

# 407 LAKE OHAU ROAD BUILDING AND TRACK SITES ECOLOGICAL ASSESSMENT

July 2017

## Background

This report presents the results of survey of vegetation and fauna habitats on a property at 407 Lake Ohau Road, Waitaki Basin (Section 3 Blk IV Ohau Lake SD). The purpose of this report is to assess the significance of vegetation and habitats at areas affected by proposed building sites and access tracks (Consent Application 201.2017/945). This survey and assessment was undertaken at the request of Cameron Leckie (Survey Waitaki Ltd).

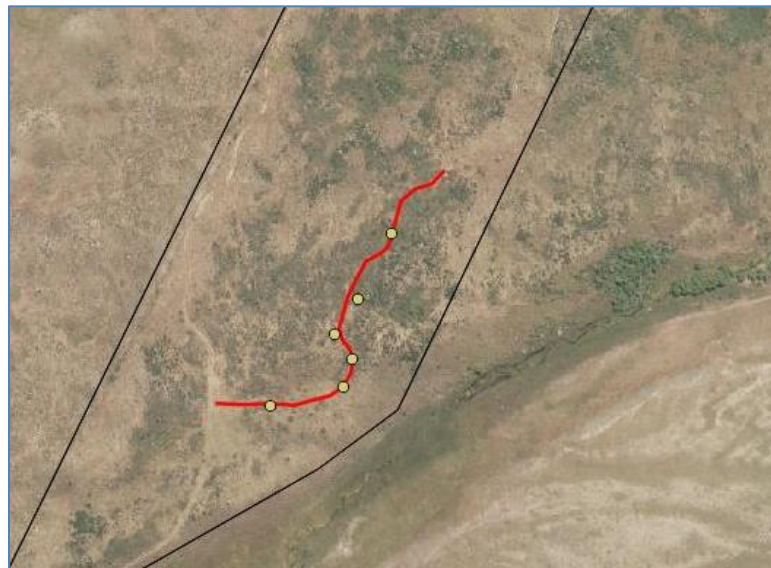
## Location

The property lies on moraine (grey till) deposited during late Last Glacial Maximum (Cox and Barrell, 2007). It is in Omarama Ecological District, within Mackenzie Ecological Region (McEwen, 1987), and in the E4.1b Level IV Land Environment (Leathwick *et al*, 2003). The site lies at approximately 560m asl at the south side of Lake Ohau.

## Survey Method

The ecological survey was undertaken over four and half hours on 6<sup>th</sup> July 2017 in fine cold weather. The locations of the house and shed sites, and routes of the proposed access tracks were shown to me on site by Louis Campbell (Braided River Architectural Design). The locations are also illustrated on Survey Waitaki site layout drawing, Sheet 1 of 6 (ref. 484-SCH-001). Stakes mark the house and shed sites. The route of the shed access track is marked by tape. I found no tape marking the route of the house access track, though recorded the route I surveyed by GPS (Figure 1).

Figure 1: Location of Surveyed House Access Track Route:



*GPS waypoints and presumed location of house access track*

Plant communities were assessed by careful survey of vegetation at the proposed building sites and along traverses of the proposed access track routes. The time of the site visit (winter) was unsuitable for fauna survey. However, all indigenous fauna observed were recorded.

Names of indigenous plant species cited in this report are as listed on the Manaaki Whenua-Landcare Research NZ Plants Database. Naturalized (exotic) species are indicated with an asterisk\*. Plant community names follow the method proposed by Atkinson (1985). Names and the current conservation status of fauna taxa cited in this report are as listed by Robertson *et al* (2017) for birds and Hitchmough *et al* (2016) for lizards.

Limitations of this winter survey include the absence of spring/summer bird species, the inactivity of lizard species, the absence of spring-annual and summer-green herbs (including orchids), and difficulties identifying grass species (notably *Rytidosperma* and *Anthosachne* species) from late-season florets.

## Survey Results

### Proposed House Site:

Vegetation at the proposed house site is grassland with scattered shrubs. The grassland is dominated by browntop\* (*Agrostis capillaris*). Other grassland species are sweet vernal\* (*Anthoxanthum odoratum*), cocksfoot\* (*Dactylis glomerata*), fescue tussock (*Festuca novae-zelandiae*), plume grass (*Dichelachne crinita*), wheatgrass (*Anthosachne* sp.) and white clover\* (*Trifolium repens*). Also present but uncommon are Scotch thistle\* (*Cirsium vulgare*) and woolly mullein\* (*Verbascum thapsus*).

Additional species on stony ground are mouse-ear hawkweed\* (*Pilosella officinarum*), sheep's sorrel\* (*Rumex acetosella*), sandwort\* (*Arenaria serpyllifolia*), mat coprosma (*Coprosma petriei*), yarrow\* (*Achillea millefolium*), mouse-ear chickweed\* (*Cerastium fontanum*) and a moss *Ceratodon purpureus*.

Shrub species present are mingimingi (*Coprosma propinqua*), porcupine shrub (*Melicytus alpinus* agg.), sweet brier\* (*Rosa rubiginosa*) and, at the margin, matagouri (*Discaria toumatou*).



*Proposed house site*

Proposed House Access Track:

Vegetation along the proposed house access track is a mosaic of grassland, shrubland and scrub. Grassland is at most locations dominated by browntop\*. Other species commonly present are fescue tussock, cocksfoot\* and sweet vernal\*. Less common are wheatgrass (*Anthosachne* sp.), tall oat grass\* (*Arrbenatherum elatius*), brome\* (*Bromus* sp.), Californian thistle\* (*Cirsium arvense*), Scotch thistle\*, haresfoot trefoil\* (*Trifolium arvense*) and woolly mullein\*.



*Grassland on the proposed house access track*

Shrubland and scrub is variously dominated by matagouri, mingimingi or sweet brier\*. Other species commonly present are porcupine shrub, bracken (*Pteridium esculentum*), scrub pohuehue (*Muehlenbeckia complexa*) and a foliose lichen (*Usnea* sp.). Species less commonly present are *Coprosma dumosa*, elderberry\* (*Sambucus nigra*), *Clematis marata* and native jasmine (*Parsonsia capsularis*). Herbaceous species growing within the shrubland/scrub are fumitory\* (*Fumaria* sp.), hawksbeard\* (*Crepis capillaris*), cleavers\* (*Galium aparine*), yarrow\*, necklace fern (*Asplenium flabellifolium*) and male fern\* (*Dryopteris filix-mas*).



*Scrub along the proposed house access track*

### Proposed Shed Site:

Vegetation at the proposed shed site is grassland and scrub. The grassland is dominated by browntop\* and other exotic grasses, with occasional fescue tussock and wheatgrass. The scrub is dominated by matagouri and sweet brier\*. Other plant species present are porcupine shrub, *Clematis marata*, bracken, cocksfoot\*, cleavers\* and hawksbeard\*.



*Proposed shed site*

### Proposed Shed Access Track:

Vegetation along the proposed shed access track is grassland and shrubland/scrub. Grassland is dominated by browntop\*. Other species present are sweet vernal\*, fescue tussock, wheatgrass, cocksfoot\*, plume grass, mouse-ear hawkweed\*, haresfoot trefoil\*, patotara (*Leucopogon fraseri*), woolly mullein\*, viper's bugloss\* (*Echium vulgare*), white clover\* and wire moss (*Polytrichum juniperinum*).

Shrubland/scrub is dominated by matagouri and sweet brier\*. Other species present are mingimingi, porcupine shrub, bracken and cleavers\*.



*Part of proposed shed access track*

### Other Vegetation:

Other plant species observed on the property, though not at the proposed disturbance sites, were native broom (*Carmichaelia petriei*), mountain wineberry (*Aristotelia fruticosa*), lawyer (*Rubus schmidelioides*), silver tussock (*Poa cita*), danthonia grass (*Rytidosperma clavatum*), *Carex breviculmis*, *Oxalis* sp., horehound\* (*Marrubium vulgare*) and, at the lake shore, manuka (*Leptospermum scoparium*). One exotic broom\* (*Cytisus scoparius*) bush was observed adjacent to the boundary fence just northeast of (below) the proposed house site.

Some species recorded in the landscape assessment were not recorded during this assessment, notably kowhai (*Sophora microphylla*), native broom (*Carmichaelia astonii*) and bush lawyer (*Rubus cissoides*). If kowhai and bush lawyer are present at the proposed disturbance sites, but overlooked during my assessment, that would not affect the outcome of the significance assessment. *Carmichaelia astonii* is restricted to limestone substrates in eastern Marlborough (Heenan, 1995).

### Fauna:

Birds observed at the site during this brief survey were silvereye (*Zosterops lateralis*), blackbird\* (*Turdus merula*) and dunnoek\* (*Prunella modularis*). Other bird species seen or heard flying overhead were karearea/NZ falcon (*Falco novaeseelandiae*), kahu/Australasian harrier (*Circus approximans*), paradise shelduck (*Tadorna variegata*) and spur-winged plover (*Vanellus miles novaehollandiae*). Other native bird species likely to be present are grey warbler (*Gerygone igata*), fantail (*Rhipidura fuliginosa*) and possibly rifleman (*Acanthisitta chloris*).

No lizards were observed at the site, despite careful searching. Lizards are difficult to detect during winter. Four lizard species are known from this part of the Waitaki Basin: Lakes skink (*Oligosoma* aff. *chloronoton* “West Otago”); Southern Alps gecko (*Woodworthia* “Southern Alps”); southern grass skink (*Oligosoma* aff. *polychroma* Clade 5); and McCann’s skink (*Oligosoma maccanni*) (Marieke Lettink, pers.comm). The property provides suitable habitat for Southern Alps gecko, southern grass skink, and McCann’s skink.

Invertebrate fauna were not investigated during this assessment.

## **Significance Assessment**

### Significance of Vegetation and Habitats:

The land environment in which the property lies is listed as ‘at risk’ (Cieraad *et al*, 2015), with only 20% to 30% of the land environment supporting indigenous vegetation (in 2012). The site lies on moraine. Moraine is a ‘naturally uncommon’ ecosystem (Williams *et al*, 2007), which is regarded as ‘nationally vulnerable’ (Holdaway *et al*, 2012).

No ‘threatened’ or ‘at risk’ plant species were observed at the areas directly affected by the proposed buildings and access tracks. The scrub plant community is relatively diverse, in good condition, and representative of the original vegetation.

No ‘threatened’ bird species were observed at the areas directly affected by the proposed buildings and access tracks. One ‘at risk’ (recovering) species (Robertson *et al*, 2017), karearea/NZ falcon, was present nearby. The property provides suitable habitat (feeding, roosting and perhaps nesting) for karearea. The scrub plant community at the site provides good habitat for silvereye and grey warbler.

The mosaic of grassland, shrubland and scrub, interspersed with boulders and rock piles, provides good habitat for three lizard species: Southern Alps gecko, southern grass skink and McCann’s skink. Southern grass skink is an ‘at risk’ (declining) species (Hitchmough *et al*, 2016).

The plant communities and habitats on the property are part of a larger area including adjacent properties, and forming an extensive sequence of post-glacial landforms (moraines and outwash terraces). This larger area is regionally, if not nationally, important as an intact glacial landform sequence with representative indigenous vegetation.

Significance Assessment:

Indigenous vegetation and habitats of indigenous fauna at the property are assessed below against the criteria in Appendix 3 of the Canterbury Regional Policy Statement (RPS). For reference, an assessment is also made below against the Waitaki District Plan criteria.

Criteria (Canterbury RPS)	Yes/No	Comments
Representativeness	Yes	Indigenous vegetation that is moderately to highly representative and typical/characteristic of the natural diversity of the ecological district. Part of a relatively large example and uninterrupted sequence within the ecological district.
Rarity/Distinctiveness	Yes	Indigenous vegetation that is most likely reduced to less than 20% of its former extent in the ecological district. The site lies on an 'originally rare'/ 'naturally uncommon' ecosystem classified as 'vulnerable'. Provides likely habitat for an 'at risk' bird species and an 'at risk' lizard species.
Diversity and Pattern	Likely	Species diversity is moderate and typical. Part of an intact and relatively diverse sequence of glacial landforms and ecological gradients.
Ecological Context	Yes	The site buffers and links other indigenous vegetation and habitat which collectively represent a large and important sequence of indigenous vegetation on glacial landforms.

Criteria (Waitaki District Plan)	Ranking			Comments
	High	Medium	Low	
Representativeness		●		Shrubland and scrub communities that are moderately to highly representative of the original vegetation.
Rarity/Distinctiveness	●			Indigenous vegetation on a 'vulnerable' ecosystem. Likely to provide habitat for 'at risk' bird and lizard species.
Diversity and Pattern		●		Moderate species diversity.
Ecological Context	●			A well buffered site that is of sufficient size to be ecologically viable.

Vegetation and habitats affected by the proposed buildings and access tracks are part of an area that is ecologically significant when assessed against the Canterbury Regional Policy Statement and Waitaki District Plan assessment criteria.

## Effects of the Proposal

The proposed activity will result in complete removal of vegetation and habitats from areas that will be occupied by the house, shed and access tracks. The effects of the activity at those locations will be more than minor. However, the areas affected by the proposed activity comprise a relatively small proportion of the total extent of this vegetation and habitat on the property. The affected areas support vegetation and habitat that is similar to that present elsewhere on the property.

Adverse effects of the proposed activity cannot be avoided, except by:

1. restricting disturbance to the building sites;
2. minimizing the width of the access tracks;
3. ensuring no weed seeds are introduced as part of construction activity;
4. maintaining fire-control equipment on site to extinguish any fire resulting from construction activity.

Adverse effects of the proposed activity could be remedied by:

5. rehabilitating access track edges through planting or transplanting of locally-sourced indigenous species.

Adverse effects of the proposed activity could be mitigated by:

6. controlling new infestations of weeds at disturbance sites;
7. controlling existing weed infestations elsewhere on the property (notably broom and sweet brier);
8. undertaking predator control to improve habitat for lizards.

## Disclaimer

This survey is not intended to represent a comprehensive vegetation and habitat survey of this property. Instead, it is a survey of parts of the property that would be affected by construction of the proposed buildings and access tracks. Survey of this area at some other time of the year would likely reveal a greater number of indigenous plant and animal species.

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