

12 Mile Ziplines

Ecological Impact Assessment

Prepared for RCT Group Limited

Contact Details

Name: Reuben Rorrison

Restore NZ Limited

Mobile: [REDACTED]

Email: [REDACTED]

Document Details:

Date: 09 December 2025

Report No: RCT01

Status: **Final**

Prepared by:

Reuben Rorrison | Ecologist

Restore NZ

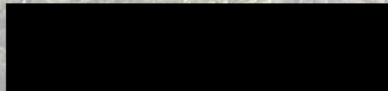


Table of Contents

1	Introduction	1
1.1	Purpose and Scope.....	2
1.2	Limitations	2
2	Description of the Proposed Activity	3
2.1	Overview	3
2.2	Route Layout	3
2.3	Access and Operation.....	3
2.4	Zipline Structures and Installation.....	3
2.5	Take-off and Landing Platforms	4
2.6	Integrated Environmental Design Philosophy	4
3	Methodology.....	7
3.1	Desktop Review	7
3.2	Field Assessment.....	8
3.3	Assessment of Effects	8
4	Description of the Existing Environment	9
4.1	Historical Context	9
4.2	Flora	10
4.2.1	Beech Forest	10
4.2.2	Alluvial Herbfield/Shrubland	11
4.3	Fauna.....	13
4.3.1	Lizards (herpetofauna)	13
4.3.2	Birds (Avifauna)	13
4.3.3	Bats (Chiropterans)	14
4.3.4	Aquatic Fauna.....	15
4.3.5	Invertebrates	15
5	Assessment of Effects	15
5.1	The Effects Management Hierarchy	15
5.2	Beech Forest	15
5.3	Alluvial Herbfield / Shrubland	17
5.4	Lizards	19
5.5	Birds	20

6	Forest Management Plan	21
6.1	Purpose and Scope.....	21
6.2	Broad Objectives.....	21
6.3	Funding Framework.....	22
6.4	Relationship With Local Conservation Trusts.....	22
6.5	Key Inclusions of the FMP	22
6.5.1	Pest Animal Management	22
6.5.2	Weeds and Wilding Control	23
6.5.3	Ecological Monitoring Framework	23
6.5.4	Reporting and Review	24
6.6	Anticipated Benefits	24
7	Recommended Conditions	25
8	Conclusion	26

1 Introduction

This assessment has been prepared for RCT Group Limited (the Client, hereafter referred to as the Applicant) to evaluate the ecological values and potential effects of a proposed zipline tourism operation at Twelve Mile Delta, about 10 km west of Queenstown (Figure 1).

The proposal follows the same operational model as the Applicant’s established Rotorua Canopy Tours operation in the North Island, which is a registered B-Corp that has won multiple awards through demonstrating measurable improvements in forest health via its partnership with the Canopy Conservation Trust. The positive outcomes measured at their North Island operation is a result of ongoing pest and weed control and native forest restoration, funded by contributions generated by the zipline operation.

The proposed activity is located on public conservation land administered by the Department of Conservation (DOC) and therefore requires approval via a concession application. Restore NZ Limited (Restore NZ) has been engaged to complete an Ecological Impact Assessment (EcIA) which will accompany a future application.



Figure 1: Site location.

1.1 Purpose and Scope

The purpose of this report is to identify the existing ecological values within the project area and to assess the potential effects of the proposed zipline operation on those values. The assessment is intended to inform the DOC and the wider public via public notification as part of the concession application process.

Following initial feedback provided to the Applicant by DOC, an ecological assessment was requested to address potential ecological impacts on-site. This report has been prepared in response to that request.

Restore NZ was engaged early in the project design process, allowing ecological considerations to guide the location of pathways, ziplines, and construction methodology from the outset. The proposal detailed in this report has therefore been developed to prioritise avoidance and, where necessary, minimisation of environmental effects.

Based on its low-impact design, underlying conservation motivations, and a proven conservation business model, the nature of the proposal is considered inherently low impact compared with typical development projects. Accordingly, the level of assessment provided here is proportionate to the scale, nature, and conservation-focused intent of the activity.

1.2 Limitations

This assessment is limited to ecological considerations and does not include detailed assessment of cultural, landscape, or historic heritage values or effects.

The findings are primarily based on site visits undertaken by Restore NZ, supported by aerial imagery, desktop information, and project details supplied by the Applicant. Field observations represent site conditions at the time of survey.

Parts of this assessment, such as construction methodology and the extent of proposed works, rely on the accuracy of information provided by the Applicant. Should the proposal or site conditions change materially, aspects of this assessment may require review.

Restore NZ does not endorse or accept responsibility for the use or interpretation of this report beyond the purpose and scope outlined in Section 1.1.

2 Description of the Proposed Activity

2.1 Overview

The proposed activity is located within an area already subject to visitor use via low-impact recreational walkways and is adjacent to an existing commercial canyoning business also operating within the reserve.

The experience will allow visitors to traverse a sequence of four ziplines and short connecting walking tracks following the 12 Mile Creek corridor, starting from the Queenstown-Glenorchy Road and ending at the 12 Mile Delta carpark. The activity is designed to provide an immersive forest experience while generating ongoing funding for forest restoration through visitor contributions.

2.2 Route Layout

The proposed layout includes four ziplines connected by walking trails (Figure 2). The route predominantly utilises existing tracks and informal public trails, minimising the need for new ground disturbance.

Approximately 820 m of existing trails will be used, 340 m of informal trails will be utilised with minor upgrade where required (particularly along the true right bank of 12 Mile Creek), and ~240 m of new low-impact trail will be created to connect between zipline sections.

2.3 Access and Operation

Visitors will be transported by mini-coach from Queenstown to the Mt Creighton Loop Track carpark for drop-off. At the completion of the experience, groups will be collected from the 12 Mile Delta carpark and returned to Queenstown. Visitors will not provide their own transport, reducing on-site vehicle movements and carpark congestion.

A small safety briefing area (approximately 5 m × 5 m) will be established at the start of the route. This will be either on existing ground, surfaced with gravel if needed, or a low-level timber deck (< 1 m high). Group sizes will be limited to small, guided groups (typically 10-12 visitors + 2 guides).

Trails connecting take-off and landing areas will be no wider than 800 mm, following existing contours to avoid earthworks (Figure 3). Surfaces will consist of lightly compacted gravel placed over existing ground. In areas requiring elevation or drainage, short boardwalks (< 600 mm high) may be used. These will be supported on 600 mm deep footings or ground-screw systems, avoiding excavation wherever possible.

2.4 Zipline Structures and Installation

Each zipline will consist of a galvanised steel cable tensioned between take-off and landing structures. Support structures typically involve 220 mm steel pipe or 300 mm timber posts anchored into schist bedrock using mechanical or chemical anchors, or drilled 30 mm Reid Rods secured in 300 x 300 mm concrete footings (Figure 4).

Where topography allows, tree anchors may be used, fitted with large macrocarpa spacing blocks to distribute load and avoid bark or cambial damage.

Cable installation will be conducted using a drone-assisted incremental deployment system, allowing cables to be strung with zero ground disturbance or vegetation clearance between take-off and landing platforms.

Vegetation removal for the zipline operation will be limited to small saplings (averaging ~5 cm DBH) and four small regenerating mountain beech (10-20 cm DBH) located along Zip 2 and Zip 3. No large or mature canopy trees will be removed. An example of the corridor required through the canopy can be seen in Figure 3.

2.5 Take-off and Landing Platforms

Take-off and landing decks will generally be at or near ground level (< 1 m high). These will be lightweight timber structures, typically less than 1.5 m wide and 3 m long, supporting 1-2 people, with group waiting areas located on the adjoining track.

All platforms will be designed to integrate with natural surroundings using non-reflective finishes and muted colours. A summary of the anchor systems and take off/landing platforms proposed is provided in Table 1.

2.6 Integrated Environmental Design Philosophy

The activity has been designed from the outset to avoid ecological effects as far as practicable, utilising existing disturbed areas, minimising vegetation clearance, and preferring manual construction or drone-based installation methods.

The Applicant's existing operation in Rotorua provides contributions from both the company and visitors which have progressively grown to around \$40,000 per year in direct funding and more than \$100,000 per year in in-kind support, including management time and labour.

Additionally, the Rotorua operation has delivered a range of ecological outcomes that demonstrate the Applicant's ability to manage and enhance forest environments. Ongoing pest control involves maintaining approximately 850 traps, removing around 2,500 rats and 200-250 possums annually, and excluding all ungulates and stock from the forest. The Applicant has supported ecological research including a local bat population study, invertebrate surveys identifying more than ten species new to science, and a carbon sequestration study in partnership with Scion.

A similar framework is proposed for the Twelve Mile operation, scaled appropriately to the smaller expected visitor numbers in Queenstown. The intention is for a portion of each visitor fee, along with encouraging voluntary contributions, to support ongoing forest management and restoration in collaboration with Southern Lakes Sanctuary (SLS), Wakatipu Wildlife Trust (WWT), and other local conservation trusts where opportunities arise.

The structure of this partnership will be detailed within a Forest Management Plan, to be provided to DOC for approval prior to construction and required as a condition of the concession (detailed later in Section 6).



RESTORE NZ

Reuben Rorrison
 +64 27 515 0552
 Reuben@restore-nz.co.nz

Date:
 08 November
 2025

Scale:
 0 75 150 m



© Restore NZ Limited 2025.
 All rights reserved.

Figure 2: Overview of the proposed works, showing ziplines, existing trails, and new/upgraded trails.

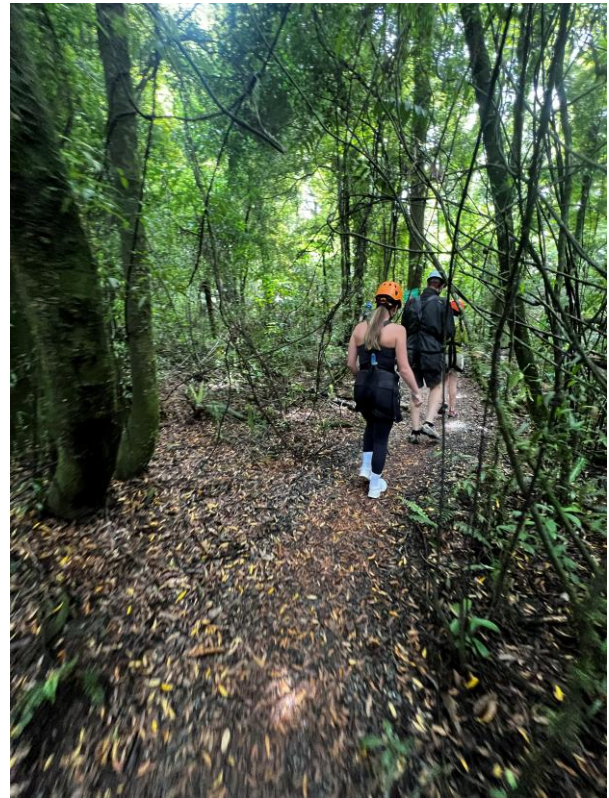


Figure 3: Photographs taken at the existing Rotorua operation, showing the vegetation corridor required (left) and low impact trail (right).



Figure 4: A Reid Rod anchor bolt in a concrete footing (left) and a macrocarpa spacer tree anchor system (right).

Table 1: Summary of the proposed works for each zipline.

Zipline	Top Attachment Point	Launch Platform	Bottom Attachment Point	Landing Platform
Zip 1	Tree-Based Bracing using non-impact Macrocarpa blocks as spacers.	Ground-Based Platform 2.4 m × 2 m	Tree-Based Bracing using non-impact Macrocarpa blocks as spacers.	Ground-Based Platform 2.4 m × 2 m
Zip 2	Tree-Based Bracing using non-impact Macrocarpa blocks as spacers.	Ground-Based Platform 1.2 m × 2 m	Rock Anchors (×3) Drilled system	Ground-Based Platform 1.2 m × 2 m
Zip 3	Tree-Based Bracing using non-impact Macrocarpa blocks as spacers.	Ground-Based Platform 2.4 m × 2 m	Tree-Based Bracing using non-impact Macrocarpa blocks as spacers.	Ground-Based Platform 1.2 m × 2 m
Zip 4	Rock Anchors (×3) Drilled system	Ground-Based Platform 2.4 m × 2 m	Rock Anchors (×3) Drilled system	Ground-Based Platform 1.5 m × 3 m

3 Methodology

This assessment follows a combined approach drawing on the DOC Environmental Impact Assessment Guidelines¹, the EIANZ Ecological Impact Assessment Guidelines (EIANZ Guidelines)², and criteria for ecological significance under Appendix 1 of the National Policy Statement for Indigenous Biodiversity (NPS-IB, 2023)³.

3.1 Desktop Review

Existing information was reviewed to identify potential ecological values and inform field observations. Key sources included aerial imagery, the DOC BioWeb Herpetofauna database, eBird, the NZ Plant Conservation Network survey records, the DOC information page on beech forests, the DOC BioWeb Bat database, and both private and publicly available ecological reports relevant to the Twelve Mile area.

Prior to the site visit that informed the proposed zipline layout, a desktop assessment of likely lizard species and associated habitats was undertaken by expert herpetologist Carey Knox (Southern Scales).

Key data sources are referenced in full within the report where specific information is cited. Threat classifications follow the New Zealand Threat Classification System (NZTCS)⁴, using the most recent classifications available for each taxonomic group.

¹ Department of Conservation (DOC). (n.d.) *Environmental Impact Assessment Guidelines*. Wellington: Retrieved from:

<https://www.doc.govt.nz/documents/about-doc/concessions-and-permits/concessions/guide-to-environmental-impact-assessments.pdf>

² Environmental Institute of Australia and New Zealand Inc. (EIANZ) (2018). *Environmental Impact Assessment (EIA): EIANZ guidelines for use in New Zealand: terrestrial and freshwater ecosystems 2nd Edition*. EIANZ, Melbourne, Australia.

³ 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>

⁴ Department of Conservation. (last updated 2025). *New Zealand Threat Classification System website*. Retrieved from: <https://nztc.org.nz/nztc-species-search>

3.2 Field Assessment

Two site visits were undertaken by Restore NZ: an initial high-level walkover of the existing DOC tracks on 5 October 2025, followed by a detailed site assessment on 29 October 2025. The second visit involved meeting with the project design and operations team on-site to confirm construction methodology and the feasibility of route alignment.

Field observations focused on establishing a baseline understanding of vegetation composition, identifying potential lizard habitats, and noting key ecological features.

Field observations also included noting dominant and subdominant plant species and their approximate densities beneath each proposed zipline. No quantitative vegetation plots were established, and no formal bird counts were undertaken; however, all bird species seen or heard during the walkovers were recorded. This level of investigation was considered sufficient to assess the likely level of effects associated with the construction and operation of the proposed activity due to its low-impact design.

Although quantitative survey was not considered necessary, the FMP will include the collection of baseline data to inform ongoing management and enable long-term tracking of ecological outcomes, detailed further in Section 6.

3.2.1 Bats

During the second visit, four acoustic bat monitors (ABMs) were deployed to inform potential impacts and support future Forest Management Plan (FMP) development. ABMs were placed along a ~1 km stretch of the 12 Mile Creek, the lowest being 40 m upstream from its confluence with Lake Wakatipu, the upmost being in the forest where Zipline 2 crosses 12 Mile Creek. Placement was dictated by selecting areas with a clear view of potential commuting pathways and suitable feeding grounds.

ABMs were left to record for 32 nights between 29 October 2025 and 30 November, of which ~29 nights would meet the requirement for a valid survey night as per the Bat Roost Protocols⁵ (validity is subject to individual judgement regarding wind strength and may differ between practitioners). This makes a total of ~116 valid survey nights. Assessment of the potential roosting characteristics of vegetation within the forest, placement of ABMs, and analysis of spectrograms recorded during the survey, was conducted by a certified ecologist with DOC bat competencies 3.1 and 3.1.

3.3 Assessment of Effects

Ecological values were classified in accordance with the EIANZ Guidelines, considering representativeness, rarity/distinctiveness, diversity and pattern, and ecological context. The magnitude of potential effects was assessed with respect to the scale, duration, and reversibility of the proposed activity.

Both value and magnitude assessments rely on a degree of professional judgement and interpretation. Where values are uncertain or potential effects remain possible, a precautionary approach has been applied through conservative classification. The overall level of ecological effect was determined by combining ecological value and magnitude using the EIANZ guidelines level of effects matrix (Table 2).

⁵ Department of Conservation (DOC, 2). (2024). Protocols for minimising the risk of felling occupied bat roosts. Bat Roost Protocols. Approved by the New Zealand Department of Conservation's Bat Recovery Group. <https://www.doc.govt.nz>

Table 2: Criteria for describing the level of effects (EIANZ, 2018).

Ecological Value > Magnitude V	Very High	High	Moderate	Low	Negligible
Very High	Very High	Very High	High	Moderate	Low
High	Very High	Very High	Moderate	Low	Very Low
Moderate	High	High	Moderate	Low	Very Low
Low	Moderate	Low	Low	Very Low	Very Low
Negligible	Low	Very Low	Very Low	Very Low	Very Low
Positive	Net Gain	Net Gain	Net Gain	Net Gain	Net Gain

4 Description of the Existing Environment

4.1 Historical Context

The site lies within the Otago Ecological Region and Shotover Ecological District, an area characterised by steep schist terrain. Shallow, stony soils and a continental climate create hot, dry summers and cold winters under the rain shadow of the Southern Alps. Historically, the district supported beech forest on sheltered slopes, with a mosaic of tussock grassland and shrubland on drier faces.

According to Singers and Rogers (2014)⁶, the site is mapped as potential ecosystem “Cold forest and Scrub” (CDF3), a vegetation type typically dominated by mountain beech with an understorey of *Coprosma* species, weeping māpou, mountain celery pine, snow tōtara, broadleaf, three-finger, putaputawētā, and Hall’s tōtara.

Much of this original vegetation has been cleared over time; first by Māori, then by early European settlers for pastoral farming. The discovery of gold in the Arrow River in the 1860s triggered intensive mining activity that further altered the landscape and increased pressure on forest resources for firewood. The Twelve Mile area in particular was heavily modified as large numbers of miners established camps and workings along Twelve Mile Creek. Extensive extraction and associated firewood harvesting cleared most of the remaining original forest cover, leaving widespread piles of gold tailings that are still visible today.

Following the decline of mining, parts of the area were used for pastoral purposes, further modifying soil and vegetation structure. The present forest is largely secondary regeneration, with occasional large beech trees that may represent remnants of the pre-human forest. These historical disturbances have resulted in a mosaic of successional forest types with variable canopy density and species composition.

⁶ 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>

4.2 Flora

The dominant vegetation within the project area comprises secondary beech forest and an actively regenerating understorey. The Land Cover Database (LCDB v6.0)⁷ maps the 12 Mile Creek catchment as predominantly *Indigenous Forest*, with adjacent areas of *mānuka/kānuka shrubland* and *gravel and rock* on the lower alluvial fan (i.e. the Twelve Mile Delta).

4.2.1 Beech Forest

Field investigations found the indigenous forest is dominated by mountain beech (*Fuscopora cliffortioides*) with a smaller component of red beech (*F. fusca*). The forest is not an old-growth remnant as a whole; most larger beech trees are approximately 30-40 cm DBH, although a small number of scattered larger trees are present that may represent surviving individuals of the pre-human or pre-mining forest cover (Figure 5).

An exotic component is present throughout the forest, including *Eucalyptus* sp. (Figure 3) and wilding pine regeneration, along with several large dead specimens that were likely subject to chemical control in the last decade. Both wilding pines and eucalypts have established seed sources in the surrounding landscape and can outcompete and progressively degrade indigenous forest structure. Prolific seedlings of both species were noted within the beech forest during the site visit, predominantly being <1 m tall, so maintaining the current ecological value will depend on continued human intervention and active management. Furthermore, exotic shrubs are common and dominate in pockets, particularly gorse (*Ulex europaeus*).

The understorey is generally composed of regenerating indigenous species. Commonly observed species included prickly mingimingi (*Leptecophylla juniperina*), broadleaf (*Griselinia littoralis*), shining kāramū (*Coprosma lucida*), lancewood (*Pseudopanax crassifolius*), fivefinger (*Pseudopanax arboreus*), *Coprosma dumosa*, kōhūhū (*Pittosporum tenuifolium*), hebe (*Veronica* sp.) and bracken (*Pteridium esculentum*). A low-density but notable component includes Hall's tōtara (*Podocarpus laetus*) which have been lost from much of the surrounding landscape; as well as ribbonwood (*Plagianthus regius*), and mountain akeake (*Shawia avicenniifolia*).

Two previous botanical surveys⁸ undertaken within the wider Twelve Mile Bush and Bob's Cove forest have recorded 189 and 177 plant species respectively, the majority of which were exotic or classified as Not Threatened. Across these combined surveys, eight At Risk plant species were documented, indicating that a small number of rare species are present within the wider forest environment. One of these species, yellow mistletoe (*Alepis flavida*), was highlighted early in the project as particularly relevant for a zipline proposal within beech forest; however, no mistletoe was observed within the proposed zipline route during site visits.

Representativeness: Moderate. Despite historical modification, the regenerating beech forest retains the expected structure and composition of CDF3 cold forest and scrub vegetation in the northern Wakatipu area, with indigenous dominance and localised exotic intrusion.

Rarity/Distinctiveness: Moderate. No Threatened or At-Risk flora or fauna were observed inside the beech forest within the project footprint, and the vegetation type as a whole is not considered rare or associated with

⁷ Manaaki Whenua - Landcare Research. (2025). Land Cover Database Version 6. Retrieved from: <https://lris.scinfo.org.nz/>

⁸ New Zealand Plant Conservation Network publications of plant lists. Sourced from: <https://www.nzpcn.org.nz/>

distinctive or nationally prioritised ecosystems. Although At Risk species occur within the wider Twelve Mile-Bob's Cove landscape, the footprint does not provide habitat indicative of their presence.

Diversity & Pattern: Moderate. Species diversity and structural layering are typical of mid-successional beech forest, with indigenous saplings, shrubs and groundcover present and exotic shrubs occurring in disturbance induced patches.

Ecological Context: Moderate. The forest forms part of a fragmented indigenous forest network along the northern Wakatipu shoreline, providing habitat and connectivity as a steppingstone for indigenous fauna. Ecosystem services are unlikely to match that of an old-growth forest, and long-term integrity is threatened by invasive wilding plants that will require human intervention.

Based on the EIANZ Guidelines, the beech forest within the project footprint is considered to have a **Moderate** overall level of ecological value and would meet the criteria for ecological significance under Appendix 1 of the NPS-IB. Accordingly, the effects management hierarchy is applied in full in Section 5 of this assessment.

4.2.2 Alluvial Herbfield/Shrubland

On the Twelve Mile Delta, vegetation opens up considerably with extensive areas of bare gravel and sparsely vegetated alluvial deposits. Shrubland here has a more dominant exotic component, including willow, Himalayan honey suckle, rowan, and scotch broom, but indigenous cushion plants (common scabweed, *Raoulia australis*; At Risk - Declining) are present across much of the delta in moderate abundance; although it is progressively being shaded out by briar rose (*Rosa rubiginosa*) in many places.

Representativeness: Moderate. The alluvial delta supports sparsely vegetated gravel, herbfield, and shrubland typical of river-delta landforms. This ecosystem type is less common than the surrounding beech forest and retains structural features characteristic of naturally harsh, disturbance-driven substrates; although it is also under threat by invasion of exotic weeds.

Rarity/Distinctiveness: High. Alluvial herbfields are a less common habitat type compared to beech forest, and At Risk scabweed occurs across the delta including near the Zipline 4 landing area. Its presence confirms the high rarity value of this localised habitat.

Diversity & Pattern: Low-Moderate. Species diversity appears characteristically low, reflecting strong environmental filtering and extreme substrate conditions. Indigenous cushion plants occur among patches of exotic shrubland and bare gravel, with spatial patterning driven by microtopography typical of alluvial systems and anthropogenic disturbance from localised foot traffic.

Ecological Context: Moderate-High. The delta forms part of the lower 12 Mile Creek fan, contributing to the mosaic of river-margin habitats along Lake Wakatipu and providing specialised habitat for stress-tolerant indigenous species. It increases ecological heterogeneity within a predominantly forested or exotic dominated landscape.

Based on the EIANZ Guidelines, the Alluvial Herbfield/Shrubland within/adjacent to the project footprint is considered to have a **High** overall level of ecological value and would meet the criteria for ecological significance under Appendix 1 of the NPS-IB. Accordingly, the effects management hierarchy is applied in full in Section 5 of this assessment.

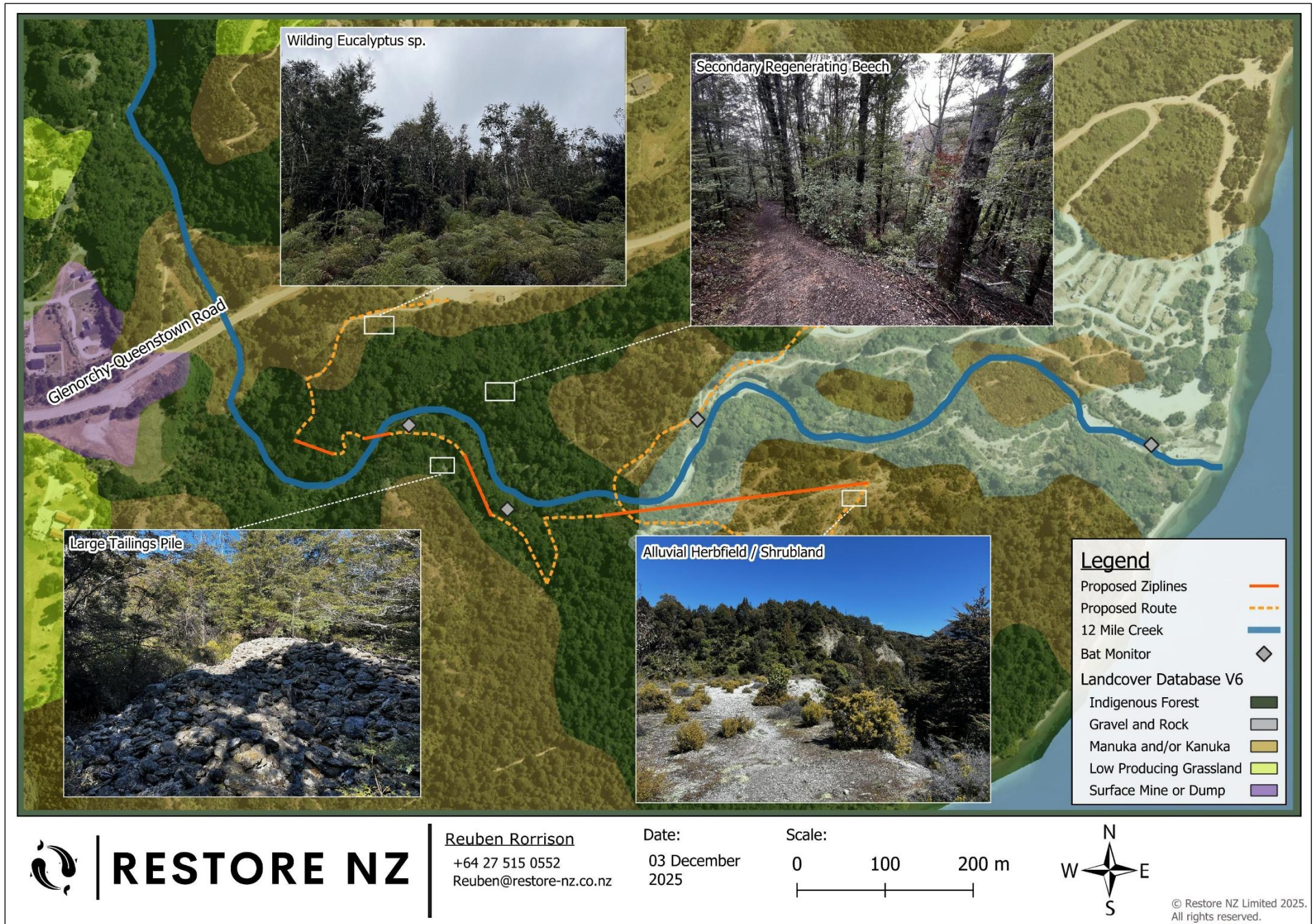


Figure 5: Overview of key features and ecotones present on-site.

4.3 Fauna

4.3.1 Lizards (herpetofauna)

No formal lizard surveys have been undertaken within the project footprint. A desktop search revealed a number of native lizards in the wider area, including a nearby sighting of Kōrero gecko (*Woodworthia "Otago/Southland large"*). Following recent taxonomic changes this was likely the species now re-classified as the Mountain beech gecko (*Woodworthia* “south-western”).

Based on the habitats described on-site, herpetologist Carey Knox has assessed that two species are considered the most likely occupants:

- Mountain beech gecko (At Risk - Declining), and
- McCann’s skink (*Oligosoma maccanni*; Not Threatened).

Mountain beech geckos typically occupy rocky habitats, creviced stumps, fallen logs, and older beech trees with loose bark or cavities, generally remaining close to secure retreat sites with access to sun.

McCann’s skinks prefer open, sunny habitats, including exposed rock and sparse grassland margins.

If open, damp grassy areas are present in the wider forest, there is also a low-moderate likelihood of southern grass skink (*Oligosoma chionocholescens*; At Risk - Declining) being present.

Habitat within the beech forest is mostly shaded and dominated by younger regenerating beech, with less fallen timber than a typical old growth beech forest. The extensive mining tailings piles represent high quality potential habitat due to their thermal variability, diverse array of microclimates and location underneath and adjacent to the beech forest - with areas exposed to direct sunlight (Figure 3). Site visits occurred during weather conditions suitable for lizard emergence, and if McCann’s skink were present in moderate-high abundance it is reasonable to expect some would have been observed basking / moving between the rock tailings. No lizards were observed during walk overs.

Regardless, based on regional records, habitat features, and expert input, McCann’s skink is still likely present within/adjacent to the project area, with the potential for Mountain beech gecko to occur at lower density. In the absence of targeted survey data, ecological value has been attributed conservatively. Given the potential presence of an At Risk - Declining species, lizard habitat within the project area is assigned a **High** ecological value for the purposes of this assessment.

4.3.2 Birds (Avifauna)

Common indigenous forest birds were observed during the site visits, including South Island robin (*Petroica australis*), fantail (*Rhipidura fuliginosa*), grey warbler (*Gerygone igata*), tūī (*Prothemadera novaeseelandiae*) and bellbird (*Anthornis melanura*). A suite of common exotic passerines was also detected during the walkovers. Additional native species are likely present, and eBird records indicate a range of indigenous waterfowl utilise the Twelve Mile Delta and shoreline margins. Otago has a range of native birds that nest on riverbeds, of which only South Island Pied Oystercatcher (*Haematopus finschi*) have been observed in the immediate area; they are not known to utilise the delta for nesting.

It is also possible that kārearea / New Zealand falcon (*Falco novaeseelandiae novaeseelandiae*; Threatened - Nationally Vulnerable) occur within the wider forested area. Falcons may utilise the site intermittently for hunting and could potentially nest in suitable habitats within the broader catchment, although no evidence of nesting activity was observed within or adjacent to the project footprint.

The bird species confirmed within the project footprint are all Not Threatened, and no habitat features indicative of nesting by Threatened species were observed. While kārearea may occur intermittently within the wider landscape, there is no evidence of regular use or dependency on habitats within/adjacent to the project footprint. Accordingly, the bird assemblage within the project area is assigned a **Low** ecological value as per the EIANZ Guidelines.

4.3.3 Bats (Chiropterans)

A desktop survey confirmed the nearest bat observation on the DOC bat database is a long-tailed bat (*Chalinolobus tuberculatus*) record from 2011, approximately 17 km north-west of the site toward Glenorchy. Long-tailed bat populations are known from the upper Dart/Routeburn and Caples-Greenstone catchments, but there is no recent survey confirming the extent of their distribution along the Lake Wakatipu shoreline. More recent survey effort (<10 years) places the known outer extent of bats to approximately 24 km from the site (across Lake Wakatipu), although available data remains insufficient to define a population boundary. Acoustic surveys by the author between Twelve Mile Delta and Queenstown in 2024 did not detect bats.

Given the distance from known populations and the absence of potential roost trees within the proposed works footprint, the likelihood of long-tailed bats being affected by the proposal was considered very low from the outset of this project.

ABMs were deployed during the second site visit, as confirmation of bats within the wider forest would be of high ecological interest and informative for future management. One singular long-tailed bat pass was recorded on the lakefront ABM among 3000+ recordings of non-bat triggers (wind, rain, insects, rodents) across all monitors. This indicates the detection represents a highly infrequent event, likely a transient male rather than evidence of a resident bat population. This interpretation was confirmed through consultation with a member of the DOC Bat Recovery Group.

While this single detection is ecologically noteworthy, providing rare confirmation that long-tailed bats occasionally utilise the northern Wakatipu lakeshore, and representing the nearest known observation of bats in proximity to Queenstown, it does not alter the assessment framework for this EcIA. No potential roost habitat occurs along the proposed zipline alignments, no foraging or roosting behaviour was detected within Twelve Mile Forest, the activity operates exclusively during daylight hours, and the proposal is not expected to generate any additional nocturnal disturbance beyond existing public use of the area.

Accordingly, the works are not considered likely to create any pathway for adverse effects on long-tailed bats, and bat-specific impact assessment is not required. The survey results do indicate that Twelve Mile Forest lies within the outer dispersal range of existing bat populations, which may hold positive management implications should long-term pest control and forest restoration occur. The older and healthier the forest becomes, the more potential ecological value it will hold for long-tailed bats, should their range in the Wakatipu area expand in future.

4.3.4 Aquatic Fauna/Habitats

The proposal does not involve any works within waterways and will not modify aquatic habitat. No areas that would meet the definition of Natural Inland Wetland as per the National Environmental Standard for Freshwater (2020) occur within or adjacent to the proposed works. Accordingly, freshwater fauna and aquatic habitats have not been assessed in this report

4.3.5 Invertebrates

Invertebrates were not assessed as part of this report.

5 Assessment of Effects

5.1 The Effects Management Hierarchy

The effects management hierarchy, as set out in the NPS-IB, provides the framework for managing the ecological effects of proposed activities. This hierarchy prioritises avoidance of adverse effects, followed by minimisation, remediation, and where more than minor residual effects remain, offsetting and compensation.

For this proposal, avoidance and minimisation have been the primary mechanisms for managing ecological effects. Because the activity is inherently dependent on its forest setting, avoiding the forest environment entirely was not feasible; however, the design has undergone substantial refinement to avoid key features and minimise ecological disturbance.

The Applicant involved Restore NZ to allow ecological consideration to directly influence the location of ziplines, trails, and platforms. Multiple alignment options were assessed and adjusted, including the removal of an entire proposed zipline in an area of densely regenerating native saplings, and the construction methodology has been selected to minimise disturbance.

The following sections describe the potential effects and any mitigation or management measures required to ensure effects remain at the lowest practicable level. Mitigation is recommended only where specific features require consideration, as the overarching proposal is structured with the intention of contributing positively to long-term forest health through its integrated restoration model.

5.2 Beech Forest

5.2.1 Potential Unmitigated Magnitude of Effect

Vegetation clearance within the beech forest component of the footprint will be limited to:

- trimming of regenerating saplings beneath ziplines to maintain safe clearance (Figure 3), and
- removal of approximately four small mountain beech trees (10-20 cm DBH; Figure 6).

These tree sizes are typical of secondary, disturbance-prone beech forest, and individuals in this size range are routinely lost during natural wind events as observed throughout the forest. The works avoid all mature or cavity-bearing trees, and no At-Risk species were observed within the affected areas.

Low-impact trail formation (~800 mm) will largely occur on existing informal routes, further reducing the scale of potential disturbance. Many will require no additional works, an image of one of the existing trails is provided below in Figure 6, which is already very similar to the trails utilised at the existing North Island operation that was picture in Figure 3.

When considered relative to:

- the extent of the surrounding forest,
- the small scale of the works footprint, and
- the intentional use of existing disturbed areas,

the potential magnitude of effect on beech forest vegetation is assessed as **Negligible**, consistent with EIANZ guidance:

“very slight change from the existing baseline condition; change barely distinguishable from ‘no change’”.

The duration of these effects is considered permanent (continuing for an undefined period), but the scale of the vegetation directly affected by the construction and operation (not including the positive aspects of the proposal) remains extremely low.



Figure 6: Two of the small beech that will be removed (left) and existing ‘informal’ trails within the beech forest (right).

5.2.2 Mitigation and Management Measures

Through avoidance and minimisation, residual effects on beech forest vegetation are assessed as negligible and no further steps in the effects management hierarchy are required.

Recommendations are provided in their relevant sections below regarding the fauna associated with the beech forest.

5.2.3 Residual Level of Effects

Residual adverse effects on beech forest vegetation are assessed as negligible following avoidance and minimisation. A **Moderate** ecological value combined with a **Negligible** adverse effect results in a **Very Low** overall level of effect under the EIANZ Guidelines.

Separately, the FMP integrated into the operation is expected to produce ongoing ecological enhancement at a scale that represents a **Positive** magnitude of effect and is likely to deliver an overall **Net Gain** in beech forest ecological value over the long term. These benefits sit outside the assessment of construction effects and are not relied upon to address residual impacts, further detail regarding the FMP is outlined in Section 6.

5.3 Alluvial Herbfield / Shrubland

5.3.1 Potential Unmitigated Magnitude of Effect

The Zipline 4 landing area comprises a small (4.5 m²) platform on the alluvial delta, where cushion plants and associated alluvial herbfield vegetation occur. The platform location has been selected to avoid individual cushion plants where possible; however, given the fine-scale patchiness of the herbfield, it is possible that one or more plants occur within the immediate footprint. Any such loss would be very limited in spatial extent and would not meaningfully reduce the local or catchment-scale population.

Access will use an existing informal track that will not require additional widening or ground disturbance along the ~100 m stretch that then joins with the Bobs Cove public walking trail (see Figure 7 below). Direct construction effects are therefore assessed as **Negligible**, as no densely vegetated patches or functionally key areas will be removed.

However, increased foot traffic has the potential to cause localised trampling of cushion plants if visitors move outside the intended access route. The existing Bobs Cove public walking trail is very popular and passes through this habitat, already creating trampling under current public use (Figure 5). Unmanaged increases in visitor numbers could elevate this to a **Low-Moderate** magnitude effect due to incremental trampling pressure on indigenous plants.



Figure 7: Location of the proposed access to the Zip 4 Landing i.e. the white lines (left) and cushion plants on the edge of the existing Bobs Cove walking track (right).

5.3.2 Mitigation and Management Measures

To contain foot traffic to within the established path, the Applicant proposes installing a low-impact physical border i.e. a single row of stones to delineate the trail edge or a single-rail, low-stature timber barrier (whichever option, or any alternative, that is preferred by DOC).

A large informative sign highlighting the ecological function of alluvial herbfield ecosystems and the presence of At Risk scabweed is also recommended to reinforce compliance, increase public awareness and provide educational value for all users of the public walkway.

These measures are expected to reduce potential trampling effects to **Negligible** on the local scabweed population and herbfield community.

5.3.3 Residual Levels of Effect

With the recommended mitigation measures in place, residual effects on the alluvial herbfield / shrubland are assessed as negligible. A **High** ecological value combined with a **Negligible** adverse effect results in a **Very Low** overall level of effect under the EIANZ Guidelines.

Separately, the FMP is expected to include selective control of the exotic scrub currently shading out parts of the herbfield community (detailed further in Section 6). These actions sit outside the effects assessment but are likely to deliver **Positive** ecological outcomes for cushion plants and the wider alluvial herbfield over time.

5.4 Lizards

5.4.1 *Potential Unmitigated Magnitude of Effect*

No large woody debris, fractured schist, or other high-quality lizard habitat will be lost as part of the proposed works. Vegetation clearance is limited to small regenerating saplings, and no mature trees or complex root systems will be affected.

A section of the proposed walking route crosses historic mining tailings, comprising deeply stacked 15-30 cm cobbles and boulders. These features provide potential high-quality habitat for lizards.

Trail formation will involve adding a shallow layer of gravel in a thin path to cross over the tailings. This approach does not involve excavation or removal of stones from the forest, and will not meaningfully alter their structure, drainage, or thermal properties. The addition of a shallow gravel layer may also introduce a beneficial finer-scale variation in surface microhabitat conditions, although any such effect is expected to be negligible. Due to the rounded shape of the cobbles, it is unlikely that any lizards present would become trapped beneath the added gravel layer.

Some surface cobbles will be repositioned partway down Zip 3 to achieve sufficient ground clearance, but this will not meaningfully alter the ecological function or extent of the tailings as lizard habitat. These stones occur beneath beech forest where interstitial spaces are already largely infilled with soil and organic matter, meaning this microhabitat is lower in quality and extent than the larger, more open tailings piles elsewhere in the forest.

Given the extensive distribution of tailings in the wider area, the very small scale of the proposed trails, and the absence of excavation or substantive modification, the potential for adverse effects on lizards is considered **Negligible**.

5.4.2 *Mitigation and Management Measures*

No mitigation for lizards is considered warranted. If a lizard is encountered during surface stone repositioning, works must pause and no further disturbance may occur in that immediate area. No handling or deliberate disturbance of indigenous lizards is permitted under the Wildlife Act 1957. Only once the animal has voluntarily vacated the immediate footprint can repositioning of surface cobbles resume.

5.4.3 *Residual Levels of Effect*

Based on a **High** ecological value and **Negligible** magnitude of effect, the overall level of effect on lizards is assessed as **Very Low** under the EIANZ Guidelines.

The FMP is expected to include pest control and broader habitat enhancement initiatives, which may provide indirect long-term benefits to lizard populations within the wider forest environment, detailed in Section 6.

5.5 Birds

5.5.1 *Potential Unmitigated Magnitude of Effect*

The vegetation that will be removed as part of the proposed works is almost entirely limited to small regenerating saplings that do not constitute high-quality nesting habitat for native forest birds. The four young beech trees proposed for removal present a low likelihood of containing active nests should removal occur during the nesting season.

Native forest birds within the project area are already exposed to regular recreational use and can be considered generally tolerant of human presence. Species commonly observed during site visits (fantail, robin, grey warbler, tūī, bellbird) are behaviourally tolerant to forest walkers, and several are known to forage opportunistically around human activity due to increased invertebrate movement (fantail being a classic example). Small guided tourist groups are expected to generate disturbance levels similar to the existing baseline, and no meaningful displacement of indigenous bird species is anticipated. Operation is restricted to daylight hours, which avoids potential interaction with nocturnal bird species.

The alluvial delta could theoretically provide opportunistic nesting habitat for river-margin or ground-nesting species; however, no such nesting activity was observed during site visits, and none is known to occur in this area. The habitat is already heavily used by the public via formal and informal tracks, lake access, and frequent unleashed dog activity, meaning any birds attempting to nest would already be subject to chronic disturbance.

Overall, the potential for adverse effects on birds is conservatively assessed as **Low**: “*Having a minor effect on the known population or range of the element/feature*”.

5.5.2 *Mitigation and Management Measures*

To ensure no inadvertent disturbance of active nests, a pre-construction nest check of the Zipline and trail alignment will be undertaken prior to works commencing. This is a standard precautionary measure proportional to the scale of activity.

In addition, the proposed low-impact edging/fencing to contain foot traffic within the alluvial delta will also incidentally reduce the likelihood of trampling or disturbance should any ground-nesting species utilise the habitat in future. The signage proposed should also advocate for the importance of keeping dogs on a leash. No further mitigation is considered necessary.

5.5.3 *Residual Levels of Effect*

Following a pre-construction nest check, no direct harm to nesting birds is anticipated. A minor increase in generalised disturbance may occur due to guided visitor movements through the forest which cannot be reduced through mitigation. Residual effects are therefore assessed as **Low** in magnitude. When combined with the **Low** ecological value assigned to the bird community, the overall level of effect is assessed as **Very Low** under the EIANZ Guidelines.

Separately, the operational model of the proposal and FMP is expected to include pest control and habitat enhancement actions that are highly likely to improve long-term conditions for native birds across the wider forest environment. These actions sit outside the effects assessment but are highly likely to result in **Positive** residual outcomes for indigenous birds in the medium – long term.

6 Forest Management Plan

6.1 Purpose and Scope

This EcIA addresses the potential ecological effects of the proposed zipline operation and applied the effects management hierarchy to those manage potential effects.

The proposed Forest Management Plan referenced throughout this report forms part of the business model proposed by the Applicant and will deliver wider ecological enhancement; however, it sits outside the assessment of construction/operational effects and is not relied upon to reduce residual effects. It can be considered an Additional Positive Ecological action proposed by the Applicant. The purpose of this subsection is to outline the key components expected to be included in the FMP, enabling DOC to understand the intended operational framework and allowing its preparation to form a condition of the concession.

The FMP will outline the long-term forest restoration and management approach associated with the proposed zipline operation. A draft FMP will be provided to DOC for approval prior to construction. The plan will be developed in consultation with DOC and prepared in partnership with Southern Lakes Sanctuary, Wakatipu Wildlife Trust, and any additional affected parties identified during its development.

Baseline ecological surveys and detailed planning for long-term management are considered more appropriately undertaken once the concession outcome is known, ensuring that resources are used efficiently and that non-profit conservation partners are only fully engaged when their ongoing involvement is certain.

6.2 Broad Objectives

The FMP will be structured around the following broad objectives:

- Identify and quantify the primary ecological threats to ongoing wider forest health (e.g., pest animals, weeds, browsing pressure).
- Develop targeted control strategies to reduce these threats to appropriate levels and maintain long-term ecosystem resilience.
- Establish partnerships with local conservation groups to coordinate delivery, align with existing programmes, and enable a portion of operational revenue to directly support forest health.
- Design a monitoring and reporting framework to track ecological condition over time and evaluate the effectiveness of management actions.
- Implement an adaptive management approach, with scheduled review and refinement of actions based on monitoring results and new information.

6.3 Funding Framework

The Applicant's operational model includes ongoing financial and in-kind contributions to forest restoration, consistent with its established approach at Rotorua Canopy Tours. A portion of visitor revenue will be directed toward delivery of the FMP, and the precise funding structure will be developed in collaboration with DOC, Southern Lakes Sanctuary, Wakatipu Wildlife Trust, and other relevant partners.

The funding framework will be confirmed within the FMP once the concession outcome is known, ensuring that contributions are appropriately scaled to ecological priorities and the operational scale of the Queenstown activity.

6.4 Relationship With Local Conservation Trusts

The Applicant's Rotorua operation formed a trust for the specific purpose of implementing their forest management objectives. For the 12 Mile operation, the Applicant intends to achieve the objectives of the FMP in partnership with local conservation organisations already active in the Wakatipu Basin.

An initial meeting has been held with Southern Lakes Sanctuary, who have expressed interest in collaborating on long-term forest restoration should the concession be approved. As SLS and WWT work collaboratively towards shared conservation goals, and WWT is the organisation operating within the Twelve Mile / Bob's Cove area, further engagement with WWT is anticipated during FMP development.

The final structure of these partnerships will be shaped through consultation with DOC and local groups, ensuring alignment with existing restoration programmes and efficient use of existing resources.

6.5 Key Inclusions of the FMP

6.5.1 *Pest Animal Management*

Introduced mammalian pests pose a major threat to indigenous fauna and vegetation in New Zealand. The forest surrounding the proposed activity is likely to support a typical suite of pest species, including rodents, mustelids, possums, feral and domestic cats, hedgehogs, and browsing mammals such as deer and goats, with rabbits likely present on the river flats.

Pest animal management is expected to form a key component of the FMP. Key inclusions are anticipated to include:

- Consultation with existing conservation groups to identify current pest control efforts and ensure alignment with established programmes.
- Baseline assessment of pest presence and relative abundance, where this information is not already available through partner organisations.
- A pest management framework outlining:
 - broad objectives for reducing pest pressure to support forest health,
 - methods for delivery in coordination with local groups,

- how resourcing will be structured through partnerships, and
- how effectiveness will be monitored and refined through adaptive management.

6.5.2 Weeds and Wilding Control

Wilding pines and eucalypts are progressively encroaching on the indigenous forest within the Twelve Mile / Bob's Cove area. These species have caused widespread degradation of ecological values throughout the ecological district, and ongoing control will be essential to maintaining the current integrity of the forest.

Weed and wilding management is expected to form a key component of the FMP. As with pest control, this will require baseline assessment (where information is not already available) and consultation with existing groups delivering weed control in the area to ensure that actions are aligned and complementary.

The weed management section of the FMP is likely to include:

- Weed management objectives aimed at protecting indigenous forest structure and regeneration.
- General methods for delivery, including prioritisation of wilding conifer and eucalypt control and coordination with local conservation groups.
- A partnership-based resourcing structure, reflecting the involvement of community groups, trusts, and the applicant.
- Monitoring and adaptive management, enabling refinement of weed control approaches over time as forest conditions and management priorities evolve.

6.5.3 Ecological Monitoring Framework

Ecological monitoring will be an important component of the FMP, providing the information needed to assess the effectiveness of management actions and to guide adaptive management over time. Monitoring will also contribute to broader knowledge of how commercial tourism ventures can integrate ecological enhancement into their business model, supporting future conservation-focused initiatives in similar settings.

Monitoring is expected to focus on the following high-level themes:

- Pest and weed presence/abundance, aligned with the pest and weed management components of the FMP.
- Bird surveys, noting changes in species presence and relative abundance over time.
- Lizard surveys, also noting changes in species presence and relative abundance over time.
- Overall forest health and vegetation composition, using simple and repeatable indicators appropriate to the forest type.
- Extent and condition of the alluvial cushionfield, including any changes in spatial extent or vegetation composition.

Specific methods, frequencies, and responsibilities for monitoring will be determined during preparation of the FMP in consultation with DOC and local conservation partners.

6.5.4 Reporting and Review

The FMP will include a simple reporting and review process to support adaptive management. Reporting requirements should be determined in consultation with DOC as a concession condition, and may include periodic updates on pest control, weed management, and ecological monitoring outcomes. Management actions should be reviewed at appropriate intervals and refined as new information becomes available.

6.6 Anticipated Benefits

Implementation of the Forest Management Plan is expected to deliver a range of ecological benefits across the wider Twelve Mile / Bob's Cove Forest environment over time.

Anticipated benefits include:

- Reduced pest pressure as coordinated predator control is expanded or strengthened through partnership with local trusts.
- Improved forest health through targeted management of wilding pines, eucalypts, and priority weed species, supporting indigenous regeneration.
- Greater understanding of ecological condition and trends via long-term monitoring across key ecological indicators.
- Enhanced local conservation outcomes through resourcing and collaboration with Southern Lakes Sanctuary, Wakatipu Wildlife Trust, and other community groups active in the area.

These benefits are expected to accumulate progressively as FMP actions are implemented and refined through adaptive management.

7 Recommended Conditions

Track Containment on the Alluvial Delta:

Low-impact edging or similar measures shall be installed to confine foot traffic to the designated path and avoid trampling of cushionfield vegetation.

Informational Signage:

An information panel shall be installed at the alluvial delta explaining the ecological role of herbfield communities and encourage adherence to formed tracks and responsible dog control.

Accidental Lizard Discovery Protocol:

If a lizard is encountered during surface stone repositioning, works in the immediate area shall pause. No handling or deliberate disturbance shall occur. Works must remain paused, and no further disturbance may occur in that immediate area until the animal has voluntarily moved away of its own accord.

Pre-construction Nest Check:

Before any vegetation clearance, trimming, platform construction, or trail formation is undertaken between September and February, a nest check by a suitably qualified ecologist shall be completed in the area of proposed works. If works pause for more than two weeks, the nest check shall be repeated. No works may occur within a minimum of 10 m of an active nest until chicks have fledged.

If works are staged rather than undertaken simultaneously, nest checks need only cover the immediate area of the upcoming stage. A new nest check shall be completed prior to commencing each subsequent stage of works.

Forest Management Plan Submission:

Prior to construction, the Applicant shall submit a Forest Management Plan to the Department of Conservation for approval. The plan will outline the proposed long-term forest management actions associated with the activity, including pest and weed control, ecological monitoring themes, and partnership arrangements with local conservation groups.

8 Conclusion

This Ecological Impact Assessment has evaluated the potential ecological effects of a proposed zipline operation in the Twelve Mile Forest and assessed them in accordance with the effects management hierarchy and accepted ecological practice. The proposal has been designed from the outset to avoid and minimise ecological effects as far as practicable.

The magnitude of residual adverse effects on indigenous vegetation and lizards is assessed as negligible, and low for birds; in all instances overall levels of effect fall within the Very Low category under the EIANZ Guidelines. No potential effects were identified that would require remediation, offsetting, or compensation to achieve an acceptable level of ecological impact.

Where minor risks exist, such as potential trampling of cushionfield vegetation or unintentional disturbance of wildlife, simple proportionate measures have been identified to ensure these values are protected during construction and operation, or potential effects are minimised. These measures are expected to be straight forward to implement; not relying on intensive management or specialist input.

In addition to the very low level of construction-related effects, the Applicant's integrated conservation framework includes the preparation and delivery of a Forest Management Plan. The FMP will guide long-term pest and weed control, monitoring, and restoration in partnership with local conservation groups. These actions sit outside the effects assessment but are expected to contribute positively to the ecological function of the wider Twelve Mile / Bob's Cove Forest over time.

Trail upgrades will improve public safety by formalising and stabilising several unsafe informal tracks currently used by the public, especially along the true right-hand bank of 12 Mile creek/canyon. Overall, the proposal is intended to enhance site condition and visitor management relative to the existing situation.

Based on this assessment, and with implementation of the recommended conditions, the proposed activity is not expected to generate more than Very Low adverse ecological effects. The proposal represents a very low impact, conservation-aligned use of the site, and construction and operation can likely occur without compromising the ecological values of the surrounding environment.

The long-term operation of the proposed activity, together with its integrated forest management initiatives, is expected to provide substantive enduring benefits to overall forest health, ecological resilience, and the long-term integrity of the Twelve Mile / Bob's Cove ecosystem.