From: Danielle Gray
Sent: Mon, 4 Apr 2022 15:26:49 +1000
To: Information Management
Cc: Caleb Elcock
Subject: Representation to draft Huon Valley Council LPS re: 106 Mitchells Road Crabtree obo Elcock
Attachments: HVC draft LPS representation 106 Mitchells Road Gray Planning on behalf of Elcock 4 April 2022 FINAL.pdf, ECOtas_JefferysTrack_Appendix-PMST.pdf, ECOtas_JefferysTrack_Appendix-BVD.pdf, ECOtas_JefferysTrack_Appendix-NVA.pdf, Elcock Beekeeping Analysis.pdf, ECOtas_JefferysTrack_Report.pdf
Importance: High

To the attention of the General Manager

Dear Sir

Please find attached a representation from Gray Planning on behalf of Mr Caleb Elcock that objects to the proposed Landscape Conservation zoning and Priority Vegetation Area overlay application to his land at 106 Mitchells Road, Crabtree under the draft LPS for the Huon Valley Council municipality.

Also attached are Appendix A comprising a Natural Values Assessment by ECOTas dated December 2020 (and associated Appendices) and Appendix B comprising an Apiary Analysis for 106 Mitchells Road.

If you wish to discuss, please contact the undersigned.

Regards
Danielle
cc. Caleb Elcock

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Danielle Gray, Principal Consultant

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4 April 2022

General Manager

Huon Valley Council

PO Box 210

Huonville TAS 7109

Dear Sir,

Representation for advertised draft Local Provision Schedule (LPS) documents, Huon Valley Council with respect to proposed zoning of 106 Mitchells Road, Crabtree.

Gray Planning has been engaged by Mr Caleb Elcock who is the owner of 106 Mitchells Road at Crabtree to submit a representation that objects to the proposed Landscape Conservation zoning as proposed in the zone mapping provided as part of the draft LPS documentations currently being advertised by Huon Valley Council. Mr Elcock also objects to the application of the current Biodiversity Protection Area and proposed Priority Vegetation Area overlay on his property.

Mr Elcock opposes the zoning of his property from the current Rural Resource zone to the proposed zoning of Landscape Conservation on the basis that this zoning is not justified under the TPC's Section 8A Guideline No.1 LPS zone and Code application guidelines when considered against the characteristics of the subject site and surrounding area.

Commentary against the TPC's Section 8A Guideline No.1 LPS zone and Code application guidelines is provided within this representation as well as commentary on land characteristics and existing land use.

It is further considered that Council has not undertaken sufficient analysis of the subject site as well as other similarly affected properties to justify a rezoning from a rural zoning to an environmentally focussed zoning that focusses solely on landscape and natural values. As outlined in this representation, Council has not undertaken any assessment of either environmental or natural values to justify a rezoning of affected properties as part of their preparation of their draft LPS.

The LPS assessment by Council has been undertaken against an arbitrary desktop assessment of primarily tree cover of affected land as well as lot size which is considered wholly insufficient to justify a rezoning.

The subject site at 106 Mitchells Road has no record of any evidence of, or documented threatened species, is not on a prominent skyline or ridgeline and has no identified or documented landscape values.

It is considered the rezoning in the absence of any identified values is largely not in accordance with the recommended application of the Landscape Conservation zone as outlined in the TPC's Section 8A Guideline No.1 LPS zone and Code application guidelines.

On that basis, this representation opposes the proposed Landscape Conservation zoning of the subject site as proposed under the advertised draft LPS documentation. Instead, it is considered the subject site is more appropriately retained as a rural zoning on a like for like transition from Rural Resource under the current Interim Planning Scheme to the Rural zone under the Huon Valley LPS.

It is considered that Council should proceed on a 'like for like' basis unless they have compelling information with respect to confirmed values that justifies the rezoning of the subject site to Landscape Conservation.

It is understood that the proposed rezoning has not been based on any such analysis as there has been no natural or landscape values analysis tied to any properties proposed to be rezoned to Landscape Conservation.

The subject site

The subject site is 106 Mitchells Road at Crabtree (CT-246888/1) and is currently wholly zoned Rural Resource zone under the *Huon Valley Interim Planning Scheme 2015* as shown overleaf in Figure 4.

The subject site measures approximately 18 hectares in total area. The subject site is effectively cut in half by Jeffrey's Track which runs the property. Jeffrey's Track is used as four wheel drive access through the subject site.

The subject site includes a small cleared area to the immediate east of Jeffrey's Track in the south east portion of the subject site.

The subject site has vehicular access only from Mitchells Road via established Reserved Roads that run through other private properties.

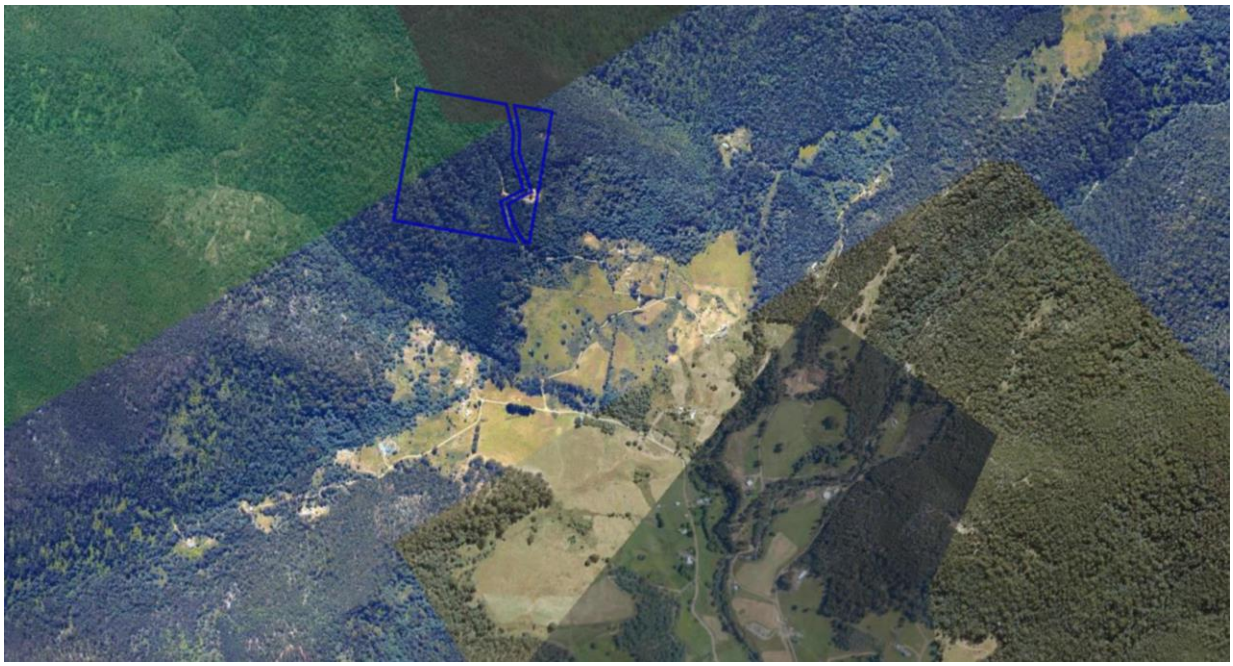


Figure 1. The subject site 106 Mitchells Road is outlined in blue. Source: TheLIST, sourced 25 March 2022, no nominated scale.

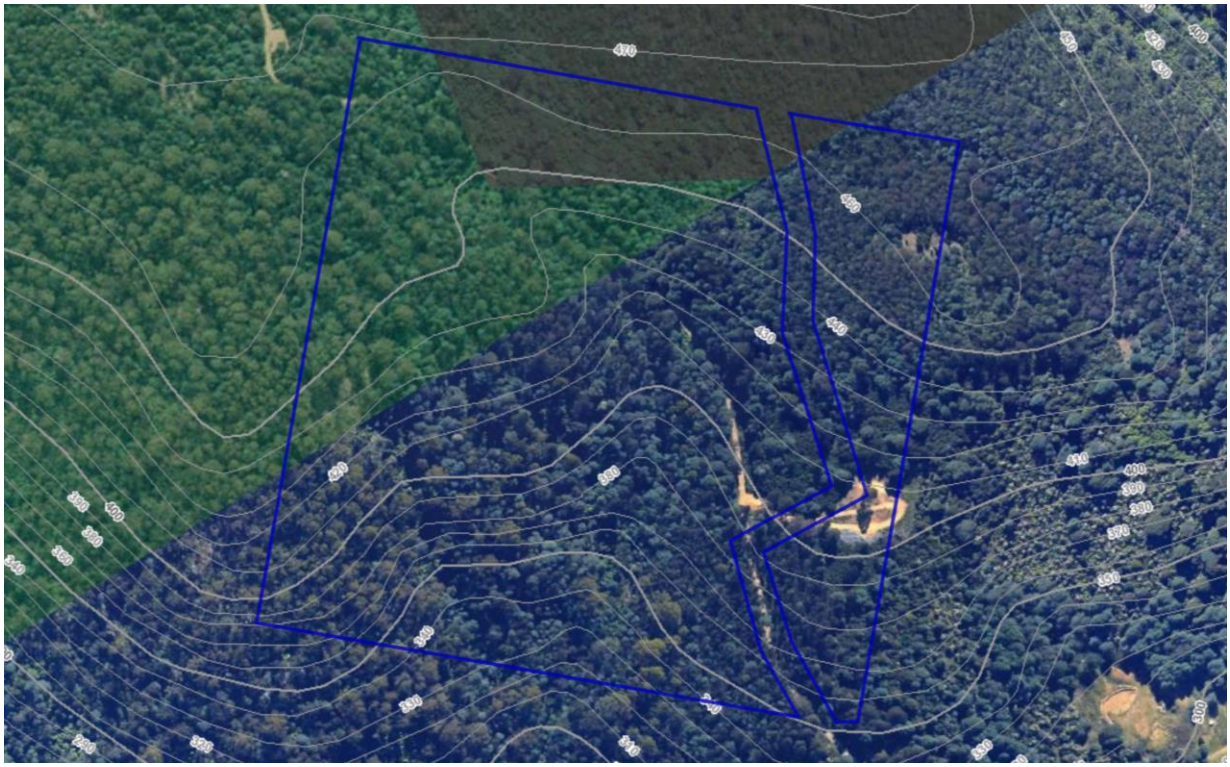


Figure 2. 106 Mitchells Road outlined. The subject site has an undulating gradient and elevation that sits between the 350m and 460m contours in terms of its elevation. Source: TheList, sourced 25 March 2022.

The above Figure 2 shows elevation and contour data sourced from The List. The elevation contours confirm the subject site is elevated on a hillside.

The below image 3 shows the subject site being significantly below the skyline areas in the surrounding area which peak at between 750m and 950m elevation.

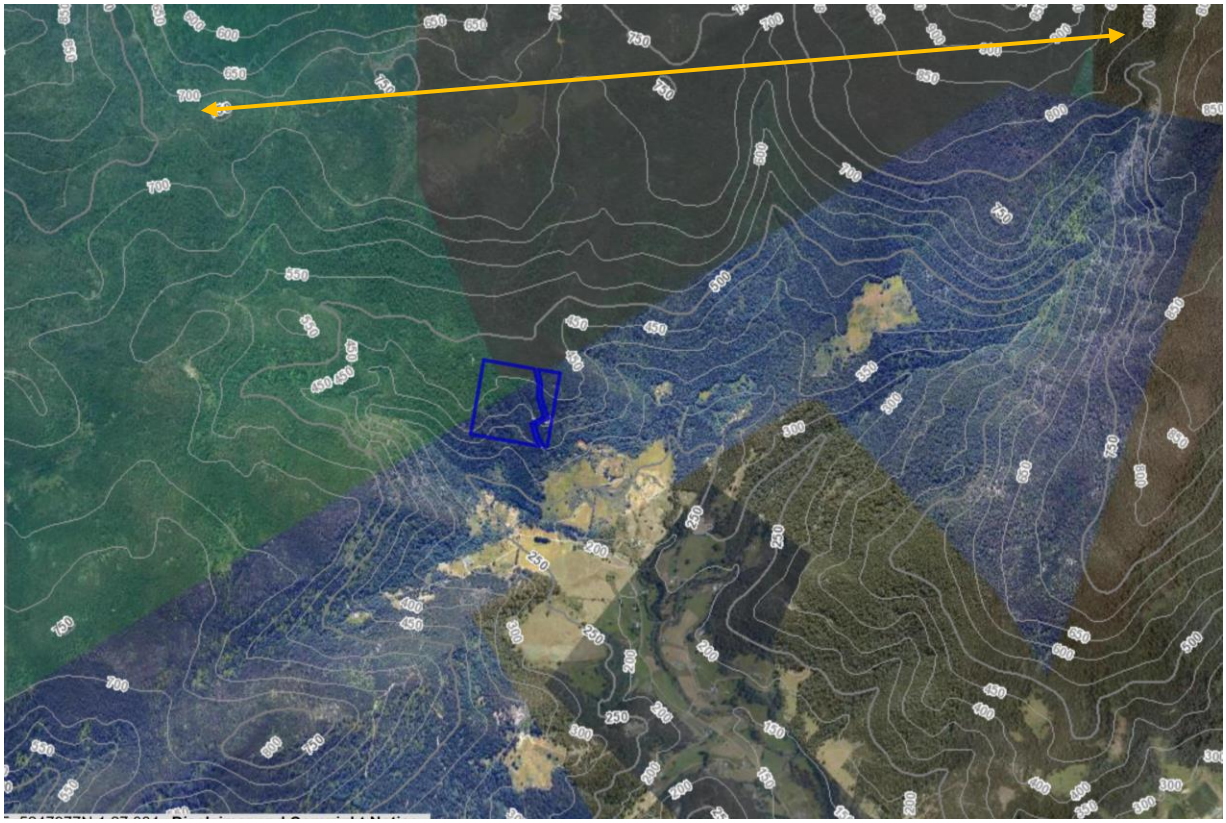


Figure 3. 106 Mitchells Road outlined. The subject site has an undulating gradient and elevation that sits between the 350m and 460m contours in terms of its elevation. Skyline and ridgeline peaks in the surrounding area are between 750 and 950m elevation. Source: TheList, sourced 25 March 2022.

The subject site is considered to sit reasonably close to the 200m elevation valley bottom which is well below the 750-950m areas of highest elevation.

The subject site sits well below this ridgeline and skyline area which is located at least 1.6km to the north. This skyline area is indicated above in Figure 3 and runs as a ridgeline to the distant north.

Owner concerns with respect to the proposed rezoning and application of the Priority Vegetation Area overlay

The owner of the property has concern about the proposed rezoning to Landscape Conservation and strongly opposes the rezoning.

The property owner is a commercial beekeeper and wishes to use the property to keep hives and also build a residence.

He has concerns about the extremely restricted number of uses that are permissible under the upcoming Landscape Conservation zone as well as the zoning focus from being a rural lot that can accommodate a wide range of rural resource and rural development uses to a property where natural and landscape conservation is the overriding objective.

The owner also is of the view that the characteristics of the subject site do not justify it being zoned from Rural Resource to Landscape Conservation. The characteristics of the subject site are outlined in further detail in this representation against applicable Section 8A guidelines.

The owner further raises the concern about the proposed Priority Vegetation Area overlay being applied to the subject site with concerns that this overlay is not applicable given the vegetation communities present. This matter is also discussed in this representation with a recent Natural Values Assessment dated 5 December 2020 attached as Appendix A.

It is assumed that Council have proceeded on the basis that the Priority Vegetation Area overlay will replace the current Biodiversity Protection Area overlay that covers the subject site. However, there is no justification for either being applied to the subject site as outlined in this representation.

Current zoning

The subject site at 106 Mitchells Road is currently zoned Rural Resource under the *Huon Valley Interim Planning Scheme 2015.*

This zoning is widely applied to surrounding properties to every direction but particularly the west and south of the subject site. There are also very large areas of land managed by Council and the Wellington Park Management Trust to the far north and east that are zoned Environmental Management and Open Space.

There are no properties in the surrounding area zoned Environmental Living.

The majority of properties in the surrounding area currently zoned Rural Resource under the Interim Planning Scheme have varied characteristics. Many have grazing use evident as well as varied and historically cleared areas of native vegetation cover. It is understood the area has historical orchard use.

The subject site is in close proximity to such land in Mitchells Road.

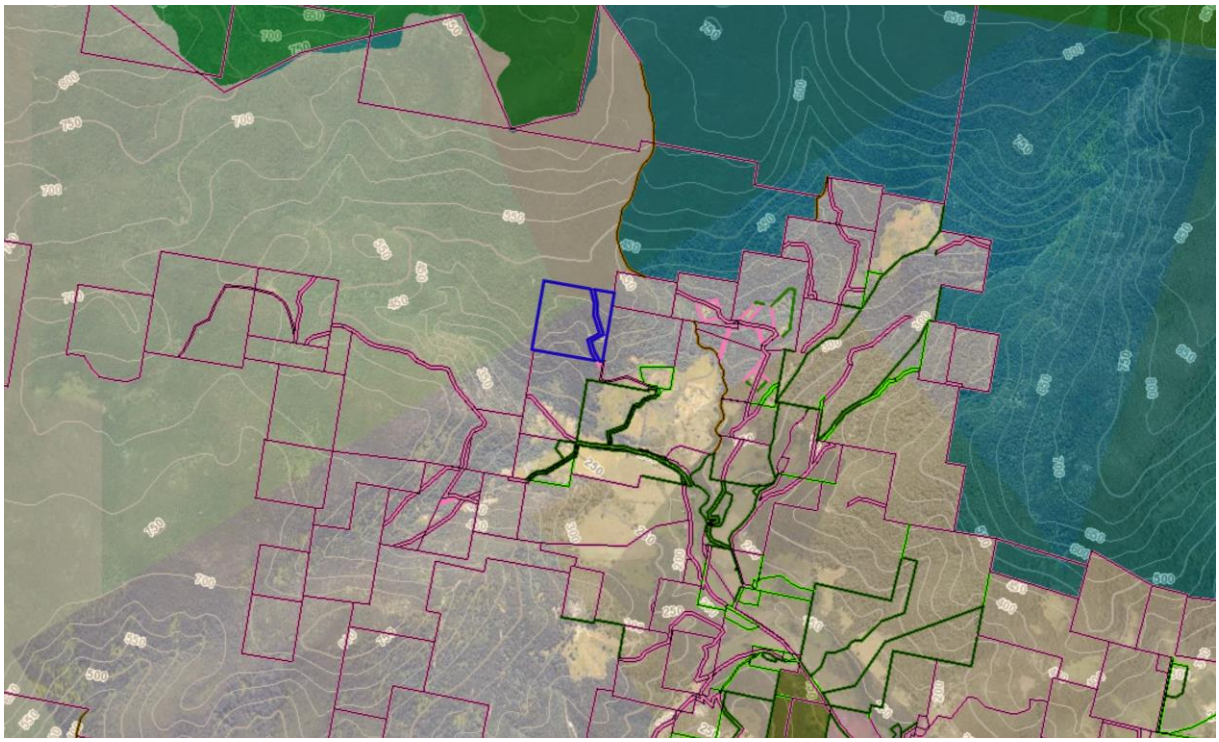
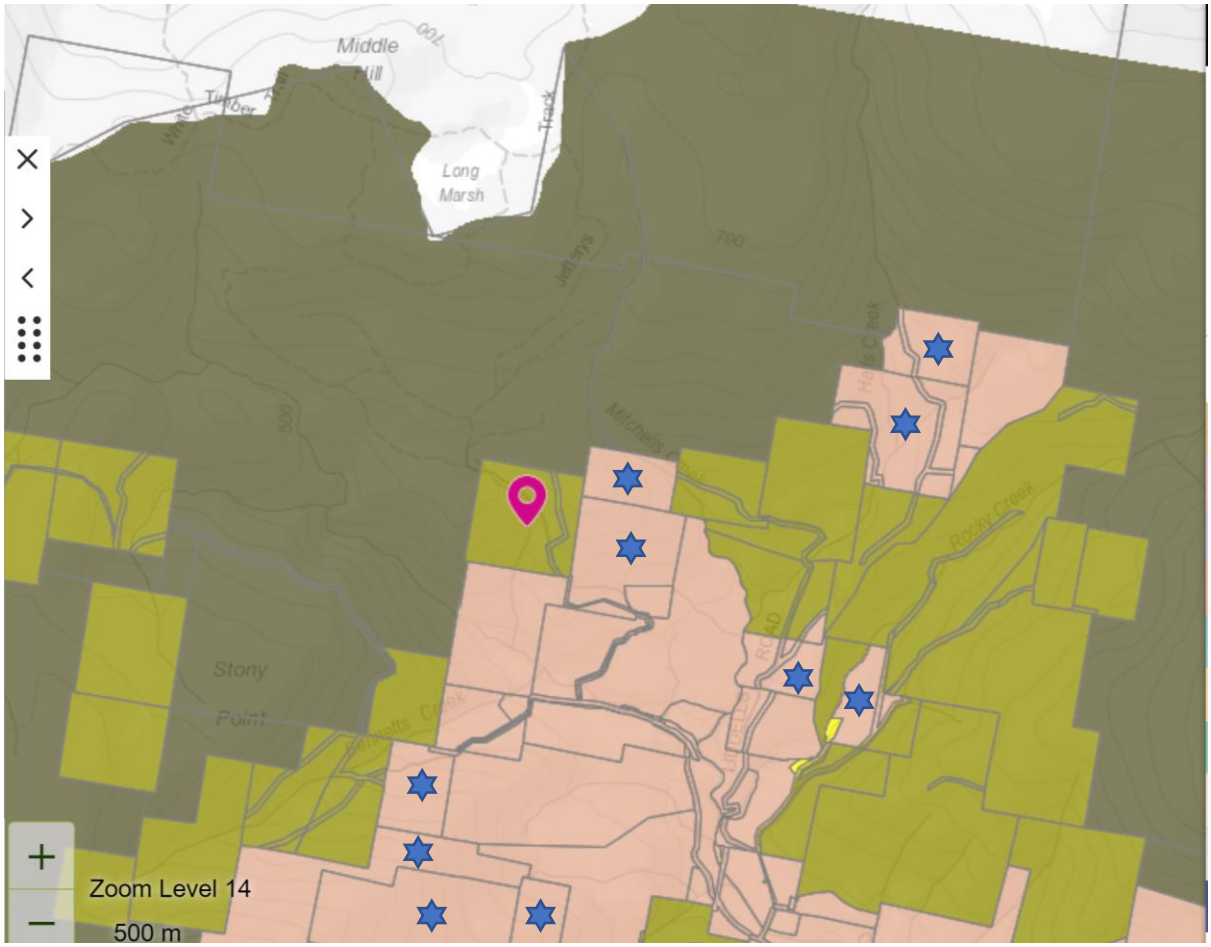


Figure 4. The subject site 106 Mitchells Road shown outlined. The subject is site is currently zoned Rural Resource. The above mapping shows the extent of Rural Resource zoned land (beige) that is widely applied across the surrounding area. Land managed by Council and the Wellington Park Management Trust is zoned Environmental Management (aqua) and Open Space (green). Source: TheLIST, sourced 25 March 2022, no nominated scale.

Proposed zoning under the draft Huon Valley LPS

The advertised draft LPS for Huon Valley Council shows the subject site to be rezoned from Rural Resource to Landscape Conservation.



<u>Figure.5.</u> Proposed draft LPS zoning of the subject site (shown marked) to be rezoned to Landscape Conservation. Other flagged properties surrounding the subject site have similar characteristics but are proposed to retain their rural zoning and are proposed to be zoned Rural zone under the draft LPS for the Huon municipality. Source: TheList, sourced 25 March 2022, no nominated scale.

The above mapping shows a large number of properties in the surrounding area that surround the subject site are proposed to be rezoned from the current rural zoning (Rural Resource) to Landscape Conservation (green).

However, there are also a large number of properties that appear to have tree cover close to 100% that are proposed to retain their rural zoning and have a zoning of Rural applied under the draft LPS. These properties are considered to have common characteristics to the subject site and are marked in the above map.

Council's rationale for rezoning to Landscape Conservation as per their supporting LPS document dated November 2021.

The supporting document was reviewed by Gray Planning as part of the background review undertaken to prepare this representation.

Comments are made against of the Landscape Conservation zone application guideline comments from Council as follows:

Table 12

Zone Application Guidelines	**Comments**
LCZ 1 *The Landscape Conservation Zone should be applied to land with landscape values that are identified for protection and conservation, such as bushland areas, large areas of native vegetation, or areas of important scenic values, where some small-scale use or development may be appropriate.*	The application of 80% native vegetation coverage coupled with the presence of either the Natural Assets or Scenic Landscape Code overlay as the first level of selection meets the intent of this guideline in that most of the property is constrained but there may be some potential for small scale use or development. A significant portion of the properties selected are located on the vegetated scenic hill slopes that characterise the Huon Valley. These areas have been spared from historical clearing due to being considered suboptimal for agriculture. The analysis of 'large areas of native vegetation' was attributed to a minimum native vegetation patch size of 20 ha. This links directly with the LCZ use standard 22.5.1 P1 minimum lot size of 20 ha.

Response to Council comments:

In the absence of any landscape values assessment undertaken by Council as part of their background assessment, it is considered that there is no information that supports the subject site as having any particular or identified landscape value.

As already noted in this representation against Figure 2 and 3, the subject site is located 1.6km away of any skyline area and nowhere near the significant and prominent ridgeline located to the north of the subject site at least 1.6km distant. Furthermore, the subject site is at an elevation 500m below the ridgeline and skyline area to the north and is only 200m elevated about the floor of the valley it is located within.

The subject site is also less than 20 hectares in area and does not meet the Council criteria of being a large lot comprising a 20 hectare area of native vegetation.

LCZ 2 *The Landscape Conservation Zone may be applied to:* *(a) large areas of bushland or large areas of native vegetation which are not otherwise reserved, but contains threatened native vegetation communities, threatened species or other areas of locally or regionally important native vegetation;* *(b) land that has significant constraints on development through the application of the Natural Assets Code or Scenic Protection Code; or* *(c) land within an interim planning scheme Environmental Living Zone and the primary intention is for the protection and conservation of landscape values.*	Addressed by ensuring properties contain the Natural Assets Code overlay. The Huon Valley Natural Assets code is based on the 'Regional Ecosystem Model' which selected priority vegetation patches based on a range of criteria including, threat status, threatened species habitat, relative reservation, local scale fragmentation, and relative rarity. It is important to note that modelling is based on best available data. Portions of the Huon Valley, especially those with limited road access or in remote areas, have had limited sampling and are somewhat data deficient. The Huon Valley is privileged to have a high diversity and abundance of threatened species, placing additional importance on protecting not only core habitat areas but natural ecological corridors between them that allow for species dispersion.

Response to Council comments:

The Council comment admits to data being deficient in areas with limited access or that are remote with respect to threatened species. It is considered that where Council admits to there being insufficient data, properties should not be rezoned to Landscape Conservation where there is no data, analysis or studies that identify environmental or landscape values to support this rezoning.

The subject site was recently assessment by an ecologist (Mark Wapstra of ECOTas) in December 2020 as part of a Natural Values Assessment for a proposed dwelling at the subject site (the application reference is DA/412/2020 and is currently on hold with Council pending the lodgement of further information). In this assessment undertaken 14 months ago, the subject site is confirmed as:

- Not containing any threatened plant species; and
- Not containing any threatened fauna species; and
- Having a minimal likelihood of providing any habitat for any threatened species; and
- Not containing any threatened vegetation communities.

LCZ 3 *The Landscape Conservation Zone may be applied to a group of titles with landscape values that are less than the allowable minimum lot size for the zone.*	This was addressed by using the following selection criteria to select LCZ suitability: • Three or more adjoining properties • Borders existing Environmental

[redacted]

	Management or Environmental Living properties intended to transfer to LCZ. • If less than three adjoining properties, the total area of these properties is at least 20 ha.

Response to Council comments:

There has been no landscape analysis undertaken by Council as part of their LPS preparation.

In the absence of any landscape analysis undertaken by Council, it cannot be confirmed by Council that the subject site has any particular landscape values. Likewise, the absence of any landscape analysis means that the subject site as well as others to be rezoned to Landscape Conservation have no known or documented scenic values.

The subject site was assessed by Gray Planning as part of research undertaken to assist in writing this representation.

When considering the contours and elevation data from TheList, the subject site is located in the lower elevated area of a valley in a lower hillside area and is well over 1.6km away from the nearest skyline area and a prominent ridgeline that runs to the north which has a highest elevation of 950m as shown in Figure 3.

There are no planning scheme definitions for either ‘skyline’ or ‘ridgeline’.

The Minister's Urban Skylines and Hillfaces Committee (2000) defined the skyline as "the silhouettes of hills and ridge lines against the sky" and hillfaces as "the sides of hills and include those ridgelines below the skyline".

When considering the above definition, the subject site is on a ‘hillface’ but is not within a skyline or ridgeline area and furthermore, is located nowhere near these.

Without any documented analysis of landscape values and absence of any known landscape values afforded to the subject site as part of any Council assessment as part of their preparation of the draft LPS, it is considered unreasonable and inappropriate for the subject site to be rezoned to a zone that prioritises "*protection, conservation and management of landscape values*".

It is the opinion of this author that owing to the setting of the subject site near the base of a valley setting and around 500m below the highest elevated areas which are located at least 1.6km to the north of the subject site, the subject site has minimal landscape values which do not justify the application of the Landscape Conservation Code.

LCZ 4 *The Landscape Conservation Zone should not be applied to:* *(a) land where the priority is for residential use and development (see Rural Living Zone); or* *(b) State-reserved land (see Environmental Management Zone).*	Formally reserved state land was removed from the property selection.

Response to Council comments:

The subject site is not prioritised for residential use and is not state reserved land.

Endorsed Council documents
The following endorsed Council documents have been taken into account in relation to preparation of the draft LPS.

Appendix 33	2016	*Huon Valley NRM Strategy (17.058.16)*
Appendix 48	2018	*Huon Valley Weed Management Strategy (2018-2023)*

Response:

The above confirms that the background research from Council involves consideration of the Huon Valley NRM Strategy and a Weed Management Strategy.

The NRM Strategy was reviewed and there is no consideration of the identification of landscape or scenic values in the municipal area.

As already noted, there has been no landscape analysis undertaken by Council, no scenic values analysis and no analysis on identifying prominent ridgelines or skyline areas including those of particular scenic value.

In the absence of Council identifying any known particular environmental values, no known or identified landscape or scenic values and no identified threatened species or species habitat, it is considered there is no justification at all for the rezoning to Landscape Conservation.

The owner of the subject site has recently undertaken a Natural Values Assessment which confirms the absence of any threatened species or threatened communities. Council has a copy of this assessment on their records as part of documentation submitted for DA/412-2020.

The subject site is also considered to not have any landscape qualities which would justify a rezoning to Landscape Conservation.

Application of the Section 8A Guideline No.1 LPS zone and Code application guidelines with respect to the subject site and proposed zoning under the LPS

The proposed zoning of the subject site to be rezoned to Landscape Conservation is considered to be contrary to many guidelines contained in the Tasmanian Planning Commission's Section 8A Guideline No.1 LPS zone and Code application guidelines.

These guidelines outline the following recommendations for land to be zoned Landscape Conservation:

22.0 **Landscape Conservation Zone** Red 150, Green 146, Blue 0	The purpose of the Landscape Conservation Zone is: 22.1.1 To provide for the protection, conservation and management of landscape values. 22.1.2 To provide for compatible use or development that does not adversely impact on the protection, conservation and management of the landscape values.	LCZ 1 The Landscape Conservation Zone should be applied to land with landscape values that are identified for protection and conservation, such as bushland areas, large areas of native vegetation, or areas of important scenic values, where some small scale use or development may be appropriate. LCZ 2 The Landscape Conservation Zone may be applied to: (a) large areas of bushland or large areas of native vegetation which are not otherwise reserved, but contains threatened native vegetation communities, threatened species or other areas of locally or regionally important native vegetation; (b) land that has significant constraints on development through the application of the Natural Assets Code or Scenic Protection Code; or (c) land within an interim planning scheme Environmental Living Zone and the primary intention is for the protection and conservation of landscape values.

Zone	Zone Purpose	Zone Application Guidelines
		LCZ 3 The Landscape Conservation Zone may be applied to a group of titles with landscape values that are less than the allowable minimum lot size for the zone. LCZ 4 The Landscape Conservation Zone should not be applied to: (a) land where the priority is for residential use and development (see Rural Living Zone); or (b) State-reserved land (see Environmental Management Zone). *Note: The Landscape Conservation Zone is not a replacement zone for the Environmental Living Zone in interim planning schemes. There are key policy differences between the two zones. The Landscape Conservation Zone is not a large lot residential zone, in areas characterised by native vegetation cover and other landscape values. Instead, the Landscape Conservation Zone provides a clear priority for the protection of landscape values and for complementary use or development, with residential use largely being discretionary.* *Together the Landscape Conservation Zone and the Environmental Management Zone, provide a suite of environmental zones to manage use and development in natural areas.*

Comments firstly have been made against each of the following purpose statements for the Landscape Conservation zone:

The purpose of the Landscape Conservation Zone is:

22.1.1 To provide for the protection, conservation and management of landscape values

Comment:

The subject site has no known landscape values. The subject site is located on a hillside but is not located anywhere near a prominent ridgeline or skyline area which are confirmed as being at least 1.6km away from the neatest part of the subject site.

The Council have not undertaken any landscape analysis as part of their supporting documents for the draft LPS. In the absence of any identification of any confirmed landscape values and where these are located within the municipal area, it is considered

that land should not be rezoned across from a rural zone to the new Landscape Conservation zone.

22.1.2 To provide for compatible use or development that does not adversely impact on the protection, conservation and management of the landscape values.

Comment:

The subject site has no known or mapped landscape values and when considered in its setting against topographical data from TheList is considered to have minimal landscape values and certainly none that justify the application of the Landscape Conservation zone. The subject site is located on the lower elevated hillside area of a valley and is located at least 1.6km distant from any prominent ridgeline or skyline area.

The Council have not undertaken any landscape analysis as part of their supporting documents for the draft LPS. In the absence of any identification of any known or obvious landscape values and where these are located within the municipal area, land with no identified or obvious values should not be rezoned across from a rural zone to the new Landscape Conservation zone.

Comments have been made against each of the following zone application guidelines for the Landscape Conservation zone:

LCZ 1 The Landscape Conservation Zone should be applied to land with landscape values that are identified for protection and conservation, such as bushland areas, large areas of native vegetation, or areas of important scenic values, where some small scale use or development may be appropriate.

Comment:

The subject site has not been identified as having any landscape values. In fact, there has been no municipal analysis or study that identifies any areas with landscape or particular scenic values for protection and conservation within the Huon Valley municipal area.

Furthermore, as part of assessments undertaken for this representation, it is considered that the subject has minimal landscape values owing to its setting on the lower hillside of a valley and around 500m below the highest elevation skyline area 1.6km away.

While the subject site currently has more 80% site native vegetation coverage which is a threshold identified by Council in their supporting report and used as justifying application of the Landscape Conservation zone, the subject site is not considered to have any important scenic values.

The Council have not identified any important scenic values or undertaken any such studies that identify what scenic values apply to the municipal area and where such values are evident.

In the absence of any known or identified landscape or scenic values that could be reasonably applied to the subject site, it is considered inappropriate and unreasonable to rezone the subject site to Landscape Conservation.

LCZ 2 The Landscape Conservation Zone may be applied to:

(a) large areas of bushland or large areas of native vegetation which are not otherwise reserved, but contains threatened native vegetation communities, threatened species or other areas of locally or regionally important native vegetation;

Comment:

The subject site has no threatened native vegetation communities as confirmed by ecologist Mark Wapstra in 2020 when undertaking a natural values assessment of the subject site. As part of this assessment, the subject site is also confirmed as having no threatened flora or fauna species, no threatened plant communities and no locally or regionally important native vegetation.

(b) land that has significant constraints on development through the application of the Natural Assets Code or Scenic Protection Code; or

Comment:

The subject site is not considered to have any significant constraints on development. The subject site currently contains the Priority Vegetation overlay that is widely applied throughout the entire municipal area but as discussed later in this representation, it is considered that this overlay should be removed due to failure to meet any of the criteria under the Section 8A guidelines for the application of zones and Codes.

(c) land within an interim planning scheme Environmental Living Zone and the primary intention is for the protection and conservation of landscape values.

Comment:

The subject site is currently zoned Rural Resource.

Council have not undertaken any study identifying landscape values or characteristics in the municipality and therefore it is considered cannot apply Landscape Conservation zoning to land not already zoned Environmental Living and with no known or identified values.

LCZ 3 The Landscape Conservation Zone may be applied to a group of titles with landscape values that are less than the allowable minimum lot size for the zone.

Comment:

The subject has no known or identified landscape values in the absence of any such study undertaken by Council. It is considered that an assessment undertaken as part of this representation that owing to its setting close to the floor of a valley setting, the subject site has minimal landscape values and certainly none to justify its rezoning to Landscape Conservation.

LCZ 4 The Landscape Conservation Zone should not be applied to:

(a) land where the priority is for residential use and development (see Rural Living Zone); or
(b) State-reserved land (see Environmental Management Zone).

Comment:

This guideline is not applicable to the subject site as the property is neither prioritised for residential use and development and is not state reserve land.

Note: The Landscape Conservation Zone is not a replacement zone for the Environmental Living Zone in interim planning schemes. There are key policy differences between the two

zones. The Landscape Conservation Zone is not a large lot residential zone, in areas characterised by native vegetation cover and other landscape values. Instead, the Landscape Conservation Zone provides a clear priority for the protection of landscape values and for complementary use or development, with residential use largely being discretionary. Together the Landscape Conservation Zone and the Environmental Management Zone, provide a suite of environmental zones to manage use and development in natural areas.

Comment:

This note under the Section No 1, 8A Guidelines notes that the Landscape Conservation zone provides a clear priority for the management of landscape values.

In the absence of Council having undertaken any assessment or study identifying landscape, natural or scenic values within the municipality, it is questioned how this zoning can be applied.

Of concern to the subject site owner who wishes to use the subject site for beekeeping and his own residence is the significantly more limited extent of use classes that can be considered in the Landscape Conservation zone compared to those that can be considered in the Rural Resource zone and their view that the zoning should not apply owing to the site characteristics.

As previously discussed in this representation, there are no landscape values identified for the Huon Valley Council municipal area at all. There have been no studies undertaken such as a landscape analysis by a suitably qualified and experienced person such as a landscape architect or similar.

The only strategies relied upon are Council reports comprising a Weed Management Strategy and an NRM Strategy, neither of which make any particular reference to, or identification of landscape or scenic values in the municipal area.

It would appear that most properties have been identified as being candidates for the Landscape Conservation zone as a result of having 'large areas' of vegetation cover of a figure of at least 80% coverage and also currently being zoned Environmental Living. The subject site along the majority of the surrounding area for at least a 1.3km radius to be rezoned are currently zoned Rural Resource.

Noted within this representation is that there have been identified many fully vegetated properties with similar characteristics in very close proximity to the subject site that are proposed to retain their rural zoning as they move across to the Huon Valley LPS. This lack of consistency in the application of zones under the draft LPS is unreasonable.

Taking into account the proposed zoning of the subject site and surrounding properties, there are no clear parameters or documented values that Council has relied upon to justify the rezoning to Landscape Conservation as opposed to other similar properties in close proximity to the subject site retaining their Rural zoning.

It is further considered that such a narrow set of criteria that primarily appears to relate to vegetation cover (in some but not all cases) does not justify the rezoning of properties in the municipal area when the objective of the proposed Landscape Conservation zone is "*To provide for the protection, conservation and management of landscape values*."

In the absence of any such values having been determined by Council, the Landscape Conservation zone should not be applied.

It is considered that such a drastic change in the planning objectives for affected land should not occur where Council have failed to undertake any assessment of natural or landscape values directly linked to the proposed zoning. The owner of the subject site has engaged consultants to undertake assessment of the property since 2020 and none of the findings support a rezoning based on the site setting, location, elevation, vegetation types present and characteristics.

The following Section 8A guidelines outline the following recommendations for land to be zoned Rural:

20.0 **Rural Zone** Red 228, Green 172, Blue 144	The purpose of the Rural Zone is: 20.1.1 To provide for a range of use or development in a rural location: (a) where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics; (b) that requires a rural location for operational reasons; (c) is compatible with agricultural use if occurring on agricultural land; (d) minimises adverse impacts on surrounding uses. 20.1.2 To minimise conversion of agricultural land for non-agricultural use. 20.1.3 To ensure that use or development is of a scale and intensity that is appropriate for a rural location and	RZ 1 The Rural Zone should be applied to land in non-urban areas with limited or no potential for agriculture as a consequence of topographical, environmental or other characteristics of the area, and which is not more appropriately included within the Landscape Conservation Zone or Environmental Management Zone for the protection of specific values. RZ 2 The Rural Zone should only be applied after considering whether the land is suitable for the Agriculture Zone in accordance with the 'Land Potentially Suitable for Agriculture Zone' layer published on the LIST. RZ 3 The Rural Zone may be applied to land identified in the 'Land Potentially Suitable for Agriculture Zone' layer, if: (a) it can be demonstrated that the land has limited or no potential for agricultural use and is not integral to the management of a larger farm holding that will be within the Agriculture Zone; (b) it can be demonstrated that there are significant constraints to agricultural use occurring on the land; (c) the land is identified for the protection of a strategically important naturally occurring resource which is more appropriately located in the Rural Zone and is supported by strategic analysis;

Zone	Zone Purpose	Zone Application Guidelines
	does not compromise the function of surrounding settlements.	(d) the land is identified for a strategically important use or development that is more appropriately located in the Rural Zone and is supported by strategic analysis; or (e) it can be demonstrated, by strategic analysis, that the Rural Zone is otherwise more appropriate for the land.

Comments firstly have been made against each of the following purpose statements for the Rural zone with respect to the subject site's owner's beekeeping intentions (please also see Appendix B for an Apiary Analysis of the subject site):

The purpose of the Rural Zone is:

20.1.1 To provide for a range of use or development in a rural location:

Comment:

The use of the site for commercial beekeeping as well as a residence is considered to be a use appropriate for a rural location.

(a) where agricultural use is limited or marginal due to topographical, environmental or other site or regional characteristics;

Comment:

The subject site has very limited potential for general agricultural use owing to its topography, gradients and extent of vegetation cover. It is however ideal for beekeeping on a commercial scale with none of these characteristics being any impediment.

(b) that requires a rural location for operational reasons;

Comment:

Commercial beekeeping is of a scale considered not appropriate where there are dwellings in close proximity as there are in urban areas.

(c) is compatible with agricultural use if occurring on agricultural land;

Comment:

Commercial beekeeping on the subject site is compatible with other agricultural use and pollination is considered highly beneficial where crops or orchards are present.

(d) minimises adverse impacts on surrounding uses.

Comment:

Using the subject site for commercial beekeeping would not result in any known or likely adverse impact on any surrounding use. Neighbouring dwellings are a sufficient distance away and buffered by vegetation cover that hives and bee activity would present nil impact.

20.1.2 To minimise conversion of agricultural land for non-agricultural use.

Comment:

The subject site being used for commercial beekeeping would not result in any conversion of agricultural land.

20.1.3 To ensure that use or development is of a scale and intensity that is appropriate for a rural location and does not compromise the function of surrounding settlements.

Comment:

The use of the subject site for commercial beekeeping as planned by the owner of the subject site is of a scale and intensity appropriate for the location, rural characteristics of the surrounding area and will have no impact on the function of the Crabtree settlement which is dispersed.

Comments have also been made against each of the following zone application guidelines for the Rural zone:

RZ 1 The Rural Zone should be applied to land in non-urban areas with limited or no potential for agriculture as a consequence of topographical, environmental or other characteristics of the area, and which is not more appropriately included within the Landscape Conservation Zone or Environmental Management Zone for the protection of specific values.

Comment:

The subject site is in a rural area with limited agricultural potential due to topographical (steep undulating gradients on the lower hillside of a valley) and environmental (native vegetation cover) characteristics.

RZ 2 The Rural Zone should only be applied after considering whether the land is suitable for the Agriculture Zone in accordance with the 'Land Potentially Suitable for Agriculture Zone' layer published on the LIST.

Comment:

The subject site was checked against this layer and is confirmed as not being suitable for the Agriculture zone.

RZ 3 The Rural Zone may be applied to land identified in the 'Land Potentially Suitable for Agriculture Zone' layer, if:

(a) it can be demonstrated that the land has limited or no potential for agricultural use and is not integral to the management of a larger farm holding that will be within the Agriculture Zone;

Comment:

The subject site has no potential for agricultural use and is not integral to any larger farm holding. No Agricultural zoned land is proposed to be located in the surrounding area under the draft LPS mapping.

(b) it can be demonstrated that there are significant constraints to agricultural use occurring on the land;

Comment:

The subject site has significant constraints to agricultural use including an undulating gradient, steep slopes across the entirety of the subject site, steep slopes of access roads leading to the subject site and native vegetation cover across most of the subject site.

(c) the land is identified for the protection of a strategically important naturally occurring resource which is more appropriately located in the Rural Zone and is supported by strategic analysis;

Comment:

The land in question is not identified for the protection of any strategically important naturally occurring resource.

(d) the land is identified for a strategically important use or development that is more appropriately located in the Rural Zone and is supported by strategic analysis; or

Comment:

The land in question is not identified for a strategically important use or development.

(e) it can be demonstrated, by strategic analysis, that the Rural Zone is otherwise more appropriate for the land.

Comment:

This representation has been prepared against a strategic planning assessment that considers the most appropriate zone for the subject site is the Rural zone as opposed to the proposed Landscape Conservation zone. As referenced throughout this representation, the subject site has no known, obvious or documented landscape values and has a setting close to the floor of a valley and is around 500m below the highest skyline and ridgeline peaks in the surrounding area which are at least 1.6km to the north.

A natural values assessment of the subject site commissioned by the current owner and prepared by ECOTas in December 2020 confirms the subject site contains no threatened flora or fauna and no threatened communities. Its landscape and natural values are therefore considered to be extremely limited and therefore not of any value in justifying the application of the Landscape Conservation zone.

Assessment of the application of the current Biodiversity Protection Area overlay and associated Natural Values Code triggered by this Code

The subject site currently contains a Biodiversity Protection Area overlay under the *Huon Valley Interim Planning Scheme 2015*.

The subject site is currently mapped with a 20m wide Waterway and Coastal Protection Area overlay but is not in a coastal setting.

Under the Tas veg 4.0 mapping on The List, the subject site is mapped as containing 'Wet Eucalyptus Forest and Woodland'.

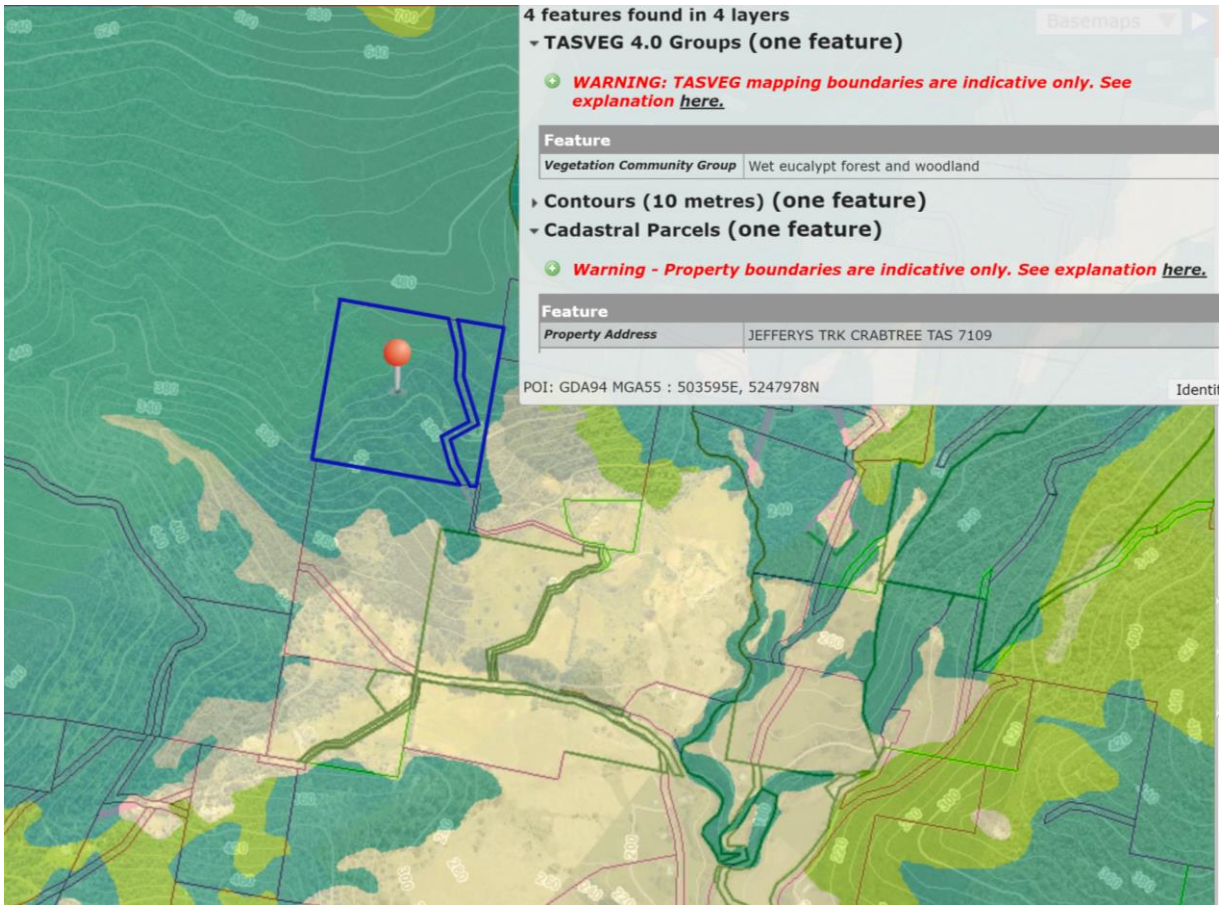


Figure.6. Tas Veg 4.0 Mapping of the subject site (shown outlined). Source: TheList, sourced 28 March 2022, no nominated scale.

Of the Tas Veg 4.0 mapping that states the subject site is mapped as 'Wet Eucalyptus Forest and Woodland', the Tas Veg 4.0 layer on The List further breaks down the subject site into the following communities:

- Eucalyptus delegatensis wet forest (undifferentiated) as shown in Figure 7;
- Eucalyptus delegatensis with broad leaf shrubs as shown in Figure 8; and

- Eucalyptus obliqua forest with broad leaf shrubs as shown in Figure 9.

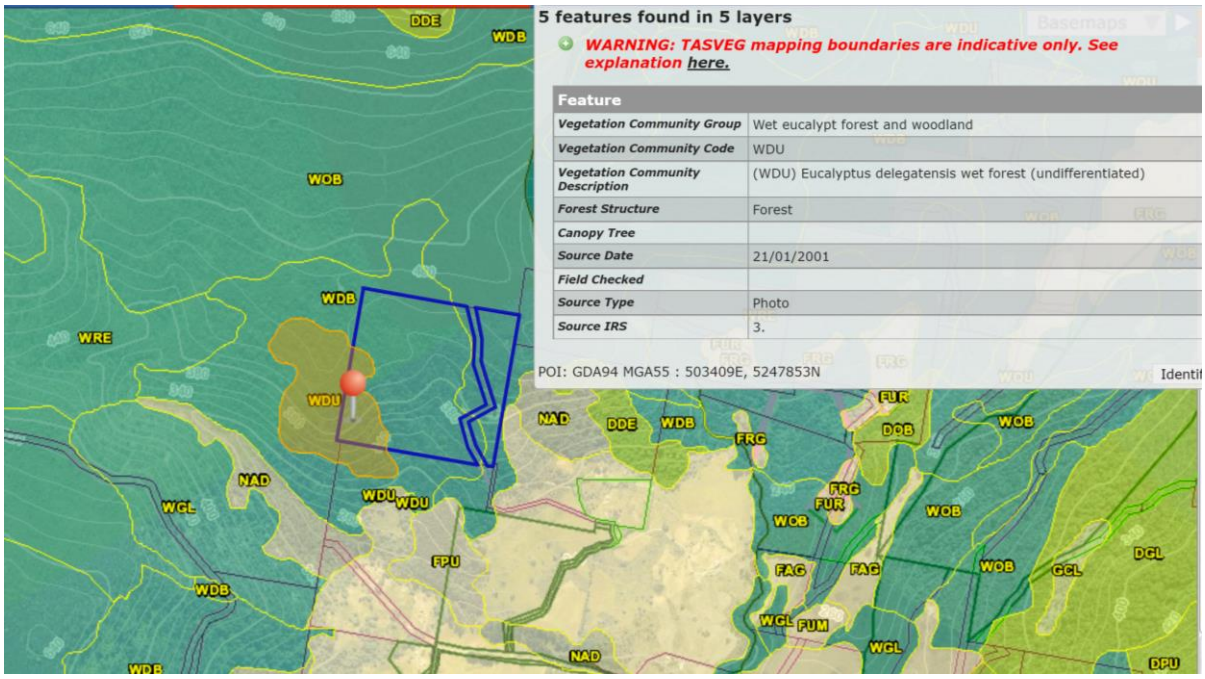


Figure.7. Tas Veg 4.0 Mapping of the subject site (shown outlined) showing the location of Eucalyptus delegatensis undifferentiated. Source: TheList, sourced 28 March 2022, no nominated scale.

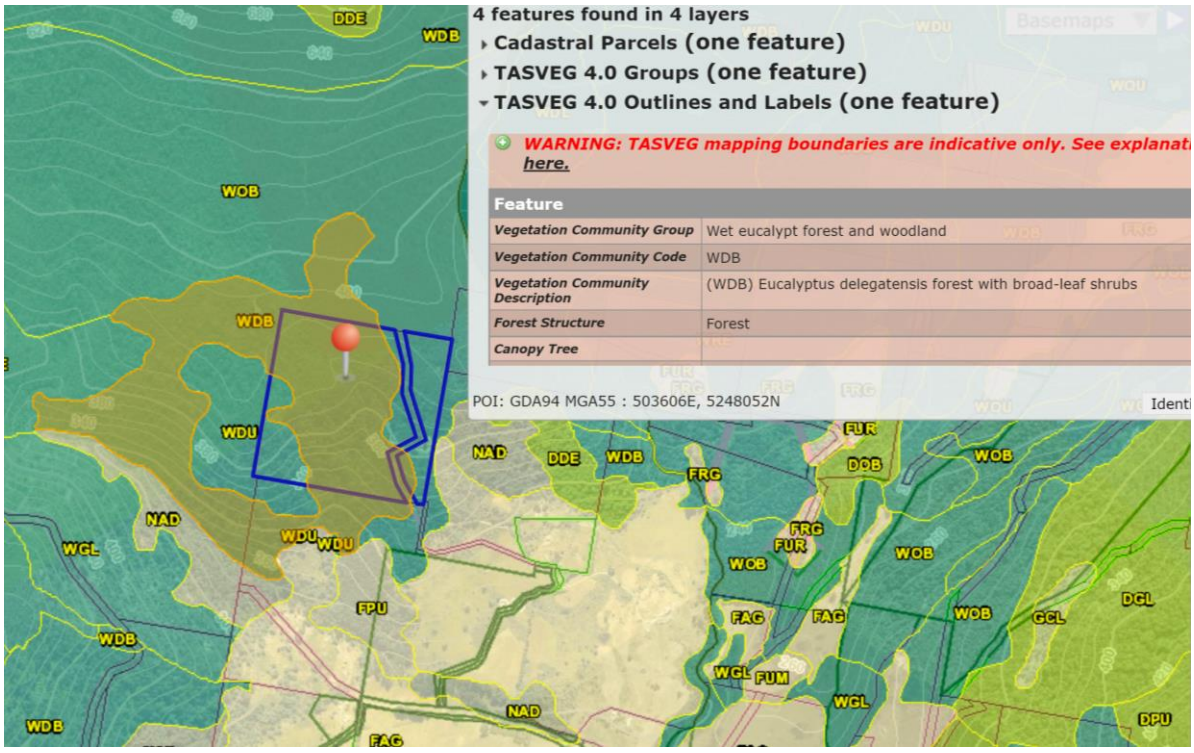


Figure.8. Tas Veg 4.0 Mapping of the subject site (shown outlined) showing the location of Eucalyptus delegatensis with broad leaf shrubs. Source: TheList, sourced 28 March 2022, no nominated scale.

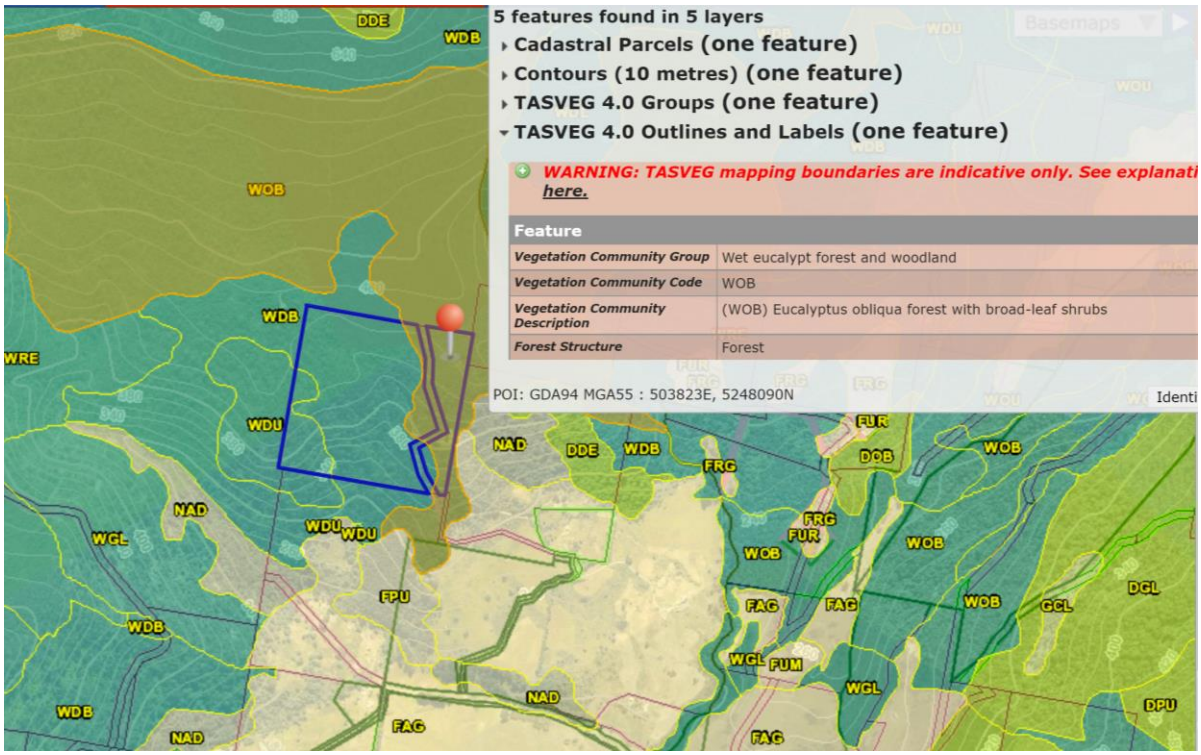


Figure.9. Tas Veg 4.0 Mapping of the subject site (shown outlined) showing the location of Eucalyptus obliqua forest with broad leaf shrubs. Source: TheList, sourced 28 March 2022, no nominated scale.

Assessment of the subject site by ECOTas December 2020

The subject site was studied by ecologist Mark Wapstra of EcoTas in December 2020 as part of a planning application for a dwelling. This assessment by ECOTas was endorsed by the Forest Practices Authority in terms of the vegetation communities and values identified.

This Natural Values Assessment is attached as Appendix A to this representation.

The subject site was inspected and ground truthed and assessed as being Eucalyptus regnans forest community with E.obliqua present as well as potentially some E.delegatensis with E.regnans dominant across the entirety of the subject site.

This is a different forest community to that mapped on Tas Veg 4.0 as outlined above.

The subject site has been assessed under the guidelines for application of the Priority Vegetation Code under Section 8A Guideline Number 1:

The priority vegetation area overlay is intended for native vegetation that:

• forms an integral part of a threatened native vegetation community as prescribed under Schedule 3A of the Nature Conservation Act 2002;

Comment:

Schedule 3A of the Nature Conservation Act 2002 was checked to see if any of the Tas Veg 4.0 or ECOTas confirmed communities were present.

This schedule outlines the following Eucalyptus communities as being threatened native vegetation communities (14 to 25):

8. *Athrotaxis selaginoides* subalpine scrub
9. *Banksia marginata* wet scrub
10. *Banksia serrata* woodland
11. *Callitris rhomboidea* forest
12. . . . . .
13. Cushion moorland
14. *Eucalyptus amygdalina* forest and woodland on sandstone
15. *Eucalyptus amygdalina* inland forest and woodland on cainozoic deposits
16. *Eucalyptus brookeriana* wet forest
17. *Eucalyptus globulus* dry forest and woodland
18. *Eucalyptus globulus* King Island forest
19. *Eucalyptus morrisbyi* forest and woodland
20. *Eucalyptus ovata* forest and woodland
21. *Eucalyptus risdonii* forest and woodland
22. *Eucalyptus tenuiramis* forest and woodland on sediments
23. *Eucalyptus viminalis - Eucalyptus globulus* coastal forest and woodland
24. *Eucalyptus viminalis* Furneaux forest and woodland
25. *Eucalyptus viminalis* wet forest
26. Heathland on calcareous substrates
27. Heathland scrub complex at Wingaroo
28. Highland grassy sedgeland
29. Highland *Poa* grassland

None of these communities are present as mapped either by Tas Veg 4.0 mapping or when the subject site was assessed (including ground truthing assessment of present vegetation within the subject site).

The subject site therefore does not contain any threatened vegetation community.

• *is a threatened flora species;*

Comment:

The subject site was assessed by ECOTas In December 2020 and confirmed as not containing any threatened flora species.

• *forms a significant habitat for a threatened fauna species; or*

Comment:

The subject site was assessed by ECOTas in December 2020 and confirmed as not containing any significant habitat for any threatened fauna species.

• *has been identified as native vegetation of local importance.*

Comment:

The subject site was assessed by ECOTas in December 2020 and confirmed as not containing any native vegetation of any local importance.

In addition, it must be noted that Council have not undertaken any natural or landscape values assessment of the subject site or surrounding area or in any part of the municipality as part of their background work for the draft LPS.

Overlays Summary

None of the guidelines for the application of the Biodiversity Protection Area (referred to as a Priority Vegetation Area under the State Planning Provisions) overlay apply to the subject site.

It is understood that the Huon Valley Council LPS will trigger the Natural Assets Code applying to properties where any of the following areas are applicable:

- Waterway and Coastal Protection Area;
- Future Coastal Refugia Area; or
- Priority Vegetation Area.

The subject site does have a waterway area mapped, but is not in a coastal setting and does not meet any of the guidelines for having a Biodiversity Protection Area under the current Interim Planning Scheme or a Priority Vegetation Area under the upcoming Tasmanian Planning Scheme and Huon Valley Council LPS overlay applied.

The proposed Priority Vegetation Area overlay must be removed as applying to 106 Mitchells Road at Crabtree given there is considered no argument at all justifying its application.

Request for the proposed rezoning to be reconsidered by Council and the TPC

The owner is requesting that the proposed zoning of the subject site to Landscape Conservation be reconsidered in context of the issues outlined in this representation.

The current and proposed application of the Landscape Conservation zone is considered inappropriate when assessed against the Section 8A Guideline No.1 LPS zone and Code application guidelines with respect to the subject site characteristics, absence of any natural or landscape values and the absence of any assessment by Council that identifies values or particular environmental attributes as outlined in this representation.

The owner of the subject site has had a recent Natural Values assessment (see Appendix A) that confirms the subject site has no threatened species and no threatened communities.

While the vegetation community mapping of the subject site differs between Tas Veg 4.0 mapping on The List and the assessment undertaken by ECOTas which included site inspections and ground truthing of species present, none of the noted Eucalyptus communities are included in schedule 3A of the *Nature Conservation Act 2002*.

It is considered that the Tasmanian Planning Commission instead consider a 'like for like' zoning of Rural for the subject site at 106 Mitchells Road which is compatible with its lack of any identified values, its lower hillside setting close to the valley floor, and being immediately adjacent to Rural zoned land which has been widely applied in the surrounding area to properties with similar characteristics including use, tree over, application of overlays, topography, size and gradient.

It is further requested that the proposed Priority Vegetation Area overlay must not be applied to the subject site as it does not meet any of the guidelines for the application of this overlay.

Should you wish to discuss this representation, I may be contacted on 0439 342 696.

Yours faithfully

Danielle Gray B.Env.Des. MTP. MPIA

Principal Consultant, Gray Planning

On behalf of Mr Caleb Elcock, owner 106 Mitchells Road, Crabtree

Appendix A – December 2020 ECOTas assessment

Appendix B - Apiary Analysis for 106 Mitchells Road Crabtree dated 4 April 2022

Australian Government

Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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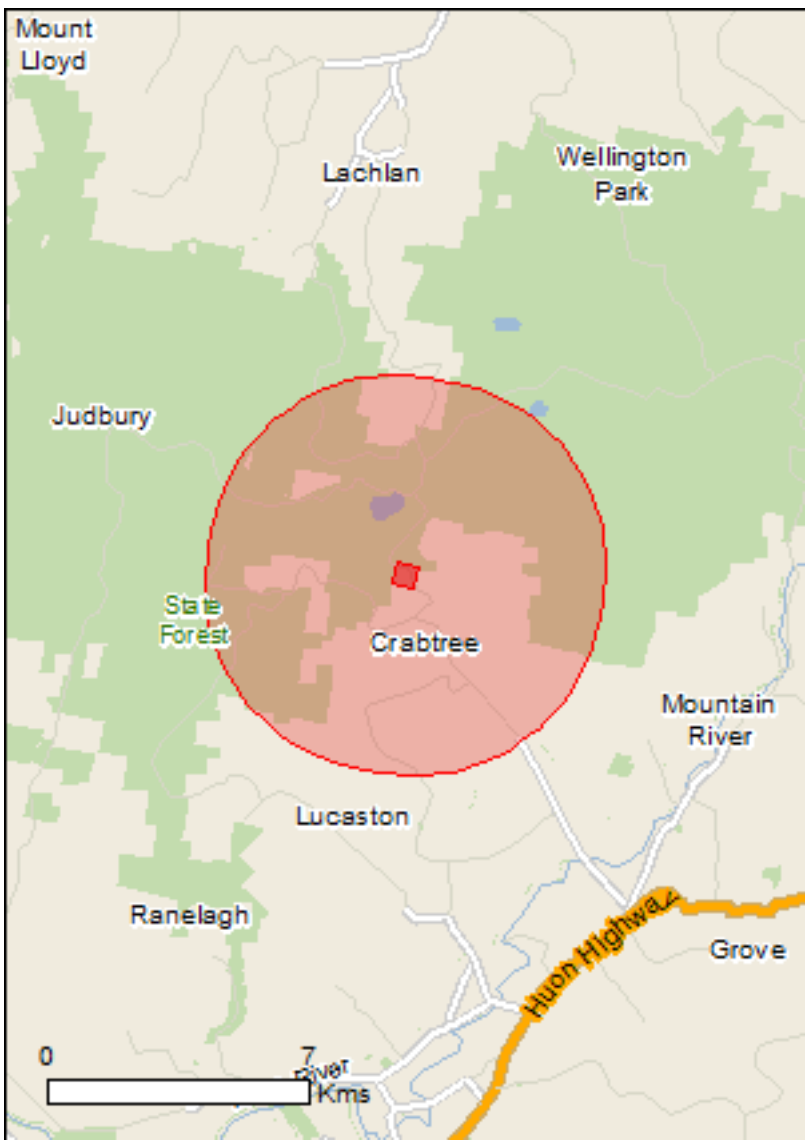

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

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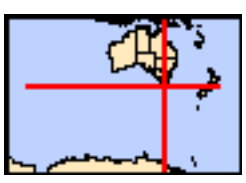

Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	24
Listed Migratory Species:	9

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 http://www.environment.gov.au/heritage

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

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	10
Regional Forest Agreements:	1
Invasive Species:	29
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Alpine Sphagnum Bogs and Associated Fens	Endangered	Community likely to occur within area
Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (Eucalyptus ovata / E. brookeriana)	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Aquila audax fleayi Tasmanian Wedge-tailed Eagle, Wedge-tailed Eagle (Tasmanian) [64435]	Endangered	Breeding likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Ceyx azureus diemenensis Tasmanian Azure Kingfisher [25977]	Endangered	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Thinornis cucullatus cucullatus Hooded Plover (eastern), Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area
Tyto novaehollandiae castanops (Tasmanian population) Masked Owl (Tasmanian) [67051]	Vulnerable	Species or species habitat known to occur within area
Fish		

Name	Status	Type of Presence
[Prototroctes maraena](#)		
Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area
Frogs		
[Litoria raniformis](#)		
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area
Insects		
[Antipodia chaostola leucophaea](#)		
Tasmanian Chaostola Skipper, Heath-sand Skipper [77672]	Endangered	Species or species habitat may occur within area
Mammals		
[Dasyurus maculatus maculatus (Tasmanian population)](#)		
Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (Tasmanian population) [75183]	Vulnerable	Species or species habitat likely to occur within area
[Dasyurus viverrinus](#)		
Eastern Quoll, Luaner [333]	Endangered	Species or species habitat known to occur within area
[Perameles gunnii gunnii](#)		
Eastern Barred Bandicoot (Tasmania) [66651]	Vulnerable	Species or species habitat known to occur within area
[Sarcophilus harrisii](#)		
Tasmanian Devil [299]	Endangered	Species or species habitat likely to occur within area
Plants		
[Caladenia caudata](#)		
Tailed Spider-orchid [17067]	Vulnerable	Species or species habitat likely to occur within area
[Colobanthus curtisiae](#)		
Curtis' Colobanth [23961]	Vulnerable	Species or species habitat likely to occur within area
[Glycine latrobeana](#)		
Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area
[Lepidium hyssopifolium](#)		
Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat may occur within area
[Prasophyllum amoenum](#)		
Dainty Leek-orchid [64946]	Endangered	Species or species habitat likely to occur within area
[Prasophyllum apoxychilum](#)		
Tapered Leek-orchid [64947]	Endangered	Species or species habitat may occur within area
[Xerochrysum palustre](#)		
Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
[Apus pacificus](#)		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
[Hirundapus caudacutus](#)		
White-throated Needletail [682]	Vulnerable	Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Breeding likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable*	Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Bakers Creek	TAS
Bakers Creek Road	TAS
Becks Creek	TAS
Crabtree #2	TAS
Crabtree #3	TAS
Crabtree Conservation #1 Covenant	TAS
Lachlan	TAS
Lucaston	TAS
Russell Ridge	TAS
Wellington Park	TAS

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
Tasmania RFA	Tasmania

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-42.918597 147.042148,-42.919272 147.047555,-42.923154 147.046633,-42.922494 147.041225,-42.918597 147.042148

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact Us page.

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Threatened Fauna Range Boundaries Boundaries

Search Point 503624E,5247971N is within the following fauna range boundaries as at Mon Nov 30 2020 17:12:23 GMT+1100 (Australian Eastern Daylight Time)

Common name	Species name	Range Class	Habitat Description
grey goshawk	Accipiter novaehollandiae	Core Range	Potential habitat for the grey goshawk is native forest with mature elements below 600 m altitude, particularly along watercourses. FPA's Fauna Technical Note 12 can be used as a guide in the identification of grey goshawk habitat. Significant habitat for the grey goshawk may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.). FPA's Fauna Technical Note 12 can be used as a guide in the identification of grey goshawk habitat.
chaostola skipper	Antipodia chaostola	Potential Range	Potential habitat for the Chaostola Skipper is dry forest and woodland supporting Gahnia radula (usually on sandstone and other sedimentary rock types) or Gahnia microstachya (usually on granite-based substrates).
wedge-tailed eagle	Aquila audax subsp. fleayi	Potential Range	Potential habitat for the wedge-tailed eagle comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is a wide variety of forest (including areas subject to native forest silviculture) and non-forest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year. [see FPA's Fauna Technical Note 1 and FPA's Fauna Technical Note 6 for more information] Significant habitat for the wedge-tailed eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where the nest tree is still present).
spotted-tailed quoll	Dasyurus maculatus	Potential Range	Potential habitat for the spotted-tailed quoll is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex areas are present, and includes remnant patches in cleared agricultural land or plantation areas. Significant habitat for the spotted-tailed quoll is all potential denning habitat within the core range of the species. Potential denning habitat for the spotted-tailed quoll includes 1) any forest remnant (>0.5ha) in a cleared or plantation landscape that is structurally complex (high canopy, with dense understorey and ground vegetation cover), free from the risk of inundation, or 2) a rock outcrop, rock crevice, rock pile, burrow with a small entrance, hollow logs, large piles of coarse woody debris and caves. FPA's Fauna Technical Note 10 can be used as a guide in the identification of potential denning habitat.
eastern quoll	Dasyurus viverrinus	Core Range	Potential habitat for the Eastern quoll includes rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest and native grassland mosaics which are bounded by agricultural land. Potential range for the Eastern Quoll is the whole of mainland Tasmania and Bruny Island. Core range for the Eastern Quoll is a specialist-defined area based primarily on modelling work published in Fancourt et al 2015 and additional expert advice.
white-bellied sea-eagle	Haliaeetus leucogaster	Potential Range	Potential habitat for the White-Bellied Sea-eagle species comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (Class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used. Significant habitat for the white-bellied sea-eagle is all native forest and native non-forest vegetation within 500 m or 1 km line-of-sight of known nest sites (where nest tree still present).
swift parrot	Lathamus discolor	SE Potential Range	Potential breeding habitat for the Swift Parrot comprises potential foraging habitat and potential nesting habitat, and is based on definitions of foraging and nesting trees (see Table A in swift parrot habitat assessment Technical Note). Potential foraging habitat comprises E. globulus or E. ovata trees that are old enough to flower. The occurrence of foraging-habitat can be remotely assessed, although only to a limited extent, by using mapping layers such as GlobMap (DPIPWE 2010). Due to the scale and inadequacies in current foraging-habitat mapping, potential foraging-habitat density within operational areas may need to be largely identified by ground-based surveys as per Table B in the swift parrot habitat assessment Technical Note. For management purposes potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees. The FPA mature habitat availability map (see Technical Note 2) predicts the availability of hollow-bearing trees using the relevant definitions of habitat provided in Table C of the swift parrot habitat assessment Technical Note. The mature habitat availability map is designed to be used to make landscape-scale assessments and may not be reliable for stand-level assessments required during the development of a Forest Practices Plan. At the stand-level the availability and distribution of hollow-bearing trees across a coupe or operation area is best determined from a ground-based assessment (see Table C in the swift parrot habitat assessment Technical Note). Significant habitat is all potential breeding habitat within the SE potential breeding range and the NW breeding areas.
mt. mangana stag beetle	Lissotes menalcas	Known Range	Potential habitat for the Mt Mangana stag beetle is any eucalypt forest that contains rotting logs (often numerous, and usually greater than about 40 cm diameter at mid-log length) below about 650 m a.s.l. (generally moist habitats that have not been subject to high intensity or frequent fires in about the last 20 years). The species has a patchy distribution within areas of potential habitat. Some rainforest will support the species, although in low densities as the species has an apparent preference for eucalypt logs. In terms of using mapping layers, potential habitat is all areas mapped as `wet forest' under TASVEG or another forest type that is within 50 m of a freshwater source (e.g. stream or wetland) and either high, medium or low mature habitat availability OR PI-type mature crown density class `a', `b', `c', `d' and `f'. Significant habitat for the Mt Mangana stag beetle is all potential habitat within the known range.

Common name	Species name	Range Class	Habitat Description
tasmanian devil	Sarcophilus harrisii	Potential Range	Potential habitat for the Tasmanian devil is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (4-27 km^2). Significant habitat for the Tasmanian devil is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range (Pemberton 1990). Potential denning habitat for the Tasmanian devil is areas of burrowable, well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass. FPA's Fauna Technical Note 10 can be used as a guide in the identification of potential denning habitat
masked owl	Tyto novaehollandiae	Core Range	Potential habitat for the masked owl is all areas with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute potential habitat. Significant habitat for the masked owl is any area of native dry forest, within the core range, with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may also constitute significant habitat. See FPA Fauna Technical Note 17 for guidance on assessing masked owl habitat using 'on-ground' and remote methods.

Showing 1 to 10 of 10 entries

Threatened Fauna Records

Fauna Records within 5000m of 503624E,5247971N at Mon Nov 30 2020 17:12:23 GMT+1100 (Australian Eastern Daylight Time)

Records with the project code 'rnd' and same foreign ID (nest ID) have been simplified to only show the newest observation.

Species name	Common name	Reported Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Date accuracy	Obs. state	Project code + Foreign id	NVA id
Tyto novaehollandiae	masked owl	100	503932	5243583	4399	Sighting	1996-06-28	Unknown	Present	fos cra-rfa:fos:12389/1	NVA
Perameles gunnii	eastern barred bandicoot	25	504422	5243103	4933	Sighting	1995-09-28	Unknown	Present	tp tp:tp:10105/1	NVA
Hirundapus caudacutus	white-throated needletail	200	503612	5243483	4488	Sighting	1996-03-15	Unknown	Present	tp tp:tp:11058/1	NVA
Dasyurus viverrinus	eastern quoll	1000	506412	5243883	4948	Sighting	1992-01-12	Unknown	Present	tp tp:tp:13791/1	NVA
Perameles gunnii	eastern barred bandicoot	1850	505551	5246752	2280	Sighting	1977-07-17	Unknown	Present	tpo tpo:tpo:3463/1	NVA
Lissotes menalcas	mount mangana stag beetle	100	502613	5245283	2872	Sighting	2006-10-18	Day	Present	dpiw-fauna 7036	NVA
Tyto novaehollandiae	masked owl	100	506000	5245400	3501	Sighting	2009-10-01	Month	Present	dpiw-fauna	NVA
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	10	502790	5248810	1183	Nest	2012-05-31	Day	Present	rnd 2023	NVA
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	100	506477	5248520	2905	Nest	2014-10-10	Day	Present	rnd 2180	NVA
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	5	501462	5245602	3207	Nest	2014-07-25	Day	Present	rnd 1001	NVA
Aquila audax	wedge-tailed eagle	20	504596	5243442	4632	Nest	2016-03-28	Day	Present	rnd 2299	NVA
Accipiter novaehollandiae	grey goshawk	25	504742	5247832	1127	Nest	2020-06-30	6 months	Present	rnd 2799	NVA

Showing 1 to 12 of 12 entries

Threatened Flora Records

Flora Records within 2000m of 503624E, 5247971N at Mon Nov 30 2020 17:12:23 GMT+1100 (Australian Eastern Daylight Time)

Species name	Common name	Reported Position accuracy (m)	X	Y	Distance (m)	Obs. type	Obs. date	Date accuracy	Obs. state	NVA id
Allocasuarina duncanii	conical sheoak	100	503712	5249583	1614	Sighting	1997-11-12	Day	Present	NVA
Allocasuarina duncanii	conical sheoak	20	504855	5248317	1279	Sighting	2008-12-18	Day	Present	NVA
Allocasuarina duncanii	conical sheoak	20	504862	5247736	1260	Sighting	2009-01-07	Day	Present	NVA
Allocasuarina duncanii	conical sheoak	50	503672	5249523	1553	Sighting	2001-01-01	Year	Present	NVA
Westringia angustifolia	narrowleaf westringia	5	503782	5249564	1601	Sighting	2009-07-29	Day	Present	NVA
Westringia angustifolia	narrowleaf westringia	5	503599	5249521	1550	Sighting	2009-07-29	Day	Present	NVA
Westringia angustifolia	narrowleaf westringia	5	503621	5249551	1580	Sighting	2009-07-29	Day	Present	NVA
Westringia angustifolia	narrowleaf westringia	5	503780	5249610	1646	Sighting	2009-07-29	Day	Present	NVA

Showing 1 to 8 of 8 entries

Threatened Flora Survey Notes

SURVEY SKILL LEVEL

Refer to Threatened Flora Species Survey Notes (FPA 2016) for more information.

Survey skill level:

1: highly distinctive species – an FPO or forest planner can undertake surveys

2: distinctive species – a flora-competent forest planner can undertake surveys

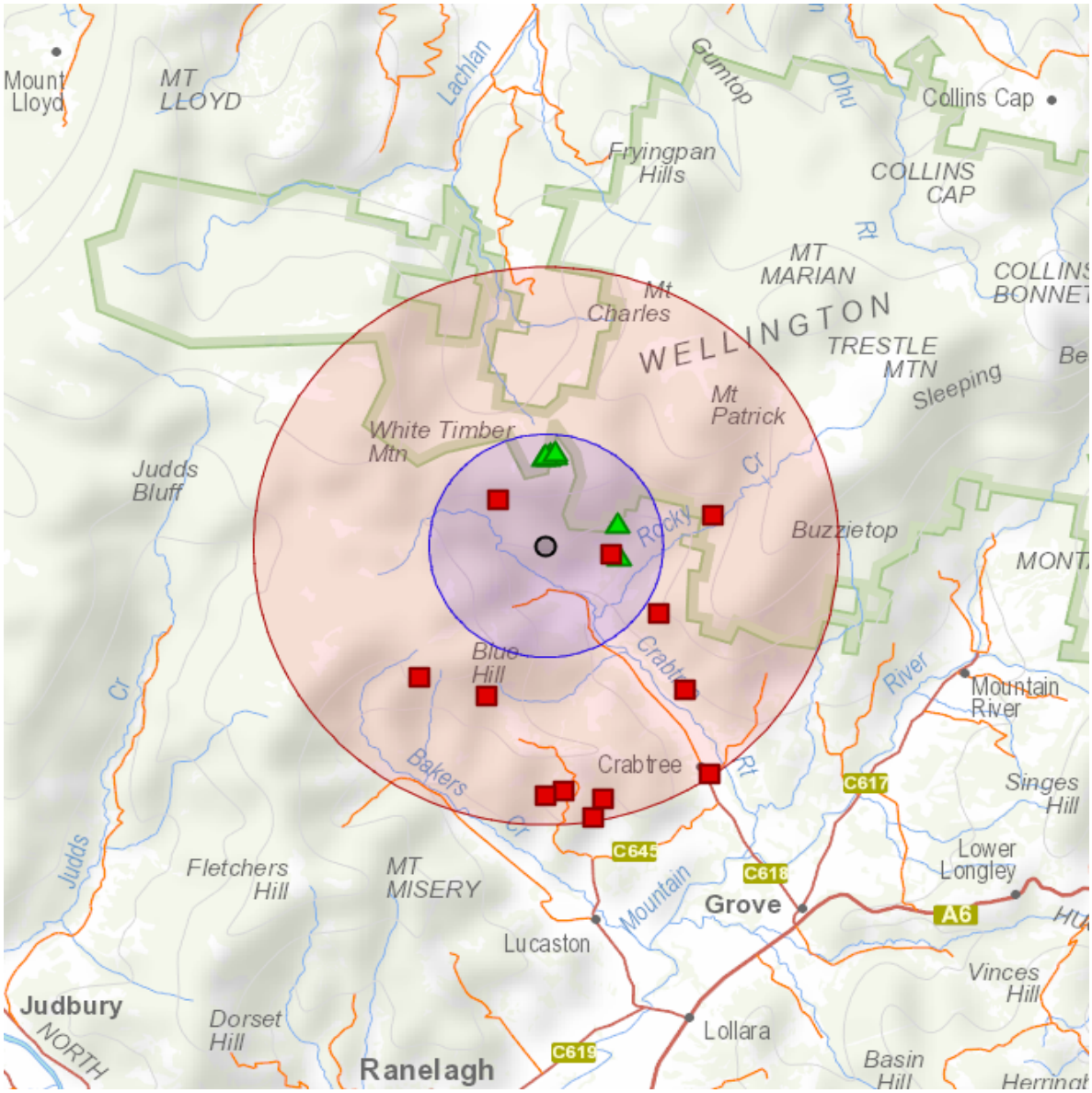
3: non-distinctive species and species occupying specialised niches – only experienced field botanists can undertake surveys

HABITAT DESCRIPTION

Refer to Habitat Descriptions of Threatened Flora in Tasmania (FPA 2016) for more information.

Species name	Common name	Life form	Status TSPA, EPBCA	Habitat description	Survey guidelines	Survey skill level
Allocasuarina duncanii	conical sheoak	tree	r, -	Allocasuarina duncanii is strongly associated with dolerite rock plates or shallow soils over dolerite, where it occurs in monotypic stands or in association with Eucalyptus delegatensis or E. coccifera. Two small sites are on quarzitic sandstone. The species is found from 230-1,000 m a.s.l. with most sites above 500 m.	This small tree can be identified at any time of the year using vegetative characteristics, including its (mostly) conical growth form. Some individuals/stands appear to intergrade with Allocasuarina monilifera.	1
Westringia angustifolia	narrowleaf westringia	shrub	r, -	Westringia angustifolia occurs mainly in mid elevations, always on dolerite (but can be close to dolerite-sediment contact zones), in dry to wet sclerophyll forest on broad ridges, slopes and dense riparian shrubberies.	This medium dense shrub can be detected at any time of the year and is identifiable from vegetative features alone. Flowers aid detection, especially where the species is scattered amongst dense shrubs or boulders.	2

Showing 1 to 2 of 2 entries



Natural Values Atlas Report

Authoritative, comprehensive information on Tasmania's natural values.

Reference:	ECOtas_JefferysTrack
Requested For:	MWapstra
Report Type:	Summary Report
Timestamp:	05:10:55 PM Monday 30 November 2020
Threatened Flora:	buffers Min: 500m Max: 5000m
Threatened Fauna:	buffers Min: 500m Max: 5000m
Raptors:	buffers Min: 500m Max: 5000m
Tasmanian Weed Management Act Weeds:	buffers Min: 500m Max: 5000m
Priority Weeds:	buffers Min: 500m Max: 5000m
Geoconservation:	buffer 1000m
Acid Sulfate Soils:	buffer 1000m
TASVEG:	buffer 1000m
Threatened Communities:	buffer 1000m
Fire History:	buffer 1000m
Tasmanian Reserve Estate:	buffer 1000m
Biosecurity Risks:	buffer 1000m

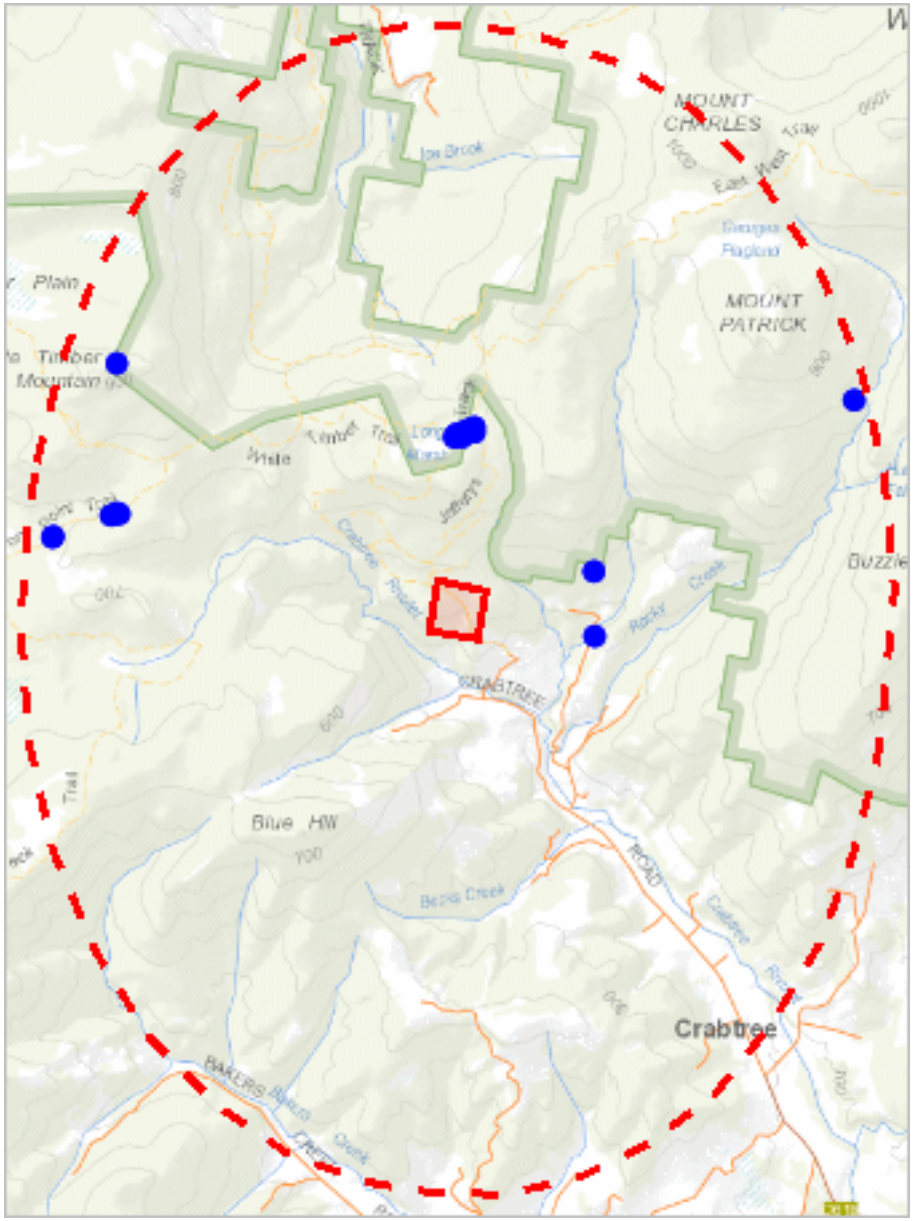
The centroid for this query GDA94: 503624.0, 5247971.0 falls within:

Property: 5695438

*** No threatened flora found within 500 metres ***

Threatened flora within 5000 metres

507705, 5253415



499547, 5242522

Please note that some layers may not display at all requested map scales

Threatened flora within 5000 metres

Legend: Verified and Unverified observations

Point Verified | Point Unverified | Line Verified | Line Unverified

Polygon Verified | Polygon Unverified

Legend: Cadastral Parcels

Threatened flora within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Allocasuarina duncanii	conical sheoak	r		e	11	05-Dec-2017
Centropappus brunonis	tasmanian daisytree	r		e	4	25-Jul-2013
Westringia angustifolia	narrowleaf westringia	r		e	6	15-Feb-2011

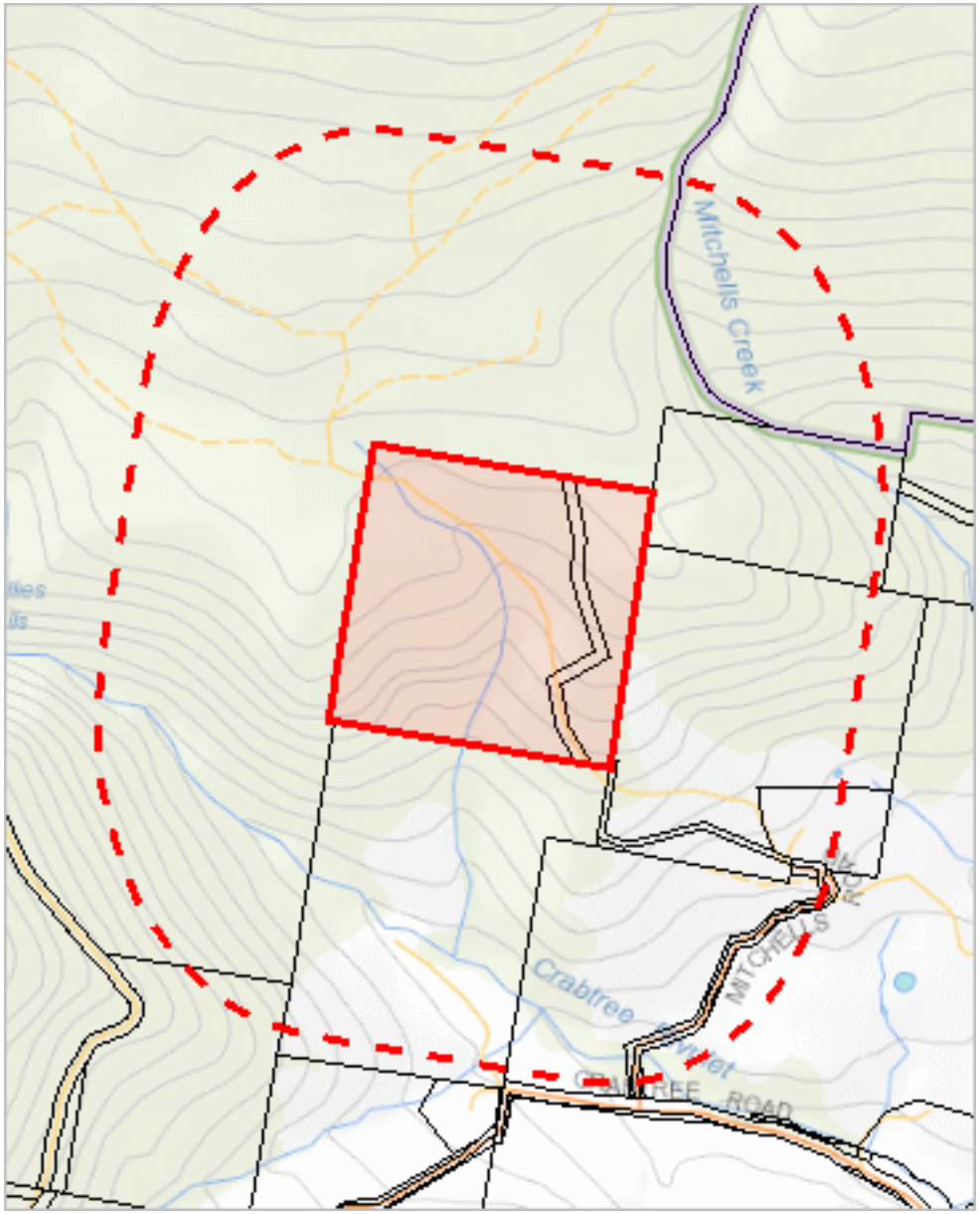
Unverified Records

No unverified records were found!

For more information about threatened species, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 500 metres

504394, 5248925



502853, 5247016

Please note that some layers may not display at all requested map scales

Threatened fauna within 500 metres

Legend: Verified and Unverified observations

Point Verified | Point Unverified | Line Verified | Line Unverified

Polygon Verified | Polygon Unverified

Legend: Cadastral Parcels

Threatened fauna within 500 metres

(based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
Lathamus discolor	swift parrot	e	CR	mbe	1	0	0
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	0
Prototroctes maraena	australian grayling	v	VU	ae	1	0	0
Antipodia chaostola	chaostola skipper	e	EN	ae	1	0	0
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	0
Tyto novaehollandiae subsp. castanops	masked owl (Tasmanian)	e	VU	e	1	0	1
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	1
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Lissotes menalcas	mount mangana stag beetle	v		e	1	1	0
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

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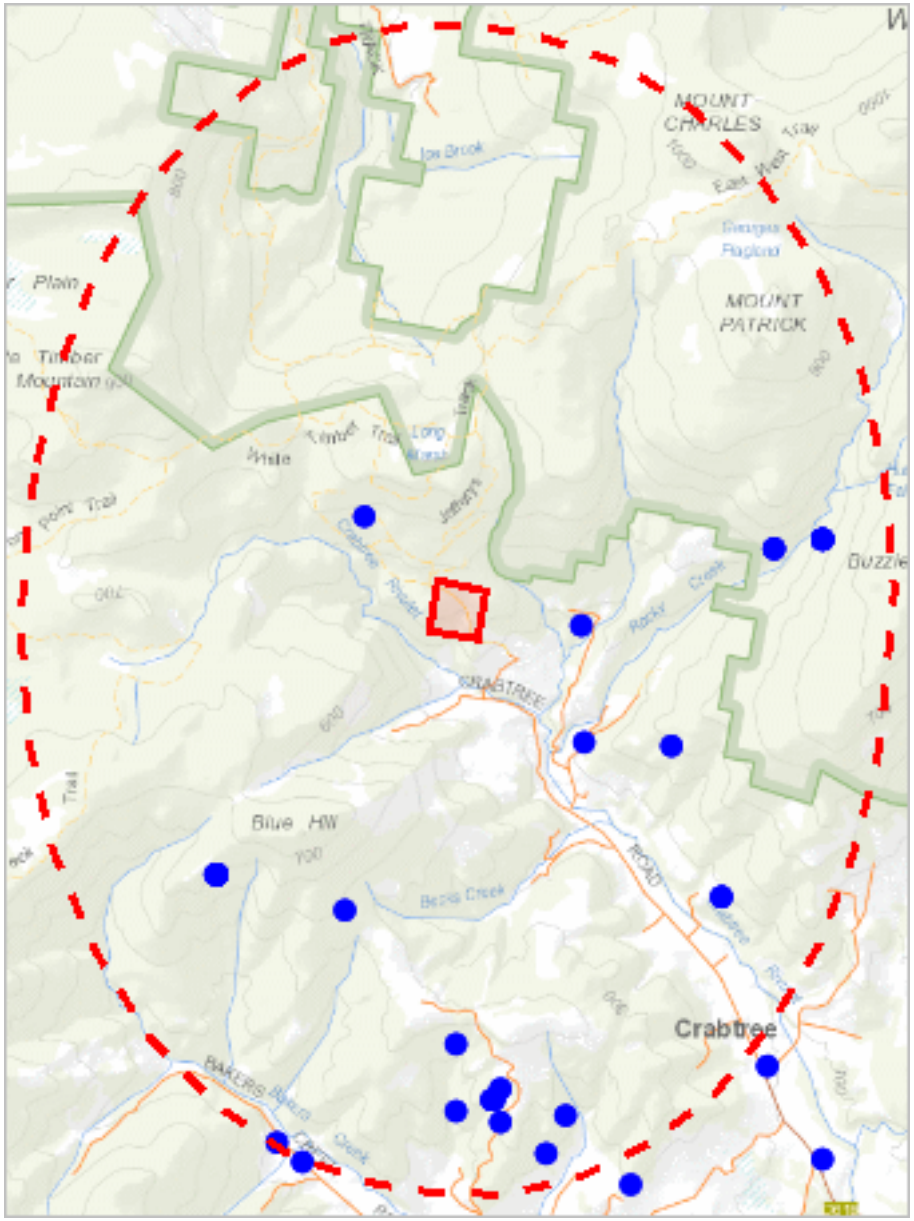
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 5000 metres

507705, 5253415



499547, 5242522

Please note that some layers may not display at all requested map scales

Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

Point Verified | Point Unverified | Line Verified | Line Unverified

Polygon Verified | Polygon Unverified

Legend: Cadastral Parcels

Threatened fauna within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Accipiter novaehollandiae	grey goshawk	e		n	3	30-Jun-2020
Aquila audax	wedge-tailed eagle	pe	PEN	n	1	28-Mar-2016
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	17	11-Sep-2020
Dasyurus viverrinus	eastern quoll		EN	n	1	12-Jan-1992
Hirundapus caudacutus	white-throated needletail		VU	n	1	15-Mar-1996
Lathamus discolor	swift parrot	e	CR	mbe	7	26-Oct-1995
Lissotes menalcas	mount mangana stag beetle	v		e	1	18-Oct-2006
Perameles gunnii	eastern barred bandicoot		VU	n	4	18-Nov-2017
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	10-Mar-2015
Tyto novaehollandiae	masked owl	pe	PVU	n	3	01-Oct-2009

Unverified Records

No unverified records were found!

Threatened fauna within 5000 metres

(based on Range Boundaries)

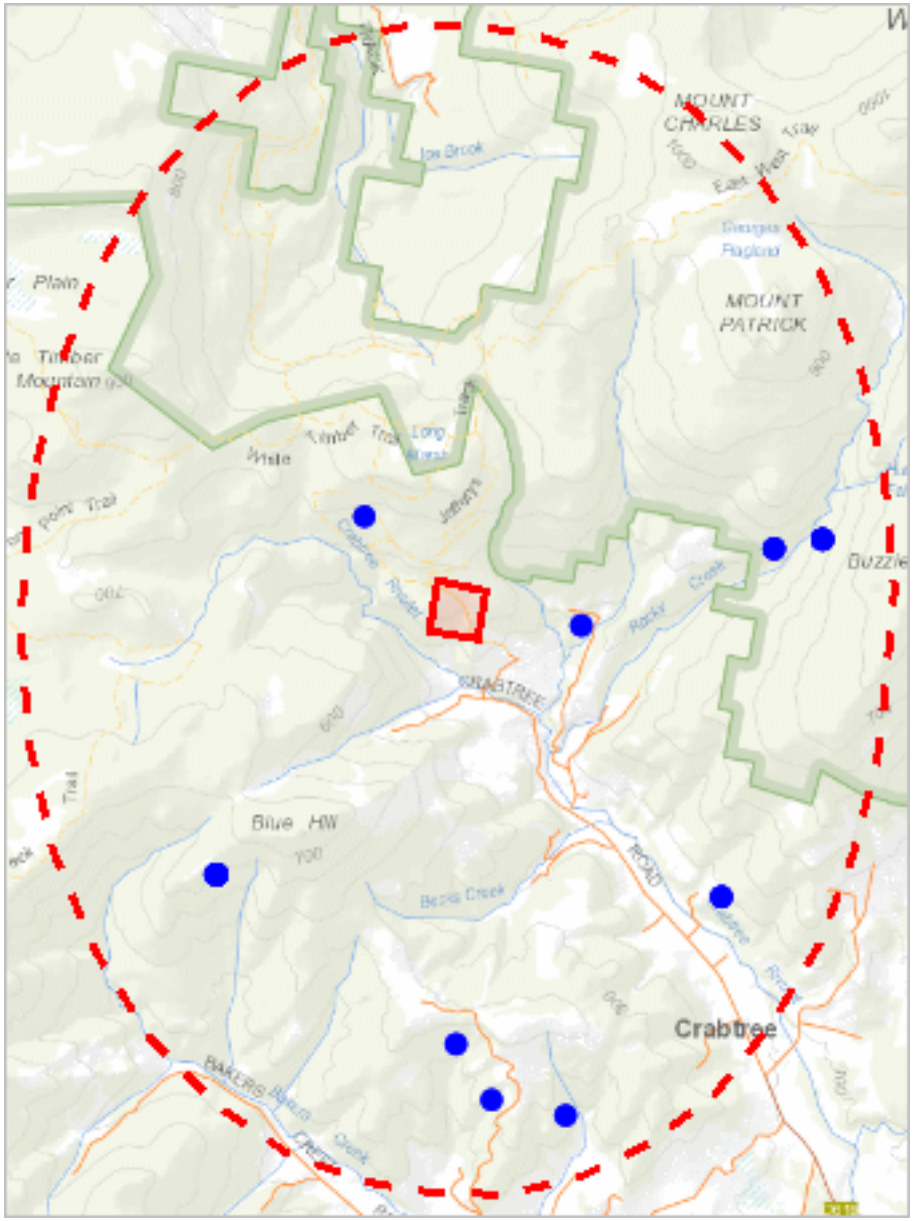
Species	Common Name	SS	NS	BO	Potential	Known	Core
Lathamus discolor	swift parrot	e	CR	mbe	1	0	1
Dasyurus maculatus subsp. maculatus	spotted-tail quoll	r	VU	n	1	0	0
Litoria raniformis	green and gold frog	v	VU	n	1	0	0
Prototroctes maraena	australian grayling	v	VU	ae	1	0	0
Antipodia chaostola	chaostola skipper	e	EN	ae	1	0	0
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	0
Tyto novaehollandiae subsp. castanops	masked owl (Tasmanian)	e	VU	e	1	0	1
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	1
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	1	0	0
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Lissotes menalcas	mount mangana stag beetle	v		e	1	1	0
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	0
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

For more information about threatened species, please contact Threatened Species Enquiries.
Telephone: 1300 368 550
Email: ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Raptor nests or sightings found within 500 metres. ***

Raptor nests and sightings within 5000 metres

507705, 5253415



499547, 5242522

Please note that some layers may not display at all requested map scales

Raptor nests and sightings within 5000 metres

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

Raptor nests and sightings within 5000 metres

Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
1001	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	10	11-Sep-2020
1001	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	1	13-Nov-2017
2023	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	31-May-2012
2180	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	10-Oct-2014
2180	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	1	18-Aug-2020
2299	Aquila audax	wedge-tailed eagle	Nest	1	28-Mar-2016
2799	Accipiter novaehollandiae	grey goshawk	Nest	1	30-Jun-2020
	Accipiter novaehollandiae	grey goshawk	Sighting	2	01-Oct-2009
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Carcass	1	31-May-2011
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	3	11-Jun-1980
	Falco peregrinus	peregrine falcon	Sighting	1	14-Nov-1978
	Tyto novaehollandiae	masked owl	Sighting	3	01-Oct-2009

Unverified Records

No unverified records were found!

Raptor nests and sightings within 5000 metres

(based on Range Boundaries)

Species	Common Name	SS	NS	Potential	Known	Core
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	1	0	0
Accipiter novaehollandiae	grey goshawk	e		1	0	1
Haliaeetus leucogaster	white-bellied sea-eagle	v		1	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

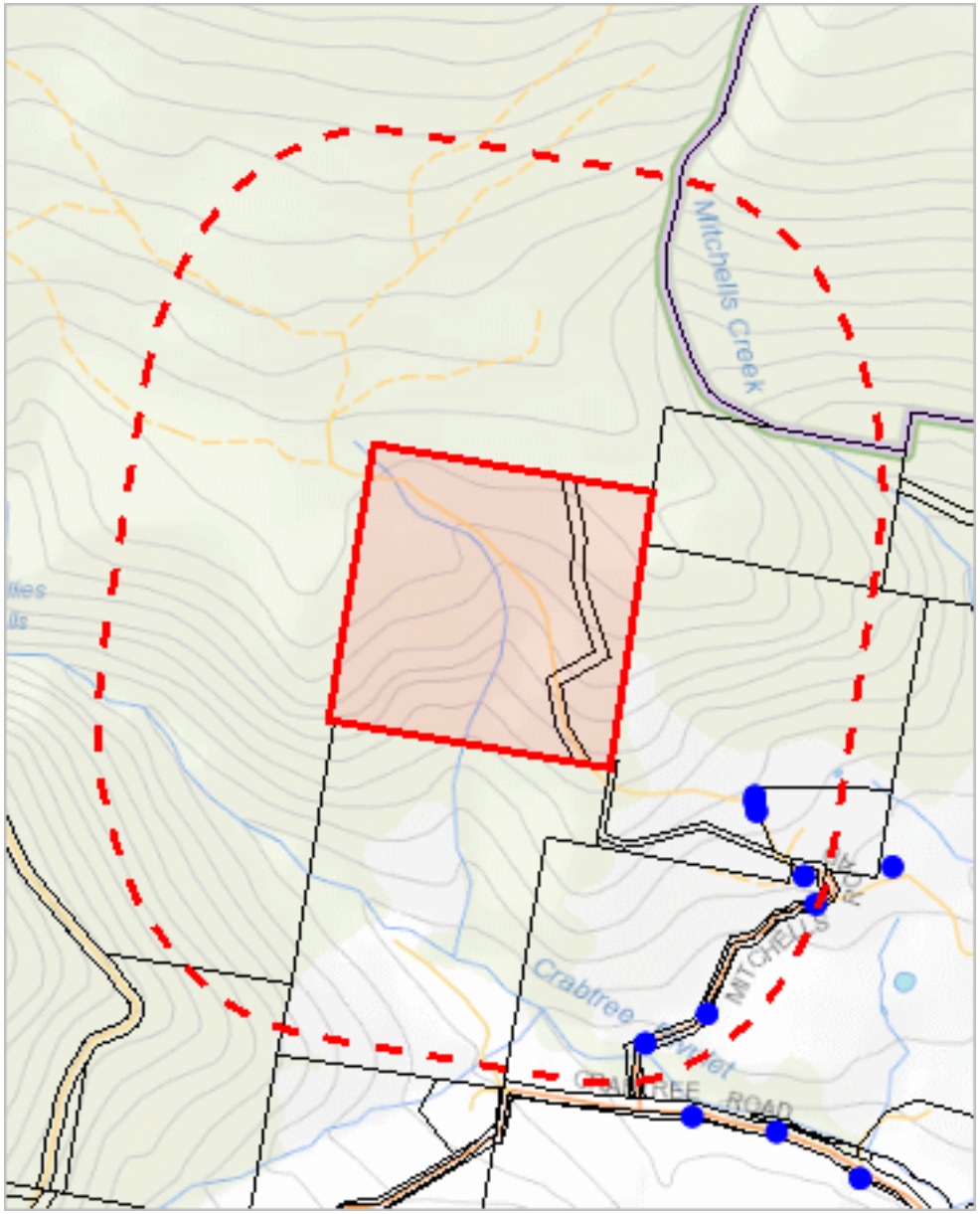
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@dpipwe.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Tas Management Act Weeds within 500 m

504394, 5248925



502853, 5247016

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 500 m

Legend: Verified and Unverified observations

Legend: Cadastral Parcels

Tas Management Act Weeds within 500 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Cirsium arvense var. arvense	creeping thistle	1	05-Nov-2019
Genista monspessulana	montpellier broom	1	11-Sep-2007
Rubus fruticosus	blackberry	6	11-Sep-2007

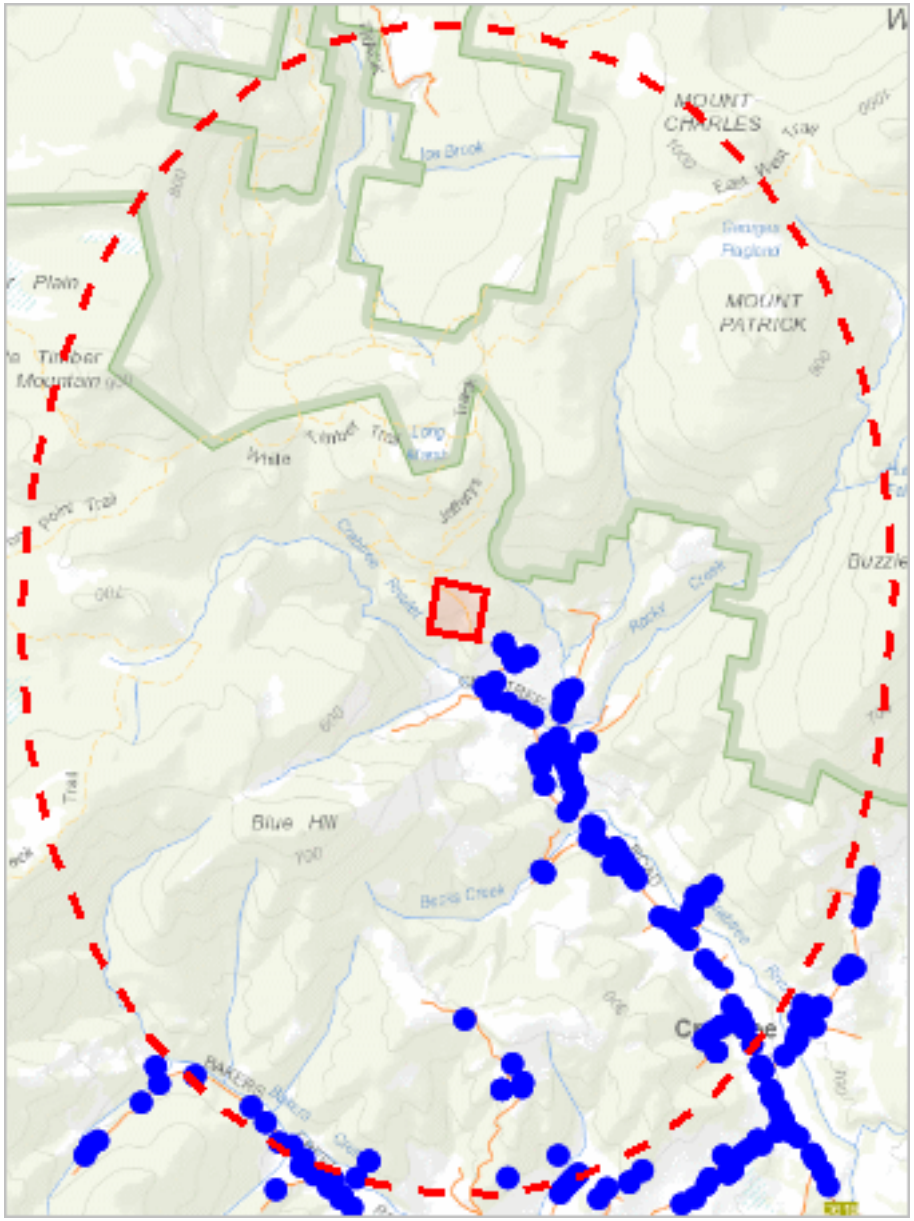
Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

http://dpipwe.tas.gov.au/invasive-species/weeds

Tas Management Act Weeds within 5000 m

507705, 5253415



499547, 5242522

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 5000 m

Legend: Verified and Unverified observations

- Point Verified
- Point Unverified
- Line Verified
- Line Unverified
- Polygon Verified
- Polygon Unverified

Legend: Cadastral Parcels

Tas Management Act Weeds within 5000 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Cirsium arvense var. arvense	creeping thistle	1	05-Nov-2019
Cortaderia selloana	silver pampasgrass	3	17-Sep-2007
Cortaderia sp.	pampas grass	2	15-Sep-2015
Cytisus scoparius	english broom	11	11-Sep-2007
Datura ferox	longspine thornapple	1	18-Feb-2010
Datura stramonium	common thornapple	1	18-Feb-2010
Erica lusitanica	spanish heath	11	17-Sep-2007
Foeniculum vulgare	fennel	1	11-Sep-2007
Genista monspessulana	montpellier broom	3	11-Sep-2007
Hypericum perforatum	perforated st johns-wort	1	17-Jan-2017
Hypericum tetrapterum var. tetrapterum	square st johns-wort	3	16-Feb-2006
Ilex aquifolium	holly	3	11-Sep-2007
Leycesteria formosa	himalayan honeysuckle	2	11-Sep-2007
Rubus fruticosus	blackberry	106	17-Sep-2007
Ulex europaeus	gorse	4	11-Sep-2007

Unverified Records

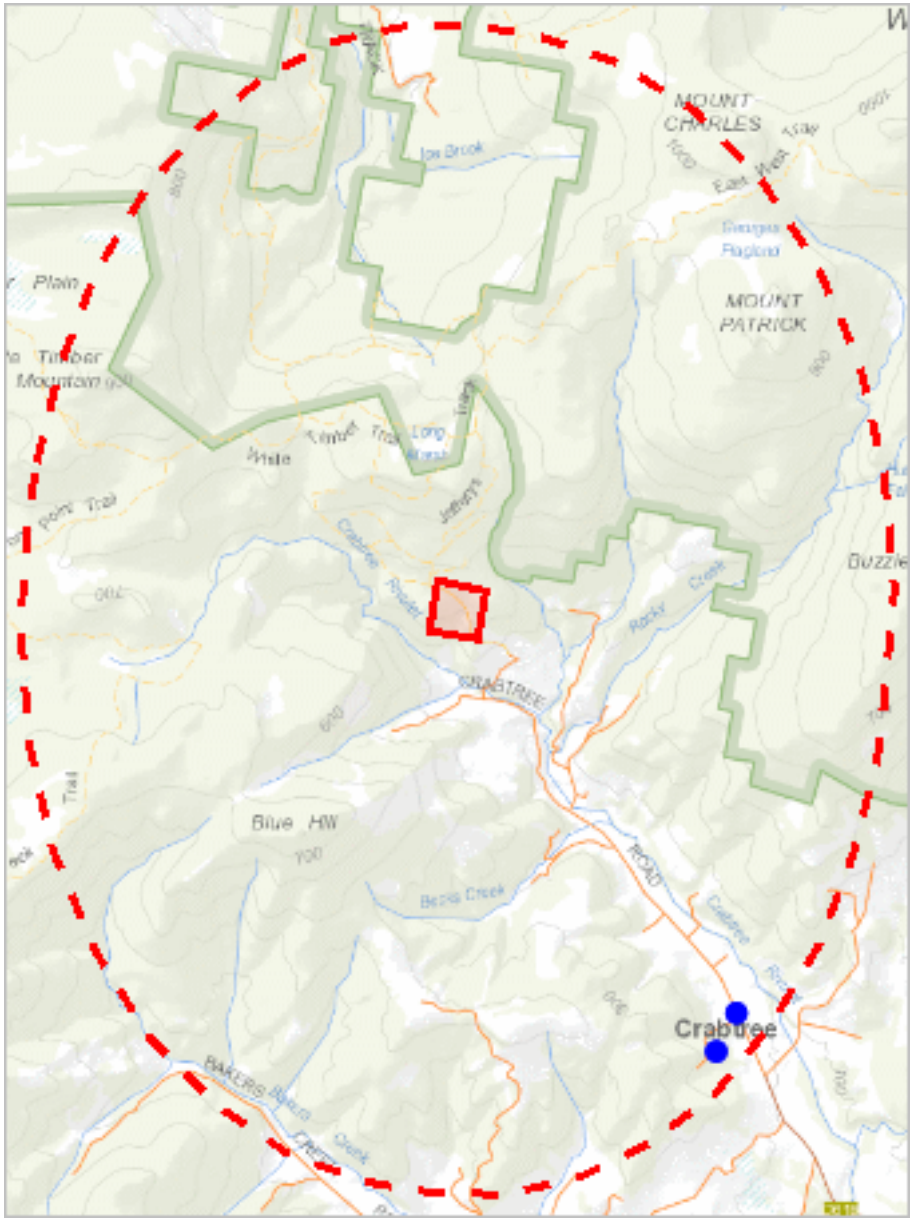
For more information about introduced weed species, please visit the following URL for contact details in your area:

http://dpipwe.tas.gov.au/invasive-species/weeds

*** No Priority Weeds found within 500 metres ***

Priority Weeds within 5000 m

507705, 5253415



499547, 5242522

Please note that some layers may not display at all requested map scales

Priority Weeds within 5000 m

Legend: Verified and Unverified observations

Legend: Cadastral Parcels

Priority Weeds within 5000 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Acacia baileyana	cootamundra wattle	2	11-Sep-2007

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

http://dpipwe.tas.gov.au/invasive-species/weeds

*** No Geoconservation sites found within 1000 metres. ***

*** No Acid Sulfate Soils found within 1000 metres ***

TASVEG 4.0 Communities within 1000 metres

504762, 5249424

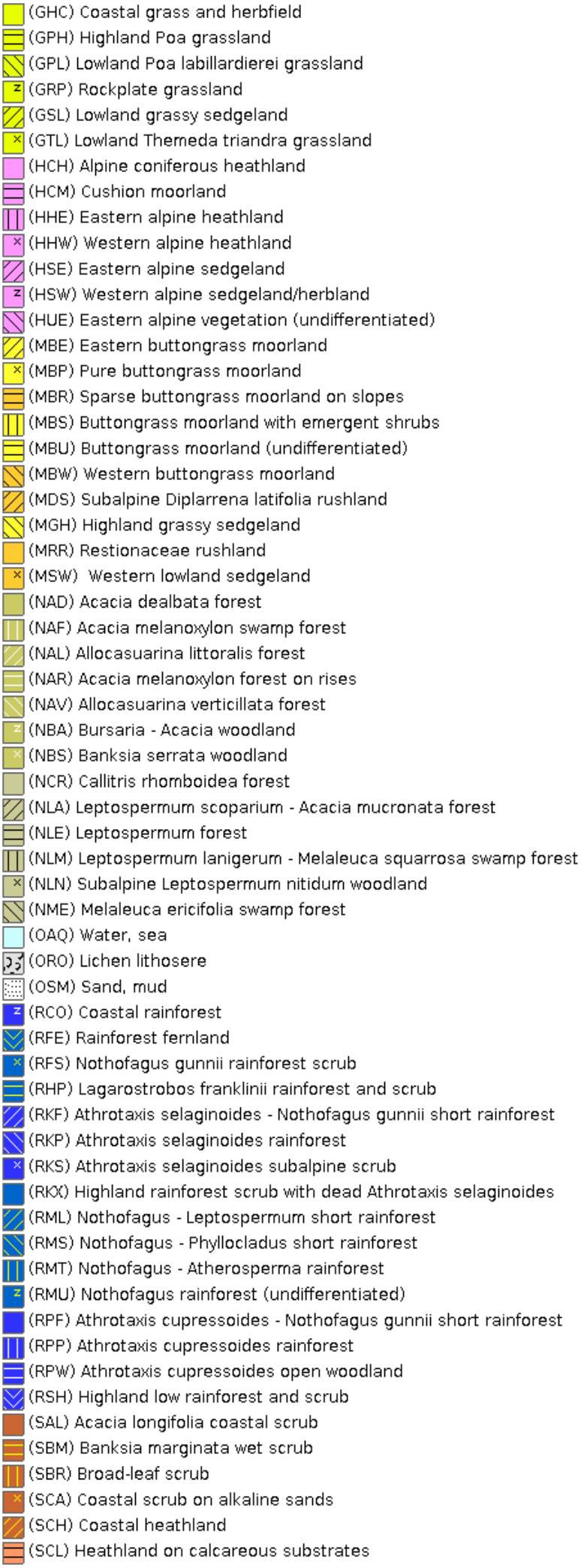
502485, 5246516

Please note that some layers may not display at all requested map scales

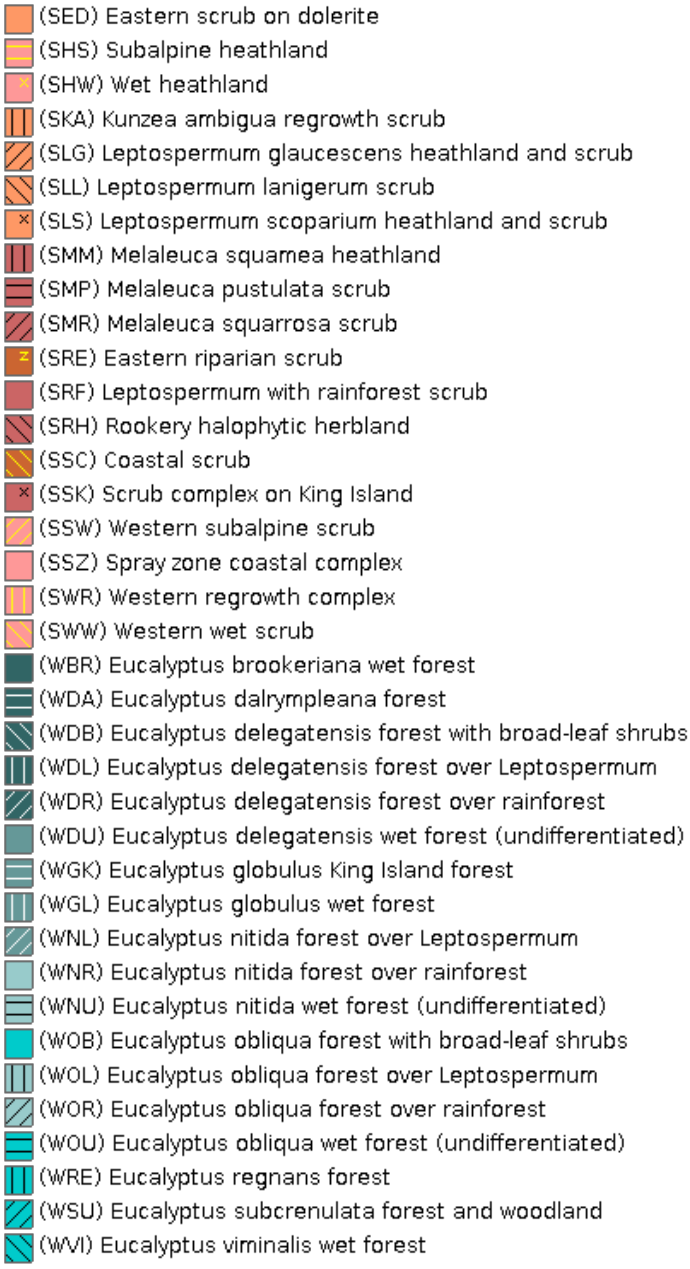
TASVEG 4.0 Communities within 1000 metres

Legend: TASVEG 4.0

TASVEG 4.0 Communities within 1000 metres



TASVEG 4.0 Communities within 1000 metres



Legend: Cadastral Parcels

TASVEG 4.0 Communities within 1000 metres

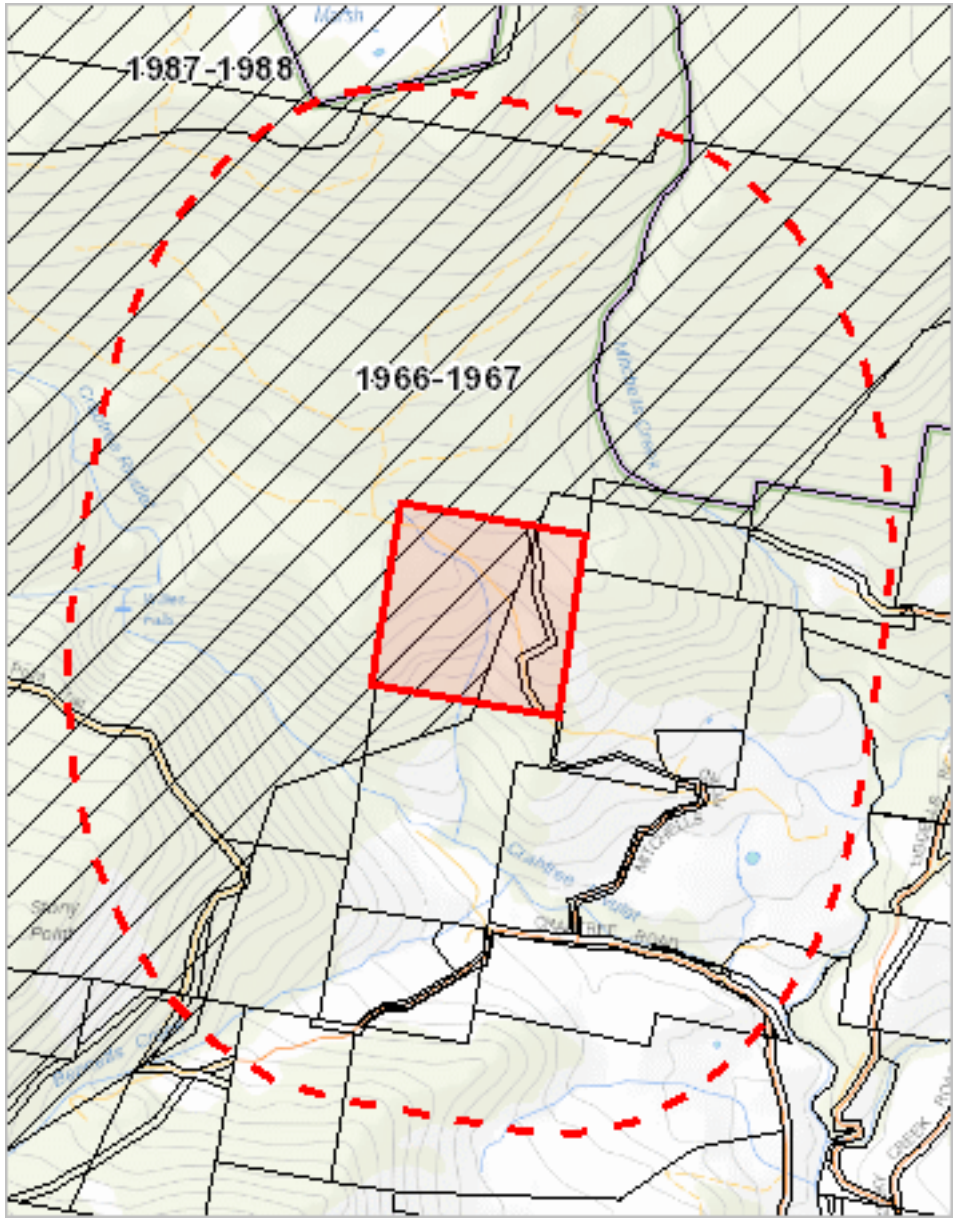
Code	Community	Canopy Tree
DDE	(DDE) Eucalyptus delegatensis dry forest and woodland	
DPU	(DPU) Eucalyptus pulchella forest and woodland	
FAG	(FAG) Agricultural land	
FPU	(FPU) Unverified plantations for silviculture	
FRG	(FRG) Regenerating cleared land	EX
FRG	(FRG) Regenerating cleared land	
FUR	(FUR) Urban areas	
NAD	(NAD) Acacia dealbata forest	
WDB	(WDB) Eucalyptus delegatensis forest with broad-leaf shrubs	
WDL	(WDL) Eucalyptus delegatensis forest over Leptospermum	
WDU	(WDU) Eucalyptus delegatensis wet forest (undifferentiated)	
WGL	(WGL) Eucalyptus globulus wet forest	
WOB	(WOB) Eucalyptus obliqua forest with broad-leaf shrubs	
WRE	(WRE) Eucalyptus regnans forest	

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.
Telephone: (03) 6165 4320
Email: TVMMPSupport@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No threatened Communities (TNVC 2014) found within 1000 metres ***

Fire History (All) within 1000 metres

504762, 5249424



502485, 5246516

Please note that some layers may not display at all requested map scales

Fire History (All) within 1000 metres

Legend: Fire History All

Bushfire-Unknown Category

Bushfire

Completed Planned Burn

Legend: Cadastral Parcels

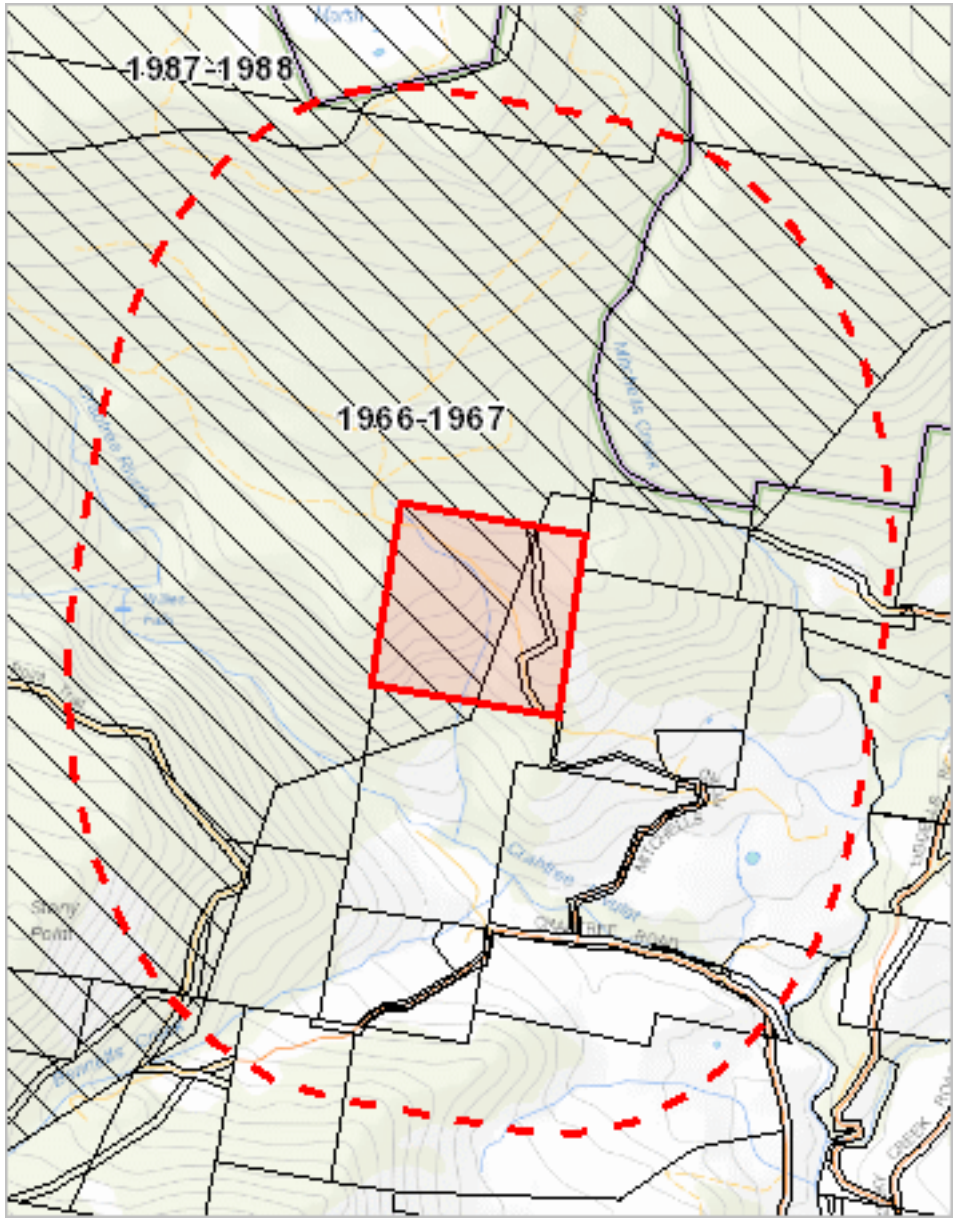
Fire History (All) within 1000 metres

Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
	1967 Fire	07-Feb-1967	Bushfire	Undetermined	198780.41788592
	Bushfire - 1/01/1988	01-Jan-1988	Bushfire	Undetermined	71.23372062

For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.
Telephone: 1800 000 699
Email: planning@fire.tas.gov.au
Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000

Fire History (Last Burnt) within 1000 metres

504762, 5249424



502485, 5246516

Please note that some layers may not display at all requested map scales

Fire History (Last Burnt) within 1000 metres

Legend: Fire History Last

Bushfire-Unknown category

Bushfire

Completed Planned Burn

Legend: Cadastral Parcels

Fire History (Last Burnt) within 1000 metres

Incident Number	Fire Name	Ignition Date	Fire Type	Ignition Cause	Fire Area (HA)
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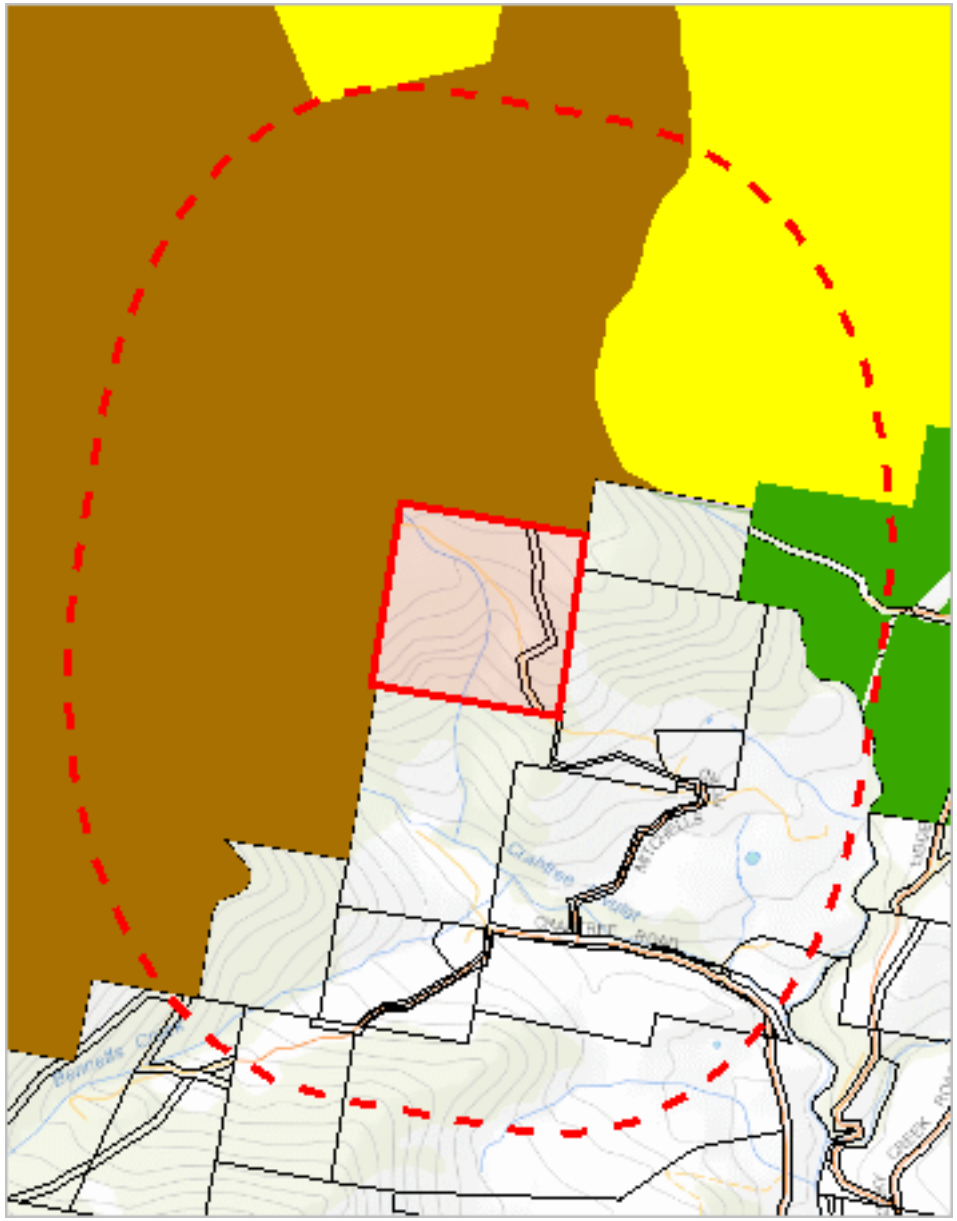
For more information about Fire History, please contact the Manager Community Protection Planning, Tasmania Fire Service.
Telephone: 1800 000 699
Email: planning@fire.tas.gov.au
Address: cnr Argyle and Melville Streets, Hobart, Tasmania, Australia, 7000

Reserves within 1000 metres

504762, 5249424



502485, 5246516

Please note that some layers may not display at all requested map scales

Reserves within 1000 metres

Legend: Tasmanian Reserve Estate

- Conservation Area
- Conservation Area and Conservation Covenant (NCA)
- Game Reserve
- Historic Site
- Indigenous Protected Area
- National Park
- Nature Reserve
- Nature Recreation Area
- Regional Reserve
- State Reserve
- Wellington Park
- Public authority land within WHA
- Future Potential Production Forest
- Informal Reserve on Permanent Timber Production Zone Land or STT managed land
- Informal Reserve on other public land
- Conservation Covenant (NCA)
- Private Nature Reserve and Conservation Covenant (NCA)
- Private Sanctuary and Conservation Covenant (NCA)
- Private Sanctuary
- Private land within WHA
- Management Agreement
- Management Agreement and Stewardship Agreement
- Stewardship Agreement
- Part 5 Agreement (Meander Dam Offset)
- Other Private Reserve

Legend: Cadastral Parcels

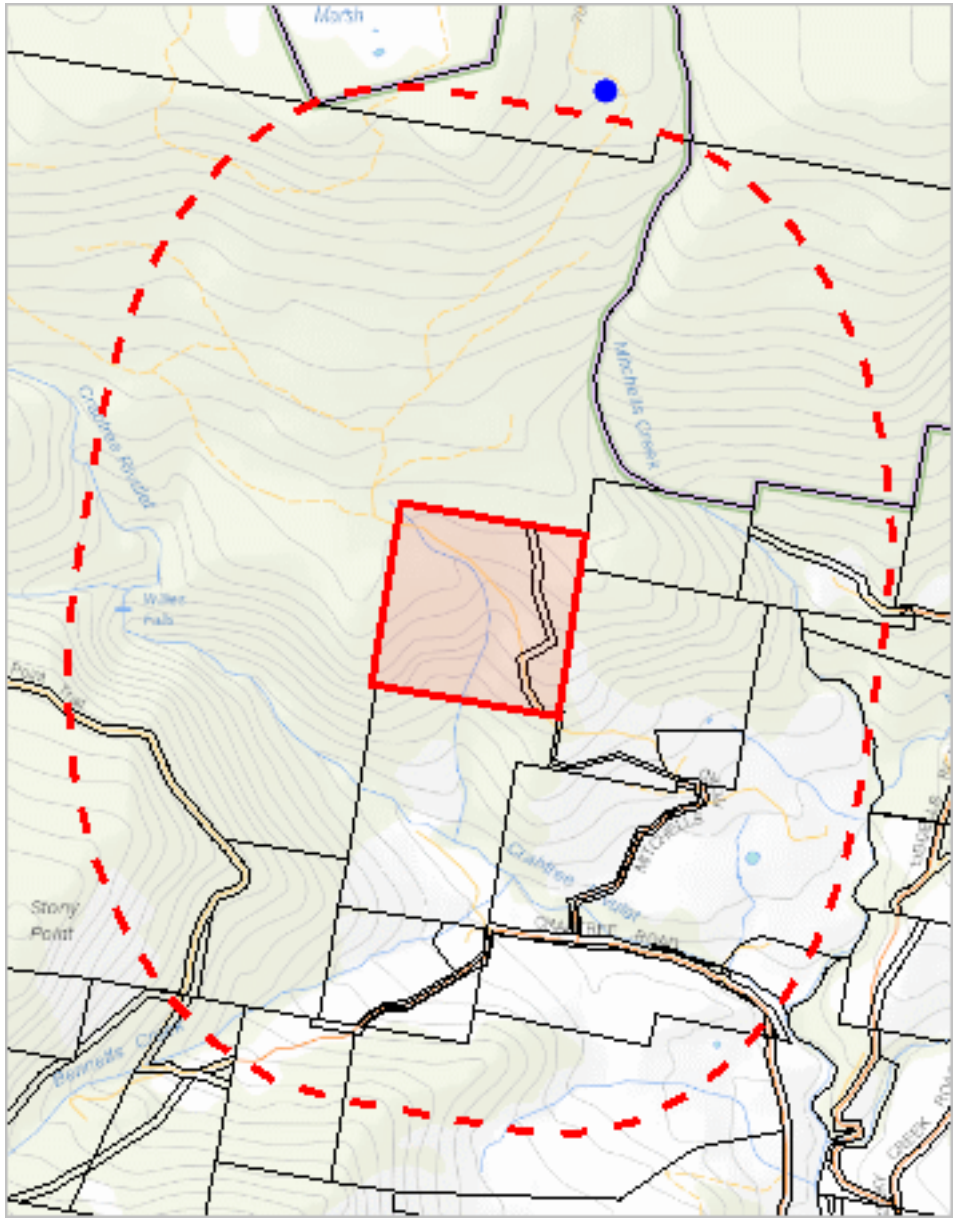
Reserves within 1000 metres

Name	Classification	Status	Area (HA)
Russell Ridge Conservation Area	Conservation Area	Other Formal Reserve	8362.71272856
Wellington Park	Wellington Park	Dedicated Formal Reserve	18011.0417832
	Conservation Covenant (NCA)	Private Reserve (Perpetual)	1.1844851
	Conservation Covenant (NCA)	Private Reserve (Perpetual)	1.64701055
	Conservation Covenant (NCA)	Private Reserve (Perpetual)	3.80432506
	Conservation Covenant (NCA)	Private Reserve (Perpetual)	6.13168204
	Conservation Covenant (NCA)	Private Reserve (Perpetual)	7.59530846

For more information about the Tasmanian Reserve Estate, please contact the Sustainable Land Use and Information Management Branch.
Telephone: (03) 6777 2224
Email: LandManagement.Enquiries@dpipwe.tas.gov.au
Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Known biosecurity risks within 1000 meters

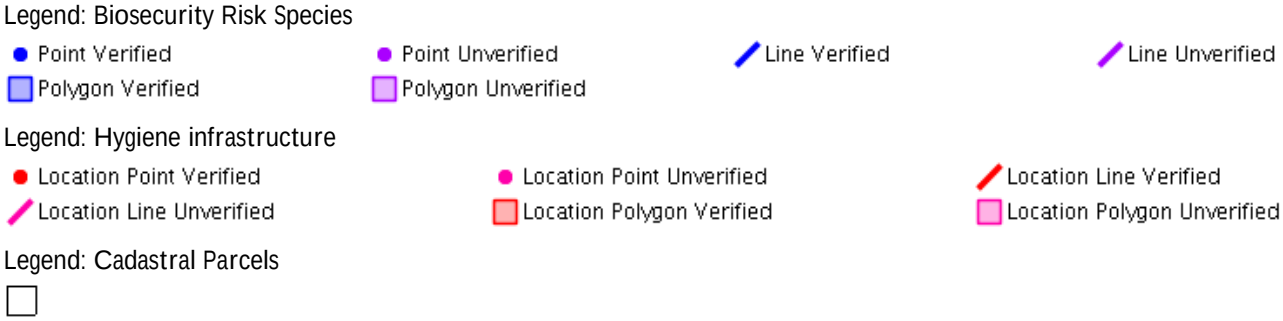
504762, 5249424



502485, 5246516

Please note that some layers may not display at all requested map scales

Known biosecurity risks within 1000 meters



Known biosecurity risks within 1000 meters

Verified Species of biosecurity risk

No verified species of biosecurity risk found within 1000 metres

Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed http://dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles http://dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant http://dpipwe.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town though a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

Apiary Analysis for 106 Mitchells Rd, CRABTREE
2022

APRIL 4th 2022

For the consideration of Huon Valley Council to New planning matters/Re-Zoning with Ref to: DA-412-2020

Authored by: Edwin Caleb Elcock

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Executive Summary

Apiary/Beekeeping has a long-established reputation within the lived experience of human history to hold, in a select few, a deep inveterate curiosity and dedication to its craft. This beginning has been traced back to artifacts found in ancient Turkey, dated some 9,000 years ago. Similar proof has been noted across North Africa, the Levant, and into Europe [2]. This tradition of the bee, has been passed down from generation to generation, where sadly, in the late 1990s when I was first handed a hive tool by my uncle, it was very much a dying art. At 13 I became one of the youngest, if not the youngest, registered beekeepers on the Department of Primary Industry's register and whilst the grey headed elders of the beekeeping association I attended kept me in no short supply of CWA approved baked treats, learning moments and such, a more serious note could be heard echoing true from each of those members. That is, we need bees, bees need trees, and trees need bees.

Later in life, I have witnessed a much-needed surge in beekeeping interest. Yet with such increases came with it other challenges such as overstocking of hives, rogue/dangerous colonies from mismanagement, increases of diseases in hives, theft, increase in fraud with honey blends and processing, misinformation from within the wider community and government bodies, etc. These issues, coupled with the pre-existing threats from climate change, pesticides, diseases, continued urbanisation with little regard to bee friendly areas, have meant that beekeepers across the scale enthusiast to commercial have had to fight on multiple fronts to ensure the survival of these little creatures that are an essential part of our own human existence.

With all this in mind, I acquired my property, 106 Mitchells Rd, CRABTREE with the expressed purpose to locate my beekeeping pursuits to what I see as a venture that has a multi-faceted benefit for not only the production of honey but the assistance of local orchard proliferation, and the native floral communities that exist both on my land, and the surrounding state forest and reserves behind me.

Purpose of the pursuant Apiary Analysis

The following Apiary Analysis has been prepared by Mr Edwin Caleb Elcock, owner of land folio 246888/1 (106 Mitchells Rd) for the purposes of:

1. Demonstrating the suitability of beekeeping and associated activities on the land;
2. To be used as support to attain the expressed, written approval to place clusters of bee hives on the afore mentioned land folio, at, but not limited to the identified proposed bee hive site locations, and;
3. To be used as support to inform appropriate zoning and local council concerns with beekeeping that is to be operated within that area.

This analysis draws on a number of academic papers, case studies, various experts in their respective fields to apply their findings in regard to the matter specific to the afore mentioned site location. In the interest of keeping things as succinct as possible the analysis focuses on addressing, in particular, the Huon Valley Council's environmental/planning concerns that were raised with beekeeping and associated works specific to the land folio [10,11,12,13], environmental impacts in a general sense, the carrying capacity of the land, and cultural/social significance. The analysis will not address fiscal considerations, strategic management, market research etc as this is beyond the scope of the discussion.

The analysis is sectioned within the themes of, Suitability, Sustainability and Sociability.

Suitability

A number of factors were considered as to the appropriateness for beekeeping activities to be pursued on the land folio in favour of other agricultural uses. Although, other agricultural uses could be employed, such as terraced cropping, boutique micro-animal rearing, or micro-greens, the land, with its south facing aspect and undulating gradients would require significant outlays in equipment, work hours for land conversion to pastures/terraces, for little commercial gain.

A recent natural values assessment has revealed in a formal capacity, what was established before the Rural Resource Zoned property was purchased, that the land already has a plethora of established floral communities, and a natural spring that flows year-round. Further on-site investigation reveals that there are dense pockets of *Leptospermum Lanigerum,* with other minor clusters of the *Leptospermum* taxonomy present [3]. Additional flowering species are identified that will support bee colonies throughout most of the year. North of the folio exists a large nature reserve that hosts a similar collection of flora that would benefit from a symbiotic relationship between bee and plant [6]. This would naturally extend to, and not to the detriment of neighbouring properties, especially orchards that are within the general bee foraging distance of a ~3km radius[5,6].

In simple and plain terms, when considering the possible agriculture/resource development opportunities for the land folio one would find it difficult to promote an alternative rural use greater than that of beekeeping and its associated works.

Sustainability

In regards to sustainability, a Life Cycle Assessment (LCA) analysis projection was attained following ISO 14040 and 14044 international standards by juxtaposing beekeeping to that of other common and possible resource development that could occur on the specific land folio, and that of six other commercial apiary farms that were assessed in an academic paper by researchers Aldo, Carpana, Costa, Pignagnoli, and Pignedoli. Within the section on sustainability, it was seen that in general, and in accordance with the ISO 14040 method, non-migratory beekeeping practices (of which I intend to use) produced 0.39 - 0.43 kg CO2e/kg of honey on average, compared with 1.47-1.8 kg CO2e/kg of honey on average for the respective migratory beekeeping equivalent [20].

These figures of kg CO2e/kg are generally consistent across the spectrum of amateur beekeeping practices with their small-scale hive management to large commercial ventures, producing 2.5+/- 0.17 kg CO2e/kg variations between operations. The variation is mostly dependant on the use of grid connected equipment used to process the honey for in situ apiaries. Additional, significant kg CO2e/kg impacts are found within the operations that use machinery to move hives to migratory locations, pollination services

etc. An additional use of hive transportation methods accounted for over 50% of the kg CO2e/kg for migratory beekeeping. Where transportation is not a factor, kg CO2e/kg from electricity use accounts for ~82% of CO_{2e}/Kg. This could be offset by the respective operators' choosing "Green/Renewably" generated electricity, or in my case, be completely off-grid with a suitable wind/solar set up to power the required equipment[20].

Of the tangible outputs of honey production, beeswax, propolis, royal jelly, honeycomb, etc can be considered co-products and not waste. Beeswax for instance could be used in soaps and candles, and reused in empty frames. Therefore, hot water used in cleaning, the occasional plastic packaging (from equipment, consumables, medicines), consumables like filters, and cotton from bee suits are the only waste products. Although some chemicals can be used to subdue bees during hive management sessions, sustainable and organic beekeeping requirements do not allow for these to be used. I will be adhering to these standards.

Alternate resource development options to beekeeping like small scale dairy, traditional and organic cropping systems were considered but to reiterate, together with the constraints of the site location's topographical profile, and milk's kg CO2e/kg production range of 1.18-1.51, peaches at 0.124, and tomatoes' being 2.28 kg CO2e/kg within an ideal site location, meant that these options were not the best solution when simply looking at environmental considerations in isolation. Further to this, in order for small scale animal husbandry/dairy, cropping (outside of hydroponic methods), orchards to be implemented large parts of the land would need to be converted, in excess of 50% of the land, to pastures/crops, and the potential introduction of pesticides/herbicides. Beekeeping, would place approximately 5%-10% of the land under active management. Much of this area would keep a maintained selection of ground cover and shrub species to allow for sunlight to be used for solar power collection, bee hive activation, bushfire hazard reduction, and natural bee food sources to be present outside of the surrounding flora's flowering periods.

With non-migratory beekeeping methods generating less than twice the kg CO2e/kg emission than the best-case scenario counterpart, and in the case of a proposed 100% green/renewable energy sourced enterprise 0.06kg CO2e/kg, and the majority of the site

folio's privately owned land to be retained as non-managed bush it is clear that beekeeping is one of very few environmentally sound rural resource development uses for this parcel of land.

Sociability

When considering social elements of beekeeping on the site in question that could impact the greater community it was concluded that anti-social aspects of bee keeping like over stocking of hives, rogue colonies, cross apiary transmission of disease, public stings etc, it was deemed that the site location is of sufficient distance from any city/town centre that has any real population density. In terms of vying for resources with other surrounding commercial apiaries, none are known to me that operate within a two-kilometre radius of my site. Whilst there are beekeeping enthusiasts within this area, the site's carrying capacity under private ownership could easily support 2-4 hives per Ha without neighbouring bee communities being impacted. As a sole operator, it is likely that beekeeping operations would be well within those limits.

With already minor negative potentials being further minimised through responsible hive and site management a dizzying array of community engagement opportunities, and elements of cultural significance could be realised. Specifically, I would be willing to offer additional services like swarm collection services, advice/training and assistance to my neighbours who have their own hives, co-products like beeswax to those in the community that create soaps various other products.

Table of Contents

Introduction

The following analysis has been prepared by Mr Edwin Caleb Elcock, owner of land folio 246888/1 (106 Mitchells Rd) for the purposes of:

1. Demonstrating the suitability of beekeeping and associated activities on the land;
2. To be used as support to attain the expressed, written approval to place clusters of bee hives on the afore mentioned land folio, at, but not limited to the identified proposed bee hive site locations, and;
3. To be used as support to inform appropriate zoning and local council concerns with beekeeping that is to be operated within that area.

The proceeding discussion will concatenate the three themes of Suitability, Sustainability, and Sociability as it relates to the overarching foci of non-migratory beekeeping methods to be employed across the aforementioned land parcel of (246888/1), 106 Mitchells Rd, CRABTREE 7109. By approaching the subject matter in this manner, the above three points should be clearly addressed.

When discussing the suitability of the land folio for the purposes of resource development, in this case beekeeping, a broad-brush has been applied to highlight the significant aspects of the land that lend itself to beekeeping to the somewhat exclusion of other resource development pursuits. This, of course, is linked together with the theme of Sustainability. That is to ask and answer the simple question, with an often long and complex answer of, “Is what is being proposed good for people, place, and the planet?”. The “goodness” will be tested, for the purposes of this analysis, with an almost pure environmental tact. Why?

1. To maintain a level of succinctness that can still deliver the outcomes necessary to fulfil the above three core purposes outlined.
2. This approach is likely to please the objectives and definitions that rest within the discursive boundedness set out within *Schedule 1 – Objectives*

Part 1, of the Land Use Planning and Approvals Act 1993 [LUPA]. Specifically, clause 1(a), 2. (a-c) [22, 23].

Although *Part 2* of the Objectives in LUPA, (c), and (d) mention considerations that revolve around economic, socio-cultural, state and local regulatory stances, particularly within the legislation itself, on specific developmental practices, they will not be explicitly addressed here. Again, in the interests of brevity, and indeed complexity. It is to be expected, then that whilst this analysis being environmentally forward, it will provide a more than adequate picture as to the positioning of beekeeping pursuits and its associated works within the specific land parcel chosen.

Suitability

Suitability of the subject site, 106 Mitchells Rd CRABTREE, is considered within the detailed performance indicators within the *Australian Land Use and Management Classification V8, 2015* (2) and to a lesser extent (3). Descriptor, (2) is of particular relevance as it accurately describes the type of primary production that is to be expected from a Rural Resource Zoned parcel such as this one, under the current *Huon Valley Interim Planning Scheme, 2015* [1, 9]. Other performance criteria within the scope of Rural Resource Zone 26.2 use class of *Resource Development*, that complements the first, and presumably, the primary objective of the Rural Resource Zone's Purpose Statement 26.1.1.1, and further in conjunction with Purpose Statement 26.1.1.4, and 26.1.1.5, are also considered essential drivers within this and proceeding sections.

Whilst, currently zoned as Rural Resource, directives from the various governmental bodies acting in the capacity of either a State or Local Planning Authority are applying newly formed zones as defined within the *Tasmanian Planning Scheme – State Planning Provisions (SPP)*. Worryingly, this subject site has been selected and or endorsed by the Huon Valley Council to move from the *Interim Planning Scheme, 2015 Rural Resource Zone 26.0* to the *Landscape Conservation Zone 22.0* as defined under the new SPP Scheme [9, 23]. This is a completely inappropriate choice of zoning to be applied and rather should be zoned as *Rural Zone 20.0.* My grievances are outlined within the

representation made on my behalf by Gray Planning, 2022 [7]. I will however, for the purposes of this analysis, rely on the criteria as set out in the SPP's *Rural Zone 20.0* as this better relates to this site and the historical zoning, and documented intended use of this land [10-13].

Site Profile

General Overview

The subject site as seen in the below, Figure 1, and is located North of Mitchells Rd as it transitions into Jefferys Track within Crabtree. Elevation presents with undulating characteristics with ca. 145m a.s.l ascent between the lowest trough of ca. 320m a.s.l and ca. 465m a.s.l at its highest North-eastern boundary corner. The land is also trisected by a small rivulet that is fed by a natural spring that flows year-round [3].

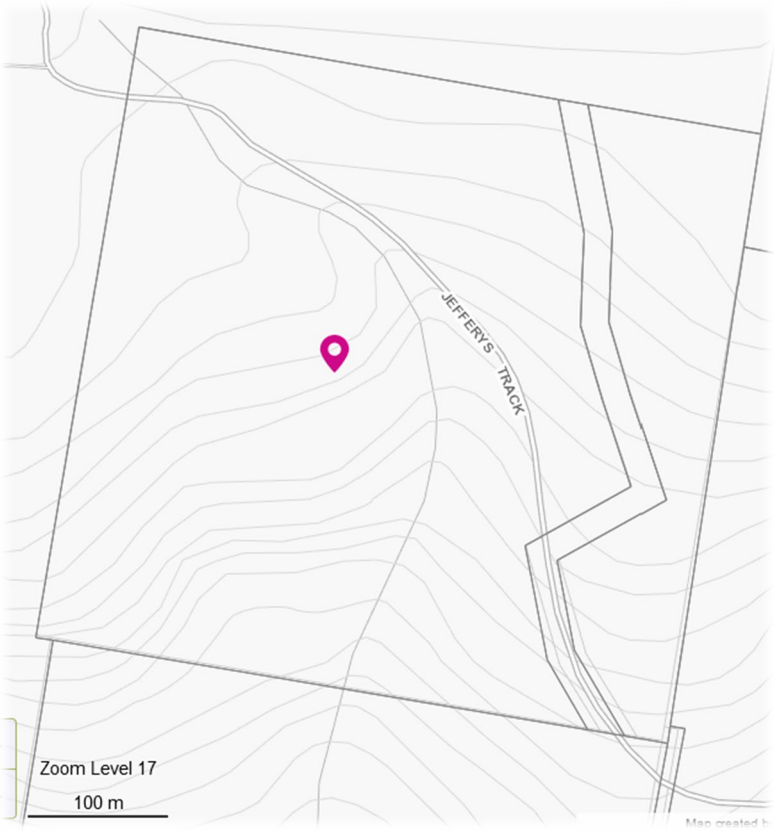

Figure 1: 106 Mitchells Rd. Source: HVC's TPS Consultation Map, accessed 20 March 2022.

Vegetation Makeup

Much of the site is covered by various flora communities that have been extensively identified by a recent Natural Values Assessment Site Survey by EcoTAS in December of 2020 [3]. Whilst the survey was completed on my behalf, the Huon Valley Council has a copy of this and it has been submitted as part of DA/412/2020 [10] supporting documentation, and again as Appendix A to the zoning representation made on my behalf by Gray Planning, 2022 [7].

The site has, of particular interest to me, as a beekeeper, a high concentration of flowering native shrubs and trees. Specifically, along the Eastern edge of the road reserve, North to South there are high concentrated areas of *Leptospermum* communities. Whilst *Leptospermum Lanigerum* has dense covering in the East, *Leptospermum Scoparium* is among Leptospermum varients on the Western side of the site. These *Scoparium* sightings have been rare though, with the *Lanigerum* variety being in predominance. This is in excess of ~90% of the *Leptospermum* communities present on the site [26]. Figure 2 (over page) is evidence of such a cluster and its density in the East:

Figure 2: Leptospermum Lanigerum onsite [bottom left] 2018 *(with ref Williams, 2018, p.74; Wapstra, 2022)*

Figure 3 below shows other flora that are present on the Western side of the ruvulet. *Cassiania Aculeatas* being in prevelence in Southern sections of the site.

Figure 3: Pimelea drupacea [left] onsite Early 2021. Cassinia aculeata [right] onsite Early 2022. (with ref to Wapstra, 2022)

It is important to note that the above selection of flora is but a sample of what the site has on offer in terms of flowering vegetation that would be supportive of a beekeeping presence. A detailed discussion of flora is not explicated here and the NVA from EcoTas can be consulted for further details [3]. It is however, to be noted that the potential carrying capacity of the floral makeup of this site as it pertains to beekeeping would be around 2-4 hives per Ha. This figure is consistent with the research that has been done on sites with similar flora profiles. This ratio varies and can increase significantly on sites that have established orchards. This is predominantly the case for berry farms where 6 hives per Ha is not uncommon [5,6]. Bees often travel up to 3km for food sources and would be able to service the surrounding native flora, and is well beyond their capacity to fly from the site location to any town centre or densely populated area. This demonstrates a further fit within SPP's 20.1.1 b).

Water Sources and Storage

There are no current dams or significant water storage. However, as noted in the on-site assessment, and in figure 4 shows the *Waterway and Costal Protection* overlay that follows much of, and beyond the channels that feed the lower waterways. The part of the overlay that extends North to South of the site in its entirety is evidenced to run with water all year-round and is an important resource for not only the current flora and fauna communities on site, but for surrounding properties that are adjacent to my land that it feeds into. This water source is also of significant value for any proposed resource development for agricultural use. Water runs at ~20l/m during dry periods of the year to many times that during wet months. Rain is plentiful during late Autumn, throughout Winter, and into Spring. The Summer period can be quite dry, but not void of rainfall.

Figure 4: 106 Mitchells Rd. With WCP overlay in blue. Source: HVC's TPS Consultation Map, accessed 20 March 2022.

To be clear, any resource development must be mindful of its impact on these waterways. I have high regard for my neighbours' wellbeing. Beyond that of legislative compliance and when considering resource development opportunities, I have my Southern neighbour, where the waterway flows through to, in mind.

Site Access and Accessibility

The site has formalised vehicular capable access from the South-eastern corner through easements, and crown license. A number of tracks that branch off from the main track on ground to previously clear/cleared areas on the land provide for either vehicular access, or access on foot to a number of suitable resource development sites/clusters. The proposed uses, in connection with beekeeping, for some of these sites/clusters have been made clear to the Huon Valley Council by way of a DA lodgement DA/412/2020 [10], meetings, emails, and conversations with many employees of the council at various levels of governance; The Forest Practices Authority; The Crown, Titles Office; Parks, Property Services, DPIPWE; and State Growth ranging from 2018 up to the present day.

Potential Resource Development Discussion

From relying on just a broad brushed overview of the site's characteristics, it clearly satisfies the performance criteria set out under its current zone of *Rural Resource Zone*, but more importantly satisfies the majority of the *Guidelines No 1. in Section 8A Local Provisions Schedule (LPS): Zone and Code Application*; RZ1 – RZ3 a)-e) As cited in Appendix 50 made available in print at Huon Valley Council's front counter area [8].

While there are indeed significant constraints to [RZ1, RZ 3.(b)] within the site's topographical and aforementioned characteristics, there are potentials for a number of rural pursuits.

Small scale homesteading, with various crops, animal husbandry, fruit orchards, and or beekeeping could be achievable.

Figure 5 demonstrates where certain activities could be fostered:

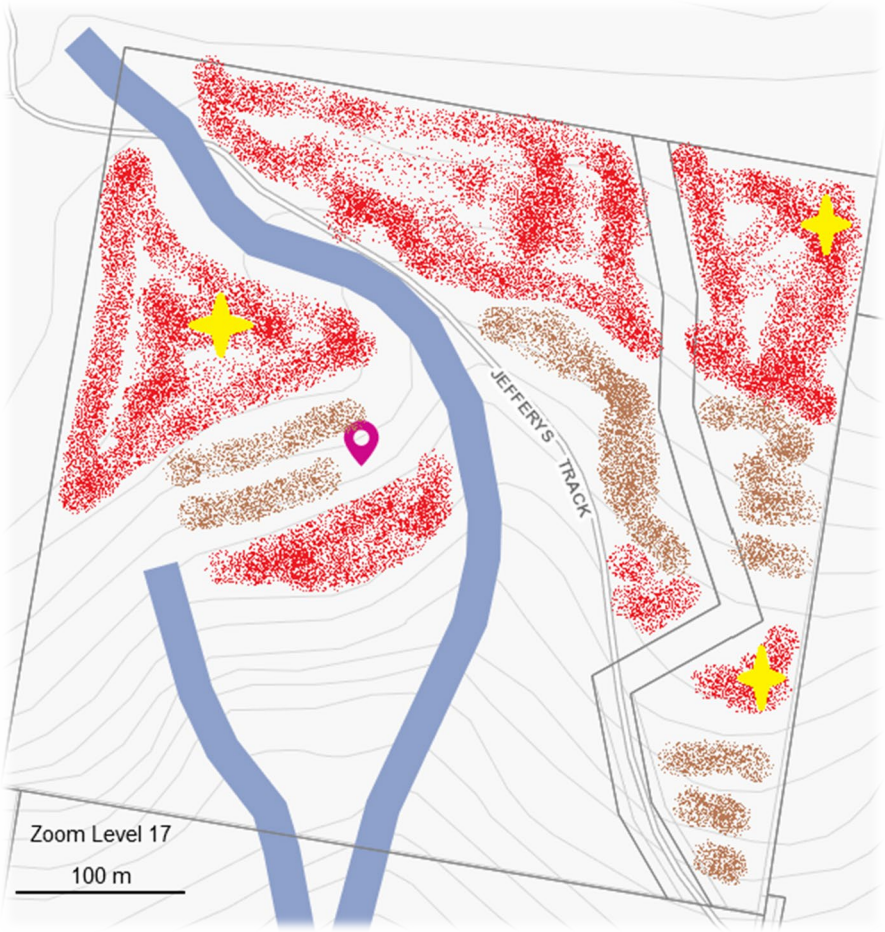

Figure 5: Potential Site uses. Red: areas where both animal and orchid/crops could occur. Brown: Orchards using terracing techniques; Yellow stars; locations of bee hive clusters. Source: HVC's TPS Consultation Map, accessed 20 March 2022

On paper, the red and brown areas seem plausible but serious capital outlay would be required to facilitate this. It would, very much be financially unviable. This is not to say that high value crops could be appropriate, but other constraints like strain on water sources, potential environmental impacts due to herbicides and pesticides would most likely be undesirable. Furthermore, temperatures especially during winter wouldn't be conducive to most high value crops. Planning performance criteria would also induce further egress issues for any real, profitable, forms of animal husbandry, cropping including orchards. Setbacks from waterways and the reserved road on title would be cumbersome, and more importantly, greater than 50% of the already existing flora would need to be removed for fields, terraces, groves etc. To be clear, whilst possible, these options in Red and Brown are not something that I am looking to do.

Conversely, any of or all of the three yellow star beekeeping cluster/sites would be of a much better fit. Minimal cleared area on the folio's site would be needed for hive placement and associated works. Two of the three highlighted areas, along the Eastern boundary, have pre-existing clear or cleared areas that would facilitate sufficient bee hive clusters. Beekeeping also comes with a number of boons. These will be discussed in the following section of Sustainability and Sociability. For how this further relates to the new zoning being championed by the Huon Valley Council on behalf of the TPC, please see the related representation prepared by Gray Planning [7].

Sustainability

What is Sustainability, anyway?

Sustainability, sustainable, and sustainable development are terms that are often used to emote one's penchants, or signal an affiliation to a tribe or particular group membership that is usually deeply political in nature. Linguistically, sustainability carries with it a projection that such concepts or pursuits are for the long-term. It's seen in many cases as something to be placed over there and then. This comes at times at the expense of the values and outcomes that should also be considered within a here and now foci.

In the documents put forward by the Huon Valley Council in the 2022 rezoning exercise, these types of phrases are used extensively and would be hard to dismiss its foundational thread woven throughout their publications. In fact, in the *Huon Valley Council Strategic Plan 2015-2025* the word 'sustainable' and its related tenses are used no less than 14 times within the 32-page document. When taking into consideration the title page, table of contents, and graphics, that's almost a mention of 'sustainable' for every two pages. That's a general 50:50 chance of finding it mentioned on every turn of the page [9]. Collocated within these occurrences are elicitations of *environment, community, financial, production, resources,* and *council.* These are consistently mentioned by the Council's document with expressed desire to develop outcomes. Although, not explicitly mentioned in these terms, one could infer perhaps, that the council seeks outcomes of mutual benefit that intersect the key stakeholders within these areas. Key stakeholders that begin to resemble and interrelatedness for what a

keen eye could identify as the *Triple Bottom Line (TBL)* as first coined by Elkington in 1994 [4].

Figure 5 demonstrates the types of outcomes that such a TBL concept espouses, and at what points of convergence these outcomes are expected to be:

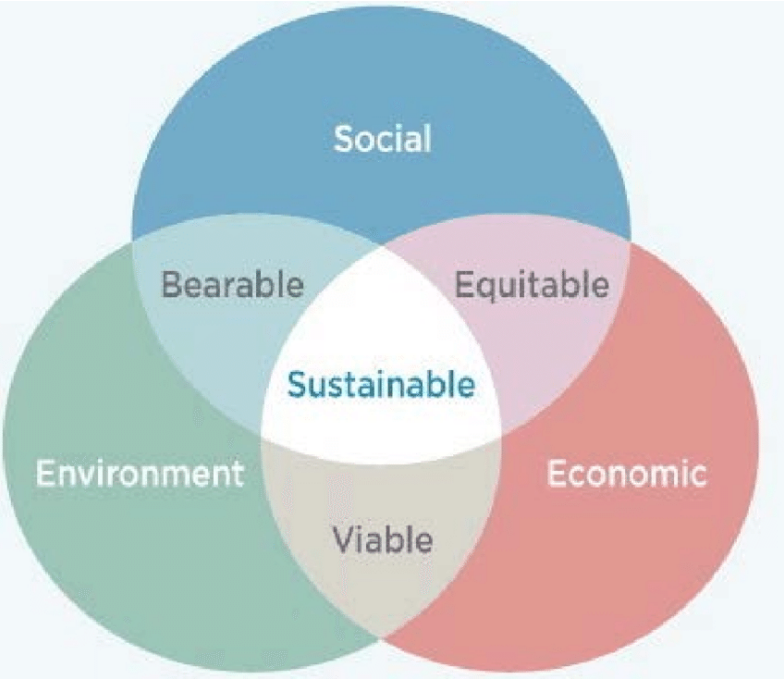

Figure 6: The Triple Bottom Line. Adapted from Miller, 2020. Harvard Business School.

Ideally, when each of a businesses' commitments, [that is to say commitments to Social, Environmental, and Economic values, and by business it is to mean an activity. In simple terms what a person, enterprise, local council etc does] intersect, a Sustainable outcome can be attained. Where commitments are considered by a business in tandem, with little or no regard for the other, at best, only sub-optimal outcomes can be attained. If a business is solely profit/economically focused, both individual and corporate social commitments, and Environmental commitments will be used as merely an end to the means. That is to say, given the opportunity, they will be sacrificed for the pursuit of profit. The same can be said for the business that accentuates the environmental commitments over those of Social and Economic [16].

What is Sustainable Development?

Building from what has been established in the above section, the essential elements of sustainability from the TBL and HVC's explicated uses of the term gives rise to a potential definition of *Sustainable Development*.

Sustainable Development then, when teased out from the Huon Valley Council's own regiment of elicited uses, could be defined as the pursuit of harmonious intersection of a business' Social, Environmental, and Economic commitments.

Framing a definition in such a way has credence from within the term first described by the 1987 *Brundtland Commission Report.* Chapter two is of particular interest in this regard and details in greater depth as to what they arrived in terms of the working components and outcomes to be realised from their understanding of *Sustainable Development*. In the interest of brevity, this commissioned report is to be noted as further reading on the matter and not discussed in any great detail here. However, it is worth mentioning that UNESCO, a party to its parent, the United Nations, was involved in the above-mentioned report, uses the definition of *Sustainable Development* as [27]:

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs… There are four dimensions to sustainable development – society, environment, culture and economy – which are intertwined.

How this concept of *Sustainable Development* will be addressed as it pertains to this selected site is as follows:

- A truncated discussion of the potential environmental impacts measured by a projection based on a Life Cycle Assessment (LCA) using ISO 14040 and 14044 International Standards juxtaposed with documented real-life examples [14].
- Environmental impacts will be at the forefront of this discussion as it seems to be a heavily weighted consideration from the perspective of Huon Valley Council (2020, 2021) [9-14], and something that I can only assume has driven much of their planning and rezoning (2022) being applied across their respective constituents' land folios.
- Whilst Social and Economic commitments play a crucial role in informing a harmonious balance of the three periscopes. Social considerations are kept very brief and are only mentioned to address concerns or where they are needed to inform the notion of suitability. Economic commitments are not discussed here, and it should be assumed that elements of financial viability have been addressed from previous successful experiences beekeeping by the owner of this site location.

Looking back again at HVC's Strategic plan for its community 2015-2025, p.10 details the desires of the council to help facilitate a natural environment that is, "developed [and] managed for sustainability and beneficial use". Then on page 11, it is stated that they wish to help promote a people and assets where, "private assets [can] deliver sustainable returns on investment". Although, a set of measurables by way of identified desirable characteristics are outlined in the document, most lack specific quantifiable KPIs. For instance, when looking at the *Characteristic 2: Ecology and Natural Resource Management* include Trend Measures of for example Invasive species controlled, but don't have any measurable goals with associated KPIs [9]. Strategy 2D lists "Facilitate landholder education" but would be benefited by adding a KPI or two. A revised Strategic goal could be framed by way of adding a KPI for instance, *Facilitate landholder education by holding x amount of onsite training workshops a quarter etc.* KPIs may be formulated in other documents that I am not privy to, but it raises the question very much in need of answering for this analysis on the suitability with regard to sustainability of

beekeeping on the subject site. That is, how do you measure the business of bees' sustainability?

Measuring Sustainable Development

Consider again from the earlier section of this analysis that from HVC's publications we reasoned that *sustainable development* meant the harmonious intersection of a business' Social, Environmental, and Economic commitments. Now, a comprehensive analysis would go into great detail to define each of these commitments and the measures that are to be used to attain a level of 'goodness' for a defined business/activity. For the Economic commitment one would expect to see, a business plan, strategic management plans, projected earnings etc. For the Social commitment, one would expect to see engagement with considerations of social-corporate responsibilities, social-impact studies, marketing research backed by appropriate research and such. These are all very needed aspects to consider, but these fall outside of the scope of this analysis. So, this leaves the Environmental Commitment to evaluate.

Environmental Measures: The Life Cycle Assessment

So how does one even begin to measure the environmental impact of a business/activity? There are so many variables. There are so many questions. Like, how much land is needed to be converted, and converted to what? The amount of water, power, consumables, access to sunlight and raw materials used to produce one unit of measure of a product and what level of environmental impact is to be felt in the long term, 10, 50, 100 years from now? A seemingly impossible task.

The good news is, that tremendous advancements have been made in the field of assessing some of these factors and in an attempt to give a standardised unit of measure for environment impact a business/activity may have on the environment, the Carbon Footprint was adopted by the scientific community. Although, as the name suggests is a measure of a business/activity's carbon contribution to the detriment of the environment, it's not just carbon. The unit of measure is expressed as kg CO_{2e}/kg. The carbon dioxide equivalent per standard unit of measure of product/deliverable activity. In this case, kg CO2e/kg of honey produced. This equivalent is the culmination of carbon dioxide (CO_2), methane (CH_4^+), and nitrous oxide (N_2O). As alluded to previously, a Life

Cycle Assessment (LCA) can be used to determine the contributing CO_{2e} activities of each stage of the production lifecycle [18,25].

Production Lifecycle of Honey from Beekeeping

A typical production lifecycle identifies the inputs, the work components, and the outputs, both the desirable and undesirable end results of the process. As it relates to beekeeping, figure 7 illustrates these inputs and outputs:

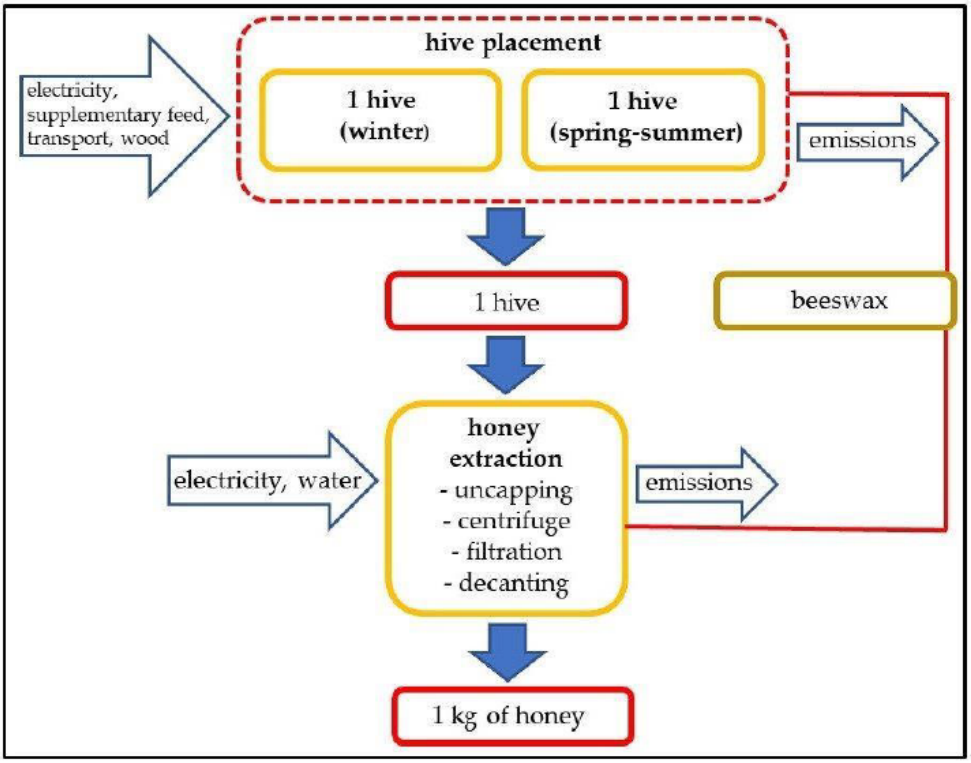

Figure 7: The combined inputs and outputs of the PLC for Honey. Source: Aldo Dal Pra et al, 2021, p.3

The production of honey, is typically generated by one of three generally practiced models of operation:

1. Non-migratory hive management, where hives are placed on-site and remain in situ for the life cycle for the business of honey production.
2. Migratory hive management, where hives are moved to a variety of site throughout the honey production lifecycle. This is generally seen widely practiced in Australia, and has been witnessed in operation in Tasmania.

3. Mixed-migratory hive management, where a portion of hives remain in situ, and others are used for migratory beekeeping activities like that of pollination services.

Whilst there is merit for each of these models of operation, migratory hive management approaches add additional inputs and stages to inventory for the purposes of calculating a comprehensive kg CO2e/kg of honey [20]. Table 2 categorises each of the expected inputs and outputs at each of the phases of the lifecycle:

Life Cycle Phases	Inputs	Outputs
Hive placement (winter)	Beehives Wooden frame Beehive paint Supplemental feeding Beeswax Medicines Electricity Beekeeping instruments Transportation	Beehives with honeybees Waste: cardboard and plastic waste
Hive placement (summer)	Beehives Wooden frame Beehive paint Supplemental feeding Beeswax Medicines Beekeeping instruments Transportation	Beehives filled with honey Waste: cardboard and plastic waste Co-products: honeycombs
Honey extraction	Uniform Gloves Lab coats Electricity Water Machines Filters	Honey Waste: cotton Co-products: beeswax, propolis, royal jelly

Table 1: Itemised Inputs and Outputs of the PLC Phases for Honey. Source: Aldo Dal Pra et al, 2021, p.6

Carbon Footprint of Beekeeping

In their scientific paper examining the respective Carbon Footprint generated by different beekeeping systems, researchers used the above assessed phases and applied it to their participants, three migratory and three non-migratory apiaries [20]. They employed ISO 14040 and ISO 14044 international standards, in conjunction with the IPCC's 2013 method of calculating each of the input's direct Global Warming Potential [14,20, 21]. Their findings were graphed in the following figure 8:

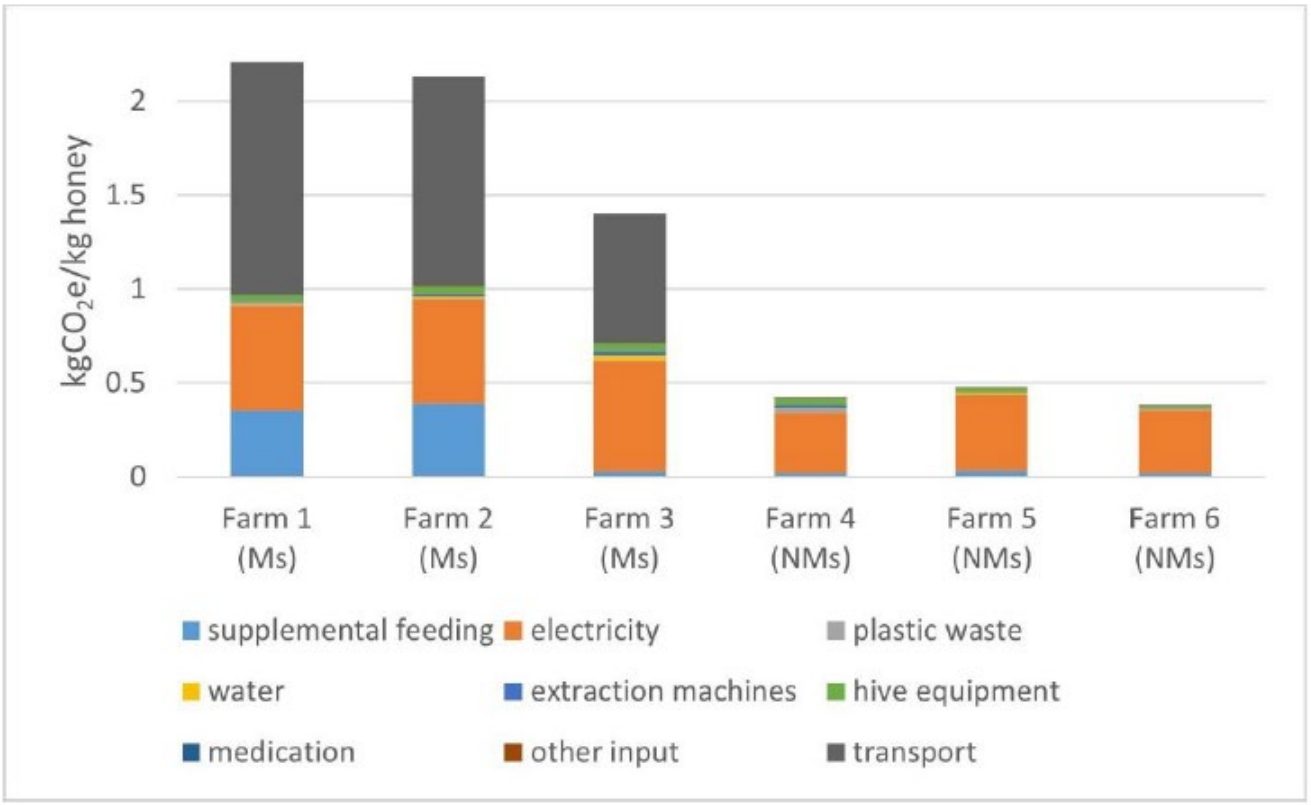

Figure 8: Source: Contributions to Climate Change of Honey Production. Aldo Dal Pra et al, 2021, p.7

It is important to note that the IPCC 2013 method evaluates only the direct Global Warming Potential and does not take into considerations issues like water vapour and atmospheric ozone. Nor does it provide for cross use development environmental impact analysis in terms of land conversion [21]. Land conversion and water consumption will, however be touched on later when comparing beekeeping with three other land use potentials. From looking at the like for like comparisons a number of observations can be made.

Firstly, it can be seen that within their respective sub-categorised modes of beekeeping practice, migratory or non-migratory, each farm's beekeeping carbon footprint is relatively consistent. This is especially the case when one considers the greatest variance with the migratory operations being due to the distinct lack of supplemental feeding required in farm 3 (less than 2% of the emissions). Supplemental feeding was addressed in the paper and was considered to be contributing higher in the other MS farms, 1 and 2 (16.5% of their total emissions), due to further farm management practices. It is

possible that the hives are based on land that is void of or does not have enough flora to support the beekeeping colonies onsite during the off-season. That is to say, farms 1 and 2 look to be in a state of overstocking, where the amount of beehives present exceed the carrying capacity of the land. Farms 1 and 2 may have also experienced low flows of nectar or drought or it is an intentional strategy of the proprietors [20].

Carbon Footprint of Proposed Beekeeping Operation

For the purposes of analysing these results to what is to be proposed on the selected site of this foci I will amalgamate these results and consider the supplemental feeding aberrations as outliers, and if they were due to an intentional strategy will not be considered as a suitable practice to endorse by way of a default position. A combined snapshot of what the two beekeeping modes of operation with a proposed mode of operation to be implemented on the selected site is illustrated in figure 9 below:

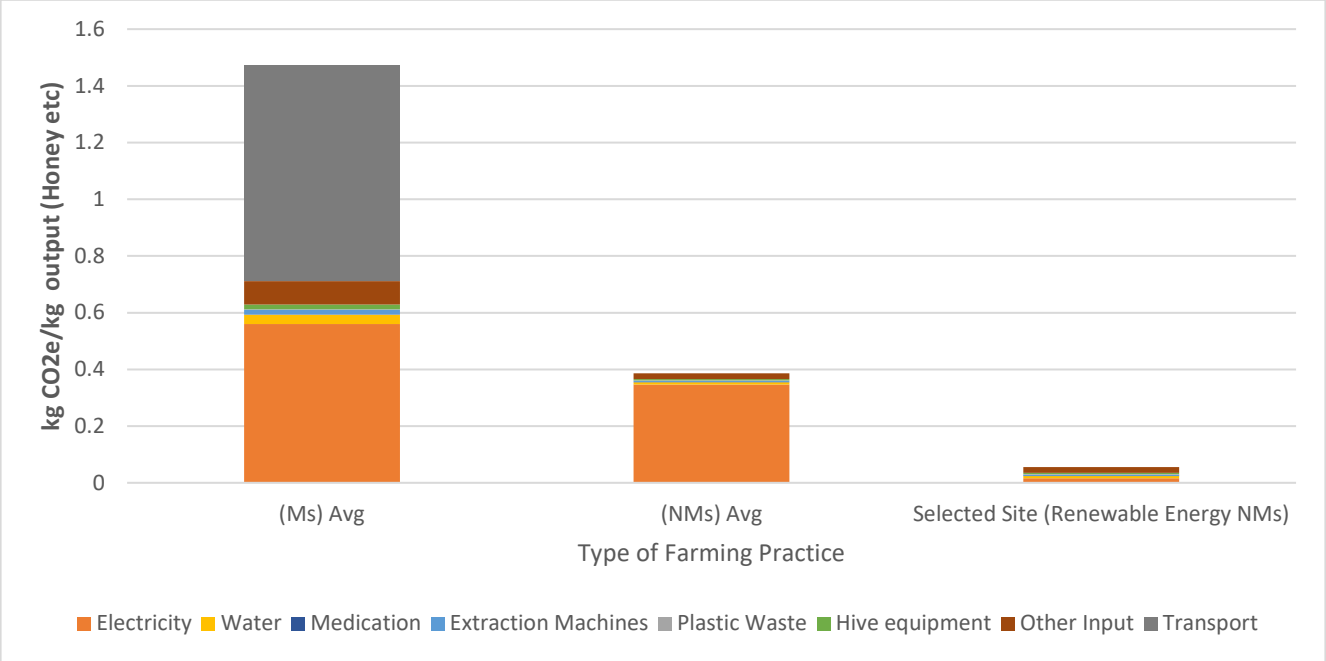

Figure 9: Contributions to Climate Change of Honey Production. Source: Adapted from Aldo Dal Pra et al, 2021, p.7

It can be seen that on average migratory beekeeping practices (Ms) contribute 1.47 kg CO2e/kg of honey produced as compared to 0.39 kg CO2e/kg of honey from non-migratory beekeeping practices (NMs). Transportation accounts for over 50% of the kg CO2e in Ms, with electricity making up 38% of the rest of the kg CO2e contribution. That's over 88% of the total kg CO2e between them for Ms apiaries. Electrical use, is still

a large contributing factor for NMs operations with it representing over 89% of the emissions. NMs operations could benefit greatly by investing in renewable solutions for power generation. Even by factoring in the kg CO2e/kg honey for the required solar panel setup, the net kg CO2e/kg honey the projected NMs using renewable electricity sources has over a 85% decrease compared with an operation using a conventional power source. Figure 10 illustrates this very clearly:

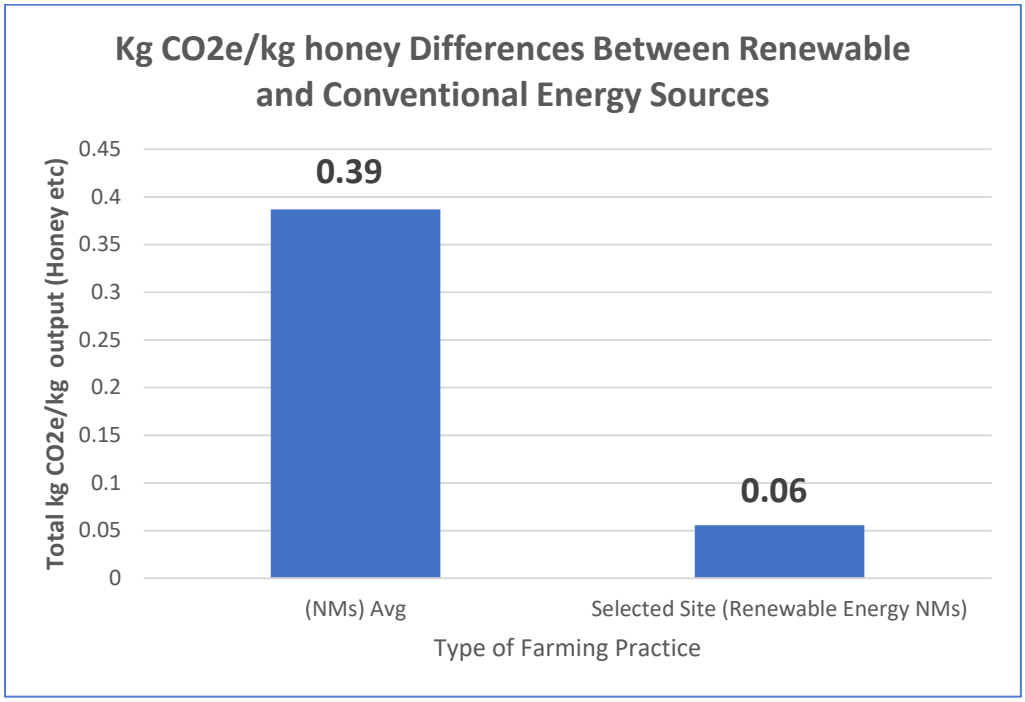

Figure 10: The Positive Impact that Switching to Renewable Energy Sources Can Have on Emissions. (Lower is better)

As it can be seen, even though the selected site is not connected to the main power grid it necessitates a renewable energy solution, which in turn is of great benefit for the overall projected carbon equivalent impact. This performance also needs to be considered in light of other possible resource development options of the selected site.

Carbon Footprint of Other Possible Solutions

Referring back to the previous section on *Potential Resource Development Discussion*, where orchards, animal husbandry activities etc were considered. A further look into their general Carbon Emission equivalents give more weight behind adopting a non-migratory beekeeping practice on the selected site. This is seen in figure 11:

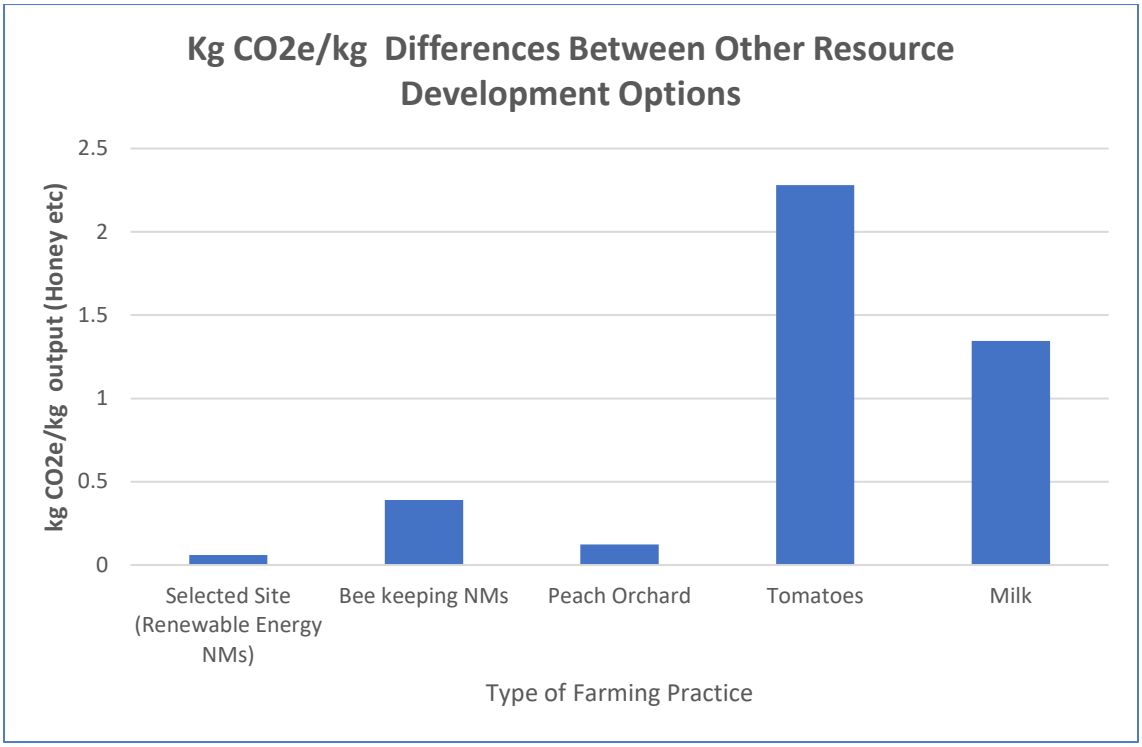

Figure 11: Differences Between Other Resource Development Options.

Clearly, even with the other options under optimal conditions, which I would suggest would be very hard to achieve on the site location, they contribute far greater emissions than that of the proposed renewable energy NMs projection. Even with the closest contender, peaches having a 0.124 kg CO2e/kg of peaches [19] the initial outlay to erect the associate required infrastructure, converting land to terraces, would be untenable. Further, water usage taken from springs, and required dams being around ~20l/d per orchard tree [19], more than ~40l/d/cow [17] is a large compared with ~1-5l per day per hive [5]. It is important to stress that there is a place for commercial cultivation of peaches, tomatoes et al, just not a suitable pursuit for the chosen site location. It can be argued then, that considering all of the elements of *sustainability and suitability* thus far, beekeeping is an undisputed option for sustainable resource development on this chosen site location. The following section will briefly address aspects of potential negative *sociability* and their relation and alleviation applied to the selected site.

Sociability

For the purposes of this analysis, *Sociability* will be focused on addressing the very few negative aspects of beekeeping. The first issue that needs to be addressed is that of stings. Under Section 8A LUPA, Guideline No.1, RZ 3e) stipulates a criterion for which an appeal can be made that demonstrates why a site location is to be more appropriately zoned as rural. The need to mitigate sting potentials is one excellent demonstration. In short, the site's elevation and distance from the closest town centre exceeds the flight and foraging capacity of bees (greater than ~3km radius) means that the public would be safe from any rare event of a sting [5]. Furthermore, it is likely that as the site has large areas of nature reserves to the North, the bees would be most comfortable foraging either onsite or within those reserves. There are, to my knowledge, a couple of small personal beekeeping operations within that foraging radius, but as I intend to be well within the carrying capacity of the site, and the presence of fresh water on-site, it is highly unlikely there will be any hive vs hive rivalry or disease concerns.

Conclusion

Bees are generally peaceful creatures and are a great asset to flora communities, native and domestic. Outside of unwise/anti-social behaviour via bee hive and human interaction where extensive learning outcomes can be attained, the queen and her studious ladies busy themselves with creating honey for us humans and ensure that we have a healthy propagation of plants and trees for the foreseeable future.

Through this brief analysis, one should have hopefully ascertained the acceptable, sustainable rural resource development that beekeeping would be on the selected site. The acceptability is consistent with the science, and practical achievability of *sustainable development*. Concerns surrounding environmental impacts are, as clearly explored, very minimal, and with further analysis, beekeeping could easily be positioned as one of the very few developmental considerations for this site that not only retains much of the established growth but promotes a robust flora community in the surrounding reserves and neighbouring domestic and commercial orchards.

It is then, with great effort made in preparing this analysis, essential that a consensus be reached by the Local Planning Authority and State Planning Commission that in light of the above areas of discussion, the representation made by Gray Planning on my behalf that the selected site:

1. Be moved to the like for like zone of Rural and;
2. Beekeeping on the selected site be seriously considered as an acceptable sustainable development solution.
3. Re-examine any preconceived notions that Beekeeping and associated works pose any great environmental impacts on the site location, and indeed in general.

While the analysis was environmentally forward for the reasons expressed in the preceding sections, the local council can expect to see more detailed future plans and proposals drawn up for an anticipated realisation of the very much appropriate positioning of beekeeping and associated works on the chosen site location.

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NATURAL VALUES ASSESSMENT OF JEFFERYS TRACK (PID 5695438; C.T. 246888/1; LPI GSS43), CRABTREE, TASMANIA

Environmental Consulting Options Tasmania (ECO*tas*) for Caleb Elcock

5 December 2020

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AUTHORSHIP

Field assessment: Mark Wapstra

Report production: Mark Wapstra

Habitat and vegetation mapping: Mark Wapstra

Base data for mapping: LISTmap

Digital and aerial photography: Mark Wapstra, GoogleEarth, LISTmap

ACKNOWLEDGEMENTS

Caleb Elcock provided background information on the proposed land use within the subject title.

COVER ILLUSTRATION

View of across tributary of Crabtree Rivulet towards development site.

Please note: the blank pages in this document are deliberate to facilitate double-sided printing.

CONTENTS

SUMMARY

General

Caleb Elcock (owner & applicant) engaged Environmental Consulting Options Tasmania (ECO*tas*) to undertake a natural values assessment of Jefferys Track (PID 5695438; C.T. 246888/1; LPI GSS43), Crabtree, Tasmania, primarily to ensure that the requirements of the identified ecological values are appropriately considered during any further project planning under local, State and Commonwealth government approval protocols.

Site assessment

A natural values assessment of the study area was undertaken by Mark Wapstra (ECO*tas*) on 4 December 2020.

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.
- The study area supports potential habitat (to varying degrees) of several species, as follows:
  - Tasmanian devil (*Sarcophilus harrisii*);
  - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
  - eastern quoll (*Dasyurus viverrinus*);
  - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
  - masked owl (*Tyto novaehollandiae*);
  - grey goshawk (*Accipiter novaehollandiae*);
  - swift parrot (*Lathamus discolor*); and
  - Mount Mangana stag beetle (*Lissotes menalcas*).

Vegetation types

- The study area supports the following TASVEG mapping unit:
  - *Eucalyptus regnans* forest (TASVEG code: WRE).

- WRE is not listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002* and does not equate to a threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Weeds

- No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999*, nor plant species considered as environmental weeds (author opinion), were detected from the study area.

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was recorded within the study area.
- No evidence of myrtle wilt was recorded from within the study area.
- No evidence of myrtle rust was recorded from within the study area.

Animal disease (chytrid)

- The study area does not support habitats conducive to frog chytrid disease.

Recommendations

The recommendations provided below are a summary of those provided in relation to each of the ecological features described in the main report. The main text of the report provides the relevant context for the recommendations.

Vegetation types

There should be no specific management requirements in relation to the native vegetation type identified from the proposed development area. In general terms, minimising the extent of "clearance and conversion" and/or "disturbance" to native vegetation is recommended.

Threatened flora

None identified – no special management required.

Threatened fauna

Apart from the generic recommendation to minimise the extent of "clearance and conversion" and/or "disturbance" to native vegetation, specific management in relation to threatened fauna is not recommended.

Weed and disease management

A stand-alone weed management plan is not indicated. However, it is recommended to consider vegetation debris and topsoil created to be "contaminated" with weed propagules. As such, this material should be disposed of carefully, either off-site at a registered municipal facility or on-site (e.g. burial within the cleared area). Beyond these measures, owner-occupation is considered the most effective future and longer-term means of achieving weed management (i.e. vigilance and control as needed).

Legislative and policy implications

There are no formal requirements for a permit under Section 51 of the Tasmanian *Threatened Species Protection Act 1995* (TSPA).

A formal referral to the Commonwealth Department of Agriculture, Water and the Environment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) is not considered required.

Development will require a planning permit pursuant to the provisions of the *Huon Valley Interim Planning Scheme 2015*. A review of the provisions of the Biodiversity Code indicates likely full compliance with P1 of E10.7.1 without the need for specific planning permit conditions.

PURPOSE, SCOPE, LIMITATIONS AND QUALIFICATIONS OF THE SURVEY

Purpose

Caleb Elcock (owner & applicant) engaged Environmental Consulting Options Tasmania (ECO*tas*) to undertake a natural values assessment of Jefferys Track (PID 5695438; C.T. 246888/1; LPI GSS43), Crabtree, Tasmania, primarily to ensure that the requirements of the identified ecological values are appropriately considered during any further project planning under local, State and Commonwealth government approval protocols.

Scope

This report relates to:

- flora and fauna species of conservation significance, including a discussion of listed threatened species (under the Tasmanian *Threatened Species Protection Act 1995* and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) potentially present, and other species of conservation significance/interest;
- vegetation types (forest and non-forest, native and exotic) present, including a discussion of the distribution, condition, extent, composition and conservation significance of each community;
- plant and animal disease management issues;
- weed management issues; and
- a discussion of some of the policy and legislative implications of the identified ecological values.

This report follows the government-produced *Guidelines for Natural Values Surveys – Terrestrial Development Proposals* (DPIPWE 2015) in anticipation that the report (or extracts of it) may be required as part of various approval processes.

The report format should also be applicable to other assessment protocols as required by the Commonwealth Department of Agriculture, Water and the Environment (for any referral/approval that may be required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*), which is unlikely to be required in this case.

More specifically, this assessment and report have been prepared to address specific provisions of the *Huon Interim Planning Scheme 2015*, with particular reference to the natural values/biodiversity provisions of the Biodiversity Code.

Limitations

The ecological assessment was undertaken on 4 December 2020. Many plant species have ephemeral or seasonal growth or flowering habits, or patchy distributions (at varying scales), and it is possible that some species were not recorded for this reason. However, every effort was made to sample the range of habitats present in the survey area to maximise the opportunity of recording most species present (particularly those of conservation significance). Late spring and into summer is usually regarded as the most suitable period to undertake most botanical assessments. While some species have more restricted flowering periods, a discussion of the potential for the site to

support these is presented. In this case, I believe that the survey was appropriately timed to detect the species with a highest priority for conservation management in this part of the State.

The survey was also limited to vascular species: species of mosses, lichens and liverworts were not recorded. However, a consideration is made of threatened species (vascular and non-vascular) likely to be present (based on habitat information and database records) and reasons presented for their apparent absence.

Surveys for threatened fauna were largely limited to an examination of "potential habitat" (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

Qualifications

Except where otherwise stated, the opinions and interpretations of legislation and policy expressed in this report are made by the author and do not necessarily reflect those of the relevant agency. The client should confirm management prescriptions with the relevant agency before acting on the content of this report. This report and associated documents do not constitute legal advice.

Permit

Any plant material was collected under DPIPWE permit TFL 20167 (in the name of Mark Wapstra). Relevant data will be entered into DPIPWE's *Natural Values Atlas* database by the author. Some plant material may be lodged at the Tasmanian Herbarium by the author.

No vertebrate or invertebrate material was collected.

STUDY AREA & LAND USE PROPOSAL

The study area (Figures 1-3) comprises the private title of Jefferys Track, Crabtree, Tasmania (Figures 1-3), with the following cadastral details:

- PID 5695438; C.T. 246888/1; LPI GSS43 (188,234.127 m^2 or ca. 18.82 ha).

Land tenure and other categorisations relevant to natural values management of the study area are as follows:

- Huon Valley municipality, with the subject title zoned as Rural Resource pursuant to the *Huon Valley Interim Planning Scheme 2015* (Figure 4);
- Huon Valley municipality, with the subject title not subject to the Biodiversity Protection Area overlay under the immediately preceding version of the overlay maps linked to the *Huon Valley Interim Planning Scheme 2015* (Figure 5) but now wholly subject to the overlay under the recently developed overlay maps provided through LISTmap for AM-HUO-PSA-4-2019 (Figure 6);
- Southern Ranges bioregion, according to the IBRA 7 bioregions used by most government agencies); and
- NRM South Natural Resource Management (NRM) region.

Within the study area, the proposal is to construct a single residential dwelling (Figure 7). A hazard management area will be required for the dwelling to satisfy contemporary bushfire hazard management requirements.

The title is bound to the south and east by private titles and to the north and west by the Russel Ridge Conservation Area (Figure 8), which is under the jurisdiction of the Tasmania Parks & Wildlife Service. The title forms the southern end of the "Jefferys Track", largely now treated as a recreational 4WD route between Lachlan and Mountain River. The title is split by a "reserve road" title, presumably intended to include the actual route of Jefferys Track. However, the road title is set well off to the east of the track for most of its route, only the first 120-130 m notionally within the road title. Prior to the most recent development, there was an existing track that extended south off Jefferys Track just west of the crossing of the upper reaches of Crabtree Rivulet (This track was cleared of scrub to access the proposed development site within the title).

The whole title is ca. 18 ha in extent and of square configuration. It supports native forest in the form of classic wet sclerophyll forest with a mature regrowth structure (Plates 1 & 2). Jefferys Track (Plates 3 & 4) passes through the title and is the only historically cleared part of the title. More recently, a small area near the eastern boundary was modified (visible on aerial imagery and from Jefferys Track, with this part of the title gated).

Elevation varies from ca. 320 m a.s.l. (middle part of southern boundary at exit of Crabtree Rivulet) to ca. 465 m a.s.l. (northwestern corner and northern boundary of title), with a generally southerly aspect. A tributary of Crabtree Rivulet dissects the title.

Plates 1 & 2. Typical mature regrowth-structured wet sclerophyll forest within the subject title

Plates 3 & 4. Section of Jefferys Track within title

LISTmap's Fire History layer indicates that the February 1967 bushfire event affected most of the title (Figure 9), although site evidence suggests the whole title and all surrounding areas were impacted. This is evidenced by the now maturing regrowth structure of the forest, with a typical

even-aged canopy (see Plates 1-4) caused by a one-off post-fire regenerative event. Typical of such events is the creation of logs from fallen mature trees (Plates 5 & 6) and remnants of charred wood (Plate 7) and charcoal throughout the soil profile (Plate 8).


Plates 5 & 6. Large logs in undisturbed forest adjacent to the recently cleared area


Plate 7. (LHS) Charred wood

Plate 8. (RHS) Charcoal in the soil profile

The geology of the title is wholly mapped (Figure 10) as: Jurassic-age "dolerite (tholeiitic) with locally developed granophyre" (geocode: Jd). The geology was confirmed informally by site assessment through examination of occasional outcropping rocks, regolith and soil types (Plates 9 & 10). The geology is mentioned because it can have a strong influence on the classification of vegetation and the potential occurrence of threatened flora (and to a lesser extent, threatened fauna).


Plates 9 & 10. Outcropping dolerite and loose dolerite in upper soil profile

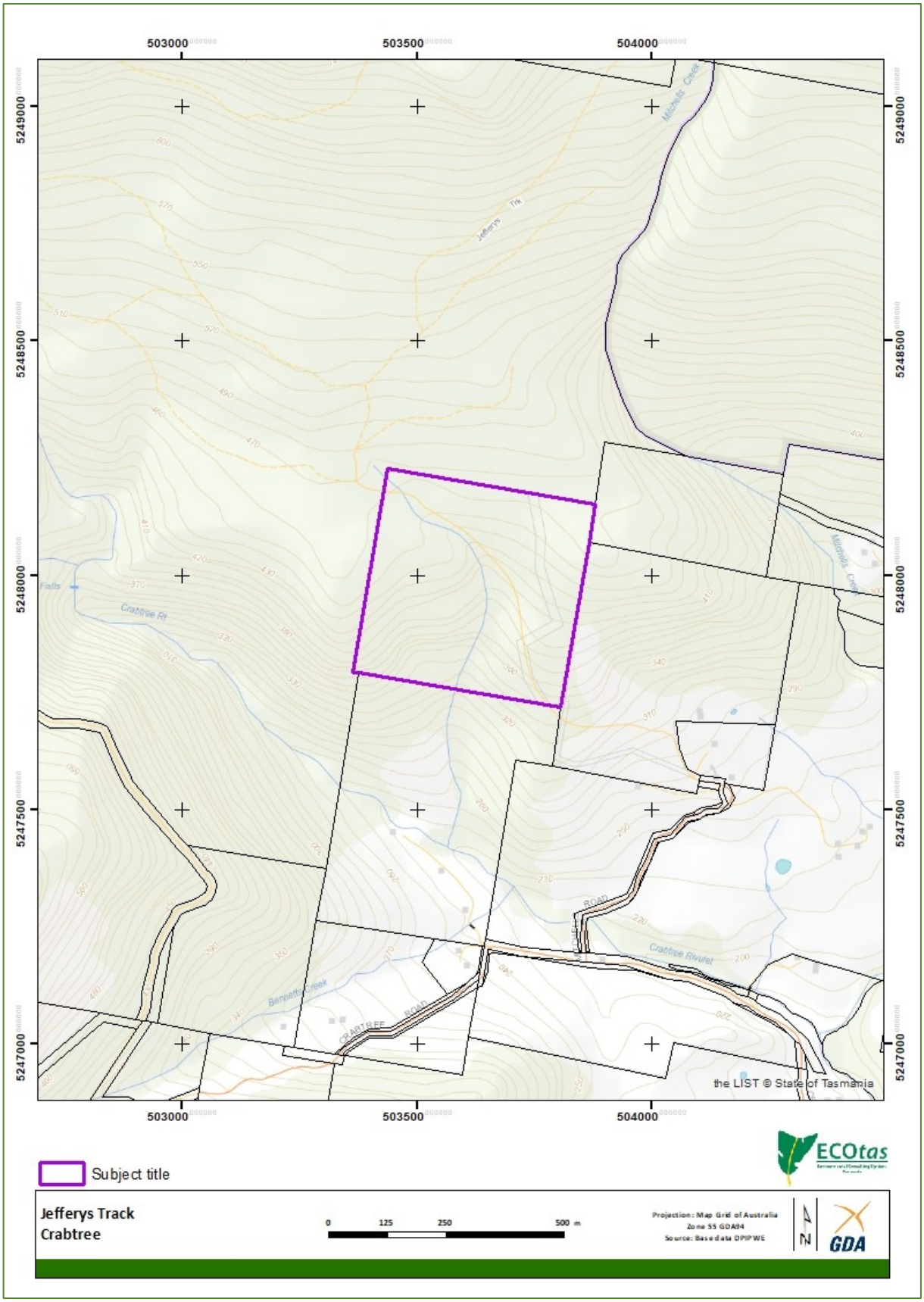

Figure 1. General location of the study area

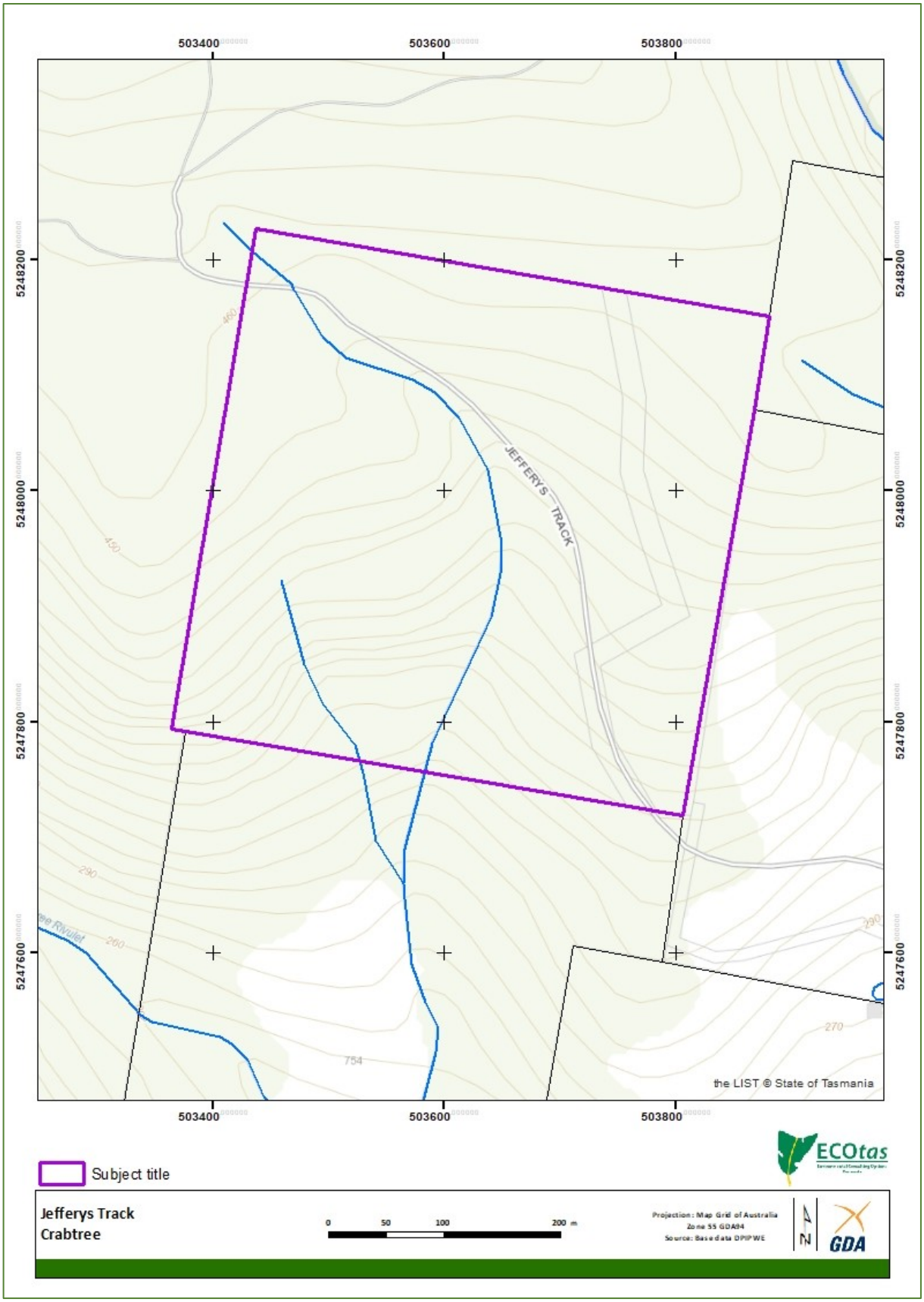

Figure 2. Detailed location of the study area showing general topographic and cadastral features

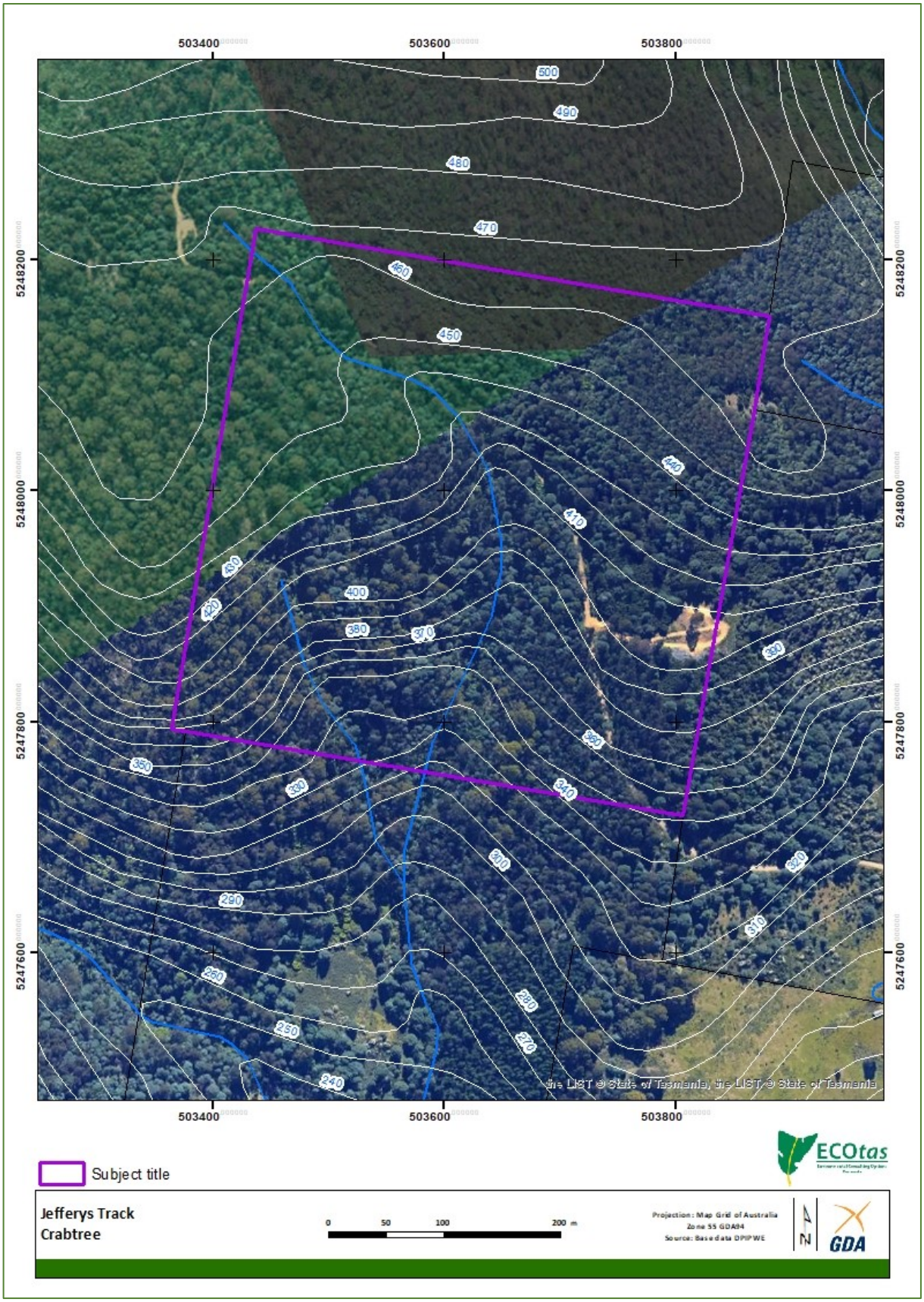

Figure 3. Detailed location of the study area – showing recent aerial imagery and cadastral boundaries

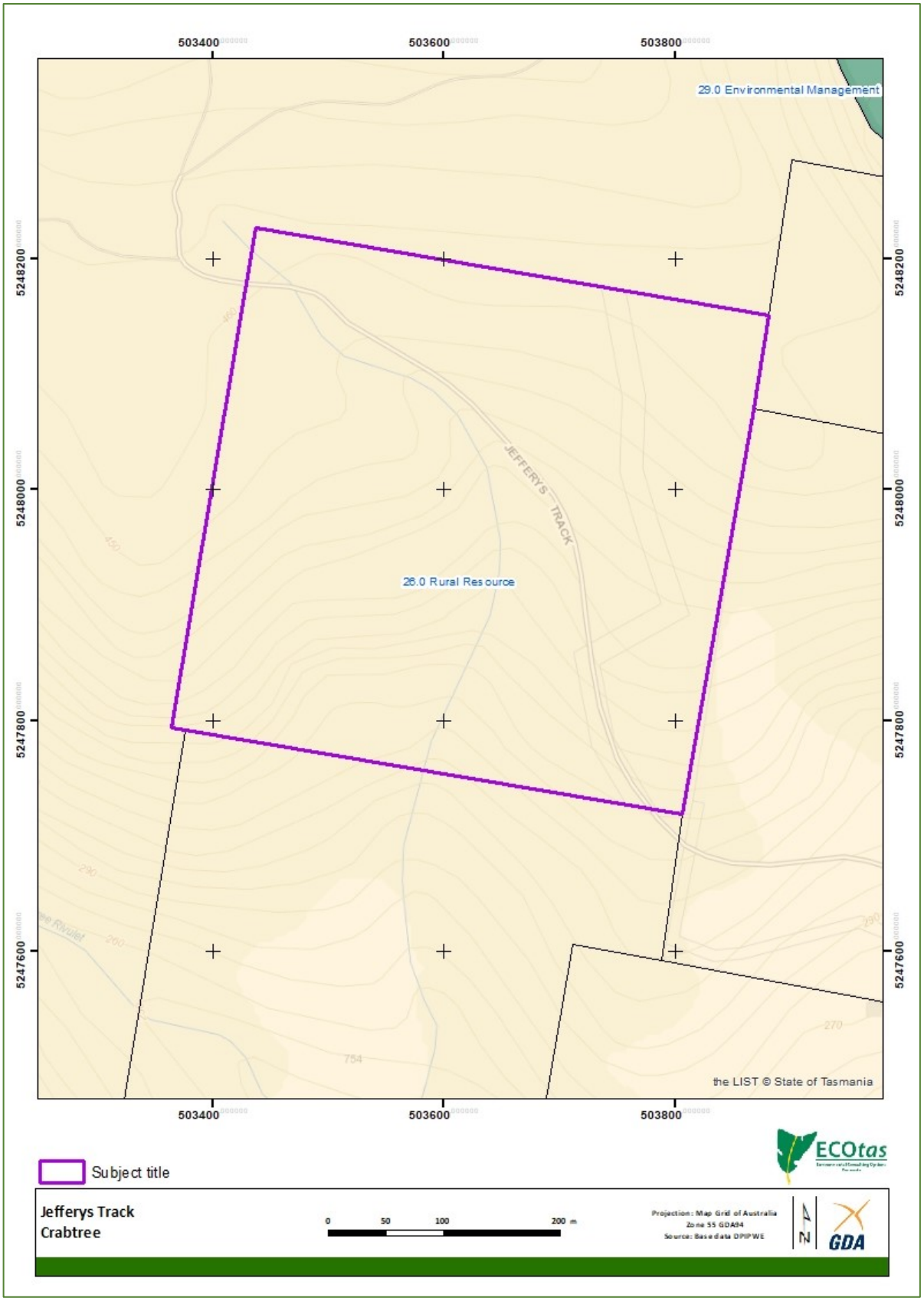

Figure 4. Zoning of subject title and surrounds pursuant to the *Huon Valley Interim Planning Scheme 2015* [source: LISTmap]

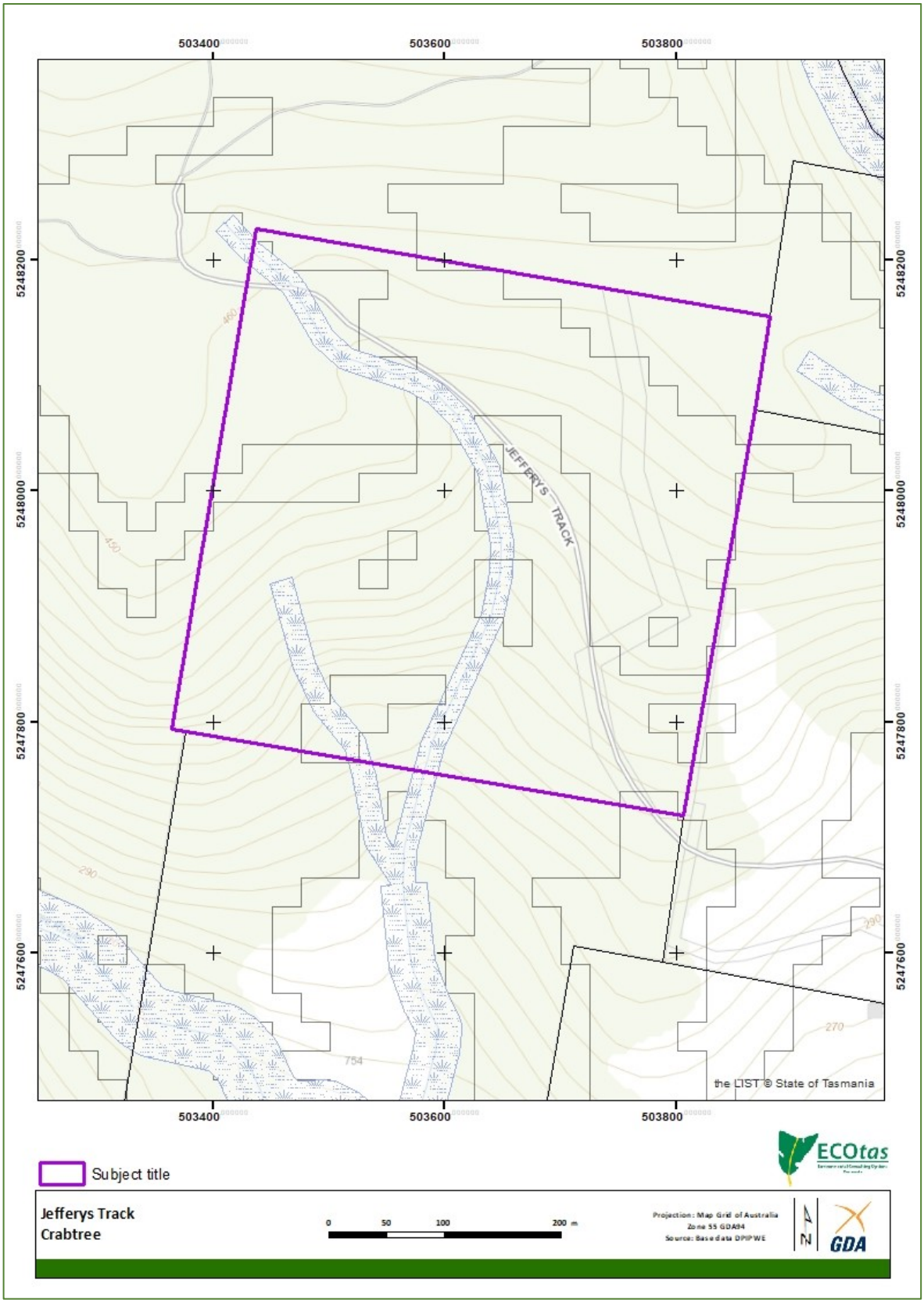

Figure 5. Extent of Biodiversity Protection Area and Waterway and Coastal Protection Areas overlays (immediately preceding version) near subject title surrunds pursuant to the *Huon Valley Interim Planning Scheme 2015* [source: LISTmap]

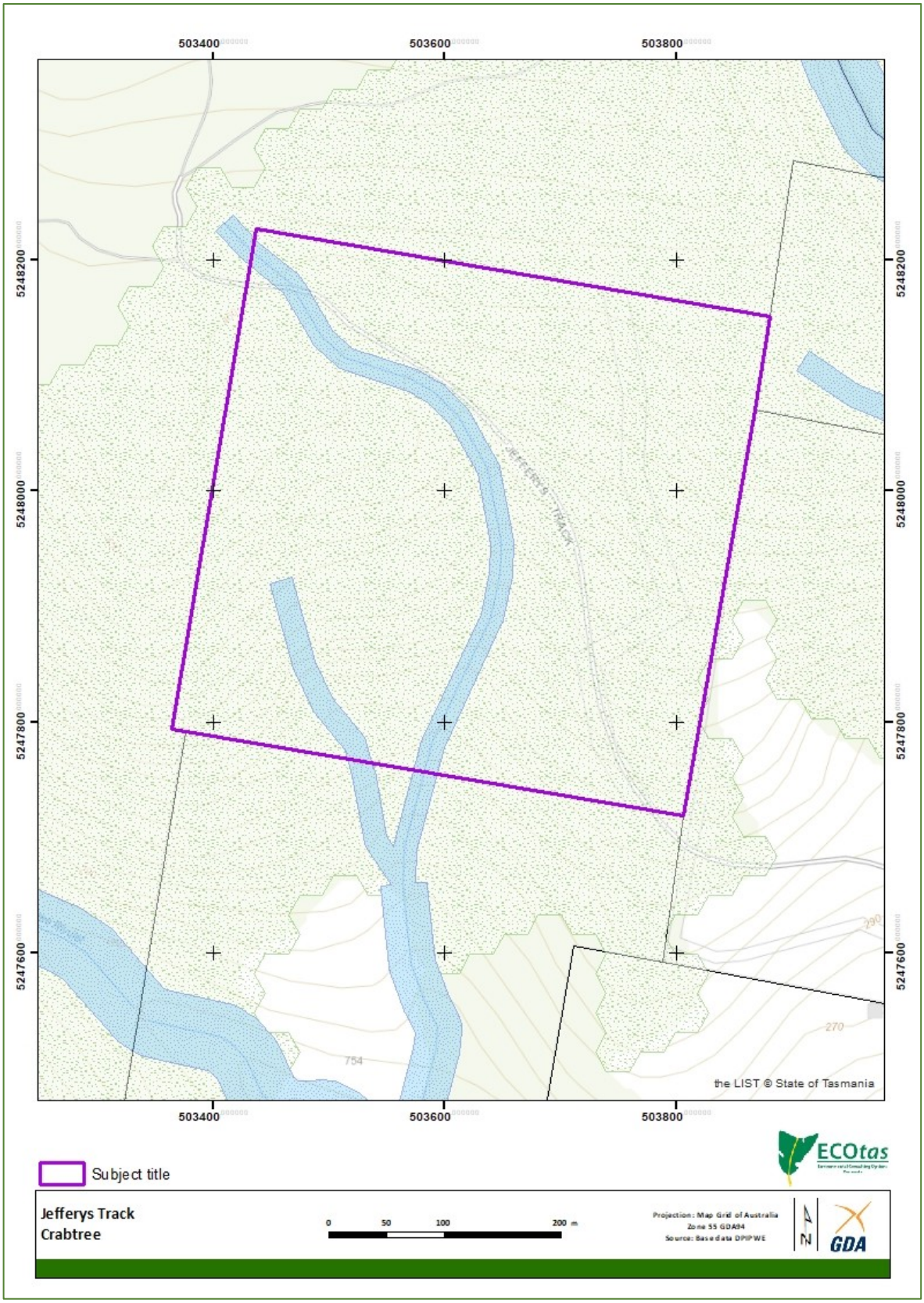

Figure 6. Extent of Biodiversity Protection Area overlay (AM-HUO-PSA-4-2019) and Waterway and Coastal Protection Areas overlay within the subject title and surrounds pursuant to the *Huon Valley Interim Planning Scheme 2015* [source: LISTmap]

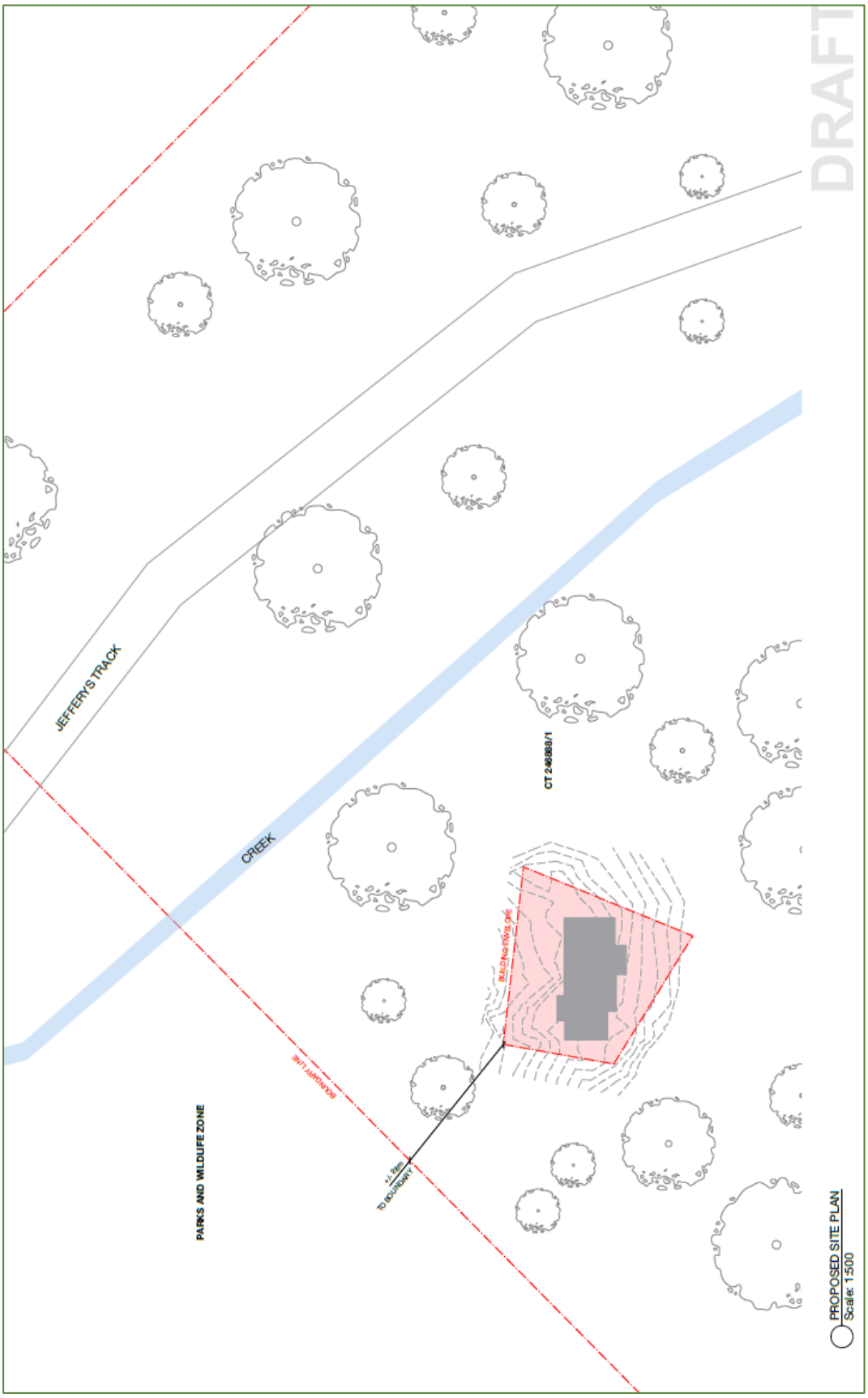

Figure 7. Indicate site plan (included herein to provide context to natural values findings only)

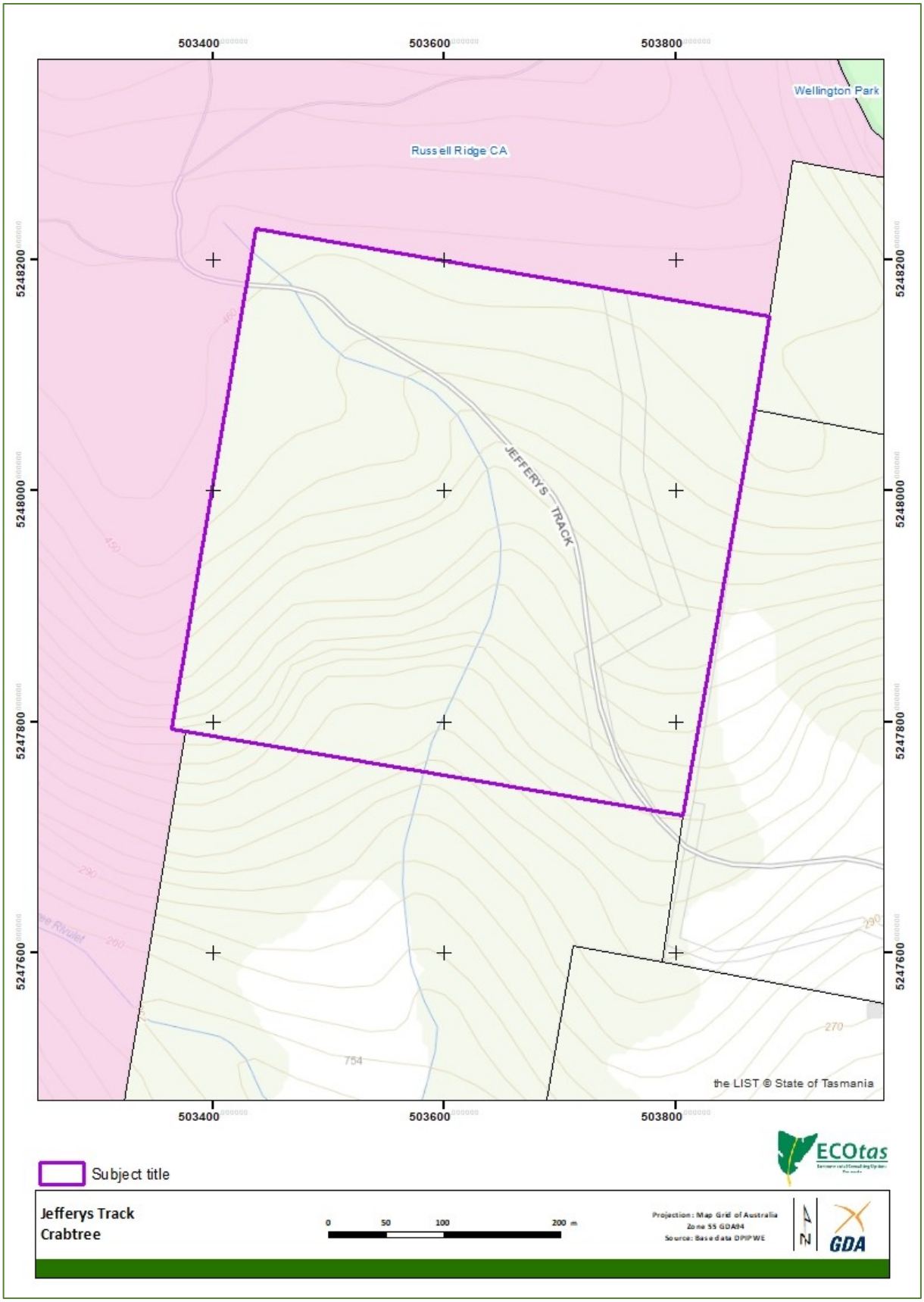

Figure 8. Adjacent reserve

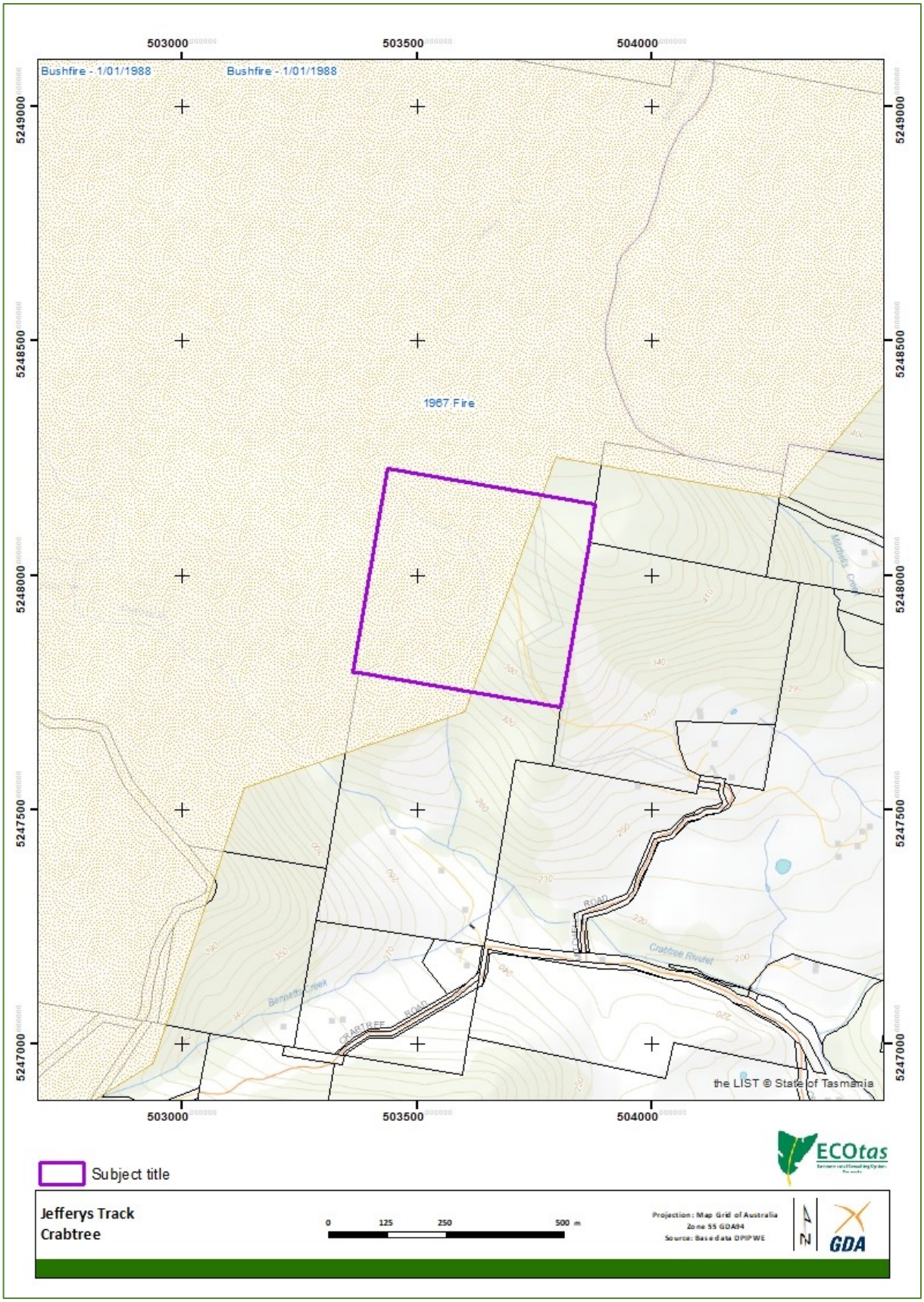

Figure 9. Fire history of the subject title and surrounds (refer to text for codes)

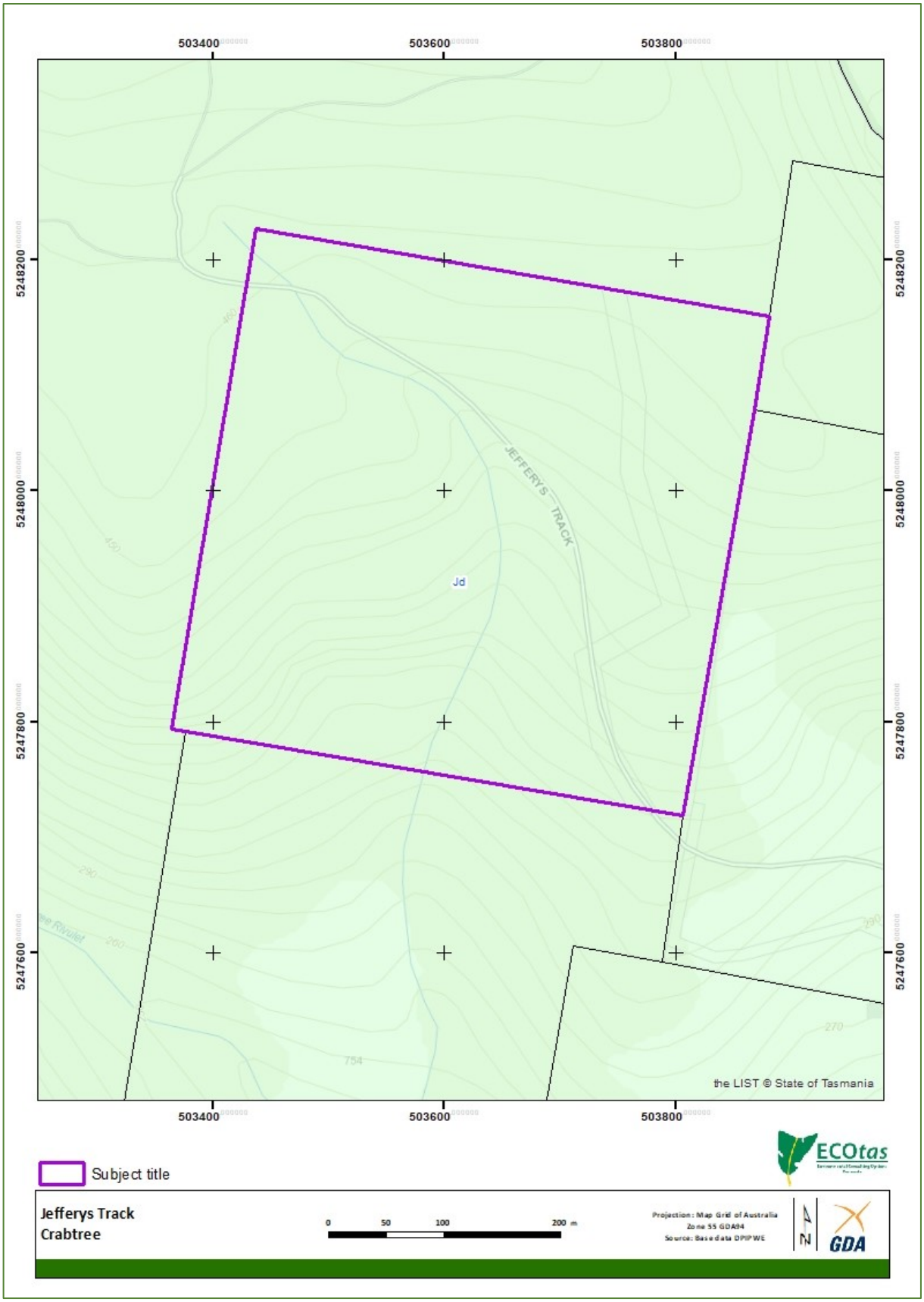

Figure 10. Geology of the subject title and surrounds (refer to text for codes)

METHODS

Nomenclature

All grid references in this report are in GDA94, except where otherwise stated.

Vascular species nomenclature follows de Salas & Baker (2020) for scientific names and Wapstra et al. (2005+) for common names. Fauna species scientific and common names follow the listings in the cited *Natural Values Atlas* report (DPIPWE 2020).

Vegetation classification follows TASVEG 3.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation (*Kitchener & Harris 2013+).

Preliminary investigation

Available sources of previous reports, threatened flora records, vegetation mapping and other potential environmental values were interrogated. These sources include:

- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas* records for threatened flora and fauna (GIS coverage maintained by the author current as at date of report);
- Tasmanian Department of Primary Industries, Parks, Water & Environment's *Natural Values Atlas* report ECOtas_JefferysTrack for a polygon defining the title area (centred on 503624mE 5247971mN), buffered by 5 km, dated 30 Nov. 2020 (DPIPWE 2020) – Appendix E;
- Forest Practices Authority's *Biodiversity Values Database* report, specifically the species' information for grid reference centroid 503624mE 5247971mN (i.e. a point defining the approximate centre of the assessment area), buffered by 5 km and 2 km for threatened fauna and flora records, respectively, hyperlinked species' profiles and predicted range boundary maps, dated 30 Nov. 2020 (FPA 2020) – Appendix F;
- Commonwealth Department of Agriculture, Water and the Environment's *Protected Matters Report* for a for a polygon defining the title area, buffered by 5 km, dated 30 Nov. 2020 (CofA 2020) – Appendix G;
- the TASVEG 4.0 vegetation coverage (as available through GIS coverage and via LISTmap);
- GoogleEarth and LISTmap aerial orthoimagery; and
- other sources listed in tables and text as indicated.

Field assessment

The assessment was undertaken by Mark Wapstra (ECO*tas*) on 4 December 2020. The survey focussed on the portion of the title proosed for development, including the whole extent of the area recently disturbed and its immediate fringes. Cadastral data uploaded to the iGIS application guided the in-field assessment as some of the boundaries are not formally defined by fences or the like. Meandering transects were used to capture the greater range of aspects, slopes and site conditions.

Vegetation classification

Vegetation was classified by waypointing vegetation transitions for later comparison to aerial imagery. The structure and composition of the vegetation types was described using nominal 30 m radius plots at a representative site within the vegetation types, and compiling "running" species lists between plots and vegetation types. Hand-held GPS (Garmin Oregon 600) was used to waypoint the transition between vegetation types.

Threatened (and priority) flora

With reference to the threatened flora, the survey included consideration of the most likely habitats for such species. Further details are not provided because no such species were detected. Further details are not provided because no such species were detected.

Threatened fauna

Surveys for threatened fauna were largely limited to an examination of "potential habitat" (i.e. comparison of on-site habitat features to habitat descriptions for threatened fauna), and detection of tracks, scats and other signs.

Weed and hygiene issues

The subject title was also assessed with respect to plant species classified as declared weeds under the Tasmanian *Weed Management Act 1999*, Weeds of National Significance (WoNS) or "environmental weeds" (author opinion and as included in *A Guide to Environmental and Agricultural Weeds of Southern Tasmania*, NRM South 2017).

The site was also assessed with respect to potential impacts of plant and animal pathogens, by reference to habitat types and field symptoms.

FINDINGS

Vegetation types

Comments on TASVEG mapping

This section, which comments on the existing TASVEG 4.0 mapping for the study area, is included to highlight the differences between existing mapping and the more recent mapping from the present study to ensure that any parties assessing land use proposals (via this report) do not rely on existing mapping. Note that TASVEG mapping, which was mainly a desktop mapping exercise based on aerial photography, is often substantially different to ground-truthed vegetation mapping, especially at a local scale. An examination of existing vegetation mapping is usually a useful pre-assessment exercise to gain an understanding of the range of habitat types likely to be present and the level of previous botanical surveys.

TASVEG 4.0 maps the subject title as (Figure 11):

- *Eucalyptus obliqua* with broad-leaf shrubs (TASVEG code: WOB)

  WOB is mapped across the eastern quarter of the title, with this polygon extending to the south and north of the title.

- *Eucalyptus obliqua* wet forest (undifferentiated) (TASVEG code: WOU)

  WOU is mapped in the southwestern corner of the title, with the polygon extending to the south, west and northwest. In this part of the State, most polygons allocated to WOU (i.e. undifferentiated with respect to understorey type: R = rainforest; L = *Leptospermum*; B = broad-leaf shrubs) can be allocated to WOB.

- *Eucalyptus delegatensis* forest with broad-leaf shrubs (TASVEG code: WDB)

  WDB is mapped as a broad band through most of the middle of the title. Oddly, this separates WOU from WOB, apparently not based on any particular site features such as topography, elevation or different aerial photography signatures. One of the reasons this is odd is that *Eucalyptus obliqua* and *Eucalyptus delegatensis* tend to be best separated on elevational differences with the former tending to be lower elevation that the latter, which is not reflected in TASVEG mapping. Site assessment indicated that while some *Eucalyptus delegatensis* is present, the site supports mainly *Eucalyptus regnans*, *Eucalyptus obliqua* (including nearly all juvenile material along Jefferys Track being this species) and *Eucalyptus globulus*.

Vegetation types recorded as part of the present study

Vegetation types have been classified according to TASVEG 4.0, as described in *From Forest to Fjaeldmark: Descriptions of Tasmania's Vegetation* (Kitchener & Harris 2013+). Table 1 provides information on the vegetation type identified from the study area. Refer to Figure 12 that provides a map of the revised vegetation type recorded from the study area. Refer to Appendix A for a more detailed description of the native vegetation mapping unit identified from the study area.

Conservation significance of identified vegetation type

The vegetation community recorded from the subject title (WRE), is not listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002* and does not equate to a threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA).

As a non-threatened vegetation community, WRE cannot qualify as a moderate priority biodiversity value under Table E10.1 of the Biodiversity Code of the *Huon Valley Interim Planning Scheme 2015* but it is noted that this table does not include high or low priority biodiversity values. As a vegetation type, however, the identified mapping unit does not qualify under item (a) "any threatened native vegetation community" (not threatened), item (c) "all remnant vegetation" (in no way is this site "remnant"), item (d) "all native vegetation within of adjacent to a watercourse or wetland" (riparian features are present but not within the proposed development site) or item (e) "native vegetation where there is less than 30% native vegetation in the surrounding one kilometre" (the site is part of an extensive swathe of native forest). However, item (b) "known or potential habitat for any threatened species" may have some application (to varying degrees) for species such as the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, masked owl, grey goshawk, swift parrot and Mount Mangana stag beetle.

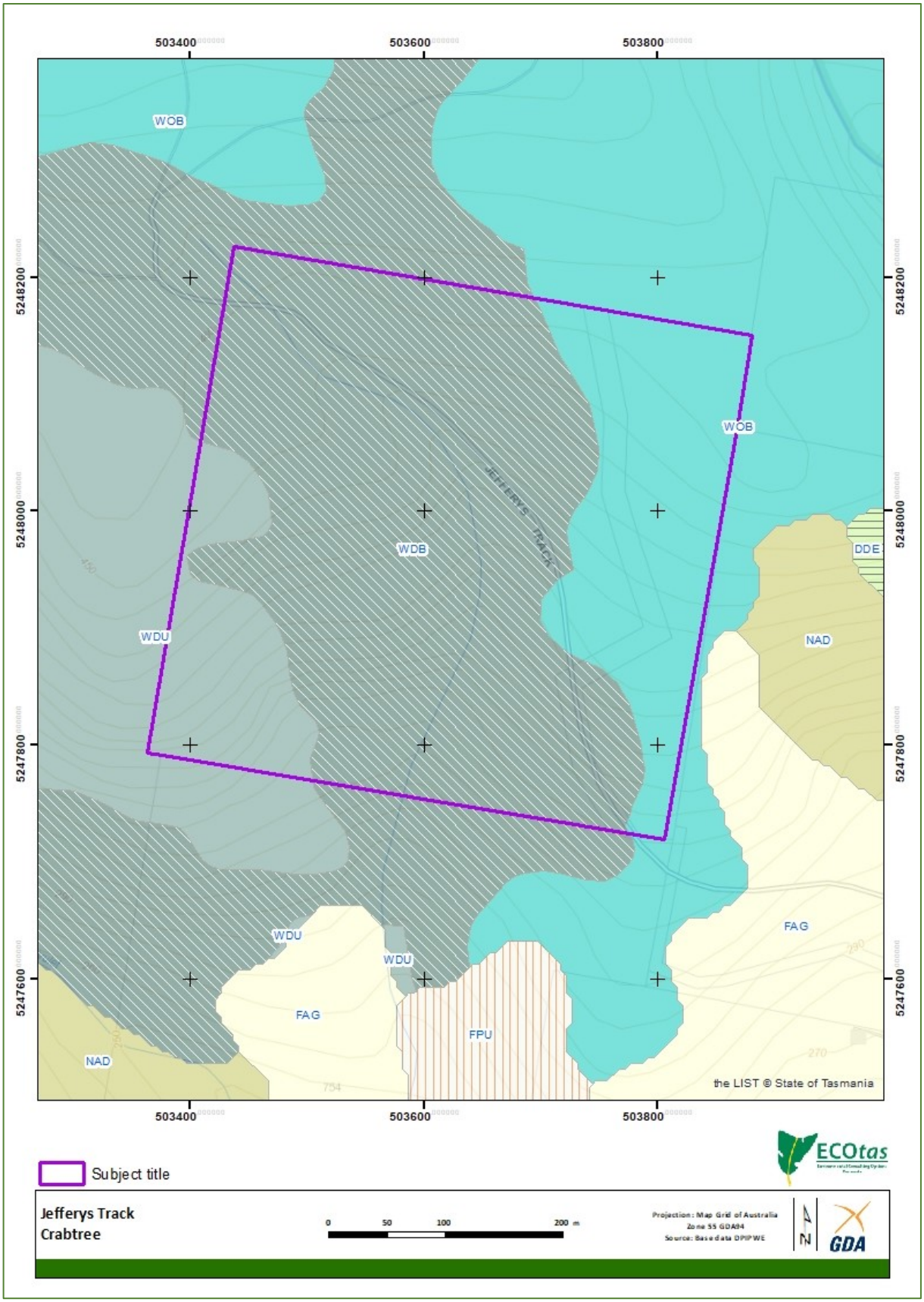

Figure 11. Study area and surrounds showing existing TASVEG 4.0 vegetation mapping (see text for codes)

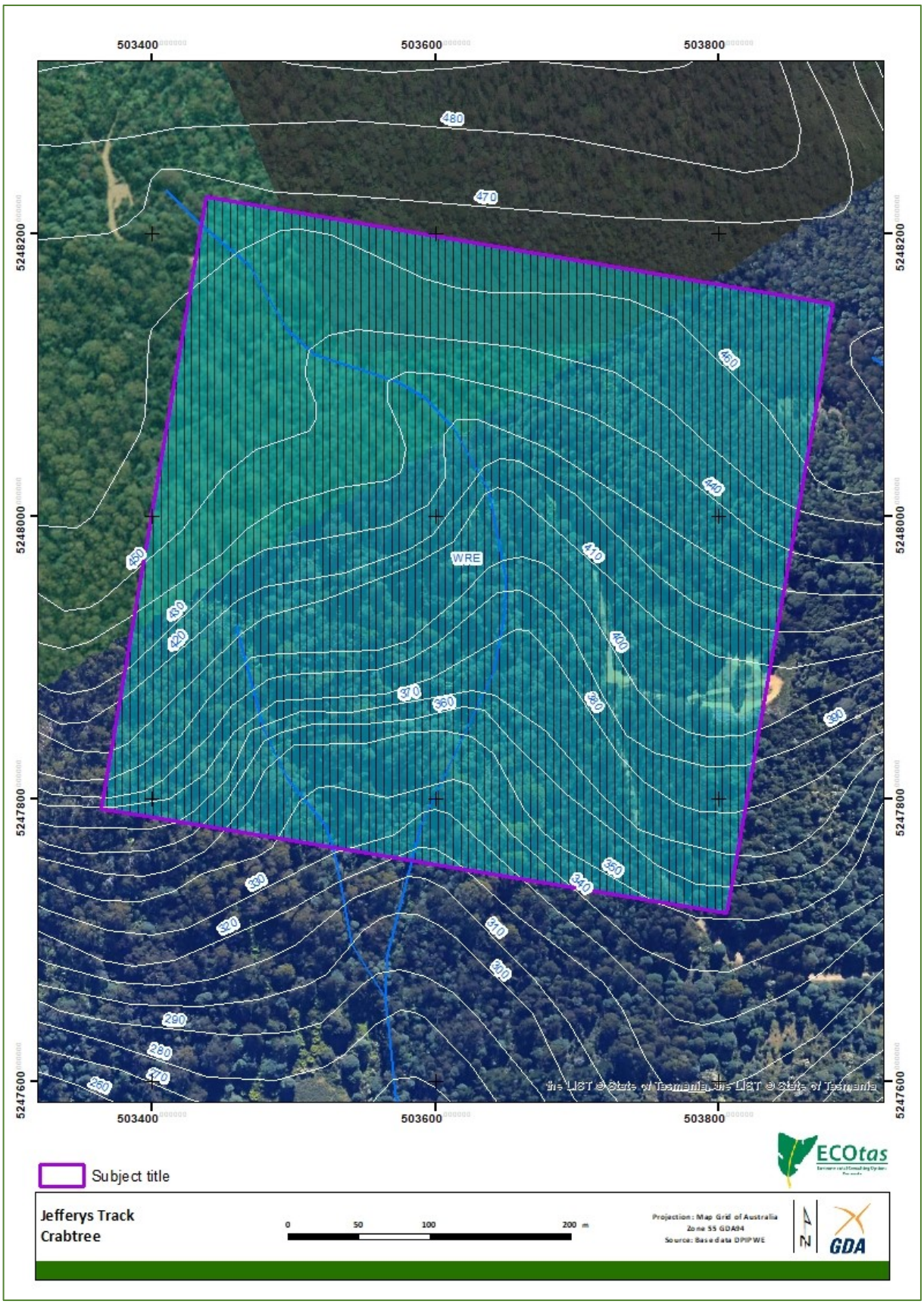

Figure 12. Revised vegetation mapping for relevant part of subject title (refer to text for codes)

Table 1. Vegetation mapping unit present in the subject title

[conservation status: NCA – as per Schedule 3A of the Tasmanian *Nature Conservation Act 2002*, using units described by Kitchener & Harris (2013+), relating to TASVEG mapping units (DPIPWE 2020); EPBCA – as per the listing of ecological communities on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, relating to communities as described under that Act, but with equivalencies to TASVEG units]

TASVEG equivalent (Kitchener & Harris 2013+)	**Conservation priority** TASVEG *EPBCA*	**Comments**
Dry eucalypt forest and woodland		
Eucalyptus regnans forest (WRE)	not threatened *not threatened*	The recently cleared part of the title supports a mature regrowth-structured form of WRE. *Eucalyptus regnans* is the dominant canopy species, although both *Eucalyptus globulus* and *Eucalyptus obliqua* (possibly *Eucalyptus delegatensis*) are present. Reference to surrounding areas clearly indicate the typical wet sclerophyll understorey of a tall dense layer of broad- and soft-leaved shrubs over ground and trunked ferns. The canopy dominance is somewhat complex but again, surrounding areas, as well as examination of seed pods on felled material (Plates 11 & 12) suggests *Eucalyptus regnans* is dominant over *Eucalyptus globulus*. For the purposes of this assessment, I have now re-classified the whole title as WRE, rather than a complex mosaic of WOU, WOB and WDB as it appears that *Eucalyptus regnans* is dominant throughout (including the gullies/slopes associated with Crabtree Rivulet – see Plates 1-4 and also cover image).

Plate 11. (LHS) Capsules of *Eucalyptus globulus* on felled material

Plate 12. (RHS) Capsules of *Eucalyptus regnans* on felled material

Plant species

General information

A total of 24 vascular plant species were recorded from the study area (Appendix B), comprising 16 dicotyledons (including 2 endemic species), 3 monocotyledons (all native) and 3 pteridophytes (all native) and 5 pteridophytes (all native). This species diversity (i.e. low) is highly typical of regrowth-structured long-unburnt wet sclerophyll forest in this part of the State.

Additional surveys at different times of the year may detect additional short-lived herbs and grasses but a follow-up survey is not considered warranted because of the small disturbance footprint and low likelihood of species with a high priority for conservation management being present.

Threatened flora species recorded from the study area

No flora species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) are known from database information (Figure 13), or were detected as a consequence of the field survey, from the study area.

The habitat type present (i.e. regrowth-structured wet sclerophyll forest) in this part of the State is not strongly associated with threatened flora (refer section below and Table C1).

Threatened flora species potentially present (database analysis)

Figure 13 indicates threatened flora species near to the study area and Table C1 (Appendix C) provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Fauna species

Threatened fauna species recorded from the study area

No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) are known from database information (Figure 14), or were detected as a consequence of the field survey, from the study area.

The vegetation types present have some association with threatened fauna (refer section below and Table D1).

Threatened fauna species potentially present (database analysis)

Figure 14 indicates threatened fauna species near to the study area and Table D1 (Appendix D) provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Site assessment indicated that the relevant part of the subject title supports ubiquitous potential habitat for a suite of threatened fauna species. This includes potential habitat of species such as *Sarcophilus harrisii* (Tasmanian devil), *Dasyurus maculatus* subsp. *maculatus* (spotted-tailed quoll), *Dasyurus viverrinus* (eastern quoll), *Perameles gunnii* subsp. *gunnii* (eastern barred bandicoot), *Tyto novaehollandiae* (masked owl), *Accipiter novaehollandiae* (grey goshawk) and

Aquila audax (wedge-tailed eagle). Small-scale development is not anticipated to have a significant deleterious impact on these species.

With respect to the Mount Mangana stage beetle (*Lissotes menalcas*), the whole title is considered to be potential habitat because it is mature regrowth wet sclerophyll forest (Plates 1-4) with extensive rotten logs (Plates 5 & 6). This species is widespread, albeit somewhat difficult to assess because finding the species requires some level of habitat destruction (ripping apart logs and/or removing top layers) such that this is not usually undertaken. Small-scale development as is proposed is not expected to impact on the species at a scale requiring special consideration, noting that the species is managed in industrial forestry situations such as clearfell, burn and sow coupes of up to 100 ha at any one time.

With respect to the swift parrot (*Lathamus discolor*), the site is atypical of potential nesting habitat because as relatively even-aged homogenous wet sclerophyll forest, the canopy trees are currently lacking extensive hollow development. That said, a small number of the trees on the margins of the recently cleared area are larger and may support hollows (or are at least much closer to forming such hollows e.g. Plate 13). Of greater importance, however, is that at least part of the site supports a canopy with some shared dominance by *Eucalyptus globulus*, which provides potential, albeit probably quite opportunistic, foraging habitat for the swift parrot.

Plate 13. (LHS) Taller and more mature *Eucalyptus globulus* on edge of cleared area (arrowed), perhaps closest to forming hollows

Plate 14. (RHS) Wet sclerophyll forest on edges of cleared area with mixed canopy dominance of *Eucalyptus globulus* and *Eucalyptus regnans*

While the regrowth-structured forest canopy is unlikely to provide suitable trees for nesting by the wedge-tailed eagle, there is a known nest (RND #2023, "Crabtree") located ca. 880 m northwest of the northwest corner of the subject title (Figure 14b). Activities within the title are not anticipated to impact on the breeding success of this nest because of the distance and the fact it is not in line-of-sight due to both topography and intervening wet sclerophyll forest.

In summary, the title, and the specific development site, provides potential habitat for a suite of threatened fauna species, although works at the scale indicated (including the required bushfire hazard management) is not anticipated to have a significant deleterious impact at any reasonable scale. Small-scale and probably largely temporary impact is expected but the species potentially present are likely to recover/adapt quickly to this change (relatively minor canopy gap amongst an otherwise extensive area of superficially similar vegetation). Within the accepted range of these species, this level of disturbance is regarded as minor.

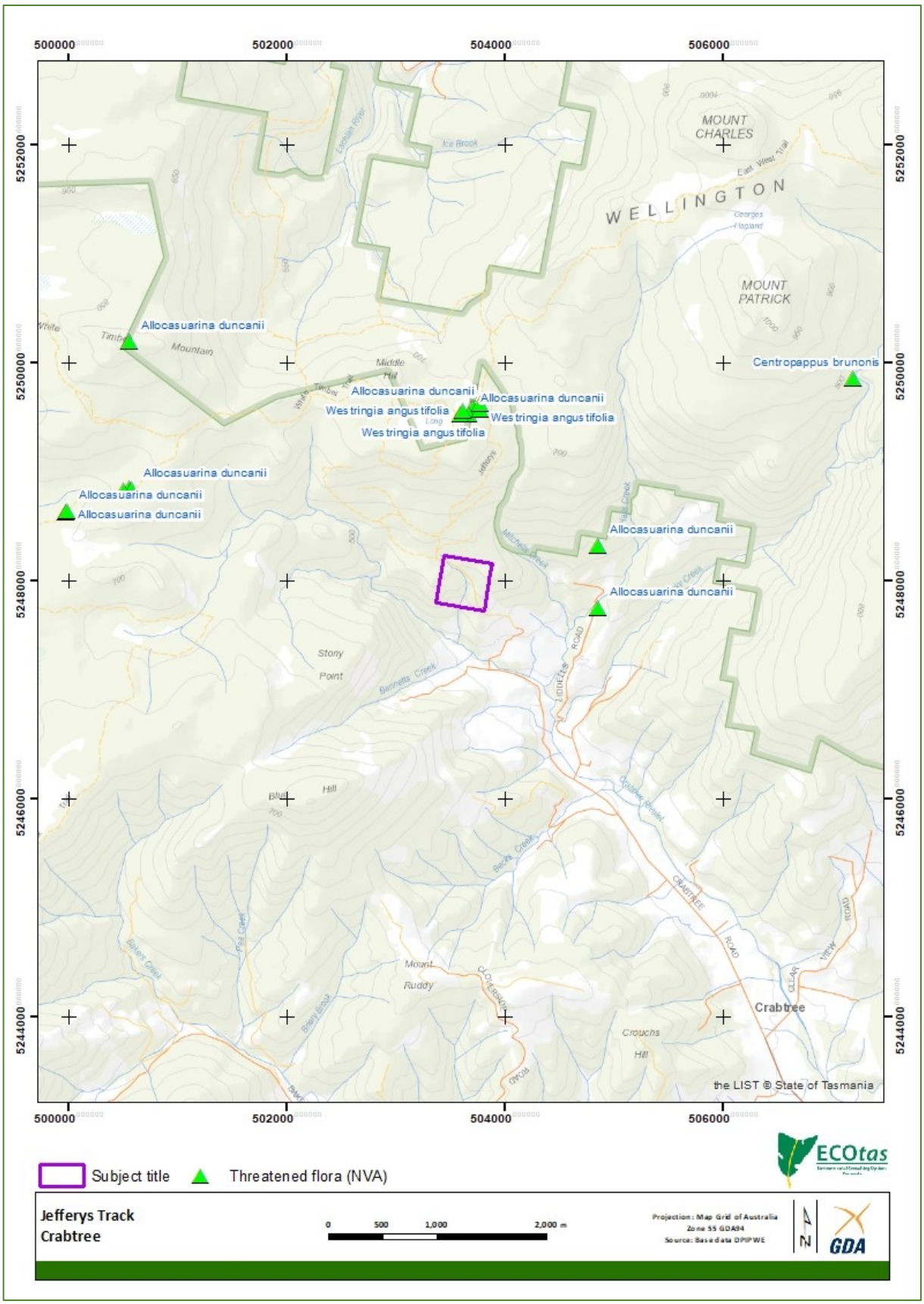

Figure 13. Distribution of threatened flora close to the study area (overview)

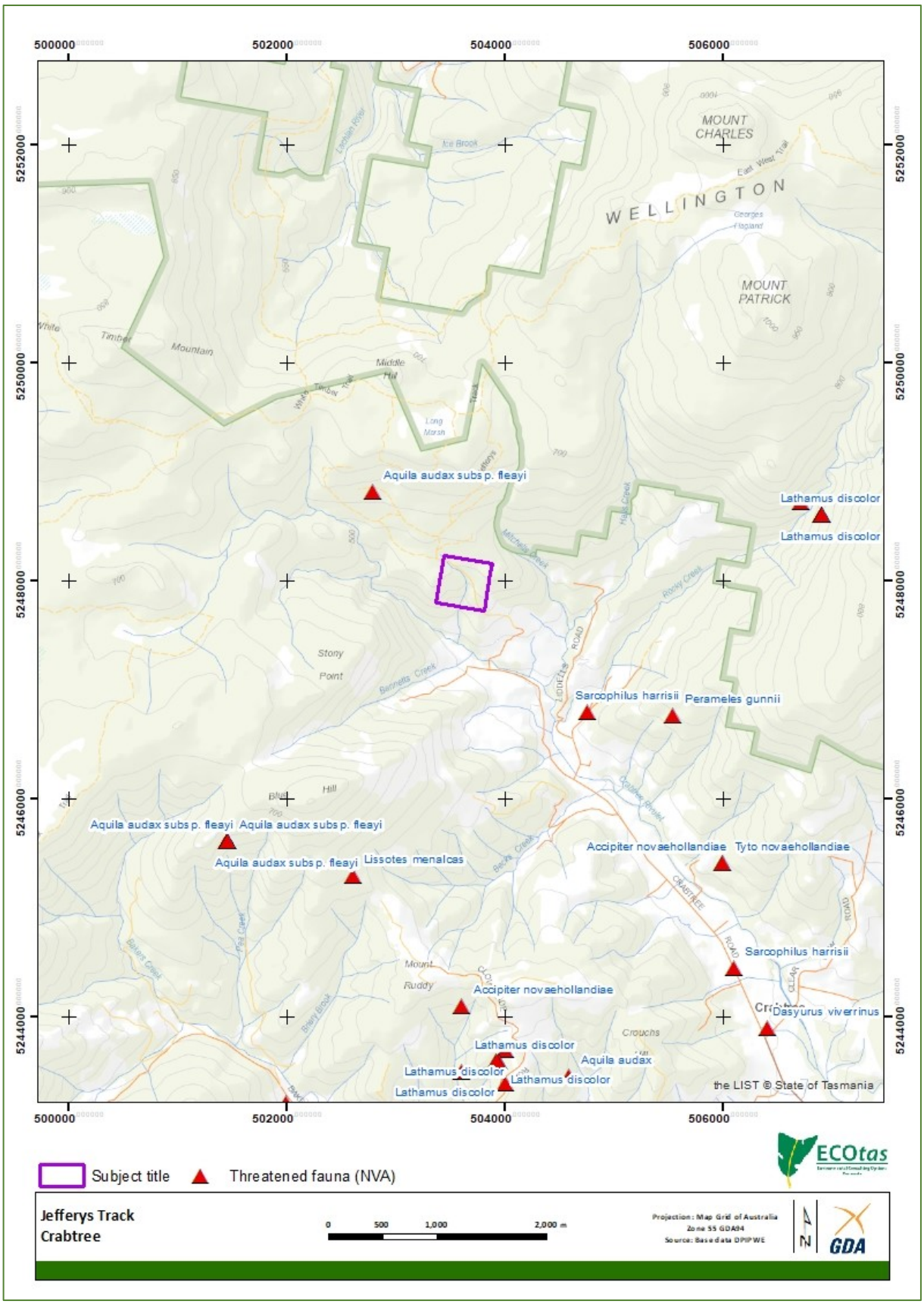

Figure 14a. Distribution of threatened fauna close to the study area (overview)

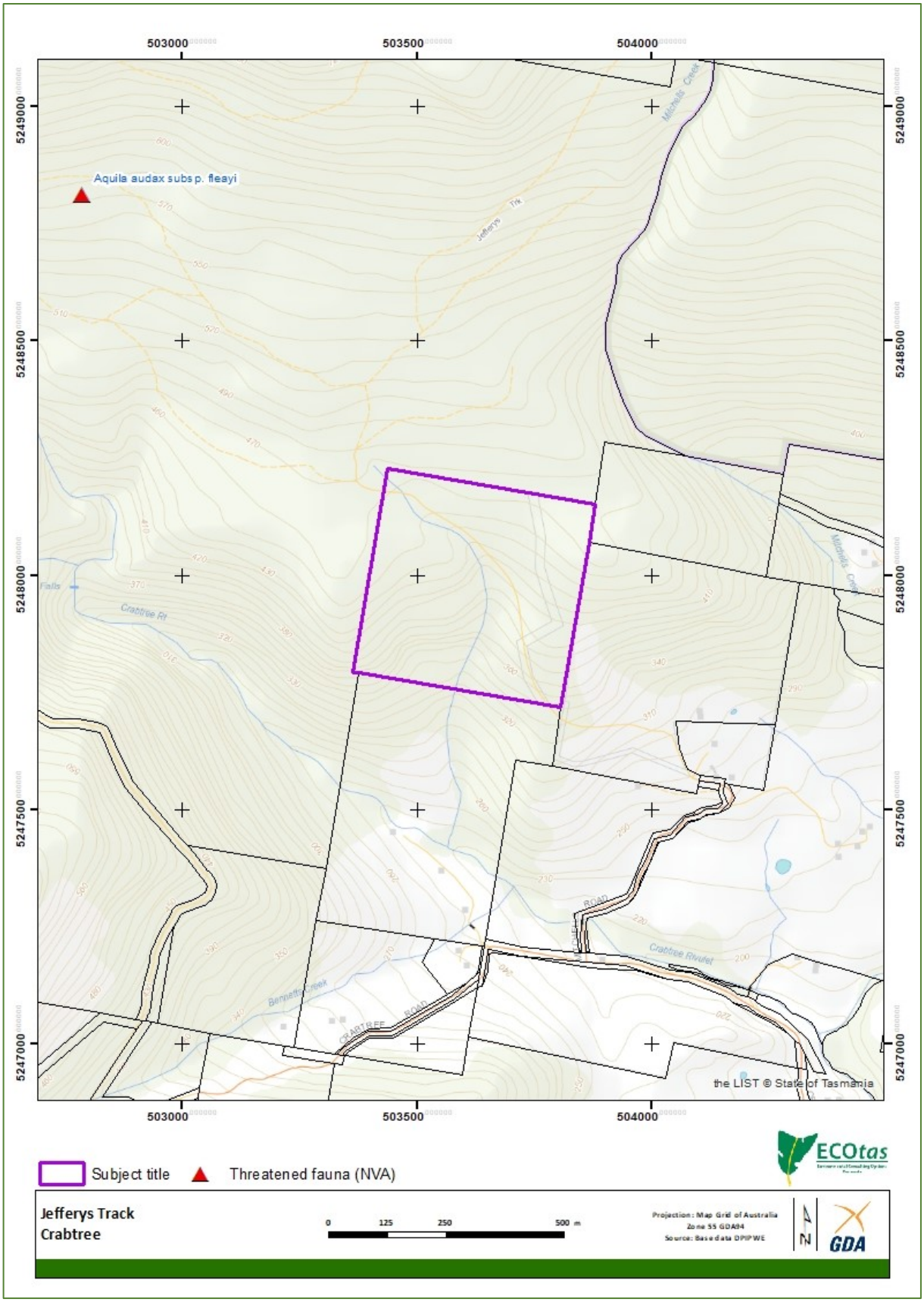

Figure 14b. Distribution of threatened fauna close to the study area (closer)

Other ecological values

Weed species

No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999*, nor plant species considered as environmental weeds (author opinion), were detected from the study area.

Given that access to the title will be from the fully-formed Mitchells Road and then the Jefferys Track, the risk of construction machinery and vehicles introducing weeds to the relevant part of the subject title is considered negligible. In the case of titles with no to negligible weeds present, owner-occupation is considered the most appropriate long-term management option, where vigilance and immediate control are practical.

Further to the present title, as a precautionary approach, it is recommended to consider vegetation debris and topsoil created to be "contaminated" with weed propagules. As such, this material should be disposed of carefully, either off-site at a registered municipal facility or on-site (e.g. burial or burning within the cleared area).

Several planning manuals provide guidance on appropriate management actions, which can be referred to develop site-specific prescriptions for any proposed works in the study area. These manuals include:

- Allan, K. & Gartenstein, S. (2010). *Keeping It Clean: A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens*. NRM South, Hobart;
- Rudman T. (2005). *Interim* Phytophthora cinnamomi *Management Guidelines*. Nature Conservation Report 05/7, Biodiversity Conservation Branch, Department of Primary Industries, Water & Environment, Hobart;
- Rudman, T., Tucker, D. & French, D. (2004). *Washdown Procedures for Weed and Disease Control*. Edition 1. Department of Primary Industries, Water & Environment, Hobart; and
- DPIPWE (2015). *Weed and Disease Planning and Hygiene Guidelines – Preventing the Spread of Weeds and Diseases in Tasmania*. Department of Primary Industries, Parks, Water & Environment, Hobart.

Rootrot pathogen, *Phytophthora cinnamomi*

Phytophthora cinnamomi (PC) is widespread in lowland areas of Tasmania, across all land tenures. However, disease will not develop when soils are too cold or too dry. For these reasons, PC is not a threat to susceptible plant species that grow at altitudes higher than about 700 metres or where annual rainfall is less than about 600 mm (e.g. Midlands and Derwent Valley). Furthermore, disease is unlikely to develop beneath a dense canopy of vegetation because shading cools the soils to below the optimum temperature for the pathogen. A continuous canopy of vegetation taller than about 2 metres is sufficient to suppress disease. Hence PC is not considered a threat to susceptible plant species growing in wet sclerophyll forests, rainforests (except disturbed rainforests on infertile soils) and scrub e.g. teatree scrub (Rudman 2005; FPA 2009).

The vegetation type identified from the study area is not recognised as particularly susceptible to PC. Site assessment did not record any field symptoms (dead and/or dying susceptible plant species). No special management should be required in relation to PC.

Myrtle wilt

Myrtle wilt, caused by a wind-borne fungus (*Chalara australis*), occurs naturally in rainforest where myrtle beech (*Nothofagus cunninghamii*) is present. The fungus enters wounds in the tree, usually caused by damage from wood-boring insects, wind damage and forest clearing. The incidence of myrtle wilt often increases forest clearing events such as windthrow and wildfire.

The subject title does not support *Nothofagus cunninghamii*. No special management is required.

Myrtle rust

Myrtle rust is a disease limited to plants in the Myrtaceae family. This plant disease is a member of the guava rust complex caused by *Austropuccinia psidii*, a known significant pathogen of Myrtaceae plants outside Australia. Infestations are currently limited to NSW, Victoria, Queensland and Tasmania (DPIPWE 2015).

No evidence of myrtle rust was noted (several possible indicator species present). The longer-term management issue for the site is to ensure that any ornamental plantings source plants from a reputable nursery free from the pathogen (such businesses are already subject to strict biosecurity conditions).

Chytrid fungus and other freshwater pathogens

Native freshwater species and habitat are under threat from freshwater pests and pathogens including *Batrachochytrium dendrobatidis* (chytrid frog disease), *Mucor amphibiorum* (platypus mucor disease) and the freshwater algal pest *Didymosphenia geminata* (didymo) (Allan & Gartenstein 2010). Freshwater pests and pathogens are spread to new areas when contaminated water, mud, gravel, soil and plant material or infected animals are moved between sites. Contaminated materials and animals are commonly transported on boots, equipment, vehicles tyres and during road construction and maintenance activities. Once a pest pathogen is present in a water system it is usually impossible to eradicate. The manual *Keeping it Clean - A Tasmanian Field Hygiene Manual to Prevent the Spread of Freshwater Pests and Pathogens* (Allan & Gartenstein 2010) provides information on how to prevent the spread of freshwater pests and pathogens in Tasmanian waterways wetlands, swamps and boggy areas.

The part of the subject title proposed for development is well-drained and generally unsuitable for amphibians (except in a highly opportunistic sense), such special management should not be warranted.

Additional "Matters of National Environmental Significance" – Threatened Ecological Communities

CofA (2020) indicates that the following threatened ecological communities listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) may or are likely to occur within the area:

- Alpine Sphagnum Bogs and Associated Fens [Endangered]
- Tasmanian Forests and Woodlands dominated by Black Gum or Brookers Gum *(Eucalyptus ovata* / E*. brookeriana*) [Critically Endangered]

Existing vegetation mapping (Figure 11) and revised vegetation mapping (Figure 12) indicates that neither of these communities is present within or adjacent to the subject title. There are no implications under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

DISCUSSION

Summary of key findings

Threatened flora

- No plant species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.

Threatened fauna

- No fauna species listed as threatened on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) and/or the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were detected, or are known from database information, from the study area.
- The study area supports potential habitat (to varying degrees) of several species, as follows:
  - Tasmanian devil (*Sarcophilus harrisii*);
  - spotted-tailed quoll (*Dasyurus maculatus* subsp. *maculatus*);
  - eastern quoll (*Dasyurus viverrinus*);
  - eastern barred bandicoot (*Perameles gunnii* subsp. *gunnii*);
  - masked owl (*Tyto novaehollandiae*);
  - grey goshawk (*Accipiter novaehollandiae*);
  - swift parrot (*Lathamus discolor*); and
  - Mount Mangana stag beetle (*Lissotes menalcas*).

Vegetation types

- The study area supports the following TASVEG mapping unit:
  - *Eucalyptus regnans* forest (TASVEG code: WRE).
- WRE is not listed as threatened on Schedule 3A of the Tasmanian *Nature Conservation Act 2002* and does not equate to a threatened ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Weeds

- No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999*, nor plant species considered as environmental weeds (author opinion), were detected from the study area.

Plant disease

- No evidence of *Phytophthora cinnamomi* (PC, rootrot) was recorded within the study area.
- No evidence of myrtle wilt was recorded from within the study area.

- No evidence of myrtle rust was recorded from within the study area.

Animal disease (chytrid)

- The study area does not support habitats conducive to frog chytrid disease.

Legislative and policy implications

Some commentary is provided below with respect to the key threatened species, vegetation management and other relevant legislation. Note that there may be other relevant policy instruments in addition to those discussed. The following information does not constitute legal advice and it is recommended that independent advice is sought from the relevant agency/authority.

Tasmanian *Threatened Species Protection Act 1995*

Threatened flora and fauna on this Act are managed under Section 51, as follows:

> 51. Offences relating to listed taxa
>
> (1) Subject to subsections (2) and (3), a person must not knowingly, without a permit –
>
> (a) take, keep, trade in or process any specimen of a listed taxon of flora or fauna; or
>
> (b) disturb any specimen of a listed taxon of flora or fauna found on land subject to an interim protection order; or
>
> (c) disturb any specimen of a listed taxon of flora or fauna contrary to a land management agreement; or
>
> (d) disturb any specimen of a listed taxon of flora or fauna that is subject to a conservation covenant entered into under Part 5 of the *Nature Conservation Act 2002*; or
>
> (e) abandon or release any specimen of a listed taxon of flora or fauna into the wild.
>
> (2) A person may take, keep or process, without a permit, a specimen of a listed taxon of flora in a domestic garden.
>
> (3) A person acting in accordance with a certified forest practices plan or a public authority management agreement may take, without a permit, a specimen of a listed taxon of flora or fauna, unless the Secretary, by notice in writing, requires the person to obtain a permit.
>
> (4) A person undertaking dam works in accordance with a Division 3 permit issued under the *Water Management Act 1999* may take, without a permit, a specimen of a listed taxon of flora or fauna.

The simplest interpretation of this is that any activity that results in a specimen (i.e. individual) of listed flora or fauna being "knowingly taken" would require a permit to be issued through the Policy & Conservation Advice Branch (PCAB, DPIPWE) through a formal application process. Note that the Act does not make reference to "potential habitat" such that activities that result in loss of/disturbance to potential habitat (but not known sites) – which mainly refers to threatened fauna – would not require a permit. The subject title does not support any known locations of threatened flora or fauna such that the Act does not have application.

Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

Matters of national environmental significance considered under the EPBCA include:

- listed threatened species and communities
- listed migratory species;
- Ramsar wetlands of international importance;
- Commonwealth marine environment;
- world heritage properties;
- national heritage places;
- the Great Barrier Reef Marine Park;
- nuclear actions; and
- a water resource, in relation to coal seam gas development and large coal mining development.

The Commonwealth Department of Agriculture, Water and the Environment provides a policy statement titled *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (CofA 2013, herein the *Guidelines*), which provides overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBCA.

The *Guidelines* define a **significant impact** as:

> *"…an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts"*

and note that:

> *"…all of these factors [need to be considered] when determining whether an action is likely to have a significant impact on matters of national environmental significance".*

The *Guidelines* provide advice on when a significant impact may be likely:

> *"To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility.*
>
> *If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment".*

The *Guidelines* provide a set of Significant Impact Criteria (CofA 2013), which are "intended to assist…in determining whether the impacts of [the] proposed action on any matter of national environmental significance are likely to be significant impacts". It is noted that the criteria are "intended to provide general guidance on the types of actions that will require approval and the types of actions that will not require approval…[and]…not intended to be exhaustive or definitive".

Listed ecological communities

The subject title does not support any such communities.

Threatened flora

The subject title does not support populations of EPBCA-listed flora, nor significant potential habitat of such species.

Threatened fauna

The subject title may support populations of threatened fauna listed on the Act, most notably the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot and swift parrot. Note that the study area is within the range of several other species listed on the Act but it is unlikely that any proposal will result in a significant impact on these species (this includes wide-ranging species such as the wedge-tailed eagle and masked owl).

The *Guidelines* consider a "significant impact" to comprise loss that is likely to lead to a long-term decrease in the size of an important population of a species; reduce the area of occupancy of an important population; fragment an existing important population into two or more populations (unlikely); adversely affect habitat critical to the survival of a species; disrupt the breeding cycle of an important population; modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline; result in invasive species that are harmful to a threatened species becoming established in the threatened species' habitat; introduce disease that may cause the species to decline; or interfere substantially with the recovery of the species.

With respect to the aforementioned species, it is difficult to anticipate a scenario in which a referral to the Commonwealth Department of Agriculture, Water and the Environment would be become necessary at the scale of the proposed activities.

Tasmanian *Forest Practices Act 1985* and associated *Forest Practices Regulations 2017*

The *Regulations* provide the following relevant circumstances in which a Forest Practices Plan is not required.

> 4. Circumstances in which forest practices plan, &c., not required
>
> For the purpose of section 17(6) of the Act, the following circumstances are prescribed:
>
> (a) the harvesting of timber or the clearing of trees, with the consent of the owner of the land, if the land is not vulnerable land and –
>
> (i) the volume of timber harvested or trees cleared is less than 100 tonnes for each area of applicable land per year; or
>
> (ii) the total area of land on which the harvesting or clearing occurs is less than one hectare for each area of applicable land per year –
>
> whichever is the lesser;
>
> (j) the harvesting of timber or the clearing of trees on any land, or the clearance and conversion of a threatened native vegetation community on any land, for the purpose of enabling –
>
> (i) the construction of a building within the meaning of the *Land Use Planning and Approvals Act 1993* or of a group of such buildings; or
>
> (ii) the carrying out of any associated development –

> if the construction of the buildings or carrying out of the associated development is authorised by a permit issued under that Act.

On this basis, a proposed development that includes a residential dwelling should not require a Forest Practices Plan.

Tasmanian *Nature Conservation Act 2002*

Schedule 3A of the Act lists vegetation types classified as threatened within Tasmania. The subject title supports no such vegetation types.

Tasmanian *Weed Management Act 1999*

No plant species classified as declared weeds within the meaning of the Tasmanian *Weed Management Act 1999* were detected from the subject title, such that the Act has limited application.

Tasmanian *Wildlife (General) Regulations 2010*

While the assessment of the study area indicated the presence of species listed on schedules of the *Regulations* (i.e. "specially protected wildlife", "protected wildlife", "partly protected wildlife"), no individuals, or products (e.g. nests, dens, etc.), of these species, are likely to be directly physically affected by the works.

Tasmanian *Land Use Planning and Approvals Act 1993*

Note that the following is my interpretation of the provisions of the *Huon Valley Interim Planning Scheme 2015* and does not represent the views of Huon Valley Council. The following does not constitute legal advice. It is recommended that formal advice be sought from the relevant agency prior to acting on any aspect of this statement.

The applicable planning scheme for the study area is the *Huon Valley Interim Planning Scheme 2015*.

General zone provisions

The subject title is zoned Rural Resource.

Below I address some specific clauses of the Rural Resource zone to provide guidance on the likely impact of a future development proposal on "natural values" referred to in these clauses.

Under 26.2 Use Table, "Residential" is a "Discretionary" use with the qualification "Only if single dwelling". My interpretation of this statement is that the zone provisions accept a single residential dwelling on land so zoned but that there is some discretion applied, presumably principally in relation to the primary purpose statements of the zone that relate mainly to agricultural uses.

Based on my experience with this type of development in this zone, I believe that the principal clause requiring consideration in relation to natural values 26.4. Development Standards for Buildings and Works, in particular 26.4.3 Design, which is stated as follows:

> 26.4.3 Design
>
> Objective: To ensure that the location and appearance of buildings and works minimises adverse impact on the rural landscape.

The basic objective of 26.4.3 should be relatively easily met with a single residential dwelling with a standard bushfire hazard management plan. It is noted that the primary objective of 26.4.3 relates to "rural landscape" and not "natural values" (as applies for the Environmental Living zone).

The Acceptable Solution is as follows:

> Acceptable Solutions
>
> A1
>
> The location of buildings and works must comply with any of the following:
>
> (a) be located within a building area, if provided on the title;
>
> (b) be an addition or alteration to an existing building;
>
> (c) be located on a site that does not require the clearing of native vegetation and is not on a skyline or ridgeline.

It will not be possible to meet the Acceptable Solutions of A1 because the title does not (to my knowledge) include a "building area" shown on title, it will be a new residence, and will require clearing of native vegetation. Based on discussions, I understand that the only area that is perhaps technically "clear of native vegetation" is within a "road reserve" title and/or only accessible by reference to this title, which is not under the jurisdiction of the owner of the subject title. That is, the selected site is by far the most logical and practical, making use of the existing road (Jeffreys Track), a previous track (overgrown but now cleared of scrub) to the development site) and located away from watercourses.

Based on the above, the Performance Criteria need to be addressed, as follows:

Performance Criteria

> P1
>
> The location of buildings and works must satisfy all of the following:
>
> (a) be located on a skyline or ridgeline only if:
>
> (i) there are no sites clear of native vegetation and clear of other significant site constraints such as access difficulties or excessive slope, or the location is necessary for the functional requirements of infrastructure;
>
> (ii) significant impacts on the rural landscape are minimised through the height of the structure, landscaping and use of colours with a light reflectance value not greater than 40 percent for all exterior building surfaces;
>
> (b) be consistent with any Desired Future Character Statements provided for the area;
>
> (c) be located in an area requiring the clearing of native vegetation only if:
>
> (i) there are no sites clear of native vegetation and clear of other significant site constraints such as access difficulties or excessive slope, or the location is necessary for the functional requirements of infrastructure;
>
> (ii) the extent of clearing is the minimum necessary to provide for buildings, associated works and associated bushfire protection measures.

As stated under the Acceptable Solution, I do not believe that P1(a) has application.

P1(b) does not have application as 26.1.3 Desired Future Character Statements states "there are no desired future character statements for this zone".

P1(c)(i) includes the alternative option of "or the location is necessary for the functional requirements of infrastructure". As stated previously, I do not believe that the subject title provides any logical/practical alternatives that do not support native vegetation. P1(c)(i) also refers to "other significant site constraints such as access difficulties or excessive slope…". I believe that this can refer to slopes, waterways and the complexities of working within the constraints imposed by the Jefferys Track and the "road reserve" title. That is, I believe that the intent of P1(c)(i) should be satisfied.

In relation to P1(c)(ii), I would usually accept a bushfire hazard management plan from an accredited person as meeting the intent and specifics of the condition. In this case, I would accept a lower BAL rating (e.g. BAL-19 or even lower) rather than BAL-29 (sometimes perceived as having less of an impact on natural values) because of the steep slopes and vegetation types i.e. I accept that substantial clearing of a non-threatened vegetation type may need to be undertaken on the slopes below the proposed development to satisfy contemporary bushfire hazard management requirements.

On the basis of the above analysis, in my opinion the proposed residential dwelling can meet the intent and specifics of the provisions of the Rural Resource zone in relation to "natural values" (I have not addressed any other values).

Biodiversity Code

The subject title was not subject to the Biodiversity Protection Area overlay under the immediately preceding version of the overlay maps linked to the *Huon Valley Interim Planning Scheme 2015* (Figure 5) but now is wholly subject to the overlay under the recently developed overlay maps provided through LISTmap for AM-HUO-PSA-4-2019 (Figure 6). I have previously requested a Priority Vegetation Report from officers of Huon Valley Council for titles with similar overlays to explain the rationale for the revised overlay but this has not been provided. As such, I will review the overlay with respect to the current values identified in Table E10.1 of the Biodiversity Code.

The purpose of the Biodiversity Code is stated below:

> E10.1 Purpose
>
> E10.1.1
>
> The purpose of this provision is to:
>
> (a) minimise loss of identified threatened native vegetation communities and threatened flora species;
>
> (b) conserve identified threatened fauna species by minimising clearance of important habitat and managing environmental impact; and
>
> (c) minimise loss of other biodiversity values that are recognised as locally significant by the Planning Authority;
>
> where not otherwise regulated by the State or Commonwealth.

The subject title does not support a threatened vegetation community, such that clause E10.1.1(a) should not have direct application in relation to this value.

The subject title does not support threatened flora, such that clause E10.1.1(a) should not have direct application in relation to this value.

It can be argued that the subject title supports potential habitat of threatened fauna (e.g. Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, masked owl, grey goshawk, swift parrot, Mount Mangana stag beetle), but the degree to which this represents "important habitat" is less easy to interpret because the *Scheme* (or Code) does not define the term. In my professional opinion, in this case it is reasonable to indicate that the proposed development area as presently conceptualised meets the intent of "important habitat", such that E10.1.1(b) has direct application.

I am not aware of any particular biodiversity values within the title recognised as locally significant, such that I do not believe that clause E10.1.1(c) has direct application. However, I analyse the biodiversity values identified in Table E10.1 in some detail.

The application of the Biodiversity Code is stated below:

> E10.2 Application
>
> This code applies to development involving the clearance and conversion or disturbance of native vegetation within a Biodiversity Protection Area.

"Clearance and conversion" is defined under the Code as:

> "the process of removing native vegetation from an area of land and: (a) leaving the area of land, on a permanent or extended basis, in a state predominantly unvegetated with native vegetation; or (b) replacing the native vegetation so removed, on a permanent or extended basis, with residential, commercial, mining agriculture or other non-agricultural development".

"Disturbance" is defined under the Code as:

> "the alteration of the structure and species composition of a vegetation community through actions including cutting down, felling, thinning, logging, removing or destroying of a native vegetation community".

"Native vegetation" is defined in the *Scheme* as:

> "plants that are indigenous to Tasmania including trees, shrubs, herbs and grasses that have not been planted for domestic or commercial purposes".

It is reasonable to consider the clearing for buildings and associated infrastructure elements such as access driveways and water tanks, sheds and the like as "clearance and conversion".

In my opinion, partial structural modification (e.g. some canopy removal, slashing of understorey) for the purposes of maintaining a low-risk fire management zone and installing a waste water system should not be considered to comprise "clearance and conversion" but does fall within the intent of the definition of "disturbance). In this case, given the dense and tall canopy, combined with the dense understorey, hazard management may appear closer to "clearance" (but not "conversion" than "disturbance". I note that the definition of "disturbance" requires the alteration of the structure and composition of a vegetation community. WRE as a vegetation type is extremely resilient and robust to most forms of disturbance (e.g. see clearfell, burn and sow forestry coupes).

In the absence of further activities, the recently cleared area will revert quickly to a modified form of WRE. In some circumstances, localised canopy gap creation can result in recolonisation by shrub species to the exclusion of a eucalypt canopy. While this would not be ideal, it would still represent a relatively small gap in an otherwise continuous eucalypt-dominated canopy. However, in this case, I believe that the disturbed areas will regenerate to a form of eucalypt forest because the felled trees carried extensive seed (see Plates 11 & 12). Eventually (and this probably means the short- to medium-term relative to the natural cycling of wet sclerophyll forest), the modified canopy gap and surrounds will be consumed by a wildfire event and the whole site will naturally "re-set".

On this basis, if any of the area that has been recently cleared requires notional "restoration" or "rehabilitation" (e.g. any areas outside a defined hazard management area), I do not believe that a complex management plan is warranted. On the contrary, the site will perform bets simply by being "left to its own devices". The rate of recovery is largely irrelevant and will be controlled by

annual and seasonal weather patterns, not by any proactive management that could be applied. This also means that longer-term monitoring is moot. I am comfortable with this as a recommendation (should it become needed) because I did not detect any weed species in either the disturbed area or its fringes meaning the likelihood of the regenerating area to become weed-infested is negligible.

Section E10.5 indicates the application requirements for developments with the Biodiversity Protection Overlay area, as follows:

> E10.5 Application Requirements
>
> E10.5.1
>
> In addition to any other application requirements, the planning authority may require the applicant to provide a natural values determination if considered necessary to determine compliance with acceptable solutions.
>
> E10.5.1
>
> In addition to any other application requirements, the planning authority may require the applicant to provide any of the following information, if considered necessary to determine compliance with performance criteria:
>
> (a) a natural values determination;
>
> (b) a natural values assessment;
>
> (c) a report detailing how impacts on priority biodiversity values will be avoided, minimised, and/or mitigated;
>
> (d) a special circumstances justification report;
>
> (e) a biodiversity offsets plan.

A "natural values assessment" (a higher level of assessment than a "natural values determination") is defined as:

> An ecological assessment, generally consistent with the *Guidelines for Natural Values Assessment* (DPIPWE July 2009), by a suitably qualified person (biodiversity) to identify and convey:
>
> (a) the location of priority biodiversity values affecting the site;
>
> (b) the significance of these priority biodiversity values, with particular reference to Table E10.1;
>
> (c) any likely impact on these priority biodiversity values including existing activities on the site, nearby land uses, weeds, pests, pathogens and the degree of connectivity with other land with natural values;
>
> (d) the likely impact of the proposed development or use on these priority biodiversity values;
>
> (e) recommendations for the design and siting of the proposed development or use to avoid or minimise the identified impacts; and
>
> (g) recommendations for the mitigation or management of any residual impacts.

The preceding report on the ecological values and this review of the provisions of the Biodiversity Code should meet the intent and specifics of a "natural values assessment".

Section E10.7.1 provides the development standards for buildings and works, as follows:

> 10.7.1 Buildings and Works
>
> Objective
>
> To ensure that development for buildings and works that involves clearance and conversion or disturbance within a Biodiversity Protection Area does not result in unnecessary or unacceptable loss of priority biodiversity values.

In my opinion, a development proposal that involves a relatively small part of the title should meet the intent of the objective of the development standards for buildings and works.

The Acceptable Solution (A1) is as follows, with author comments below each criterion:

A1

Clearance and conversion or disturbance must comply with one of the following:

(a) be within a Building Area on a plan of subdivision approved under this planning scheme;

Not applicable to the best of my knowledge for the subject title.

(b) the development is for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and

(i) the area of clearance and conversion is no more than 3,000 m^2;

(ii) the area of disturbance is no more than 6,000 m^2;

Not applicable as the zoning is Rural Resource.

(c) the development is other than for a single dwelling on an existing lot within the Low Density Residential Zone, Rural Living Zone or Environmental Living Zone and

(i) the area of clearance and conversion is no more than 1,500 m^2;

(ii) the area of disturbance is no more than 3,000 m^2;

Not applicable as the zoning is Rural Resource and the development is for a single residential dwelling.

The Performance Criteria (P1) may need to be met. These criteria require an analysis of whether the development proposal will include clearance and conversion and/or disturbance of "priority biodiversity values". This *Scheme* only includes "moderate priority biodiversity values" (Table E10.1), with the entries in Table E10.1 for "high" and "low priority diversity values" being listed as "nil".

The Biodiversity Code defines "moderate biodiversity values" as (Table E10.1), with author comments below each criterion:

On land within the Biodiversity Protection Area includes:

(a) any threatened native vegetation community;

This is not applicable to the development area, which only supports non-threatened vegetation (WRE).

(b) known or potential habitat for any threatened species;

Threatened flora

No threatened flora species have been identified from the subject title. The vegetation type present is not generally strongly associated with such species, and any species potentially present are detectable at virtually any time of the year, such that (b) has no application in relation to threatened flora.

Threatened fauna

The intent of the term "potential habitat" is unclear in this *Scheme* (although it is defined in other interim schemes) but is presumed to refer to sites that can be more strongly linked to a particular species (e.g. blue gum-dominated forests for swift parrots).

In this case, there is ubiquitous potential habitat for species such as the Tasmanian devil, spotted-tailed quoll, eastern quoll, eastern barred bandicoot, masked owl and grey goshawk, but this clause has tenuous application because these species also utilise a wide range of non-native habitats such as pasture. That said, the subject title is within the range of these species but no evidence of the species (e.g. scats, dens, nests, etc.) was detected and the habitat is considered to be quite

marginal in its own right (except as part of a wider home range/territory) because of the relatively simple structure and composition of the vegetation lacking understorey complexity. However, the title, and specifically the proposed development site, does support potential habitat for the swift parrot (some blue gum in the canopy) and the Mount Mangana stag beetle (wet sclerophyll forest with logs). That is, the site is reasonably considered to support "moderate priority biodiversity values".

(c) all remnant vegetation;

Remnant vegetation is not present because the vegetation is contiguous with similar vegetation on adjacent titles and extensive within the title itself.

(d) all native vegetation within or adjacent to a watercourse or wetland;

The proposed development sites does not include any drainage features (has been specifically sited to avoid such features).

(e) native vegetation where there is less than 30% native vegetation in the surrounding one kilometre;

An examination of recent aerial imagery (LISTmap) and TASVEG vegetation mapping clearly demonstrates that there is far greater than 30% native vegetation within 1 km of the subject title.

(f) habitat for hollow dwelling species;

See response under clause (b) but note that the development area supports regrowth-structured (post-1967 bushfire) forest.

(g) threatened species;

See response under clause (b).

(h) the following species;

This list appears to be a suite of non-threatened vascular plant species that are presumed to be "uncommon" in the region, although the selection of this seemingly very select list is not understood.

(i) Caladenia mentiens

(ii) Carex fascicularis

(iii) Centrolepis aristata

(iv) Daviesai [sic – Daviesia] sejugata

(v) Eucalyptus cordata

(vi) Gahnia rodwayi

(vii) Heterozostera tasmanica

(viii) Hypoxis glabella var. glabella

(ix) Juncus holoschoenus

(x) Lemma disperma

(xi) Lepidosperma globosum

(xii) Lepidosperma [sic – Leptospermum] laevigatum

(xiii) Lythrum hyssopifolia

(xiv) Muehlenbeckia gunnii

(xv) Notodanthonia semiannularis [sic – Rytidosperma semiannulare]

(xvi) Olearia floribunda

(xvii) Pelargonium inodorum

(xviii) Phragmites australis

(xix) Senecio glomeratus

(xx) Spyridium obovatum

(xxi) Suaeda australis

(xxii) Thelionema umbellatum

(xxiii) Thelymitra arenaria

(xxiv) Todea barbara

None of these species are present within the part of the title proposed for development.

Since the conclusion is that the part of the title proposed for development supports "moderate priority biodiversity values" and that these will be subject to clearance and conversion and/or disturbance, the Performance Criteria related to the development standards for Buildings and Works (clause 10.7.1) are considered below (noting that only the section for "moderate biodiversity values" are copied because Table E10.1 does not indicate any "high" or "low" values). Author comments are provided below each clause.

P1

Clearance and conversion or disturbance must satisfy the following:

(b) if moderate priority biodiversity values:

(i) development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development;

In my opinion, a simple development for a single residential dwelling should meet the intent of the objective of P1(b)(i) because it can be designed to maximise the retention of native vegetation within the title. In this case, the development is also constrained by the title's size and configuration (including requirements for setbacks but also the location of waterways and the complexities associated the Jefferys Track and the "road reserve" title) such that I believe it is reasonable to indicate the "development is designed and located to minimise impacts, having regard to constraints such as topography or land hazard and the particular requirements of the development".

(ii) impacts resulting from bushfire hazard management measures are minimised as far as reasonably practicable through siting and fire-resistant design of habitable buildings;

In relation to P1(b)(ii), I would usually accept a bushfire hazard management plan from an accredited person as meeting the intent and specifics of the condition. In this case, I would accept a lower BAL rating (e.g. BAL-19 or even lower) rather than BAL-29 (sometimes perceived as having less of an impact on natural values) because of the steep slopes and vegetation types i.e. I accept that substantial clearing of a non-threatened vegetation type may need to be undertaken on the slopes below the proposed development to satisfy contemporary bushfire hazard management requirements.

(iii) remaining moderate priority biodiversity values on the site are retained and improved through implementation of current best practice mitigation strategies and ongoing management measures designed to protect the integrity of these values;

It is my understanding that the balance of the subject title would be retained as undisturbed native vegetation. Due to the zoning and overlays, I do not believe it is warranted to place a conservation covenant or a Part V Agreement that nominally "protects" the balance of the native vegetation because this is achieved in a legal, administrative and practical manner through the Biodiversity Protection Area overlay.

In additon, see my notes regarding possible "restoration" or "rehabilitation": of any recently cleared areas that may fall outside the final hazard management area.

(iv) residual adverse impacts on moderate priority biodiversity values not able to be avoided or satisfactorily mitigated are offset in accordance with the *Guidelines for the Use of Biodiversity Offsets in the Local Planning Approval Process*, Southern Tasmanian Councils Authority 2013 and any relevant Council policy.

This clause can be difficult to interpret but it is assumed it is attempting to refer to the area of "moderate priority biodiversity values" that will not be included in the balance of native vegetation retained outside the development zone (access roads, buildings, bushfire hazard management zone). It assumes that the development in the non-balance area would have a negative impact on the identified values. However, there is no evidence that clearing and disturbance of a small area will result in a significant deleterious impact on the "potential habitat" of most of the threatened fauna species that may be present. Conversely, species such as the large marsupial carnivores and eastern barred bandicoot may be manifestly benefited by some canopy opening.

Clause P1(b)(iv) notes that any such offsets, should they be warranted, should be in accordance with the *Guidelines for the Use of Biodiversity Offsets in the Local Planning Approval Process*. These guidelines provide general principles only on the hierarchical approach to developing offsets (i.e. concepts such as "avoid, mitigate, offset" and "like for like") and these principles can be addressed for any development proposal through the retention of the balance of the native vegetation within the subject title. I do not believe that Huon Valley Council has "any relevant Council policy" in relation to biodiversity offsets. On the basis of the above discussion, I do not believe that there will be a significant "residual adverse impact on moderate priority biodiversity values" that will require a formal offset. However, iadditon, see my notes regarding possible "restoration" or "rehabilitation": of any recently cleared areas that may fall outside the final hazard management area.

In my opinion, the proposed development should be fully compliant with the intent and specifics of the provisions of the Biodiversity Code without requiring specific planning permit conditions.

Recommendations

The recommendations provided below are a summary of those provided in relation to each of the ecological features described in the main report. The main text of the report provides the relevant context for the recommendations.

Vegetation types

There should be no specific management requirements in relation to the native vegetation type identified from the proposed development area. In general terms, minimising the extent of "clearance and conversion" and/or "disturbance" to native vegetation is recommended.

Threatened flora

None identified – no special management required.

Threatened fauna

Apart from the generic recommendation to minimise the extent of "clearance and conversion" and/or "disturbance" to native vegetation, specific management in relation to threatened fauna is not recommended.

Weed and disease management

A stand-alone weed management plan is not indicated. However, it is recommended to consider vegetation debris and topsoil created to be "contaminated" with weed propagules. As such, this material should be disposed of carefully, either off-site at a registered municipal facility or on-site (e.g. burial within the cleared area). Beyond these measures, owner-occupation is considered the most effective future and longer-term means of achieving weed management (i.e. vigilance and control as needed).

Legislative and policy implications

There are no formal requirements for a permit under Section 51 of the Tasmanian *Threatened Species Protection Act 1995* (TSPA).

A formal referral to the Commonwealth Department of Agriculture, Water and the Environment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) is not considered required.

Development will require a planning permit pursuant to the provisions of the *Huon Valley Interim Planning Scheme 2015*. A review of the provisions of the Biodiversity Code indicates likely full compliance with P1 of E10.7.1 without the need for specific planning permit conditions.

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APPENDIX A. Vegetation community structure and composition

The table below provides basic information on the structure and composition of the vegetation mapping unit identified from the study area.

***Eucalyptus regnans* forest (TASVEG code: WRE)**
The recently cleared part of the title supports a mature regrowth-structured form of WRE. *Eucalyptus regnans* is the dominant canopy species, although both *Eucalyptus globulus* and *Eucalyptus obliqua* (possibly *Eucalyptus delegatensis*) are present. Reference to surrounding areas clearly indicate the typical wet sclerophyll understorey of a tall dense layer of broad- and soft-leaved shrubs over ground and trunked ferns. The canopy dominance is somewhat complex but again, surrounding areas, as well as examination of seed pods on felled material (Plates 11 & 12) suggests *Eucalyptus regnans* is dominant over *Eucalyptus globulus*.

LHS. Undisturbed facies of WRE in gully between Jefferys Track and development site
RHS. Disturbed fringe of WRE

Stratum	**Height (m)** **Cover (%)**	**Species** (underline = dominant, parentheses = sparse)
Trees	40 m 40%	*Eucalyptus regnans (Eucalyptus globulus), (Eucalyptus obliqua)*
Trees	15-25 m 30%	*Acacia dealbata, Eucalyptus regnans (Eucalyptus globulus), Acacia melanoxylon*
Tall shrubs	3-12 m 20%	*Pomaderris apetala, Bedfordia salicina, Olearia argophylla, Coprosma quadrifida, (Hakea lissosperma), Pittosporum bicolor, Leptospermum lanigerum*
Low shrubs	< 3 m +	*Coprosma quadrifida, Pimelea drupacea, Pimelea cinerea*
Graminoids	5%	*Gahnia grandis, (Lepidosperma elatius)*
Ground ferns	5-10%	*Polystichum proliferum, Histiopteris incisa, Hypolepis rugosula, (Pteridium esculentum)*
Trunked ferns	1-3 m	*Dicksonia antarctica*
Herbs	+	*Uncinia tenella*
Climbers	+	*Clematis aristata*
Climbers	+	*Cassytha pubescens, Cassytha glabella*

APPENDIX B. Vascular plant species recorded from study area

Botanical nomenclature follows *A Census of the Vascular Plants of Tasmania* (de Salas & Baker 2019), with family placement updated to reflect the nomenclatural changes recognised in the *Flora of Tasmania Online* (de Salas 2019+) and APG (2016); common nomenclature follows *The Little Book of Common Names of Tasmanian Plants* (Wapstra et al. 2005+, updated online at www.dpipwe.tas.gov.au).

e = endemic to Tasmania

Table B1. Summary of vascular species recorded from the study area

	ORDER			
STATUS	**DICOTYLEDONAE**	**MONOCOTYLEDONAE**	**GYMNOSPERMAE**	**PTERIDOPHYTA**
	14	3	-	5
e	2	-	-	-
i	-	-	-	-
Sum	**16**	**3**	**0**	**5**
TOTAL	**24**			

	DICOTYLEDONAE	
	ASTERACEAE	
e	*Bedfordia salicina*	tasmanian blanketleaf
	Olearia argophylla	musk daisybush
	FABACEAE	
	Acacia dealbata subsp. *dealbata*	silver wattle
	Acacia melanoxylon	blackwood
	MYRTACEAE	
	Eucalyptus globulus subsp. *globulus*	tasmanian blue gum
	Eucalyptus obliqua	stringybark
	Eucalyptus regnans	giant ash
	Leptospermum lanigerum	woolly teatree
	PITTOSPORACEAE	
	Pittosporum bicolor	cheeswood
	PROTEACEAE	
	Hakea lissosperma	mountain needlebush
	RANUNCULACEAE	
	Clematis aristata	mountain clematis
	RHAMNACEAE	
	Pomaderris apetala subsp. *apetala*	common dogwood
	ROSACEAE	
	Acaena novae-zelandiae	common buzzy
	RUBIACEAE	
	Coprosma quadrifida	native currant
	THYMELAEACEAE	
e	*Pimelea cinerea*	grey riceflower
	Pimelea drupacea	cherry riceflower
	MONOCOTYLEDONAE	
	CYPERACEAE	
	Gahnia grandis	cutting grass
	Lepidosperma elatius	tall swordsedge
	Uncinia tenella	delicate hooksedge
	PTERIDOPHYTA	
	DENNSTAEDTIACEAE	
	Histiopteris incisa	batswing fern
	Hypolepis rugosula	ruddy groundfern
	Pteridium esculentum subsp. *esculentum*	bracken
	DICKSONIACEAE	
	Dicksonia antarctica	soft treefern
	DRYOPTERIDACEAE	
	Polystichum proliferum	mother shieldfern

APPENDIX C. Analysis of database records of threatened flora

Table C1 provides a listing of threatened flora from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Table C1. Threatened flora records from within 5,000 m of boundary of the study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from DPIPWE's *Natural Values Atlas* (DPIPWE 2020) and other sources where indicated. Habitat descriptions are taken from FPA (2016), FPA (2017) and TSS (2003+), except where otherwise indicated. Species marked with # are listed in CofA (2020).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Allocasuarina duncanii conical sheoak	r -	*Allocasuarina duncanii* is strongly associated with dolerite rock plates or shallow soils over dolerite, where it occurs in monotypic stands or in association with *Eucalyptus delegatensis* or *E. coccifera*. Two small sites are on quarzitic sandstone. The species is found from 230-1,000 m a.s.l. with most sites above 500 m.	Potential habitat absent.
Caladenia caudata tailed spider-orchid	v VU # only	*Caladenia caudata* has highly variable habitat, which includes the central north: *Eucalyptus obliqua* heathy forest on low undulating hills; the northeast: *E. globulus* grassy/heathy coastal forest, *E. amygdalina* heathy woodland and forest, *Allocasuarina* woodland; and the southeast: *E. amygdalina* forest and woodland on sandstone, coastal *E. viminalis* 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.	Potential habitat absent.
Centropappus brunonis tasmanian daisytree	r -	*Brachyglottis brunonis* is known from scattered colonies on the Wellington Range and Mt Dromedary. It grows in shrubby woodland/forest dominated by *Eucalyptus delegatensis* (at mid altitudes) and by *E. coccifera* and *E. urnigera* (at higher altitudes). It typically occurs on dolerite talus but also occurs on poorly-drained sandstone shelves.	Potential habitat absent.
Colobanthus curtisiae grassland cupflower	r VU # only	*Colobanthus curtisiae* occurs in lowland grasslands and grassy woodlands but is also prevalent on rocky outcrops and margins of forest on dolerite on the Central Highlands (including disturbed sites such as log landings and snig tracks).	Potential habitat absent.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
Glycine latrobeana clover glycine	v VU # only	*Glycine latrobeana* occurs in a range of habitats, geologies and vegetation types. Soils are usually fertile but can be sandy when adjacent to or overlaying fertile soils. The species mainly occurs on flats and undulating terrain over a wide geographical range, including near-coastal environments, the Midlands, and the Central Plateau. It mainly occurs in grassy/heathy forests and woodlands and native grasslands.	Potential habitat absent.
Lepidium hyssopifolium soft peppercress	e EN # only	The native habitat of *Lepidium hyssopifolium* 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). *Lepidium hyssopifolium* 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 m a.s.l. in dry, warm and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types.	Potential habitat absent.
Prasophyllum amoenum dainty leek-orchid	v EN # only	*Prasophyllum amoenum* has been recorded from Snug Tiers and Mt Wellington. At Snug Tiers the species occurs in sedgy buttongrass moorland and heath, and also in openings in eucalypt woodland and scrub on damp stony loam. On Mt Wellington the species is found in and near cushion plants in alpine moorland.	Potential habitat absent.
Prasophyllum apoxychilum tapered leek-orchid	v EN # only	*Prasophyllum apoxychilum* is restricted to eastern and northeastern 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 southeast of its range.	Potential habitat absent.
Westringia angustifolia narrowleaf westringia	r -	*Westringia angustifolia* occurs mainly in mid elevations, always on dolerite (but can be close to dolerite-sediment contact zones), in dry to wet sclerophyll forest on broad ridges, slopes and dense riparian shrubberies.	Potential habitat marginally present. This distinctive shrub was not detected (no seasonal constraint on detection and/or identification).
Xerochrysum palustre swamp everlasting	v VU # only	*Xerochrysum palustre* has a scattered distribution with populations in the northeast, 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 *Eucalyptus ovata* woodlands. Sites are usually inundated for part of the year.	Potential habitat absent.

APPENDIX D. Analysis of database records of threatened fauna

Table D1 provides a listing of threatened fauna from within 5,000 m of the study area (nominal buffer width usually used to discuss the potential of a particular study area to support various species listed in databases), with comments on whether potential habitat is present for the species, and possible reasons why a species was not recorded.

Table D1. Threatened fauna records from 5,000 m of boundary of the study area

Species listed below are listed as rare (r), vulnerable (v), endangered (e), or extinct (x) on the Tasmanian *Threatened Species Protection Act 1995* (TSPA); vulnerable (VU), endangered (EN), critically endangered (CR) or extinct (EX) on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA). Information below is sourced from the DPIPWE's *Natural Values Atlas* (DPIPWE 2020), Bryant & Jackson (1999) and FPA (2020); marine, wholly pelagic and littoral species such as marine mammals, fish and offshore seabirds are excluded. Species marked with # are listed in CofA (2020).

Scientific name **Common name**	**Status** TSPA EPBCA	**Tasmanian habitat description (and distribution)**	**Comments on study area and database records**
Accipiter novaehollandiae grey goshawk	e -	Potential habitat is native forest with mature elements below 600 m altitude, particularly along watercourses. Significant habitat may be summarised as areas of wet forest, rainforest and damp forest patches in dry forest, with a relatively closed mature canopy, low stem density, and open understorey in close proximity to foraging habitat and a freshwater body (i.e. stream, river, lake, swamp, etc.).	Potential habitat present. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.
Alcedo azurea subsp. *diemenensis* Tasmanian azure kingfisher	v EN #	Potential habitat comprises potential foraging habitat and potential breeding habitat. Potential foraging habitat is primarily freshwater (occasionally estuarine) waterbodies such as large rivers and streams with well-developed overhanging vegetation suitable for perching and water deep enough for dive-feeding. Potential breeding habitat is usually steep banks of large rivers (a breeding site is a hole (burrow) drilled in the bank).	Potential habitat absent. Listed in CofA (2020) as *Ceyx azureus* subsp. *diemenensis*
Antipodia chaostola tax. *leucophaea* chaostola skipper	e EN #	Potential habitat is dry forest and woodland supporting *Gahnia radula* (usually on sandstone and other sedimentary rock types) or *Gahnia microstachya* (usually on granite-based substrates).	Potential habitat absent (both *Gahnia* species not present).
Apus pacificus fork-tailed swift	- - # only	Occasional non-breeding migrant to Tasmania only.	Potential habitat present. However, as this species rarely lands or roosts (and does not breed) on the Australian migration, any proposal should not have a deleterious impact on the species. Further consideration of this species should not be required.
Aquila audax subsp. *fleayi* tasmanian wedge-tailed eagle	e EN #	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is a wide variety of forest (including areas	Potential nesting habitat absent (generally even-aged regrowth-structured forest). There is a known nets within ca. 870 m of the title (Figure 14b) but this is not

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		subject to native forest silviculture) and non-forest habitats. Potential nesting habitat is tall eucalypt trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest. Nest trees are usually amongst the largest in a locality. They are generally in sheltered positions on leeward slopes, between the lower and mid sections of a slope and with the top of the tree usually lower than the ground level of the top of the ridge, although in some parts of the State topographic shelter is not always a significant factor (e.g. parts of the northwest and Central Highlands). Nests are usually not constructed close to sources of disturbance and nests close to disturbance are less productive. More than one nest may occur within a territory but only one is used for breeding in any one year. Breeding failure often promotes a change of nest in the next year.	within line-of-sight and any activity within the title is not anticipated to impact on this site. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.
Botaurus poiciloptilus australasian bittern	- EN # only	Potential habitat is comprised of wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and reeds (e.g. *Phragmites*, *Cyperus*, *Eleocharis*, *Juncus*, *Typha*, *Baumea*, *Bolboschoenus*) or cutting grass (Gahnia) growing over a muddy or peaty substrate (TSSC 2011).	Potential habitat absent.
Dasyurus maculatus subsp. *maculatus* spotted-tailed quoll	r VU #	Potential habitat is coastal scrub, riparian areas, rainforest, wet forest, damp forest, dry forest and blackwood swamp forest (mature and regrowth), particularly where structurally complex and steep rocky areas are present, and includes remnant patches in cleared agricultural land.	Potential habitat widespread. No evidence (e.g. scats, dens) of the species was observed. The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.
Dasyurus viverrinus eastern quoll	- EN #	Potential habitat is a variety of habitats including rainforest, heathland, alpine areas and scrub. However, it seems to prefer dry forest and native grassland mosaics which are bounded by agricultural land.	Refer to comments under spotted-tailed quoll.
Haliaeetus leucogaster white-bellied sea-eagle	v -	Potential habitat comprises potential nesting habitat and potential foraging habitat. Potential foraging habitat is any large waterbody (including sea coasts, estuaries, wide rivers, lakes, impoundments and even large farm dams) supporting prey items (fish). Potential nesting habitat is tall eucalypt	Refer to comments under wedge-tailed eagle.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
		trees in large tracts (usually more than 10 ha) of eucalypt or mixed forest within 5 km of the coast (nearest coast including shores, bays, inlets and peninsulas), large rivers (class 1), lakes or complexes of large farm dams. Scattered trees along river banks or pasture land may also be used.	
Hirundapus caudacutus white-throated needletail	- VU #	This species is mostly aerial, from heights of less than 1 m up to more than 1,000 m above the ground. Although they occur over most types of habitat, they are recorded most often above wooded areas, including open forest and rainforest.	Potential habitat present. However, as this species rarely lands or roosts (and does not breed) on the Australian migration, any proposal should not have a deleterious impact on the species. Further consideration of this species should not be required.
Lathamus discolor swift parrot	e CR #	Potential habitat comprises potential foraging habitat and potential nesting habitat. Potential foraging habitat comprises *Eucalyptus globulus* (blue gum) or *Eucalyptus ovata* (black gum) trees that are old enough to flower. For management purposes, potential nesting habitat is considered to comprise eucalypt forests that contain hollow-bearing trees.	Refer to **FINDINGS *Fauna species*** Threatened fauna species potentially present (database analysis) for more details.
Lissotes menalcas Mt Mangana stag beetle	v -	Potential habitat is any eucalypt forest that contains rotting logs (often numerous, and usually greater than about 40 cm diameter at mid-log length) below about 650 m a.s.l. (generally moist habitats that have not been subject to high intensity or frequent fires in about the last 20 years). The species has a patchy distribution within areas of potential habitat.	Refer to **FINDINGS *Fauna species*** Threatened fauna species potentially present (database analysis) for more details.
Litoria raniformis green and golden frog	v VU #	Potential habitat is permanent and temporary waterbodies, usually with vegetation in or around them. Potential habitat includes features such as natural lagoons, permanently or seasonally inundated swamps and wetlands, farm dams, irrigation channels, artificial water-holding sites such as old quarries, slow-flowing stretches of streams and rivers and drainage features.	Potential habitat absent.
Myiagra cyanoleuca satin flycatcher	- - # only	Potential habitat is variable but mainly eucalypt-dominated forests, with a stronger association with wetter forest gullies.	Potential habitat present. This is a spring-summer migrant that may occasionally utilise the greater study area for foraging. No sightings were made on the single day of assessment in December, which was undertaken within the species' resident period in Tasmania. Small-scale development should not have a significant impact on this species.

Scientific name Common name	Status TSPA EPBCA	Tasmanian habitat description (and distribution)	Comments on study area and database records
Pardalotus quadragintus forty-spotted pardalote	e EN	Potential habitat is any forest and woodland supporting *E. viminalis* (white gum) where the canopy cover of *E. viminalis* is ≥10% or where *E. viminalis* occurs as a localised canopy dominant or co-dominant in patches exceeding 0.25 ha.	Potential habitat absent. *Eucalyptus viminalis* is not present.
Perameles gunnii subsp. *gunnii* eastern barred bandicoot	- VU #	Potential habitat is open vegetation types including woodlands and open forests with a grassy understorey, native and exotic grasslands, particularly in landscapes with a mosaic of agricultural land and remnant bushland.	Potential habitat present (albeit highly atypical). The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.
Prototroctes maraena Australian grayling	v VU #	Potential habitat is all streams and rivers in their lower to middle reaches. Areas above permanent barriers (e.g. Prosser River dam, weirs) that prevent fish migration, are not potential habitat.	Potential habitat absent.
Pseudemoia pagenstecheri tussock skink	v -	Potential habitat is grassland and grassy woodland (including rough pasture with paddock trees), generally with a greater than 20% cover of native grass species, especially where medium to tall tussocks are present.	Potential habitat absent. There are no areas with greater than 20% cover of tussock-forming grass species present.
Sarcophilus harrisii tasmanian devil	e EN #	Potential habitat is all terrestrial native habitats, forestry plantations and pasture. Devils require shelter (e.g. dense vegetation, hollow logs, burrows or caves) and hunting habitat (open understorey mixed with patches of dense vegetation) within their home range (427 km^2). Significant habitat is a patch of potential denning habitat where three or more entrances (large enough for a devil to pass through) may be found within 100 m of one another, and where no other potential denning habitat with three or more entrances may be found within a 1 km radius, being the approximate area of the smallest recorded devil home range. Potential denning habitat is areas of burrowable, well-drained soil, log piles or sheltered overhangs such as cliffs, rocky outcrops, knolls, caves and earth banks, free from risk of inundation and with at least one entrance through which a devil could pass.	Refer to comments under spotted-tailed quoll.
Tyto novaehollandiae subsp. *castanops* masked owl	e VU #	Potential habitat is all areas with trees with large hollows (≥15 cm entrance diameter). Remnants and paddock trees (in any dry or wet forest type) in agricultural areas may constitute potential habitat. Significant habitat is any areas within the core range of native dry forest with trees over 100 cm dbh with large hollows (≥15 cm entrance diameter).	Potential nesting habitat absent (large trees with large hollows are absent from the study area). The species may occasionally utilise the greater study area as part of a home range and for foraging but small-scale development should not have a significant impact on this aspect of the life history of the species.

APPENDIX E. DPIPWE's *Natural Values Atlas* report for the study area

Appended as pdf file.

APPENDIX F. Forest Practices Authority's *Biodiversity Values Atlas* report for the study area

Appended as pdf file.

APPENDIX G. CofA's *Protected Matters* report for the study area

Appended as pdf file.

ATTACHMENT

- .shp file of revised vegetation mapping