

## **APPENDIX C**

### **BIODIVERSITY DEVELOPMENT ASSESSMENT REPORT**



Toppas Dream Snowmaking, Perisher Ski Resort  
Biodiversity Development Assessment Report

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**Perisher Blue Pty Limited**

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## DOCUMENT TRACKING

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## Executive Summary

Eco Logical Australia Pty Ltd (ELA) was engaged by Perisher Blue Pty Limited to prepare a Biodiversity Development Assessment Report (BDAR) for the proposed installation of snowmaking infrastructure on Toppas Dream ski run (the development site), beside Ridge Chairlift, at Perisher Ski Resort.

This report has been prepared to meet the requirements of the Biodiversity Assessment Method 2016 (BAM) established under Section 6.7 of the NSW *Biodiversity Conservation Act 2016* (BC Act).

The development site is approximately 0.2 ha in size. The proposed development has been located to take advantage of existing disturbed areas, and as such, the vast majority of the development site comprises partially degraded native vegetation which is recovering from historic disturbance.

The development site supports one Plant Community Type (PCT) PCT 645 *Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion* in two condition states, degraded and good.

PCT 645 does not conform to any Endangered Ecological Communities (EEC) listed under the NSW BC Act or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Targeted surveys within the development site and immediate surrounds identified two threatened fauna species, the *Mastacomys fuscus* (Broad-toothed Rat) and *Petroica phoenicea* (Flame Robin), as occurring within the development site. The cryptic *Cyclodomorphus praealtus* (Alpine She-oak Skink) was assumed to be present in the more open and grassy habitats within the development site. A number of other threatened species are known to occur in adjoining habitats and/or have the potential to occur within the development site.

This BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development site during the design, construction and operation of the development. The residual unavoidable impacts of the proposed development were calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit Calculator (BAMC). The BAMC calculated that a total of three ecosystem credits and seven species credits are required to offset the unavoidable impacts to the vegetation and habitats present within the development site.

Serious and Irreversible Impact (SAIL) values have been considered as part of this assessment. The proposal will not result in any SAIL.

Following consideration of the administrative guidelines for determining significance under the EPBC Act, it is concluded that the proposal is unlikely to have a significant impact on matters of National Environmental Significance (MNES) or Commonwealth land, and a referral to the Commonwealth Environment Minister is therefore not required.

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## Abbreviations

Abbreviation	Description
BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Credit Calculator
BC Act	NSW Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
CEEC	Critically Endangered Ecological Community
DNG	Derived Native Grassland
DoEE	Commonwealth Department of Environment and Energy
DPE	NSW Department of Planning and Environment
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FM Act	NSW Fisheries Management Act 1994
GIS	Geographic Information System
GPS	Global Positioning System
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local Government Area
NSW	New South Wales
NOW	NSW Office of Water
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
SSD	State Significant Development
SSI	State Significant Infrastructure
TEC	Threatened Ecological Community
VIS	Vegetation Information System
WM Act	NSW Water Management Act 2000

## 1. Stage 1: Biodiversity assessment

### 1.1 Introduction

This Biodiversity Development Assessment Report (BDAR) has been prepared by Ryan Smithers, who is an Accredited Person (BAAS17061) under the NSW *Biodiversity Conservation Act 2016* (BC Act).

#### 1.1.1 General description of the development site

The proposed development is for the installation of snowmaking infrastructure on Toppas Dream ski run, beside Ridge Chairlift, at Perisher Ski Resort.

The proposed snowmaking infrastructure will connect into the existing main along Showboat ski run. The proposal also includes two sections of new snowmaking pipeline (mains and laterals), and four hydrants and fan guns. The majority of the native vegetation to be affected by the proposed development is shrubland derived from the clearing of subalpine woodland that was undertaken for the establishment of the Toppas Dream and Showboat ski runs.

The environmental impacts associated with the snowmaking installation have been avoided and mitigated primarily by locating the snowmaking infrastructure within the disturbed ski slopes, where the least impact on native vegetation can be achieved.

This report includes two base maps, the Site Map (Figure 1) and the Location Map (Figure 2).

#### 1.1.2 Development site footprint

The proposed development is shown in Figure 3. The design of the proposed development has been informed by Perishers extensive experience undertaking similar developments within the resort area, and has incorporated a range of mitigation methods including:

- Welding the snowmaking main sections in the disturbed areas on the existing ski slopes to minimise disturbance during construction.
- Limiting stockpiling and material storage to the already disturbed areas on the existing ski slopes.

The effect of the proposal design and mitigation methods is such that vegetation disturbance will be limited to the 8 m wide corridor along the alignment of the proposed snowmaking pipeline (mains), and 4 m wide corridor along the alignment of the proposed snowmaking pipeline (laterals), as shown in Figure 3.

Any tree removal will be undertaken by hand with the cut timber removed from the site manually or left nearby where there will be no damage to surrounding vegetation.

The proposed development is further illustrated in Photos 1-4.

#### 1.1.3 Sources of information used

The following data sources were reviewed as part of this report:

- Ecology Australia (2002)
- McDougall and Walsh (2007)
- Additional GIS datasets including cadastre, contours, imagery and drainage.





**Photo 1:** The new snowmaking main to the proposed Fan Gun 1 will entirely traverse areas that have been disturbed in association with historic slope grooming and other developments.



**Photo 2:** The existing snowmaking main is located within that part of the Showboat ski run that is dominated by exotic grasses.





**Photo 3: The new snowmaking main to the proposed Fan Gun 1 will affect some clumps of small rocks that are the result of historic slope grooming activities.**



**Photo 4: The new snowmaking main and lateral to the proposed Fan Gun s 2-4, also traverses shrubland derived from the clearing of the adjoining snow gum woodland. A small area on the margins of the less disturbed woodland including a few trees will be affected.**



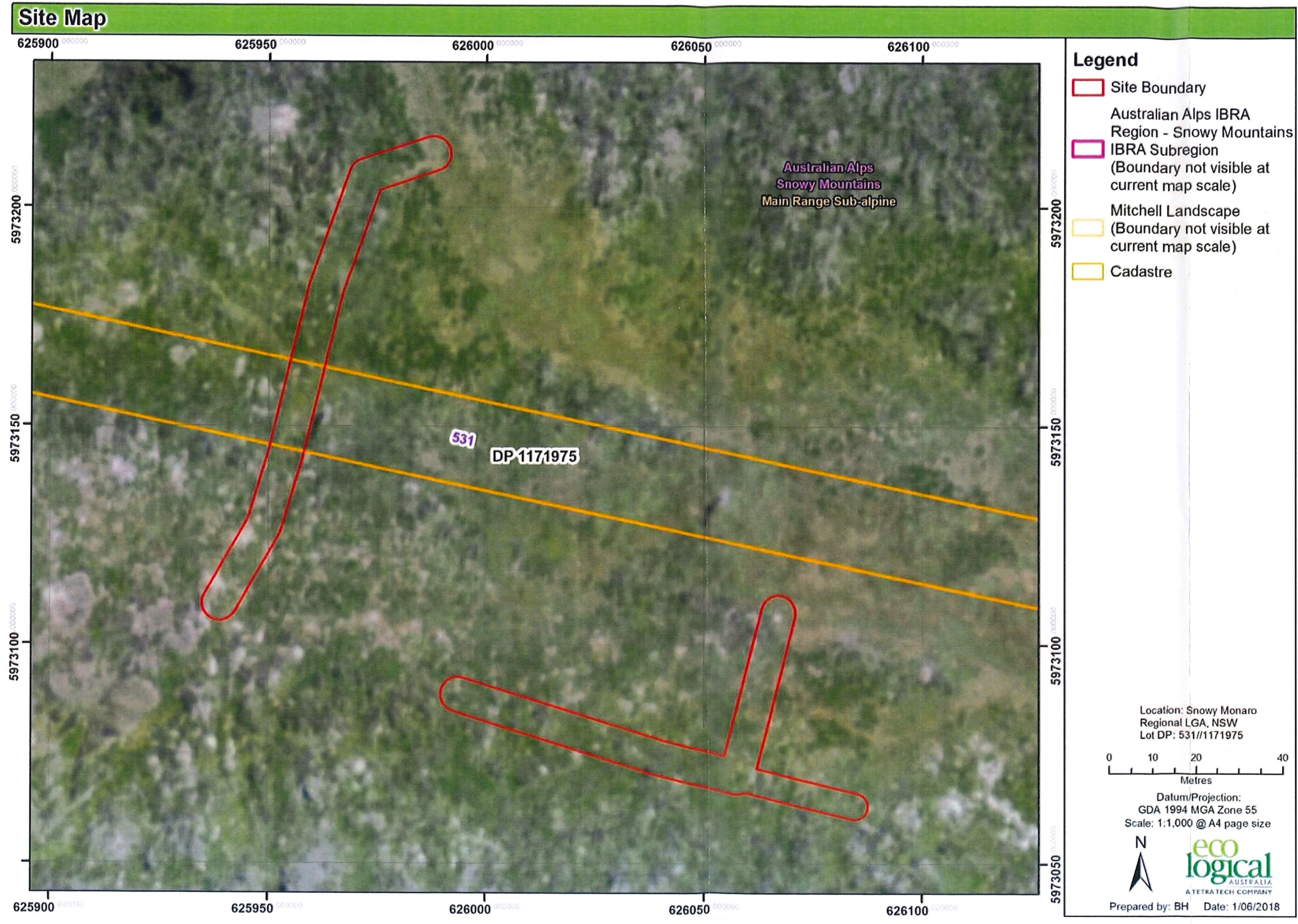


Figure 1: Site Map



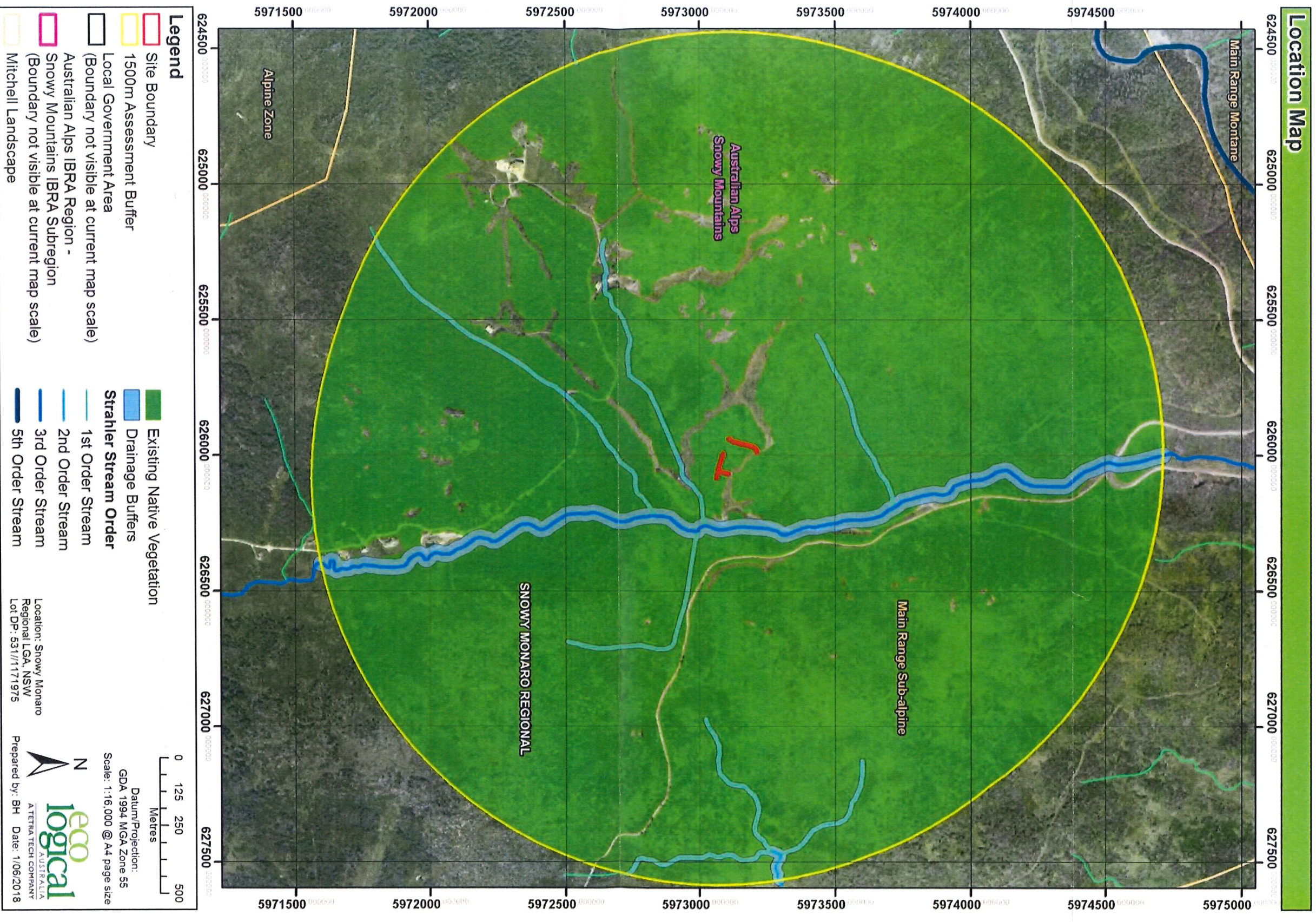


Figure 2: Location Map



Development Proposal



Legend	
	Existing snowmaking main pipeline
	New snowmaking pipeline (main)
	New snowmaking pipeline (lateral)
	Snowmaking drainags
	New hydrant - Fan

Site Plan

1.6.18

Snowmaking - Toppas Dream, Ridge Chairlift, Perisher Ski Resort

Dwg 1/1



Figure 3: Proposed development



## 1.2 Legislative context

Table 1: Legislative context

Name	Relevance to the project	Report Section
<b>Commonwealth</b>		
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Matters of national Environmental Significance (MNES) have been identified on or near the development site. This report assesses impacts to MNES and concludes that the development is unlikely to have a significant impact on MNES. An assessment of the proposal against relevant significant impact criteria is provided in Appendix C.	App C
<b>State</b>		
<i>Environmental Planning and Assessment Act 1979</i>	The proposed development requires consent and is to be assessed under Part 4 of the EP&A Act. The EPA Act places a duty on the determining authority to adequately address a range of environmental matters including the maintenance of biodiversity and the likely impact to threatened species, populations and communities.	1 and 2
<i>Biodiversity Conservation Act 2016</i>	The proposed development involves clearing of vegetation identified as high conservation value on the Biodiversity Values Land Map and thus requires submission of a Biodiversity Development Assessment Report.	1 and 2
<b>Planning Instruments</b>		
<b>SEPP Alpine Resorts - Kosciuszko National Park—Alpine Resorts</b>	State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007 identified the Minister for Planning as the determining authority for development within the NSW Alpine Resorts. SEPP 73 requires the Minister for Planning to refer for comment any development application in the Alpine Resorts to the Director General of the NSW Office of Environment and Heritage (OEH).	1 and 2
<b>Snowy River Shire Local Environment Plan 2013</b>	The subject site is zoned E1 National Parks and Nature Reserves under the Snowy River Shire Local Environment Plan 2013.	-

## 1.3 Landscape features

### 1.3.1 IBRA regions and subregions

The development site falls within the IBRA region and subregions as outlined in Table 2 and Table 3.

Table 2: IBRA regions

IBRA region	Area within development site (ha)
Australian Alps	0.2

Table 3: IBRA subregions

IBRA subregion	Area within development site (ha)
Snowy Mountains	0.2

### 1.3.2 Native vegetation extent

The extent of native vegetation within the development site and buffer is outlined in Table 4 and Figure 4.

**Table 4: Native vegetation extent**

Area within the development site (ha)	Area within the 1,500 m buffer area (ha)	Area within the 500 m buffer (ha)
0.2	738	NA

There are no differences between the mapped vegetation extent and the aerial imagery.

### 1.3.3 Rivers and streams

The development site is near to an unnamed 1<sup>st</sup> order tributary of Perisher Creek as outlined in Table 5. However, the proposal will not directly impact on this watercourse or its riparian buffer.

**Table 5: Rivers and streams**

River/stream	Order	Riparian buffer
Perisher Creek tributary	1	10 m

### 1.3.4 Wetlands

The development site does not contain any local wetlands, SEPP14 wetlands or any other Important Wetlands.

### 1.3.5 Connectivity features

The development site does not contain any connectivity features that may be affected consistent with section 9.2.1.6 of BAM.

### 1.3.6 Areas of geological significance and soil hazard features

The development site does not contain areas of geological significance or soil hazard features.

### 1.3.7 Site context

#### 1.3.7.1 Method applied

The site-based method has been applied to this development.

#### 1.3.7.2 Percent native vegetation cover in the landscape

The current percent native vegetation cover in the landscape was assessed in a Geographic Information System (GIS) using aerial imagery sourced from SIX Maps and the mapping of Ecology Australia (2002). The results of this analysis are shown in Table 6.

**Table 6: Percent native vegetation cover in the landscape**

Area within the development site (ha)	Cover within the 1,500 m buffer area (%)	Cover within the 500 m buffer (%)
0.2	95	NA



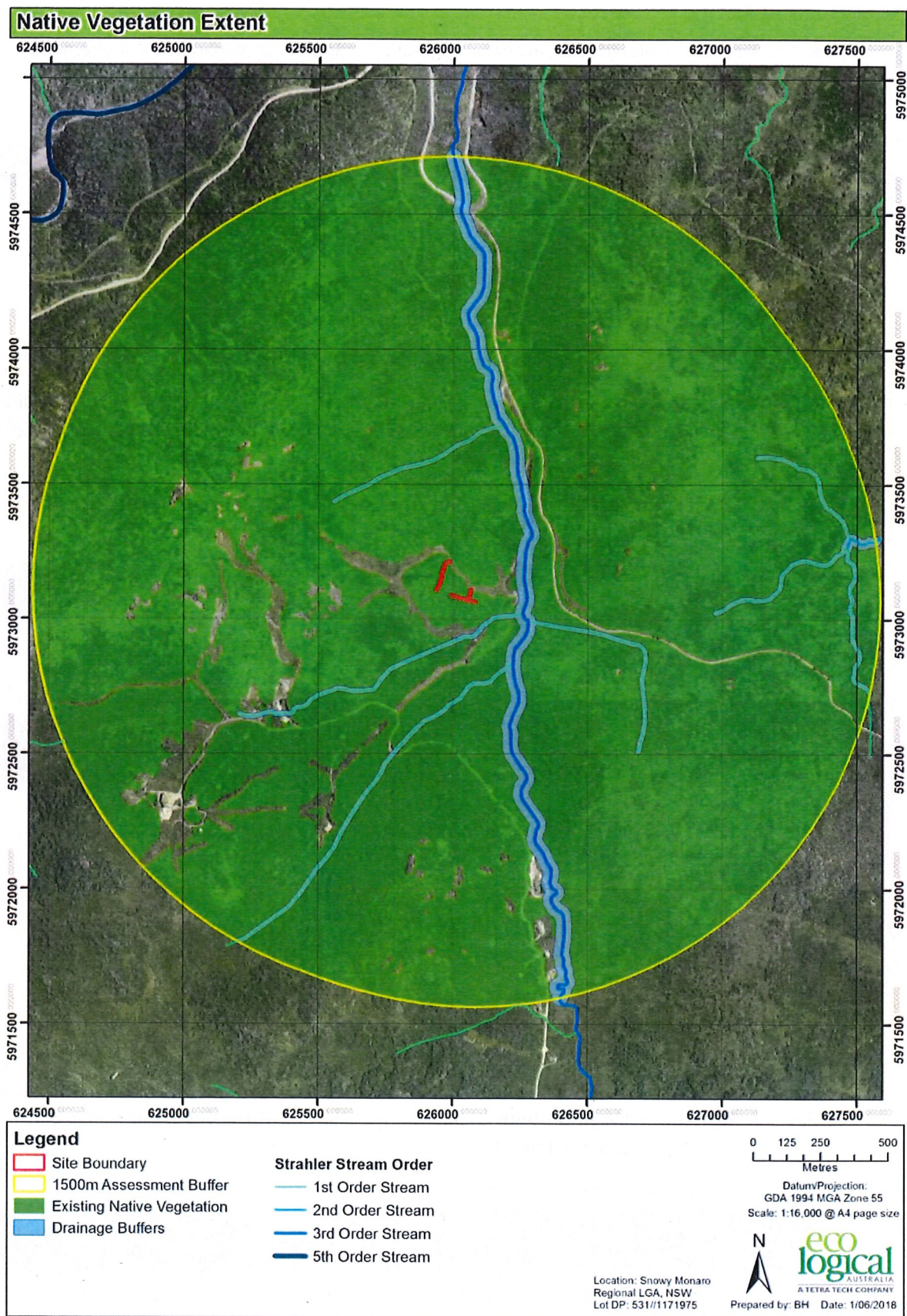


Figure 4: Native Vegetation Extent



### 1.3.7.3 Patch size

Patch size was calculated using available vegetation mapping for all patches of intact native vegetation on and adjoining the development site (Table 7).

**Table 7: Patch size**

Patch	Patch size area (ha)
1	>101

## 1.4 Native vegetation

### 1.4.1 Survey effort

A vegetation survey was undertaken within the development site by Ryan Smithers on 21 May 2018.

A total of two full-floristic vegetation plots were surveyed to identify PCTs and TECs on the development site (Table 8, Figure 5). A total of two vegetation integrity plots were undertaken on the development site in accordance with the BAM (Table 9).

All field data collected at full-floristic and vegetation integrity plots is included in Appendix B.

**Table 8: Full-floristic PCT identification plots**

PCT ID	PCT Name	Number of plots surveyed
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	2

**Table 9: Vegetation integrity plots**

Veg Zone	PCT ID	PCT Name	Condition	Area (ha)	Plots required	Plots surveyed
1	645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Derived shrubland	0.14	1	1
2	645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Good	0.06	1	1

### 1.4.2 Plant Community Types present

One PCT was identified within or immediately adjacent to the development site (Table 10, Figure 6). in two condition states, as shown in Figure 7. Justification for the selection of the PCT occurring on the development site is based on both a quantitative analysis of the full-floristic plot data and expert judgement and is provided in Table 12.

**Table 10: Plant Community Types**

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Area	Percent cleared
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Grassy Woodlands	Subalpine Woodlands	0.2	5



Table 11: Threatened Ecological Communities

PCT ID	BC Act			EPBC Act		
	Listing status	Name	Area (ha)	Listing status	Name	Area (ha)
645	Not listed	Not listed	0.2	Not listed	Not listed	0.2

Table 12: PCT selection justification

PCT ID	PCT Name	Selection criteria	Species relied upon for identification of vegetation type and relative abundance
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	IBRA region, landform, soils vegetation formation, vegetation class and quantitative analysis	<i>Eucalyptus niphophila</i> , <i>Hovea montana</i> , <i>Olearia phlogopappa</i> , <i>Oxylobium ellipticum</i> , <i>Ozothamnus secundiflorus</i> , <i>Pimelea ligustrina</i> , <i>Poa fawcettiae</i> , <i>Poa ensiformis</i> , <i>Tasmannia xerophila</i> subsp. <i>xerophila</i> .

In determining the PCT for the development site, various attributes were considered in combination to assign vegetation to the best fit PCT. Attributes included dominant species in each stratum, community composition, soils and landscape position. Plot data was analysed in a quantitative analysis tool developed by ELA using the characteristic species present in each structural layer for all PCTs in the region sourced from the Bionet Vegetation Information System (VIS). This quantitative analysis was used to assist in determining PCTs that may be present. The tool uses positive characteristic species of PCTs and matches them to the flora species collected in plots. The tool then provides a total number of characteristic species present in the canopy, mid-storey and ground-layer and matches those communities that fit most strongly with the PCTs available. The higher the number of characteristic species the greater the fit for that community. It can be the case that a community matches strongly floristically with a PCT, however does not match well with other characteristics such as structure, landscape position or region. Therefore, this tool assists in the decision-making process, but is not the sole determining factor. Rather the tool assists expert judgement.

ELA considered the vegetation within the development site to comprise the PCT *Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion* (Photo 5 and Photo 6). A quantitative analysis of the plot data obtained from the development site identified a best fit (the highest match of characteristic species) for both PCT 645 and PCT 643. However, the vegetation within the development site better matched the vegetation structure, landforms, vegetation formation, and vegetation class, of PCT 645.



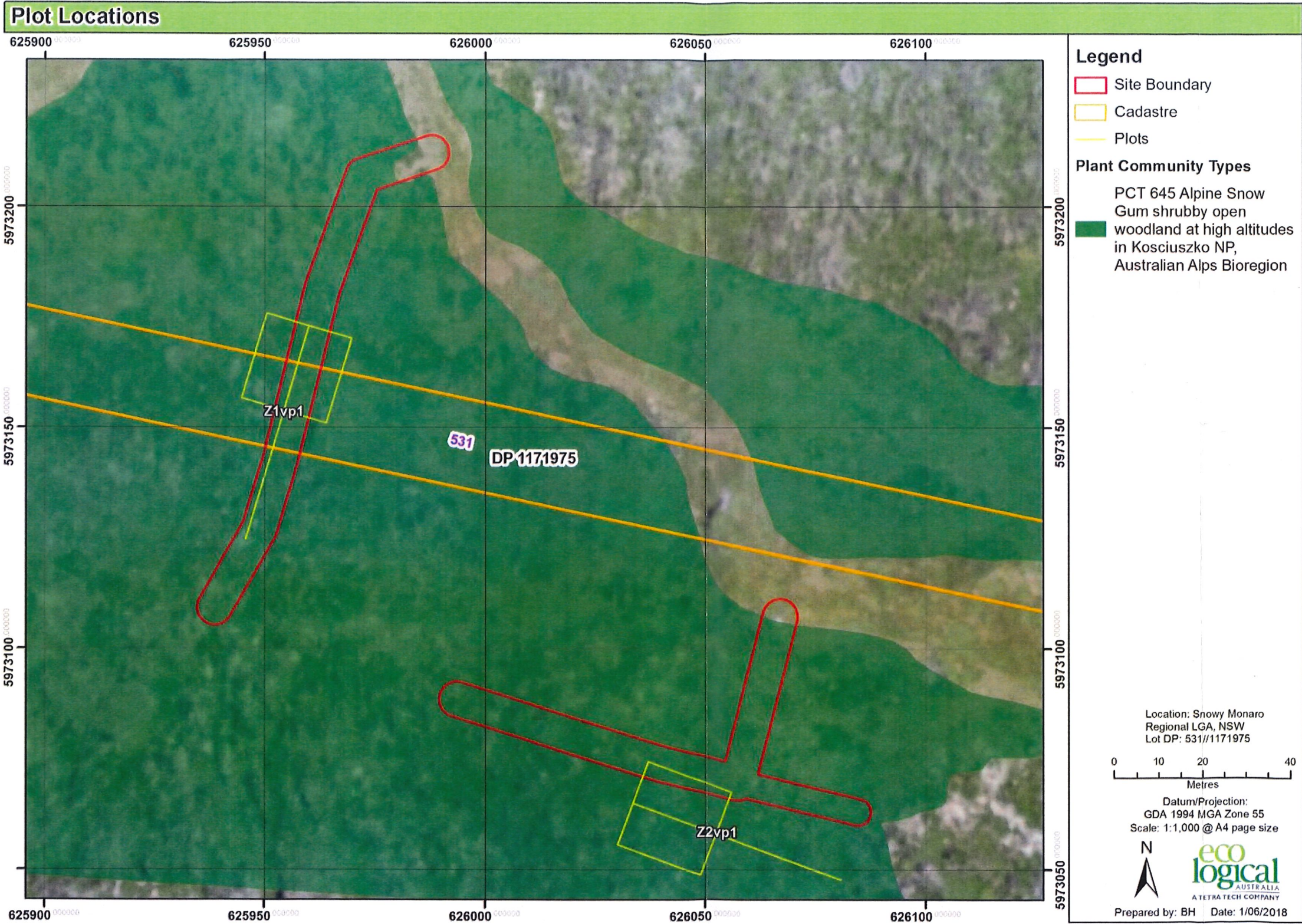


Figure 5: Plot locations



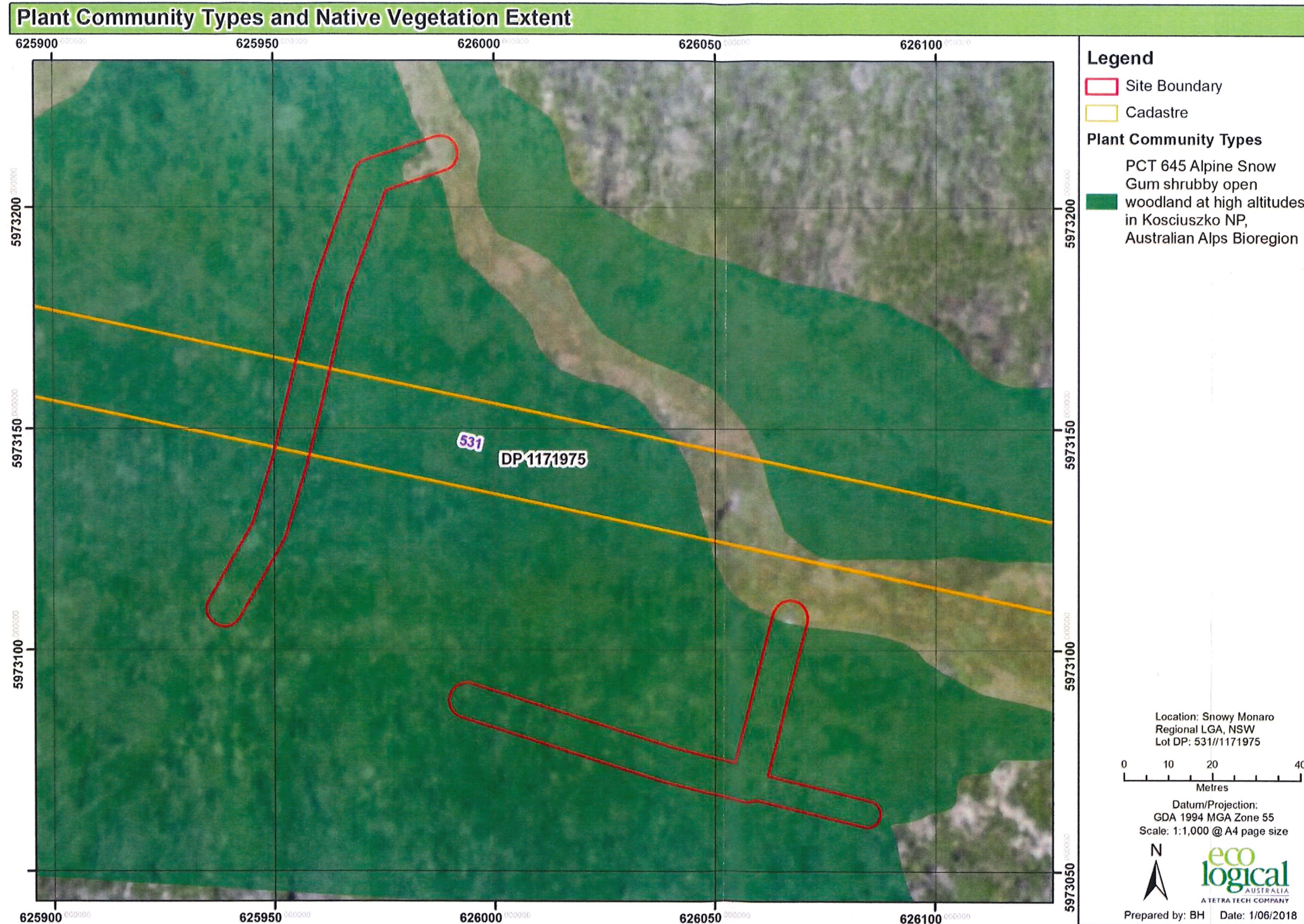


Figure 6: Plant Community Type



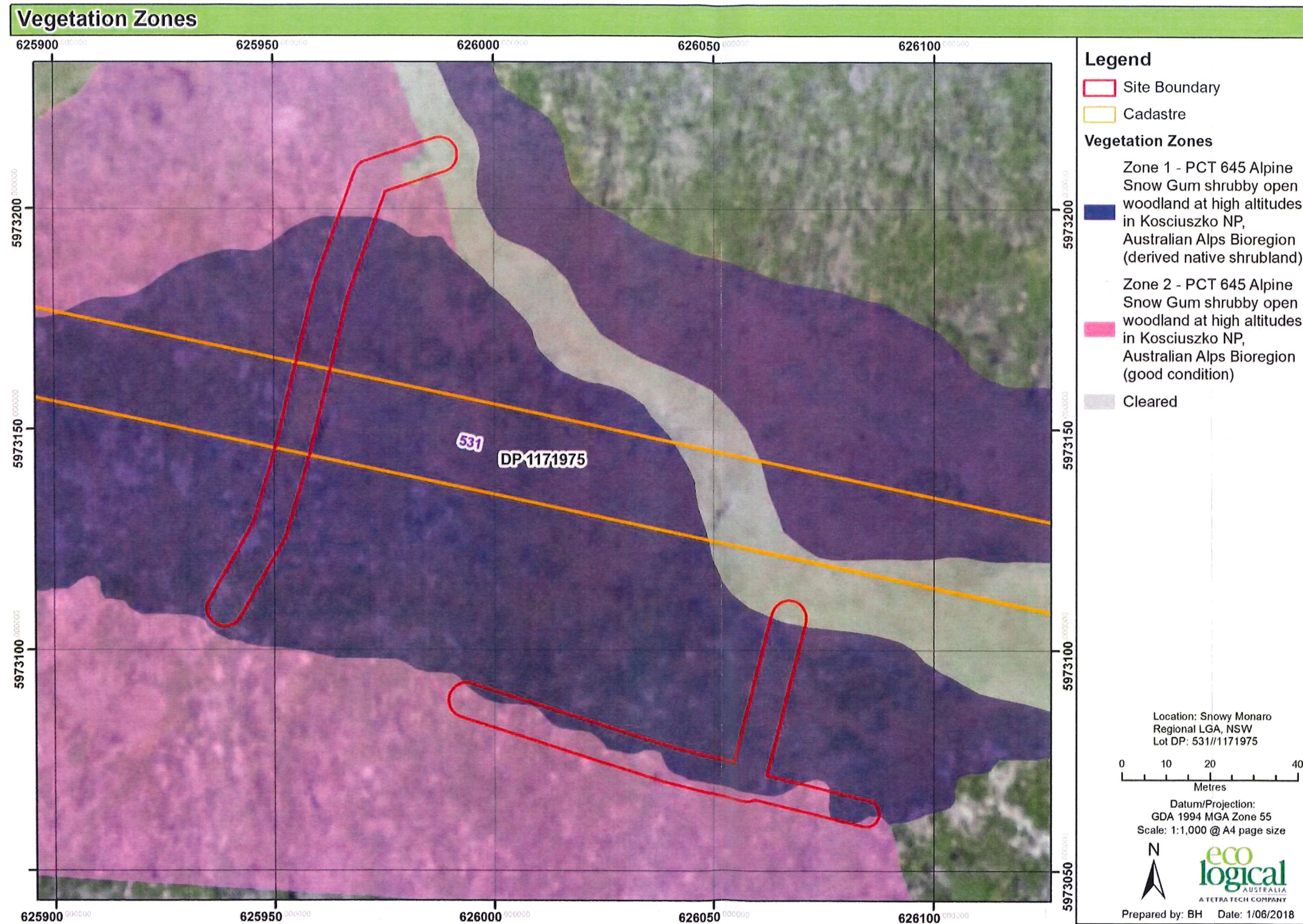


Figure 7: Vegetation Zones





**Photo 5: Shrubland derived from PCT 645 Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion dominates the development site (Zone 1).**



**Photo 6: Good condition PCT 645 occurs on the margins of the development site (Zone 2) and dominates the surrounding areas.**



### 1.4.3 Vegetation integrity assessment

A vegetation integrity assessment using the Credit Calculator (BAMC) was undertaken and the results are outlined in Table 13.

**Table 13: Vegetation integrity**

Veg Zone	PCT ID	Condition	Area (ha)	Composition Condition Score	Structure Condition Score	Function Condition Score	Current vegetation integrity score
1	645	Degraded	0.14	70.1	36	33.4	43.9
2	645	Good	0.06	39.4	66	47.7	49.9

### 1.4.4 Use of local data

Use of local data instead of benchmark integrity scores is not proposed.

## 1.5 Threatened species

### 1.5.1 Ecosystem credit species

Ecosystem credit species predicted to occur at the development site, their associated habitat constraints, geographic limitations and sensitivity to gain class is included in Table 14.

**Table 14: Predicted ecosystem credit species**

Common Name	Species	Habitat Constraints	Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	-	-	Moderate	Vulnerable	Not Listed
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	-	-	Moderate	Vulnerable	Not Listed
Varied Sittella	<i>Daphoenositta chrysoptera</i>	-	-	Moderate	Vulnerable	Not Listed
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	-	-	High	Vulnerable	Not Listed
Little Eagle	<i>Hieraetus morphnoides</i>	-	-	Moderate	Vulnerable	Not Listed
Scarlet Robin	<i>Petroica boodang</i>	-	-	Moderate	Vulnerable	Not Listed
Flame Robin	<i>Petroica phoenicea</i>	-	-	Moderate	Vulnerable	Not Listed

No ecosystem credit species have been excluded from the assessment.



## 1.6 Species credit species

Species credit species predicted to occur at the development site (i.e. candidate species), their associated habitat constraints, geographic limitations and sensitivity to gain class is included in Table 15.

Table 15: Candidate species credit species

Common Name	Species	Habitat Constraints	Geographic limitations	Sensitivity to gain class	NSW listing status	EPBC Listing status
Mountain Pygmy-possum	<i>Burramys parvus</i>	-	sth - nth range between Dead Horse Gap and Mt Jugungle	High	Endangered	Endangered
Gang-gang Cockatoo (breeding)	<i>Callocephalon fimbriatum</i>	-	-	High	Vulnerable	Not Listed
Alpine She-oak Skink	<i>Cyclodomorphus praealtus</i>	-	-	High	Endangered	Endangered
Little Eagle (Breeding)	<i>Hieraaetus morphnoides</i>	-	-	Moderate	Vulnerable	Not Listed
Guthega Skink	<i>Liopholis guthega</i>	Granite substrate and decomposing granite soils  Rocky areas including sub-surface boulders	-	High	Endangered	Endangered
Alpine Tree Frog	<i>Litoria verreauxii alpina</i>	-	above 1000 m asl	High	Endangered	Vulnerable
Broad-toothed Rat	<i>Mastacomys fuscus</i>	-	-	High	Vulnerable	Vulnerable
Southern Corroboree Frog	<i>Pseudophryne corroboree</i>	NA/Swamps  Within 200m of high montane and sub-alpine bog or ephemeral pool environments	above 1000 m asl	Very High	Critically Endangered	Critically Endangered

### 1.6.1 Targeted surveys

Targeted surveys for species credit species were undertaken at the development site on the dates outlined in Table . The locations of the targeted surveys are shown on Figure 8, with the results of the surveys shown as individual species polygons on Figure 9. Fauna species identified within the development site or immediate surrounds are identified in Appendix D.

Table 16: Targeted surveys

Date	Surveyors	Target species
22 May 2018	Ryan Smithers	Broad-toothed Rat, Little Eagle (Breeding), Gang-gang Cockatoo (breeding)



Weather conditions during the targeted surveys are outlined in Table 17.

**Table 17: Weather conditions**

Date	Rainfall (mm)	Minimum temperature 0C	Maximum temperature 0C
22 May 2018	0	10	11

Survey effort undertaken at the development is outlined in Table 18.

**Table 18: Survey effort**

Method	Habitat (ha)	Stratification units	Total effort	Target species
Targeted flora surveys	0.2	-	2 person hours	Anemone Buttercup, Leafy Anchor Plant
Targeted surveys for raptor nests, hollow-bearing trees and Broad-toothed Rat scats	0.2	Suitable habitats within and immediately surrounding the site	1 person hour	Broad-toothed Rat, Little Eagle and Gang-gang Cockatoo

The targeted surveys resulted in the detection of one species credit species, the Broad-toothed Rat. The characteristic scats of the Broad-toothed Rat were scattered throughout Zone 1 and to a lesser extent Zone 2, in low densities around rocks. Whilst the Alpine She-oak Skink was not detected within the development site, it has been assumed to be present in Zone 1 given the open nature of the shrubland, and the reasonable abundance of tussock grasses. This species is very difficult to survey for given its highly cryptic nature. Whilst it is assumed that the Alpine She-oak Skink could occur within development site from time to time, Alpine She-oak Skink individuals would not be restricted to the development site, nor considered likely to be adversely affected by the proposed development.

The nearest records of the Guthega Skink are 1.5 km to the south, just to the south of Blue Calf Pass. The species has not been recorded in the Blue Cow area despite targeted surveys by ELA in 2015 (ELA 2015). It is considered unlikely that the species would occur within the development site, given the marginal nature of the habitats there, particularly the typically dense shrub cover and general absence of the species preferred rock habitats. Targeted surveys for the species could not be undertaken during the survey period as weather conditions were too cold to confidently survey for the species. It is proposed to undertake targeted surveys for the species in October or November 2018.

Targeted surveys were not undertaken for the Mountain Pygmy-possum, Alpine Tree Frog, or Southern Corroboree Frog given the absence of important or suitable habitats for these species. Justification for the exclusion of candidate species credit species is identified in Table 20. Following completion of targeted surveys, the species credit species included in the assessment are outlined in Table 19.

**Table 19: Species credit species included in the assessment**

Common Name	Species	Species presence	Geographic limitations	Habitat (ha)	Biodiversity Risk Weighting
Alpine She-oak Skink	<i>Cyclodomorphus praealtus</i>	Assumed	-	0.14	2
Broad-toothed Rat	<i>Mastacomys fuscus</i>	Yes	-	0.2	2

### 1.6.2 Expert reports

Expert reports have not been used for this assessment.



Table 20- Justification for exclusion of candidate species credit species

Common Name	Species	NSW listing status	EPBC Listing status	Justification for exclusion of species
Mountain Pygmy-possum	<i>Burramys parvus</i>	Endangered	Endangered	The nearest core habitats for the species are at Blue Cow Mountain. Given the absence of preferred sheltering or foraging habitat within the development site of immediate surrounds it is considered highly unlikely that the species would occur there.
Gang-gang Cockatoo (breeding)	<i>Callocephalon fimbriatum</i>	Vulnerable	Not Listed	No hollow-bearing trees suitable for breeding were detected within the development site or immediate surrounds despite targeted surveys.
Little Eagle (Breeding)	<i>Hieraetus morphnoides</i>	Vulnerable	Not Listed	No raptor nests were detected within the development site or immediate surrounds despite targeted surveys.
Guthega Skink	<i>Liopholis guthega</i>	Endangered	Endangered	The nearest records of the Guthega Skink are 1.5 km to the south, just to the south of Blue Calf Pass. It is considered unlikely that the species would occur within development site, given the marginal nature of the habitats there. Targeted surveys could not be undertaken during the survey period, which was in late May, when weather conditions were too cold to confidently survey for the species. It is proposed to undertake targeted surveys for the species in October or November 2018.
Alpine Tree Frog	<i>Litoria verreauxii alpina</i>	Endangered	Vulnerable	The species has disappeared from much of its former range in the last 20 years and is restricted to a few breeding sites in murky ponds. There is no suitable breeding habitat for the species within the study area and it is highly unlikely that it would occur there.
Southern Corroboree Frog	<i>Pseudophryne corroboree</i>	Critically Endangered	Critically Endangered	The Southern Corroboree Frog is limited to sphagnum bogs of the northern Snowy Mountains, in a strip from the Maragle Range in the northwest, through Mt Jagungal to Smiggin Holes in the south. Its range is entirely within Kosciuszko National Park. This species is all but extinct in the wild. It is no longer present at its former southern limit at Smiggin Holes. It is considered highly unlikely that it would occur within the development site.



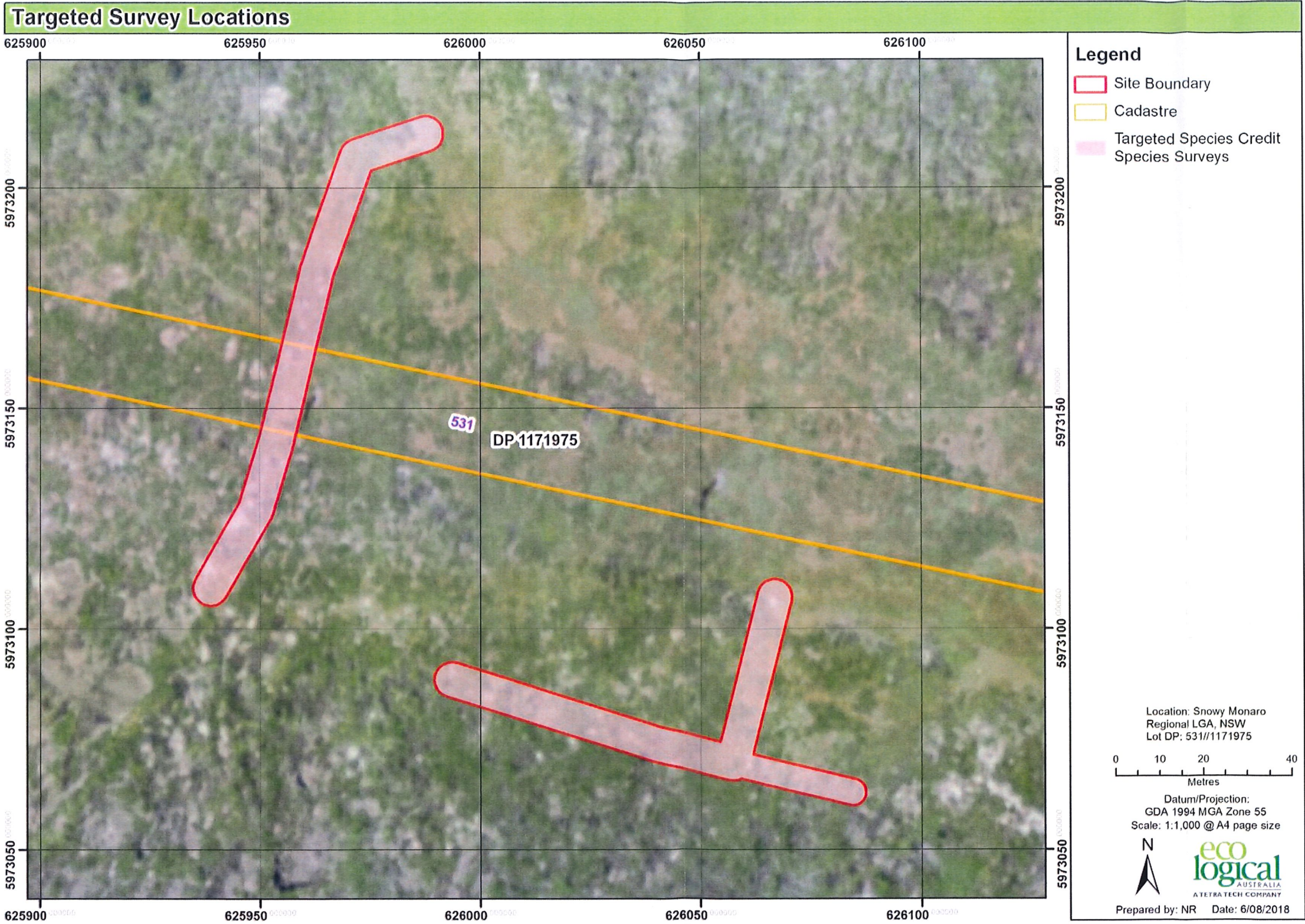


Figure 8: Targeted surveys



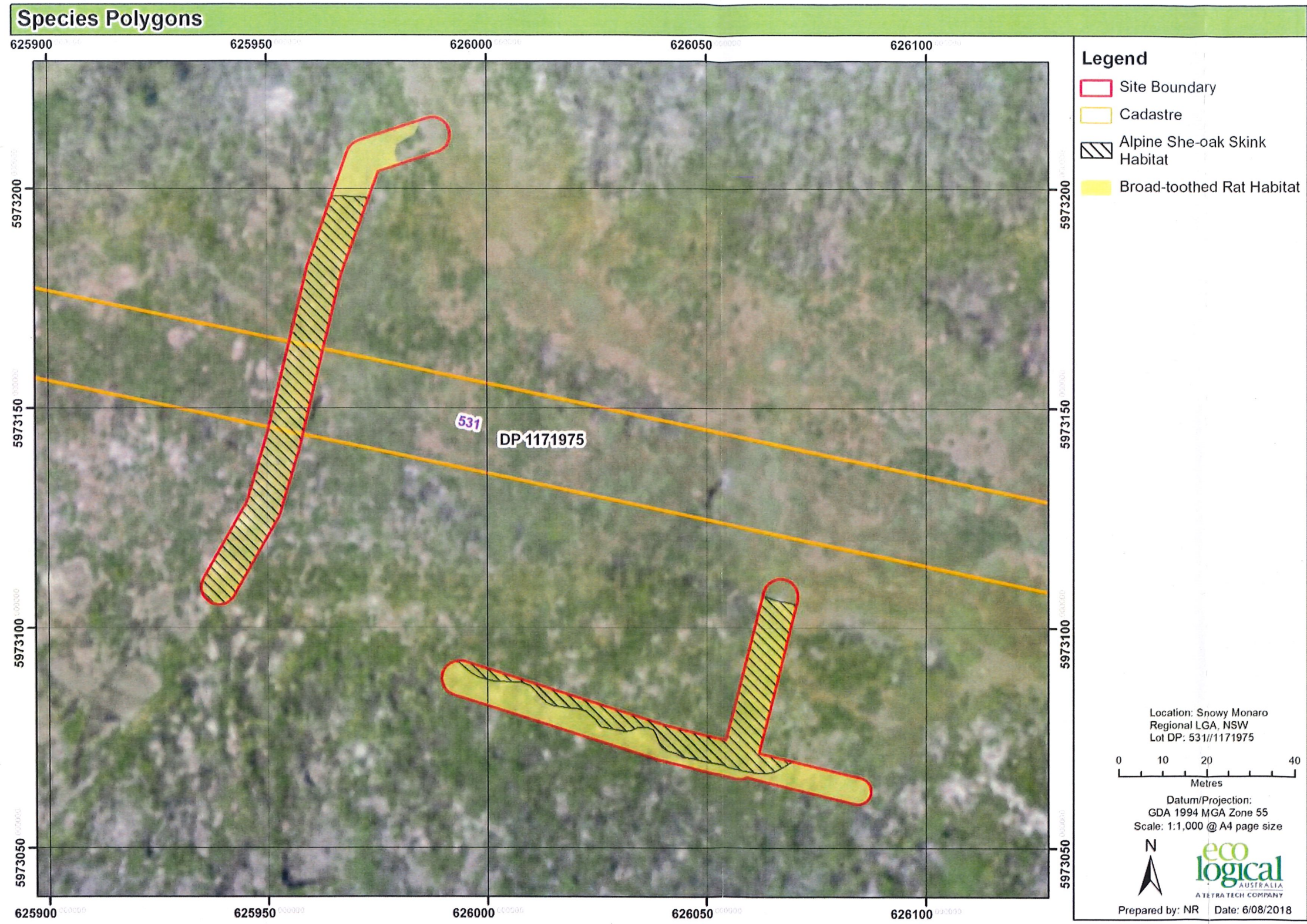


Figure 9: Species polygons



## 2. Stage 2: Impact assessment (biodiversity values)

### 2.1 Avoiding impacts

#### 2.1.1 Locating a project to avoid and minimise impacts on vegetation and habitat

The development has been located in a way which avoids and minimises impacts as outlined in Table 21.

**Table 21: Locating a project to avoid and minimise impacts on vegetation and habitat**

Approach	How addressed	Justification
locating the project in areas where there are no biodiversity values	Not possible.	It is not possible to locate the proposal in an area where there is no biodiversity value.
locating the project in areas where the native vegetation or threatened species habitat is in the poorest condition	The proposal has been located to take advantage of existing disturbances associated with the existing ski slopes.	The proposal has made use of existing disturbed areas as far as is possible. Alternative alignments/footprints would result in more disturbance.
locating the project in areas that avoid habitat for species and vegetation in high threat categories (e.g. an EEC or CEEC), indicated by the biodiversity risk weighting for a species	<p>The proposal has been located as far as is possible to avoid and minimise impacts to threatened species habitats.</p> <p>The proposal will utilise construction techniques such that the disturbance footprint will be limited to a maximum of 8 m in width. Post construction rehabilitation will promote the recovery of the affected area post disturbance.</p>	The area to be affected has been subject to similar impacts historically and has recovered well without the impact minimisation and rehabilitation strategies that have been incorporated into the proposal.
locating the project such that connectivity enabling movement of species and genetic material between areas of adjacent or nearby habitat is maintained	Minimising the width of the disturbance footprint and post construction rehabilitation.	The proposal will only result in a disturbance footprint of up to 8 m wide, which will be rehabilitated post construction and is not expected to adversely impact on connectivity for any fauna species.



### 2.1.2 Designing a project to avoid and minimise impacts on vegetation and habitat

The development has been designed in a way which avoids and minimises impacts as outlined in Table 22.

**Table 22: Designing a project to avoid and minimise impacts on vegetation and habitat**

Approach	How addressed	Justification
<b>reducing the clearing footprint of the project</b>	The proposal will utilise construction techniques such that the disturbance footprint will be limited to a maximum of 8 m in width.	The techniques have been developed by Perisher in conjunction with OEH and DPE over many years to minimise impacts associated with snowmaking infrastructure.
<b>locating ancillary facilities in areas where there are no biodiversity values</b>	Construction equipment will be located in the disturbed areas associated with the existing ski slopes.	This approach will minimise the disturbance footprint.
<b>locating ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower vegetation integrity score)</b>	Construction equipment will be located in the disturbed areas associated with the existing ski slopes.	This approach will minimise the disturbance footprint.
<b>locating ancillary facilities in areas that avoid habitat for species and vegetation in high threat status categories (e.g. an EEC or CEEC)</b>	Construction equipment will be located in the disturbed areas associated with the existing ski slopes. No high threat status vegetation would be affected.	This approach will minimise the disturbance footprint.
<b>providing structures to enable species and genetic material to move across barriers or hostile gaps</b>	Minimising the width of the disturbance footprint and post construction rehabilitation.	The proposal will only result in a disturbance footprint of up to 8 m wide, which will be rehabilitated post construction and is not expected to adversely impact on connectivity for any fauna species.
<b>making provision for the demarcation, ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on the development site.</b>	The proposal will utilise construction techniques such that the disturbance footprint will be limited to a maximum of 8 m in width. Post construction rehabilitation will promote the recovery of the affected area post disturbance.	The impact minimisation and rehabilitation techniques to be used have been developed by Perisher in conjunction with OEH and DPE over many years. The rehabilitation will be consistent with the rehabilitation guidelines for Kosciuszko National Park (KNP).
<b>Efforts to avoid and minimise impacts through design must be documented and justified</b>	The efforts to avoid and minimise impacts have been documented in Section 1.1.2 and 2.1 of this report.	



### 2.1.3 Prescribed biodiversity impacts

The proposed development will have minor prescribed biodiversity impacts as outlined in Table 23.

**Table 23: Prescribed biodiversity impacts**

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities effected
<p><b>impacts of development on the habitat of threatened species or ecological communities associated with:</b></p> <ul style="list-style-type: none"> <li>• karst, caves, crevices, cliffs and other geological features of significance, or</li> <li>• rocks, or</li> <li>• human made structures, or</li> <li>• non-native vegetation</li> </ul>	<p>The proposal will result in the removal or further disturbance to some small rocks (see Photo 3), that have already been affected by historic slope grooming activities.</p>	<p>The proposal will have minor impacts on the Broad-toothed Rat which utilises the shelter provided by the rocks. However, there is extensive rock outcropping surrounding the development site that will not be affected by the proposed development, and the impacts on the local population of the Broad-toothed Rat are expected to be negligible.</p>
<p><b>impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range</b></p>	<p>The proposal will only result in a disturbance footprint of up to 8 m wide, which will be rehabilitated post construction and is not expected to adversely impact on connectivity for any fauna species.</p>	<p>The proposal will not have adverse impacts on connectivity for any threatened species or ecological community.</p>
<p><b>impacts of development on movement of threatened species that maintains their lifecycle</b></p>	<p>NA</p>	<p>NA</p>
<p><b>impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining)</b></p>	<p>The proposal will not affect any waterbodies. Similar works are regularly undertaken throughout the resort area and have been for many years without substantial adverse impacts on water quality.</p>	<p>The proposed works are not anticipated to have any substantial or long-term adverse impacts on waterbodies or hydrological processes or any bog that may be located downslope of the development site.</p>
<p><b>impacts of wind turbine strikes on protected animals</b></p>	<p>NA</p>	<p>NA</p>
<p><b>impacts of vehicle strikes on threatened species or on animals that are part of a TEC.</b></p>	<p>The proposal is not likely to result in any vehicle strikes on fauna species. It is likely that any animals sheltering within the development footprint will move to adjoining habitats as a result of the noise and vibration associated with the proposed works.</p>	<p>Broad-toothed Rat; Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions; Alpine Sphagnum Bogs and Associated Fens</p>



### 2.1.3.1 Locating a project to avoid and minimise prescribed biodiversity impacts

The development has been located in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 24.

**Table 24: Locating a project to avoid and minimise prescribed biodiversity impacts**

Approach	How addressed	Justification
locating the envelope of surface works to avoid direct impacts on the habitat features	The proposal has been located to take advantage of existing disturbances. However, the proposal will result in further disturbance to some small rocks that have already been affected by historic slope grooming activities.	There is extensive rock outcropping surrounding the development site that will not be affected by the proposed development, and the impacts on the local population of the Broad-toothed Rat are expected to be negligible.
locating the envelope of sub-surface works, both in the horizontal and vertical plane, to avoid and minimise operations beneath the habitat features, e.g. locating long wall panels away from geological features of significance or water dependent plant communities and their supporting aquifers	The proposal avoids geological features of significance or water dependent plant communities and their supporting aquifers.	NA
locating the project to avoid severing or interfering with corridors connecting different areas of habitat, migratory flight paths to important habitat or preferred local movement pathways	Minimising the width of the disturbance footprint and post construction rehabilitation.	The proposal will only result in a disturbance footprint of up to 8 m wide, which will be rehabilitated post construction and is not expected to adversely impact on connectivity for any fauna species.
optimising project layout to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbine layout to allow buffers around features that attract and support aerial species, such as forest edges, riparian corridors and wetlands, ridgetops and gullies	The proposal has been designed as far as is possible to avoid and minimise impacts to bog, rocks, and threatened species habitats.	There is extensive rock outcropping surrounding the development site that will not be affected by the proposed development, and the impacts on the local population of the Broad-toothed Rat are expected to be negligible.
locating the project to avoid direct impacts on water bodies	The proposal will not result in any direct impacts on waterbodies.	NA



### 2.1.3.2 Designing a project to avoid and minimise prescribed biodiversity impacts

The development has been designed in a way which avoids and minimises prescribed biodiversity impacts as outlined in Table 25.

**Table 25: Designing a project to avoid and minimise prescribed biodiversity impacts**

Approach	How addressed	Justification
<b>engineering solutions, e.g. proven techniques to minimise fracturing of bedrock underlying features of geological significance, water dependent communities and their supporting aquifers; proven engineering solutions to restore connectivity and favoured movement pathways</b>	The proposal will not result in any fracturing of geological features of significance or water dependent plant communities and their supporting aquifers.	NA
<b>design of project elements to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbines to dissuade perching and minimise the diameter of the rotor swept area, designing fencing to prevent animal entry to transport corridors</b>	The proposal has been designed as far as is possible to avoid and minimise impacts on threatened species.	There is extensive rock outcropping surrounding the development site that will not be affected by the proposed development, and the impacts on the local population of the Broad-toothed Rat are expected to be negligible.
<b>design of the project to maintain environmental processes critical to the formation and persistence of habitat features not associated with native vegetation</b>	The proposal will not jeopardise any critical environmental processes.	NA
<b>design of the project to maintain hydrological processes that sustain threatened species and TECs</b>	The proposal will not affect any hydrological processes that sustain threatened species and TECs.	NA
<b>design of the project to avoid and minimise downstream impacts on rivers, wetlands and estuaries by control of the quality of water released from the site.</b>	The proposal will include sediment controls to limit the potential for sedimentation and water quality impacts downstream during construction, particularly in the event of major rainfall.	Similar techniques have been used to good effect for many years in association with similar developments within the Perisher Resort Area.



## 2.2 Assessment of Impacts

### 2.2.1 Direct impacts

The direct impacts of the development on:

- native vegetation is outlined in Table 26
- threatened ecological communities are outlined in Table 27
- threatened species and threatened species habitat is outlined in Table 28
- prescribed biodiversity impacts are outlined in Section 0

**Table 26: Direct impacts to native vegetation**

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Direct impact (ha)
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Grassy Woodlands	Subalpine Woodlands	0.2

**Table 27: Direct impacts on threatened ecological communities**

PCT ID	BC Act			EPBC Act		
	Listing status	Name	Direct impact (ha)	Listing status	Name	Direct impact (ha)
645	Not listed	Not listed	0.2	Not listed	Not listed	0.2

**Table 28: Direct impacts on threatened species and threatened species habitat**

Common Name	Species	Direct impact number of individuals / habitat (ha)	NSW listing status	EPBC Listing status
Alpine She-oak Skink	<i>Cyclodomorphus praealtus</i>	0.14	Endangered	Endangered
Broad-toothed Rat	<i>Mastacomys fuscus</i>	0.2	Vulnerable	Vulnerable



### 2.2.2 Change in vegetation integrity

The change in vegetation integrity as a result of the development is outlined in Table 29. Whilst, given the proposed impact mitigation and rehabilitation methods, the future integrity score is unlikely to be zero, it has been calculated as zero for the purposes of this assessment. It is likely that future assessments will utilise a future integrity score that is more reflective of the vegetation condition in the medium-term post development.

**Table 29: Change in vegetation integrity**

Veg Zone	PCT ID	Condition	Area (ha)	Current vegetation integrity score	Future vegetation integrity score	Change in vegetation integrity
1	645	Degraded	0.14	43.9	0	-43.9
2	645	Good	0.06	49.9	0	-49.9

### 2.2.3 Indirect impacts

The indirect impacts of the development are outlined in Table 31. Indirect impact zones are shown on Figure 10. Given the minor nature of the proposed development and the proposed mitigation measures indirect impacts are only anticipated to extend up to 2 m into vegetation surrounding the proposed development footprint.

### 2.2.4 Prescribed biodiversity impacts

The development site has the prescribed biodiversity impacts as outlined in Table 30.

**Table 30: Direct impacts on prescribed biodiversity impacts**

Prescribed biodiversity impact	Nature	Extent	Frequency	Duration	Timing
<p><b>impacts of development on the habitat of threatened species or ecological communities associated with:</b></p> <ul style="list-style-type: none"> <li>karst, caves, crevices, cliffs and other geological features of significance, or</li> <li>rocks, or</li> <li>human made structures, or</li> <li>non-native vegetation</li> </ul>	Removal or further disturbance to a small amount rocks	0.14	One off	During proposed 3 week construction period	During construction



Table 31: Indirect impacts

Indirect impact	Project phase	Nature	Extent	Frequency	Duration	Timing
sedimentation and contaminated and/or nutrient rich run-off	Construction	minor	minor	During and after any heavy rainfall	3 week maximum	Intermittently during construction phase
noise, dust or light spill	Construction	minor	minor	Intermittently during construction phase	3 week maximum	Intermittently during construction phase
inadvertent impacts on adjacent habitat or vegetation	Construction	minor	minor	Not expected but possible	3 week maximum	Not expected
transport of weeds and pathogens from the site to adjacent vegetation	Construction	Not expected	Not expected	Not expected but possible	Not expected	Not expected
vehicle strike	Construction	minor	minor	Not expected but possible	3 week maximum	Not expected
trampling of threatened flora species	Construction	Not expected	Not expected	Not expected	3 week maximum	Not expected
rubbish dumping	Construction	Not expected	Not expected	Not expected	Not expected	Not expected
wood collection	Construction	Not expected	Not expected	Not expected	Not expected	Not expected
bush rock removal and disturbance	Construction	Not expected	Not expected	Not expected	Not expected	Not expected
increase in predatory species populations	Construction	Not expected	Not expected	Not expected	Not expected	Not expected
increase in pest animal populations	Construction	Not expected	Not expected	Not expected	Not expected	Not expected
increased risk of fire	Construction	minor	minor	Intermittently during construction phase	3 week maximum	Intermittently during construction phase
disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	Construction	Not expected	Not expected	Not expected	Not expected	Not expected



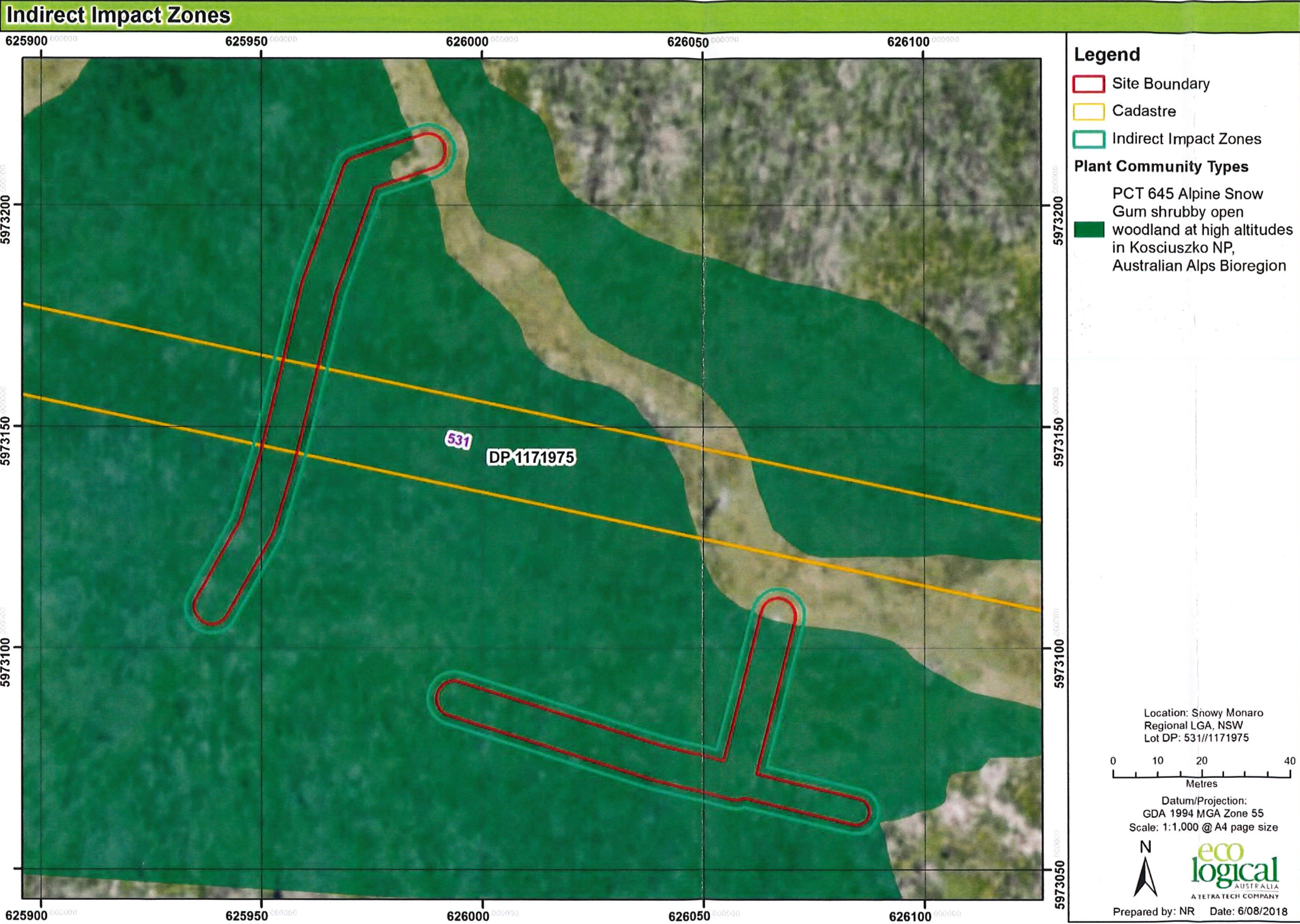


Figure 10: Indirect impact zones



### 2.2.5 Mitigating and managing impacts

Measures proposed to mitigate and manage impacts at the development site before, during and after construction are outlined in Table 33.

### 2.2.6 Serious and Irreversible Impacts (SII)

The development does not have any candidate Serious and Irreversible Impacts (SII).

## 2.3 Risk Assessment

A risk assessment has been undertaken for any residual impacts likely to remain after the mitigation measures (Section 2.2.5) have been applied. Likelihood criteria, consequence criteria and the risk matrix are provided in Table 32, Table 33, Table 34, Table 35 and Table 36 respectively.

**Table 32: Likelihood criteria**

Likelihood criteria	Description
<b>Almost certain</b> <b>(Common)</b>	Will occur, or is of a continuous nature, or the likelihood is unknown. There is likely to be an event at least once a year or greater (up to ten times per year). It often occurs in similar environments. The event is expected to occur in most circumstances.
<b>Likely</b> <b>(Has occurred in recent history)</b>	There is likely to be an event on average every one to five years. Likely to have been a similar incident occurring in similar environments. The event will probably occur in most circumstances.
<b>Possible</b> <b>(Could happen, has occurred in the past, but not common)</b>	The event could occur. There is likely to be an event on average every five to twenty years.
<b>Unlikely</b> <b>(Not likely or uncommon)</b>	The event could occur but is not expected. A rare occurrence (once per one hundred years).
<b>Remote</b> <b>(Rare or practically impossible)</b>	The event may occur only in exceptional circumstances. Very rare occurrence (once per one thousand years). Unlikely that it has occurred elsewhere; and, if it has occurred, it is regarded as unique.



Table 33: Measures proposed to mitigate and manage impacts

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Displacement of resident fauna	Low	Low	Immediately prior to any impacts on rocks, the affected rocks should be tapped or nudged with the excavator to encourage any fauna that may be sheltering beneath the rock to move away.	Fauna within the footprint should move and thus any injury to fauna species during construction should be avoided.	During construction	Perisher
timing works to avoid critical life cycle events such as breeding or nursing	Low	Low	None proposed	NA	NA	NA
instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or licensed wildlife handler during clearing events	Low	Low	Where trenches are left open overnight, structures should be placed at regular intervals to enable fauna to exit the trench. Trenches should be inspected in the morning and late afternoon and any animals that have fallen into the trenches removed. Similarly, trenches should be checked for animals immediately prior to back-filling.	Injury to fauna species during construction should be avoided.	During construction	Perisher
installing artificial habitats for fauna in adjacent retained vegetation and habitat or human made structures to replace the habitat resources lost and encourage animals to move from the impacted site, e.g. nest boxes	Low	Low	None proposed	NA	NA	NA
clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chain-saw, rather than heavy machinery, is preferable in situations where partial clearing is proposed	Medium	Low	Identify with rope and pole line the limit of the proposed disturbance corridor prior to construction	Risk of disturbance beyond proposed disturbance corridor is reduced	Prior to construction	Perisher



Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment	Low	Low	Sediment control measures as necessary such as fencing and hay bales	Risk of sedimentation of water quality impacts substantially reduced	During post-construction	Perisher
noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise	Low	Low	Restrict work to daylight hours	Noise impacts mitigated	During construction	Perisher
light shields or daily/seasonal timing of construction and operational activities to reduce impacts of light spill	Low	Low	Restrict work to daylight hours	Light impacts mitigated	During construction	Perisher
adaptive dust monitoring programs to control air quality	Low	Low	None proposed	NA	NA	NA
programming construction activities to avoid impacts; for example, timing construction activities for when migratory species are absent from the site, or when particular species known to or likely to use the habitat on the site are not breeding or nesting	Low	Low	None proposed	NA	NA	NA
temporary fencing to protect significant environmental features such as riparian zones	Low	Low	The limits of the proposed disturbance footprint will be delineated with rope and pole line	Protection of vegetation and habitats beyond the disturbance footprint	Prior to and during construction	Perisher
hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Medium	Low	Any machinery or vehicles involved with the proposed works that are not owned by Perisher will be washed down to remove all soil and vegetative matter before entering the site to limit spread of weeds and disease such as <i>Phytophthora cinnamomi</i>	Risk of weed or pathogen spread substantially reduced	Prior to and during construction	Perisher



Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
staff training and site briefing to communicate environmental features to be protected and measures to be implemented	Medium	Low	Brief all workers as to limit of disturbance footprint and other environmental safeguards	Risk of disturbance beyond proposed disturbance corridor is reduced	Prior to and during construction as necessary	Perisher
development control measures to regulate activity in vegetation and habitat adjacent to residential development including controls on pet ownership, rubbish disposal, wood collection, fire management and disturbance to nests and other niche habitats	NA	NA	NA	NA	NA	NA
making provision for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on or adjacent to the development site	Medium	Low	Post construction rehabilitation consistent with standard Perisher rehabilitation strategies	Post construction vegetation within the development footprint with high medium-term recovery potential.	Immediately post construction	Perisher



Table 34: Consequence criteria

Consequence category	Description
<b>Critical</b> (Severe, widespread long-term effect)	Destruction of sensitive environmental features. Severe impact on ecosystem. Impacts are irreversible and/or widespread. Regulatory and high-level government intervention/action. Community outrage expected. Prosecution likely.
<b>Major</b> (Wider spread, moderate to long term effect)	Long-term impact of regional significance on sensitive environmental features (e.g. wetlands). Likely to result in regulatory intervention/action. Environmental harm either temporary or permanent, requiring immediate attention. Community outrage possible. Prosecution possible.
<b>Moderate</b> (Localised, short-term to moderate effect)	Short term impact on sensitive environmental features. Triggers regulatory investigation. Significant changes that may be rehabilitated with difficulty. Repeated public concern.
<b>Minor</b> (Localised short-term effect)	Impact on fauna, flora and/or habitat but no negative effects on ecosystem. Easily rehabilitated. Requires immediate regulator notification.
<b>Negligible</b> (Minimal impact or no lasting effect)	Negligible impact on fauna/flora, habitat, aquatic ecosystem or water resources. Impacts are local, temporary and reversible. Incident reporting according to routine protocols.

Table 35: Risk matrix

Consequence	Likelihood				
	Almost certain	Likely	Possible	Unlikely	Remote
<b>Critical</b>	Very High	Very High	High	High	Medium
<b>Major</b>	Very High	High	High	Medium	Medium
<b>Moderate</b>	High	Medium	Medium	Medium	Low
<b>Minor</b>	Medium	Medium	Low	Low	Very Low
<b>Negligible</b>	Medium	Low	Low	Very Low	Very Low



Table 36: Risk assessment

Potential impact	Project phase	Risk (pre-mitigation)	Risk (post mitigation)
Vegetation clearing	Construction	Medium	Very Low
sedimentation and contaminated and/or nutrient rich run-off	Construction	Medium	Very Low
noise, dust or light spill	Construction	Low	Very Low
inadvertent impacts on adjacent habitat or vegetation	Construction	Medium	Very Low
transport of weeds and pathogens from the site to adjacent vegetation	Construction	Medium	Very Low
vehicle strike	Construction	Medium	Very Low
trampling of threatened flora species	Construction	Low	Very Low
rubbish dumping	Construction	Low	Very Low
wood collection	Construction	Low	Very Low
bush rock removal and disturbance	Construction	Low	Very Low
increase in predatory species populations	Construction	Low	Very Low
increase in pest animal populations	Construction	Low	Very Low
increased risk of fire	Construction	Low	Very Low
disturbance to specialist breeding and foraging habitat, e.g. beach nesting for shorebirds.	Construction	Medium	Very Low
sedimentation and contaminated and/or nutrient rich run-off	Construction	Medium	Very Low

## 2.4 Adaptive management strategy

This section is required for those impacts that are infrequent, cumulative or difficult to predict. Impacts associated with the proposed development have been considered extensively and addressed in Section 2.2.5 and further consideration of infrequent, cumulative or difficult to predict impacts is not considered to be necessary.

## 2.5 Impact summary

Following implementation of the BAM and the BAMC, the following impacts have been determined.

### 2.5.1 Serious and Irreversible Impacts (SAII)

The development does not have any Serious and Irreversible Impacts (SAII).



### 2.5.2 Impacts requiring offsets

The impacts of the development requiring offset for native vegetation are outlined in Table 37 and shown on Figure 11. The impacts of the development requiring offset for threatened species and threatened species habitat are outlined in Table 38 and on Figure 11.

**Table 37: Impacts to native vegetation that require offsets**

PCT ID	PCT Name	Vegetation Class	Vegetation Formation	Direct impact (ha)
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Grassy Woodlands	Subalpine Woodlands	0.2

**Table 38: Impacts on threatened species and threatened species habitat that require offsets**

Common Name	Species	Direct impact number of individuals / habitat (ha)	NSW listing status	EPBC Listing status
Alpine She-oak Skink	<i>Cyclodomorphus praealtus</i>	0.14	Endangered	Endangered
Broad-toothed Rat	<i>Mastacomys fuscus</i>	0.2	Vulnerable	Vulnerable

### 2.5.3 Impacts not requiring offsets

All impacts on native vegetation will be offset. There are small areas in the northern extremities of the development site that are cleared in association with the existing Showboat ski run and support exotic grasses, as shown in Figure 11. These areas do not require offsets.

### 2.5.4 Areas not requiring assessment

There are small areas in the northern extremities of the development site that are cleared in association with the existing Showboat ski run and support exotic grasses, as shown in Figure 11. These areas do not require assessment.

### 2.5.5 Credit summary

The number of ecosystem credits required for the development are outlined in Table 39. The number of species credits required for the development are outlined in Table 40. A biodiversity credit report is included in Appendix E.

**Table 39: Ecosystem credits required**

PCT ID	PCT Name	Vegetation Formation	Direct impact (ha)	Credits required
645	Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Alpine Bogs and Fens	Subalpine Woodlands	3



Table 40: Species credit summary

Common Name	Species	Direct impact number of individuals / habitat (ha)	Credits required
Alpine She-oak Skink	<i>Cyclodomorphus praealtus</i>	0.14	3
Broad-toothed Rat	<i>Mastacomys fuscus</i>	0.2	4



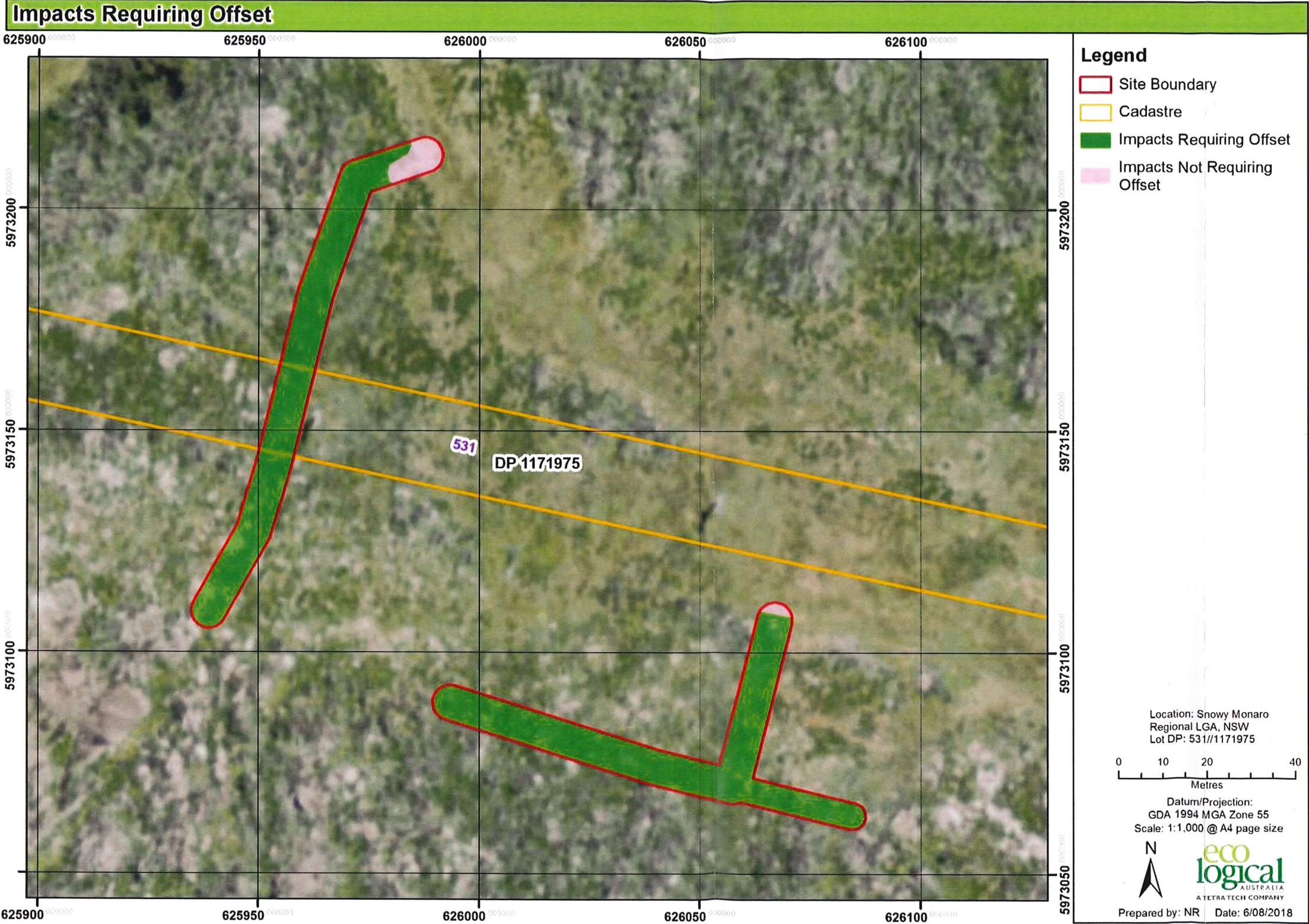


Figure 11: Impacts requiring and not requiring offset



## 2.6 Consistency with legislation and policy

An impact assessment under the EPBC Act was undertaken on MNES known to occur within the development site or immediate surrounds or with potential to occur there. These MNES were:

- Guthega Skink
- Alpine She-oak Skink
- Broad-toothed Rat.

The outcome of this assessment was that it is highly unlikely that the development would significantly impact on those MNES assessed (Appendix C).

A referral to the Commonwealth under the EPBC Act is not considered necessary.

## 3. Recommendations

To further ameliorate the potential impacts of the proposed development and to improve environmental outcomes, the following recommendations for impact mitigation and amelioration are suggested as modifications to the proposal and/or as conditions of consent.

- The mitigation measures identified in Table 33 should be incorporated into the proposal
- A targeted survey for the Guthega Skink should be undertaken within the development site during suitable weather conditions in October or November 2018 and prior to commencing construction on the proposed development.

## 4. Conclusion

Eco Logical Australia Pty Ltd was engaged by Perisher Blue Pty Limited to prepare a Biodiversity Development Assessment Report for the proposed installation of snowmaking infrastructure on Toppas Dream ski run, beside Ridge Chairlift, at Perisher Ski Resort.

This report has been prepared to meet the requirements of the Biodiversity Assessment Method 2016 established under Section 6.7 of the NSW *Biodiversity Conservation Act 2016*.

This BDAR outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and habitats present within the development site during the design, construction and operation of the development. The residual unavoidable impacts of the proposed development were calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit Calculator. The BAMC calculated that a total of three ecosystem credits and seven species credits are required to offset the unavoidable impacts to the vegetation and habitat present within the development site.

Serious and Irreversible Impacts (SAIL) values have been considered as part of this assessment. The proposal will not result in any SAIL.

Following consideration of the administrative guidelines for determining significance under the EPBC Act, it is concluded that the proposal is unlikely to have a significant impact on matters of National Environmental Significance or Commonwealth land, and a referral to the Commonwealth Environment Minister is therefore not required.



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## Appendix A: Definitions

Terminology	Definition
<b>Biodiversity credit report</b>	The report produced by the Credit Calculator that sets out the number and class of biodiversity credits required to offset the remaining adverse impacts on biodiversity values at a development site, or on land to be biodiversity certified, or that sets out the number and class of biodiversity credits that are created at a biodiversity stewardship site.
<b>BioNet Atlas</b>	The BioNet Atlas (formerly known as the NSW Wildlife Atlas) is the OEHL database of flora and fauna records. The Atlas contains records of plants, mammals, birds, reptiles, amphibians, some fungi, some invertebrates (such as insects and snails) and some fish
<b>Broad condition state:</b>	Areas of the same PCT that are in relatively homogenous condition. Broad condition is used for stratifying areas of the same PCT into a vegetation zone for the purpose of determining the vegetation integrity score.
<b>Connectivity</b>	The measure of the degree to which an area(s) of native vegetation is linked with other areas of vegetation.
<b>Credit Calculator</b>	The computer program that provides decision support to assessors and proponents by applying the BAM, and which calculates the number and class of biodiversity credits required to offset the impacts of a development or created at a biodiversity stewardship site.
<b>Development</b>	Has the same meaning as development at section 4 of the EP&A Act, or an activity in Part 5 of the EP&A Act. It also includes development as defined in section 115T of the EP&A Act.
<b>Development footprint</b>	The area of land that is directly impacted on by a proposed development, including access roads, and areas used to store construction materials.
<b>Development site</b>	An area of land that is subject to a proposed development that is under the EP&A Act.
<b>Ecosystem credits</b>	A measurement of the value of EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development site and the gain in biodiversity values at a biodiversity stewardship site.
<b>High threat exotic plant cover</b>	Plant cover composed of vascular plants not native to Australia that if not controlled will invade and outcompete native plant species.
<b>Hollow bearing tree</b>	A living or dead tree that has at least one hollow. A tree is considered to contain a hollow if: (a) the entrance can be seen; (b) the minimum entrance width is at least 5 cm; (c) the hollow appears to have depth (i.e. you cannot see solid wood beyond the entrance); (d) the hollow is at least 1 m above the ground. Trees must be examined from all angles.
<b>Important wetland</b>	A wetland that is listed in the Directory of Important Wetlands of Australia (DIWA) and SEPP 14 Coastal Wetlands
<b>Linear shaped development</b>	Development that is generally narrow in width and extends across the landscape for a distance greater than 3.5 kilometres in length
<b>Local population</b>	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately.
<b>Local wetland</b>	Any wetland that is not identified as an important wetland (refer to definition of Important wetland).



Terminology	Definition
<b>Mitchell landscape</b>	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000.
<b>Multiple fragmentation impact development</b>	Developments such as wind farms and coal seam gas extraction that require multiple extraction points (wells) or turbines and a network of associated development including roads, tracks, gathering systems/flow lines, transmission lines
<b>Operational Manual</b>	The Operational Manual published from time to time by OEH, which is a guide to assist assessors when using the BAM
<b>Patch size</b>	An area of intact native vegetation that: a) occurs on the development site or biodiversity stewardship site, and b) includes native vegetation that has a gap of less than 100 m from the next area of native vegetation (or $\leq 30$ m for non-woody ecosystems). Patch size may extend onto adjoining land that is not part of the development site or stewardship site..
<b>Proponent</b>	A person who intends to apply for consent to carry out development or for approval for an activity.
<b>Reference sites</b>	The relatively unmodified sites that are assessed to obtain local benchmark information when benchmarks in the Vegetation Benchmarks Database are too broad or otherwise incorrect for the PCT and/or local situation. Benchmarks can also be obtained from published sources.
<b>Regeneration</b>	The proportion of over-storey species characteristic of the PCT that are naturally regenerating and have a diameter at breast height $< 5$ cm within a vegetation zone.
<b>Remaining impact</b>	An impact on biodiversity values after all reasonable measures have been taken to avoid and minimise the impacts of development. Under the BAM, an offset requirement is calculated for the remaining impacts on biodiversity values.
<b>Retirement of credits</b>	The purchase and retirement of biodiversity credits from an already-established biobank site or a biodiversity stewardship site secured by a biodiversity stewardship agreement.
<b>Riparian buffer</b>	Riparian buffers applied to water bodies in accordance with the BAM
<b>Sensitive biodiversity values land map</b>	Development within an area identified on the map requires assessment using the BAM.
<b>Site attributes</b>	The matters assessed to determine vegetation integrity. They include: native plant species richness, native over-storey cover, native mid-storey cover, native ground cover (grasses), native ground cover (shrubs), native ground cover (other), exotic plant cover (as a percentage of total ground and mid-storey cover), number of trees with hollows, proportion of over-storey species occurring as regeneration, and total length of fallen logs.
<b>Site-based development</b>	a development other than a linear shaped development, or a multiple fragmentation impact development
<b>Species credits</b>	The class of biodiversity credits created or required for the impact on threatened species that cannot be reliably predicted to use an area of land based on habitat surrogates. Species that require species credits are listed in the Threatened Biodiversity Data Collection.
<b>Subject land</b>	Is land to which the BAM is applied in Stage 1 to assess the biodiversity values of the land. It includes land that may be a development site, clearing site, proposed for biodiversity certification or land that is proposed for a biodiversity stewardship agreement.



Terminology	Definition
<b>Threatened Biodiversity Data Collection</b>	Part of the BioNet database, published by OEH and accessible from the BioNet website.
<b>Threatened species</b>	Critically Endangered, Endangered or Vulnerable threatened species as defined by Schedule 1 of the BC Act, or any additional threatened species listed under Part 13 of the EPBC Act as Critically Endangered, Endangered or Vulnerable.
<b>Vegetation Benchmarks Database</b>	A database of benchmarks for vegetation classes and some PCTs. The Vegetation Benchmarks Database is published by OEH and is part of the BioNet Vegetation Classification.
<b>Vegetation zone</b>	A relatively homogenous area of native vegetation on a development site, land to be biodiversity certified or a biodiversity stewardship site that is the same PCT and broad condition state.
<b>Wetland</b>	An area of land that is wet by surface water or ground water, or both, for long enough periods that the plants and animals in it are adapted to, and depend on, moist conditions for at least part of their life cycle. Wetlands may exhibit wet and dry phases and may be wet permanently, cyclically or intermittently with fresh, brackish or saline water
<b>Woody native vegetation</b>	Native vegetation that contains an over-storey and/or mid-storey that predominantly consists of trees and/or shrubs



## Appendix B: Vegetation plot data



Table 41: Species matrix (species recorded by plot)

Family	Species	Common name	Exotic	High Threat Weed	Stratum	Form	PCT 645		Plot 1		Plot 2	
							Abundance	Cover	Abundance	Cover	Abundance	Cover
Polygonaceae	Acetosella vulgaris	Sheep Sorrel	Yes	Yes	G	-	2	1000	0.1	20		
Poaceae	Agrostis capillaris	Browntop Bent	Yes	Yes	G	-	10	2000				
Poaceae	Anthoxanthum odoratum	Sweet Vernal Grass	Yes	-	G	-	1	500				
Rubiaceae	Asperula gunnii	Mountain Woodruff	-	-	G	FG	2	300	1	100		
Rubiaceae	Asperula pusilla	Alpine Woodruff	-	-	G	FG	3	500				
Cyperaceae	Carex bichenoviana		-	-	G	GG	0.2	50	0.1	20		
Asteraceae	Craspedia aurantia		-	-	G	FG	0.1	5				
Onagraceae	Epilobium spp.		-	-	G	-	0.1	2				
Myrtaceae	Eucalyptus niphophila		-	-	O	TG			45	30		
Geraniaceae	Geranium potentilloides		-	-	G	FG	0.1	2				
Asteraceae	Coronidium monticola		-	-	G	-	0.2	50				
Fabaceae (Faboideae)	Hovea montana		-	-	G	SG	50	200	50	500		
Apiaceae	Hydrocotyle algida	Pennywort	-	-	G	FG	0.1	20				
Clusiaceae	Hypericum perforatum	St. Johns Wort	Yes	Yes	G	-	2	300				

Family	Species	Common name	Exotic	High Threat Weed	Stratum	Form	PCT 645
Asteraceae	<i>Hypochoeris radicata</i>	Catsear	YES	-	G	-	1 300
Violaceae	<i>Melicytus dentatus</i>	Tree Violet	-	-	G	SG	1 0.1 1
Asteraceae	<i>Olearia phlogopappa</i>	Dusty Daisy-bush	-	-	M	SG	3 50 10 100
Proteaceae	<i>Orites lancifolius</i>	Alpine Orites	-	-	-	SG	0.1 1
Fabaceae (Faboideae)	<i>Oxylobium ellipticum</i>	Common Shaggy Pea	-	-	G	SG	0.2 5 5 100
Asteraceae	<i>Ozothamnus secundiflorus</i>	Cascade Everlasting	-	-	M	SG	10 50 2 30
Thymelaeaceae	<i>Pimelea ligustrina</i>		-	-	G	SG	1 30 3 50
Poaceae	<i>Poa fawcettiae</i>	Smooth Blue Snowgrass	-	-	G	GG	3 100 15 300
Poaceae	<i>Poa ensiformis</i>	Purple-sheathed Tussock-grass	-	-	G	GG	0.1 20 5 200
Dryopteridaceae	<i>Polystichum proliferum</i>	Mother Shield Fern	-	-	G	EG	0.1 1 0.1 1
Araliaceae	<i>Polyscias sambucifolia</i>	Elderberry Panax	-	-	M	SG	
Asteraceae	<i>Senecio gunnii</i>		-	-	G	FG	0.2 50
Asteraceae	<i>Senecio linearifolius</i>	Fireweed Groundsel	-	-	G	FG	0.1 20
Caryophyllaceae	<i>Stellaria pungens</i>	Prickly Starwort	-	-	G	FG	0.2 50 0.3 30
Winteraceae	<i>Tasmania xerophila</i> subsp. <i>xerophila</i>	Alpine Pepperbush	-	-	M	SG	1 10 15 50



Family	Species	Common name	Exotic	High Threat Weed	Stratum	Form	PCT 645
Violaceae	<i>Viola betonicifolia</i>	Native Violet	-	-	G	FG	0.1 10

Tree (TG), Shrub (SG), Grass & Grasslike (GG), Forb (FG), Fern (EG), Other (OG), G (Groundcover), M (mid-storey), O (over-storey).

Table 42: Plot location data

Plot no.	PCT	Condition	Easting	Northing	Bearing
1	645	Degraded	625962	5973167	165
2	645	Good	626012	5973090	100

Table 43: Vegetation integrity data (Composition, Structure and function)

Composition (number of species)										
Plot	Tree	Shrub	Grass	Forb	Fern	Other				
1	0	7	3	11	1	0				
2	1	8	3	2	1	0				
Structure (Total cover)										
Plot	Tree	Shrub	Grass	Forb	Fern	Other				
1	0	66	3	6	0.1	0				
2	45	85	20	1	0.1	0				

Function											
Plot	Large Trees	Hollow trees	Litter Cover	Length Fallen Logs	Tree Stem 5-9	Tree Stem 10-19	Tree Stem 20-29	Tree Stem 30-49	Tree Stem 50-79	Tree Regen	High Threat Weed Cover
1	No	No	52	15	Yes	No	No	No	No	Yes	14
2	No	No	79	35	Yes	Yes	No	No	No	Yes	0.1



## Appendix C: EPBC Act Significant Impact Criteria

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 matters of national environmental significance. Matters listed under the EPBC Act as being of national environmental significance 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; and
- Great Barrier Reef.

Specific 'Significant Impact Criteria' are provided for each matter of national environmental significance except for threatened species and ecological communities in which case separate criteria are provided for species listed as endangered and vulnerable under the EPBC Act.

The Commonwealth listed species which are known or considered to have the potential to occur within the study area are the Broad-toothed Rat, Guthega Skink, and Alpine She-oak Skink.

The relevant Significant Impact Criteria have been applied to determine the significance of impacts associated with the proposal.

Matters to be considered	Impact
Any environmental impact on a World Heritage Property or National Heritage Places	No. The proposed action does not impact on a World Heritage Property or a National Heritage Place as addressed in the SEE.  (listed natural: Australian Alpine National Parks and Reserves; nominated historic: Snowy Mountains Scheme NSW).
any environmental impact on Wetlands of International Importance	No. The proposal will not affect any part of Ramsar wetland.

any impact on  
Commonwealth Listed  
Critically Endangered or  
Endangered Species;

Yes. The study area does provide potential habitat for the following Commonwealth listed endangered species: Alpine She-oak Skink and Guthega Skink

The significant impact criteria for endangered species are discussed below:

a. lead to a long-term decrease in the size a population of a species,

The Guthega Skink has not been detected within the development site and the proposed works will be at least 1.5 kms from the nearest known Guthega Skink burrow. Whilst several small areas of rock fragments will be affected by the proposed development, they are well away from any locations where the species has been observed. The proposed action will only affect a insignificantly small amount of the potential foraging habitat for the species in the locality. Under these circumstances, the proposed action is considered unlikely to lead to a long-term decrease in the size of the population of the Guthega Skink.

The impacts associated with the proposed action will result in the removal of only an insignificantly small area of the dense groundcovers the Alpine She-oak Skink is associated with. The habitats within the study area will continue to be available to the species after the completion of the proposed action. It is considered highly unlikely that the proposed works would result in injury or death of any Alpine She-oak Skink individuals as the disturbances associated with the proposed works are likely to temporarily deter any individuals from the locations where works are being undertaken. Under these circumstances, it is considered highly unlikely that the proposed action will lead to a long-term decrease in the size of the Alpine She-oak Skink population.

b. reduce the area of occupancy of the species

The proposed action will be limited to the removal of a relatively small amount of rocks in the context of the extent of this resource in the locality and is highly unlikely to affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.

Under these circumstances, the proposed action is highly unlikely to reduce the area of occupancy of the local populations of the Alpine She-oak Skink or Guthega Skink.

c. fragment an existing population into two or more populations

The proposed action will be limited to the removal of a relatively small amount of rocks and vegetation in the context of the extent of these resources in the locality and is highly unlikely to affect any key habitat resources for the Alpine She-oak Skink or Guthega Skink; nor affect their ability to access habitats within or beyond the development site.

Under these circumstances, the proposed action will not fragment an existing population of the Alpine She-oak Skink or Guthega Skink into two or more populations.

d. adversely affect habitat critical to the survival of a species

No habitat within the development site is considered likely to be critical to the survival of the Alpine She-oak Skink or Guthega Skink. There are thousands of hectares of similar habitats in the alpine and subalpine zones of the Australian alps, including elsewhere within the Perisher Resort area.

e. disrupt the breeding cycle of a population

It is possible although unlikely that the Guthega Skink or Alpine She-oak Skink may breed within the development site, however any local population of these species is highly unlikely to be limited to the development site, which represents only a small proportion of the potential habitat available to these species in the locality.

Under these circumstances, it is highly unlikely that the proposed action would disrupt the breeding cycle of a population of the Alpine She-oak Skink or Guthega Skink.

f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline



Matters to be considered	Impact
	<p>The proposed action will modify a very small area of potential habitat for the Alpine She-oak Skink and Guthega Skink, which is unlikely to be important to these species in the context of the extent of potential habitat in the locality.</p> <p>Under these circumstances, it is highly unlikely that the proposed action would modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the Alpine She-oak Skink or Guthega Skink is likely to decline.</p> <p>g. result in invasive species that are harmful to an endangered species becoming established in the endangered or critically endangered species' habitat</p> <p>The proposed action is unlikely to result in invasive species that are harmful becoming established in potential habitat of the Alpine She-oak Skink or Guthega Skink.</p> <p>h. introduce disease that may cause the species to decline</p> <p>The proposed action is unlikely to introduce disease that may cause the Alpine She-oak Skink or Guthega Skink to decline.</p> <p>i. interfere substantially with the recovery of the species.</p> <p>As the proposed action is not considered to decrease or fragment any existing populations, the recovery of the Alpine She-oak Skink or Guthega Skink is unlikely to be adversely impacted.</p>

any impact on  
Commonwealth Listed  
vulnerable Species;

Yes. The study area provides known habitat for one Commonwealth listed vulnerable species: the Broad-toothed Rat.

The significant impact criteria in terms of the vulnerable species are discussed below:

a. lead to a long-term decrease in the size of an important population of a species.

Whilst the proposed action will affect some known Broad-toothed Rat habitat, it will affect only a very small amount of the potential habitat for the species in the immediate area. As such, the proposed works are unlikely to adversely affect a significant proportion of the home range of one or more Broad-toothed Rat individuals and will not result in habitat fragmentation which could isolate individuals or a population of the Broad-toothed Rat. The noise and vibration associated with the proposed works is likely to temporarily deter any Broad-toothed Rat individuals that may be near the affected areas. As such, it is unlikely that any individuals would be killed during the implementation of the proposed action.

Under these circumstances the proposed action will not lead to a long-term decrease in the size of an important population of the Broad-toothed Rat.

b. reduce the area of occupancy of an important population

It is highly likely that the Broad-toothed Rat will continue to occur within the development site after the implementation of the proposed action. The species continues to be locally common in the Perisher Resort Area where there have been many similar and larger developments over many decades. As such, the proposed action is highly unlikely to reduce the area of occupancy of the Broad-toothed Rat.

c. fragment an existing important population into two or more populations

The proposed action will not fragment an existing important population of the Broad-toothed Rat into two or more populations. The species population extends beyond the development site and the Perisher Resort Area.

d. adversely affect habitat critical to the survival of a species

No habitat within the development site is considered to be critical to the survival of the Broad-toothed Rat.

e. disrupt the breeding cycle of an important population

The proposed action and affected area is too small to disrupt the breeding cycle of a population of the Broad-toothed Rat.

f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The proposed action will not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the Broad-toothed Rat is likely to decline.

g. result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The proposed action will not result in invasive species that are harmful becoming established in habitat for the Broad-toothed Rat.

h. interferes substantially with the recovery of the species.

Whilst there have been documented declines in some Broad-toothed Rat populations within the Snowy Mountains, these declines have been attributed to factors such as major bushfire events and early snow thaws, and not impacts of the nature of those proposed. In any case, the local population of the Broad-toothed Rat appears to continue to be relatively large on the basis of the abundance of the species scat throughout the Perisher Resort Area, including within the village, and in areas that have been subject to the sorts of activities proposed. As such, it is considered highly unlikely that proposed action will substantially interfere with the recovery of the Broad-toothed Rat.



Matters to be considered	Impact
Any impact on a Commonwealth Endangered Ecological Community	No endangered ecological communities occur within the development site.
any environmental impact on Commonwealth Listed Migratory Species;	No. The proposed action will not have any adverse impacts on any listed migratory species.
does any part of the Proposed action involve a Nuclear Action;	No. The project does not include a Nuclear Action.
any environmental impact on a Commonwealth Marine Area;	No. There are no Commonwealth Marine Areas within the study area.
In addition, any direct or indirect impact on Commonwealth lands	No. The project does not directly or indirectly affect Commonwealth land.

## Appendix D: Fauna species detected during the survey period

**Table 44: Fauna species recorded within the development area or immediate surrounds**

Category	Common Name	Scientific Name	Detection Method
<b>Mammals</b>	<b>Broad-toothed Rat</b>	<i>Mastacomys fuscus</i>	Scats
	Bush Rat	<i>Rattus fuscipes</i>	Observed (dead)
	Common Wombat	<i>Vombatus ursinus</i>	Scat
	Deer*	Cervidae	Scat
	Rabbit*	<i>Oryctolagus cuniculus</i>	Scat
	Red Fox*	<i>Vulpes vulpes</i>	Scat
<b>Birds</b>	Australian Magpie	<i>Gymnorhina tibicen</i>	Call recognition
	Crimson Rosella	<i>Platycercus elegans</i>	Observed
	<b>Flame Robin</b>	<i>Petroica phoenicea</i>	<b>Observed</b>
	Little Raven	<i>Corvus mellori</i>	Observed

**Bold denotes threatened species. \* Denotes exotic species.**



## Appendix E: Biodiversity credit report



# BAM Biodiversity Credit Report (Like for like)

## Proposal Details

Assessment Id	00011773/BAAS17061/18/00011774	Proposal Name	Toppas Dream Snowmaking	BAM data last updated *	24/02/2018
Assessor Name	Ryan Smithers	Assessor Number	BAAS17061	BAM Data version *	3
Proponent Names		Report Created	06/08/2018	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	

## Candidate Serious and Irreversible Impacts

Nil

Nil

## Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Predicted Threatened Species Not On Site



# BAM Biodiversity Credit Report (Like for like)

No Changes

## Ecosystem Credit Summary

PCT	TEC	Area	Credits
645-Alpine Snow Gum shrubby open woodland at high altitudes in Kosciuszko NP, Australian Alps Bioregion	Not a TEC	0.2	3.00

## Credit classes for Like-for-like options

645	Any PCT in the below Class	And in any of below trading groups	Containing HBT	In the below IBRA subregions
	Subalpine Woodlands (including PCT's 644, 645, 650, 677, 679, 952, 1190, 1191, 1196, 1199 )	Subalpine Woodlands - < 50% cleared group (including Tier 7 or higher).	No	Snowy Mountains,Bondo, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

## Species Credit Summary

## BAM Biodiversity Credit Report (Like for like)

Species	Area	Credits
<b>Cyclodomorphus praealtus / Alpine She-oak Skink</b>		3.00
<b>Mastacomys fuscus / Broad-toothed Rat</b>		4.00
<b>Cyclodomorphus praealtus/ Alpine She-oak Skink</b>	<b>Like-for-like options</b> Only the below Spp <b>Cyclodomorphus praealtus/Alpine She-oak Skink</b> Any in NSW	0.1 0.2
<b>Mastacomys fuscus/ Broad-toothed Rat</b>	<b>Like-for-like options</b> Only the below Spp <b>Mastacomys fuscus/Broad-toothed Rat</b> Any in NSW	0.1 0.2
<b>645_Degraded</b>	<b>Like-for-like options</b> Only the below Spp <b>Mastacomys fuscus/Broad-toothed Rat</b> Any in NSW	0.1 0.2
<b>645_Good</b>	<b>Like-for-like options</b> Only the below Spp <b>Mastacomys fuscus/Broad-toothed Rat</b> Any in NSW	0.1 0.2





## BAM Biodiversity Credit Report (Like for like)

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**Mastacomys fuscus/**  
Broad-toothed Rat

645\_Good



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