FLORA AND FAUNA ASSESSMENT

Proposed East Wing Fire Escape

at

Pygmy Possum Lodge (Lot 108/DP1242013),

Charlotte Pass Village, Kosciuszko National Park, NSW, 2624

Prepared by Dave Woods

for

Elouera Ski Club

July 2023

Traditional Owner Acknowledgement

The author would like to pay his respects to the traditional owners, Monaro-Ngarigo, the original custodians of the land upon which this assessment and field work was carried out.

Documentation

Project Name	FLORA AND FAUNA ASSESSMENT: Proposed East Wing Fire Escape at Pygmy Possum Lodge (Lot 108/DP1242013), Charlotte Pass Village, Kosciuszko National Park, NSW, 2624	
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Definitions and Acronyms used in this Report

BC Act	NSW *Biodiversity Conservation Act, 2016*
BC Regulation	NSW *Biodiversity Conservation Regulation, 2017*
BAM	Biodiversity Assessment Method
BOS	Biodiversity Offset Scheme
BVM	Biodiversity Values Map
CPV	Charlotte Pass Village
CPVpl	Charlotte Pass Village P/L
DoP	NSW Department of Planning
DPE	NSW Department of Planning and Environment
ESC	Elouera Ski Club
EEC	Endangered Ecological Community
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act, 2009*
FM	NSW *Fisheries Management Act 1994*
NPW Act	NSW *National Parks and Wildlife Act 1974*
NPWS	NSW National Parks and Wildlife Service
PoM	Kosciuszko National Park Plan of Management
PCT	Plant Community Type
PMR	Protected Matters Report
TEC	Threatened Ecological Community

SUMMARY

Elouera Ski Club (ESC) propose to refurbish Pygmy Possum Lodge (PPL) in Charlotte Pass Village (CPV). The lodge was constructed in 1984-85 with rear wing extensions constructed in 1993-94. The current proposal incudes a range of internal and external activities, the largest of which includes the recladding of the entire building in Colourbond steel. The extent of the proposed external cladding also provides an opportunity to improve the fire exit access to both west and east wings that was not satisfactorily addressed following the wing extensions in 1993-94. Accumulated snowbanks at the rear of the building can hamper access from both fire exits, and snow shed from the roof and eaves is a risk to those below. Therefore, ESC propose to construct a portico over both fire exits and a path that links the west wing fire exit to the east wing fire exit, and down a path along the eastern side of the building to Spencers Creek Road. The respective porticos would abut the existing building and occupy a new area of 1.2 m x 3.8 m each. The pathway between the west wing and east wing would be approximately 1 m x 16 m, and the east pathway down to Spencers Creek Road approximately 1 m x 40 m. The total portico area of 9.12 m^2 and 56 m^2 of path would generate a building footprint of approximately 66 m^2. However, most of the proposed path would remain in its current natural state with approximately 10 m^2 of expanded mesh, wood or stone steps, and rock covering ag-pipe. Therefore, most of the proposed pathway will be unaltered and defined by posts. ESC will still be responsible for clearing snow from the path during winter to maintain a safe and manageable fire escape.

A review of the Biodiversity Values Map identified shaded areas along the western, south-western and the north-eastern corner of the sub-lease. Mapped values along the western side of PPL were the reason a west path was withdrawn from this proposal. The proposed development footprint of 66 m^2 is well under the minimum clearing threshold of 2,500 m^2 for this parcel of land. Therefore, the proposal did not trigger entry into the Biodiversity Offset Scheme (BOS) according to the Biodiversity Values Map and Threshold Report (see Appendix 1). Subsequent environmental assessment was focused on identifying threatened entities as candidates for the Test of Significance under the *Biodiversity Conservation Act 2016* (BC Act) and Significant Impact Criteria under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Threatened and other entities of significance were first extracted by a literature review of databases including BioNet, Matters of National Significance, species by association of plant community types, previous surveys and other environmental assessments in the area. Over 70 entities were originally extracted with two tiers of probable occurrence based on location records, habitat constraints and niche requirements (see Table 1 and Table 2). A preliminary assessment was conducted on 13th March 2023 when the west wing path was still being considered and a follow-up survey conducted on 14th May 2023. Threatened flora were directly targeted by species searches. All vascular plants were recorded during both survey efforts to give context to the survey with 107 vascular plants recorded within a 120 m radius of PPL that included 83 natives, 18 exotic and six unidentified (two graminoids and four forbs). Notwithstanding disturbed areas around this part of CPV, DPE had mapped most of the vegetation community adjacent to PPL as PCT 3307: Kosciuszko-Namadgi Alpine Ash Moist Grassy Forest. However, composition and structure of the site strongly aligned to PCT 3381: Kosciuszko Alpine Sally Woodland. Fauna habitat was surveyed for possible occurrence over direct or targeted surveys. The use of habitat as a surrogate indicator was based on the relatively small size and nature of the proposed activity, the time of year to confidently detect the presence of some threatened species, and the known presence of other species that have been surveyed in the past and are well understood in the area.

Following the literature review and field surveys, no threatened flora was detected, there were no threatened ecological communities present, and four threatened fauna were identified as candidates for further assessment. These included the vulnerable broad-toothed rat (*Mastacomys fuscus*), endangered mountain pygmy-possum (*Burramys parvus*), endangered alpine she-oak skink (*Cyclodomorphus praealtus*), and endangered Guthega skink (*Liopholis guthega*). All four entities and their conservation status under the BC Act were co-listed with the same conservation status under the EPBC Act. Subsequently all four entities were addressed against criteria in the Test of Significance and Significant Impact Criteria respectively.

This ecological assessment concluded that no significant impact was identified under the BC Act and therefore participation in the BOS is not required. No significant impact was identified under the EPBC Act and therefore proposed project referral to the Commonwealth's Minister for the Environment is not required nor consideration for offsetting under the EPBC Act offset program.

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1 INTRODUCTION

1.1 Background

Pygmy Possum Lodge (PPL) is a resort building capped at 54 adult beds situated on Lot 108/DP1242013 in Charlotte Pass Village (CPV), Kosciuszko National Park (KNP). Constructed in 1984-85, the lodge is part of Elouera Ski Club (ESC) where occupancy within CPV is managed by a sub-lease arrangement with Charlotte Pass Village P/L (CPVpl). The current lease expires on 11 September 2058. A headlease exists between the NSW National Parks and Wildlife Service (NPWS) on behalf of the NSW Government and CPVpl. A headlease arrangement allows for period occupancy and approved activities to occur commensurate with the *National Parks and Wildlife Act 1974* (NPW Act) and the KNP Plan of Management (PoM). Functions of the headlease arrangement include the provision of municipal services such as potable water, wastewater treatment and waste transfer for all sub-lessees by CPVpl.

In 1993-94 the lodge was expanded to improve the fire exits at the rear of the building. However, the lodge has experienced ground level seepage where the building footprint is cut into the western slope of the hillside. The original red cedar cladding is also structurally and aesthetically challenged by the severe alpine weather and solar elements that requires costly maintenance. The scope of works identified by ESC states:

> *The major motivation for the DA is the recladding of the lodge in colour bond steel. There are three reasons supporting recladding:*
>
> *i) the bushfire risk associated with the current external flammable cladding,*
> *ii) continual expensive maintenance at heights of the timber cladding, and*
> *iii) the opportunity to inspect and repair the building frame while recladding.*

Recladding in steel will reduce the bushfire risk and reduce ongoing maintenance. Furthermore, the improved fire exits completed in 1993-94 did not effectively address a safe exit through any accumulated snow at the southern end of the building, and snow shed from roof and eaves onto the exit platform and stairs. Though snow removal is a challenge for ESC to manage that is further complicated by the varying number and capacity of club members throughout winter, the rear building fire exits and thoroughfare to the front of the lodge and onto Spencers Creek Road have an opportunity to be improved while other refurbishments are being conducted to the building.

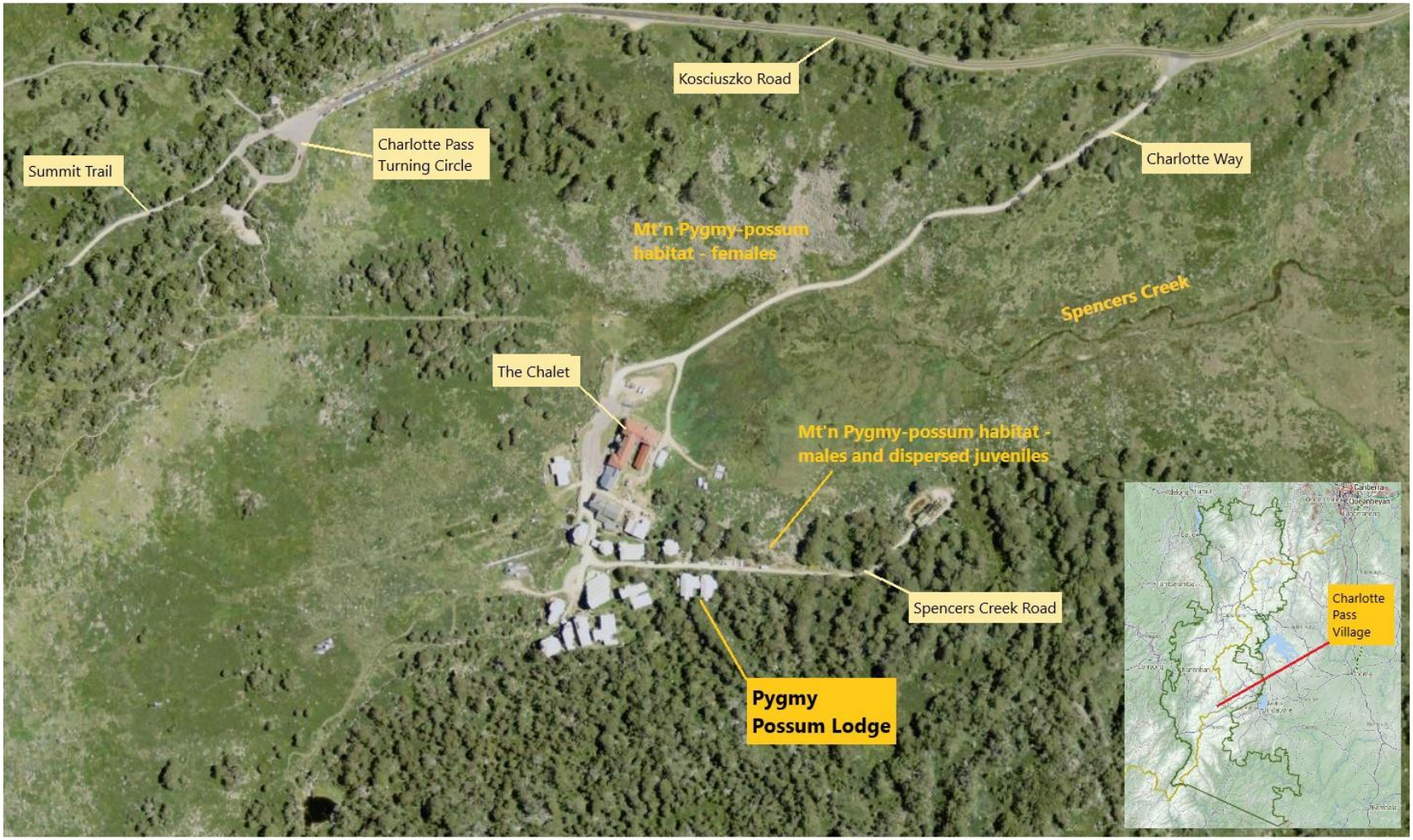

Figure 1: Location map of Charlotte Pass Village and Pygmy Possum Lodge. Of particularly note is the prevalence of a contiguous subalpine woodland community to the south and east of the lodge. To the north-east of the building on the other side of Spencers Creek Road is Mountain Pygmy-possum habitat. The population that resides within this boulderfield are adult males and dispersed juveniles from the northern side of the valley. During the mating season, males will traverse the ski slope to the west to access females in the boulderfield on the footslope of Mt. Guthrie (aerial map source: NSW Six Maps 2023. Inset map source: Google Maps 2023).

1.2 Proposal

Original Proposal

The original proposal as it pertained to the rear building fire exits was to construct parallel portico covers and new stairwells for both east and west exits. Each fire exit at ground level would have a formalised pathway around respective sides of the building to the front facing Spencers Creek Road. The 1 m wide pathways would be a combination of steel mesh, granite or hardwood risers, and natural ground cover based on respective ground morphology and features. However, following consultation with Department of Planning (DoP) as consenting authority, and NPWS as a lead referral agency for leasing and biodiversity issues, it was established that the proposed western pathway encroached upon the Biodiversity Values Map (BVM) as a trigger into the Biodiversity Offset Scheme (BOS). The proposed eastern pathway, though close to a mapped area in the north-eastern corner, avoided the BVM and subsequent entry into the BOS. The proposed western pathway also extended beyond the sub-lease boundary, though correspondence from CPVpl indicated that they would support the proposal from a leasing perspective based on the nature of the proposal addressing fire safety issues.

Several alternative western path alignments were proposed, but on each occasion, there was still a measurable overlap onto the BVM. Preliminary assessment by the author identified that the proportion of native vascular species along each of the proposed routes would, by definition, be classed as native vegetation under the Biodiversity Assessment Method (BAM) and still be considered a habitat element used or potentially used by several threatened fauna species. Though any areas of the BVM can be challenged, in the author's opinion the habitat potential on the western side of the building was still significant enough for DPE to reject a submission based on the type and conservation status of several threatened entities in the area. There was also a question of the timing it would take for DPE to address a formal request and possible further delays to the DA submission. To avoid possible entry into the BOS, the proposed western pathway was withdrawn from further consideration.

The current proposal (after V20 – 9 July 2023 Barber)

The current proposal is the construction of a covered portico across the rear of the west and the rear of the east wing respectively.

> *These porticos would be accessed with a new door on each wing. People exiting the building would enter a covered portico or "tunnel" which will shelter them from snow falls from the lodge roof. These two fire exits have been geotechnically reviewed by Douglas Partners in regard to the foundations and designed by Camstruct in regard to the structures. The Camstruct design incorporates three 100 mm x 100 mm x 3 mm RHS galvanized steel columns and is a 100% steel construction. The exterior of the structure will be covered by vertical cladding. This vertical alignment will provide better structural integrity as compared to a horizontal cladding and will readily shed snow.*
>
> *The new fire exit doors will be located partway between Level 2 and Level 3 such that the door exits slightly above natural ground level. The porticos will be fitted with an expanded mesh walkway and suitable steps or ramps to natural ground level. All existing exits will be closed and the steel stairs will be removed. The two existing upper-level doors will be replaced with internal gyprock, timber framing, R2.7 insulation and steel cladding. Ambient natural light is adequately provided on this level from an existing window. The two lower-level doorways will be replaced with gyprock, timber framing, R2.7 insulation and steel cladding to approximately 1200 mm height. The top section of these doors will be replaced with an 800 mm x 800 mm double glazed window. These two new windows will be covered with 2 mm aperture stainless steel mesh.*
>
> *The proposed porticos offer advantages as compared to improving the existing exits*:

1. The new structure (east and west) is a simple wall and will read as part of the building.

2. Retrofitting structures on the existing two exits will be more complex to design and is likely to be aesthetically less pleasing. It is likely that such structures will not read as part of the building.

3. To "make safe" the existing lower exit will need a snow protection structure that projects outside the building line. The main lodge roof slopes to the west or east respectively. This main roof slope, along with the re-entrant corner, is part of the reason these lower exits are snow bound.

4. The new portico will exit up hill and is well clear of the main roof. Snow falling from the exit roof, which slopes south, will accumulate against the new portico wall but the exit door within the portico will be clear of snow.

As a consequence of cancelling any current proposal for a western pathway, ESC focused on safe fire exits from both east and west wing, with a joining 1 m wide path between the west wing to the east wing, and the path progressing down the eastern side of the building as per the original plan. The pathway will be identified by poles.

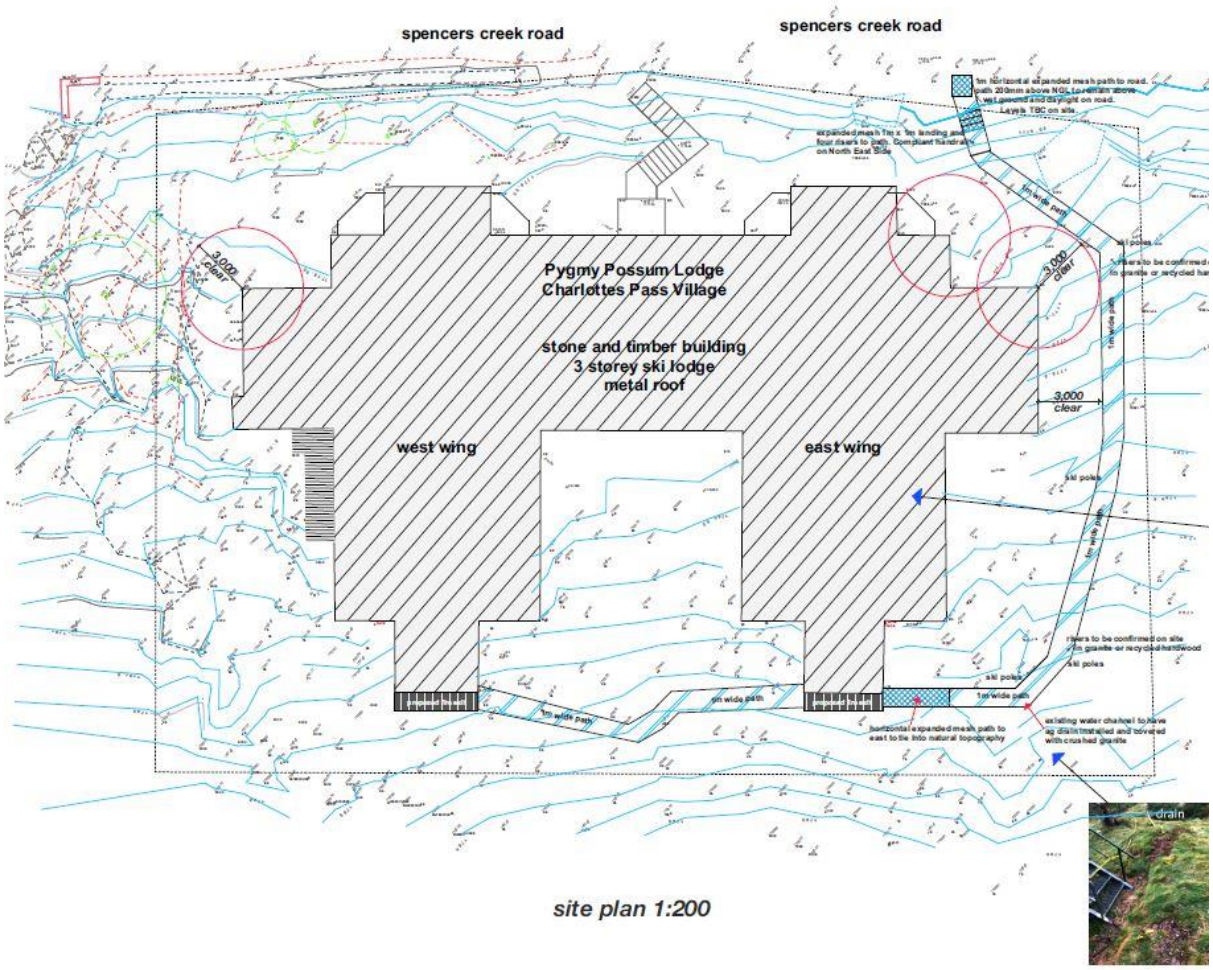

Figure 2: Site plan of Pygmy Possum Lodge depicting the proposed 1 m wide path and the extension of the building footprint on respective west and east wings to account for the proposed porticos (source: Precision Planning 2023 cited in Architectural Drawing Set #220, Alterations and Additions – Pygmy Possum Lodge).

As it pertains to the building footprint, the portico at the end of each wing, the pathway from the west wing fire exit to the portico at the east wing fire exit, and the formalising of the east pathway to Spencers Creek Road from the east wing will, expand the building footprint to the existing structure to:

- *East and west portico (1.2 m x 3.8 m x 2 porticos) – 9.12 m^2*
- *Pathway between exit wings (1 m x 16 m) – 16 m^2*
- *East pathway from exit to Spencers Creek Road – (1 m x 40 m) 40 m^2*

Total - Approximately 66 m^2.

To assist in arbitrating on meeting a low level of environmental impact, an effort has been made by the proponent to avoid entry into the BOS and to avoid triggering any significant impact upon known or possible threatened entities recorded in the area. Based on the information above, this assessment has been prepared to assess any impacts upon existing and potential flora and fauna in the area with the major focus upon threatened species and threatened ecological communities under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

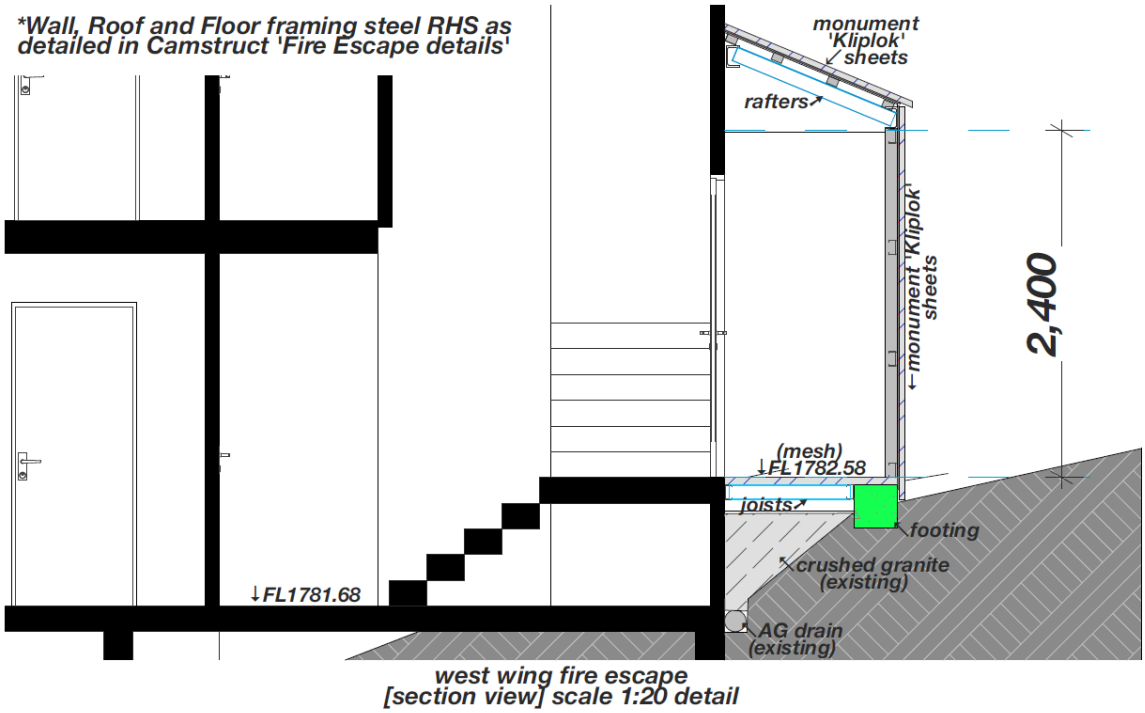

Figure 3: Section view of west wing fire escape including a side view of the portico (source: Precision Planning 2023 cited in Architectural Drawing Set #220, Alterations and Additions – Pygmy Possum Lodge).

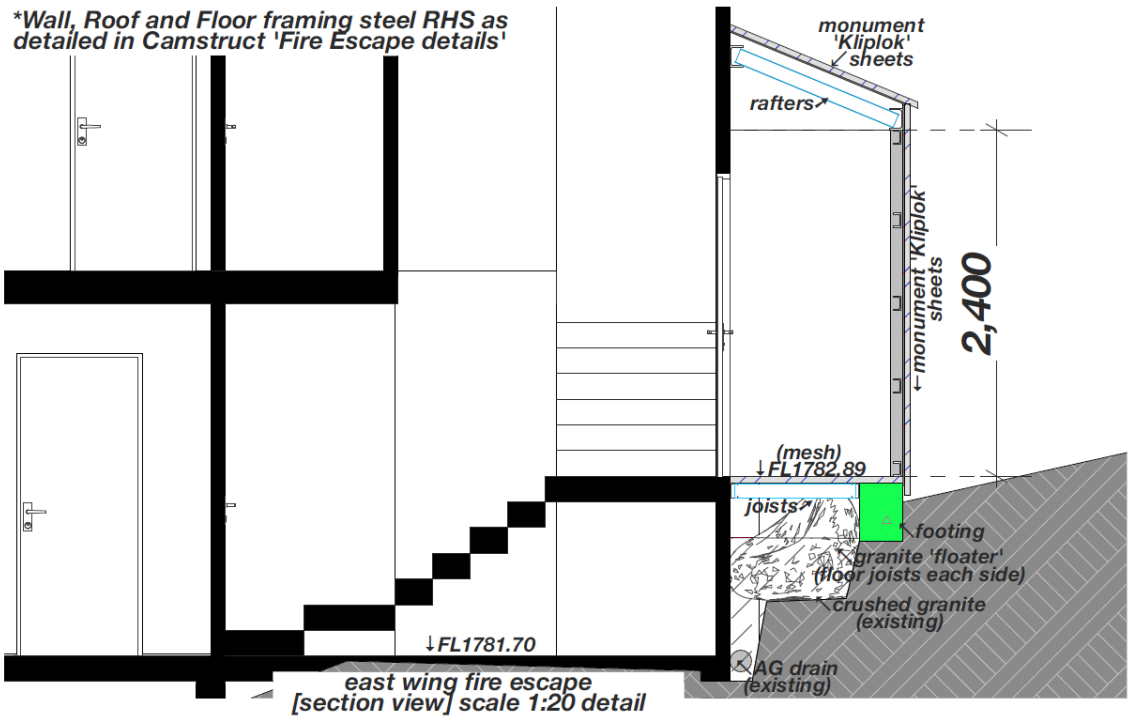

Figure 4: Section view of east wing fire escape including a side view of the portico (source: Precision Planning 2023 cited in Architectural Drawing Set #220, Alterations and Additions – Pygmy Possum Lodge).

Figure 5: Image series of proposed fire exit pathway between west wing and east wing fire exits, and the east pathway to the front of Pygmy Possum Lodge at Spencers Creek Road.

Image 1: A pathway will be defined between the west wing fire exit and the east wing fire exit. The proposed path is routed around a small clump of shrubs and snowgum stand.

Image 2: The path alignment as it approaches the portico of the east wing fire exit.

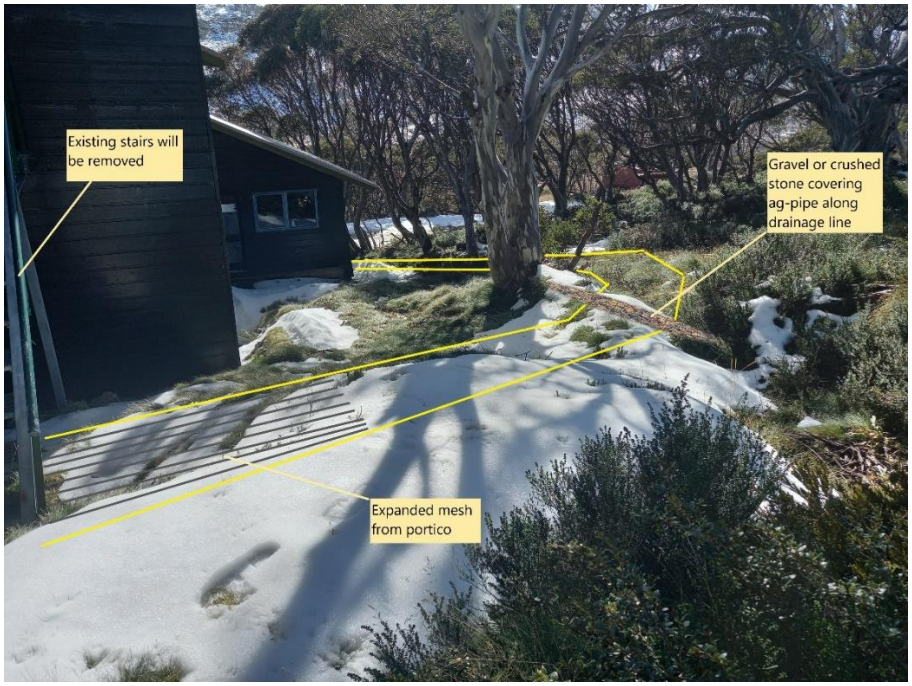

Image 3: The path exiting from the east wing portico will be facilitated by expanded mesh and gravel will be laid over the ag-pipe that will protect the drainage line that runs along the eastern side of the building and sub-lease.

Image 4: The path descends the hill and facilitated by two steps that may be formed by granite or hardwood.

Image 5: The path occurs mostly on a ground cover of native grass dominated by Poa fawcettiae and interspersed with a range of forbs including Acaena alpina, Asperula gunnii and Pimelea alpina.

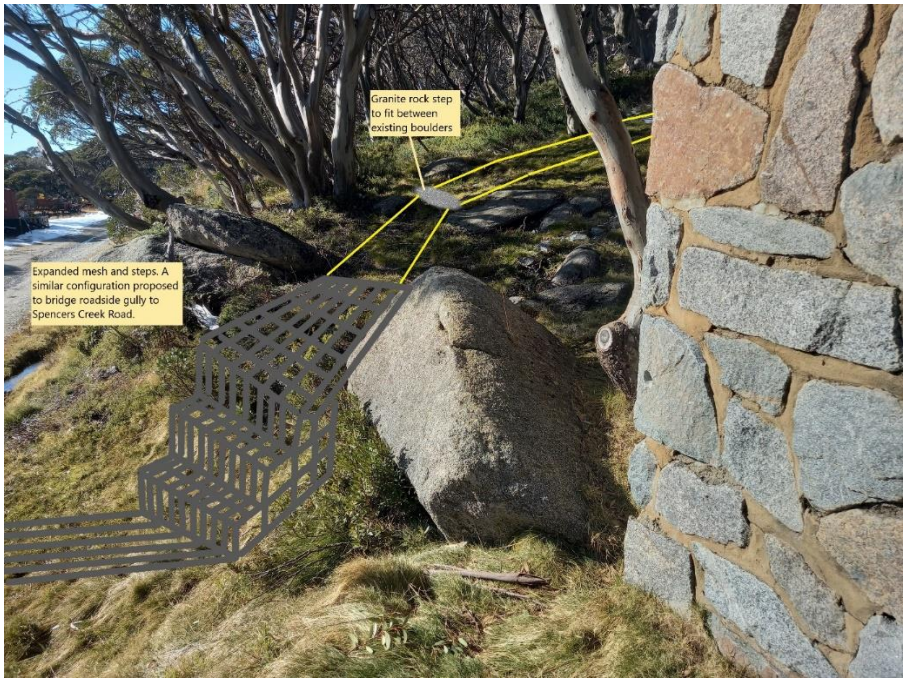

Image 6: The last section of path includes expanded mesh and steps to address the steeper slope and batter face above the roadside gully.

1.2 Biodiversity Offset Scheme Entry Tool

At the time this assessment was undertaken, no area of the proposed activity occurred on the Biodiversity Values Map (BVM) that would trigger entry into the Biodiversity Offset Scheme (BOS) (EES 2023a). However, there is a large value's mapped area around the dwellings including Pygmy Possum Lodge which consumes most of the upper Spencers Creek catchment. Though no enquiry has been submitted to the Department of Planning and Environment (DPE) to identify the values associated with the mapping, the extent and community types that the mapped area covers is strongly correlated with mountain pygmy-possum (*Burramys parvus*) where habitat is well documented and the species is often the subject of annual surveys. The mapped values are only one of several potential triggers into the BOS and does not provide the only threatened entities of concern. The proximity of PPL to mountain pygmy-possum habitat and distribution areas justifies this species for further assessment.

However, the BVM does encroach upon Lot 108/ DP 1242013, most notably along the west and south-west corner, and a small patch within the north-east corner. Because of the former situation, this has curtained an attempt by ESC to progress a fire exit pathway along the western side of the lodge. And while the east pathway proposal is retained within the eastern sub-lease boundary, the path's alignment in the north-east corner is positioned immediately adjacent to the values mapped by DPE. That said, the alignment follows the same vegetation structure and composition for most of the eastern side which is contiguous from the proposed path toward the eastern side of the lodge. The mapped values appear to capture the shrub layer which is consistent with mountain pygmy-possum and broad-toothed rat (*Mastacomys fuscus*). Therefore, the proponents are in a justified position to challenge proximity of the pathway and BVM in this area, or 'nudge' the alignment a short distance to the west to satisfy any ambiguity over the mapped boundary when viewed at a larger scale.

The second assessment trigger under the BOS is the amount of native vegetation proposed to be cleared based on thresholds set against the minimum lot size in the Local Environment Plan (LEP). However, where there is no minimum lot size in an LEP, then the actual lot size is used to determine the threshold. For Lot 108/ DP 1242013 the sub-lease is 1,627 m^2 that permits up to 2,500 m^2 of native vegetation to be cleared

without triggering entry into the BOS. This does not apply where the activities occur on the BVM, and in the case of PPL, does not override current lease obligations and terms of occupancy as a sub-lessee of CPVpl on crown land. The area clearing threshold (and BVM) is for the sole purpose of identifying which environmental planning assessment is required for activities being assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EPA Act).

Using the proposed footprint calculations for two porticos (west and east fire exits), the bridging pathway between the west wing and east wing, and the pathway down the eastern side of the lodge to Spencers Creek Road, an area of 66 m^2 was used. Notwithstanding calculation errors, accuracy and for alignment adjustments, this figure is well under the minimum clearance threshold identified by the *Biodiversity Conservation Regulation 2017* (BC Reg) asset at 2,500 m^2. The area digitised was approximately 74 m^2 due to the coarse capture of polygons that are linear and for most length only 1 m wide. Nevertheless, the required exercise has demonstrated that the proposed porticos and fire exit pathways do not exceed the minimum clearance threshold nor are the proposed activities situated on the BVM. A copy of the Biodiversity Values Map and Threshold Report is attached as Appendix 1.

Though the construction footprint has been calculated at 66 m^2, only approximately 9 m^2 will be occupied by the new porticos and approximately 10 m^2 occupied by expanded mesh and additional steps of granite or hardwood. This leaves approximately 47 m^2 that has been calculated as pathway that will still include a natural ground cover of the existing plant composition, delineated by snow poles and structurally maintained to 100 mm in height to meet APZ obligations.

Additional biodiversity impacts to which the BOS applies includes habitat of threatened species under Section 6.1, subsection 1 (a) (i) karst, caves, crevices, cliffs and other geological features of significance, and subsection 1 (a) (ii) rocks, under the BC Reg. 'Prescribed impacts' for features under Section 6.1 Subsection 1(a)(i) are not relevant to the site and therefore not a subject of this assessment. However, rocks under Section 6.1 Subsection 1(a)(ii) are present. Though addressed as present in terms of habitat potential and assessed for direct and indirect impacts, the existing boulders including those partially embedded will remain, with the possibility of additional small boulder/rock placed as steps but also in one instance, positioned between existing boulders. Though assessed and discussed in a later section of this report, the rock habitat is of low significance as it pertains to the proposed activities and therefore 'prescribed impacts' as listed under the BC Reg will not be impacted and subsequently do not require an assessment under the BOS.

Having determined that the proposed activities have avoided entry into the BOS as triggered by native vegetation area clearing and the BVM, the third potential trigger is the subject of the rest of the assessment – whether the proposed activities will have a significant impact on threatened species and threatened ecological communities.

1.3 Aim of Flora and Fauna Assessment

This flora and fauna assessment has been designed to identify and assess native flora and fauna within and adjacent to the proposed fire exit pathway and associated infrastructure on Lot 108/ DP 1242013.

The key elements of this assessment include:

- Review of published material and database records of native flora and fauna, with specific attention given to threatened species, endangered ecological communities and other species of significance

- Flora survey to identify vascular plants and vegetation community types, with additional effort targeting known and possibly occurring threatened plant species and endangered ecological communities

- Habitat assessment for vertebrate species known or possibly occurring within the area based on habitats associated with threatened species. Furthermore, fauna and habitat assessment commensurate with the relatively small size of the proposal and relatively minor extent of possible impacts.

1.4 Survey Area

The proposed site is situated at approximately 1780 m a.s.l. on the lower slopes of Kangaroo Ridge in the upper catchment of Spencers Creek. The aspect is generally northerly and there are two drainage lines that pass close to the building to the east and west. The western drainage line is more developed and in parts subterranean and partly concealed by surface and buried boulder outcrops. The eastern drainage line appears to contain less discharge, but surface seepage is evident around the north-eastern corner of the building.

The vegetation community is subalpine woodland in structure and composition, though the northern part of the lodge displays a greater ecotone of native and introduced species. In contemporary plant community type mapping, the unit of vegetation around the lodge has been mapped as PCT 3307: Kosciuszko – Namadgi Alpine Ash Moist Grassy Forest (EES 2023a) (though this may not be the best-fit PCT for this area according to the author's observation). The northern part of the lodge includes the slope down to Spencers Creek Road with a high proportion of exotic species growing along the road verge, table drain and batter. Though a shrub layer encroaches around the western, southern and eastern parts of the sub-lease, the pathway commencing at the west wing portico/fire exit is mostly a ground composition of native grasses and forbs, that continue for most of the proposed route down the eastern side of the building to the road. The pathway is routed around several snowgums (*Eucalyptus pauciflora* ssp. *niphophila*) though neither shrubs nor trees will need to be removed to meet the proposed fire exit pathway.

The site is consistent with the Main Range Sub-alpine geological unit (coded Mai) as described by Mitchell (2008) that is allied to high plateau and block faulted ranges on Silurian-Devonia gneissic granite and granites, with a linear unit of Ordovician greywacke, phyllite and schist above the treeline at 1800 m. In the broader sense including the environment in the upper Spencers Creek catchment, the area includes mountain peaks and tor covered rounded hills that stand above the plateau, extensive plains and valley swamps on a dendritic drainage network, and local relief of approximately 300 m. Though not specific to the site, but nearby are periglacial features of boulderfields (also known as boulder block streams, block streams, boulder streams and rock rivers) and solifluction lobes. Boulderfields are most prevalent within 100 m of the lodge below Spencers Creek Road to the north-east and on the opposite side of the valley adjacent to the Charlotte Way at the footslope of Mt. Guthrie. Both these sites are important mountain pygmy-possum habitat. However, there are smaller boulderfields scattered in the woodland that are enclosed by shrubs growing in an espalier-like form that are also remnants of past periglacial climates and processes. And consistent with other high subalpine areas in KNP, alpine humus and transitional humus soil dominate in undisturbed areas.

Using data collected from a combination of Bureau of Meteorology automatic weather stations and manually collected records for Perisher Valley, the climate within the study area includes cool summers and cold winters – the latter including seasonal snowfalls between June and October. Long-term temperature averages include a mean maximum temperate of 2.4^{o}C and mean minimum temperature of -5^{o}C for the coldest month of July, contrasting with a mean maximum temperature of 18.8^{o}C and mean

minimum temperature of 5.7^{o}C for the warmest month of January. Within these average temperatures includes the lowest minimum temperature in winter being recorded at -19.5^{o}C (-23^{o}C Charlotte Pass) and the highest maximum temperature in summer recorded at 30^{o}C. Mean long-term rainfall is approximately 2,000 mm experienced on average 120 days, though higher rainfall years are in excess of 2,500 mm and low rainfall years approximately 1,000 mm (Climate Data Org 2023).

Prior to European settlement and agricultural pursuits, local and regional indigenous tribes and clans used to visit the upland areas during the non-winter months to undertake ceremony, initiations, trade and seek alternative food (Young 2005). Bogong moth formed part of the diet, a species of moth that migrated from southern Queensland and north-western NSW to aestivate in the cooler climate amongst boulders outcrops and rocky caverns. However, the purpose of this food source as a staple has been overstated in the literature and its significance as part of a ceremonial food underestimated (Rod Mason pers. comm.). After indigenous occupancy, seasonal grazing by sheep and cattle brought up from the adjacent western slopes and Monaro plains occurred for approximately 100 years (Good 1992). The motivation was based on palatable vegetation and perennial water. Mountain tourism followed that included the construction of the Kosciusko Road between 1906-09, the first Chalet in Charlotte Pass in 1930 (Walkom 1991) and the gazettal of Kosciuszko State Park in 1944 (becoming KNP when state parks and other reserves in NSW were centralised under the NPWS in 1967) (Good 1992). CPV for many years was characterised by The Chalet and a handful of other buildings, became a village destination primarily in the 1970s and 1980s with the construction of several lodges including PPL that was built on the last available sub-lease in 1984/85.

Image 7: Within 100 m north-east of PPL is a periglacial boulderfield that is habitat for adult male mountain pygmy-possum and dispersed juveniles. During the mating season males traverse their way to the female habit area on the opposite side of the valley. Protected access includes the contiguous shrub understorey across the hillslope behind PPL.

Image 8: Looking south-west across the Spencers Creek floodplain toward PPL near centre image. The contiguous snowgum woodland is seen across most of the slope that gives concealed access for a large part of a male mountain pygmy-possum's traverse to and from female habitat during the breeding season.

Image 9: This concealed periglacial boulderfield is a continuation of the mountain pygmy-possum habitat below Spencers Creek Road that was truncated when the access road was built to the sewage treatment plant. The complex of boulders and shrubs also supports broad-toothed rat and dusky antechinus as detected by fresh scats.

Image 10: Looking westerly across the eastern and southern perimeter of PPL. The contiguous shrub understorey not only provides access for mobile mountain pygmy-possum, but also helps form the subnivean space by creating extended pockets and caverns under accumulative winter snowfall; an important habitat for non-hibernating broad-toothed rat.

Image 11: This pocket of vegetation in the north-east corner of the sub-lease is identified on the Biodiversity Values Map. The proposed route passes immediately adjacent to this area across the bottom of the image.

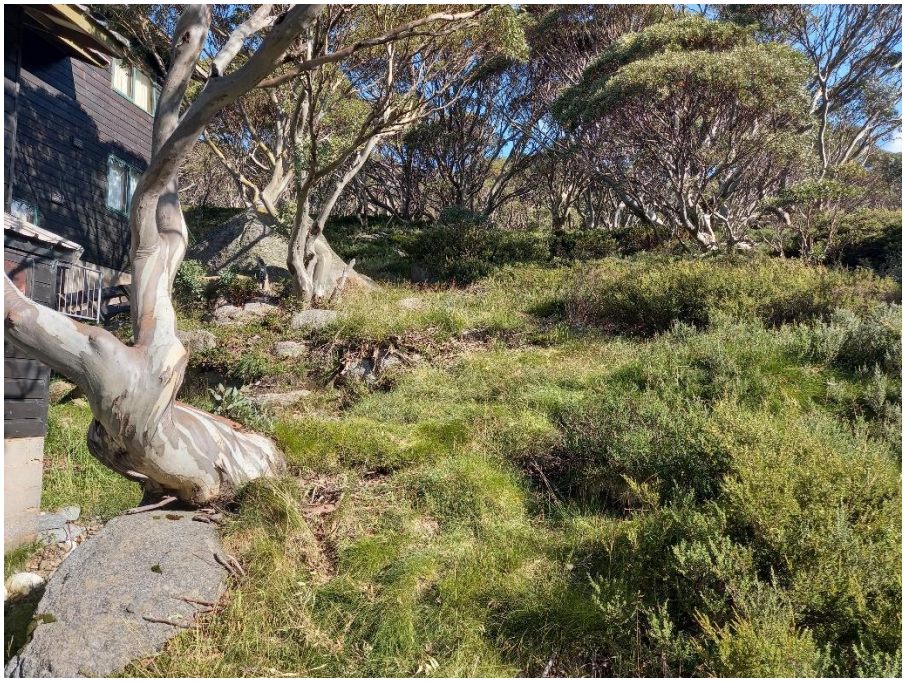

Image 12: Looking up hill along the western side of PPL. A pathway exiting from the west wing fire exit was originally proposed along this area, but the pathway width and alignment encroached upon the BVM. The formal pathway exiting the west wing will now progress across to the east wing exit and down the proposed pathway along the eastern side of the building.

2 METHODOLOGY

2.1 Literature and Desktop Review

A desktop review was undertaken prior to the field survey so that an appreciation was gained on the diverse range of flora and fauna previously recorded in the area and, more specifically, to filter those threatened species and endangered ecological communities either known or predicted to occur within the area. Threatened species, endangered ecological communities and their associated habitats would in turn form the primary target of the field surveys. The databases included records derived from DPE BioNet (EES 2023b), access to Sensitive BioNet data (Category 2) (see Appendix 2), EES BioNet Vegetation Classification (EES 2023c) and the Commonwealth's Protected Matters Report (PMR) for elements relevant under the *Environment Protection and Biodiversity Conservation Act,* 1999 (*EPBC Act*) (DoEE 2023)(see Appendix 3). A 10 km search radius was used to filter BioNet data and PMR records, although a wider radius was used when interrogating additional location information for some threatened species (see Table 1 and Table 2). That said, the information was assessed in light of the scale and degree of impact commensurate with the proposed pathway. Both BioNet data and Protected Matters Report were generated on 12th March 2023. However, due to the time lapse between the data extraction and this report, a second set of reports were generated to account for any new species listed as threatened or significant entities, or a change in conservation status. The latter reports are appended to this assessment.

Literature review included explanation of biophysical reports and explanation to the various databases (i.e. Mitchell Landscapes and SEED database sets), and flora and fauna surveys and assessments pertaining to past surveys and those recently undertaken in the general area. Furthermore, the author has participated in several broad floristic and vertebrate surveys and undertaken targeted surveys for threatened species

in the alpine and subalpine area. Much of this data has yet to be entered into the BioNet database, but where relevant, has been referred to in this assessment.

2.2 Field Survey

Two site inspections were conducted on 13th March and 14th May 2023 respectively. The first site inspection was to qualify whether the BVM along the western parts of the sub-lease and proposed western path were consistent with native vegetation and habitat values for a suite of most probable fauna. The reason for the original mapping of the BVM was not available at the time though assumed to be related to mountain pygmy-possum and possibly broad-toothed rat, alpine she-oak skink and Guthega skink. Notwithstanding the presence of some introduced species, the author quickly concluded there wasn't enough doubt to challenge the BVM because of the proximity of critical mountain pygmy-possum habitat to PPL, habitat connectively between the two major mountain pygmy-possum habitats on the north and south side of Charlotte Pass, and the presence of broad-toothed rat scats adjacent to the lodge.

At the time of the first inspection, there was uncertainty whether ESC would pursue entry into the BOS that would require survey and reporting effort according to the Biodiversity Assessment Method (BAM) and Biodiversity Development Assessment Report (BDAR) respectively. Or conversely, avoidance of the BOS but require assessment of threatened entities under the BC Act and/or EPBC Act with impact appraisal assessed through a Test of Significance and/or against Significant Impact Criteria respectively. Therefore, some preliminary data was captured around the lodge that included targeted surveys for possible threatened plants known in the area, and an appraisal of broad habitat complexity along and adjacent to the proposed pathways along both sides of PPL. All vascular plant species were recorded and attributes of the surrounding vegetation community noted including structure, height and continuity.

Following confirmation that ESC would not pursue the west wing fire exit path, the author conducted another survey on 14th May 2023 to appraise micro-habitat opportunities for the range of threatened fauna most likely to be present in and adjacent to the southern and eastern areas of the sub-lease and proposed east path route (Table 2). The assessment subsequently aligned better with species occupancy, species behaviour, potential interaction and potential impacts (albeit low) as a result of the proposed activity. Several more vascular plants were recorded but the time of year was not conducive for targeted vertebrate fauna surveys. Excluding broad-toothed rat scats (and detections of several non-threatened fauna), the fauna assessment was based on habitat as a surrogate indicator of threatened fauna presence or potential occupancy. Habitat assessment was deemed appropriate for the type, size and location of the proposed porticos and fire exit pathways.

A range of broad and micro-habitats (habitat complexity) were surveyed up to 20 m from PPL including:

- large trees and trees with hollows (including stags) with the occasional inspection of hollows using an endoscope camera
- decorticating and bark slabs on standing trees
- ground debris including logs, branches and accumulated leaf material
- rocks, boulders and boulder outcrops including the occasional inspection under rock material and an inspection with an endoscope camera of caverns and crevices formed by rock outcrops
- burrows and other subterranean holes and ground fissures, and
- gullies, creeklines and soakage/seepage areas.

Notes were taken on the structural and stratum diversity of the shrub and overstorey species, including relative density of 'habit' trees including stags, and general age class diversity as assessed by the relative proportion of seedlings, saplings, young trees and mature trees.

2.3 Limitations

The first site appraisal conducted in mid-March is still considered a reasonable time to detect threatened vascular plants for an elevation that is approximately 1,800 m a.s.l.. The author's involvement in other survey work in high subalpine and alpine areas over the 2022/23 season indicates a two-to-four-week delay in flowering for some ground and shrub species. The delay being attributed to below average temperatures though precipitation was above the mean for most of south-eastern Australia. Therefore, there was a high level of confidence for the survey effort to account for the vascular plants present and detection of any threatened species growing among the flora in and adjacent to the site.

In contrast to flora surveys, fauna appraisal has relied upon habitat as a surrogate indicator. Arguably an attempt to have surveyed a suite of fauna in mid-March may have missed some critical animal behaviour such as the breeding and nesting period for species that are altitudinal and latitudinal migrants including several threatened birds and microbats. However, mid-March is still a reasonable time to detected reptiles if those surveys are conducted on relatively warm and sunny days. Survey effort for threatened ground mammals such as mountain pygmy-possum and broad-toothed rat may be considered ethically too sensitive for the circumstance where a species is well documented in the area including habitat and movement. The survey effort and need for survey also needs to be considered in terms of the size and type of proposed impact in relation to relevant threatened candidates. Therefore, the author justifies not applying direct fauna survey methods and replacing with habitat appraisal as a means of assessment.

3 RESULTS

3.1 Database and Literature Review

BioNet data (Appendix 1 [summary]) and Protected Matters Report (Appendix 3) was generated to a buffer distance of 10 km centred on PPL. The aim of extracting data from these databases was to filter known and possibly occurring threatened flora and fauna for subsequent field investigations, as well as to elucidate the relative species richness for the communities present in this part of the upper Spencers Creek catchment. With potentially more than 70 threatened and significant entities identified in databases and by association with subalpine plant community types, some species can be eliminated from further assessment based on narrow habitat or niche requirements not being present in or adjacent to PPL, or where geographical distribution of actual records are distant to the proposed site including altitude. This latter circumstance is particularly relevant to some of the records filtered within a 10 km radius that does not discriminate geographical differences in mountain environments. Consequently, some species have been filtered from tableland elevations at approximately 1100 m asl to the highest ranges above 2000 m asl. Therefore, some species have been excluded without further discussion or justification. Such species are strongly aligned to migratory birds at lower altitudes, species that are strongly tableland or montane occupants, vagrant species with few records, and species with a strong fidelity to aquatic habitats that does not include an extended seasonal movement into adjacent woodlands. There are still several species that may meet this exclusion criteria but contain records to warrant listing. Therefore, the author has prepared two tables.

Table 1 provides an opportunity to highlight those species that were also extracted from the database searches, but which have a low probability to occur based on habitat constraints, altitudinal limitations or narrow niche requirements either known or unlikely to occur close to PPL. This contrasts with Table 2 for threatened species extracted from the same databases and which have site fidelity near PPL. However, as the proposal is relatively small and with little ecological impact, the same table has been used to profile and assess each candidate species (and threatened ecological community) with the results emanating from the field assessments. Therefore, the table includes a precis of potential species' occurrence in the area

and likely impact upon those species based on the development footprint, secondary impacts such as breeding disturbance, habitat present within and adjacent to the site, and those species detected as a result of the field surveys.

Table 1: List of threatened species filtered from database records where habitat constraints, altitudinal limitations or narrow niche requirements preclude the species from occurring near Pygmy Possum Lodge and do not require further consideration as part of this ecological assessment.

Scientific Name	Common Name	NSW Conservation Status	C'lth Conservation Status	Number of Site Records	Likely Occurrence	Justification
FLORA						
Discaria nitida	Leafy Anchor Plant	V	-	4	Low	Leafy anchor plant is a barbarous shrub up to 3 m high with a strong fidelity to rocky creeklines, subalpine floodplains and cold air drainage near riparian areas. The species is small leaved and can grow within the average perennial floodline of creeks and streams for extensive periods (EES 2023g). There are several populations across KNP but the species appears in decline. Repeated high intensity wildfire has greatly diminished population numbers, but independent of fire and browsing by pest species, there is a lack of seedling recruitment even though some plants are producing large quantities of viable seed. The species is recorded in lower riparian areas associated with the Thredbo River and Snowy River.
Euphrasia scabra	Rough Eyebright	E	-	1	Low	An old record exists in the Wollondibby Valley to the south of the project area (EES 2023h). The few existing records in NSW tend to occur in undisturbed margins of swampy grasslands, often in wet peaty soil (EES 2023h). There are peatlands and peaty soils downslope from PPL, however, *Euphrasia scabra* is not an alpine species and known occurrences are at much lower altitudes in woodlands and open clearings in forest communities.
Pimelea bracteata	(no common name)	E	-	2	Low	The species is better known in areas in the north of KNP around Nungar Plain and Long Plain (EES 2023i). It often occurs along riparian areas in open valleys in the subalpine zone and upper montane zones (EES 2023i). There are occasional records in the subalpine area and in tableland vegetation but they may be incorrectly identified Pimelea's. Whatever the status of the few records in the south end of KNP, *Pimelea bracteata* is not an alpine species and has a very low chance of occurrence.
Pterostylis ereophila	Blue-tongued Greenhood	CE	CE	1	Low	This terrestrial orchid grows along subalpine watercourses under more open thickets of mountain tea-tree in muddy ground very close to water, and less commonly

						grows in peaty soils and sphagnum mounds (EES 2023j). While more frequently found in low-light conditions, it appears to tolerate full sun. The one record filtered in BioNet was observed in 1972 though the location has been withheld (nominally denatured to 1 km and showing near Dainer's Gap to the south) (EES 2022j). The author understands there are several other localities that occur in adjacent valleys to the south of the Kosciuszko massif including Thredbo Valley and Moonbah Valley. However, this orchid is not an alpine or high subalpine species.
Rytidosperma pumilum	Feldmark Grass	V	V	71	Low	*Rytidosmerma pumilum* is an inconspicuous tufted grass. Its leaves grow to only about 3 cm tall and its flowering stems to about 7 cm (EES 2023l). The species is limited to a small area of approximately 3 ha along the Main Range in KNP, between Mt. Northcote in the south and Mt. Lee in the north (EES 2023l). *R. pumilum* is found only in the feldmark - the sparse low vegetation of the bare rocky alpine slopes and ridges, one of the harshest environments in Australia. There is little snow cover in winter because the prevailing westerly winds blow snow into lee snow patches. The absence of snow cover means that extremely low temperatures and strong winds are experienced for long periods during winter. Surface soil temperatures are high in summer and soil moisture levels are often limiting at that time (NPWS 2001). The association of *R. pumilum* populations and windswept feldmark communities is strong. These communities have a limited distribution though there are transitional windswept feldmark communities along parts of Kangaroo Ridge and Etheridge Range. The author was engaged to survey *R. pumilum* in feldmark communities based on northerly and westerly wind trajectories from known *R. pumilum* populations. No remote populations were found though sites above the Summit Trail between Seaman's Hut and RP appeared to be strong candidates. In summary, the habitat that supports *R. pumilum* are not present adjacent to PPL.
FAUNA						
Litoria verreauxii alpina	Alpine Tree Frog	E	V	8	Low	Alpine tree frog has a strong fidelity to high montane and subalpine riparian areas – usually above 1,300 m but have been recorded above 1,100 m (EES 2023y). Existing populations in the region are only known from KNP where they are found in woodland, heathland, grassland and herbfields (EES

						2023y)(some older records occur on private land in Snowy Plain). The species breeds in natural and artificial wetlands including ponds, bogs, fens, streamside pools and other still or low flowing water bodies (EES 2023y). The species has never been recorded in the true alpine area with BioNet records indicating subalpine and montane occurrence. Not relevant to the PPL.
Pseudophryne corroboree	Southern Corroboree Frog	CE	CE	20	Low	This species utilises sphagnum bog communities during the summer and hibernates in woodland surrounding its summer habitat (EES 2023ah). Most records at higher elevations tend to be in subalpine areas with no records indicating presence adjacent to PPL or in the upper Spencers Creek catchment – though there are a couple of records with location details withheld (EES 2023b). The species is assumed to be locally extinct and now the subject of captive breeding programs and controlled reintroductions in other parts of KNP.
Apus pacificus	Fork-tailed Swift		C, J, K	1	Low	Listed for its international migratory agreements. Rarely observed landing in south-eastern Australia and breeding habitat not present on or immediately adjacent to the project area (Birdlife Australia 2023a). The single record indicates infrequent occurrence in mountain areas and the location was not high subalpine or alpine.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	2	Low	Dusky woodswallow inhabits dry, open eucalypt forests and woodlands with an open or sparse understorey (EES 2023n). Depending on climatic conditions, populations may be year-round resident or migratory – the author's opinion from monitoring this species across the Southern Tablelands suggest that Monaro populations are all migratory (EES 2023n). In recent years the species has been observed at higher altitudes above 1,300 m but no nests were recorded. Dusky woodswallow is not an alpine or subalpine bird species and a very rare vagrant to subalpine woodlands when recorded.
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	-	1	Low	The record is consistent with drier montane forests and woodlands at lower elevations i.e., less than 1200 m asl. The species would only be considered a vagrant if recorded in the high subalpine or alpine area, and highly unlikely to breed (EES 2023p).
Daphoenositta chrysoptera	Varied Sittella	V	-	1	Low	This species prefers eucalypt woodlands and forests, particularly with rough barked species and acacia woodland (EES 2023r). A strong fidelity to tree trunks where it gleans and prises for insects, this species works down the trunk compared to tree creepers that work up (EES 2023r). One record was extracted from the database search with most records of the species in the region tending to

						occur in forested areas like the vegetation located in dry and wet sclerophyll forests at lower altitudes (EES 2023r). The species is not alpine with a reliance upon trees nor subalpine woodland at higher altitudes.
Falco subniger	Black Falcon	V	-	3	Low	A vagrant falcon that is occasionally seen soaring above the canopy but rare hunter in high upland environments and tall montane forests (Birdlife Australia 2023b). The records relate to lower elevations in more open areas and soaring birds. No effective overlap between this species and the proposed pathway.
Gallinago hardwickii	Latham's Snipe	-	J, K	22	Low	Listed for its international migratory agreements, this species often utilises wetlands and grass tussock grasslands across a range of community types where water is perennial or ephemeral but ground vegetation is concealing (Birds Australia 2023c). Seasonal visits to the alpine area are not uncommon and include records in heath-bog complexes, sod tussock grasslands, riparian corridors and alpine lakes (EES 2022b). The species have been recorded in the floodplain around the upper catchment of Spencers Creek. However, the woodland community surrounding PPL is not consistent with roosting or feeding habitat for this species.
Hieraaetus morphnoides	Little Eagle	V	-	2	Low	*Hieraaetus morphnoides* are an infrequent visitor to high subalpine and alpine areas but have been occasionally observed soaring among thermals and less frequently obtaining food from the ground. A rare altitudinal vagrant, the species relies on taller trees for roosting and specifically for nesting (EES 2023w). Habitat can be found within 10 km of the subject area but at much lower altitudes. As an apex predator, there's no overlap between the proposed pathway and life-cycle requirements for little eagle.
Hirundapus caudacutus	White-throated Needletail	-	V, C, J, K	18	Low (possibility to occur flying high above the area during non-inclement weather and during migratory movements)	Listed under the EPBC for its conservation status of vulnerable, but also listed in three international migratory agreements. While it may be observed high above the canopy, the species is not known to breed in the Snowy Mountains and will rarely land in the canopy (Birdlife Australia 2023d). There's no overlap with the proposal and habitat requirements for this species.
Neophema chrysogaster	Orange-bellied Parrot	CE	CE	1	Low	The one record has not been rejected from an incorrect identification, but the circumstance of the species' location is strongly considered a possible vagrant or escapee. The record dates 1917 (EES 2023aa). *Neophema chrysogaster* has a strong fidelity to coastal and near-coastal heathlands (EES 2023aa).
Ninox strenua	Powerful Owl	V	-	1	Low	The one record for powerful owl, though likely an underestimate of real occupancy within 10 km of Charlotte Pass, is a magnitude for

						an apex predator with a large home range. The species has a strong nesting fidelity for tall moist forests where hollows are at least 20 cm diameter and often more than 10 m above the ground (EES 2023ab). High subalpine environments are considered too severe during winter for this species to breed. No further assessment is warranted.
Pycnoptilus floccosus	Pilotbird	-	V	18	Low	The relatively high number of location sightings reflect the 10 km search domain in BioNet capturing a large amount of moist sclerophyll forest aligned to the Thredbo Valley to the south and Geehi Valley to the west (Birdlife Australia 2023e). *Pycnoptilus floccosus* has a high fidelity to moist forests where it gleans for insects amongst the low canopy and on the ground, particularly along logs and disturbed ground raked by lyrebird (EES 2023aj). Not an alpine species.
Stagonopleura guttata	Diamond Firetail	V	-	1	Low	Diamond firetail are mostly granivores with the occasional insects supplementing protein in their diet. The species is better represented in woodland and grasslands where it spends time on slightly elevated perch sites before feeding on the ground amongst graminoids and occasionally forbs (EES 2023ak). The single record is a detection at the fringe of the 10 km data extraction and from a lower altitude. The species is not considered a subalpine or alpine seasonal migrant.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	1	Low	The one record in BioNet has been quarantined as it pertains to the top of Carruther's Peak on the Main Range (EES 2023b). If it were to be deemed valid, the species would not persist as it relies on forested or treed ecosystems and foliage fruit in large quantities (EES 2023ai). The species has been occasionally recorded on the tableland and may persist in warmer months where food can be obtained, often in the form of orchard species on private property. Not an alpine species and no effective niche overlap with the subject area.
Dasyurus maculatus	Spotted-tailed Quoll	V	E	5	Low	A cryptic species, *Dasyurus maculatus* use hollow-bearing trees, fallen logs, other animal burrows, small caves and rock outcrops as den sites (EES 2023s). Mostly nocturnal, although will hunt by day, *D. maculatus* spend most of the time on the ground, although an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds and basking lizards (EES 2023s). As *D. maculatus* have large home ranges, it is possible that the species may traverse and hunt across parts of the high subalpine and alpine area, with wildlife cameras positioned in mid to high subalpine areas having recorded *D. maculatus* in these environments (pers. obs.). However, if *D. maculatus* is present, they are most likely to be animals foraging during the warmer months as the species

						is not adapted to seasonal snow. Not an alpine species nor is there critical niche requirements in the subject area. Proximity to PPL when occupied is highly unlikely due the species' shy and retiring nature.
Phascolarctus cinereus	Koala	E	E	1	Low	*Phascolarctus cinereus* are strongly correlated to canopied environments whether woodland, dry sclerophyll forest or tall moist forest (EES 2023ag). There are historical records in the adjacent Thredbo Valley to the south, Geehi Valley to the west, Island Bend area in the lower Snowy River catchment to the north-east and along the lower reaches of Crackenback Range to the east including Sawpit Creek. However, the species is not alpine and all records pertaining to this species is due to the 10 km filter distance used in BioNet record extraction (EES 2023ag). An easy species to detect if present, it wasn't observed when surveys were conducted on microhabitats within 20 m of PPL.

**Information sourced from DPE's Threatened Biodiversity Data Collection, DPE's threatened species profiles, Commonwealth's Species Profiles and Threats Database, Atlas of Living Australia and the author's experience living and working in the Snowy Mountains area for over 40 years.*

Table 2: List of threatened species filtered from database records for their known or potential occurrence in or adjacent to Pygmy Possum Lodge, and a probability assessment as to potential impacts in relation to the proposal. The table also includes the conservation status and justification for selection as a candidate species for field assessment or concern for the species if present on the site. Where data has been extracted from NSW BioNet an indication of the number of site records has been provided within 10 km of the survey area. Candidates discussed in Table 2 have a higher likelihood of being assessed in a Test of Significance or against Significant Impact Criteria.

Codes:

V – Vulnerable, E – Endangered, E1 – Critically Endangered, EEC – Endangered Ecological Community, CEEC – Critically Endangered Ecological Community

Scientific Name	Common Name	NSW Conservation Status	C'lth Conservation Status	Number of Site Records	Likely Occurrence	Potential to be Impacted	Justification
FLORA							
Argyrotegium nitidulum	Shining Cudweed	V	V	37	Moderate	Low (surveyed)	*Argyrotegium nitidulum* is a low mat-forming perennial daisy that is strongly alpine and high subalpine in its occurrence and distribution in KNP (EES 2023d). The species primarily grows in herbfield and open heathland, and in microhabitats may be exposed to dry inter-tussock spaces to seepage areas (NPWS 2001). *A. nitidulum* is also recorded to occupy shallow soils which accounts for small populations scattered along the edge of the Summit Trail between Merritt's Creek Bridge to the northern spur of Etheridge Range near Seaman's Hut. Although the subalpine woodland was not consistent with known populations, the species was considered an entity for survey between the lodge and the outer sub-lease boundary before the shrub understorey became contiguous. As the species was subjected to a survey and not recorded, *A. nitidulum* is not a candidate for the Test of Significance to determine if impact will be significant.
Carex archeri	Archer's Carex	E	-	4	Low	Low	*Carex archeri* is a loosely tufted herb that grows from long, slender rhizomes. In NSW the species is only known from the scree slopes and bluffs around Blue Lake and Club Lake, with an historical record in the upper Thredbo River near the Ramshead Range (NPWS 2001). The species was considered during field surveys, particularly amongst seepage areas around boulders and rocks. However, the populations that occur in the Blue Lake and Club Lake basins occur on moist and sheltered slopes with a strong southerly aspect (EES 2023e). The author was also engaged by the Royal Botanical Gardens to collect *C. archeri* seed from both alpine locations in March 2023. The broad and micro-habitats experienced at those two sites were not present at PPL. As the species was targeted in a field survey and not detected, *C. archeri* is not a candidate for the Test of Significance to determine if impact will be significant.
Carex raleighii	Raleigh Sedge	E	-	3	?Moderate	Low	*Carex raleighii* is a small and inconspicuous sedge that grows from rhizomes (EES 2023f). The species is only known from areas above 1000 m asl in scattered alpine and subalpine environments, mostly in KNP but several sites on private property in the Snowy Plain area adjacent to KNP (NPWS 2001). *C. raleighii* grows in sphagnum bogs and high mountain wetlands, as well as damp grasslands and stream-edges of subalpine plains. Few records exist

							near the subject area, but the species is difficult to identify, and it is possible plants have been misidentified among other sedge species or overlooked during targeted and general surveys. *C. raleighii* was a targeted species during field work, particularly in wet gully areas adjacent to PPL where there are small rivulets to the east and west, and the table drain/gully in front of the building. Similar *Carex* spp. including *C. hebes* was identified and occasionally viewed under a 10x and 20x hand lens for clarity. As the species was targeted in a field survey and not detected, *C. raleighii* is not a candidate for the Test of Significance to determine if impact will be significant
Ranunculus anemoneus	Anemone Buttercup	V	V	43	Moderate	Low	*Ranunculus anemoneus* is a very large alpine and subalpine forb that has a strong fidelity to damp grasslands on sheltered slopes and in short-alpine herbfields (EES 2023k). *R. anemoneus* occurs in a narrow band, only about 8km wide and 32km long, along the Great Dividing Range within Kosciuszko National Park (comprising the Main Range between Mt Kosciuszko and Mt Twynam; the Charlottes Pass resort; the Mt Perisher - Mt Blue Cow area; the Guthega - Mt Tate area; the Schlink Pass - Gungarten Pass area, the Rams Head Range and Upper parts of Thredbo and Mt Jagungal) (EES 2023k). *R. anemoneus* generally occurs in environments with late melting snow; on south to east facing, steep grassy slopes, or rocky crevices, or short alpine herbfields. The species has also been collected along watercourses, in grassland, heathland (below snowpatches) and on trailside batters. Soils at *R. anemoneus* sites include loams (alpine humus soils), peats and decomposing granite (NPWS 2001). *R. anemoneus* is an easy identifiable forb when in flower or from leaves. There are microhabitats consistent with this species but the broad habitat environment is primarily a snowgum woodland with a large contiguous shrub understorey. The area immediately around the lodge shares some characteristics with some known populations, but the species was not detected. Therefore, *R. anemoneus* is not a candidate for the Test of Significance.
Rytidosperma vickeryae	Perisher Wallaby Grass	E	-	83	Moderate	Low	*Rytidosperma vickeryae* is a small perennial grass that has a strong fidelity to sphagnum moss or along stream edges and occasionally sod tussock grassland in alpine and subalpine zones (EES 2023m). Most populations occur in KNP with an adjacent population on private property in Snowy Plains (pers. obs.). There are many scattered populations across KNP that have been identified in the past 15 years and resurveyed in recent times. Some large local populations include Perisher Valley, Spencers Creek and Bett's Creek. There are also records in the alpine area including several below the Summit Trail, though most populations tend to occur in the subalpine zone. Habitat adjacent to PPL is not consistent for this species though a high candidate along the Spencers Creek floodplain in the lower parts of the valley. As the species was subjected to a survey without detection, *R. vickeryae* is not a candidate for the Test of Significance.
FAUNA							
Cyclodomorphus praeltus	Alpine She-oak Skink	E	E	77	Moderate (habitat potential)	Medium	*Cyclodomorphus. praeltus* is a slender medium-sized lizard reaching a maximum length of around 350 mm, with a snout to vent length up to 130 mm (EES 2023q). Generally restricted to alpine and subalpine grasslands, *C. praeltus* has specific habitat requirements, preferring tree-less or very lightly treed areas that contain tussock grasses, low heath or a combination

							of both. Within this habitat the species shelters beneath litter, rocks, logs and other ground debris, and has been observed basking on grass tussocks. In NSW, *C. praeltus* have been observed in alpine to sub-alpine grasslands in flat to gently sloping areas (SC 2011a, EES 2023q). BioNet records within a 10 km radius filtered 77 site locations, but this is likely to be an underestimate as there have been more targeted surveys in recent years by NPWS, DPE, herpetologists and through the environmental assessment process. No BioNet record was filtered immediately adjacent to PPL, but optimum and suboptimum habitat was observed along sections of Spencers Creek Road, often at different habitat scales and frequently in a mosaic pattern of heath and grassy-herbfield understorey to the predominant Snowgum Woodland. The species was not targeted by traditional survey methods including active searches, artificial habitat and wildlife cameras, but rather habitat assessment for potential presence. This was reconciled by the likelihood of any animals being impacted by the minor proposed work. As habitat was identified, though mostly considered sub-optimum, *C. praeltus* was identified as a candidate for the Test of Significance.
Liopholis guthega	Guthega Skink	E	E	568	High (habitat potential)	Medium	Guthega skink is a medium-sized lizard with a snout-vent length up to 11 cm. In NSW Guthega skink occurs between 1600 m and 2170 m where preferred habitats are usually rocky or have sub-surface boulders hidden beneath soil or thick vegetation. In NSW Guthega skink occurs where there is granite substrate and decomposing granite soils. Individuals have been recorded in a range of vegetation types, including open *Eucalyptus pauciflora* (Snow Gum) woodland with grassy or shrubby understoreys, dry tussock grassland, and tall and short heath (EES 2023x). The high number of BioNet location records reflect the greater survey effort undertaken on this species in recent years. Targeted surveys continue to be undertaken by NPWS, DPE and professional herpetologists. Similar to the reason discussed above for alpine she-oak skink, no targeted surveys were conducted for this species but rather habitat appraisal for potential occupancy adjacent to PPL. Habitat was present within 20 m of PPL though a cursory look for burrow entrances failed to detect any potential nesting sites. However, as habitat is present and the species may have been detected during a concerted survey involving approved survey methods at a time when animals are most likely to be active, therefore *L. guthega* was identified as a candidate for the Test of Significance.
Callocephalon fimbriatum	Gang-gang Cockatoo	V	E	72	High	Low	Gang-gang cockatoo can be seen in the alpine and subalpine area throughout the year, though less often during the snowseason. Gang-gang cockatoo will mostly feed and roost in trees, though can be seen feeding on grass and forb seeds on the ground (EES 2023t). Nesting requirements are generally 10 cm diameter or larger hollows at least 9 metres above the ground, with optimum breeding habitat only several hundred metres from perennial water including creeks, rivers and dams (EES 2023t). This makes the species obligated to forest communities or dense woodlands where hollows are prevalent.

							Though there is a high potential for gang-gang cockatoo to be present, the activities are most likely to include flying above the canopy, feeding on snowgum seeds, roosting in snowgums or occasionally feeding on forb and graminoid seeds on the ground. The interaction of the proposed path and critical life-cycle requirements for this species is negligible. Though the species was not targeted by direct species surveys, an inspection of all trees within a radius of 20 m of PPL was undertaken without any hollows used by gang-gang being detected. The species is unlikely to nest 1780 m asl. Consequently, the species was not considered a candidate for further assessment again the Test of Significance.
Pachycephala olivaceae	Olive Whistler	V	-	121	Moderate	Low	Olive whistler prefer moist forests with a thick understorey such as along creek lines or contiguous vegetation in wet sclerophyll forests (EES 2023ac). In KNP they may occur in the upper subalpine zone though mostly from the mid-subalpine zone down to lower montane vegetation where the shrub understorey is contiguous. For birds that spend most of the summer at higher altitudes, these populations may move to lower elevations for the winter months. The species forages in trees and shrubs and on the ground, feeding on berries and insects (EES 2023ac). Though occasionally seen in snowgum woodland where understorey vegetation is more open rather than closed or thick, olive whistler is strongly allied to a thick understorey where they forage for insects among trees and shrubs, or sally outside of the thicket to retrieve invertebrates before returning to the concealment of thicker vegetation. Most of the 121 site records extracted from BioNet pertained to subalpine and montane communities at lower altitudes. The density of some shrub understorey and the relatively dense overstorey stand would provide some habitat opportunity in the snowgum woodland adjacent to PPL. However, there is no critical overlap between the proposed pathway and critical life-stage requirement for olive whistler at these elevations. The contiguous canopy and understorey surrounding PPL will be retained and most of the ground vegetation along the proposed route will not be modified. Therefore, the species is not considered for further assessment in the Test of Significance.
Petroica boodang	Scarlet Robin	V	-	17	Low	Low	Scarlet robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. Within woodlands and forests, the species prefers an open and grassy understorey with few scattered shrubs. Abundant logs and fallen timber are also important habitat components (EES 2023ad). The species is also known to position nests in smaller trees amongst a fork within the foliage, and sallys for insects from low elevated perches (EES 2023ad). Only 17 records of scarlet robin were extracted from BioNet, but the author believes that the species is under recorded in many localities due to misidentification by its more iconic congener, flame robin. That said, the species is less frequent at higher altitudes (i.e., subalpine zone) and even rarer in the alpine area. Most of the 17 records pertain to sites at lower elevations. Scarlet robin have a low possibly of occurrence around PPL and therefore a much lower potential to interact with the elements proposed for the proposed pathway. If present, only disruption to opportunistic feeding is likely with no species or features targeted for removal

							that would deny scarlet robin the opportunity to feed, roost or nest in the future. Therefore, no further assessment is warranted for scarlet robin.
Petroica phoenicea	Flame Robin	V	-	272	High	Moderate	Flame robin occupy a range of communities including wet sclerophyll forest, dry sclerophyll forests, woodlands, open woodlands and heathland. As a seasonal and altitudinal migrant, flame robin is a frequent visitor to the alpine area, visiting as early as early spring when snow is still lying on the ground and over summer (EES 2023ae). During this time, birds may undertake local altitudinal migrations during inclement weather. The ground layer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Similar to scarlet robin, flame robin often forage from low perches (including limbs and taller shrub vegetation) from which they sally or launch into the air, on the ground or on other features to pursue insects (EES 2023ae). Nests are often near the ground and are built in sheltered sites in shallow tree cavities, stumps or banks. The cup nest is made of plant materials and spider webs. Though flame robin rarely breed in higher subalpine sites, the sheltered landscape position of the snowgum woodland adjacent to PPL is potential flame robin breeding site. However, no nests were observed within 20 m of PPL and there is no overlap between the proposed pathway and flame robin critical habitat requirements. Most flame robing activity in the area for the proposed pathway would include short flights, perching on boulders and taller shrubs, and launching to sally for insects before returning to the same launch site or another perch/launch site of similar height. Very occasionally birds could be observed on the ground pursuing insects, but time spent would be minimal. Furthermore, the proposal for the pathway is primarily a route with very little ground disturbance or loss to account for two porticos and several metres of expanded mesh. As there are no habitat loss and minimal disturbance to any feeding flame robin, no further assessment of this species is warranted.
Petroica rodinogaster	Pink Robin	V	-	39	Moderate	Low	*Petroica rodinogaster* inhabits rainforest and tall open eucalypt forest, particularly in densely vegetated gullies (EES 2023af). The nest is a deep, spherical cup made of green moss bound with cobweb and adorned with camouflaging lichen, and is lined with fur and plant down. It is situated in an upright or oblique fork, from 30 cm to 6 m above the ground, in deep undergrowth (EES 2023af). In winter the species disperses north and west into more open habitat though breeding mostly takes place between October and January when highland climate is less frigid. Pink robin have a strong fidelity to forest ecosystems but are known to occasionally forage in adjacent snowgum woodland and even less frequently, been observed on the fringe of the alpine area (EES 2023af). Some of the 39 location records including high alpine and fringe alpine area, though no critical niche elements for *P. rodinogaster* is present in the subject area. Any occurrence would be temporary like activities sallying for insects, but no optimum habitat was present within 20 m of PPL and overlap with the proposed pathway negligible.
Burramys parvus	Mountain Pygmy-possum	E	E	326	High	Low	Mountain pygmy-possum is a predominantly terrestrial marsupial that has a highly restricted distribution in south-east New South Wales and north-eastern Victoria. Mountain Pygmy-possum is the only Australian mammal limited in its distribution to alpine and sub-alpine

							regions and in NSW it occurs in Kosciuszko National Park at altitudes above 1600 m (SC 2001a). Preferred mountain pygmy-possum habitat is boulderfield-heath, formed below mountain peaks or in gullies by periglacial weathering processes. During winter, the boulderfield-heath creates a sub-nivean space that has a relatively humid and warm microclimate compared to the above snow environment. In the absence of boulderfields, mountain pygmy-possums will occupy areas where mountain plum-pine (*Podocarpus lawrencei*) heath grows over rocks. Suitable habitat patches are often small and isolated, with up to 3 km between some boulderfields (Mansergh and Broome 1994). However, there is considerable movement of mountain pygmy-possums between patches, mainly by males and juveniles. Mountain pygmy-possum habitat is well document in the Charlotte Pass area with the large breeding area on the northern side of the valley along the footslope of Mt Guthrie. This area is where females live and raise their young. On the southern side of the valley not far from PPL, is habitat of males and dispersed juveniles. During the breeding season, the males will traverse the vegetated slopes below Stillwell, across the ski slope and into the habitat occupied by females. This seasonal migratory route includes the vegetated slope adjacent to PPL, particularly where the shrub layer is contiguous. Though the proposed pathway and porticos occur in open vegetation that is currently dominated by native graminoids and forbs and unlikely to accommodate optimum mountain pygmy-possum movement, there is still possible overlap with mountain pygmy-possum as a ground mammal and the proposed fire exit pathways. Whether that interaction is significant needs to be tested against the criteria set out in the Test of Significance. The author as a former employee of NPWS was responsible for collecting mountain pygmy-possum from PPL and the adjacent Southern Alps Ski Club that were caught in small treadle traps (Elliot Traps). The circumstance and timing were different as to respective animal capture, but the animals were cohabitating inside the buildings. This means that animals had crossed open environments independent of the shrub layer to get inside each lodge.
Mastacomys fuscus	Broad-toothed Rat	V	V	191	High	Low	Broad-toothed rat has a strong fidelity to wet heath, bog and wet grassland communities in high montane, subalpine and alpine areas (EES 2023z). However, broad-toothed rat will use dry shrub cover when moving between optimum habitats. The species lives in a complex of runways through dense vegetation of wet grass, sedge and heath/shrubs, and resides in the subnivean space where snow is a seasonal occurrence. Sheltering nest of grass are built in the understorey or under logs, where two or three young are born in summer. Food is mostly gathered at night where the diet consists of grass and sedge stems, supplemented by seeds and moss spore cases (EES 2023z). During both site surveys, fresh and old broad-toothed rat scats were detected in adjacent shrub vegetation including the two rivulets on either side of the sub-lease. Scats were also detected adjacent to the building, particularly along the western side where wet heath and boulders align the unnamed rivulet, and at the base of PPL near the drainage apron. Broad-toothed rat scats are unique in colour and texture, so the distribution and abundance of scats is an indicator of animal activity and relative densities.

							Though native grasses are prevalent around the perimeter of PPL and concurrent with the proposed pathway, it is not critical broad-toothed rat habitat as the proposed route is open and does not provide shelter for mobile animals. However, the prevalence of scats adjacent to the building and in the nearby shrub vegetation does mean that animals have traversed some of the open ground, though in summer this is likely to occur as nocturnal behaviour, and during winter it is possible access is via subnivean space. That said, the subnivean space along the eastern side of the building and possibly for much of the southern side, is devoid of irregularities such as shrubs and boulders that would allow the substantial creation of subnivean formation. Therefore, opportunities to connect with the eastern side of the building during winter may occur from other directions or close to the building structure that support a narrow subnivean egress. Notwithstanding the direction of access during summer and winter, the presence of broad-toothed rat around the building and overlapping the proposed pathway need to be addressed against the Test of Significance.
Microbats • *Falsistrellus tasmaniensis* • *Miniopterus orianae oceanensis*	 • Eastern False Pipistrelle • Large Bent-winged Bat	 V V	 - -	 12 1	 High Low	 Low Low	Both eastern false pipistrelle and large bent-winged bat have been filtered from BioNet within 10 km of the Summit Trail. Several other non-threatened microbats have also been recorded, some that hibernate in the Snowy Mountains and others that migrate to lower altitudes to either hibernate or overwinter. The record for large-bent winged bat was captured below Perisher Creek in areas transitioning from subalpine to high montane. Most of the BioNet records of eastern false pipistrelle are also from lower areas but do include some high subalpine sites and a couple from marginal alpine. That said, there are other non-BioNet records of eastern false pipistrelle for the alpine area including ultrasonic detection by the author in the subalpine woodland adjacent to the Summit Trail near the Charlotte Pass Turning Circle. Both eastern false pipistrelle and lesser long-eared bat were detected flying above and through the canopy of the snowgum woodland close to CPTC. The sonograph pattern was matched against libraries of bat calls. Confidence for correct matching was high. More pertinent to the assessment is the unlikely interaction of proposed pathway with general or critical habitat features used by eastern false pipistrelle. This species prefers moist habitats with trees taller than 20 m where it roosts in hollows but will also use loose bark on trees (and buildings) (EES 2023v). Eastern false pipistrelle hibernate during winter with animals being recorded both active and hibernating in the adjacent Thredbo Valley to the south (pers. obs.). It is highly unlikely that microbat species, both threatened and common, nest in the adjacent snowgum woodland surrounding PPL. However, there may be some temporary roosting during the warmer months and commensurate when insects are mobile in the subalpine and adjacent alpine area. No trees will be removed for the construction of respective porticos and pathway. Therefore, no further assessment is warranted for any microbat species.

Following the initial literature review, there were over 70 threatened entities and other entities of biological significance that were identified for consideration. As per the discussion above on arbitrating species for possible occurrence, Table 1 listed 23 entities (five flora and 17 fauna) that were mostly filtered within 10 km of PPL but for several reasons very unlikely to be present and beyond doubt for any potential impact by the proposal. In contrast, Table 2 listed 16 entities (five flora and 11 fauna). Table 2 included candidates most likely to be present in the general area and formed the species that would be targeted or considered by habitat opportunity during the second site visit.

Other 'Matters of National Environmental Significance' were also reviewed as listed in Appendix 3. Two National Heritage Places were listed, the Snowy Mountains Scheme and Australian Alps National Parks and Reserves. No overlap with the Snowy Mountains Scheme was identified and the proposed activity to improve a fire safe access is consistent with structures in a resort precinct that are recognised and gazetted through lease and sub-lease in the KNP and NPWS Act. Therefore, there is no compromise to the Australian Alps National Parks and Reserves as the activity is a 'permissible' activity subjected to development approval by DoP.

The closest wetland of International Importance (RAMSAR) is Blue Lake on the Main Range although several aligned migratory wetland bird species were considered under international migratory bird agreements (i.e., CAMBA, JAMBA and ROKMBA); some of these were considered in Table 1 without any impacts identified by the work associated with a pathway.

3.2 Field Surveys

3.2.1 Flora

A total of 107 vascular plants were recorded within a 20 m radius of PPL (see Appendix 4). This included the western side of the building where the original proposed activity was to include a fire exit pathway from the west-wing fire exit. The list also includes the higher proportion of introduced species located at the front of the building and along the batter to the table drain and road verge. The list was not meant to be a flora *per se*, but the context from where threatened flora and fauna habitat were searched. The list also provides an appreciation of the diversity of vascular plants within this part of CPV.

Of the 107 vascular plants recorded, 83 were native species, 18 were exotic, and six were unidentified including two graminoids and four forbs. The most dominant family was Poaceae with 22 species (13 native, eight introduced and one unidentified grass) and Asteraceae was the second largest family with 21 species (18 native and three introduced). For most of the open areas immediately adjacent to the southern and eastern sides of the building, commensurate with the proposed pathways, native grasses were prevalent as dominated by *Poa fawcettiae* and *Poa ensiformis*. Though mixed in terms of dominance and presence, a suite of inter-tussock native forbs was frequently observed including, *Oreomyrrhis eriopoda*, *Asperula gunnii*, *Coronidium scorpioides*, *Geranium* spp., *Ranunculus graniticola*, and *Acaena alpina*. However, towards the front of the building in more heavily disturbed areas, a greater number of introduced species and abundance was recorded including the grasses **Agrostis capillaris*, **Dactylis glomerata*, **Holcus lanatus*, **Festuca rubra* and *Phleum pratense, and the forbs **Achillea millefolium*, **Trifolium repens*, **Trifolium ambiguum* and **Acetosella vulgaris*. Some of these species persisted towards the road verge with the addition of **Poa annua*, **Poa pratensis*, **Cerastium vulgare* and **Spergularia rubra*. Scattered around PPL and embedded with the native flora independent of any obvious ground disturbance were **Hypochaeris radicata*, **Taraxacum officionale*, and **Acetosella vulgaris* – these species are often referred to as 'naturalised' within the higher areas of KNP.

Away from the building footprint, the ground cover was mostly dominated by a mosaic of open-shrubland or contiguous shrubs interspersed by a ground layer dominated by *P. fawcettiae*. Dominant shrubs included (from Asteraceae) *Cassinia monticola*, *Olearia algida*, *Olearia brevipedunculata*, *Oleara phlogopappa*, *Ozothamnus alpinus* and *Ozothamnus secundiflorus*, (from Ericaceae) *Acrothamnus maccraei*, (from Fabaceae) *Hovea montana* and *Oxlylobium ellipticum*, (from Lamiaceae) *Prostanthera cunteata*, (from Myrtaceae) *Baeckea utilis*, (from Proteaceae) *Grevillea australis and Orites lancifolia*, and (from Rutaceae) *Nematolepis ovatifolia*. Where boulderfields were present, *Podocarpus lawrencei* often concealed or partly covered the rock surface.

In both shrub structures, the vegetation was part of a subalpine snowgum woodland and characterised (and dominated) by an overstorey of *Eucalyptus pauciflora* spp. *niphophila*). The trees appeared to be a mixed cohort of old-age snowgums with reasonable tree-hollow development, mature trees, and recruitment including saplings and seedlings. Though the vegetation community type was mapped as PCT 3307: Kosciuszko-Namadgi Alpine Ash Moist Grassy Forest, PCT 3381: Kosciuszko Alpine Sally Woodland is a better fitting plant community type according to dominant species, overall composition, structure, and landscape position including elevation range. PCT 3307 with a high dominance of *Eucalyptus delegatensis* and *Eucalyptus dalrympleana*, is more characteristic of the sheltered slopes along the Thredbo Valley between 1000 to 1550 m asl. It is highly likely the PCT was misapplied during the mapping process by DPE rather than a misinterpretation of field data *per se*.

No threatened ecological communities (TECs) were observed within or immediately adjacent to PPL. The closest TECs were peatland communities aligned to *Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions* under the BC Act (2011b) and *Alpine Sphagnum Bogs and Associated Fens* under the EPBC Act

(TSSC 2009). Peatland was most developed in drainage areas and the flood plain surrounding Spencers Creek excluding the highly modified areas close to the village and associated village infrastructure.

3.2.2 Fauna

Several non-threatened fauna were detected during the two site inspections including Australian raven (*Corvus coronoides*), little raven (*Corvus mellori*), Australian magpie (*Craticus tibicens*), willie wagtail (*Rhipidura leucophrys*) and crimson rosella (*Platycerus elegans*). The common eastern toadlet (*Crinia signifera*) was heard from Spencers Creek and tussock skink (*Pseudemoia pagensticheri*) observed between PPL and Southern Alps Ski Club to the west. Scats belonging to southern bush rat (*Rattus fuscipes*) and possibly dusky antechinus (*Antechinus swainsonni*) were also recorded. These scats were in addition to the easily identifiable scats of broad-toothed rat.

Notwithstanding the fauna detected above including threatened broad-toothed rat, the scale of the proposed work did not warrant extended targeted surveys as for most of the proposed route the pathway will remain in a natural state. The proposed route is also through existing low ground vegetation of native grasses, other graminoids and forbs. Most shrub in close proximity to the building is along the western side and some encroachment from the south, but mostly open understorey along the eastern side of the building. The unnamed creek/rivulet along the western side of the building is partly concealed by a closed surface landform but also a partially buried boulderfield that also provides potential habitat for several skink species and broad-toothed rat. Above this area for most of the southern slope are large contiguous stands of shrubs averaging 1 m high, occasionally disrupted by fallen logs and a natural mosaic of less dense shrub cover or no shrub community, and being replaced by grass-forb ground cover. Shrub density was also less to the north-east and eastern side of the lodge beyond the proposed pathway, though becomes dense again toward the lower slope above Spencers Creek Road. In this area, a partially concealed boulder outcrop is prevalent that is also exposed along the batter above the road. Along the front of PPL the batter and table drain are a strong mix of native and introduced species, including those species adapted to periodic inundation.

Other than broad-toothed rat, no other threatened species were positively detected. No commitment was made to determine if mountain pygmy-possum were present as movement between primary boulderfield habitat on both sides of the valley is well understood, and animals have inadvertently been removed from PPL, Southern Alps Ski Club and several other lodges including The Chalet. Primary movement corridors are most likely in the contiguous shrub cover behind PPL. The open areas where the pathway is proposed is sub-optimum for ground mammals due to exposure and vulnerability to predators.

Though no threatened birds were detected, it is highly likely that the area is frequently visited by flame robin, gang-gang cockatoo and occasionally olive whistler. Activities are most likely to be associated with feeding and for flame robin, possibly nesting. A 20 m habitat appraisal was made around PPL with a large portion of the survey time looking for nests positioned in tree forks and canopy. None were detected. However, the survey was conducted in mid-May which is outside the breeding season for flame robin. Survey for tree hollows was also undertaken for the possibility of nesting opportunities among birds in general, and specifically for gang-gang cockatoo, though likelihood at this elevation was always considered low. Subsequently no bird nests were detected, though some cavities were of suitable shape, entrance size and depth to support microbats even if used only for seasonal roosting.

Assessments were made within an approximate 20 m radius from the building inspecting microhabitat suitable for both endangered alpine reptiles – alpine she-oak skink and Guthega skink. The survey effort was conducted on 14th May which is late for earnest active searches at this elevation. Methods for surveying both species can involve active searches during warmer periods of the day and season, facilitated by artificial habitats such as tiles, and/or appropriately positioned wildlife cameras. In the absence of active

searches or complimentary to active searches, survey effort focused on identifying nest entrances. The habitat around PPL with the relatively thick contiguous understorey of shrubs, interspersed with a mosaic of open shrub cover and grassland adjacent to PPL, is better aligned to potential Guthega skink habitat compared to alpine she-oak skink. But a broad approach was taken in this assessment in the absence of targeted surveys for animals. No entrances were positively identified for either species, but there were three sites that could possibly be used by Guthega skink to the east of the sub-lease area. More pertinent to the environmental assessment is that the distance of these sites were at least 10 m from the proposed path. No nest or key habitat attributes were identified along the proposed pathway, neither along the southern or eastern routes around PPL.

The potential impacts of the proposed porticos and pathways are discussed for threatened fauna entities.

4 IMPACT ASSESSMENT

The total development footprint pertaining to the proposed west and east fire exits that involves two porticos, a path that connects the west wing exit with the east wing exit, and the path down along the eastern side of PPL to Spencers Creek Road occupies approximately 66 m^2. Of this area, approximately 9 m^2 will be occupied by the new porticos and approximately 10 m^2 occupied by expanded mesh and additional steps of granite or hardwood. Therefore approximately 47 m^2 that has been calculated as identifiable pathway using snow poles, will still include natural ground cover and be managed within the same vegetation APZ height threshold of 100 mm that the building has been managed since construction in 1985 for bushfire protection and access. Thus, only approximately 19 m^2 will be modified by the porticos, expanded mesh and steps. Furthermore, the porticos will occupy the areas immediately adjacent to the current building footprint that will minimise habitat fragmentation.

The two small rivulets that pass either side of PPL are not consistent with threatened frog species at this elevation. If southern corrobboree frog were present in the Charlotte Pass area, by account of previous habitats in the region and those where populations are currently active, the species would most likely be prevalent around the bogs and fens in the upper Spencers Creek waterway and floodplain. However, southern corroboree frog also relocate to surrounding snowgum woodland and taller heath before entering brumation for the winter period. This could make some of the woodland around PPL potential habitat. That said, the last known southern corroboree frog was recorded in the early 1990s in Smiggin Holes. The demise of this species is strongly correlated with Chytrid fungus. Therefore, it is highly unlikely that southern corroboree frog is present and potentially impacted by the proposal.

Unlike the highly iconic southern corroboree frog, the lesser known alpine tree frog has also experienced a dramatic decline in numbers. The species was more prevalent in high subalpine environments and has succumbed to the same disease, although scattered populations still exist in the southern areas of the Snowy Mountains, with all known populations within KNP. The closed nature of the two rivulets is not considered optimum habitat for this species that would more likely be found at the bottom of the valley along Spencers Creek or adjacent pools such as fens and soaks. There is no overlap between the proposed pathway and critical habitat if the species was present in the area.

No threatened birds were recorded or evidence of nests detected. The most frequent threatened bird species at this elevation and which interact with subalpine ground and canopy vegetation include flame robin, gang-gang cockatoo and olive whistler. Several other species may be seen overhead including migratory birds and birds of prey, but only these three species have a strong candidacy to interact in areas adjacent to PPL. However, most interaction is only anticipated to be momentary feeding on the ground or in adjacent trees, and possibly roosting in the same. Except for approximately 19 m^2 of new development, the remaining proposed pathway will not be modified to an extent that will change the access and use for any bird species that frequent high subalpine areas.

As discussed above, no threatened reptile species were observed and available habitat in surrounding areas tended to be more consistent for Guthega skink over alpine she-oak skink. The three potential nesting sites for Guthega skink were distant to the proposed pathway, and as iterated above, most of the length of the proposed route (47 m^2) will remain unmodified from its current state. Furthermore, the route of the proposed pathway and porticos was thoroughly inspected without any evidence of nesting sites pertaining to Guthega skink or alpine she-oak skink. Therefore, there would be no direct impact from the proposed porticos and pathway. However, as both species may be present close to the building and both are ground species, then both are considered candidates for further assessment against the Test of Significance (BC Act) and Significant Impact Criteria (EPBC Act) (see Appendix 5).

The frequency and distribution of fresh and old broad-toothed rat scats around PPL including building foundations and in adjacent shrubs and creeklines, identified that the species is active in the area. No nests

or potential nest sites immediately adjacent to PPL were observed but sites away from the building in the south-west corner of the sub-lease are likely to contain nests. However, there was no concealing habitat consistent with broad-toothed movement along the proposed pathway and there is no structure associated with the porticos or pathway that would prevent broad-toothed rat movement or truncate existing habitat areas. The local population is unlikely to graze for long periods in the open ground vegetation commensurate with the proposed route as it predisposes animals to predation. But during the snowseason, and assuming subnivean spaces are adequately formed, then only approximately 19 m^2 of existing ground space will be excluded to foraging animals.

Because broad-toothed rat does have niche overlap with the proposed pathway, even if this considered sub-optimum, then the species has been identified as a candidate for further assessment against the Test of Significance (BC Act) and Significant Impact Criteria (EPBC Act) (see Appendix 5).

The open ground vegetation of graminoids and forbs is not optimum habitat for mountain pygmy-possum that have a strong fidelity to boulderfields and thick concealing vegetation as described above. However, during the mating season and periods of dispersal by juveniles from the female habitat on the opposite side of Charlotte Pass, optimum habitat for overland movement is not always available, which means there are some environments where the shrubs are low and open, and areas of grassy-herbfields where animals need to traverse. For adult males that emanate from the boulderfield habitat below Spencers Creek Road, some may negotiate the open road before moving up hill, while others may go around the slope beyond the treatment plant so that some type of concealment is maintained within vegetation.

There is mostly contiguous habitat that would support mountain pygmy-possum movement around PPL excluding traverses close to the building and the proposed pathway that is mostly low growing ground vegetation. Arguably, there is less potential interaction between the proposed pathway and mountain pygmy-possum compared to broad-toothed rat. However, animals have been caught inside the lodge and therefore interaction with the proposed pathway is possible, even though any impact upon the life-cycle of this species is negligible. As a consequence of the proximity of mountain pygmy-possum habitat and movement corridors that are close to PPL, this species is identified as a candidate for further assessment against the Test of Significance (BC Act) and Significant Impact Criteria (EPBC Act) (see Appendix 5).

5 CONCLUSION

The following conclusions are a result of the threatened species filtered from databases for possible presence in the area, that were subsequently targeted for survey by direct methods or by habitat association as an indicator of potential occupancy, and reconciled by the type, size and extent of the proposed development activities having any adverse impact upon those threatened entities that could harm or cause a decline in respective populations. The species of most concern were assessed against criteria set out in the Test of Significance for entities listed under the BC Act and for species under the EPBC Act against Significant Impact Criteria. As all four species identified for further assessment are co-listed under the BC Act and EPBC Act, then both assessment regimes were applied.

Following the application of the 'Test of Significance' upon the vulnerable broad-toothed rat (Mastacomys fuscus), endangered mountain pygmy-possum (Burramys parvus), endangered alpine she-oak skink (Cyclodomorphus praealtus), and endangered Guthega skink (Liopholis guthega) under the Biodiversity Conservation Act 2016, no significant impact was identified. Therefore, participation in the BOS is not required.

Following the application of the 'Significant Impact Criteria' upon the vulnerable broad-toothed rat (Mastacomys fuscus), endangered mountain pygmy-possum (Burramys parvus), endangered alpine she-oak skink (Cyclodomorphus praealtus), and endangered Guthega skink (Liopholis guthega) under the Environment Protection and Biodiversity Conservation Act 1999, no significant impact was identified. Therefore, proposed project referral to the Commonwealth's Minister for the Environment is not required nor consideration for offsetting under the EPBC Act offset program.

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Birdlife Australia (2023b) (*Falco subniger*) Black Falcon – www.birdlife.org.au

Birdlife Australia (2023c) (*Gallinago hardwickii*) Latham's Snipe – www.birdlife.org.au

Birdlife Australia (2023d) (*Hirundapus caudacutus*) White-throated Needletail – www.birdlife.org.au

Birdlife Australia (2023e) (*Pycnoptilus floccosus*) Pilotbird – www.birdlife.org.au

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EES (2023e) (*Carex archeri*) Archer's Carex – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023f) (*Carex raleighii*) Raleigh Sedge – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023g) (*Discaria nitida*) Leafy Anchor Plant – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023h) (*Euphrasia scabra*) Rough Eyebright – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023i) (*Pimelea bracteata*) – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023j) (*Pterostylis ereophila*) Blue-tongued Greenhood – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023k) (*Ranunculus anemoneus*) Anemone Buttercup – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023l) (*Rytidosperma pumilum*) Feldmark Grass – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023m) (*Rytidosperma vickeryae*) Perisher Wallaby Grass – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023n) (*Artamus cyanopterus cyanopterus*) Alpine She-oak Skin – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

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EES (2023r) (*Daphoenositta chyrsoptera*) Varied Sitella – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023s) (*Dasyurus maculatus*) Spotted-tailed Quoll – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023t) (*Callocephalon fimbriatum*) Gang-gang Cockatoo – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023u) (*Dasyurus maculatus*) Spotted-tailed Quoll – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023v) (*Falsistrellus tasmaniensis*) Eastern False Pipistrelle – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023w) (*Hieraatus morphnoides*) Little Eagle – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023x) (*Liopholis guthega*) Guthega Skink – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023y) (*Litoria verreauxii alpina*) Alpine Tree Frog – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023z) (*Mastacomys fuscus*) Broad-toothed Rat – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023aa) (*Neophema chrysogaster*) Orange-bellied Parrot – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ab) (*Ninox strenua*) Powerful Owl – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ac) (*Pachycephala olivaceae*) Oliver Whistler – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ad) (*Petroica boodang*) Scarlet Robin – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ae) (*Petroica phoenicea*) Flame Robin – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023af) (*Petroica rodinogaster*) Pink Robin – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ag) (*Phascolarctus cinereus*) Koala – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ah) (*Pseudophryne corroboree*) Southern Corroboree Frog – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ai) (*Pteropus poliocephalus*) Grey-headed Flying-fox – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023aj) (*Pycnoptilus floccosus*) Pilotbird – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

EES (2023ak) (*Stagonopleura guttata*) Diamond Firetail – profile: threatened species database. NSW Department of Planning and Environment. www.environment.nsw.gov.au/threatenedSpeciesApp/

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APPENDIX 1:
Biodiversity Offset Scheme Entry Threshold Map and Report

NSW GOVERNMENT Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to a consent authority to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under the Biodiversity Conservation Regulation 2017 (Cl. 7.2 & 7.3).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether or not a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report

Date of Report Generation		04/06/2023 2:10 PM
Biodiversity Values (BV) Map Threshold - Results Summary		
1	**Does the development Footprint intersect with BV mapping?**	no
2	**Was ALL of the BV Mapping within the development footprinted added in the last 90 days?** (dark purple mapping only, no light purple mapping present)	no
3	**Date of expiry of dark purple 90 day mapping***	N/A
4	**Is the Biodiversity Values Map threshold exceeded?**	no
Area Clearing Threshold - Results Summary		
5	**Size of the development or clearing footprint**	72.9 sqm
6	**Native Vegetation Area Clearing Estimate (NVACE)**	2.4 sqm
7	**Method for determining Minimum Lot Size**	Lot size
8	**Minimum Lot Size** (10,000sqm = 1ha)	1,627 sqm
9	**Area Clearing Threshold** (10,000sqm = 1ha)	2,500 sqm
10	**Is the Area Clearing Threshold exceeded?**	no

Is the proposed development assessed above the Biodiversity Offsets Schema (BOS) threshold? Exceeding the BOS threshold will require completion of a Biodiversity Development Assessment Report (BDAR). More details provided on page 2.	**no**

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NSW GOVERNMENT Department of Planning and Environment

What do I do with this report?

• If the result above indicates a BDAR is required, a Biodiversity Development Assessment Report **may be required** with your development application. Go to https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor to access a list of accredited assessors. An accredited assessor can apply the Biodiversity Assessment Method and prepare a **BDAR**.

• If the result above indicates a BDAR is not required, you have not exceeded the BOS threshold. This report can be provided to Council to support your development application. You may still require a permit from your local council. Review the development control plan and consult with council. You may still be required to assess whether the development is "'likely to significantly affect threatened species' as determined under the test in Section 7.3 of the Biodiversity Conservation Act 2016. You may also be required to review the area where no vegetation mapping is available.

• If all Biodiversity Values mapping within your development footprint are less than 90 days old, i.e. mapping is displayed as dark purple on the map, a BDAR may not be required if your Development Application is submitted within that 90 day period. *Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the Biodiversity Values Map Threshold Tool User Guide.

Review Options:

• If you believe the Biodiversity Values mapping is incorrect please refer to our BV Map Review webpage for further information.

• If you disagree with the NVACE result for Line Item 6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared) you can undertake a self-assessment. For more information about this refer to the **Guide for reviewing BMAT Tool area clearing threshold results**.

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: David Woods

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

Date: 4-6-2023

04/06/2023 02:10 PM

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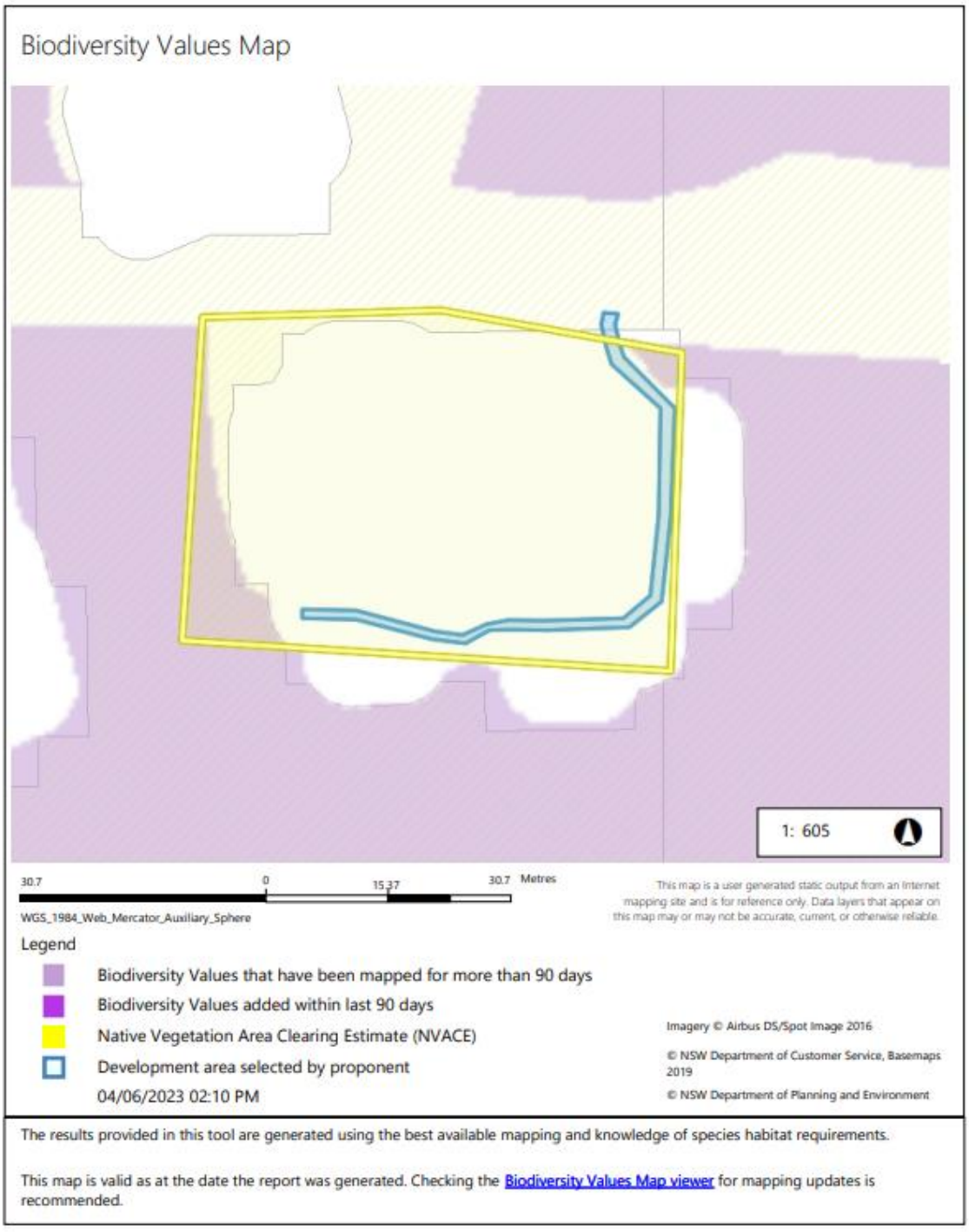

Page 3 of 3

Note: The porticos and pathway were calculated at 66 m². The process of digitising in the Biodiversity Offset Scheme Entry Tool is coarse and for very linear applications inaccurate. However, the area captured in the tool was set at 72.9 m² approximately 7 m² greater than the calculated development footprint. That said, the principle of the footprint and alignment has been captured, and the area is an overestimate with a subsequent result that demonstrates that the area clearing threshold and BVM has not been exceeded. Therefore, entry into the BOS is no required as it pertains to native vegetation area clearing thresholds and BVM.

APPENDIX 2:
Summary of BioNet Records

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Records of Threatened (listed on BC Act 2016) ,CAMBA listed ,JAMBA listed or ROKAMBA listed Entities in selected area [North: -36.34 West: 148.21 East: 148.45 South: -36.54] returned a total of 4,107 records of 36 species.

Report generated on 1/06/2023 9:00 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records
Animalia	Amphibia	Myobatrachidae	3119	*^^Pseudophryne corroboree*		Southern Corroboree Frog	E4A,P,2	CE	20
Animalia	Amphibia	Hylidae	3907	*Litoria verreauxii alpina*		Alpine Tree Frog	E1,P	V	8
Animalia	Reptilia	Scincidae	2867	*^^Cyclodomorphus praealtus*		Alpine She-oak Skink	E1,P,2	E	77
Animalia	Reptilia	Scincidae	2916	*^^Liopholis guthega*		Guthega Skink	E1,P,2	E	568
Animalia	Aves	Apodidae	0335	*Apus pacificus*		Fork-tailed Swift	P	C,J,K	1
Animalia	Aves	Apodidae	0334	*Hirundapus caudacutus*		White-throated Needletail	P	V,C,J,K	18
Animalia	Aves	Falconidae	0238	*Falco subniger*		Black Falcon	V,P		3
Animalia	Aves	Scolopacidae	0168	*Gallinago hardwickii*		Latham's Snipe	P	J,K	22
Animalia	Aves	Cacatuidae	0268	*Callocephalon fimbriatum*		Gang-gang Cockatoo	V,P,3	E	94
Animalia	Aves	Psittacidae	0305	*Neophema chrysogaster*		Orange-bellied Parrot	E4A,P,3	CE	1
Animalia	Aves	Strigidae	0248	*Ninox strenua*		Powerful Owl	V,P,3		1
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*		Brown Treecreeper (eastern subspecies)	V,P		1
Animalia	Aves	Neosittidae	0549	*Daphoenositta chrysoptera*		Varied Sittella	V,P		1
Animalia	Aves	Pachycephalidae	0405	*Pachycephala olivacea*		Olive Whistler	V,P		121
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*		Dusky Woodswallow	V,P		2
Animalia	Aves	Petroicidae	0380	*Petroica boodang*		Scarlet Robin	V,P		17
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*		Flame Robin	V,P		271
Animalia	Aves	Petroicidae	0383	*Petroica rodinogaster*		Pink Robin	V,P		39
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*		Diamond Firetail	V,P		1
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*		Spotted-tailed Quoll	V,P	E	5
Animalia	Mammalia	Dasyuridae	1009	*Dasyurus viverrinus*		Eastern Quoll	E1,P	E	1
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*		Koala	E1,P	E	1
Animalia	Mammalia	Burramyidae	1156	*Burramys parvus*		Mountain Pygmy-possum	E1,P	E	326
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*		Grey-headed Flying-fox	V,P	V	1
Animalia	Mammalia	Vespertilionidae	1372	*Falsistrellus tasmaniensis*		Eastern False Pipistrelle	V,P		12
Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*		Large Bent-winged Bat	V,P		1
Animalia	Mammalia	Muridae	1438	*Mastacomys fuscus*		Broad-toothed Rat	V,P	V	191
Plantae	Flora	Asteraceae	14711	*Argyrotegium nitidulum*		Shining Cudweed	V	V	37
Plantae	Flora	Cyperaceae	10337	*Carex archeri*		Archer's Carex	E1		4
Plantae	Flora	Cyperaceae	2336	*Carex raleighii*		Raleigh Sedge	E1		3
Plantae	Flora	Orchidaceae	4565	*^^Pterostylis oreophila*		Blue-tongued Greenhood	E4A,P,2	CE	1
Plantae	Flora	Poaceae	10946	*Rytidosperma pumilum*		Feldmark Grass	V	V	71
Plantae	Flora	Poaceae	10850	*Rytidosperma vickeryae*		Perisher Wallaby-grass	E1		83
Plantae	Flora	Ranunculaceae	5500	*Ranunculus anemoneus*		Anemone Buttercup	V	V	2098
Plantae	Flora	Rhamnaceae	5563	*Discaria nitida*		Leafy Anchor Plant	V		4
Plantae	Flora	Thymelaeaceae	6174	*Pimelea bracteata*			E4A		2

APPENDIX 3:

EPBC Act Protected Mattes Report

Australian Government

Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 04-Jun-2023

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	2
Wetlands of International Importance (Ramsar	8
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	53
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	11
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places [Resource Information]

Name	State	Legal Status	Buffer Status
Historic			
Snowy Mountains Scheme	NSW	Listed place	In feature area
Natural			
Australian Alps National Parks and Reserves	ACT	Listed place	In feature area

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	700 - 800km upstream from Ramsar site	In buffer area only
Barmah forest	200 - 300km upstream from Ramsar site	In buffer area only
Blue lake	Within Ramsar site	In feature area
Gunbower forest	300 - 400km upstream from Ramsar site	In buffer area only
Hattah-kulkyne lakes	500 - 600km upstream from Ramsar site	In buffer area only
Nsw central murray state forests	200 - 300km upstream from Ramsar site	In buffer area only
Riverland	700 - 800km upstream from Ramsar site	In buffer area only
The coorong, and lakes alexandrina and albert wetland	700 - 800km upstream from Ramsar site	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status

Community Name	Threatened Category	Presence Text	Buffer Status
Alpine Sphagnum Bogs and Associated Fens	Endangered	Community known to occur within area	In feature area
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community may occur within area	In feature area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area	In buffer area only
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In buffer area only
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Galaxias rostratus Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Galaxias supremus Kosciuszko Galaxias [87878]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Galaxias terenasus Roundsnout Galaxias [87175]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area	In buffer area only
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In buffer area only
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area	In feature area
FROG			
Litoria spenceri Spotted Tree Frog [25959]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Litoria verreauxii alpina Alpine Tree Frog, Verreaux's Alpine Tree Frog [66669]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pseudophryne corroboree Southern Corroboree Frog [1915]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Burramys parvus Mountain Pygmy-possum [267]	Endangered	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Mastacomys fuscus mordicus Broad-toothed Rat (mainland), Tooarrana [87617]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pseudomys fumeus Smoky Mouse, Konoom [88]	Endangered	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
PLANT			
Argyrotegium nitidulum Shining Cudweed [82043]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calotis glandulosa Mauve Burr-daisy [7842]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Colobanthus curtisiae Curtis' Colobanth [23961]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat may occur within area	In feature area
Pimelea bracteata [8125]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prasophyllum bagoense Bago Leek-orchid [84276]	Critically Endangered	Species or species habitat may occur within area	In feature area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area	In buffer area only
Pterostylis oreophila Blue-tongued Orchid, Kiandra Greenhood [22903]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Ranunculus anemoneus Anemone Buttercup [14889]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rytidosperma pumilum Feldmark Grass [66716]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Cyclodomorphus praealtus Alpine She-oak Skink [64721]	Endangered	Species or species habitat known to occur within area	In feature area
Liopholis guthega Guthega Skink [83079]	Endangered	Species or species habitat known to occur within area	In feature area
Liopholis montana Mountain Skink [87162]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pseudemoia cryodroma Alpine Bog Skink, Alpine Bog-skink [84408]	Endangered	Species or species habitat known to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Kosciuszko	National Park	NSW	In feature area

Regional Forest Agreements		[Resource Information]
Note that all areas with completed RFAs have been included.		
RFA Name	State	Buffer Status
Southern RFA	New South Wales	In feature area

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Blue Lake (Kosciuszko)	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Installation of a 25 metre telecommunications monopole, Perisher Valley, NSW	2013/6874	Not Controlled Action	Completed	In buffer area only
Installation of a new quad chairlift & associated slope works	2012/6290	Not Controlled Action	Completed	In buffer area only
Snowies Iconic Walk	2019/8558	Not Controlled Action	Completed	In feature area
Telstra Mobile Base Station at Blue Cow, Kosciuszko National Park, NSW	2015/7537	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
1080 Aerial baiting for wild dogs in Snowy Mountains Region	2006/3054	Not Controlled Action (Particular	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		Manner)		
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Aerial baiting for wild dogs	2005/2341	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Aerial dog baiting	2006/2791	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

APPENDIX 4:

Flora Survey – Species List

The following flora list includes all vascular plants observed while conducting threatened plant searches and assessing threatened fauna habitat. Most species listed occur within 20 m of PPL and include introduced species at the front of the building down to the roadside. The purpose of the list is to communicate the diversity of vascular plants present around the building and proposed pathway and the context from where threatened entities were actively searched.

The flora is inclusive of the field inspections conducted on 13th March and 24th May 2023. Botanical conventions are used to communicate genera or species doubt. Scientific nomenclature follows that prescribed in the NSW PlantNet Database managed by the Royal Botanical Gardens.

Scientific Name
(FERNS and FERN ALLIES)
ASPLENIACEAE
Asplenium flabellifolium
BLECHNACEAE
Blechnum penna-marina ssp. *alpina*
DRYOPTERIDACEAE
Polystichum proliferum
LYCOPODIACEAE
Lycopodium fastigiatum
(GYMNOSPERM)
PODOCARPACEAE
Podocarpus lawrencei
(MONOCOTYLEDONS)
CYPERACEAE
Carex breviculmis
Carex hebes
Carpha sp.
Isolepis sp.
**Carex parvispica* (formerly *Uncinia sinclairii* and subsequently treated as an introduced species)
JUNCUS
Juncus antarticus
Juncus thompsonianus
Luzula novae-cambriae
Luzula sp.

RESTIONACEAE
Empodisma minus
POACEAE
Agrostis muelleriana
Agrostis sp.
Chionochloa frigida
Deyeuxia crassiuscula
Deyeuxia monticola
Hierochloe submutica
Hookerochloa hookeriana
Poa costiniana
Poa ensiformis
Poa fawcettiae
Poa hiemata
Rytidosperma nivicola
Rytidosperma ?penicillata
Trisetum spicatum
**Agrostis capillaris*
**Agrostis stolonifera*
**Anthoxanthum odoratum*
**Dactylis glomerata*
**Festuca rubra*
**Phleum pratense*
**Poa annua*
**Poa pratensis*
ASPHODELACEAE
Dianella tasmanica
Unknown Monocots (graminoids)
Unknown – Poaceae
Unknown - Cyperaceae
(DICOTYLEDONS)
APIACEAE
Aciphylla simplicifolia
Oreomyrrhis eriopoda
ASTERACEAE
Argyrotegium mackayi
Cassinia monticola
Celmisia costiniana
Coronidium scorpioides
Cotula alpina
Craspedia aurantia
Craspedia ?jamesii
Erigeron bellidioides
Leptorhynchos squamatus ssp. *alpinus*
Olearia algida

Olearia brevipedunculata
Olearia phlogopappa ssp. *flavescens*
Olearia phlogopappa ssp. *subrepandra*
Ozothamnus alpinus
Ozothamnus cupressoides (formerly *Ozothamnus hookeri* s.l.)
Ozothamnus secundiflorus
Senecio gunnii
Senecio ?linearifolius
**Achillea millefolium*
**Hypochaeris radicata*
**Taraxacum officionale*
BRASSICACEAE
Cardamine sp
CAMPANULACEAE
Wahlenbergia sp.
CARYOPHYLLACEAE
Scleranthus singuliflorus
**Cerastium vulgare*
**Spergularia rubra*
CRASSULACEAE
Crassula sieberiana s.l. (recognised as subspecies by some authorities but not by NSW RBG)
ERICACEAE
Acrothamnus maccraei
Richea continentis
FABACEAE
Hovea montana
Oxylobium ellipticum
**Trifolium ambiguum*
**Trifolium repens*
GERANIACEAE
Geranium antrorsum
Geranium ?brevicaule
GOODENIACEAE
Goodenia hederacea ssp. *alpestris*
HALORAGACEAE
Gonocarpus montanus
LAMIACEAE
Prostanthera cuneata

MONTIACEAE
Neopaxia australasica
MYRTACEAE
Baeckea gunniana
Baeckea utilis
Eucalyptus pauciflora ssp. *niphophila*
ONAGRACEAE
Epilobium gunnianum
Epilobium ?sarmentaceum
OROBANCHACEAE
Euphrasia collina ssp. *diversicolor*
PLANTAGINACEAE
Veronica serpyllifolia
POLYGONACEAE
**Acetosella vulgaris*
PROTEACEAE
Grevillea australis
Orites lancifolia
RANUNCULACEAE
Ranunculus graniticola
ROSACEAE
Acaena novae-zellandiae (syn. *Acaena sp. & Acaena alpina*)
**Malus pumila*
RUBIACEAE
Asperula gunnii
RUTACEAE
Nematolepis ovatifolia
STACKHOUSIACEAE
Stackhousia pulvinaris
STYLIDIACEAE
Stylidium montanum
THYMELAEACEAE
Pimelea alpina
Pimelea ligustrina ssp. *ciliata*
VIOLACEAE
Melicytes angustifolius ssp. *divaricatus* s.l.
Viola betonicifolia

WINTERACEAE
Tasmannia xerophila ssp. *xerophila*
Unknown Dicots (forbs)
Unknown 1 – ?Caryophyllaceae
Unknown 2 – small dicot, possibly a *Brachyscome* sp.
Unknown 3 – ?annual on roadside
Unknown 4 – basal leaves, small dicot

Total Native	83
Total Exotic	18
Unknown	6 (2 graminoids & 4 forbs)
Total Species Diversity	107

**denotes exotic species*

APPENDIX 5:
TEST OF SIGNIFICANCE (*Biodiversity Conservation Act 2016*)

Four fauna species were identified for assessment against criteria set out in the Test of Significance. These are *Cyclodomorphus praeltus* (Alpine She-oak Skink), *Liopholis guthega* (Guthega Skink), *Burramys parvus* (Mountain Pygmy-possum) and *Mastacomys fuscus* (Broad-toothed Rat).

(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,

***Cyclodomorphus praeltus* (Alpine She-oak Skink)**

Alpine she-oak skink is a slender medium-sized lizard reaching a maximum length of around 350 mm, with a snout to vent length up to 130 mm (EES 2023q). Generally restricted to alpine and subalpine grasslands, *alpine she-oak skink* has specific habitat requirements, preferring tree-less or very lightly treed areas that contain tussock grasses, low heath or a combination of both. Within this habitat the species shelters beneath litter, rocks, logs and other ground debris, and has been observed basking on grass tussocks. In NSW, *alpine she-oak skink* have been observed in alpine to sub-alpine grasslands in flat to gently sloping areas (SC 2011a, EES 2023q).

As discussed above, no threatened reptile species were targeted by special detection methods but rather an assessment of potential occurrence based on broad and micro-habitat attributes. For alpine she-oak skink, there were habitat elements present within the 20 m assessment area from PPL, particularly in the open areas adjacent to the lodge and in the area aligned with the proposed pathway. That said, it could be argued that the general habitat in the area is sub-optimum by the greater density of tree canopy though the understorey elements are consistent with habitat recorded for this species. More pertinent to the proposal is that a thorough search was undertaken along the proposed alignment for burrow sites and none were detected. If animals are present in the area, impact would be negligible as only approximately 10 m^2 would be consumed by expanded mesh and additional steps of granite or hardwood. Within this impact zone, some of the mesh may still provide potential habitat as not all structures will include excavation, and the placement of discrete steps of wood or granite my still provide burrowing opportunities if animals were present. The porticos of approximately 9 m^2 is a small area where no habitat was identified. It is assumed the construction of porticos will result in all potential fauna habitat being removed.

It is unlikely that alpine she-oak skink is present in or immediately adjacent to the impact area. The amount of habitat potentially consumed is conservatively estimated as 19 m^2 to account for the proposed pathway and porticos. This amount of area will not have an adverse impact upon the local population of alpine she-oak skink if it were present. Animals will still be able to forage and traverse most areas independent of the proposed pathway. Therefore, any impact is considered low.

***Liopholis Guthega* (Guthega Skink)**

Guthega skink is a medium-sized lizard with a snout-vent length up to 11 cm. In NSW Guthega skink occurs between 1600 m and 2170 m where preferred habitats are usually rocky or have sub-surface boulders hidden beneath soil or thick vegetation (EES 2023x). In NSW Guthega skink occurs where there is granite substrate and decomposing granite soils. Individuals have been recorded in a range of vegetation types, including open *Eucalyptus pauciflora* (Snow Gum) woodland with grassy or shrubby understoreys, dry tussock grassland, and tall and short heath (EES 2023x).

As discussed above, there were no targeted searches for threatened alpine skinks. Therefore, habitat assessment was used as a broad surrogate indicator of potential skink presence. For Guthega skink, there were

habitat elements within a 20 m radius survey area, mostly allied to where the shrub understorey was present away from PPL. For the proposed porticos and pathways, the impact area is mostly within the open grassland of *Poa fawcettiae* where there is little habitat diversity in terms of surface or subsurface rocks and other concealing features. Therefore, the presence of Guthega skink in this area is very low and consequently no adverse impact upon this species by the construction of 9 m^2 of portico or 10 m^2 of expanded mesh and steps. For most of the pathway, the route will be left in a natural state and therefore both threatened reptile species, if present, will still be able to conduct foraging and basking activities in areas adjacent to PPL.

***Burramys parvus* (Mountain Pygmy-possum)**

Mountain pygmy-possum adults average 40 grams but vary from 30 grams in spring up to 80 grams in autumn when they fatten for winter hibernation. Of the total length of 250 mm, over half is tail. The fur is dense and fine, grey-brown above and creamy to bright fawn under the body (EES 2023o). Mountain pygmy-possum lives only in alpine and subalpine areas on the highest mountains of Victoria and NSW. In NSW the entire range is in a 30 km by 8 km area of Kosciuszko National Park between Thredbo and Kerries Ridge, where it occupies less than four square kilometres of habitat. The total population size is less than 500 adults. Two of the four main sub-populations in NSW are found within ski resort areas (EES 2023o).

Mountain pygmy-possum live on the ground in rocky areas where boulders have accumulated below mountain peaks; frequently associated with alpine heathland shrubs dominated by the mountain plum-pine (*Podocarpus lawencei)*. The species survives winter by fattening in late summer and autumn and hibernating for up to seven months, from autumn until the snow melts in spring. Approximately seventy percent of the diet is invertebrates such as the migratory bogong moth, caterpillars, beetles, spiders and millipedes; the remainder comprises fruits and seeds from species such as the mountain plum-pine and snow beard-heath (SC 2009, EES 2023o).

Mountain pygmy-possum breed when one year old and produce one litter of four young in spring. The young become independent by late summer. The average longevity is two to three years, but females may live up to 13 years and males five years. Daily movements between habitat patches can be up to 1 km for females and 3 km for males; males and young animals disperse in autumn. Mountain pygmy-possum is Australia's only seasonally hibernating marsupial, and for most populations, is dependent on the insulation provided by snow for its survival during winter (EES 2023o).

No surveys were conducted for mountain pygmy-possum around PPL as there is a regular monitoring program for the sub-population at CPV. There is a strong fidelity between mountain pygmy-possum and periglacial boulderfields as optimum habitat, with a major female habitat at the footslope of Mt. Guthrie and a smaller male and dispersed juvenile habitat not far below PPL, mostly on the downhill side of Spencers Creek Road between PPL and the sewage treatment plant. As discussed in the body of the REF, mountain pygmy-possum are known to traverse the vegetated slopes behind PPL and across the ski runs to the female habitat on the opposite site of the valley, with males and dispersed juveniles returning to the boulderfield complex near PPL. There is no critical habitat in the areas of the proposed porticos and pathways, though animals have been retrieved from PPL during the winter months when species are meant to be hibernating. The author considers these cohabitation circumstances aberrations, but the experiences should not ignore the niche and dispersal overlap between PPL and mountain pygmy-possum individuals.

That said, the portico footprint and proposed pathway will consume approximately 19 m^2 of open grassland. Open environments are not optimum habitat for mountain pygmy-possum that rely on boulderfields for optimum nesting and overwintering sites, and concealing vegetation when foraging and dispersing. Therefore, the proposed pathway across open grass-herbfield will not have an adverse impact on local populations which is further ameliorated by 47 m^2 of approximately 66 m^2 not incurring any impact other than being defined as the primary exit pathway leading from the fire exits and down along the eastern side of PPL.

***Mastacomys fuscus* (Broad-toothed Rat)**

In NSW broad-toothed rat occurs in two widely separated areas: the wet alpine and subalpine heaths and woodlands in Kosciuszko National Park, adjacent Nature Reserves (Bimberi and Scabby NR) and State Forest (Buccleuch SF) in the south of the state, and on the Barrington Tops, north-west of Newcastle. In Victoria (South Gippsland and the Otways) and western Tasmania, it can be found in wet sedge and grasslands at lower elevations (EES 2023z). The broad-toothed rat lives in a complex of runways through the dense vegetation of wet grass, sedge or heath environment, and under the snow in winter (Green and Osborne 1994). This relatively warm under-snow space enables it to be active throughout winter. A male's home range overlaps those of several females. Sheltering nests of grass are built in the understorey or under logs, where two or three (occasionally four) young are born in summer. In winter the rats huddle together for warmth in nests. Food is mostly gathered at night in summer, and autumn and during the afternoon and early evening in winter (Green and Osborne 1994). The diet consists almost solely of greenery - grass and sedge stems, supplemented by seeds and moss spore cases (EES 2023z).

As evidence of broad-toothed rat is easily detected through scats, runways and nest sites, no animal surveys were deemed necessary. Fresh and old scats were positively identified around the area including the dry and wet shrub vegetation in the 20 m survey distance from PPL, and in the steep batter near the south-western corner of the building. Though broad-toothed rat will cross open areas like the grassland immediately adjacent to PPL commensurate with the proposed pathway, animals prefer traversing concealed areas of shrubland, boulders outcrops or grass tussocks where plant structure is elevated. This allows for the formation of runways to be created between shrubs or shrub patches for better protection and familiar passage.

The proposed porticos and fabricated sections of pathway and steps will consume approximately 19 m^2 of open ground. This is not critical or optimum broad-toothed rat habitat. As discussed above, the area of the proposed pathway may contain more important winter habitat value if the formation of snowcover allows for animal movement within the subnivean space. This niche tends to best develop where vegetation and other landform irregularities such as gullies and boulders, assists in the support of the snowpack from reaching the ground. The grassland for most of the proposed pathway did not appear to be structurally diverse, and as one of the site visits followed a small snowfall, it was apparent that most snow had deposited flat on the ground including the inter-tussock space. Therefore, there is confidence that the proposed construction of porticos and fabricated sections of pathway will not have an adverse impact upon broad-toothed rat. Animals that include movement around the PPL building apron and foundations, will be able to continue to access these areas.

(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,

N/A

(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

(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

(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,

Some of this criterion was addressed above for each threatened entity. A more concise response is provided below.

The total area of portico is approximately 9 m^2. These structures will be built at both west-wing and east-wing fire exits. The ground is currently open grassland and was not deemed to be of critical or optimum habitat for any of the threatened mammals and reptiles subjected to this assessment. The pathway will be maintained for most of its length in a natural (existing) state. Approximately 10 m^2 will be fabricated in the form of expanded mesh and steps to assist with people movement along the southern and then eastern boundary of PPL. Therefore, most of the proposal will not prevent any animal the opportunity to traverse or forage this area if that is how the site is currently used. That said, the proposed pathway is not optimum or critical habitat for either mountain pygmy-possum or broad-toothed rat due to open ground vegetation, and the route was surveyed for burrows commensurate with both alpine she-oak skink and Guthega skink, neither of which were detected.

In summary, the nature of the proposal by incorporating a pathway in its natural state will not fragment, isolate, remove or modify the existing environment that would have an adverse impact on the threatened fauna described above.

(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),

At the time of this assessment, the site was not declared an area of outstanding biodiversity value (AOBV).

(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.

There are three potential Key Threatening Processes under the BC Act: Clearing of Native Vegetation (SC 2001b), Invasion of Native Plant Communities by Exotic Perennial Grasses (SC 2003), and Infection of Native Plants by *Phytophthora cinnamomi* (SC 2002).

The inherent nature of expanding the existing building footprint with the construction of two porticos and a pathway on mostly native vegetation, will have an impact. However, of the proposed 66 m^2 that is aligned to the porticos and pathway, 47 m^2 is a route that will be managed in its current state. Furthermore, of the 10 m^2 of fabricated pathway, more than half of the area will be committed to constructing steps and mesh at the front of the building toward Spencers Creek Road – an area that is increasingly dominated by introduced plant species. Though technically part of a key threatening process, the area is less than 19 m^2 with a large portion at the front of the building adjacent to Spencers Creek Road inclusive of a higher proportion of introduced species.

There were many exotic perennial grasses growing at the front of PPL recorded during the surveys including **Agrostis capillaris*, **Agrostis stolonifera*, **Anthoxanthum odoratum*, **Dactylis glomerata*, **Festuca rubra*, **Phleum pratense* and **Poa pratensis*. Though not recorded in the survey but observed along Spencers Creek Road was **Holcus lanatus* and **Festuca elatior*. Collectively these perennial grasses continue to threaten

subalpine and alpine plant communities and ecosystems. The perennial exotic grasses are most threatening when ground disturbance includes the removal of native vegetation and exposed soil, providing an opportunity for exotic propagules to established and colonise. Some excavation will be required to establish the footings for the porticos, and minor ground disturbance when installing the expanded mesh and steps. Fortunately, most of the vegetation around the southern and eastern side of PPL is native ground cover on a sloping ground. It is imperative that no vegetation or soil from the bottom of the slope near Spencers Creek Road be used or accidentally transported upslope. To reduce wind-borne seed from being established during any excavation, the work should be undertaken in a short a period as possible and any exposed earth covered. Any soil that is temporarily excavated for reuse needs to be covered if left for any period of time to prevent loss and sedimentation during inclement weather. This will also help ameliorate perennial grass establishment into areas that are predominately native vegetation. Any rock or aggregate needs to be assessed as 'weed free' and not stored before use unless covered to prevent contamination from local weeds.

There are some local plant pathogens including *Phytophthora cambivora*, *Phytophthora gregata* and *Phytophthora cinnamomi* in the subalpine and alpine area (Rigg et al. 2018). These appear to be associated with several native shrub species and involve soil interactions. There was no sign that any plants adjacent to PPL had succumbed to dieback caused by plant pathogens, but to prevent potential spread, any unused soil is to be removed from site and not relocated for another part of the project.

In summary, the proposed activities pertaining to the construction of the porticos and path features will have a minor contribution toward the removal of native vegetation and a low risk to spreading exotic perennial grasses and plant pathogens according to the three key threatening process described above. None of the contributions or potential contributions to any of the key threatening processes is considered significant.

Following the application of the 'Test of Significance' upon the threatened species addressed above under the Biodiversity Conservation Act 2016, no significant impact was identified. Therefore, there is no requirement to participate in the BOS on the bases of the assessment made against the threatened entities addressed above.

SIGNIFICANT IMPACT CRITERIA (*Environment Protection and Biodiversity Conservation Act 1999*)

Four fauna species were identified for assessment against criteria set out in the Commonwealth's Significant Impact Criteria. These are *Cyclodomorphus praeltus* (Alpine She-oak Skink), *Liopholis guthega* (Guthega Skink), *Burramys parvus* (Mountain Pygmy-possum) and *Mastacomys fuscus* (Broad-toothed Rat). Excluding broad-toothed rat that has a 'vulnerable' conservation status, the other three species are listed as 'endangered'. The primary difference between the applied criteria between vulnerable and endangered species is the vernacular 'important population' given to vulnerable species compared to 'population' for threatened species. Therefore, the species are addressed under the same criteria for threatened species and noting 'important population' for broad-toothed rat. As the principle of the significant impact criteria applies to the same background information discussed in the body of the REF and Test of Significance for the same species, species' detail is not repeated and the author assumes the reader/assessor to have read the preceding content.

- *lead to a long-term decrease in the size of a population*

There was no evidence that threatened reptiles were present in the areas of the proposed portico and proposed pathway. And while broad-toothed rat and mountain pygmy-possum have accessed areas around the building footprint, the habitat with its open ground cover is not critical or optimum habit for either mammal species. Most mammals will occupy areas in the adjacent shrub understorey which is not part of the targeted vegetation for the portico or pathway. Therefore, the proposal will not lead to a long-term decrease in the size of either threatened mammal or reptile population, assuming presence and niche overlap.

- *reduce the area of occupancy of the species*

Of the 66 m^2 identified for the porticos and pathway, only 19 m^2 will reduce the amount of ground available to ground fauna. This area accounts for the portico footprints and the expanded mesh and steps associated with the path. However, some of the mesh used for steps and pathway may still provide habitat opportunity in the same way that the mesh walkway between Thredbo and Rawson's Pass provides habitat for broad-toothed rat. Notwithstanding any fabricated material and potential fauna use, most of the proposed pathway will not involve ground disturbance. There is also doubt whether threatened reptiles are present adjacent to PPL and the habitat value of the grass-herbfield around the lodge as optimum habitat for mountain pygmy-possum and broad-toothed rat.

- *fragment an existing population into two or more populations*

The porticos will be built against the existing building fabric of PPL, and the proposed pathway around the southern and eastern boundary is between 2 to 5 m from the existing building. The vegetation between the pathway and the building is mostly the same composition and structure as the proposed route. Excluding a small island of vegetation between the west and east wing, there is no habitat variability along the proposed route that is being truncated by the proposed fire exit pathway. Therefore, there is no fragmentation of an existing population.

- *adversely affect habitat critical to the survival of a species*

There is no critical habitat in the location of the porticos or proposed pathway. The most critical habit pertains to boulderfields associated with mountain pygmy-possum below Spencers Creek Road. The next optimum habitat for most of the fauna assessed in this REF pertains to the shrub patches or contiguous shrub

community around PPL. No habitat critical to either of the threatened mammals or reptiles is being compromised and therefore no impact to these species.

- *disrupt the breeding cycle of a population*

Neither the porticos or pathway will interfere with the movement or occupancy of any threatened mammals or reptile. Therefore, no disruption is anticipated to any species' breeding cycle. The most notorious of breeding cycles pertains to mountain pygmy-possum that occupy the boulderfields below Spencers Creek Road and need to traverse the surrounding slopes to access the female populations on the other side of the valley. Vegetation structure and habitat opportunity along the proposed pathway is the same in areas adjacent. There is no optimum habitat for any threatened species in this immediate area that would disrupt the breeding cycle, particularly in the context of the proposed portico being built onto the existing building and the pathway that is mostly incorporating the natural environment. Construction footprint will occur close to PPL and along the same vegetation type and structure that has been as assessed as not primary mountain pygmy-possum and broad-toothed rat habitat. Though there are elements that overlap with habitat for alpine she-oak skink and Guthega skink, there were no burrow entrances detected adjacent to the building or along the proposed exit path.

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

This criterion was effectively addressed above. The area for the porticos and the proposed pathway is not deemed to be critical or optimum habitat for any threatened species discussed in this assessment. For most of the pathway length, there will be no change to the existing environment. On the assumption that the proposed porticos and pathway were important habitat, a total of 19 m^2 is being removed or modified from the existing landscape. The area of this modification is small, spaced and mostly of the same habitat type – low grass tussocks. The scale and type of proposal is unlikely to result in the decline of any species.

- *result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*

There were 18 introduced species identified within 20 m of PPL including the road batter and verge. The highest proportion of weeds were located at the front of the building and down to Spencers Creek Road. Several species are listed in the NPWS Kosciuszko National Park Pest Management Strategy including **Anthoxanthum odoratum* and **Achillea millefolium*; the latter occasionally the subject of herbicide control. As a threatening processes, introduced perennial grasses have also been recognised under the BC Act, which include **Agrostis capillaris*, **Agrostis stolonifera*, **A. odoratum*, **Dactylis glomerata*, **Festuca rubra*, **Phleum pratense* and **Poa pratensis.*

The fabrication of the porticos, expanded mesh and steps will require some minor earthwork. Rock will be imported to cover ag-pipe and aggregate will be used for the footings associated with the porticos and possibly mesh steps down to Spencers Creek Road. Crush granite will be used in the excavation area underneath the portico floor joists. Materials can be assessed at source to see if there are contaminants and monitored for two seasons to see if any exotic species germinate. For the type of rock and use of aggregate in concrete, the risk of importation of exotic species and subsequent germination is low. Similarly, the stimulation of existing introduced flora is also considered a minor risk as most high risk introduced species persist at the front of PPL toward the disturbed road.

- *introduce disease that may cause the species to decline, or*

No soil will be imported for any project purpose, however, rock will be required to layer across the ag-pipe along the proposed path, crushed granite for infill under the floor joists for each portico, and aggregate used to batch concrete. The source of 'weed free' rock and aggregate can be managed from the supply source. Consequently, the risk of importing pathogens is low. However, there are some local plant pathogens including *Phytophthora cambivora*, *Phytophthora gregata* and *Phytophthora cinnamomi*. These appear to be associated with several native shrub species and involve soil interactions. As the project will not involve the removal of shrub species, then stimulation of these *Phytophthora* species to surrounding areas is low. However, to reduce potential risk no soil excavated from one site will be used at another site on the project. Excess soil will be removed from KNP.

- *interfere with the recovery of the species.*

As there is no impact with critical or optimum habitat for any threatened species discussed in this assessment, nor adverse interaction with any threatened species due to the type and scale of the proposed construction associated with the porticos building adjacent to the existing building, nor the pathway that for most of the length will be undeveloped, there will be no interference with species of concern and hence, with their respective recovery.

Following the application of the 'Significant Impact Criteria' upon the endangered alpine she-oak skink (Cyclodomorphus praealtus), endangered Guthega skink (Liopholis guthega), endangered mountain pygmy-possum (Burramys parvus) and vulnerable broad-toothed rat (Mastacomys fuscus) under the Environment Protection and Biodiversity Conservation Act 1999, no significant impact was identified. Therefore, proposed project referral to the Commonwealth's Minister for the Environment is not required nor consideration for offsetting under the EPBC Act offset program.