

# **Geoanalysis Pty Ltd**





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Template 2.8.1

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## **Abbreviations**

Abbreviation	Description
BC Act	NSW Biodiversity Conservation Act 2016
CEEC	Critically Endangered Ecological Community
DNG	Derived Native Grassland
DoEE	Department of the Environment and Energy
DPIE	Department of Primary Industries and Environment
EEC	Endangered Ecological Community
ELA	Eco Logical Australia
EP&A Act	Environmental Planning and Assessment Act 1979
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESC	Eurobodalla Shire Council
KFH	Key Fish Habitat
LEP	Local Environment Plan
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NPW Act	National Parks & Wildlife Act 1974
OEH	Office of Environment and Heritage
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
TEC	Threatened Ecological Community

## 1. Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by Geoanalysis Pty Ltd to prepare a Test of Significance (ToS) for a proposed 24 bed lodge and associated works on Lot 1 DP 1192372, Perisher Valley, hereafter referred to as the subject land.

The aim of this ToS was to assess the ecological impacts of the proposal on threatened species and ecological communities within the study area pursuant to the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act), Section 7.3 of the NSW *Biodiversity Conservation Act 2016* (BC Act) and *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The proposal will not trigger the Biodiversity Offsets Scheme (BOS), as it will not affect any land identified on the Biodiversity Values map, as shown in Figure 1, and the total clearing of native vegetation associated with the proposal will not exceed the 0.25 ha threshold which applies to the subject land.

### 1.1 Project description

The subject land is located on the northern edge of the Front Valley at Perisher Ski Resort, just uphill from the Alpine Church. The proposed lodge would require the loss or modification of all the vegetation and associated habitats on the subject land either for the footprint of the lodge, access, services or asset protection zone (APZ). Much of the subject land is already heavily modified. Additional clearing for the proposed lodge and large APZs estimated to be 900 m² of native vegetation. An additional 500 m² of highly modified and predominately exotic grassland will also be disturbed. The subject land is shown in Photo 1 and Photo 2.

#### 1.2 Subject site, study area and locality

The subject site for the purposes of this report is the entirety of the subject land. The indirect impacts associated with the proposal are likely to be confined to the area immediately adjoining the subject site. As such, the study area for the purposes of this report is considered to comprise the subject site and a 10 m buffer.

The locality for the purposes of this report is the area of land within 10 km of the study area

#### 1.3 Potential direct and indirect impacts

The following direct impacts on flora and fauna are anticipated from the proposal:

- the removal of up to approximately 900 m<sup>2</sup> of native understorey shrubs and groundcovers and associated fauna habitats
- impacts to a further 500 m<sup>2</sup> of highly modified and predominately exotic grassland.

The following indirect impacts on flora and fauna are anticipated from the proposal:

 microclimate changes to areas of adjoining remnant vegetation arising from the proposed clearing (anticipated to extend up to 10 m into adjoining native vegetation).



Figure 1: The proposed development in relation to the Biodiversity Values mapping.



Photo 1: Looking north across the subject land.



Photo 2: Looking southeast from the north-western corner of the subject land.

## 2. Methods

### 2.1 Flora survey

A botanical survey was conducted on 28 April 2020 by ELA Ecologist Ryan Smithers for a period of approximately 1.5 hours.

#### 2.1.1 Community identification and floristic audit

The botanical survey involved traversing the full extent of the subject site. The following tasks were undertaken:

- Random Meander flora inventory (Cropper 1993)
- Searches for specific, non-cryptic threatened flora species in appropriate habitats using the Random Meander technique

This method was used to gather the data necessary to describe the vegetation communities and to compare with and Plant Community Types (PCT). General observations were made of the wider area.

#### 2.1.2 Survey limitations

The flora survey undertaken recorded as many species as possible and provides a comprehensive but not exhaustive species list. It likely that additional species would be recorded during a longer survey over various seasons. Nevertheless, the techniques used in this investigation are considered adequate to gather the data necessary to assess the impacts of the proposal on the flora species and vegetation communities found in the study area.

#### 2.2 Fauna surveys

Field investigations for fauna were conducted within the study area in conjunction with the flora surveys.

### 2.2.1 Opportunistic diurnal fauna and habitat surveys

Opportunistic fauna surveys involved observations of animal activity, habitat surveys and searches for indirect evidence of fauna. Diurnal mammal searches were conducted in areas of potential habitat across the study area, with emphasis on searches for scats, tracks, burrows, diggings and scratchings. Specific searches were conducted for habitats or resources relevant to threatened fauna species known or with the potential to occur within the locality or the study area.

#### 2.2.2 Limitations

The results of fauna surveys can be optimised by conducting investigations over a long period to compensate for the effect of unfavourable weather, seasonal changes and climatic variation. In general, the longer the survey, the more species will be detected. Because some species are more likely to be detected by a particular method, results can also be improved by using a wide range of techniques. The current survey was subject to constraints that determine the amount of time allocated, the methods used and the timing of the work. The results should be viewed in the light of these limitations.

## 3. Results

#### 3.1 Flora

#### 3.1.1 Vegetation communities

The development site and immediate surrounds are heavily modified as a result of historic disturbances associated with the development of the Perisher Ski Resort, as shown in Figure 2, Photo 1 and Photo 2. Most of the development site supports disturbed remnant Plant Community Type (PCT) 645 Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion. It is characterised by a patchy cover of shrubs such as Prostanthera cuneata (Alpine Mint Bush), Nematolepis ovatifolia, Ozothamnus alpinus (Alpine Everlasting), Ozothamnus secundiflorus (Cascade Everlasting), Grevillea australis (Alpine Grevillea), Olearia phlogopappa (Dusty Daisy-bush), Orites lancifolius (Alpine Orites), Tasmannia xerophila subsp. xerophila and Melicytus dentatus (Tree Violet).

The groundcover is dominated by *Poa fawcettiae* (Smooth Blue Snowgrass), but also includes *Poa hiemata* (Soft Snowgrass), *Hovea montana* (Alpine Hovea), *Acaena novae-zelandiae* (Bidgee Widgee), *Craspedia aurantia, Asperula gunnii, Pimelea alpina, Carex breviculmis, Geranium antrorsum, Scleranthus biflorus* (Two-flowered Knawel), *Oreomyrrhis eriopoda* (Australian Carraway), *Viola betonicifolia* (Native Violet), *Microseris lanceolata* (Murrnong), and *Ranunculus graniticola* (Granite Buttercup).

The southern and western parts of the development site are heavily disturbed and support an exotic grassland dominated by exotic grasses *Dactylis glomerata* (Cocksfoot), *Anthoxanthum odoratum* (Sweet Vernal Grass), *Agrostis capillaris* (Browntop Bent), *Phalaris sp.*, and a range of exotic herbs, particularly *Hypochaeris radicata* (Flatweed), *Acetosella vulgaris* (Sheep Sorrel), and *Achillea millefolium* (Yarrow) with only scattered natives, mainly *Poa fawcettiae*.

The proposal will result in the loss of 900 m<sup>2</sup> of PCT 645.

#### 3.1.2 Threatened flora species

The proposal will not result in any impacts on threatened flora species or other flora species of conservation significance. Two threatened flora species, *Rytidosperma vickeryae* (Perisher Wallaby Grass) and *Ranunculus anemoneus* (Anemone Buttercup), occur nearby. The development site and immediate surrounds were searched for threatened flora known from the locality, and none of were detected.

#### 3.1.3 Threatened ecological communities

PCT 645 does not comprises any threatened ecological community listed on either the BC Act or the EPBC Act.



Photo 3: PCT 645 within the northern parts of the development site.



Photo 4: The southern and western parts of the development site are dominated by exotic grasses



Figure 2: Vegetation communities within the subject land

#### 3.2 Fauna Habitats

The small amount of vegetation and rock habitats to be affected by the proposal does not support any fauna habitats that aren't widely available in the extensive areas of vegetation surrounding Front Valley. The subject land is not located on the Biodiversity Values map as it is not considered to provide important habitat for any of the threatened fauna known from the locality.

The development site is highly unlikely to support any important habitat for *Liopholis guthega* (Guthega Skink) as the small amount of outcropping rocks on the site appear to be deeply imbedded and do not exhibit any evidence of the species' burrow networks. Given the high use of the site and immediate surrounds it is likely that the species would have already been detected if it was present. Whilst the grassy habitats within the subject site provide potential habitat for *Cyclodomorphus praealtus* (Alpine She-oak Skink), it is unlikely to comprise important habitat for the species given the highly modified nature of the habitats present and the ongoing disturbances.

Small amounts of *Mastacomys fuscus* (Broad-toothed Rat) scats were observed within the northern parts of the subject land indicating that it is used by the species during the winter months. The Broad-toothed Rat is common in suitable habitats within the locality and the proposed works will not lead to a reduction in the local population of the species.

There is an active wombat burrow in the northern parts of the development site. The burrow should be monitored immediately prior to the construction phase of the proposal and wombats excluded and/or relocated as per NPWS protocols.

The potential impacts of the proposed works on the Broad-toothed Rat and Alpine She-oak Skink are assessed pursuant to section 7.3 of the BC Act in Appendix A.



Photo 5: The limited rock habitats within the development site are generally not suitable for the Guthega Skink.



Photo 6: An active Wombat burrow occurs in the northern parts of the development site.

## 4. Impact Assessment

## 4.1 Conclusion of BC Act Test of Significance

A test of significance under Section 7.3 of the BC Act was undertaken for the proposed development (Appendix A). Based on this assessment, it is considered unlikely that the proposed development would significantly impact on any threatened species, population or ecological community.

Further recommendations have been provided in Section 5 to ameliorate the potential impacts of the proposal.

#### 4.2 Conclusion of EPBC Assessment

An assessment of significance under the EPBC Act was undertaken for the native vegetation clearing associated with the proposed subdivision (Appendix B). The outcome of this assessment was that it is unlikely that the proposed works would significantly impact on any EEC. Referral to the Commonwealth under the EPBC Act is not recommended.

## 5. Recommendations

The following recommendations are suggested to further mitigate the impacts of the proposal and to improve environmental outcomes:

### Vegetation and habitat management

- All vegetation to be retained should be appropriately protected during any clearing and during the construction phase of the proposal.
- The wombat burrow within the development site should be monitored immediately prior to the construction phase of the proposal and wombats excluded and/or relocated as per NPWS protocols.

### **Water and Sediment Management**

- Appropriate sediment control measures should be implemented prior to any clearing and should be retained in place until exposed areas of soil are stabilised and/or revegetated.
- Works should not be scheduled when heavy rainfall is forecast.
- Works involving soil disturbance should not take place during heavy rainfall periods, other than work necessary to stabilise the site.

## 6. Conclusion

This report assesses the potential impacts associated with the construction of a proposed 24 bed lodge and associated works on Lot 1 DP 1192372, Perisher Valley.

Following the application of the test of significance under Section 7.3 of the BC Act, and in accordance with the relevant assessment guidelines, it is concluded that the proposal is unlikely to have a significant effect on threatened species, populations or endangered ecological communities or their habitats.

In consideration of the administrative guidelines for determining significance under the EPBC Act, the proposal is unlikely to have a significant impact on Commonwealth listed threatened species or ecological communities and a referral to the Commonwealth Environment Minister is not recommended.

A number of impact mitigation and amelioration strategies, outlined in the previous section, have been recommended for the proposal. These strategies mitigate the effects of the proposal on the flora and fauna values of the study area in general.

## 7. References

Australasian Virtual Herbarium. 2019. Online Herbarium. Available online: http://avh.chah.org.au/.

Cropper, S.C. 1993. Management of Endangered Plants, CSIRO Publishing, Melbourne.

Green, K. 2002. Selective predation on the broad-toothed rat, *Mastacomys fuscus* (Rodentia: Muridae), by the introduced red fox, *Vulpes vulpes* (Carnivora: Canidae), in the Snowy Mountains, Australia. *Austral Ecology* 27, 353–359.

## Appendix A Test of Significance for BC Act listed species

Threatened species impact assessment is an integral part of environmental impact assessment. An assessment of the effects of the proposal may be carried out by applying the five factors from Section 7.3 of the BC Act.

This test of significance is presented below for *Mastacomys fuscus* (Broad-toothed Rat) and *Cyclodomorphus praealtus* (Alpine She-oak Skink).

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

#### **Vulnerable Species**

#### Broad-toothed Rat Mastacomys fuscus (known occurrence).

The Broad-toothed Rat generally occurs in two widely separated areas in NSW, the Barrington Tops area and the wet alpine and subalpine heaths and woodlands of the Kosciuszko NP and adjacent areas. The species lives in a complex of runways through dense vegetation of wet grass, sedge or heath and under the snow in winter. Home range size is thought to range between approximately 0.1 ha and 0.27 ha. Individuals nest alone over summer but congregate in communal nests during winter. The species is thought to be locally common in the alpine and high subalpine tracts of the Snowy Mountains area (Green 2002), where suitable habitats are present.

The subject site provides a small amount of foraging and sheltering habitat for the Broad-toothed Rat. Minor evidence of the species was observed within the subject site indicating that the species occurs within the study area during the winter months.

The proposed development will affect only a very small amount of the potential habitat for the species in the locality and will not affect any key resources for the species, such as extensive areas of rocks, wet heath and bog. It will predominately affect a small area of disturbed habitat. Extensive areas of better quality habitat occur to the immediate north and in association with Perisher Creek.

Under these circumstances, the proposed development is considered unlikely to disrupt the life cycle of the Broad-toothed Rat such that a viable local population is likely to be placed at risk of extinction.

#### **Endangered Species**

#### Alpine She-oak Skink Cyclodomorphus praealtus (potential occurrence)

The Alpine She-oak Skink is a slender lizard reaching a maximum length of 350 mm. It is largely carnivorous mostly eating invertebrates but also small lizards and snakes. In NSW, the species is known from alpine and subalpine open heath and tussock grassland within the Kosciuszko region, preferring treeless or lightly treed areas. Within NSW the species is known to occur from the South Ramshead area to Kiandra. It is rarely encountered, appearing to mostly lie partially hidden amongst groundcovers.

The habitats within the study area are potentially suitable for the species, and it is possible that the species occurs within the study area.

The noise and other disturbances associated with construction of the proposed development is likely to temporarily deter any Alpine She-oak Skink individuals that may be within the development site. As such, it is unlikely that any individuals would be unintentionally killed during construction.

Whilst the species may occur within the development site, it comprises only a small area of potential habitat relative to the extent of similar habitat within the Front Valley area and is thus unlikely to provide important habitat for the species. Furthermore there are extensive areas of better quality habitat beyond Front Valley, much of which is mapped as habitat for the species within the Biodiversity Values map.

Under these circumstances, it considered unlikely that the proposed development will have an adverse effect on the life cycle of the Alpine She-oak Skink such that a viable local population of the species is likely to be placed at risk of extinction.

- (b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
- (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

There are no endangered or critically endangered ecological communities within the study area.

- (c) in relation to the habitat of a threatened species or ecological community:
- (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The proposed development will impact on only very small areas - 0.09 ha of habitat for the Broadtoothed Rat and 0.14 ha of habitat for the Alpine She-oak Skink.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The proposed development will not result in habitat fragmentation which could isolate individuals or a population of the Broad-toothed Rat or the Alpine She-oak Skink. The proposed development will affect a small area of habitat on the edge of a heavily modified and disturbed area. There are extensive areas of better quality habitat surrounding the Front Valley area.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The habitats to be affected comprise a small area of marginal habitat relative to the extensive areas of similar and superior habitats provided by contiguous vegetation for both the Broad-toothed Rat and Alpine She-oak Skink.

Under these circumstances, the habitats to be affected are not considered to be particularly important for Broad-toothed Rat or the Alpine She-oak Skink.

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposed development will not affect any area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposed development will remove 0.09 ha of remnant native vegetation. Whilst this constitutes the Key Threatening Process 'Clearing of native vegetation', the contribution to this key threatening process is relatively minor considering the extent of remnant native vegetation in the locality and the extant extent of the vegetation communities that will be affected.

## Appendix B EPBC Act Assessment of Significance

#### **EPBC Significant impact criteria and assessment**

The EPBC Act Administrative Guidelines on Significance set out 'Significant Impact Criteria' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on MNES. A 'significant impact' is 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. MNES listed under the EPBC Act include:

- listed threatened species and ecological communities
- listed migratory species
- Wetlands of International Importance
- The Commonwealth marine environment
- World Heritage properties
- National Heritage places
- nuclear actions
- Great Barrier Reef
- a water resource, in relation to coal seam gas development and large coal mining development.

An action will require federal approval if the action has, will have, or is likely to have a significant impact on a species or community listed in any of the following categories:

- extinct in the wild
- critically endangered
- endangered
- vulnerable.

An impact assessment was undertaken for the Alpine She-oak Skink, which is an endangered species under the EPBC Act.

Matters to be addressed	Impact (Commonwealth legislation)
(a) any environmental impact on a World Heritage Property;	NA: the proposed action does not impact on a World Heritage Property.
(b) any environmental impact on Wetlands of International Importance;	NA: The proposed action will not affect any part of a Ramsar Wetland.
(c) any impact on	The significant impact criteria in terms of endangered species are discussed below:
Commonwealth Listed	Lead to a long-term decrease in the size of a population
Endangered Species or Communities	It is not anticipated that any Alpine She-oak Skink individuals will be affected by the proposed development nor that the development will lead to a long-term decrease in the size of a population of the species.
	b) Reduce the area of occupancy of the species
	The proposed development is not expected to reduce the area of occupancy for the Alpine She-oak Skink. If the species does occur within the development site, the decrease in the area of occupancy would be by up to 0.14 ha which is a very small area relative to the potential habitat for the species in the locality.
	c) Fragment an existing important population into two or more populations
	The proposed development is too small to fragment an existing population of the Alpine She-oak Skink into two or more populations.
	d) Adversely affect habitat critical to the survival of a species
	The proposed development will not adversely affect habitat critical to the survival of the Alpine She-oak Skink.
	e) Disrupt the breeding cycle of a population
	$\label{thm:continuous} The \ proposed \ development \ will \ not \ disrupt \ the \ breeding \ cycle \ of \ the \ Alpine \ She-oak \ Skink.$
	f) Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
	The proposed development is too small to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the Alpine She-oak Skink is likely to decline.
	g) Result in invasive species that are harmful to a endangered species becoming established in the endangered species' habitat
	Weed management protocols will be undertaken post construction to limit the potential spread of invasive species that may be harmful to the Alpine She-oak Skink.
	h) Introduce disease that may cause the species to decline, or
	The proposed development is highly unlikely to introduce a disease that may cause the Alpine She-oak Skink to decline.
	i) Interfere with the recovery of the species
	In consideration of the above factors, the proposed activity is unlikely to interfere with the recovery of the Alpine She-oak Skink.
	<b>Conclusion</b> : The proposed development is not considered likely to significantly impact the Alpine She-oak Skink.
(d) any impact on Commonwealth Listed Vulnerable Species;	NA: the proposed action will not impact any Commonwealth Listed Vulnerable Species.

on Commonwealth Listed Migratory Species;

(e) any environmental impact NA: the proposed action will not impact any Commonwealth Listed Migratory Species

Matters to be addressed	Impact (Commonwealth legislation)
(f) does any part of the Proposal involve a Nuclear Action;	NA: the proposal does not involve a Nuclear Action.
(g) any environmental impact on a Commonwealth Marine Area;	NA: the proposed action will not impact on a Commonwealth Marine Area.
(h) In addition, any direct or indirect impact on Commonwealth lands	NA: the proposed action will not directly or indirectly impact on Commonwealth land.



