



Appendix

09

Powerhouse Fast-track Application

Independent Ecological Scoping Assessment



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Independent Ecological Scoping Assessment

Bowen Peak “Restoring the Reserve” Fast-track Referral

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1. Purpose and Scope

Restore NZ has been engaged by Bowen Peak Ltd (the Client) to prepare a high-level ecological scoping and feasibility assessment as part of the current Bowen Peak development Fast-track consent application. In response to guidance provided through the Fast-track process, the Client has requested a concise 5–6-page report. Accordingly, this document provides a preliminary desktop assessment intended to identify key ecological considerations, potential constraints, and the information gaps associated with the proposed Bowen Peak development.

The assessment draws exclusively on existing information, including publicly available map layers, aerial imagery, and ecological datasets. Given the wide range of ecological values potentially present across the project area, the complexity and variation of physical works proposed, and the requirement to keep this report within 6 pages; this report provides high-level commentary only. It covers potential considerations associated with terrestrial habitats and vegetation, birds (avifauna), bats (chiropterans), lizards and frogs (herpetofauna), freshwater values, and invertebrates.

The report provides general ecological advice and does not include specialist input for any taxonomic group. Further consultation, including a comprehensive desktop survey and targeted field surveys by appropriately qualified specialists will be required to support any future detailed/substantive application; conclusions may be refined as further information becomes available.

This report has been prepared for the sole use of Bowen Peak Ltd to inform internal planning and the Fast-track referral process. It should be read in full and not relied upon or quoted in part for uses outside this scope, Restore NZ accepts no liability for such use.

2. Proposed Works

The proposed works occur across the lower and upper south-eastern slopes of Te Taumata o Hakitekura (Ben Lomond) Reserve within the One Mile and Two Mile Creek catchments, immediately behind the Fernhill subdivision.

The project includes three connecting gondola/funifor systems with associated base and mid-slope stations; a 52-ha Fernhill Heights residential development with associated earthworks, roading and pedestrian pathways; construction and management of three predator-proof sanctuaries (a ~275 ha upper catchment sanctuary and two smaller sanctuaries in the lower One Mile Reserve); a ski field and mountain-bike infrastructure with maintenance tracks and new trails; and approximately 400 ha of wilding pine clearance within and adjacent to the Reserve. A full project description is provided on the Bowen Peak Ltd website and in the supporting application material (Appendix A, Figure 1).

3. Existing Environment

The site lies within the Otago Ecological Region and Shotover Ecological District, an area of steep schist terrain, stony soils and a continental climate that creates hot, dry summers and cold winters under the rain shadow of the Southern Alps. Historically, the district supported beech forest on sheltered slopes and a mosaic of tussock grassland and shrubland on drier faces¹. Much of this vegetation has been cleared; first by Māori fires, then by early European settlers for pastoral farming. Gold was discovered in the Arrow River shortly after European arrival, triggering a global gold rush that further altered the landscape. Much of the present-day environment is being progressively transformed by urban development in flat areas and gentler slopes. Wilding conifers are spreading across steeper slopes as they are able to establish at higher altitudes than the indigenous beech remnants and with lower light requirements, progressively outcompeting indigenous vegetation when left unmanaged (Figure 2). The site ranges from lower slopes with >30% indigenous cover but limited formal protection, to upper alpine areas with higher protection levels (>20%), and smaller pockets classified as 20–30% indigenous cover, and 10–20% protected.²

Regional mapping of pre-human ecosystems classifies most of the project area as mountain-beech forest, with small-leaved *Coprosma* spp., weeping matipo, mountain celery pine, snow tōtara, broadleaf, three-finger, putaputawētā, and locally Hall's tōtara (CDF3). The upper slopes are mapped as alpine tussock and shrubland (AL1)³. Present-day landcover data⁴ shows a mosaic of indigenous forest within the One Mile and Two-Mile Creek catchments, tall tussock at higher elevations, and widespread exotic forest (largely wilding pines) with scattered indigenous broadleaved and shrubland remnants, and built-up areas of residential development. Wilding pines remain the dominant ecological threat, although there has been recent wilding pine poisoning efforts on the ridge separating the upper One Mile and Two Mile creek catchments. Dead pines remain on the hill, clearly visible from the township and surrounding areas (Figure 2 & 3).

4. Potential Ecological Values, Risks and Considerations

4.1 Terrestrial Habitats and Vegetation

Existing records from botanical surveys within the Te Taumata o Hakitekura (Ben Lomond) Reserve and within the One Mile catchment indicate a diverse indigenous flora community. Several Threatened or At Risk species⁵ have been recorded, including indigenous mistletoe (*Alepis flavida*) within beech forest, along with a suite of rare spring annuals and indigenous herbs documented from botanical surveys between 1919 and 2009⁶. Although beech forest is the most common remaining indigenous forest type in New Zealand, it is still reduced from its historical extent and supports high indigenous diversity and ecological function.

Given the project area traverses a continuum of habitats from One Mile Powerhouse Reserve to alpine ridge, it is likely that additional Threatened/At Risk plant species occur within the project area. Desktop information suggests that high-value terrestrial habitats are highly likely to occur within parts of the proposed footprint, and portions of the site will meet the ecological significance criteria under the National Policy Statement for Indigenous Biodiversity⁷.

Potential impacts include vegetation clearance and fragmentation from construction of cableway infrastructure, stations, tracks and associated access routes, and ongoing weed and fire risk associated with increased public access. If earthworks, benching, or regrading of slopes are required for the proposed ski field, substantial modification of alpine

¹ Department of Conservation. (1987). Ecological Regions and Districts of New Zealand. Booklet to accompany SHEET 4. Department of Conservation. Retrieved from: <https://www.doc.govt.nz/documents/science-and-technical/ecoregions4.pdf>

² Manaaki Whenua - Landcare Research (MWLR). (2012). Our Environment Threatened Environment Classification map. Retrieved from: <https://www.landcareresearch.co.nz/publications/innovation-stories/innovation-articles/land-cover-database-v5-launched-2025/>

³ Singers, N. J. D., Rogers, G. M. (2014). A classification of New Zealand's terrestrial ecosystems. Department of Conservation. Retrieved from: <https://www.doc.govt.nz/documents/science-and-technical/sfc325entire.pdf>

⁴ Manaaki Whenua - Landcare Research. (2025). *Land Cover Database Version 6*. Retrieved from: <https://iris.scinfo.org.nz/>

⁵ Threat classifications used throughout this report are based on the New Zealand Threat Classification system, sourced from: <https://nztcs.org.nz/>

⁶ New Zealand Plant Conservation Network publications of plant lists. Sourced from: <https://www.nzpcn.org.nz/>

⁷ Ministry for the Environment. (2023). National policy statement for indigenous biodiversity. New Zealand Government. <https://environment.govt.nz/publications/national-policy-statement-for-indigenous-biodiversity>

vegetation could occur. Snow-making infrastructure, grooming, and compaction would also alter natural soil moisture and freeze-thaw processes, with potential flow-on effects for alpine flora and fauna. All of the proposed activities could affect indigenous vegetation and associated fauna within the habitats it provides.

The Fernhill Heights subdivision area appears largely within wilding pine forest and therefore likely presents a comparatively lower ecological risk than activities occurring within indigenous vegetation and habitats (Figure 3). However, indigenous vegetation and habitats can persist within highly modified environments and may represent important refugia or ecological linkages that support wider landscape connectivity. The proposed predator-free sanctuaries present potential ecological gains, but location and construction methodology will require detailed consideration to minimise clearance of indigenous vegetation. The footprint required to construct and maintain a predator proof fence is 3 m wide at minimum; any section passing through forest will require a wider cleared corridor.

Overall, while the proposal includes substantive ecological enhancement initiatives, elements of the proposed works will intersect with areas that are likely of high ecological value, and some impacts will be unavoidable. Detailed field survey and ecological assessment will be required to confirm habitat values, refine the design to avoid and minimise impacts as far as practicable, and to assess the proposed enhancements for their adequacy as mitigation, offset, and/or compensation measures.

4.2 Birds

The beech forest within the One Mile and Two Mile catchments provides breeding and foraging habitat for forest birds, while the alpine shrubland and tussock areas offer habitat for open-country species. The area is known to support a typical assemblage of indigenous and introduced forest birds, with eBird records showing observations of common species such as tui, korimako (bellbird), pīwakawaka (fantail), riroriro (grey warbler), ngirungiru (tomtit), and kereru; as well as the kārearea (New Zealand falcon, *Falco novaeseelandiae novaeseelandiae*; Threatened - Nationally Vulnerable). The open alpine and tussock habitats are also habitat for New Zealand pipit (*Anthus novaeseelandiae novaeseelandiae*; At Risk – Declining). South Island kaka (Threatened - Nationally Vulnerable), and kea (Threatened - Nationally Endangered) are occasionally recorded on the hills in close proximity to the project area. Vegetation clearance, increased human activity, and associated sound and lighting could fragment or degrade habitats, increase edge effects, and create new dispersal corridors for pests.

On Otago Regional Council (ORC) public maps⁸, forest-bird habitat is identified within broadleaved and exotic forest patches in the project area. Other mapped values including kaka, mōhua (yellowhead), whio (blue-duck), mātātā (fernbird) and matuku-hūrepo (Australasian bittern) habitat, occur further west around Glenorchy, Elfin Bay and the Greenstone-Caples valleys, illustrating the wider regional diversity. Lake Whakatipu itself is mapped as pūteketeke (Australasian crested grebe) habitat. This indicates the values that still exist in the wider landscape, the future potential for ecological restoration, and, subject to specialist input and consultation, possible reintroduction opportunities if predator control and habitat enhancement are successfully implemented.

The species list promoted by Bowen Peak Ltd encompasses a mix of native birds that are already present in the wider Whakatipu Basin (e.g. tūī, korimako, kākā, kererū, pīwakawaka) and others that could theoretically be supported through long-term predator suppression and habitat restoration (e.g. kiwi, takahē, kākārīki). Some species such as kākāpō and kōkako, are not currently present in the region (with the South Island kōkako currently regarded as extinct) and would require national-level management decisions before any translocation could be considered. The proposed predator-free sanctuaries are intended to substantially reduce pest pressure within their fenced areas and provide secure breeding habitat for a range of native bird species. Discussed further in Section 5.

⁸ Spatial data sourced from the Otago Regional Council publicly available maps (accessed November 2025), via: <https://maps.orc.govt.nz/OtagoViewer232/?map=7d0ef0d7ba724378a0ba22ecd88f3180>

4.3 Bats

New Zealand has two extant bat species, the long-tailed bat and lesser short-tailed bat, however neither species are known to occur within the project footprint. The nearest confirmed record is a long-tailed bat detected approximately 30 km west behind Elfin Bay in 2016, with earlier detections of an unidentified bat in 2011 - 20 km north-west along the Glenorchy-Queenstown Road. Bats are considered unlikely to occur within the proposed works area, although targeted acoustic monitoring would be required to inform any future impact assessment. The discovery of a remnant population within the project footprint would have significant implications for both the potential ecological effects and the potential conservation value of the proposed sanctuary.

4.4 Lizards and Frogs

There are very few herpetofauna records from within or immediately adjacent to the proposed works area on the Department of Conservation herpetofauna database (version 2024). However, given the range of habitats present it is highly likely that indigenous lizard species, most of which are Threatened or At Risk, occur within parts of the project footprint. No indigenous frog species are known or expected to occur within the project area.

Construction activities and vegetation clearance could result in the loss or fragmentation of suitable habitat and potential harm to individual lizards. Targeted surveys by a suitably qualified herpetologist will be required to confirm presence, abundance and distribution, and to inform management requirements. The proposed predator-free sanctuary could provide long-term conservation benefits for lizard populations, although the net outcome would depend on survey findings and the balance between the area and type of habitat lost, versus that which is protected.

4.5 Freshwater Values

The One Mile and Two Mile Creeks run through the project area before discharging to Lake Whakatipu immediately downstream. Only koaro (*Galaxias brevipinnis*; At Risk – Declining) have been recorded in One Mile Creek in 2019 based on the NZ Freshwater Fish Database (version November 2025). That record was obtained by hand-net sampling and does not represent a comprehensive survey, so other species such as trout may also be present. No eDNA results are currently available for either catchment on the Wilderlab website⁹. No wetlands are mapped within the project area on either the Otago Regional Council public maps or the Manaaki Whenua Landcare Research wetlands mapping¹⁰; however, these datasets are based on limited field verification and may not capture small or modified wetland features.

The wider Whakatipu Basin supports an assemblage of freshwater species; observations include tuna (longfin eel), tiotio (common bully), upland bully, and introduced salmonids. Historic sluicing and dredging during the gold-rush period likely altered channel form and degraded habitat quality within both creeks; the degree to which they have recovered is unknown.

The proposed ~275 ha predator-free sanctuary would require culverting of the creeks where they intersect the fence alignment. These structures will require specialist design to maintain hydrological function while preventing mammalian pest incursion, and in doing so, are often unable to maintain complete connectivity of fish passage by design. In certain instances, restricting passage may provide ecological benefit. This only applies where construction of such barriers enables the targeted upstream eradication of unwanted species for the protective benefit of a select group of indigenous non-diadromous taxa.

Further aquatic survey will be required to confirm fish presence, assess habitat condition, identify if any wetlands are present within or adjacent to the works footprint, and evaluate the potential effects of the proposed works.

⁹ Sourced from the Wilderlab public eDNA database. Accessed November 2025 from: <https://wilderlab.co/explore>

¹⁰ Manaaki Whenua Landcare Research current wetlands special dataset. Sourced November 2025 via: <https://ourenvironment.scinfo.org.nz/maps-and-tools>

4.6 Invertebrates

The Te Taumata o Hakitekura (Ben Lomond) Reserve's invertebrate communities have not yet been assessed through comprehensive survey, but the range of alpine and forest habitats present would support diverse species assemblages. Multiple species of moths, butterflies, flies, spiders, beetles, snails, grasshoppers, caddis and other groups of insects have been recorded from the project area and surrounding landscape¹¹. The upper Te Taumata o Hakitekura (Ben Lomond) Reserve slopes are mapped by the ORC as significant invertebrate habitat, and the wider project area is likely to provide suitable habitat for multiple other endemic species.

Construction activities including increased human activity, lighting, vegetation clearance and changes to microclimates associated with the proposed ski field could adversely affect invertebrate populations in localised areas. The proposed predator-proof sanctuary could also provide refuge for invertebrates. The removal of wilding pines, if successfully followed by indigenous vegetation restoration, would likely enhance habitat values for indigenous invertebrate communities in the long-term. Detailed assessment by an invertebrate specialist would be required to identify species present and to inform the management of potential effects within sensitive habitats.

5. Opportunities for Ecological Enhancement

5.1 Wilding Pines

Wilding pine control is arguably the most pressing ecological priority for the district, as pines continue to drive large-scale habitat loss and landscape modification. The proposed removal of 400 ha of wilding pines within the development footprint and wider landscape would deliver immediate protective benefit by reducing local seed sources that are driving progressive spread. Long-term benefits would be dependent on sustained follow-up control and the complete removal of seed sources within the wider landscape. This would assist in protecting the basins current indigenous ecosystems, as well as result in a substantial net gain in biodiversity compared to the current state, if reinstated in indigenous forest cover.

Poisoning is widely used as a cost-effective method to halt wilding pine spread at landscape scale. Complete removal of dead pines and active replanting provides a clearer pathway to forest restoration, although this approach is typically limited by cost and logistics. Bowen Peak Ltd has indicated that the development is intended to include a mechanism to contribute to ongoing management via tourist-generated revenue, which could support long-term wilding pine control efforts.

Without comprehensive ongoing maintenance, reinfestation would occur rapidly. Given the regional scale of the issue, it is recommended that the proposed mitigation for the project considers alternative or complementary scenarios, such as weighing up the pros and cons of sanctuary construction versus a more extensive landscape scale wilding control package.

5.2 Predator-free Sanctuaries

Predator-free sanctuaries have proven highly effective for protecting and restoring indigenous biodiversity across New Zealand as introduced pests pose one of the most significant threats to indigenous flora and fauna. If appropriately designed, constructed, and managed, the proposed sanctuary network could potentially provide habitat for a wide range of indigenous flora and fauna, and a base for future species recovery programmes.

The project's stated aim is "Restoring the Reserve". While this is not technically feasible given the loss of certain species and incomplete knowledge of the original ecosystem composition; successful construction and management of a

¹¹ Queenstown Lakes District Council. (2005) Ben Lomond and Queenstown Hill Reserve Management Plan. Sourced from: https://www.qldc.govt.nz/media/rc0qt314/ben_lomond_and_queenstown_hill_reserve_management_plan.pdf

sanctuary could restore parts of the reserve toward a condition more representative of its natural baseline state. Its value as a mitigation, offset, or compensatory action, will need to be determined through a detailed Ecological Impact Assessment, and its implementation guided by a comprehensive Sanctuary Management Plan.

Any proposal to translocate species would need to be developed in partnership with iwi, DOC and other relevant statutory agencies, specialists, and local conservation organisations. Habitat suitability and the national demand for translocation sites should be confirmed before species introductions are proposed. For example, sanctuaries typically need to exceed 1000 ha to release kiwi, however smaller sanctuaries such as Rotokare Scenic Reserve have proven valuable as kōhanga sites for breeding programmes, or as kiwi crèche sites until uplifted juveniles are of suitable size for release into the wild. The proposed sanctuary could play a similar role if there is demand for such sites, and if the ecological and operational conditions are suitable. Consultation, feasibility assessment, and species-specific management planning would be required for any species of bird, lizard, fish or invertebrates proposed for translocation.

The sanctuary also presents potential opportunities to enhance freshwater ecosystems by establishing reaches free of introduced fish; however, this would require careful consideration of the advantages and disadvantages of restricting fish passage to upper stream reaches, assessment of habitat suitability, and consultation with affected parties and relevant experts.

Constructing sanctuaries on DOC land will likely require provision for decommissioning and long-term maintenance funding to be built into upfront agreements to manage liability concerns. Consultation should also occur early to address the balance between biosecurity risks and access constraints associated with existing mountain-bike and walking trails, and to assess the feasibility of managing additional risks including (but not limited to) snow-drift accumulation, topsoil cracking caused by freeze-thaw cycles associated with heavy frosts, and vegetation growth near the fence line.

Overall, the proposal offers genuine potential for large-scale ecological enhancement within the Queenstown area, provided the initiatives are properly scoped, informed by rigorous field survey, designed and constructed in accordance with best-practice methodology, guided by comprehensive ongoing management plans, integrated with wider landscape restoration programmes, and supported by robust long-term operational and resourcing arrangements.

6. Summary and Next Steps

The Bowen Peak proposal is located within a landscape already under considerable ecological pressure from wilding conifer spread, introduced mammalian pests, high visitor use, and ongoing urban expansion around Queenstown. The site adjoins public conservation land on Te Taumata o Hakitekura (Ben Lomond) Reserve and drains directly to Lake Whakatipu, connecting it to downstream ecosystems of national significance.

This desktop scoping assessment indicates that habitats of high and significant ecological value are likely present within the project footprint; and that some degree of impact to these habitats is likely to be unavoidable. The proposal also includes initiatives with genuine potential to deliver large-scale ecological enhancement if they are carefully designed, implemented to best-practice standards, and supported by long-term management and monitoring.

Should this proposal progress, the next stage of assessment should include comprehensive desktop review, targeted field surveys, and consultation with DOC, iwi, and relevant specialists. The project will need to verify ecological values, refine design to avoid and minimise effects, and evaluate the adequacy of proposed enhancement measures as mitigation, offsets, or compensation.

Integrating these initiatives with wider landscape-scale restoration and pest-management programmes will be essential to achieving enduring ecological outcomes for the Queenstown area.

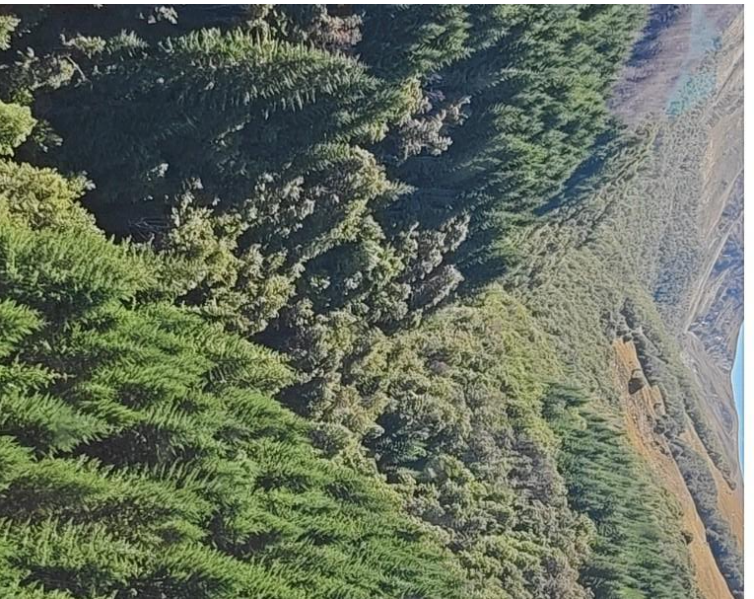


Figure 2: Client-supplied photographs of wilding pines encroaching on beech forest in the upper One Mile Creek catchment (left); a young pine seedling visible in the understory of the One Mile Powerhouse Reserve (middle); and the understory structure of a later-stage wilding pine stand (right).

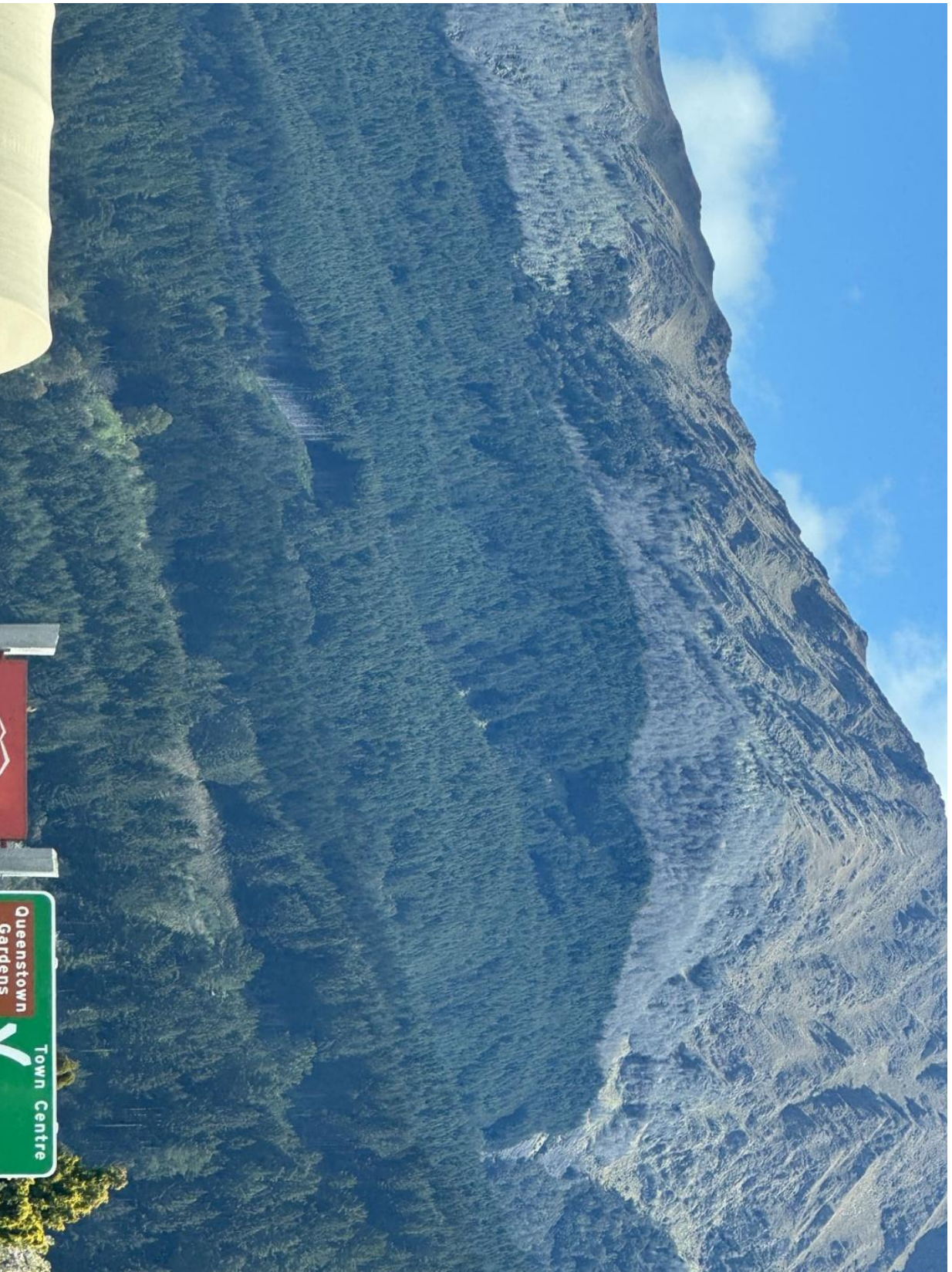


Figure 3: Client-supplied photograph showing wilding pines within the proposed subdivision footprint, including areas of recent control at higher elevations.