times 2, \text{ where the species landscape factor} = 0.5 + (\text{habitat importance score}/2)$$

The species offset amount(s) required is the sum of all species habitat units per zone

Where a zone does not require a species offset, the general habitat units in that zone is calculated by the following equation in accordance with the Guidelines:

$$\text{General habitat units} = \text{extent} \times \text{condition} \times \text{general landscape factor} \times 1.5, \text{ where the general landscape factor} = 0.5 + (\text{strategic biodiversity value score}/2)$$

The general offset amount required is the sum of all general habitat units per zone.

Native vegetation to be removed

Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-02	Patch	cvu_0071	Vulnerable	0	no	0.170	0.021	0.021	0.420	0.350	0.005	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-07	Patch	cvu_0071	Vulnerable	1	no	0.250	0.081	0.081	0.883	0.568	0.032	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-12	Patch	cvu_0071	Vulnerable	0	no	0.160	0.052	0.052	0.860	0.458	0.012	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-03	Patch	cvu_0071	Vulnerable	1	no	0.230	0.101	0.101	0.910	0.430	0.033	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-16	Patch	cvu_0071	Vulnerable	3	no	0.260	0.391	0.391	0.880	0.602	0.163	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-13	Patch	cvu_0071	Vulnerable	8	no	0.400	2.882	2.882	0.877	0.635	1.885	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-11	Patch	cvu_0071	Vulnerable	1	no	0.270	0.074	0.074	0.910	0.560	0.031	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-01	Patch	cvu_0071	Vulnerable	0	no	0.190	0.078	0.078	0.920	0.520	0.023	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-04	Patch	cvu_0071	Vulnerable	0	no	0.150	0.068	0.068	0.420	0.209	0.012	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-18	Patch	cvu_0071	Vulnerable	2	no	0.360	1.968	1.968	0.913	0.680	1.190	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-09	Patch	cvu_0071	Vulnerable	0	no	0.170	0.028	0.028	0.420	0.423	0.007	502821 Brittle Greenhood <i>Pterostylis truncata</i>

Information provided by or on behalf of the applicant in a GIS file							Information calculated by EnSym					
Zone	Type	BioEVC	BioEVC conservation status	Large tree(s)	Partial removal	Condition score	Polygon Extent	Extent without overlap	SBV score	HI score	Habitat units	Offset type
1-08	Patch	cvu_0071	Vulnerable	1	no	0.240	0.098	0.098	0.420	0.470	0.035	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-17	Patch	cvu_0071	Vulnerable	0	no	0.360	2.148	2.148	0.924	0.587	1.227	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-21	Patch	cvu_0071	Vulnerable	0	no	0.150	0.145	0.145	0.585	0.412	0.031	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-15	Patch	cvu_0071	Vulnerable	0	no	0.150	0.036	0.036	0.830	0.620	0.009	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-10	Patch	cvu_0071	Vulnerable	0	no	0.170	0.022	0.022	0.420	0.422	0.005	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-20	Patch	cvu_0071	Vulnerable	0	no	0.150	0.020	0.020	0.910	0.560	0.005	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-06	Patch	cvu_0071	Vulnerable	0	no	0.130	0.044	0.044	0.858	0.503	0.009	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-22	Patch	cvu_0071	Vulnerable	0	no	0.150	0.028	0.028	0.420	0.430	0.006	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-05	Patch	cvu_0071	Vulnerable	0	no	0.170	0.069	0.069	0.920	0.588	0.019	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-23	Scattered Tree	cvu_0071	Vulnerable	1	no	0.200	0.071	0.071	0.482	0.477	0.021	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-24	Scattered Tree	cvu_0071	Vulnerable	1	no	0.200	0.071	0.069	0.420	0.229	0.017	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-25	Scattered Tree	cvu_0071	Vulnerable	1	no	0.200	0.071	0.071	0.940	0.642	0.023	502821 Brittle Greenhood <i>Pterostylis truncata</i>
1-26	Scattered Tree	cvu_0071	Vulnerable	1	no	0.200	0.071	0.071	0.642	0.495	0.021	502821 Brittle Greenhood <i>Pterostylis truncata</i>

Appendix 2: Information about impacts to rare or threatened species' habitats on site

This table lists all rare or threatened species' habitats mapped at the site.

Species common name	Species scientific name	Species number	Conservation status	Group	Habitat impacted	% habitat value affected
Brittle Greenhood	<i>Pterostylis truncata</i>	502821	Endangered	Dispersed	Habitat importance map ; special site	0.0068
Fragrant Saltbush	<i>Rhagodia parabolica</i>	502929	Rare	Dispersed	Habitat importance map	0.0035
Grassland Earless Dragon	<i>Tympanocryptis pinguicollis</i>	12922	Critically endangered	Dispersed	Habitat importance map	0.0030
Scented Bush-pea	<i>Pultenaea graveolens</i>	502849	Vulnerable	Dispersed	Habitat importance map	0.0029
Melbourne Yellow-gum	<i>Eucalyptus leucoxydon subsp. connata</i>	504484	Vulnerable	Dispersed	Habitat importance map	0.0024
Shiny Leionema	<i>Leionema lamprophyllum subsp. obovatum</i>	505478	Rare	Dispersed	Habitat importance map	0.0023
Smooth Grevillea	<i>Grevillea rosmarinifolia subsp. glabella</i>	501536	Rare	Dispersed	Habitat importance map	0.0011
Velvet Daisy-bush	<i>Olearia pannosa subsp. cardiophylla</i>	502317	Vulnerable	Dispersed	Habitat importance map	0.0009
Austral Tobacco	<i>Nicotiana suaveolens</i>	502275	Rare	Dispersed	Habitat importance map	0.0009
Tangled Pseudanthus	<i>Pseudanthus orbicularis</i>	502760	Rare	Dispersed	Habitat importance map	0.0009
Yellow Burr-daisy	<i>Calotis lappulacea</i>	500598	Rare	Dispersed	Habitat importance map	0.0009
Snowy Mint-bush	<i>Prostanthera nivea var. nivea</i>	502746	Rare	Dispersed	Habitat importance map	0.0006
Emerald-lip Greenhood	<i>Pterostylis smaragdina</i>	503915	Rare	Dispersed	Habitat importance map	0.0006
Golden Bush-pea	<i>Pultenaea gunnii subsp. tuberculata</i>	504624	Rare	Dispersed	Habitat importance map	0.0006
Matted Flax-lily	<i>Dianella amoena</i>	505084	Endangered	Dispersed	Habitat importance map	0.0005
Pale-flower Crane's-bill	<i>Geranium sp. 3</i>	505344	Rare	Dispersed	Habitat importance map	0.0005
Swamp Fireweed	<i>Senecio psilocarpus</i>	504659	Vulnerable	Dispersed	Habitat importance map	0.0004

Golden Grevillea	<i>Grevillea chrysophaea</i>	501530	Rare	Dispersed	Habitat importance map	0.0004
Swift Parrot	<i>Lathamus discolor</i>	10309	Endangered	Dispersed	Habitat importance map	0.0003
Painted Honeyeater	<i>Grantiella picta</i>	10598	Vulnerable	Dispersed	Habitat importance map	0.0003
Dense Mint-bush	<i>Prostanthera decussata</i>	502739	Rare	Dispersed	Habitat importance map	0.0003
Golden Sun Moth	<i>Synemon plana</i>	15021	Critically endangered	Dispersed	Habitat importance map	0.0003
Branching Groundsel	<i>Senecio cunninghamii</i> var. <i>cunninghamii</i>	503104	Rare	Dispersed	Habitat importance map	0.0003
Satin Daisy-bush	<i>Olearia minor</i>	504130	Rare	Dispersed	Habitat importance map	0.0002
Port Lincoln Snake	<i>Parasuta spectabilis</i>	12813	Vulnerable	Dispersed	Habitat importance map	0.0002
Barking Owl	<i>Ninox connivens connivens</i>	10246	Endangered	Dispersed	Habitat importance map	0.0002
Speckled Warbler	<i>Chthonicola sagittatus</i>	10504	Vulnerable	Dispersed	Habitat importance map	0.0002
Clover Glycine	<i>Glycine latrobeana</i>	501456	Vulnerable	Dispersed	Habitat importance map	0.0002
Brown Toadlet	<i>Pseudophryne bibronii</i>	13117	Endangered	Dispersed	Habitat importance map	0.0001
Gum-barked Bundy	<i>Eucalyptus gonicalyx</i> subsp. <i>laxa</i>	505718	Vulnerable	Dispersed	Habitat importance map	0.0001
Chestnut-rumped Heathwren	<i>Calamanthus pyrrhopygius</i>	10498	Vulnerable	Dispersed	Habitat importance map	0.0001
Black Falcon	<i>Falco subniger</i>	10238	Vulnerable	Dispersed	Habitat importance map	0.0001
White-throated Needletail	<i>Hirundapus caudacutus</i>	10334	Vulnerable	Dispersed	Habitat importance map	0.0000
Pale Swamp Everlasting	<i>Coronidium gunnianum</i>	504655	Vulnerable	Dispersed	Habitat importance map	0.0000
Large-headed Fireweed	<i>Senecio macrocarpus</i>	503116	Endangered	Dispersed	Habitat importance map	0.0000
Parsley Xanthosia	<i>Xanthosia leiophylla</i>	504562	Rare	Dispersed	Habitat importance map	0.0000

Habitat group

- Highly localised habitat means there is 2000 hectares or less mapped habitat for the species
- Dispersed habitat means there is more than 2000 hectares of mapped habitat for the species

Habitat impacted

- Habitat importance maps are the maps defined in the Guidelines that include all the mapped habitat for a rare or threatened species
- Top ranking maps are the maps defined in the Guidelines that depict the important areas of a dispersed species habitat, developed from the highest habitat importance scores in dispersed species habitat maps and selected VBA records

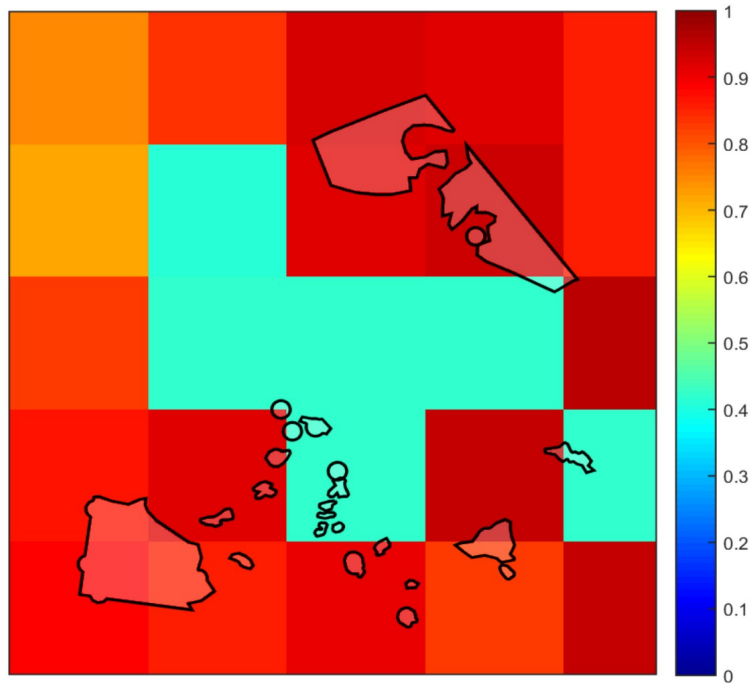
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- Selected VBA record is an area in Victoria that represents a large population, roosting or breeding site etc.

Appendix 3 – Images of mapped native vegetation

2. Strategic biodiversity values map



3. Aerial photograph showing mapped native vegetation



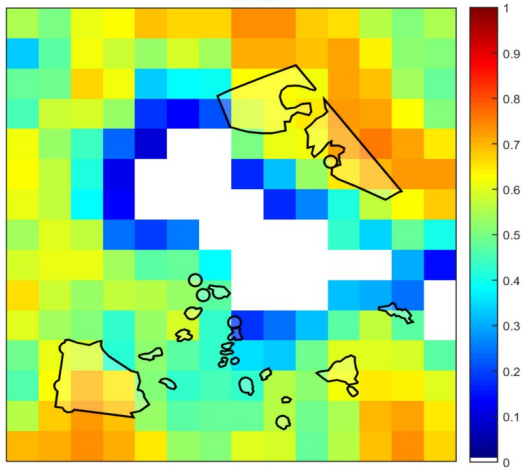
4. Map of the property in context



Yellow boundaries denote areas of proposed native vegetation removal.

4. Habitat importance maps

Brittle Greenhood
Pterostylis truncata
502821



Appendix 4. EPBC Report



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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: 09-May-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

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:	6
Listed Threatened Species:	50
Listed Migratory Species:	15

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 environment anywhere.

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 <https://www.dcceew.gov.au/parks-heritage/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:	None
Listed Marine Species:	23
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:	3
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	9
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
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	
Port phillip bay (western shoreline) and bellarine peninsula	Within 10km of Ramsar site	In feature area	

Listed Threatened Ecological Communities		[Resource Information]	
<p>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.</p> <p>Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.</p>			

Community Name	Threatened Category	Presence Text	Buffer Status
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area	In feature area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area	In buffer area only
Natural Damp Grassland of the Victorian Coastal Plains	Critically Endangered	Community may occur within area	In buffer area only
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area	In feature area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area	In buffer area only
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In feature area

Listed Threatened Species		[Resource Information]	
<p>Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.</p> <p>Number is the current name ID.</p>			
Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	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	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	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
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Nannoperca obscura Yarra Pygmy Perch [26177]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area	In feature area
FROG			
Litoria raniformis Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Synemon plana Golden Sun Moth [25234]	Vulnerable	Species or species habitat known 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
Perameles gunnii Victorian subspecies Eastern Barred Bandicoot (Mainland) [88020]	Endangered	Translocated population known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
PLANT			
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	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
Diuris basaltica Small Golden Moths Orchid, Early Golden Moths [64654]	Endangered	Species or species habitat may occur within area	In feature area
Diuris fragrantissima Sunshine Diuris, Fragrant Doubletail, White Diuris [21243]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dodonaea procumbens Trailing Hop-bush [12149]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lachnagrostis adamsonii Adamson's Blown-grass, Adamson's Blowngrass [76211]	Endangered	Species or species habitat likely to occur within area	In feature area
Lepidium aschersonii Spiny Peppercross [10976]	Vulnerable	Species or species habitat may occur within area	In feature area
Lepidium hyssopifolium Basalt Pepper-cress, Peppercross, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat likely to occur within area	In feature area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pimelea spinescens subsp. spinescens Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea [21980]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Prasophyllum suaveolens Fragrant Leek-orchid [64956]	Endangered	Species or species habitat may occur within area	In feature area
Pterostylis cucullata Leafy Greenhood [15459]	Vulnerable	Species or species habitat may occur within area	In feature area
Rutidosia leptorhynchoides Button Wrinklewort [67251]	Endangered	Species or species habitat known to occur within area	In feature area
Senecio macrocarpus Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thelymitra orientalis Hoary Sun-orchid [88011]	Critically 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 may occur within area	In buffer area only

REPTILE

Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In feature area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lissolepis coventryi Swamp Skink, Eastern Mourning Skink [84053]	Endangered	Species or species habitat may occur within area	In feature area
Tymanocryptis pinguicolla Victorian Grassland Earless Dragon [66727]	Critically Endangered	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
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area	In buffer area only
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]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
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
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may 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
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]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area overfly marine area	In buffer area only
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
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely 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 known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat known 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 known 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 known to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Freshwater Swamp, Little River W.R	Nature Conservation Reserve	VIC	In buffer area only
Western Grasslands N.C.R.	Natural Features Reserve	VIC	In buffer area only
Wurdi Youyang B.R.	Natural Features Reserve	VIC	In feature area

Regional Forest Agreements

[Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
West Victoria RFA	Victoria	In feature area

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
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Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Vopak Victoria Energy Terminal	2023/09507		Assessment	In buffer area only
Controlled action				
Basalt Quarry Extension (Mountainview Quarry)	2004/1329	Controlled Action	Completed	In buffer area only
Geelong-Bacchus Marsh Road Upgrade Project	2017/8018	Controlled Action	Post-Approval	In buffer area only
Melbourne Geelong Interconnection Pipeline Project	2010/5380	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Extension of Mountain View basalt quarry by 113 hectares (stage one)	2004/1591	Not Controlled Action	Completed	In buffer area only
Geelong Bypass Sections 1 & 2	2005/2097	Not Controlled Action	Completed	In buffer area only
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
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	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

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- [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

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Please feel free to provide feedback via the [Contact us](#) page.

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[Department of Climate Change, Energy, the Environment and Water](#)
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111