

From: [2021-104 Beauty Point LPS Representation](#)
To: [TPC Enquiry](#)
Cc: [McCrossen, Samuel](#)
Subject: RE: West Tamar draft Local Provisions Schedule (LPS) - additional info for Rep No.35
Date: Wednesday, 18 August 2021 10:11:22 AM
Attachments: [image001.jpg](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[Natural Values Assessment - North Barker 2019.pdf](#)
[West Tamar Draft LPS - Hearing Attendance Request to be Heard Form - ERA.pdf](#)

Good morning,

In relation to West Tamar draft LPS, please find attached the information requested of ERA in Attachment B to TPC letter to representors dated 16 August 2021 (your ref DOC/21/91367).

Please also find attached my request form to attend the upcoming hearing in relation to representation number 35.

Kind regards,

Mark

Mark O'Brien
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We acknowledge and respect Tasmanian Aboriginal people as the Traditional Owners of Lutruwita (Tasmania). They are the original custodians of our land and waters. We respect their unique ability to care for country and deep spiritual connection to it.
We honour Elders past, present and emerging whose knowledge and wisdom has and will ensure the continuation of culture and traditional practices.

From: TPC Enquiry <tpc@planning.tas.gov.au>
Sent: Monday, 16 August 2021 12:43 PM
Subject: West Tamar draft Local Provisions Schedule (LPS)

Dear Representor

Please find documents attached in relation to West Tamar draft LPS.

Kind regards



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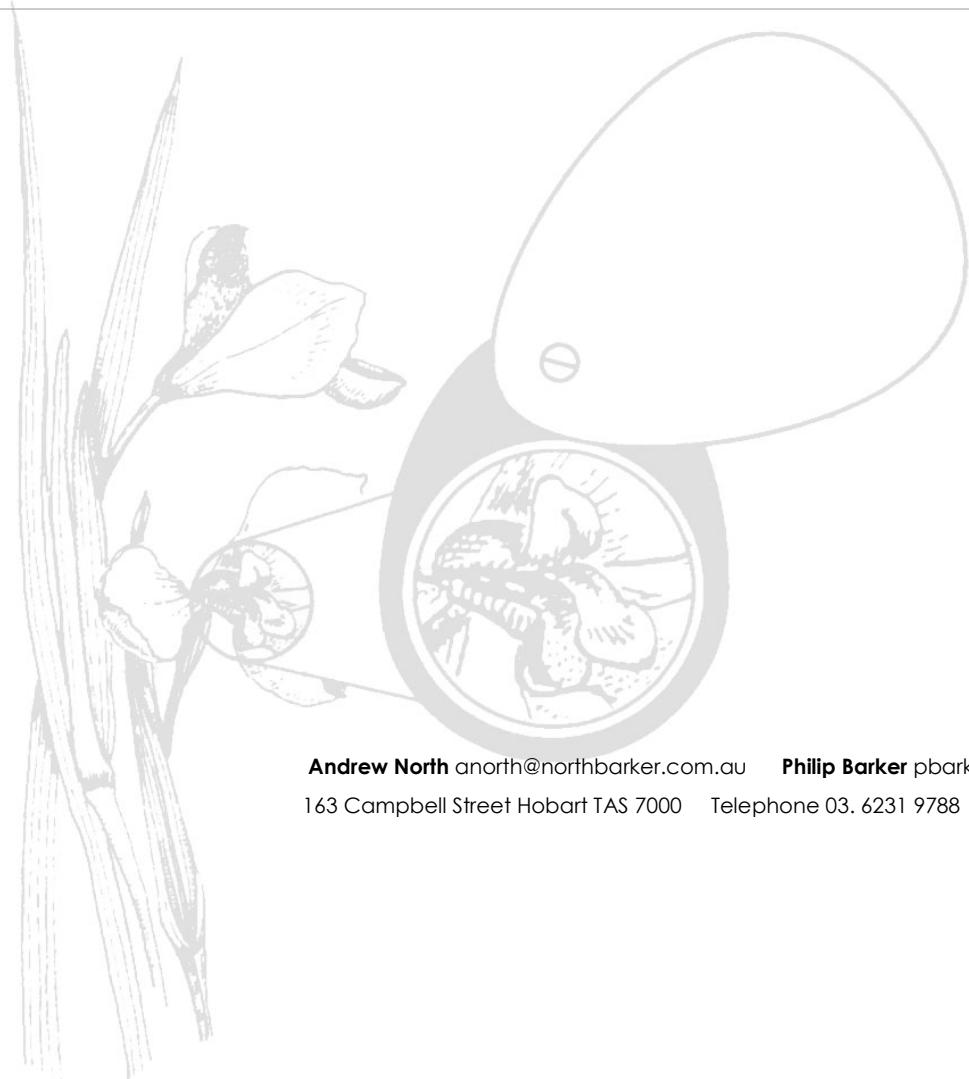


Lot 102 West Arm Road,
Beauty Point

Natural Values Assessment

21 January 2019

For ERA Planning
ERA016



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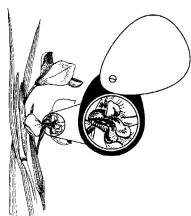
Field Assessment: Michael Hitchcock

Report and mapping: Michael Hitchcock

Review: Andrew North

File Control

Version	Date	Author / Comment
First Draft 0.1	16/01/2020	M Hitchcock
Final Draft 1.0	21/01/2020	A North



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Summary

Subdivision development is proposed for Lot 102, West Arm Road, Beauty Point. The zoning of the land on the West Tamar Interim Panning Scheme 2013 is split between General Residential on the east side and Rural Resource on the west. The property occupies 21.66 ha and is predominantly characterised by pasture and has evidently been managed for agricultural use for many years. Native vegetation is limited to patches of bushland and a moderate sized constructed water body along with associated drainage ditches.

Vegetation communities

The study area contains one threatened community listed on the Tasmanian Nature Conservation Act 2002:

- *Melaleuca ericifolia* swamp forest (NME) - 1.14 ha

Threatened flora

The site does not contain any threatened flora species.

Threatened fauna

The threatened green and gold frog, *Litoria raniformis*, inhabits the site utilising the permanent wetland created by the dam and likely also uses the ephemeral habitat created by the drainage channels. While breeding may be attempted, it is unlikely an important breeding location in the context of the species. It may be important habitat in the context of Beauty Point. Impacts on both permanent and ephemeral habitat may impact the number and connectivity of the local population.

25 trees of significant size (>60 cm dbh) have been identified, some of which provide potential habitat for threatened fauna. These include potential nesting habitat for the Tasmanian masked owl, *Tyto novaehollandiae* subsp. *castanops* (1 tree with hollow of suitable size) and some potential foraging trees for the swift parrot, *Lathamus discolor* (2 mature *E. ovata*), although the significance of these trees is not considered high.

Although no presence or sign (e.g. scats, nests) were observed within the study area, it is possible that quolls, Tasmanian devil, and eastern barred bandicoot utilise habitat in the area.

Weeds

The study site contains four species of declared weed with varying levels of infestation:

- slender thistle, *Carduus pycnocephalus* (2 ha),
- blackberry, *Rubus fruticosus* (4.3 ha),
- boneseed, *Chrysanthemoides monilifera* (0.03 ha),
- Montpellier broom, *Genista monspessulana* (0.3 ha).

West Tamar is a Zone B municipality for the species, whereby control and prevention of spread is the principle aim for their management.

Rezoning

Most of the priority values are concentrated on the western side in land zoned Rural Resource which provides no protection for these values permitting land uses that could have an adverse impact. Rezoning of the land would provide an opportunity, through conditions, to ensure the ecological values are protected and enhanced.

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1 INTRODUCTION

1.1 Background

ERA Planning has requested a natural values assessment for a proposed rezoning of Lot 102 and subdivision of both lots on West Arm Road, Beauty Point (Property ID 2926923, Title Reference 156126/102 and 64199/1). The development may impact on native vegetation, with a subsequent risk that values protected under environmental legislation may be affected. As a result, North Barker Ecosystem Services (NBES) have been contracted to survey flora and fauna values on the site and identify potential constraints.

1.2 Study area

The study area is in Beauty Point in northern Tasmania (Figure 1). It is in the Tasmanian Northern Midlands bioregion¹ in the West Tamar City Council and is approximately 21.66 ha in extent. The site is zoned as General Residential and Rural Resource and is subject to the Biodiversity (E8) and Water Quality (E9) Codes Under the West Tamar Interim Planning Scheme 2013. The study area does not fall into the boundary of any identified bushfire-prone areas.

The site is at ~8 m asl and is relatively flat. There is large dam (1 ha) in the south-west of the Lot. The area is crossed by multiple drainage channels. The geology is undifferentiated Paleogene–Neogene non-marine sequences of gravel, sand, silt, clay, and regolith.

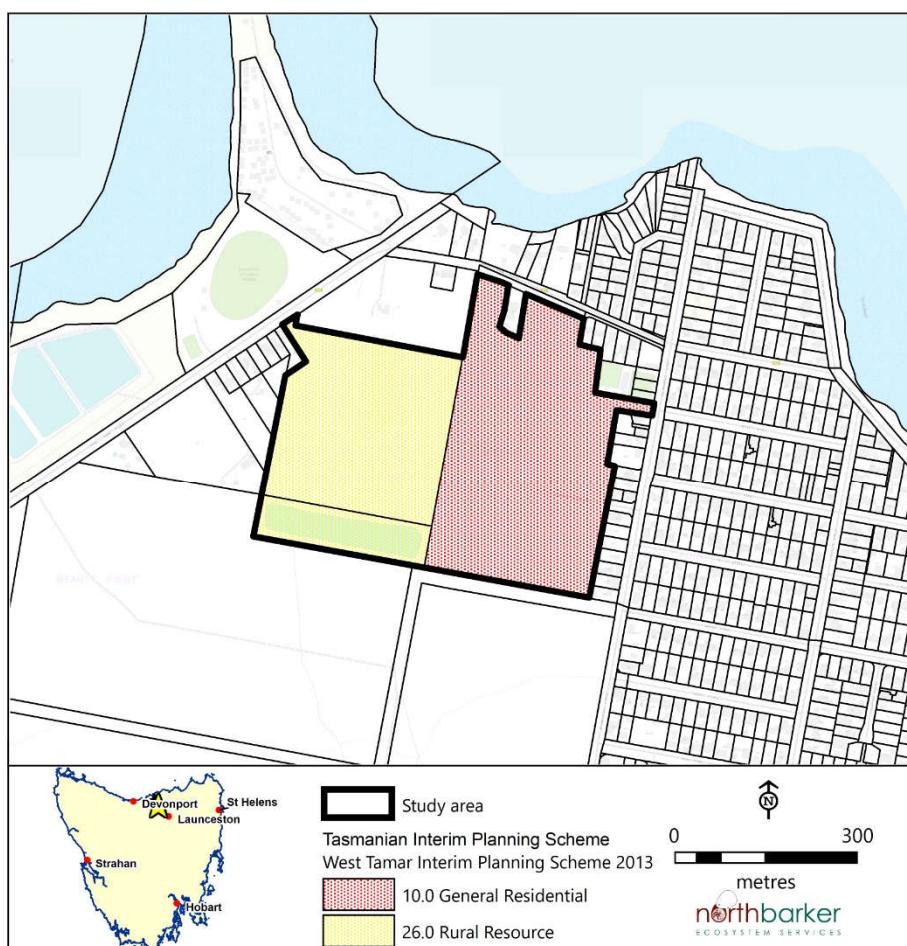


Figure 1: Location of study area and zoning²

¹ IBRA 7 (2012)

² West Tamar Interim Planning Scheme 2013

2 METHODS

The following sources were used for biological records for the region:

- TASVEG version 3.0 digital layer³,
- Natural Values Atlas (NVA) - all threatened species records within 5 km of the study area and threatened fauna considered possible to occur in suitable habitat⁴,
- EPBCA Matters of National Environmental Significance database - a 5 km buffer was used to search for potential values⁵.

2.1 Botanical Survey

This assessment was undertaken in accordance with the 'Guidelines for Natural Values Surveys – Terrestrial Development Proposals'⁶. Field work was carried out on the 9th and 10th of January 2020. Native vegetation was mapped in accordance with units defined in TASVEG 3.1⁷. Vascular plants were recorded in accordance with the current census of Tasmanian plants⁸. The site was mapped using a meandering area search technique⁹. Particular attention was given to habitats suitable for threatened species under the Tasmanian Threatened Species Protection Act 1995 (TSPA) and/or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBCA), and to 'declared' weeds under the Tasmanian Weed Management Act 1999 (WMA)¹⁰.

2.2 Fauna survey

The survey was carried out in accordance with DPIPWE's 'Guidelines for Natural Values Surveys – Terrestrial Development Proposals'¹¹. In addition, searches for threatened fauna included adherence to specific guidelines for:

- Tasmanian masked owl, *Tyto novaehollandiae* subsp. *castanops*¹²
- Green and gold frog, *Litoria raniformis*¹³
- Tasmanian devil, *Sarcophilus harrisii*¹⁴

The study area was searched for the potential presence, habitat, and sign (e.g. scats, tracks, nests), threatened fauna concurrently with the botanical survey.

Surveys for the green and gold frog, *Litoria raniformis*, were undertaken using complimentary methods. First, two aural and visual surveys were performed (one during daylight and another at night). These surveys follow DPIPWE guidelines, whereby each survey was conducted over 20 mins; with calling frogs identified to species, followed by audible playback to stimulate green and gold frogs, and then a visual survey and dip netting to locate tadpoles and frogs. This method is suggested to achieve 90% confidence (DPIPWE undated). The second method involved sampling of the water from each water body on the site, which is analysed for evidence of the species' DNA. Utilising this combination of methods provides a very high level of confidence in the results of our survey. Nocturnal surveys were conducted between 10pm

³ Kitchener and Harris (2013)

⁴ DPIPWE Natural Values Atlas Report (2020) report #: nvr_1_06-Jan-2020

⁵ Commonwealth of Australia, EPBC Protected Matters Search Tool Report (2020) report #: PMST_ZWHE01

⁶ DPIPWE (2015)

⁷ Kitchener and Harris (2013)

⁸ de Salas and Baker (2019)

⁹ Goff *et al.* (1982)

¹⁰ Tasmanian State Government 1995; Commonwealth of Australia 1999; Tasmanian State Government 1999

¹¹ DPIPWE (2015)

¹² Forest Practices Authority (2014) Fauna Technical Note No. 17: Identifying Masked owl habitat

¹³ DPIPWE 'Guidelines for designing surveys for the vulnerable Green and Gold Frog (*Litoria raniformis*)'

¹⁴ Natural and Cultural Heritage Division (2015) Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (*Sarcophilus harrisii*).

and 1am, with an overcast sky at 20 degrees. Diurnal survey was between 4 and 6, with fine weather and 25 degrees.

2.3 Limitations

Due to various limitations (e.g. variations in species presence and detectability), no biological survey can guarantee that all species will be recorded during a single visit. The field survey was undertaken in summer, so seasonal and ephemeral species/habitat may have been overlooked or are seasonally absent, including summer flowering species or winter ponds. However, we are confident the surveys sufficiently captured community level diversity. We compensate for survey limitations in part by considering all listed threatened species from data from the Tasmanian Natural Values Atlas (NVA)¹⁵. These data include records of all threatened species known to occur, or with the potential to occur, up to 5 km from the study area.

3 RESULTS - BIOLOGICAL VALUES

3.1 Vegetation communities

The following TASVEG communities / mapping units were recorded in the study area (Figure 2):

- NME – *Melaleuca ericifolia* swamp forest
- OAQ – Water
- FAG – modified agricultural land

NME is listed as a threatened community under the Tasmanian Nature Conservation Act 2002 and may be provided for under the Biodiversity (E8) Code of the West Tamar Interim Planning Scheme 2013.

AHF is provided for under the Water Quality (E9) Code of the West Tamar Interim Planning Scheme 2013. The Biodiversity (E8) Code may also apply as the habitat is utilised by threatened fauna.

3.1.1 NME – *Melaleuca ericifolia* swamp forest (1.14 ha, Plate 1)

Three unconnected patches of this community occur in the study area. *Melaleuca ericifolia* is the canopy dominant, with emergent white gum *Eucalyptus viminalis* and blackwood *Acacia melanoxylon*. Trees are generally in the 9m range, and in good health. Much of the understorey is covered in dense patches of blackberry, *Rubus fruticosus*, broken by some open ground areas. The ground cover is dominated by *Pteridium esculentum* and *Lomandra longifolia*.

None of this habitat has been correctly identified on the TasVeg database. The two eastern patches are listed as modified agricultural land (FAG) and the western patch as *Acacia dealbata* forest (NAD).

NME is listed as a threatened community under the Tasmanian Nature Conservation Act 2002 and may be provided for under the Biodiversity (E8) Code of the West Tamar Interim Planning Scheme 2013.

3.1.2 OAQ – Water (1.2 ha, Plate 2)

A large water body in the form of a constructed dam exists in the south-west of the study area. The margins support small band of native marginal species, notably spike rush *Eleocharis acuta*

¹⁵ DPIPWE Natural Values Atlas (2020), report #: nvr_1_06-Jan-2020

and occasional pin rushes *Juncus procerus* and *Juncus sarophorus*. These are not extensive enough to be mapped as a native vegetation community.

The periphery of the habitat is largely infested with various weeds including the declared blackberry and Montpellier broom plus various other naturalised weeds including the New Zealand cabbage tree *Cordyline australis* and stands of mature pine trees.

3.1.3 FAG – modified agricultural land (19.28 ha, Plate 3)

Much of the site is modified agricultural land, containing an assortment of introduced and native flora. Blackberry *Rubus fruticosus* agg. forms dense patches near the central shed and north wall of the dam, it is also widespread along fence lines and drainage channels. The modified agricultural land includes a number of larger eucalypts, wattles and blackwoods (≥ 60 cm dbh).

Alteration of the drainage channels will likely impact the wetland/water course ecosystems, flow regimes, and flood mitigations. Such alterations may trigger the Water Quality (E9) Code of the West Tamar Interim Planning Scheme 2013.



Plate 1: *Melaleuca ericifolia* swamp forest (NME).



Plate 2: Freshwater aquatic hermland (AHF).



Plate 3: Modified agricultural land (FAG).

3.2 Threatened Plants

Only 18 native vascular plant species were recorded in the study area (Appendix A). None of these species are listed threatened flora.

Twenty-five trees of significant size ($\geq 60\text{cm dbh}$) were found on site (Figure 2). The tree protection zones for these trees are shown in Figures 3 and 4.

No additional threatened species are known within 500 m of the study area¹⁶. However, several species have been recorded within 5000 m, as well as several species that are considered to have potential habitat in the region according to the EPBCA Protected Matters Search Tool. Each of these threatened flora species are presented in Table 1 in context of the suitability of habitat within the study area, and the likelihood of occurrence.

¹⁶ DPIPWE Natural Values Atlas (2020), report #: nvr_1_06-Jan-2020

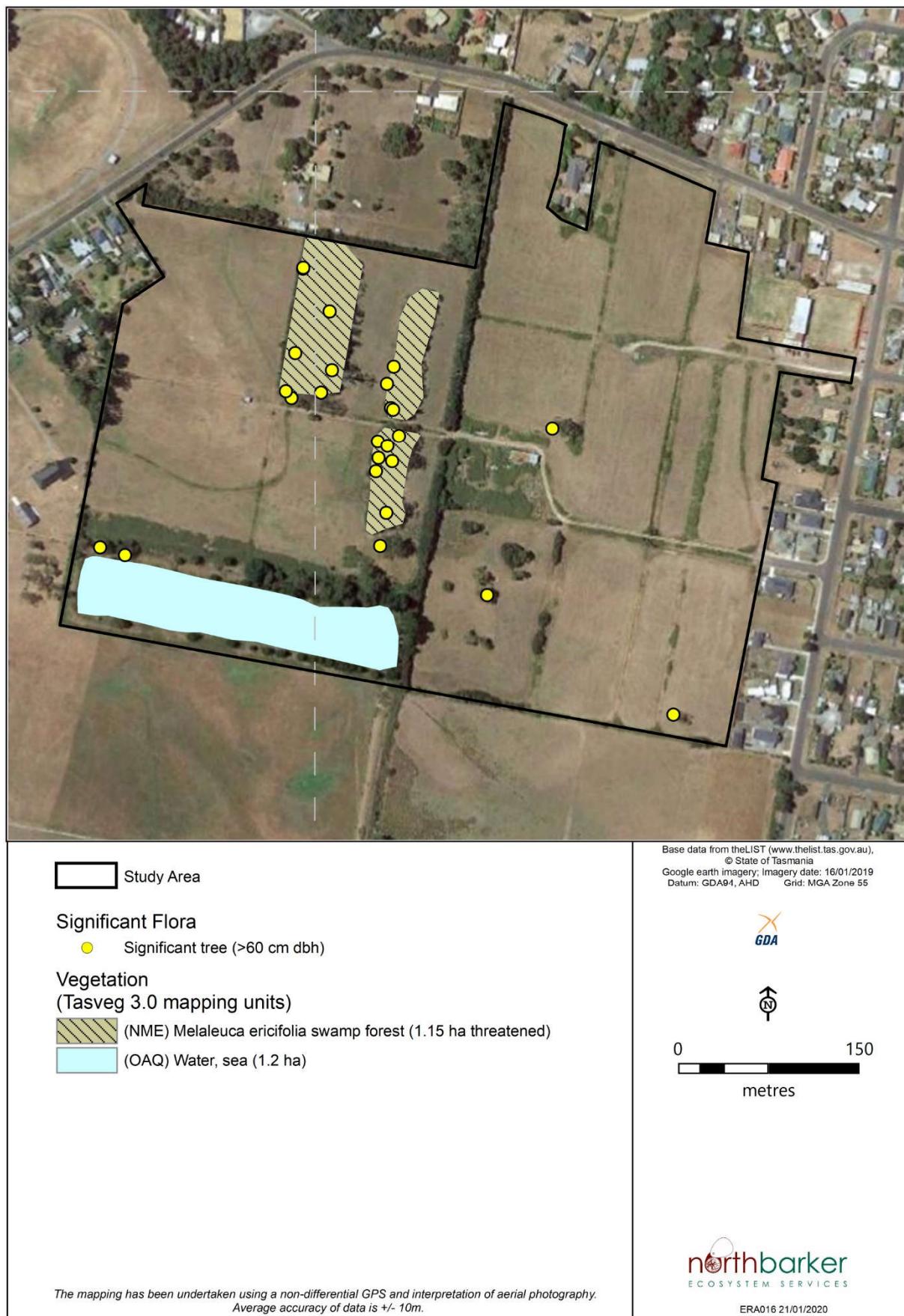


Figure 2: Significant flora and Vegetation Communities.



Figure 3: Significant trees and tree protection zones, western side of study area.



Figure 4: Significant trees and tree protection zones, eastern side of study area.

Table 1: Flora species of conservation significance known to occur, or which may potentially occur based on range boundaries, within a 5 km radius of the study areas¹⁷.

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
<i>Acacia ulicifolia</i> juniper wattle	Rare /-	Low	<i>Acacia ulicifolia</i> is found in sandy coastal heaths and open heathy forest and woodland in the north and east of Tasmania. Populations are often sparsely distributed, and most sites are near-coastal, but it can occasionally extend inland (up to 30 km). Limited suitable habitat on site and no records within 500 m of site.
<i>Aphelia gracilis</i> slender fanwort	Rare /-	None	<i>Aphelia gracilis</i> inhabits damp sandy ground and wet places in the Midlands and north-east of the State. It may readily colonise sites after fire or other disturbance. No suitable habitat on site and no records within 500 m of site.
<i>Asperula minima</i> mossy woodruff	Rare /-	Low	<i>Asperula minima</i> occurs in a range of vegetation types, the common factor being locally impeded drainage. Habitats include near-coastal swamp forests, <i>Melaleuca ericifolia</i> swamp forest, <i>Eucalyptus ovata</i> sedgy forest, "old pasture" regenerating to sedges and rushes, and firebreaks adjacent to clearfelled forest. Likely habitat infested with blackberry, reducing suitability. Limited suitable habitat and no records with 500 m of site.
<i>Bolboschoenus caldwellii</i> sea clubssedge	Rare /-	None	<i>Bolboschoenus caldwellii</i> is widespread in shallow, standing, sometimes brackish water, rooted in heavy black mud. Not present in drains or main waterbody. No records within 500 m of site.
<i>Brunonia australis</i> blue pincushion	Rare /-	None	<i>Brunonia australis</i> typically occurs in grassy woodlands and dry sclerophyll forests dominated by <i>Eucalyptus amygdalina</i> or less commonly <i>E. viminalis</i> or <i>E. obliqua</i> . Some smaller populations are found in heathy and shrubby dry forests. The species occurs on well-drained flats and gentle slopes between 10-350 metres above sea level. It is most commonly found on sandy and gravelly alluvial soils, with a particular preference for ironstone gravels. Populations found on dolerite are usually small. No suitable habitat in the study area and no records within 500 m of site.
<i>Caladenia caudata</i> tailed spider-orchid	Vulnerable / VULNERABLE	None	<i>Caladenia caudata</i> has highly variable habitat, which includes the central north: <i>Eucalyptus obliqua</i> heathy forest on low undulating hills; the north-east: <i>E. globulus</i> grassy/heathy coastal forest, <i>E. amygdalina</i> heathy woodland and forest, <i>Allocasuarina</i> woodland; and the south-east: <i>E. amygdalina</i> forest and woodland on sandstone, coastal <i>E. viminalis</i> forest on deep sands. Substrates vary from dolerite to sandstone to granite, with soils ranging from deep windblown sands, sands derived from sandstone and well-developed clay loams developed from dolerite. A

¹⁷ DPIPWE Natural Values Atlas Report (2020) report #: nvr_1_06-Jan-2020; Commonwealth of Australia, EPBC Protected Matters Search Tool Report (2020) report #: PMST_ZWHE01

¹⁸ Tasmanian Threatened Species Protection Act 1995 and Commonwealth Environmental Protection and Biodiversity Conservation Act 1999

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
			high degree of insolation is typical of many sites. Not recorded within 500 m. The habitat on site is sub optimal for this species and it is unlikely to occur.
<i>Caladenia congesta</i> blacktongue finger-orchid	Endangered /-	None	<i>Caladenia congesta</i> occurs in northern Tasmania, occurring sporadically in heathland, heathy woodland and open forest, usually on dry sites and amongst grass tussocks on slopes. Soils are sandy and loamy and often gravelly. No suitable habitat on site and no records within 500 m of site.
<i>Caladenia lindleyana</i> lindleys spider-orchid	Endangered /CRITICALLY ENDANGERED	None	<i>Caladenia lindleyana</i> occurs in lowland heathy/grassy eucalypt forest and woodland in the Midlands and open shrubby forest in the north-east. There have been very few recent records. No suitable habitat and no records within 500 m of site.
<i>Caladenia patersonii</i> patersons spider-orchid	Vulnerable /-	None	<i>Caladenia patersonii</i> favours coastal and near-coastal areas in northern Tasmania, growing in low shrubby heathland and heathy forest/woodland in moist to well-drained sandy and clay loam. No suitable habitat and no records within 500 m of site.
<i>Chorizandra enodis</i> black bristlesedge	Endangered /-	Very Low	<i>Chorizandra enodis</i> is found in damp sandy heath around the Low Head region but can also extend to slashed roadside margins (ex-wet heathland and swamp forest) and on tracks through <i>Melaleuca ericifolia</i> swamp forest (and occasionally other poorly-drained sites). No observations during surveys and no records within 500 m of site.
<i>Coopernookia barbata</i> purple native-primrose	Extinct /-	None	Extinct in Tasmania. No prior records within 500 m of site.
<i>Dianella amoena</i> matted flax-lily	Rare /ENDANGERED	None	<i>Dianella amoena</i> occurs mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands. No suitable habitat was found in the study area and no records within 500 m of site.
<i>Deyeuxia minor</i> small bentgrass	Rare /-	Low	<i>Deyeuxia minor</i> inhabits open eucalypt forests or the margins of wet sclerophyll forest in the southwest, south and north-east of the State. Limited suitable habitat in the study area and no records within 500 m of site.
<i>Epacris exserta</i> south esk heath	Endangered /ENDANGERED	None	<i>Epacris exserta</i> occurs along the lower reaches of the South Esk, North Esk and Supply rivers. It is a strictly riparian species that grows in areas subject to periodic inundation, mainly on alluvium amongst dolerite boulders within dense riparian scrub, and occasionally in open rocky sites. It has been recorded from 10-310 m above sea level. No suitable habitat in the study area and no records within 500 m of site.
<i>Epacris virgata</i> (Beaconsfield) twiggy heath	Vulnerable /ENDANGERED	None	<i>Epacris virgata</i> (Beaconsfield) is restricted to a small area of undulating terrain in the foothills of the Dazzler Range near Beaconsfield, where it occurs on serpentinite-derived soils in dry sclerophyll forest at an elevation of 40-80 m above sea level. No suitable habitat and no records within 500 m of site.
<i>Euphrasia scabra</i> yellow eyebright	Endangered /-	None	<i>Euphrasia scabra</i> occurs in moist herb/sedge communities in grassy leads in marshes and in drier open grassy areas at the headwaters of creeks. Its habitat is associated with gaps created by

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
			grazing, flooding or other disturbance. It has been recorded from scattered sites throughout lowland areas of Tasmania, including the north-west coast, central north, Midlands, Eastern Tiers and around Hobart. However, it is considered to be extinct from many of these sites, and populations are low and transient in areas (Eastern Tiers and Hobart) with the greatest probability of still supporting the species. No observations during surveys and no records within 500 m of site.
<i>Glycine microphylla</i> small-leaf glycine	Vulnerable /-	None	<i>Glycine microphylla</i> occurs in dry to dampish sclerophyll forest and woodland in the north and east of the State. No suitable habitat and no records within 500 m of site.
<i>Lepidium hyssopifolium</i> pepperweed	Endangered /ENDANGERED	Low	The native habitat of <i>Lepidium hyssopifolium</i> is the growth suppression zone beneath large trees in grassy woodlands and grasslands (e.g. over-mature black wattles and isolated eucalypts in rough pasture). <i>Lepidium hyssopifolium</i> is now found primarily under large exotic trees on roadsides and home yards on farms. It occurs in the eastern part of Tasmania between sea-level to 500 metres above sea level in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. It can also occur on frequently slashed grassy/weedy roadside verges where shade trees are absent. The study area provided limited habitat. No records within 500 m of site.
<i>Lepidosperma viscidum</i> sticky sword-sedge	Rare /-	None	<i>Lepidosperma viscidum</i> occurs in a range of heathland to heathy/shrubby woodland habitats often dominated by species of <i>Allocasuarina</i> (sheoak) on a range of substrates. No suitable habitat and no records within 500 m of site.
<i>Limonium australe</i> var. <i>australe</i> yellow sea-lavender	Rare /-	None	<i>Limonium australe</i> var. <i>australe</i> occurs in succulent or graminoid saltmarsh close to the high-water mark, typically near small brackish streams. No suitable habitat and no records within 500 m of site.
<i>Lotus australis</i> australian trefoil	Rare /-	None	<i>Lotus australis</i> is found mainly in coastal areas around the State within <i>Poa</i> tussock grassland, low coastal shrubbery and dunes. There are some inland records and on the mainland the species is widespread in coastal and non-coastal areas. No suitable habitat and no records within 500 m of site.
<i>Microtidium atratum</i> yellow onion-orchid	Rare /-	Low	<i>Microtidium atratum</i> occurs in habitats subject to periodic inundation such as swamps, depressions and soaks. The base of the plants is usually immersed in water and plants can be wholly submerged in wet years. <i>Microtidium atratum</i> has been recorded from herbfield, sedgeland, grassland and heathland on peats and sandy loams. It has also been recorded from roadside drains and winter-wet pastures. No observations during surveys and no records within 500 m of site.
<i>Pimelea flava</i> subsp. <i>flava</i> yellow riceflower	Rare /-	Low	<i>Pimelea flava</i> subsp. <i>flava</i> occurs in wet and dry sclerophyll forest and woodland, and extends into hardwood and softwood plantations. It often occurs abundantly on disturbed sites such as in logged forest, firebreaks, powerline easements and road batters. Limited suitable habitat and no records within 500 m of site.

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
<i>Prasophyllum apoxychilum</i> tapered leek-orchid	Vulnerable /ENDANGERED	None	<i>Prasophyllum apoxychilum</i> is restricted to eastern and north-eastern Tasmania where it occurs in coastal heathland or grassy and scrubby open eucalypt forest on sandy and clay loams, often among rocks. It occurs at a range of elevations and seems to be strongly associated with dolerite in the east and south-east of its range. No suitable habitat and no records within 500 m of site.
<i>Pterostylis cucullata</i> subsp. <i>cucullata</i> leafy greenhood	Endangered /VULNERABLE	None	<i>Pterostylis cucullata</i> subsp. <i>cucullata</i> is known from near-coastal areas in the north of the State where it occurs on calcareous dunes and sand-sheets, within closed scrubs dominated by either <i>Leptospermum laevigatum</i> (coast teatree) or <i>Beyeria lechenaultii</i> var. <i>latifolia</i> (pale turpentine-bush). The sites are typically sheltered, facing south or south-easterly to westerly, with seasonally damp but well-drained humus-rich sandy loams, often with moss and deep leaf litter. No suitable habitat and no records within 500 m of site.
<i>Pultenaea mollis</i> soft bushpea	Vulnerable /-	None	<i>Pultenaea mollis</i> occurs in heathy and shrubby forest and woodland. No observations during surveys and no records within 500 m of site.
<i>Scutellaria humilis</i> dwarf skullcap	Rare /-	None	<i>Scutellaria humilis</i> is found in moist, shady places in the north-east and south-east of the State. Recent sites have been associated with rocky slopes and rises. No suitable habitat in the study area and no records within 500 m of site.
<i>Senecio psilocarpus</i> swamp fireweed	Endangered /VULNERABLE	Low	<i>Senecio psilocarpus</i> is known from six widely scattered sites in the northern half of the State, including King and Flinders islands. It occurs in swampy habitats including broad valley floors associated with rivers, edges of farm dams amongst low-lying grazing/cropping ground, herb-rich native grassland in a broad swale between stable sand dunes, adjacent to wetlands in native grassland, herbaceous marshland and low-lying lagoon systems. Some suitable habitat in the study area, but no sightings or records from within 500 m of site.
<i>Senecio squarrosus</i> leafy fireweed	Rare /-	Low	<i>Senecio squarrosus</i> occurs in a wide variety of habitats. One form occurs predominantly in lowland damp tussock grasslands. The more widespread and common form occurs mainly in dry forests (often grassy) but extends to wet forests and other vegetation types. Limited suitable habitat and no records within 500 m of site.
<i>Siloxerus multiflorus</i> small wrinklewort	Rare /-	Low	<i>Siloxerus multiflorus</i> occurs in a range of somewhat exposed lowland habitats, including bare soil and rocks amongst dense windswept coastal shrubbery to rock outcrops and bare ground associated with native grassland, grassy woodland and forest. Limited suitable habitat for this species and no records within 500 m of site.
<i>Solanum opacum</i> greenberry nightshade	Endangered /-	Low	<i>Solanum opacum</i> is known from a variety of habitats. On King Island, the species occurs in poorly-drained tall <i>Melaleuca ericifolia</i> swamp forest. Similarly, on Inner Sister Island, it occurs in <i>Melaleuca ericifolia</i> / <i>Leptospermum laevigatum</i> scrub on sandy loams in a small gully associated with an ephemeral stream. On Prime Seal Island, the species was recorded from open shrubberies on granite outcrops. The habitat of the site from Harford is simply reported as a "rocky hilltop". Some

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
			suitable habitat in the study area, but no sightings or records from within 500 m of site and potential habitat is badly degraded.
<i>Spyridium obcordatum</i> creeping dustymiller	Vulnerable /VULNERABLE	None	<i>Spyridium obcordatum</i> is restricted to the Central North Coast. In hills to the east of the Dazzler Range near Beaconsfield, it primarily occurs amongst serpentine outcrops in dry open forest or woodland dominated by <i>Eucalyptus amygdalina</i> . In coastal areas from Greens Beach to Hawley Beach at Port Sorell, it occurs on sandstone and dolerite in <i>Allocasuarina verticillata</i> woodland and <i>Allocasuarina monilifera</i> - <i>Leptospermum scoparium</i> heath. The species is often associated with outcropping rocks, exposed rock plates and rocky ground. It occurs at altitudes less than 180 m above sea level. It is most abundant in disturbed areas, as it can proliferate from soil-stored seed after disturbance. No suitable habitat in the study area and no records within 500 m of site.
<i>Tetrapetra ciliata</i> northern pinkbells	Rare /-	Low	<i>Tetrapetra ciliata</i> occurs from near-coastal areas in the State's north at elevations below 70 m, ranging from Rocky Cape in the west to Tomahawk/Boobyalla in the east, and an outlying site near Liffey about 60 km inland and 320 m above sea level. It has been recorded from heathlands and heathy woodlands on sandy well-drained soils, the woodland dominated by <i>Eucalyptus amygdalina</i> . Limited suitable habitat for this species and no records within 500 m of site.
<i>Tetrapetra gunnii</i> shy pinkbells	Endangered /CRITICALLY ENDANGERED	None	<i>Tetrapetra gunnii</i> is restricted to serpentine outcrops in the foothills of the Dazzler Range near Beaconsfield, where it occurs in relatively open areas dominated by <i>Eucalyptus amygdalina</i> and <i>Eucalyptus ovata</i> over a heathy understorey, or in <i>Allocasuarina littoralis</i> (black sheoak) woodland with a sparse understorey. Some sites are associated with disturbance induced openness from mining and timber harvesting activities. No suitable habitat for this species and no records within 500 m of site.
<i>Theelymitra antennifera</i> rabbit ears	Endangered /-	None	<i>Theelymitra antennifera</i> is known from several locations along the north and north-east coast, occurring in heathland on poorly- to moderately-drained peaty and sandy soils, sometimes in mossy skeletal soils on granite bedrock. No suitable habitat for this species and no records within 500 m of site.
<i>Theelymitra bracteata</i> leafy sun-orchid	Endangered /-	None	<i>Theelymitra bracteata</i> occurs in open grassy and heathy forest/woodland on mudstone and sandstone. At Rosny Hill site, <i>Theelymitra bracteata</i> is most abundant on the top of the hill on open ground with dense exotic grasses and sparse in a remnant patch of native grass close to <i>Allocasuarina verticillata</i> woodland. At Conningham, the species occurs in a canopy gap created by a rough track amongst heathy <i>Eucalyptus amygdalina</i> forest on Triassic sandstone. No suitable habitat for this species and no records within 500 m of site.
<i>Theelymitra holmesii</i> bluestar sun-orchid	Rare /-	None	<i>Theelymitra holmesii</i> occurs in moist areas of grassland, heathy open forest and heathland in water-retentive soils such as clay loam and peaty loam, in soaks, beside streams and around swamp margins, usually below about 200 m above sea level. No suitable habitat for this species and no records within 500 m of site.

Species	Status TSPA / EPBCA¹⁸	Potential to occur in study area	Observations and preferred habitat
<i>Veronica plebeia</i> trailing speedwell	Rare /-	Very Low	<i>Veronica plebeia</i> typically occurs in dry to damp sclerophyll forest dominated by <i>Eucalyptus amygdalina</i> on dolerite or Tertiary sediments but can also occur in <i>Eucalyptus ovata</i> grassy woodland/forest and <i>Melaleuca ericifolia</i> swamp forest. Possible, but the dense sward of blackberry in the riparian habitat reduces the chances of this species occurring. Some suitable habitat in the study area, but no sightings or records from within 500 m of site.
<i>Xanthorrhoea arenaria</i> sand grasstree	Vulnerable /VULNERABLE	None	<i>Xanthorrhoea arenaria</i> is restricted to coastal areas from Bridport in the north-east to Coles Bay on the East Coast, where it occurs in coastal sandy heathland, extending into heathy woodland and forest, mainly dominated by <i>Eucalyptus amygdalina</i> . No suitable habitat for this species and no records within 500 m of site.
<i>Xanthorrhoea bracteata</i> shiny grasstree	Vulnerable /ENDANGERED	None	<i>Xanthorrhoea bracteata</i> is restricted to coastal areas from the Asbestos Range to Waterhouse Point in the north-east, where it occurs in sandy soils, often acid and waterlogged, in coastal heathland, extending into heathy woodland and forest, mainly dominated by <i>Eucalyptus amygdalina</i> . No suitable habitat in the study area, but no sightings or records from within 500 m of site.
<i>Xerochrysum palustre</i> swamp everlasting	Vulnerable /VULNERABLE	Very Low	<i>Xerochrysum palustre</i> has a scattered distribution with populations in the north-east, east coast, Central Highlands and Midlands, all below about 700 m elevation. It occurs in wetlands, grassy to sedgy wet heathlands and extends to associated heathy <i>Eucalyptus ovata</i> woodlands. Sites are usually inundated for part of the year. Limited suitable habitat for this species and no records within 500 m of site.

3.3 Declared weeds

Four species of declared weeds occur in the study area (Plate 4 and Figures 5 and 6):

- slender thistle, *Carduus pycnocephalus* (2 ha),
- blackberry, *Rubus fruticosus* (4.3 ha),
- boneseed, *Chrysanthemoides monilifera* (0.03 ha),
- Montpellier broom, *Genista monspessulana* (0.3 ha).

Slender thistle occurs as a sparse infestation in one area, with some patches of higher concentrations towards the edges of the paddock. Blackberry has invaded much of the site, particularly around fences, drainage lines, and under NME forests. Boneseed infests a single area at the north-west end of the dam. Montpellier broom is scattered across the western boundary fence and on the northern side of the dam.



Plate 4: Declared weeds: Montpellier broom (*Genista monspessulana*), blackberry (*Rubus fruticosus*)

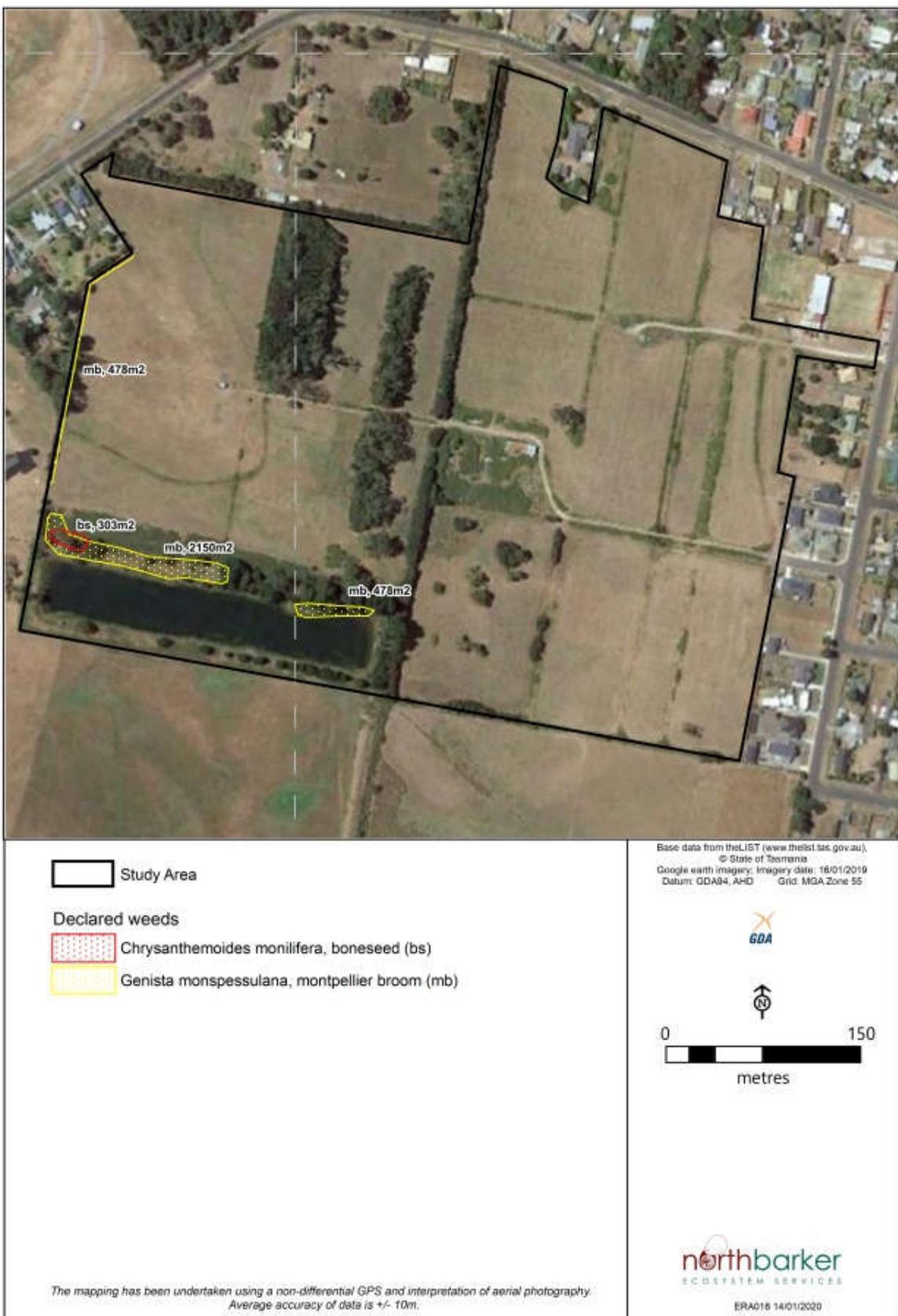
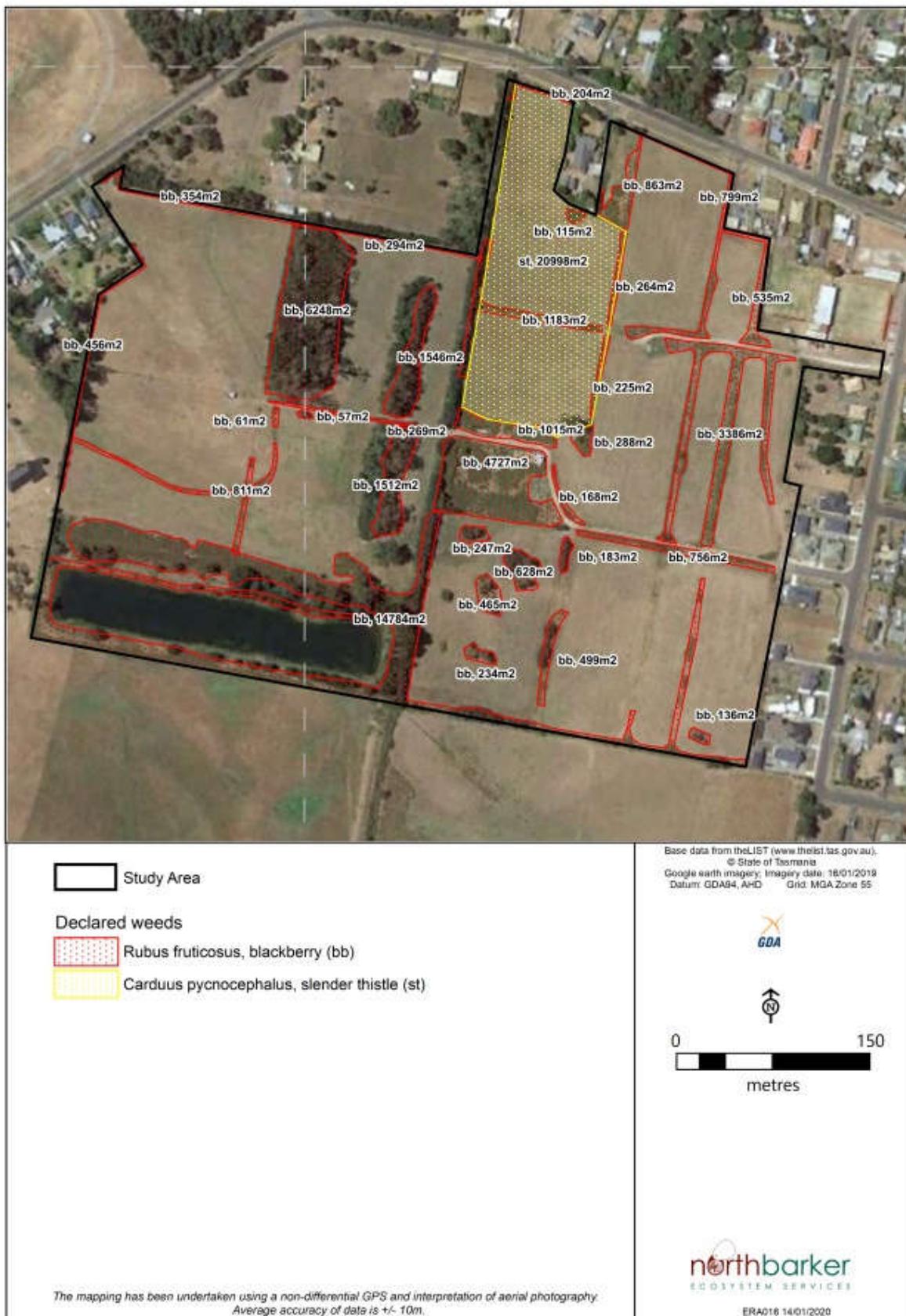


Figure 5: Distribution of declared weeds in the study area, boneseed and Montpellier broom.



The mapping has been undertaken using a non-differential GPS and interpretation of aerial photography.
Average accuracy of data is +/- 10m.

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Figure 6: Distribution of declared weeds in the study area, blackberry and slender thistle.

3.4 Threatened Fauna and Habitat

One threatened fauna species was found on the site; green and gold frog, *Litoria raniformis* (Plate 5). Two individual mature adults were observed in the dam margins. The green and gold frog is listed as Vulnerable under both the EPBCA and TSPA. Habitat for this species covers the dam and its margins (1.2 ha; Plate 6), with the potential for the species to utilise all the ephemeral drains during wet conditions (Figure 7). The species may also use the surrounding pasture and drains to travel between other suitable habitat. While the species may attempt to breed here it was not utilising the area for breeding during the field survey (no tadpoles or froglets were apparent). The dam may not be ideal for breeding, with an abundance of predators present in the form of fish and eels. It is possible that breeding may be attempted in any drains that contain water during the breeding season, as a means to avoid predation.

Two mature *E. ovata* trees were located on site, which are one of the preferred food trees for swift parrot, *Lathamus discolor* (Figure 7). No signs of swift parrots were observed during the field survey or have been reported from the area. The location is well outside known breeding range for the species although may be within the migration route.

A single tree hollow was found in a large *E. viminalis* (112 cm dbh) of suitable potential dimensions for Tasmanian masked owl, *Tyto novaehollandiae* subsp. *castanops*¹⁹ (Plate 7 and Figure 7). The hollow did not show signs of use by owls; no feathers, regurgitation, or wash present. An isolated paddock tree such as this is unlikely to be favoured for nesting.

In Table 2, all species known from within a 5 km radius (or considered likely to have potential habitat), as identified in the Natural Values Atlas and EPBC Protected Matters Search Tool reports, are discussed²⁰. Coastal, marine, cave-dwelling and wetland species (e.g. Australasian Bittern, Eastern Curlew) included in these reports are excluded from the table as they have no chance of occurring in the study area.

¹⁹ Forest Practices Authority (2014)

²⁰ DPIPWE Natural Values Atlas Report (2020) report #: nvr_1_06-Jan-2020; Commonwealth of Australia, EPBC Protected Matters Search Tool Report (2020) report #: PMST_ZWHE01



Plate 5: Green and gold frog captured on site during field surveys (January 2020).



Plate 6: Emergent and aquatic vegetation surrounding dam provide habitat for green and gold frogs

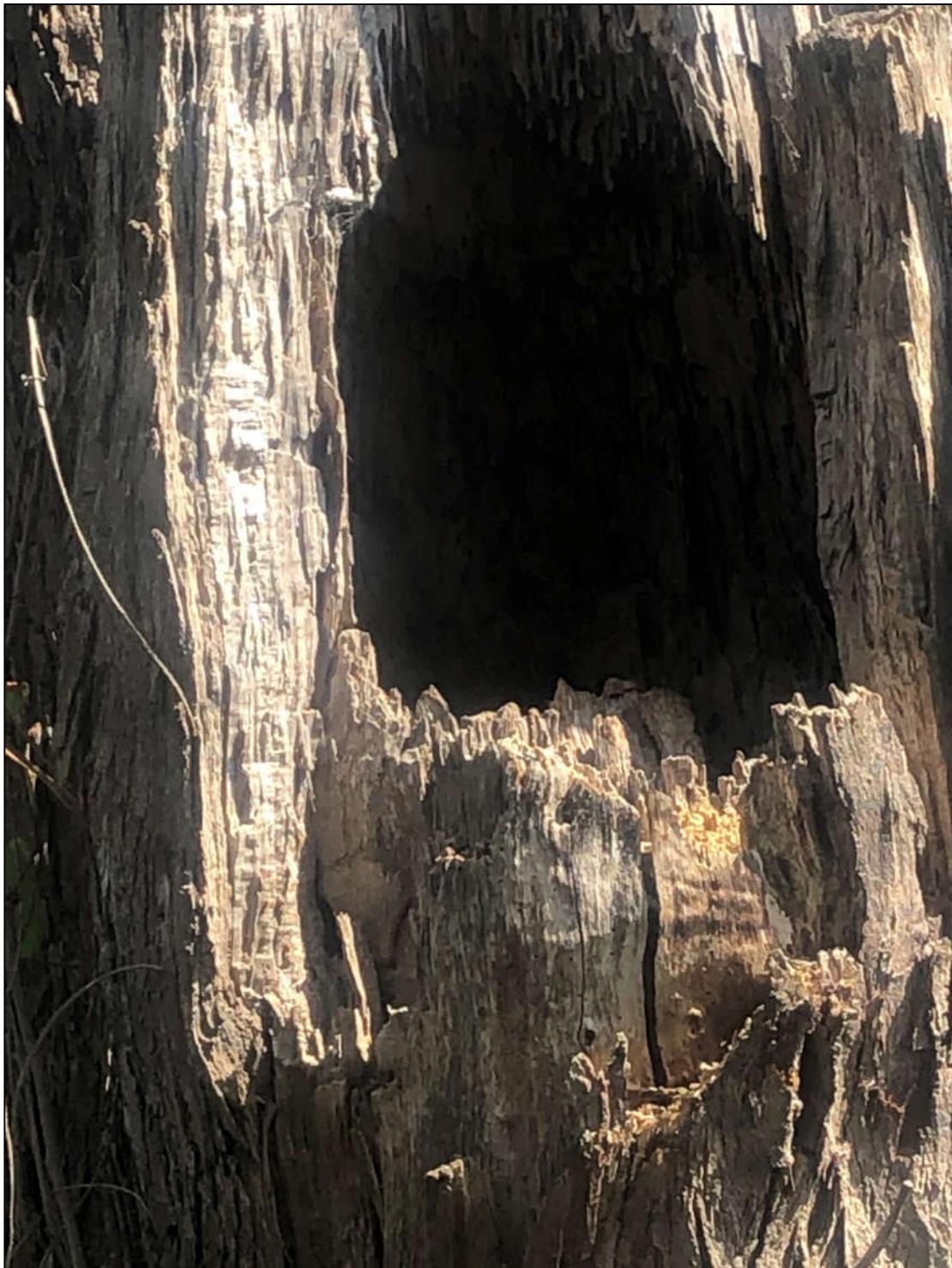


Plate 7: Tree hollow of suitable size for Tasmanian masked owl

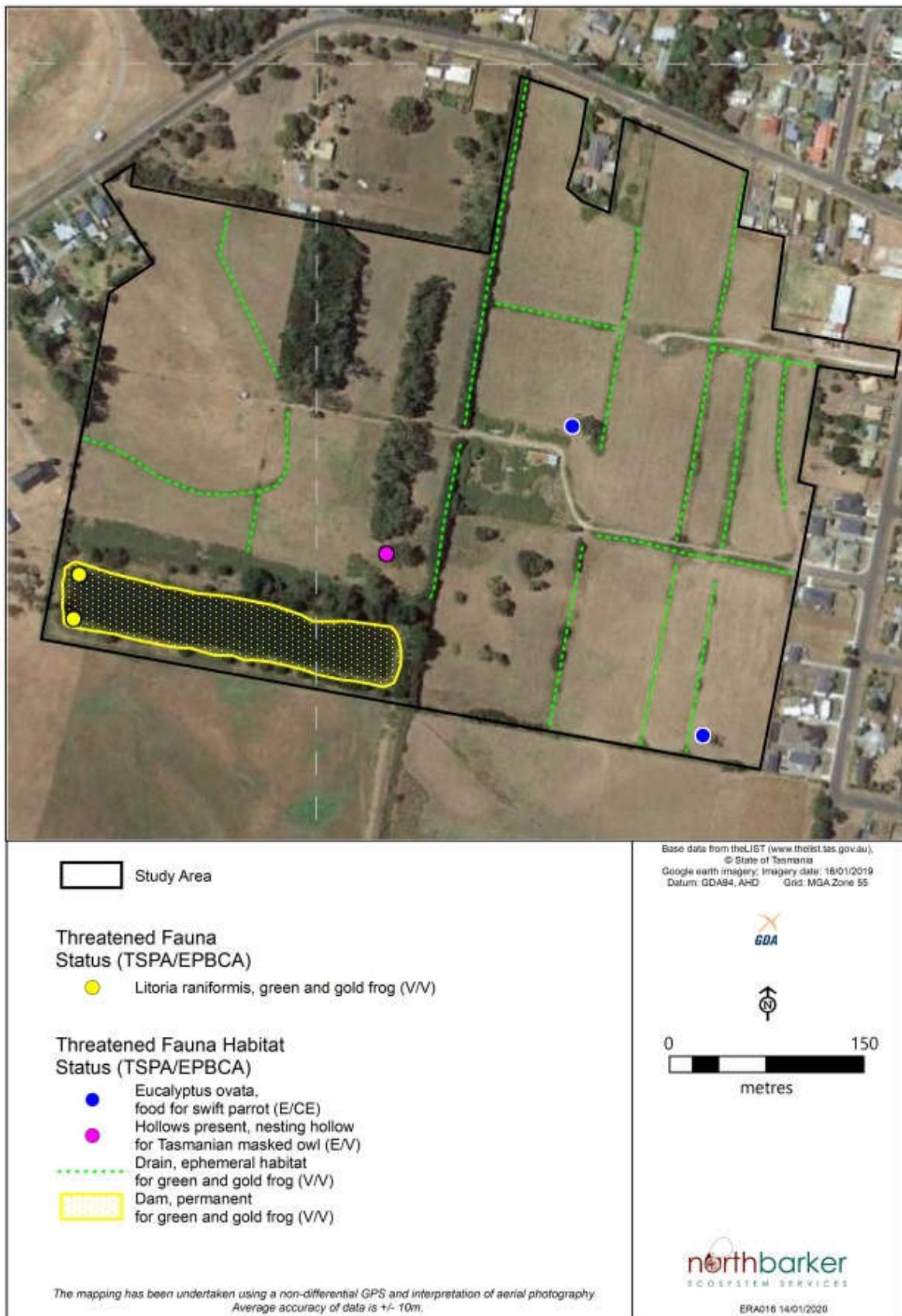


Figure 7: Threatened fauna and habitat within the study area.

Table 2: Fauna species of conservation significance previously recorded, or which may potentially occur, within 5 km of the study area²¹

Species	Status²² TSPA/EPBCA	Potential to occur	Observations and preferred habitat²³
BIRDS			
<i>Accipiter novaehollandiae</i> grey goshawk	Endangered /-	Moderate	Not recorded within 5 km of site. Nesting habitat potential in the study area is very low. The species may forage in the area on occasion.
<i>Aquila audax</i> subsp. <i>fleayi</i> Tasmanian wedge-tailed eagle	Endangered / ENDANGERED	Low	Recorded within 5 km of site. No nests were observed in the study area and the aspect of the site is sub-optimal for nesting trees. The species may forage in the area on occasion.
<i>Ceyx azureus</i> <i>diemenensis</i> Tasmanian azure kingfisher	Endangered / ENDANGERED	Low	No records within 5 km of site. The Tasmanian subspecies of the azure kingfisher occurs in shady and overhanging forest vegetation along the forested margins of major rivers on the south, west, north and northwest coasts. The watercourses in the study area are not sufficient to offer foraging or nesting habitat for this species.
<i>Haliaeetus leucogaster</i> white-bellied sea-eagle	Vulnerable /-	Low	Recorded within 5 km of site. Occurs in coastal habitats and large inland waterways. No nests were observed in the study area. Forages in coastal and wetland environments.
<i>Hirundapus caudacutus</i> white-throated needletail	- /VULNERABLE	Low	This species is infrequently recorded in Tasmania and although it may sporadically occur over the area it is an aerial feeder and the impact on this species is considered negligible. Not recorded within 5 km of site.
<i>Lathamus discolor</i> swift parrot	Endangered / CRITICALLY ENDANGERED	Low	Not recorded within 5 km of the study area. However, the study area is not within the core range of this species. Also, this species' preferred foraging habitat tree - blue gum (<i>Eucalyptus globulus</i>) - is not present, and black gum (<i>Eucalyptus ovata</i>) – another foraging tree - is very sparse in a small area in the study area (Figure 7). Breeding is not known from the area and based on the lack of observations highly unlikely to occur.

²¹ DPIPWE Natural Values Atlas Report (2020) report #: nvr_1_06-Jan-2020; Commonwealth of Australia, EPBC Protected Matters Search Tool Report (2020) report #: PMST_ZWHE01

²² Tasmanian Threatened Species Protection Act 1995 and Commonwealth Environmental Protection and Biodiversity Conservation Act 1999, which includes ROKAMBA, JAMBA, CAMBA and Migratory species

²³ Bryant & Jackson 1999

Species	Status²² TSPA/EPBCA	Potential to occur	Observations and preferred habitat²³
<i>Myiagra cyanoleuca</i> satin flycatcher	- /Migratory	Low	A summer migrant that is widespread in Tasmanian forested habitats. Is sensitive to fragmentation and canopy thinning. Optimal habitat is considered to contain old growth elements and occur along water courses, but the species is not entirely absent from habitats lacking these features. May to occur in the general area at low frequency. Highly unlikely to be meaningfully impacted by a proposal of this nature. Not recorded within 5 km of site.
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i> Tasmanian masked owl	Endangered /VULNERABLE	Moderate	Requires a mosaic of forest and open areas for foraging and large old-growth hollow-bearing white gum trees for nesting. One potentially suitable nesting tree present and may hunt over study area. Not recorded within 5 km of site.
MAMMALS			
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i> spotted-tail quoll	Rare /VULNERABLE	Low	Multiple sightings within 5 km of site. No sights of scats or tracks, but suitable habitat is widespread at the site.
<i>Dasyurus viverrinus</i> eastern quoll	- / ENDANGERED	Low	Single sightings within 5 km of site. No sights of scats or tracks, but suitable habitat is widespread at the site.
<i>Perameles gunnii</i> eastern barred bandicoot	- /VULNERABLE	Moderate	Prior records of species within 5 km of site. Much of the site provides suitable habitat for this species, which can survive in a peri-urban environment.
<i>Pseudomys novaehollandiae</i> new holland mouse	Endangered /VULNERABLE	Low	No records within 5 km of site. Some potentially suitable habitat.
<i>Sarcophilus harrisii</i> Tasmanian devil	Endangered / ENDANGERED	Moderate	Potentially utilise the site, but no dens found and unlikely denning habitat. Two individuals recorded along the road within 200 m of site.
INVERTEBRATES			
<i>Antipodia chaostola</i> chaostola skipper	Endangered / ENDANGERED	Low	No records within 5 km of site. No records of <i>Gahnia radula</i> , which is the larval host plant for this species.

Species	Status²² TSPA/EPBCA	Potential to occur	Observations and preferred habitat²³
<i>Engaeus granulatus</i> central north burrowing crayfish	Endangered / ENDANGERED	Low	Edge of range boundary, with no records within 5 km of site. Species inhabits seeps, wetlands, and stream backs in relatively undisturbed habitats. No signs of characteristic chimneys, and little undisturbed habitat on site.
AMPHIBIANS			
<i>Limnodynastes peroni</i> striped marsh frog	Endangered /-	Low	Some potential habitat on site, but unlikely to provide a highly suitable breeding area. No records within 5 km of site.
<i>Litoria raniformis</i> green and golden frog	Vulnerable/ VULNERABLE	High	Observed during field study. Site likely contains a number of individuals and provides a corridor for travel between other waterbodies, particularly through the drainage channels. Unlikely to provide a highly suitable breeding area
REPTILES			
<i>Pseudemoia pagenstecheri</i> tussock skink	Vulnerable /-	Low	No records within 5 km of site. Inhabits tussock grasslands. No suitable habitat in the study area.
FISH			
<i>Galaxiella pusilla</i> eastern dwarf galaxias	Vulnerable/ VULNERABLE	Low	No records within 5 km of site. Lives in still or slow-flowing waters such as ponds, swamps, drains and backwaters of streams, often containing dense aquatic or emergent plants. Some potential habitat, but likely unsuitable due to lack of dense aquatic/emergent plants.
<i>Prototroctes maraena</i> Australian grayling	Vulnerable/ VULNERABLE	Low	Waterbodies and drainages on site are not connected to the marine environment and so will not provide habitat for this diadromous species. Included based upon range boundaries. No records within 5 km of site.

4 IMPACT ASSESSMENT and MITIGATION

The study area contains several natural values deserving mitigation measures. While we understand that this project aims to establish a residential subdivision across the site, the details of this have not been provided. The following discussion considers significant values and how impacts can be mitigated.

4.1 Vegetation communities

The study area contains a threatened plant community, *Melaleuca ericifolia* swamp forest (NME). Although only represented by small patches of low diversity, should these be retained then they could be managed to improve their condition and long-term viability.

Indirect impacts on vegetation can be minimised by clearly defining the extent of clearance required for the project and avoiding impact outside of these areas.

4.2 Threatened plants

No threatened plant species will be impacted. The likelihood of their occurrence is remote.

4.3 Threatened fauna habitat

Mitigation of impacts on the threatened fauna habitat found on site are discussed below, with reference to each species individually. While no signs were found, it is possible that quolls, Tasmanian devil, and eastern-barred bandicoot periodically utilise habitat in the study area.

4.3.1 Green and gold frog (vu/VU)

This species will be impacted through any actions that cause the loss or degradation of the permanent wetland and ephemeral drain systems. Retention of only the permanent habitat may reduce the suitability of the area, as the frogs would likely use the ephemeral wetlands for breeding as they contain less predators. Conversely, retention of the drains only, would remove the permanent habitat – which would conceivably reduce the number and connectivity of the local population. Future projects should avoid the loss of both the permanent habitat (dam and its emergent/aquatic vegetation) and the ephemeral habitat (drains and their vegetation covers). The quality of habitat could be improved through the implementation of measures to retain water levels in the dam, planting of native emergent/aquatic vegetation, and targeted control of weeds and predators (introduced fish). Any losses to ephemeral drains could be offset by improving the habitat value of the permanent wetland through the construction of small side channels of varying depth. A green and gold frog habitat enhancement plan could develop details for the design of the improved wetland,

Any work plans within the site should also have a chytrid management plan, which follows the DPIPWE guidelines and best practices²⁴. A chytrid management plan should, at a minimum, stipulate actions to prevent the spread of the chytrid fungus and monitor the health and population of frogs within the study area. Development and enacting such a plan should be considered due diligence.

4.3.2 Tasmanian masked owl (e/VU)

This species may forage in the area, and a single tree hollow, potentially suitable for this species was located in a *Eucalyptus viminalis* in the east of the study area. Mitigation measures for this species should include retention of the hollow-bearing tree along with other significant trees

²⁴ DPIPWE (2010) Tasmanian Chytrid Management Plan

(≥ 60 cm dbh) that may develop hollows in future. Potential impacts could be further mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.3.3 Swift parrot (e/CE)

This species may forage in the area with some mature *E. ovata* trees located on site, which are one of the preferred food trees. Mitigation measures for this species should include retention of mature *E. ovata*. Potential impacts could be further mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.3.4 Spotted-tailed quoll (r/VU)

The loss of potential habitat may result in little more than a contraction in home range, or potential displacement to a neighbouring home range. It is unknown exactly how many quolls could be displaced, but a rough estimate of density in non-core habitat is approximately 1 animal per 300 ha. There is no indication that the site is important for dispersal or connectivity and the proposal has no potential for significant impacts to this species. As the clearance area is relatively small it is therefore not expected to have a significant impact on this species. Potential impacts could be mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.3.5 Eastern quoll (-/E)

The impact may result in little more than a contraction in home range, or potential displacement to a neighbouring home range. There is no indication that the site is important for dispersal or connectivity and the proposal has no potential for significant impacts to this species. Potential impacts could be mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.3.6 Tasmanian devil (e/E)

While devils may forage in the area, the extent of the impact area (<22 ha) is considerably less than a typical home range for this species (~1300 ha). While density may exceed this in optimum habitat, the impact to this wide-ranging species by the current study area is not significant. Potential impacts could be mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.3.7 Eastern barred bandicoot (-/VU)

The mosaic of habitat on the site may support this species. The scale of the development does not however represent a significant impact to this wide-ranging species. Potential impacts could be mitigated by avoiding the clearance of vegetation and undertaking vegetation improvement measures.

4.4 Weed Management

Any development project would benefit from a weed management plan that:

- Treats all occurrences of declared weeds prior to works.
- Ensures best practice construction hygiene is practiced to prevent the spread of weed propagules in contaminated soil. This should involve cleaning all machinery before leaving the works area, as well as not bringing dirty machinery into the site.
- Follows up weed control implemented 6-12 months after works to treat any individuals that have colonised/recolonised the area.

5 LEGISLATIVE REQUIREMENTS

5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The EPBCA is structured for self-assessment; the proponent must determine whether or not the project is likely to have a significant impact on a matter of national environmental significance (MNES) such as a listed threatened species or community. If this is likely then the Department of Environment and Energy may consider the proposed activity is a 'controlled action' which would require approval from the Commonwealth Minister.

There is one MNES that could be impacted by the development of the site. The green and gold frog *Litoria raniformis* is listed as Vulnerable. Significant Impact to this species is dependent on whether or not the population is deemed to be an 'important population'. Further analysis of the site in the context of other known populations in the vicinity would be required to make this determination.

The development of the subdivision will may therefore have a "significant impact" and this is also dependent on the fate of the main water body and the scale of impact to the drains.

5.2 Tasmanian Threatened Species Protection Act 1995

Any direct impact to the green and gold frog will require a 'permit to take' from the Policy and Conservation Advice Branch (PCAB) at the Department of Primary Industries, Parks, Wildlife and the Environment (DPIPWE).

5.3 Tasmanian Nature Conservation Act 2002

One vegetation community, *Melaleuca ericifolia* swamp forest (NME), is listed under the Act.

The NCA does not regulate impacts to these communities but informs relevant criteria in some of the local Planning Schemes (refer 5.5).

5.4 Tasmanian Weed Management Act 1999

West Tamar is a Zone B municipality for the species of declared weed observed on site (blackberry, slender thistle, Montpellier broom, and boneseed). According to the provisions of the Weed Management Act 1999, Zone B municipalities are those which host widespread infestations where control and prevention of spread is the principle aim. The containment principles of this Act should be sufficiently met with best practice construction hygiene that prevents the transport of contaminated material off site.

5.5 West Tamar Interim Planning Scheme 2013

Two codes of the West Tamar Interim Planning scheme (2013) could be triggered on this site. The following information is quoted or paraphrased from the West Tamar Interim Planning scheme²⁵

5.5.1 Biodiversity Code (E8)

The clearance of native vegetation and threatened species habitat will trigger the Biodiversity Code (E8) of the Scheme. The purpose of the code (E.8.1.1) is to:

²⁵ West Tamar Interim Planning Scheme (2013) Available from:
<https://www.wtc.tas.gov.au/DesktopModules/Bring2mind/DMX/Download.aspx?PortalId=0&EntryId=699>

- a) protect, conserve and enhance the region's biodiversity in consideration of the extent, condition and connectivity of critical habitats and priority vegetation communities, and the number and status of vulnerable and threatened species; and
- b) ensure that development is carried out in a manner that assists the protection of biodiversity by:
 - i) minimising vegetation and habitat loss or degradation; and
 - ii) appropriately locating buildings and works; and
 - iii) offsetting the loss of vegetation through protection of other areas where appropriate.

This study site contains sections of NME a native and threatened vegetation community along with some wetland habitat for a threatened fauna species, so will trigger the application of the code if these areas are removed, according to:

"E8.2.1 This code applies to use or development of land... b) for the removal of native vegetation."

Exemptions to triggering this code are made for areas zoned as General Residential (E8.4.1 a). This exemption, however, is unlikely to apply here as the patches of NME are within the Rural Resource Zone.

The development standards (E.8.6) that must be met under this code include ensuring that:

- a) vegetation identified as having conservation value as habitat has priority for protection and is appropriately managed to protect those values; and
- b) the representation and connectivity of vegetation communities is given appropriate protection when considering the impacts of use and development.

The NME habitat present on site is currently not mapped as priority habitat under the *West Tamar Interim Planning Scheme 2013*, likely due to the patches' incorrect classifications under TasVeg 3.0 as non-threatened vegetation communities.

Given the proposed developments are unknown at present, we cannot comment on the acceptable solutions or the performance criteria listed under E8.6.1 Habitat and Vegetation Management. Further analysis of the extent of NME and habitat for green and gold frog in the vicinity would be required to provide context to these losses should they be considered.

5.5.2 Water Quality Code (E9)

Any development surrounding the dam (wetland) and drains is likely to trigger the Water Quality Code (E9) of the Scheme. The purpose of the code (E.9.1.1) is to:

- a) consider the impacts of development to limit adverse effects on the following:
 - i) wetland and watercourse ecosystems; and
 - ii) flow regimes, water levels, biological activity and physical characteristics; and
 - iii) the variety of flora and fauna; and
 - iv) the role of wetlands and watercourses for water supply, flood mitigation, environmental protection, water regulation and nutrient filtering, as resources for recreational activities and as attractive features in the landscape; and
- b) improve the sustainable management of surface water through development.

This study site contains a wetland and several drains crisscrossing most of the site. Consequently, development on the site is likely to trigger the application of this code according to:

"E9.2.1 This code applies to use or development of land... a) within 50 metres of a wetland or watercourse"

Without details on the planned development, we cannot comment on whether this project will be exempt from triggering this code, but it seems unlikely that residential development as intended for the land would meet any of the exemptions from triggering this code:

- a) forestry subject to a certified forest practices plan;
- b) use for agriculture;
- c) private tracks on agricultural properties that are used for agricultural purposes;
- d) use and development for natural and cultural values management within parks, reserves and State Forest under State Government or Council ownership;
- e) use and development that is connected to reticulated sewer and stormwater; and
- f) Level 2 activities assessed by the Environment Protection Authority.

The development standards (E.9.6) that must be met under this code include:

- E9.6.1 To protect the hydrological and biological roles of wetlands and watercourses from the effects of development.
- E9.6.2 To maintain water quality at a level which will not affect aquatic habitats, recreational assets, or sources of supply for domestic, industrial and agricultural uses.
- E9.6.3 To ensure that roads, private roads or private tracks do not result in erosion, siltation or affect water quality.
- E9.6.4 To facilitate appropriate access at suitable locations whilst maintaining the ecological, scenic and hydrological values of watercourses and wetlands.
- E9.6.5 To minimise the environmental effects of erosion and sedimentation associated with the subdivision of land.

Considering the biological values of the main wetland on site the Code is likely to require consideration to ensure these values (notably habitat for green and gold frog) is maintained.

6 CONCLUSION

The study area contains natural values, which are identified in the Tasmanian Nature Conservation Act 2002 and as such trigger performance measures in the Biodiversity (E8) and Water Quality (E9) Codes of the West Tamar Interim Planning Scheme 2013.

Due to the scale of the site, it is unlikely to require referral to the Minister under the Commonwealth Environment Protection and Biodiversity Act 1999 although further assessment of the final development and local context will be necessary to confirm such a determination.

The priority values are concentrated on the western title where rezoning is being proposed. These include 1.14 ha of the threatened vegetation community *Melaleuca ericifolia* swamp forest (NME), 23 of 25 trees of significant size (≥ 60 cm dbh), found on the property and a constructed water body which supports the threatened green and gold frog, *Litoria raniformis*. The water body provides some permanent habitat, while the drains through the area provide ephemeral supplementary habitats.

The current zoning of Rural Resource provides no protection for these values permitting land uses that could have an adverse impact. Rezoning of the land would provide an opportunity, through conditions, to ensure the ecological values are protected and enhanced.

Retention of the NME and core habitat for the green and gold frog would avoid the risk of triggering the Commonwealth and state threatened species legislation. If combined with an environmental management plan that seeks to improve the condition of the NME and enhance breeding habitats for the green and gold frog would provide an outcome that could satisfy the performance solution of the Biodiversity Code (E8) and Water Quality Code (E9) of the *West Tamar Interim Planning Scheme 2013*.

REFERENCES

- Bryant, S. & Jackson, J. (1999) Tasmania's Threatened Fauna Handbook: what, where and how to protect. Threatened Species Unit, Parks & Wildlife Service, Hobart.
- Commonwealth of Australia (1999) Environment Protection and Biodiversity Conservation Act 1999. No. 91, 1999.
- Commonwealth of Australia (2020) Protected Matters Search Tool, www.environment.gov.au. Report – PMST_ZWHE01.
- de Salas, M.F. & Baker, M.L. (2018) A Census of the Vascular Plants of Tasmania, Including Macquarie Island. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery. Hobart) Available from: [is likely to be able to meet the Performance criteria of the](#)
- DPIPWE (2020) Natural Values Report nvr_1_06-Jan-2020, Natural Values Atlas, Threatened Species Section, Department of Primary Industries and Water, Hobart.
- DPIPWE Guidelines for designing surveys for the vulnerable Green and Gold Frog (*Litoria raniformis*). Department of Primary Industries, Parks, Water and Environment, Hobart.
- DPIPWE (2015) Guidelines for Natural Values Survey – Terrestrial Development Proposals. Version 1.0. 16th April 2015. Policy and Conservation Advice Branch. Department of Primary Industries, Parks, Water and Environment, Hobart.
- DPIPWE (2010) Tasmanian Chytrid Management Plan. Biodiversity Conservation Branch. Department of Primary Industries, Parks, Water and Environment, Hobart. Available from: <https://dpipwe.tas.gov.au/Documents/Tasmanian-Frog-Management-Plan.pdf>
- Forest Practices Authority (2014) Fauna Technical Note No. 17: Identifying Masked owl habitat. Forest Practices Authority. Hobart, Tasmania.
- Goff, F.G, Dawson, G.A. & Rochow, J.J. (1982) Site examination for threatened and endangered plant species. Environmental Management 6 (4) pp 307-316.
- IBRA 7 (2012) Interim Biogeographic Regionalisation for Australia, Version 7. Map produced by Environment Resources Information Network (ERIN), Australian Government Department of the Environment and Energy, Canberra, Commonwealth of Australia.
- Kitchener, A & Harris, S. (2013) From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation. Department of Primary Industries, Water and Environment, Printing Authority of Tasmania, Hobart.
- Natural and Cultural Heritage Division (2015) Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (*Sarcophilus harrisii*). Department of Primary Industries, Parks, Water and Environment.
- Tasmanian State Government (1995) Threatened Species Protection Act 1995. No.83 of 1995. Government Printer, Hobart, Tasmania

APPENDIX A: Plant species recorded in the study area

Status codes:

ORIGIN
 i - introduced
 d - declared weed WM Act
 en - endemic to Tasmania
 t - within Australia, occurs only in Tas.

NATIONAL SCHEDULE
 EPBC Act 1999
 CR - critically endangered
 EN - endangered
 VU - vulnerable

STATE SCHEDULE
 TSP Act 1995
 e - endangered
 v - vulnerable
 r - rare

Sites:

1	Lot 102 Title 64199/1 (DAM) - E483922, N5444581	9/01/2020	Michael	Hitchcock
2	Lot 102 Title Reference 156126/102 (WEST) - E483959, N5444755	9/01/2020	Michael	Hitchcock
3	Lot 102 Title Reference 156126/102 (EAST) - E484250, N5444680	9/01/2020	Michael	Hitchcock

Site	Name	Common name	Status
DICOTYLEDONAE			
ACERACEAE			
3	<i>Acer pseudoplatanus</i>	sycamore maple	i
APIACEAE			
3	<i>Daucus carota</i>	wild carrot	i
ASTERACEAE			
3	<i>Carduus pycnocephalus</i>	slender thistle	d
1	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	d
1 2 3	<i>Cirsium vulgare</i>	spear thistle	i
2	<i>Delairea odorata</i>	cape ivy	i
1 2	<i>Leontodon saxatilis</i>	hairy hawkbit	i
1	<i>Senecio minimus</i>	fireweed groundsel	
3	<i>Sonchus asper</i>	prickly sowthistle	i
CAPRIFOLIACEAE			
2	<i>Lonicera periclymenum</i>	common honeysuckle	i
DIPSACACEAE			
3	<i>Dipsacus fullonum</i>	wild teasel	i
FABACEAE			
1	<i>Acacia dealbata</i> subsp. <i>dealbata</i>	silver wattle	
3	<i>Acacia longifolia</i>	coast wattle	
3	<i>Acacia mearnsii</i>	black wattle	
1 2 3	<i>Acacia melanoxylon</i>	blackwood	
1 2	<i>Acacia verticillata</i>	prickly moses	
1 2	<i>Genista monspessulana</i>	canary broom	d
GENTIANACEAE			
2 3	<i>Centaurium erythraea</i>	common centaury	i
LAMIACEAE			
3	<i>Prunella vulgaris</i>	selfheal	i
LAURACEAE			
3	<i>Cassytha melantha</i>	large dodderlaurel	
MYRTACEAE			
1 2	<i>Eucalyptus amygdalina</i>	black peppermint	
2 3	<i>Eucalyptus ovata</i> var. <i>ovata</i>	black gum	
2 3	<i>Eucalyptus viminalis</i> subsp. <i>viminalis</i>	white gum	
1 2 3	<i>Melaleuca ericifolia</i>	coast paperbark	
PLANTAGINACEAE			
3	<i>Plantago lanceolata</i>	ribwort plantain	i
POLYGONACEAE			
2	<i>Rumex crispus</i>	curled dock	i
PRIMULACEAE			
2 3	<i>Lysimachia arvensis</i>	scarlet pimpernel	i
ROSACEAE			
1 2 3	<i>Acaena novae-zelandiae</i>	common buzzy	
3	<i>Cotoneaster pannosus</i>	velvet cotoneaster	i
3	<i>Crataegus monogyna</i>	hawthorn	i
3	<i>Malus pumila</i>	apple	i
3	<i>Prunus domestica</i> subsp. <i>insititia</i>	plum	i

3	<i>Prunus persica</i>	peach	i
3	<i>Rosa rubiginosa</i>	sweet briar	i
1 2 3	<i>Rubus fruticosus</i>	blackberry	d
	RUBIACEAE		
2	<i>Coprosma quadrifida</i>	native currant	
1	<i>Coprosma repens</i>	mirrorbush	i
	SANTALACEAE		
2 3	<i>Exocarpos cupressiformis</i>	common native-cherry	
GYMNOSPERMAE			
	PINACEAE		
1 3	<i>Pinus radiata</i>	radiata pine	i
MONOCOTYLEDONAE			
	AGAPANTHACEAE		
1 3	<i>Agapanthus sp.</i>	agapanthus	i
	ALLIACEAE		
3	<i>Allium ampeloprasum</i>	wild leek	i
	ASPARAGACEAE		
	<i>Cordyline australis</i>	New Zealand cabbage tree	i
1 2 3	<i>Lomandra longifolia</i>	sagg	
	CYPERACEAE		
3	<i>Cyperus eragrostis.</i>	umbrella sedge	i
1	<i>Eleocharis acuta</i>	common spikesedge	
1 2 3	<i>Lepidosperma elatius</i>	tall swordsedge	
	JUNCACEAE		
1	<i>Juncus procerus</i>	tall rush	
1 2 3	<i>Juncus sarophorus</i>	broom rush	
	POACEAE		
2 3	<i>Agrostis stolonifera</i>	creeping bent	i
1 2 3	<i>Anthoxanthum odoratum</i>	sweet vernalgrass	i
1 2 3	<i>Arrhenatherum elatius var. bulbosum</i>	bulbous oatgrass	i
3	<i>Dactylis glomerata</i>	cocksfoot	i
1 2	<i>Holcus lanatus</i>	yorkshire fog	i
1	<i>Lachnagrostis filiformis</i>	common blownglass	
2	<i>Lolium perenne</i>	perennial ryegrass	i
2 3	<i>Paspalum dilatatum</i>	paspalum	i
	TYPHACEAE		
3	<i>Typha latifolia</i>	great reedmace	i
PTERIDOPHYTA			
	DENNSTAEDTIACEAE		
2	<i>Pteridium esculentum subsp. esculentum</i>	bracken	