

OneFortyOne New Zealand Ltd

Forest Management Plan

Public Summary

2023



Front cover: Staircase Road PAE, Top Valley West block, Wairau North forest.

This is a working document and may be updated periodically as we continually evaluate, develop, and refine our forest management plans and objectives. Printed copies are therefore obsolete.

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1 Introduction

OneFortyOne (OFO) is a trans-Tasman business with forests and mills in Australia and New Zealand.

OneFortyOne operates throughout the Green Triangle region of Australia, and the Nelson, Tasman, and Marlborough regions of New Zealand (Top of the South). As a trans-Tasman business, we employ more than 550 people directly and over 2,400 indirectly as contractors/subcontractors. We manage 160,000 hectares of land and plant approximately six million trees every year. We work with domestic processors and manufacturers to ensure that customers can use as much as possible of each tree.

Our aim is to be the company that people think about first when they are considering a career in forestry. We do this by focusing on what matters to our people – their ongoing health and wellbeing, employment conditions and opportunities for professional development. We strive to create a positive culture where everyone’s contribution is recognised and appreciated. Forestry is critical to regional development, and we value and nurture our relationships with local communities. We are major employers in the regions where we work, and we are proud to invest in local environments and local people via our community grants program.

1.1 Our Purpose and Values

Growing a Better Tomorrow is about growing, producing, and delivering wood products in a responsible way that meets rising demand and helps create a sustainable future for people and the planet. We are built on the belief that forestry and wood products could be done differently to make a greater contribution. Today our forests and sawmills create a business that begins with a seed and delivers high-quality wood products in a way that delivers secure careers, contributes to positive environmental outcomes, and shares benefits with the communities where we work. Together we are growing a better tomorrow.

This document is intended to provide OFO New Zealand (OFO NZ) stakeholders with an overview of how we manage our forests and operations while considering environmental, economic, social, and cultural factors.

2 Overview of OFO NZ

2.1 Forest Estate Description

As of December 2023, OFO NZ manages 79,678 hectares of which over 59,189 hectares is stocked. The forest area consists of three ex-Crown Forest License areas (Golden Downs West, Golden Downs East, Rai) in iwi ownership; freehold forests; and three joint venture forests. There have been no forest acquisitions or sales during the 2023 calendar year. A full description of the land and forest areas is captured in Table 1.

OFO NZ’s forest management unit (FMU) contains a range of non-plantation areas that are set aside and maintained as conservation/protection areas (e.g. natural indigenous forest, wetlands, HCV) for maintaining indigenous biodiversity. In 2023, 10,961 hectares (16%) of the working forest area within the FMU is designated as *conservation areas network*¹ (Table 1).

During 2023 a project was undertaken in the GIS mapping to redefine areas historically classified as ‘retired’, some of which were rescheduled as ‘productive’ and other cover types.

¹ Those portions of the management unit for which conservation is the primary and, in some circumstances, exclusive objective. Such areas include Representative Sample Areas, conservation zones, protection areas, connectivity areas, and high conservation value areas (FSC-STD-NZL-02-2023 Plantations EN).

OFO NZ has two offices. The main office is in Richmond, Tasman region and the second office is in Blenheim, Marlborough region.

Appendix IV shows the mapped erosion susceptibility classification (ESC) across the Estate.

Table 1. Land and forest area description at 31/12/2023.

Land and Forest Area Description	Hectares
▪ Radiata pine	56,362
▪ Douglas fir	2,254
▪ Minor species	573
▪ Available for planting	2,748
▪ Potentially plantable	3,944
Total productive	65,881
▪ SNAs/ecological significant/wetlands/HCV	3,841
▪ Indigenous forests, riparians, mixed regenerating	6,551
▪ Transmission lines/fire breaks	397
▪ Retired from production	569
▪ Roads/landings	1,689
▪ Unplanted – other	750
Total non-productive	13,797
Total area	79,678

2.2 Land ownership

As a result of Ngāti Kōata, Ngāti Rārua, Ngāti Tama ki Te Tau Ihu, and Te Ātiawa o Te Waka-a-Māui Claims Settlement Act 2014, and the Ngāti Toa Rangatira Claims Settlement Act 2014, the original four Crown Forest Land parcels (Wairau, Rai, Golden Downs West and Golden Downs East Crown Forestry Licenses) were transferred to iwi ownership as part of the Settlement redress to iwi.

- Wairau Crown Forest Land was included in the Settlement redress to Ngāti Rārua, which OFO purchased in 2017. This Forest is now freehold.
- Golden Downs East Forest Land was included in the Settlement redress to Ngāti Toa Rangatira.
- Rai Forest Land was divided roughly in half and one half has been included in the Settlement redress to Te Ātiawa o Te Waka-a-Māui and the other half has been included in the Settlement redress to Ngāti Tama ki Te Tau Ihu.
- Golden Downs West Forest Land was divided into four separate parcels and one part included in the Settlement redress to Ngāti Toa Rangatira, one part to Ngāti Tama ki Te Tau Ihu, one part to Te Ātiawa Te Waka-a-Māui and one part is held jointly between Ngāti Tama ki Te Tau Ihu and Te Ātiawa o Te Waka-a-Māui.

Termination notices were issued to OFO NZ in respect to each of the Crown Forestry Licenses (CFL) in 2014. The notices have the effect that OFO NZ has 35 years under the CFL to harvest the remaining standing plantation trees and any land cleared (harvested) of forestry trees is to be “returned” or handed back to iwi.

OFO NZ welcomed the Settlement and the opportunity to partner with our new iwi landowners. There is acknowledgement that the need for a long-term view in forestry (because of the time for the trees to grow) aligns well with iwi. New relationships have been formed. The Crown Forest Licenses are being replaced with separate Forestry Rights covering the land owned by Ngāti Toa Rangatira, Ngāti Tama ki Te Tau Ihu, Te Ātiawa o Te Waka-a-Māui and the Golden Downs West land held in joint venture between Ngāti Tama and Te Ātiawa. The new Forestry rights each have a 20-year initial fixed term,

followed by an automatic annual extension until a 35-year Termination notice is issued.

Ngāti Rārua, the beneficial owner of the land under the Wairau Crown Forest License area, decided in 2015 to sell their interest in the Wairau Forest land to OFO (ex-Nelson Forests Limited). Figure 1 shows land ownership across the OFO NZ Estate as of December 2023.

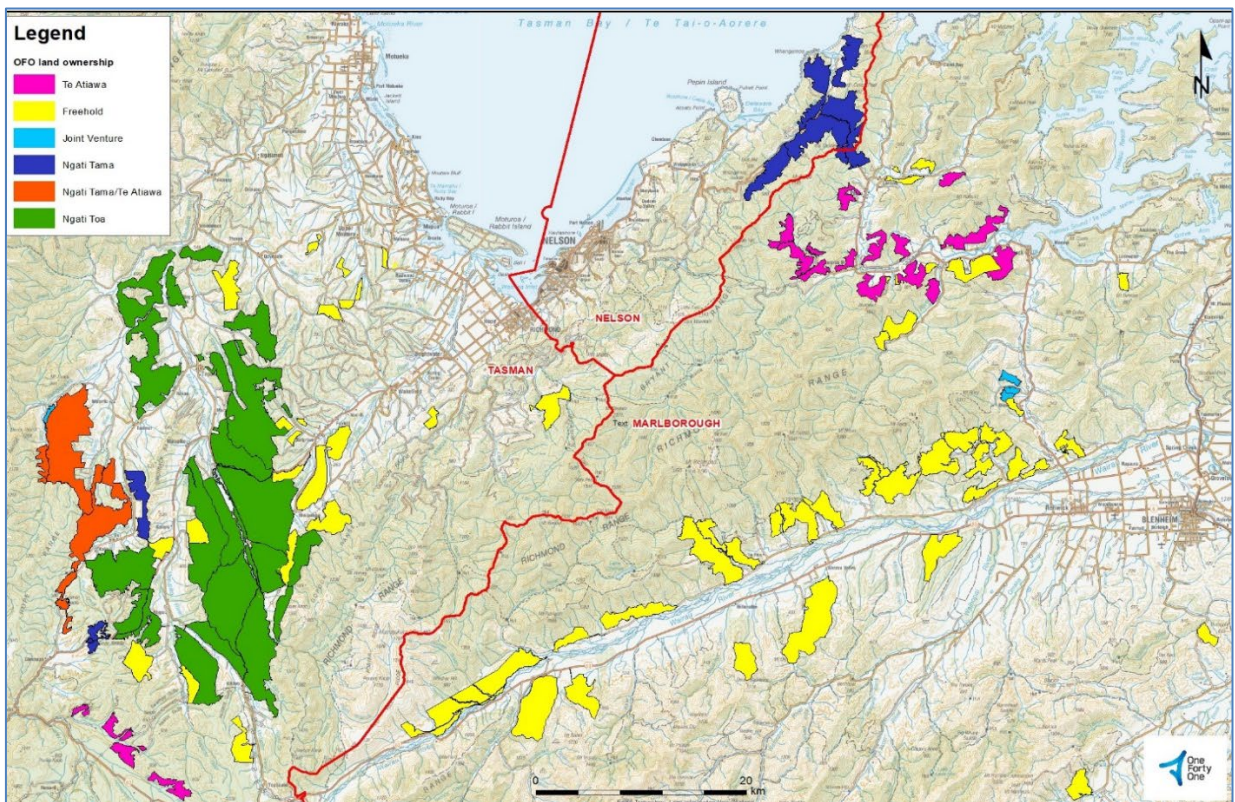


Figure 1. OFO NZ Estate: location of forest blocks and land ownership within each of the Top of the South three council regions.

2.2.1 Golden Downs Forests

Golden Downs is the largest forest unit in the Tasman region, southwest of Nelson City. Golden Downs has a range of geographical features from very steep broken hill country bordering the Kahurangi National Park to easy rolling hill country and river flats. The State Highway from Nelson to the West Coast (SH6) bisects the forest. Several rivers flow through Golden Downs Forest including the Baton, Motueka, Motupiko, Wangapeka, Tadmor, Dart and Stanley Brook. Most of the forest is situated on Moutere gravel soils. Smaller outlying blocks to the west are on soils classed as separation point granites, which are regarded as highly erodible. Land use adjacent to the forest is predominantly farming, forestry and conservation.

Many of the Nelson freehold forests lie on the foothills of the Waimea basin (Serpentine, Kainui, Moutere, Te Hepe and Brightwater). Smaller freehold forests are located adjacent to Golden Downs Forest (Korere). Topography consists of rolling to steep hill country. Land use adjacent to the forest is predominantly farming, lifestyle farming, viticulture, forestry and conservation.

The total area of these forests is 49,161 hectares.

2.2.2 Rai Forest

Rai Forest lies on both sides of the Nelson-Blenheim highway (SH6) in several blocks and extends from the top of the Whangamoia saddle to the township of Havelock. Most of the valley systems leading off the highway and running out to the eastern coastline of Tasman Bay contain parts of the forest. The

Whangamoā, Rai, Wakamarina and Pelorus Rivers run through parts of the forest. Soils are predominantly clay soils on steep topography. Mineral belts (Serpentine) run through small parts of the forest. Land use adjacent to the forest is predominantly dairy and dry stock farming, lifestyle farming, forestry and conservation.

The total area of these forests is 11,183 hectares.

2.2.3 Wairau Freehold Forest

The freehold forests in Marlborough include Wairau North and Manuka Island, which are situated on the eastern side of Mt Richmond Forest Park. The Wairau North Forest is made up of a series of blocks, which extend along the north bank of the Wairau River to the south-west of the SH63 Bridge (Washbridge). Topography consists of rolling to steep hill country. Soils are predominantly Onamalutu steepland soils. Land use adjacent to the forest is predominantly farming, viticulture, lifestyle farming, forestry and conservation.

The remaining Marlborough Freehold forests include Wairau South Forest, Linkwater, Wakamarina, Kaituna Mill, the Opouri Valley and the Awatere Valley. Topography consists of rolling to steep hill country. Land use adjacent to the forest is predominantly farming, lifestyle farming, viticulture, forestry and conservation.

The total area of these forests is 18,988 hectares.

2.2.4 Joint Venture Forests

Three relatively small joint venture forests are established in the Tasman and Marlborough regions covering an area of 345 hectares (as of December 2023 and included in the totals above). The joint ventures are set up as Forestry Right agreements.

2.3 Major plantation species area change report

The current strategy of OFO NZ is to replant all productive areas into *Pinus radiata*, which is driving an uplift in the overall *Pinus radiata* area each year. The stocked area of this species increased by 127 hectares between 1 January and 31 December 2023. For the same period, the stocked area of Douglas fir (*Pseudotsuga menziesii*) decreased from 2,806 hectares to 2,254 hectares in line with the decision to replant Douglas fir harvested areas with *Pinus radiata*.

A major contributor to decreases is the harvesting of single rotation joint venture forestry right areas, which were handed back to other landowners. Other factors include the mapping-out of roads and landing, waterway setbacks, mapping of wind damage and slips and miscellaneous unstocked gaps.

3 Management Objectives

OFO NZ primary objective is to return value to the owners of the forests it manages through the development, management and harvesting of productive and high-quality forests in a safe and sustainable manner.

OFO NZ seeks to achieve its objective through innovative business strategies, proactive management of natural and physical resources, and building strong relationships with stakeholders. We have a strong commitment to managing the land the trees are growing on for our shareholders, landowners, stakeholders, and surrounding communities to ensure the long-term sustainability of our forests.

OFO NZ actively manages its responsibilities in the areas of biodiversity, soil and waterways protection, reserve management, recreation and public access and protection of archaeological sites within the

forest Estate. The following is a summary of the key objectives of OFO NZ.

3.1 Forest Management Objectives

- Manage the forest Estate as a renewable and sustainable resource.
- Practice silviculture consistent with best management practice and the maximisation of value to the forest owner.
- Monitor tree breeding to provide the most appropriate stock for the forests.
- Harvest trees as close as possible to the most economically effective age.
- Proactively manage risks to forest health such as fire, pests, and disease.
- Create employment and contracting opportunities for members of local communities within the constraints of meeting other performance criteria.

3.2 Health, Safety and Wellbeing Objectives

- Undertake industry benchmarking, external audits and reviews and participate in health and safety forums to challenge and inform us about how to improve.
- Focus on leadership, worker engagement and risk management, to ensure that wellbeing, health and safety is embedded in the way we do business and that we deliver positive outcomes.
- Ensure that all employees and contractors are trained and competent to undertake their jobs safely.
- Manage the Estate in compliance with all health and safety regulations.

3.3 Quality Objectives

- Focus on effective planning to achieve process reliability across the forest growing and harvesting cycle.
- Establishment and silviculture practices are managed through best practice documents in a forestry operation manual.
- Process reliability in log manufacture incorporates calibration of processing equipment, operator training and a systematic sample (quality assurance) of product from all OFO harvest crews on a weekly basis.
- Information is distributed internally on a weekly basis and shared with contractors and customers monthly.

3.4 Financial Objectives

- The pursuit of financial excellence will be dependent on obtaining and maintaining an internationally competitive cost position that allows the capture of the value naturally inherent in our Estate, and which will be further enhanced by a dedication to customer needs.
- As a medium-sized organisation we can focus on a small number of critical customers whom we aim to provide with a consistent product and service.

3.5 Stewardship Objectives

- Manage the Estate in compliance with:
 - OFO NZ's Environmental Management System (EMS).
 - Relevant legislation includes the *Resource Management Act 1991*, *Heritage NZ Pouhere Taonga Act 2014*, and *Health and Safety at Work Act 2015*.
 - NZ Forest Accord (1991).

- Principles for Commercial Plantation Forest Management in NZ (1995).
 - NZ Wilding Conifer Management Strategy.
 - The requirements of voluntary forest certification systems that OFO NZ is certified under.
- Identify and allow for environmental, cultural and social values when planning and undertaking operations to minimise negative impacts on the environment and the community.
 - Identify and protect areas of significant ecological and scientific value within our managed forests and put in place processes to protect and enhance identified values.
 - Manage our forests sustainably and minimise adverse effects of forest operations on soil and water values.
 - Minimise impact of operations on archaeological and historic sites.
 - Minimise impact of operations on amenity values (visual, noise, air) and neighbouring properties.
 - Manage and use pesticides (including fertilisers) responsibly and seek to minimise the use of pesticides in our operations as far as practical.
 - Capture and learn from environmental incidents through reporting, investigation and sharing of learnings.
 - Ensure employees and contractor workers receive appropriate training to comply with the law and the requirements OFO NZ's Environmental Management System (EMS).
 - Monitor environmental outcomes, and research new ways to minimise impacts of forestry operations on the environment as well as maximise environmental benefits of forests.
 - Recognise the recreational value of the forest Estate to local communities and the public and proactively manage public access while managing the health, safety and wellbeing of people and environmental impacts.
 - Identify areas within our Estate that meet the definition of high conservation value forest, significant natural areas and significant biodiversity values, and manage these in accordance with relevant regulatory and certification requirements.
 - Actively pursue initiatives to reduce carbon emissions from operations under our management.

3.6 Forest Stewardship Council® Certification

The Forest Stewardship Council® (FSC®) was founded in 1994 and is a global, not-for-profit organization dedicated to the promotion of responsible forest management worldwide. FSC defines standards based on agreed principles for responsible forest stewardship that are supported by environmental, social, and economic stakeholders. OFO NZ operations have been continuously certified by FSC (*License Code FSC-C074692*) since 2010.

All forests certified by FSC must comply with an international Standard with a set of rules called the *Principles and Criteria*. A new FSC Standard for New Zealand was released in early 2023 ([FSC-STD-NZL-02-2023 Plantations EN](#)). The requirements of FSC cover the full range of forest management, including complying with the law, environmental values (water quality impacts, soils, biodiversity, pesticide use), social requirements (worker rights, indigenous peoples' rights, stakeholder, and community benefits), alternative benefits of the forest beyond core forest products, and sound and economically viable forest management practices. FSC accredited auditors undertake annual audits of FSC certified forestry operations to confirm compliance with FSC requirements. For further information about FSC visit their websites <https://fsc.org/en> or www.anz.fsc.org.

3.7 External Agreements

As a member of the New Zealand Forest Owners Association, OFO NZ is bound by the requirements of the New Zealand Forest Accord (1991) and the Principles for Commercial Plantation Forest Management in New Zealand (1995).

The Forest Accord protects remaining indigenous forest remnants within the plantation forest that meet minimum size and quality criteria from clearance and conversion to plantation forest. All New Zealand Forest Accord vegetation in the OFO NZ's Estate is identified in the company geographic information system (GIS) and is protected.

The Principles for Commercial Plantation Forest Management in New Zealand are complementary to the New Zealand Forest Accord and cover a range of broader principles to promote environmental excellence in plantation forest management, and the protection, preservation, and sustainable management of native forests.

4 Overview of Forest Operations

4.1 Species Selection

Establishment and silviculture practices are adopted with the objective of maximising the value of the forest resource while mitigating and/ or managing any risk factors. Radiata pine (*Pinus radiata*) is the predominant species. Radiata pine has been selected as the preferred species following extensive trials and numerous regime analyses over time. Trials (figure 3) also exist within the forest evaluating other potential commercial species. The type of tree grown in the Nelson region has good density and branching habit, which assists in meeting product consistency and recovery.

4.2 Silviculture Management

OFOs objective of tree crop management is to produce high-quality structural logs with high wood stiffness and small branching. The Estate is managed on a standard regime for radiata pine, being the species most adapted to the sites that the Estate occupies. Figure 2 outlines the silviculture management timeline.

Jan to Mar	April to Jun	July to Sept	Oct to Dec
Land Prep Spraying late Feb to May			
	Planting Season Late May to Aug		
		Tree Releasing Season Sept/ Oct	
			Thinning Sept to May
			Dothistroma Sep to Jan
Fire Season Dec to Mar			
FIRE Shoulder season Sep, Oct, Nov, April, May			

Figure 2. Planned management activity timeline.

4.2.1 Land Preparation

On ground-based sites (typically below 26 degrees slope) mechanical land preparation is practiced to slash rake the site and windrow woody debris, where required, so that cuttings and seedlings can be planted into the soil. Approximately 30% of the area to be planted each year is treated by this method.

A pre-plant spray is used on all sites to kill weeds and regenerating conifers from the cones of the previous crop, before establishing the radiata cuttings or seedlings. A record of our pesticide management is kept.



Figure 3. N100 Douglas fir trial plot, Golden Downs Forest.

4.2.2 Establishment and Thinning

The current establishment strategy is to plant all sites into radiata pine for a structural regime.

Approximately 21% of the planting stock is cuttings with the remaining stock a 75/25 mix of control and open pollinated bareroot seedlings. Clonal plants are being trialled but no significant areas are planted in clonal material. The initial stocking for most of the sites is 800 seedlings per hectare (sph) with the intention of a non-commercial thinning to take place when the trees achieve a target mean top height (MTH) of 14 meters to a final crop stocking of 550 sph.

In areas where either the terrain makes thinning to waste too risky or where the risk of windthrow is too high, a plant and leave strategy is used. In this case, an initial stocking of 667 sph is practiced.

No commercial pruning is undertaken.

OFO has embarked on a program of mechanical thinning, which is an alternative to manual chainsaw thinning. It is applied on slopes up to 25 degrees and up to 35 degrees in some areas with short, steep slopes.

4.2.3 Fertilising application

Current site fertility management decisions are based on annual foliar analysis. The primary objective is to correct elemental deficiencies in the tree when values fall below a deficiency threshold or an imbalance between elements creates an induced deficiency (figure 4). Optimal nutrient ratios are also considered for their opportunity to increase growth.

A measure of plantation forestry sustainability is crop nutrition. Each year the 3-year-old age class foliage is sampled for foliar nutrition, and fertiliser is applied to correct selected deficiencies. The application of fertiliser is a measure of the fertility of the land occupied by the current 3-year-old age class. Boron is applied to approximately half of the Estate by 4-years old. Nitrogen and/or phosphorus is applied to less than 5% of the Estate by 10 years old but depends on foliar sampling results and product costs. These fertilisers are generally applied aerially in spring or autumn.

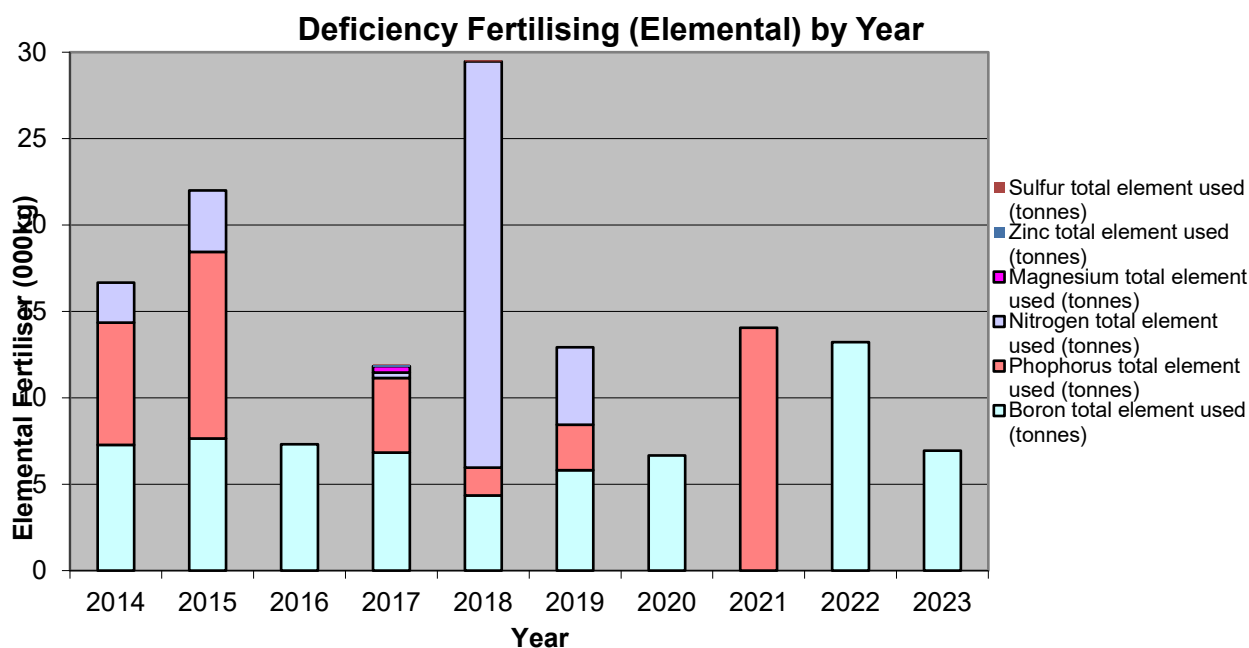


Figure 4. Total elemental fertiliser applied to the FMU each calendar year recorded over a 10-year period.

There is a network of over 26 historic and current replicated and operational fertiliser trials (over 100 plots) across the Estate. They explore a wide range of products at varying rates and intervention levels and give valuable insight into the effects of fertilising on crop health and growth. A relational model is currently being created to exploit this information and assist in site specific fertilising decisions to be made. It incorporates financial and physical inputs, a fertilizer optimizer, sensitivity analysis, and volume and grade outputs.

4.2.4 Pesticide application

The rate per hectare of pesticides varies according to the weed type and vigour. All pesticides, except for Triclopyr, had a reduction in total volume used between 2022 and 2023 because of reduced areas treated. Triclopyr use has increased due to the use of old stocks in preplant spraying and year-2 aerial releasing.

Average glyphosate-use per hectare in 2023 decreased from 2022. The reduced rate is due to the addition of Tryclopyr to improve control of more stubborn weeds (Broom) or where weeds have more advanced growth. Advanced growth is often due to not using a hold spray or due to delayed timing, so selective products are added to improve effectiveness of weed knock down.

Terbutylazine and hexazinone use has reduced due to some sites having no release spraying in a dry year and a lower proportion of year 1 aerial releasing than 2022. Aerial release, with high pesticide rates, is accepted to improve worker safety by removing them from steep or high hinderance slopes.

Clopyralid, used in age 2 aerial releasing, had a reduction in average rate per hectare from 2021 owing to a program mix that included sites with less vigorous broom where a lower pesticide rate would provide effective control.

Pesticide application is also required to control noxious weeds (figure 5) in accordance with the requirements of regional pest management strategies prepared by Regional Councils.



Figure 5. *Pampus* (*Cortaderia sellonana*, *Cortaderia jubata*) can smother tree seedlings. In scrub areas they prevent native regeneration. Pampas can be a fire hazard due to the large amount of dry matter it produces.

4.2.5 Forest health

An annual forest health survey is undertaken within the OFO Estate as part of the New Zealand Forest Owners Association's national biosecurity surveillance program. This program takes a national, risk-based approach to monitoring forest biosecurity.

Under the national program, much of the OFO NZ Estate is considered low risk and it is not considered necessary to undertake 100% annual surveillance.

To supplement the area surveyed in the national program, OFO NZ directs areas planned for *Douglas fir* harvesting to be assessed as part of the non-model allocation (NMA) surveillance. This additional surveillance is to reassure Douglas-fir customers that our forests are free from *Phytophthora kernoviae* and *Phytophthora ramorum*.

Surveillance undertaken by SPS Biosecurity Ltd in 2023 identified one new host and distribution. *Coleophoma cylindrospora* was discovered on *Eucalyptus nicholii* foliage located in Clark Valley Picnic Area. This fungus has previously been recorded in other regions in the North and South islands of New Zealand but not in the Nelson region. Fungus known to cause minor damage only. All other observations were consistent with previous surveys and the forest was in generally very good health. Detailed reports are available on request to approved parties.

4.2.6 Pest control

Pests have significant economic, environmental, and cultural impacts on the forest Estate and wider community. A 'pest' can be a plant, animal, fungi, micro-organism, or pathogen that is adversely affecting something of value including people's wellbeing, plantation crops, and indigenous biodiversity values.

Pests are currently controlled in the Estate for the following objectives:

- To maintain safe working conditions (e.g. wasp control, clearing roadside vegetation for safe driving, reducing hindrance levels in stands for silvicultural operations).
- To comply with Regional Pest Management Strategies.
- To maintain ecological, landscape, and amenity values.
- To ensure that a successful crop is established.

- To be a responsible neighbour, in situations where weeds are spreading from the Estate.
- To eradicate a new invasive pest species, or to slow the spread of an existing plant pest species.
- To promote forest fire safety by reducing the amount of flammable vegetation in forests.

OFO NZ is committed to having an integrated pest management program that achieves industry best practice. Figure 6 reflects the number of pest animals eliminated during 2023.

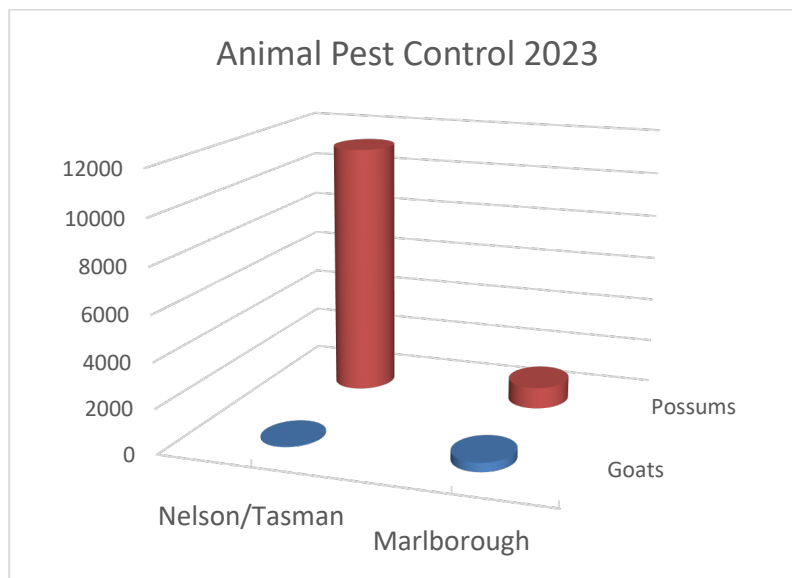


Figure 6. Animal pest control across three regions. Rai Forest straddles Marlborough and Nelson regions.

4.2.7 Fire Protection

Management of rural fires comes under the jurisdiction of Fire and Emergency New Zealand (FENZ).

In October 2021 FENZ implemented a unified district structure across New Zealand. At this point the funding by FENZ of contractors and forest company fire training, along with the maintenance of fire appliances, ceased in the Nelson /Marlborough district.

To maintain the collaboration FENZ, OFO NZ, Tasman Pine Forests and PF Olsen came together under a memorandum of understanding (MOU) to offer FENZ both people and plant resources in assisting FENZ meet its legal mandate and responsibility for the suppression of wildfire. As part of this MOU a rural fire contractor has been employed to maintain equipment, arrange training, represent the Top of the South on the NZ Forest Owners Association Fire Committee, as well as being a key liaison point to FENZ.

OFO NZ provides trained personnel to Te Tau Ihu fire region and has four fire appliances: two appliances in Tapawera and one each in Canvastown and Kaituna. OFO NZ provides experienced employees in Incident Management Team (IMT) and OFO contractors contribute to firefighting positions.

Following the 2019 Pigeon Valley fire event, OFO have been enhancing (maintenance and installation) the waterpoint coverage with the goal of a network of waterpoints suitable for helicopter dipping within 2 km of all areas of the Estate allowing immediate aerial attack of any fire starts within or neighbouring the Estate.

There were no significant fires in 2023 in the OFO Estate that required response by forestry crews. OFO NZ fire appliances have been utilised by FENZ in response to fires outside the Estate.

The Nelson/Marlborough Forest Industry Fire Prevention Guidelines for Forestry Operations are reviewed and updated annually. The guidelines ensure consistency in fire prevention management of similar risk forestry operations and clarify rules around operation restriction in very high and extreme fire conditions. The Build-up index (BUI), a measure of the relative availability of heavy fuels to burn, is used as the basis to determine fire risk in the Estate (figure 7).

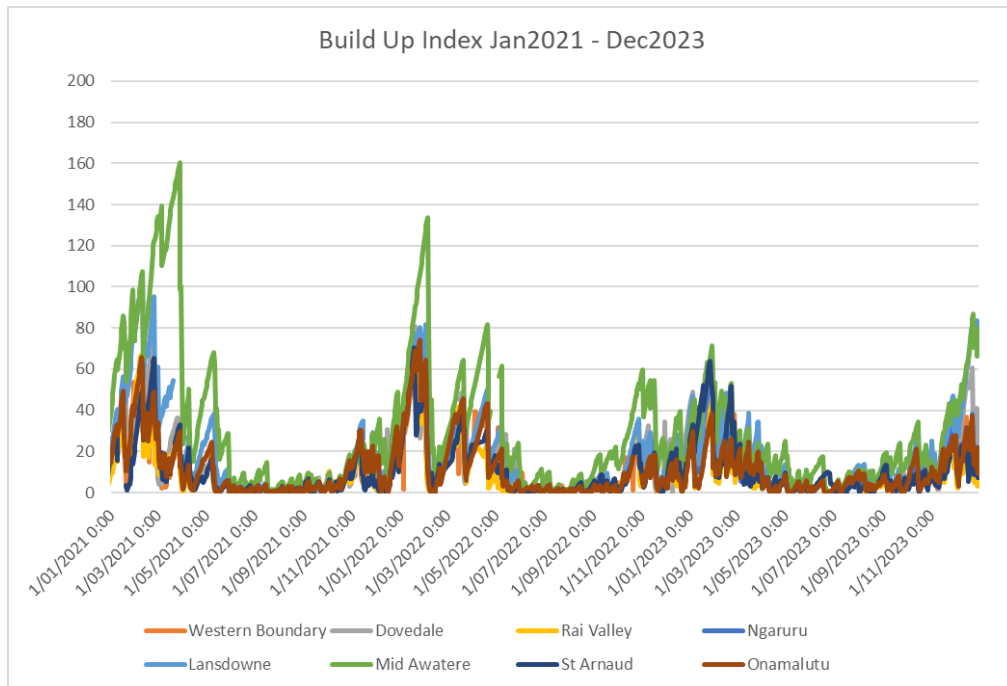


Figure 7. Build Up Index (BUI) by weather stations and date for 2021 to 2023. BUI's exceeding 60 require additional risk reduction and readiness activities, as per the Fire Prevention Guidelines for Forestry Operations.

The fire weather index (FWI), a measure of potential fire intensity, is used to escalate the fire risk from the base BUI. Typically, windy conditions will increase the FWI above 25 and are classed as extreme fire danger days with additional restrictions and risk reduction activities undertaken (figure 8).

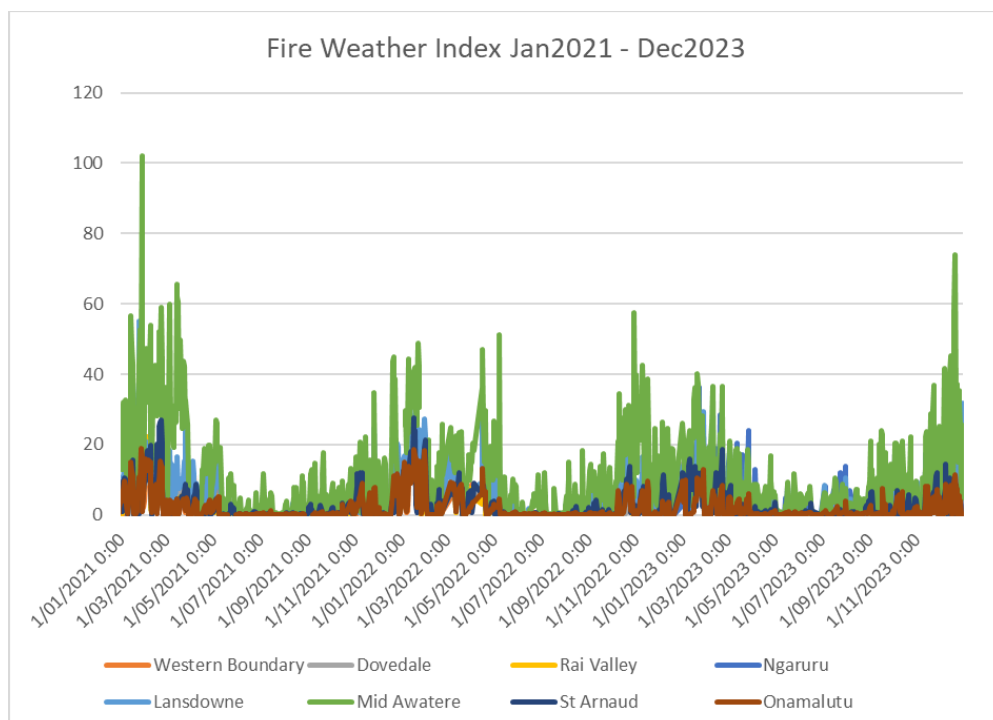


Figure 8. Fire Weather Index (FWI) by weather station for date 2021 to 2023.

4.3 Harvest Operations

4.3.1 Harvest Planning

A comprehensive planning process determines how and when to harvest the wood resource in the Estate. Planning for harvesting of the forest is developed from a long-term forest Estate model which is then refined down to a more detailed five-year plan, and then translated into annual harvest plans. This process involves balancing a range of factors such as predicted forest growth, customer requirements (grade and volume), harvesting capacity, access, third-party ownership requirements, and other environmental constraints. OFO NZ aims to harvest its Estate as close as possible to the optimum tree age for each stand.

The Estate has a relatively even age class distribution although within each region there are significant variations. This means that the total harvest levels can be relatively stable over time, but there will be regional fluctuations in harvesting activity. However, the ability to alter the harvest to respond to market demand fluctuations does exist.

Minor species within the Estate were first established by the NZ Forest Service as part of a mandate to identify other viable timber species. Minor species that are small remnants are harvested when adjacent harvest operation allows. Stumpage harvest programs are focused on minor species as well as on Douglas fir.

All harvesting and engineering and forestry operations carried out in OFO NZ managed forests must have a harvest plan or work prescription in place. One aspect of harvest planning is the identification of all environmental risks of the operation and specifying controls to manage those risks and to ensure compliance with all legal, certification and company requirements including resource consent conditions and permitted activity rules. Key factors considered in harvest planning are:

- Health and Safety – the method that is the most appropriate for the topography and nature of land so that the potential for injury is minimised.
- Environment – the method creates the least impact on the environment.
- Financial – the method is the most practical and cost effective for the area taking safety and environmental considerations into account.

4.3.2 Harvesting

OFO NZ is committed to adopting harvesting techniques and technology that minimise the impact on the environment and reduce the risk of accidents and injuries. Harvesting is undertaken by two key methods:

- Ground-based harvesting – Used on easier terrain (generally <25 degrees), trees are felled and extracted by machines to a processing area. In ground-based terrain, all falling is carried out with mechanised felling machines to minimise the risk of injury during the falling operation. Only a very small proportion of ground-based areas are manually felled where the area is inaccessible to machinery. The stems are typically transported to the processing area by skidders or forwarders, and in some instances by shovel logging.
- Cable harvesting – Used on steeper country (generally >25 degrees), fallen stems are extracted using a hauler (either swing yarder or tower) with trees attached by strops to a cable or extracted by grapple or claw, then hauled to a processing area. Only a very small proportion of manual falling in steep country is used due to inaccessibility to machinery.

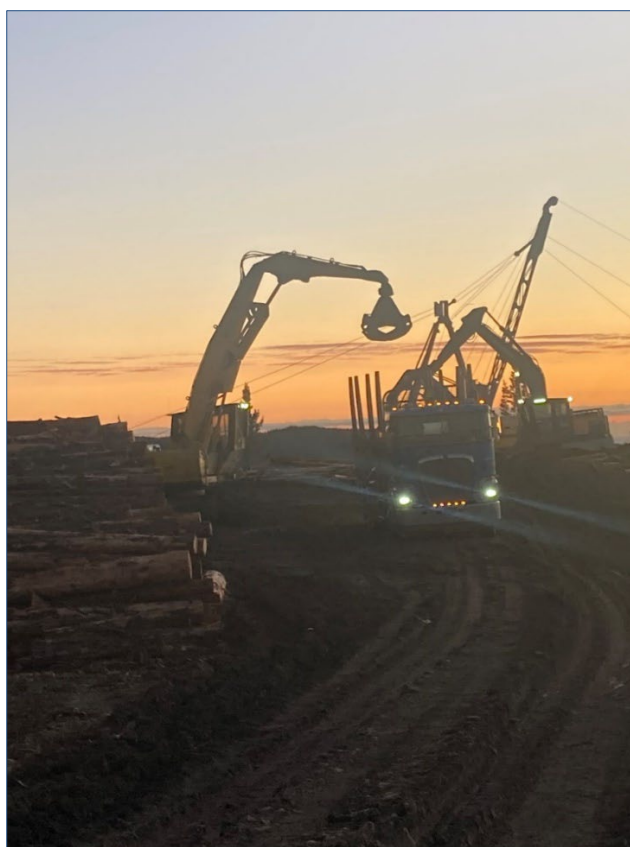


Figure 9. Early morning load out from a harvest landing, Golden Downs Forest (photo M. McCarthy).

4.3.3 Annual Production

Timber production by species, total volume per hectare, stocking per hectare, age, regime type, log grades, total recovered volumes against predicted volume and harvesting methods are key metrics monitored by OFO NZ. Harvested volumes for 2023 from the OFO NZ Estate was under one million cubic meters (table 2).

Table 2. Annual harvested volume (m3) between 1 January and 31 December 2023. Minor species comprise macrocarpa, eucalyptus, Lawson, larch, redwood, patula, poplar.

Harvested	Volume (m ³)
Radiata pine	698,846
Douglas fir	257,689
Minor species	1,772
Total	958,307

4.4 Forest Modelling

Forest modelling is undertaken on several different levels to predict the productivity of the forest Estate. Modelling seeks to achieve a non-declining wood yield to be determined, as well as indicating future harvest volumes by region, forest, harvest unit with an indication of the harvest methods required. The Estate model also includes predictions of log grade outturn to assist in developing potential future markets and meeting customer demands.

Operational areas within the Estate are mapped quarterly from a mixture of satellite imagery, plane imagery and UAV imagery. Aerial photography is undertaken each quarter, and the Estate is remapped to account for harvest depletions, mapping corrections and any stand losses due to windstorm or fire

events.

Stand records are maintained in a geographical information system (LRM) summarizing every operation undertaken. Detailed inventory (stocking and stem form) is collected from the stands within the Estate as the stands approach maturity/harvest age. LRM supports resource planning (figure 10) and supply chain planning processes (figure 11). Together these processes form the basis of timber production management. The information generated is commercially sensitive and is therefore not reported in the management plan or made public.

Plan	Model	Timeframe in View	Purpose
Sales and Operational Plan (S&OP)	Quarterly	1-12months	<i>Operationalises the long-term plan, creating scenarios to balance the supply and demands</i>
Master Production Schedule (MPS)	Quarterly	1-9 months	<i>Translates the S&OP plan into a detailed weekly view to manage the harvest timings and Woodflow</i>
Weekly Woodflow	Weekly	Weekly	<i>Matches customer orders with Production in detail optimised "right grade, right customer, right stand"</i>
Cut cards	Weekly	Weekly	<i>Cutting instructions are given to the harvest crews to cut the required graded from the stand</i>

Figure 10. Resource planning matrix.

Team	Process	Model	Model Cycle	Timeframe	Period Length
Resources Team	Long Term Plan (LTP)	Estate Model	Annual	90 Years	Year
	5 Year Plan (LTP)	Estate Model	Annual	5 Years	Year
Operations Team	Sales and Operational Plan (S&OP)	Remsoft Scheduler	Quarterly	12 Months	Month
	Master Production Schedule (MPS)	Remsoft Scheduler	Quarterly	6-9months	Week

Figure 11. Sales and operation planning horizon matrix.

5 Health, Safety and Wellbeing

At OFO NZ we are driven to ensure that every person comes to work and goes home safe and well every day.

Our Safety Culture reflects our values, attitudes, perceptions, competencies and behaviours. It influences the safety and wellbeing of our people and how we perform our work, the values we convey and the relationships we develop. It says a lot about our commitment to safety as well as the effectiveness of our management system.

Through OFO's Strategy a plan is set out to strengthen our safety culture through continuous improvement, learning and innovation. It is a journey of continuous improvement, and we are dedicated to empowering people at all levels to take a proactive and collaborative approach to all aspects of health, safety and wellbeing. OFO NZ's Health and Safety policy is attached in Appendix I.

6 Environmental Stewardship

OFO NZ is committed to maintaining a high standard of environmental stewardship when managing our forests and activities and ensuring the long-term sustainability of our operations. Environmental effects are a key consideration when planning and managing our operations, second only to ensuring operations are undertaken safely.

The following sections provide more information about the key aspects of OFO NZ's environmental stewardship programs. OFO NZ Environmental Policy and Principles is attached in Appendix II.

6.1 The Environment and Forestry Activities

Forestry activities encompassing silvicultural and harvesting operations can have both beneficial and adverse impacts on the environment depending on the quality of environmental and operational planning and management.

Well managed forests can:

- enhance water quality;
- stabilise and conserve soil;
- provide a buffer against flood flows during storms;
- shade waterways keeping water cool for enhanced freshwater aquatic life;
- provide habitat for rare, threatened and endangered native species;
- sequester carbon to combat climate change; and
- provide recreational, economic, and social benefits to the community.

OFO NZ implements a range of measures at each stage of its operations to prevent or minimise the adverse impacts of its forestry activities on the environment. The company audits and reviews its performance standards regularly to ensure that its systems continue protecting natural and physical resources effectively.

OFO NZ's Environmental Management System (EMS) is the primary tool used for ensuring that company operations meet the highest environmental standards. The EMS contains processes to be followed from initial planning through to completion of operations. It also sets out auditing, monitoring and review procedures that help to ensure continuous improvement of environmental performance.

The EMS sets out clearly the company's obligations, and those of its contractors, to protect identified

environmental values in the areas we operate. These areas include waterbodies and wetlands, indigenous vegetation, riparian, neighbours' boundaries, protected areas, historic and cultural sites, and high value landscapes. Specific procedures, including monitoring the impact of operations, are followed to ensure protection of these special values.

Any forest establishment work (including pesticide application), earthworks and harvesting operations that have the potential to impact on areas of high ecological value are identified as high risk. Work in such areas is carefully planned, mapped, and prescribed. Specific environmental protection requirements are provided for operators to follow. Operators undergo training and receive specific in-situ advice to ensure they understand the importance of these issues.

Contractors must follow the prescription plan and monitor their operations on a day-to-day basis to ensure that such sites are being safeguarded. Ensuring that protected areas and sensitive areas (e.g. adjacent indigenous vegetation, wetlands, riparians and streams) are not damaged is a focus.

OFO has developed a natural hazards risk matrix to reference for adverse effects environmentally, to property or neighbours from severe weather conditions.

The EMS is designed to ensure that the company follows all the regulatory requirements and meets agreed industry standards.

6.2 Operational Planning

Planning is the first critical step in managing the environmental outcomes of our operations. It sets the framework for the **plan/do/check/adjust** structure of continuous improvement.



The National Environment Standards for Commercial Forestry (NES-CF) contains permitted activity standards for many activities. While the EMS is in alignment with the NES-CF, at times the EMS will require a higher level of standards and performance.

Where a planned activity cannot meet the EMS standards but does meet the NES-CF permitted activity rule(s), the approval of the relevant operational manager is required. Once the relevant operational manager has given documented approval, the proposed activity may proceed in accordance with the NES-CF.

At the beginning of the planning phase of harvesting, establishment, or earthworks operations, it is determined whether a resource consent under the *Resource Management Act* or an Authority under the *Heritage NZ Pouhere Taonga Act* is required. OFO NZ undertakes consultation with all those parties who may be affected by the operation. Where a resource consent is required, an application, which includes an assessment of the actual and potential effects of the proposed activity, is submitted to the local authority. The application also provides details of the measures to be used to prevent or minimise adverse effects.

The OFO Operations team is responsible for activity and operation plan development, implementation, and operational compliance. Planning requires equal consideration of safety, values and environmental effects. The activity/operations plan and/or prescription ultimately sets and

determines the scale of the environmental impacts of our operations. All operations must have a work prescription and plan in place before work commences (for harvesting operations this is called a Harvest Plan). Each operation is assigned an environmental risk rating (high, medium or low) based on the characteristics of the site. This alerts the contractor of the relative risk level of the job and is also used by OFO NZ to prioritise the frequency of operational and post-operation audits.

Prior to commencing operations, hazard identification is undertaken onsite with the contractor to ensure all safety and environmental hazards are clearly identified with controls in place. Contractors are required to comply with the relevant prescription as well as with applicable resource consent conditions. Compliance is monitored by OFO NZ operational staff during and on completion of operations.

6.3 Protection of Threatened Species

Planted forests can provide significant habitat for threatened species. Forestry operations can unintentionally damage or destroy plants, animals and/or their habitats. Pesticide spraying operations can kill non-target plants, mechanical land preparation, earthworks and harvesting can damage or destroy plants and habitats, animal poisoning can kill birds or other animals (cattle, sheep, dogs etc.).

OFO NZ is committed to managing our forests to maintain a diversity of indigenous flora and fauna species. Of particular importance are rare, threatened and endangered (RTE) species living within the Estate.

The NZ Forest Owners Association in conjunction with the Department of Conservation (DOC) and other recognised technical specialists have prepared Management Plans for a range of threatened species living in forest Estates around the country.

OFO is in the initial stages, working with DOC, developing a management strategy for the protection of the *Powelliphanta h.c.* (giant land snail figure 13) found in the Rai Forest – Whangamoia block, which is adjacent to the Mt Richmond Forest Park and is a known habitat for this snail subspecies. Further work will be undertaken on management in 2024.



12. *Powelliphanta hochstetteri consobrina*

6.3.1 Recorded Sightings

In October 2022 a new threatened species app was developed and rolled out to OFO employees and contractors, followed with group and one-on-one training on the app's use and threatened species in general.

As a result, there has been an increase in threatened species awareness and subsequent reported sightings across the Estate (table 3) by both contractors and OFO employees. The field guide detailing more information on individual threatened species continues to be updated.

Species Recorded	2023	2022	2021
Kārearea/Falcon	100	38	15
Kea	18	0	1
Long-finned eel	1	0	0
Fierce Lancewood	6	2	0
Kākā	3	4	0
Giant land snail (<i>Powelliphanta h.c.</i>)	3	0	0
Long-tailed bat	1	0	0
Total	132	65	18

Table 3. Contractor and OFO employees' recorded sightings of threatened species across the Estate.



Figure 13. Kea in Inwoods blocks (right).

6.4 Indigenous Vegetation Protected Areas

6.4.1 General

10,961 hectares (16%) of OFO NZ's Estate is designated as *conservation areas network (CAN)*. The network comprises of indigenous vegetation remnants located within the boundaries and comprises:

- Crown Forest License Covenants protected under the Conservation Covenant Act
- Tasman Accord areas protected under the Reserves Act
- Significant Natural Areas (SNA) wetlands mapped/listed/described in a regional plan
- FSC® High conservation value forest (HCV)
- Wetlands
- Indigenous vegetation meeting the NZ Forest Accord
- Sites of Special Wildlife interests and Recommended Areas for Protection
- Ecologically significant areas that have been assessed by a qualified ecologist.

All protected areas are identified in the company GIS mapping system and managed as permanent areas.

6.4.2 Protection Status within Ecological Districts/Regions

A requirement of OFO NZ's FSC® certification is to ensure a minimum of 10% of the management unit area is identified, mapped and managed as *conservation areas network (CAN)*. The identified CAN shall be managed to retain or restore it to the condition of indigenous forest or wetlands. Table 4 shows OFO NZ exceeds the 10% minimum in all ecological districts/regions (Appendix III) except in the Wairau ecological region (i.e. Hillersden and Wither Hills districts).

OFO poisoned plantation forest in the Hillersden ecological district in 2021, which resulted in an increase in the set asides for the reporting period. OFO will be further assessing the Wairau region for increased set aside opportunities as we complete harvest of the first rotation over the next ten years.

To meet the FSC reserve set aside commitments, OFO NZ is contributing over \$100,000 per annum (through to October 2023) to fund a wilding conifer control program in the Mt Richmond Forest Park. This program is in collaboration with the Mount Richmond Forest Park Management Unit Wilding Conifer stakeholder group. The work is regarded as a priority ecological effort for the neighbouring

ecological regions of Nelson and Richmond (Appendix III).

Table 4. OFO NZ conservation areas network: Thresholds for ecological districts/regions across the Estate. Unstocked gaps, areas awaiting planting, roads and landings within the working forest are not included.

Ecological Region	Ecological District	Total reserve set aside (Ha)	% working forest set asides per ecological DISTRICT	% working forest set asides per ecological REGION
Northwest Nelson	ARTHUR	2,201	53%	53%
Nelson	BRYANT	450	33%	
Nelson	MOUTERE	4,163	12%	
Nelson	RED HILLS	178	43%	13%
Spenser	ROTOROA	196	16%	16%
Richmond	PELORUS	1,909	23%	
Richmond	FISHTAIL	996	14%	
Richmond	PARA	434	13%	18%
Sounds Wellington	D'URVILLE	111	20%	
Sounds Wellington	SOUNDS	42	40%	24%
Inland Marlborough	WAIHOPAI	57	16%	16%
Wairau	HILLERSDEN	224	4%	
Wairau	WITHER	0	0%	4%
		10,961	16%	

As part of the Native Habitat Tasman voluntary program with Tasman District Council, OFO remapped existing ecologically assessed protected areas within the Tasman region.

Under our OIO consent, the company completed remapping areas in October 2023 (558 hectares) in our Marlborough forests (Red Hills, Fishtail, Para, Waihopai ecological districts) for inclusion as legal terrestrial indigenous significant natural areas (SNAs). It was proposed to have these formally captured under the National Policy Statement for Indigenous Biodiversity (NPS-IB) by Marlborough District Council. With the Government repealing the NPS-IB in December 2023, these SNA's could not be included in the proposed Marlborough Environment Plan. As a result, OFO is treating these areas as legal SNAs and the relevant NES-CF regulations will be applied by the business. Wetlands totaling 10.3 hectares in the Manuka Island block have been assessed by Council and included as formal SNA wetlands under the proposed Marlborough Environment Plan in 2022/23.

In addition to cash contributions to the Mount Richmond Forest Park Management Unit Wilding Conifer stakeholder group, in 2023 the business has invested a further \$359,969 in wilding control over the OFO Estate:

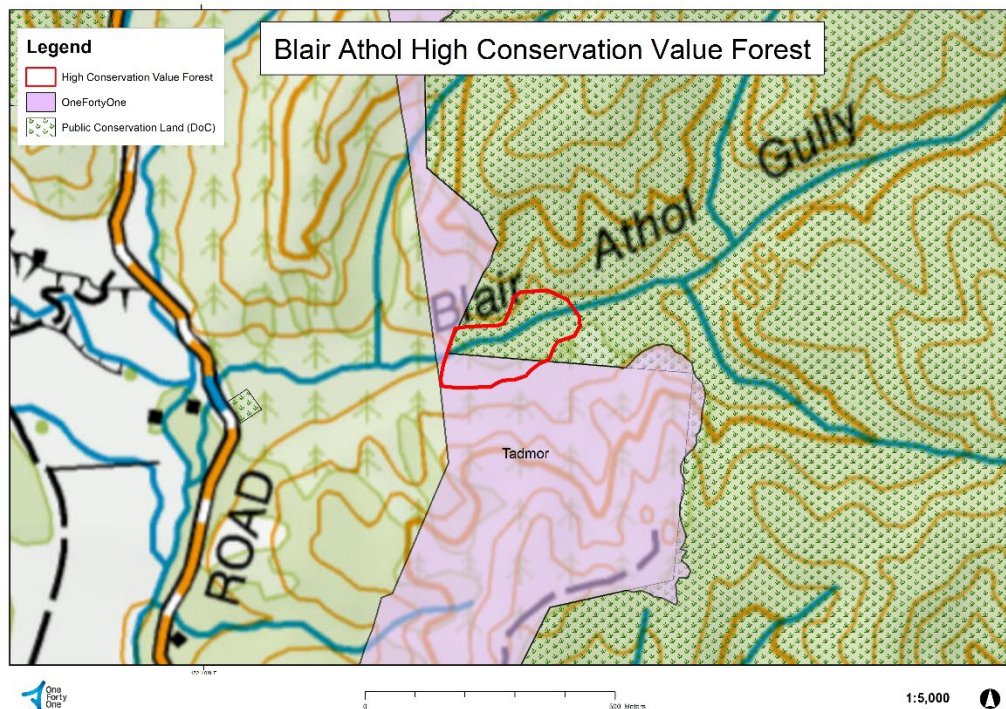
- Department of Conservation for direct costs of wilding control in the Mount Richmond Forest Park;
- Wilding control on land adjacent to the OFO Estate; and
- Within the OFO Estate in significant natural areas, wetlands and riparians.



Figure 14. Manuka Island block and Mt Richmond Forest Park where extensive wilding control is undertaken for a 1-km buffer between land tenures.

6.4.3 High Conservation Value Area Management

There is a High Conservation Value (HCV) area within OFO NZ Estate. Blair Athol Gully in Tasman region is primarily within the Big Bush Conservation Area administered by the Department of Conservation (DoC) but extends across and into the OFO Estate. The site is recognised as containing the nationally critical *Oleria modesta* (creeping foxglove), nationally endangered *Oleria polita* and nationally endangered *Gratiola concinna* (figure 15).



OFO completed maintenance weed control work within the margins of the protected site in 2021 targeting broom, gorse, spanish heath, blackberry, and regenerating pine.

In early 2022, DoC built an extension to the fence to include *O. modesta* and *O. polita* that was surveyed outside the original fence. This is the largest concentrated population of *O. polita* in New Zealand and was under threat by pig damage. Other work included removing trees that could likely cause breaks in the fence and maintaining areas where weaknesses were observed. Past damage to the *O. modesta* will take some time to regrow and with the new section of fence, it will protect this population from pigs and allow the plants to recover and expand. Further weed control and extension of the fenced enclosure onto OFO Estate is planned in late 2024.



Figure 15. Left: *Ourisia modesta* (creeping foxglove) listed as *Threatened-Nationally Critical*. Right: *Gratiola concinna* listed as *Threatened-Nationally Endangered*. Both species identified in the Blair Athol HCV.

6.5 Archaeological Site Management

There are many registered and un-registered archaeological sites within the forest. All sites are protected under the *Heritage New Zealand Pouhere Taonga Act 2014*. An archaeological site is any site in New Zealand that was associated with human activity prior to 1900.

Archaeological sites (including historic buildings) are vulnerable to damage when undertaking earthworks and harvesting. OFO NZ has an archaeological and historic management procedure, which specifies the procedures that must be followed when working around archaeological sites, either known or discovered during operations.

All known sites are recorded in GIS and are considered in the planning of operations. No operations are undertaken that could potentially damage or modify an archaeological site without the necessary authority from Heritage New Zealand Pouhere Taonga. Once the authority is obtained this becomes part of the operational prescription to ensure conditions of the Authority are complied with.

When a notable site is identified during an operation, the accidental discovery procedure (ADP) requires all work to cease within 20m of the site and the site is visited by an archaeologist and, in the case of Māori sites, local tangata whenua representatives. If the feature is confirmed as an archaeological site a management plan is developed with input from the archaeologist and iwi representatives and, if necessary, an authority is sought from Heritage New Zealand Pouhere Taonga.

In areas of forest with a high likelihood of new sites being discovered, employees and contractors are provided training on identification of archaeological site features and procedures that must be followed in the field (figure 16).

6.6 Environmental Incident Management

While OFO NZ strives for excellence in the performance of its forestry activities it is inevitable that incident will occur on occasions. When the company becomes aware an incident has occurred, it acts promptly to minimise and remedy adverse impacts on the environment. All incidents are required to be reported and significant incidents are investigated to ensure employees and contractors learn from the experience and management processes are reviewed and revised to avoid repeat incidents.



Figure 16. Harvest crew inspecting pakohe/argillite flakes in the Collins block. This archaeological site is significant to iwi and is protected. An archaeological authority has been obtained to protect against modifying/damaging potential artifacts outside the archaeological site.

6.7 Climate Change

OFO NZ has developed a Carbon Emissions Reduction Strategy:

“OneFortyOne commits to reduce scope 1 and 2 greenhouse gas emissions by 75% from 2021 levels by 2030. We aim to achieve net zero scope 1, 2 and 3 greenhouse gas emissions by 2050. We will do this primarily by supporting emission reduction technologies in our operations, partnering with suppliers that are consciously taking steps to reduce their own greenhouse gas emissions, and using our forests and expertise to create incremental carbon removal in achieving our net zero goals.”

The 2023 Greenhouse gas emissions/sequestration calculations have been completed using the Forest Industry Carbon Assessment Tool (FICAT). FICAT follows life cycle analysis (LCA) principles and methodologies using international standards. Results obtained include a carbon emission profile, an estimation of forest sequestration due to forest growth and an estimation of the carbon stored in the end use products.

At the end of 2023, OFO NZ Estate store (above and below ground) 43 million tonnes of CO₂e (carbon dioxide equivalent). In addition, the end use products created from OFO NZ’s processing customers store an estimated 414,000 tonnes of CO₂e carbon for the same period.

OFO NZ forestry operations, including transport and shipping, emitted an estimated 52,000 tonnes of CO₂e. Through our Green Emissions Reduction Strategy, we are committed to reducing these emissions through process innovation including the introduction of equipment with lower emission profiles.

7 Benefits from the Forest

Through our management of large areas of forest land, OFO NZ is an integral part of the communities in which it operates, and as a significant business and employer, contributes to the sustainable development of these communities. Community relations are an important focus for the company and OFO NZ is committed to being ethically and socially responsible.

7.1 Stakeholder Engagement

OFO NZ strives to actively engage with stakeholders in the many communities in which we operate, and particularly those directly or indirectly affected by our operations. Prior to commencing harvesting in a new area, OFO NZ engages with representatives of the local community to keep them informed of plans and develop mitigation strategies for identified concerns. Typically, this includes forest neighbours, residents of any rural access roads affected by logging traffic.

7.1.1 Coronation Forest

Since 1955, OFO NZ holds the annual week-long Coronation Forest commemorative event for schools in the Nelson-Tasman region. In 2023 we had 97 students (from three local schools) aged between 9 and 13 participate in Coronation Forest planting week in September (figure 17). Ngāti Toa, as the landowner, attended this event for the first time.

Each student plants up to five *Pinus radiata* seedlings and learns about the value of plantation forestry in providing wood for buildings, jobs for people and allowing native forests to be protected. Activities delivered include:

- Planting plantation trees.
- Walking a conservation trail with ecologists describing the values in New Zealand's natural forest.
- Either visiting a harvesting operation or undertaking a plantation study looking at the features of a growing plantation forest.



Figure 17. Coronation Forest: typical activities at the commemoration week.

7.2 Local Economy

7.2.1 Socio-Economic Conditions

OFO NZ has offices in Richmond and Blenheim and our contracted workforce is spread through several smaller communities in the vicinity of the forests that we manage. The Estate that OFO NZ manages is in areas of rural New Zealand. Forestry and related wood processing remain significant contributors to employment in Nelson-Tasman and Marlborough. Nelson is the largest town centre in the Top of the South region and has a strong tourist base, which is enhanced by the plantation forests and their recreational opportunities.

OFO is a significant contributor to the local economy in the Top of the South, both directly through our business expenditure with suppliers (figure 18) and indirectly through our log supply.



Figure 18. Over 200 local suppliers provided goods and services to OFO in 2023.

In 2023 OFO embarked on a project to harness wood waste from our Estate and convert to a renewable resource. The project has resulted in a signed 5-year agreement that will see wood fiber previously left in the forest turned into biofuel. (Media release on [Harnessing Forestry Waste.](#))

7.3 Sponsorship

During 2023, OFO NZ was pleased to sponsor \$105,756 the following community organisations through sponsorship or community grants:

<ul style="list-style-type: none"> ▪ Nelson Marlborough Rescue Helicopter Trust ▪ Habitat for Humanity Nelson Tasman ▪ Cawthron Institute – Seagrass Restoration Project 	<ul style="list-style-type: none"> ▪ Nelson Tasman Chamber of Commerce, Young Enterprise Scheme ▪ Tasman Environment Trust, Wasp Wipeout Program
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7.4 Employment

Forest management requires educated and well-trained employees, who understand not just their technical roles, but also the impact on those they lead, health and safety, the environment, and the community.

OFO NZ directly employs approximately 145 employees (45 NZ Forests and 100 Kaituna Sawmill). In addition, OFO NZ engages a significant number of contractors who undertake a range of forest management activities from mensuration and forest protection through to engineering and harvesting.

Employees and contractors receive various levels of training on an on-going basis and are encouraged to continuously improve their performance.

OFO NZ has an active role in initiating training courses to assist young people enter the industry in Nelson-Tasman and Marlborough. OFO currently has five forestry scholarship students who we support with scholarship funding and holiday work.

We work closely with our community to promote forestry to youth as a career including participating a regional and school career days, promoting the industry via Nelson Regional Development Agency, LifeLab website, Young Enterprise Scheme (YES) sponsorship and judge support, forestry careers and arranging school trips to a working forest (figure 19) via Nelson Regional Development Agency. We connect students interested in studying Forestry with employees and our scholarship students to learn more about the industry. Attended the University of Canterbury, School of Forestry, 'Meet the Employer' evening to promote OneFortyOne, the region and Forestry as a career option.



Figure 19. Engaging with secondary students in the Top of the South regions to promote forestry as a career.

7.5 Recreation

OFO NZ forests are used for a wide range of recreational activities, including walking, running, mountain biking, car rallies, horse riding, hunting, and other activities. In many cases, the forest is a major recreation resource for local communities.

Access to our forests is managed through an access permit system. Hunting is the most popular recreation pastime in the forest (figure 20). Commercial forests are multi-hazard work sites and therefore access must be carefully managed to ensure the safety of all parties concerned. Access may be closed to all or parts of OFO forests, at short notice, during periods of high risk (e.g. forest operations, elevated fire danger levels, extreme winds, etc).

Information for forest users can be found on the website under [Public Information - One Forty One](#), and includes up-to-date information on public access easements (PAEs) and the [Public Access Policy](#).

Since 2021/22, we have access agreements with Nelson-Marlborough Fish and Game for recreational bird hunting, and with community groups for hang gliding, horse riding and MTB park development over several forest blocks.

7.6 Commercial Leases

Stock grazing leases have been established in many areas within the OFO NZ Estate. These leases have been established because the land itself was more suited for agricultural use than forests due to access or climatic reasons. OFO maintains grazing permits and charges a commercial lease in line with the term and land value. In 2023, seventeen grazing licenses over 77 hectares were issued/renewed; and 15 licenses were issued giving access to 59,123 hectares for bee keeping.

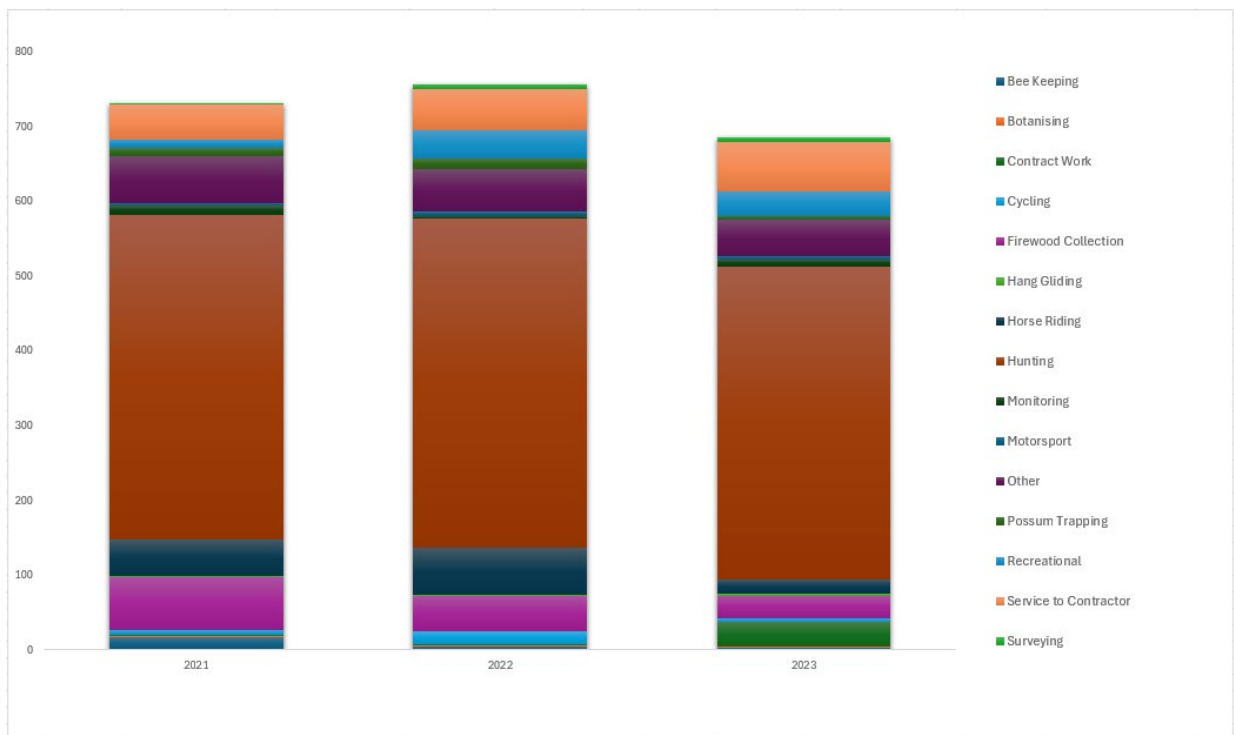


Figure 20. Access permits issued by activity for periods 2021-2023.

7.7 Disputes Resolution

It is OFO NZ intention to proactively manage relationships with stakeholders to avoid situations that progress into complaints or disputes. However, despite the best intentions, such situations will inevitably arise from time to time.

It is OFO NZ goal to manage all complaints and disputes ethically and proactively to achieve timely and mutually acceptable solutions wherever practical, and to avoid creating ill-will with OFO NZ stakeholders and risk to the business of OFO NZ or compromising the values or reputations of our clients.

OFO NZ has a *Compliments, Complaints and Disputes* procedure that details the steps that will be followed in the event of a dispute. This procedure is on the website under [Public Information - One Forty One](#).

8 Monitoring

8.1 General

OFO NZ conducts a comprehensive monitoring program to aid understanding of the impact of its activities on the environment and the impact of the environment on its ability to grow the best trees. This understanding leads to the development of strategies to ensure the company continues to manage its activities in a sustainable way.

In addition to the monitoring reported here, there is extensive operational supervision and management that covers planning, design, performance management and completion reporting of operations and environmental audits. Forest growth and measurement is recorded in forest information systems and is not reported here. Operational decisions are recorded in road line and operations meeting minutes. Contractor performance reporting systems include metrics on delivery, value, volume, productivity, quality control results, environmental and safety performance metrics.

8.2 Operations Monitoring

OFO NZ regularly conducts internal health and safety, and environmental audits to confirm operations have been carried out in accordance with work prescriptions and regulatory requirements, and to identify any corrective actions required.

In the recently updated OFO NZ Environmental Management System, it has been scheduled that the business will undertake five-yearly environmental systems audits with contractors operating in our Estate to ensure they are complying with our Environmental Management Systems and company procedures.

Regional Councils also conduct regular compliance monitoring of operations undertaken under resource consents or the National Environmental Standards for Plantation Forestry (NES-CF) permitted activity rules.

8.3 Biodiversity Monitoring

OFO NZ conducts a range of surveys across the Estate to monitor both impacts of forestry operations on indigenous fauna and to monitor the health and changes to populations. The monitoring program currently includes:

- Annual monitoring of stream health in selected streams across the Estate. OFO NZ changed its monitoring methodologies in 2022 to include eDNA, which enabled information on species presence to be monitored through DNA analysis of water samples. The 2022 results from eDNA stream health testing ranged between pristine to very good overall. eDNA testing will be undertaken every three years. In 2023, 30 streams were included in the program (figure 23).
- Annual monitoring of high conservation value (HCV) forest site to monitor the health of species values resulting in HCV status. This monitoring is led by DOC. Refer to Section 6.4.3 for more information.
- In 2023 the Kea Conservation Trust applied OFO funding to engage a local contractor to continue work initiated in OFO's forest in 2019 by a Masters student (refer to section 8.5 – Kea research). The local contractor accessed known sites of interest in to continue monitoring and determine if kea were continuously residing in OFO plantation forests. The information collected will assist OFO to managed kea habitat, particularly in the breeding period, and pest control (figure 21). Downs West Forest, with the assistance of OFO employees and contractors.

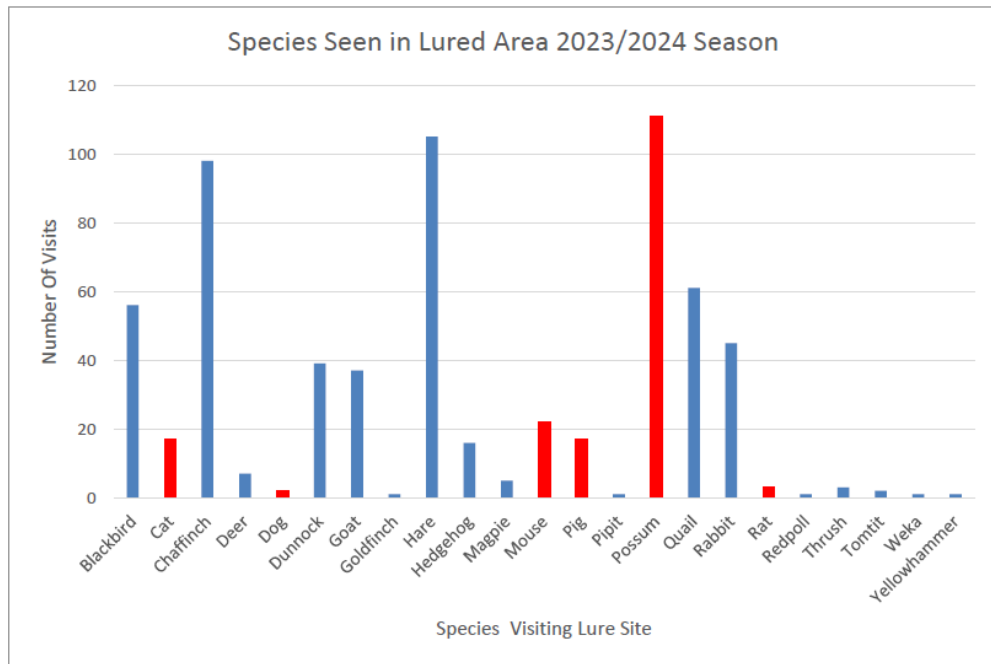


Figure 21. Visitation of fauna species to all 'lured' sites in the OFO Estate with areas of known kea interest. Red bars represent pest species of concern to nesting kea.

- Fish passage improvements project between 2018 to 2021 and again in 2023/24 (figure 22). OFO NZ continued to work with a local aquatic freshwater ecological consultant to retrofit fish passage (e.g. ramps, ropes) to provide for fish passage in stream crossings across the Estate. Due to the extensive damage from the August 2022 storm event in the regions and the consulting ecologists' unavailability due to other work commitments, the program resumed in 2023 with monitoring in Marlborough Forest blocks completed. This project will recommence in Summer 2024 to reinspect Tasman region originally started in 2018.

Status	Count	%
1 Not currently a barrier	120	35.93%
2 Fish passage remediation fitted	79	23.65%
3 Structure requires maintenance	5	1.50%
4 Barriers	4	1.20%
8 Dry and/or little or no upstream aquatic habitat	126	37.72%
Grand Total	334	100.00%

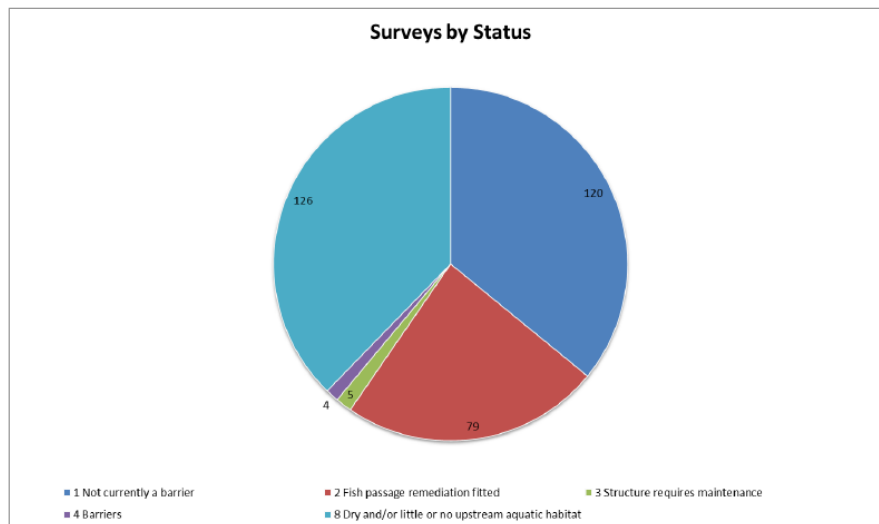
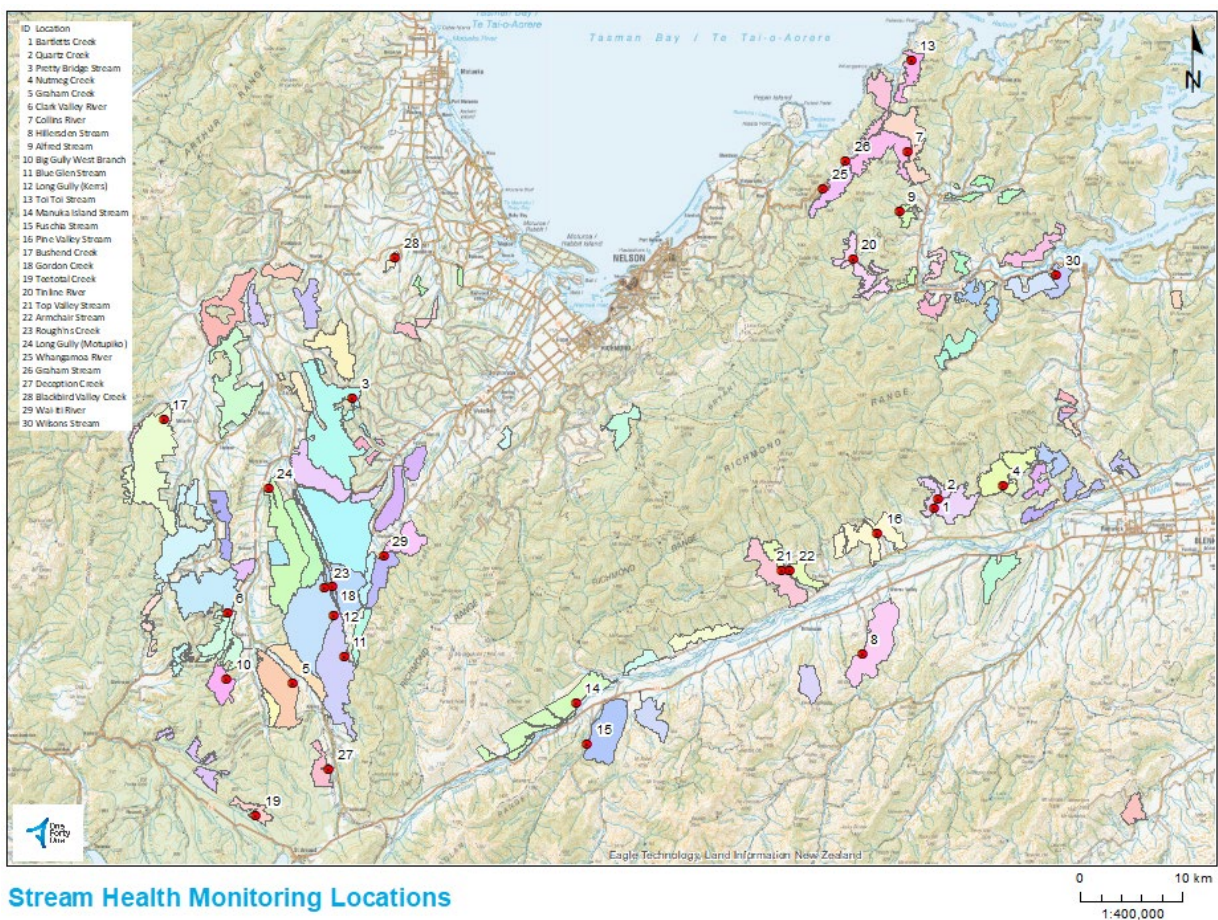


Figure 22. Summary of fish passage/habitat surveys and structure statuses across all OFO regions at 2023/24.



Stream Health Monitoring Locations

Figure 23. Stream locations within the OFO NZ Estate included in the annual stream health monitoring program.

8.4 Forest Growth and Dynamics

Forest growth is measured primarily from inventory data and through growth modeling. OFO uses YTGen and Woodstock software to assist in modeling forest growth. As well as inventory data, a network of permanent sample plots (PSP) exist to assist in improving the growth models. Foliage sampling for needle nutrient levels and forest health surveys are also undertaken to assist in monitoring forest growth and performance.

8.4.1 Inventory

Regular forest inventory sampling monitors forest growth and development over the period of therotation. Cengea’s Forest Management Module (FMIS) is used as the primary software for the storage of stand records. Inventory monitoring generally includes:

- Pre-assessment as required (age 6-10) – prior to tending operations.
- Quality Control (Age 1 and age 8 - 12) – following establishment and tending.
- Tactical (age 17 - 23) – to obtain tree size and estimate of recoverable volume by log grade to assist harvest planning and forecast medium and long-term log grades.
- Pre-Harvest (24 - 28) – to obtain estimate of recoverable volume by log grade.

Remapping of forest and cutover is undertaken using both satellite images and aerial surveys. This generally occurs in association with significant forest events such as harvesting or following storm damage.

8.4.2 Permanent Sample Plots (PSP) and Trials

124 Permanent Sample Plots (PSP's) exist within the forest. These plots are measured at regular intervals to monitor growth over the rotation. The results of these plots are used to assist in refining forest growth models. PSPs and other trials monitor key factors (e.g. silviculture, establishment practices, fertilising trials and genetics (figure 24).

OFO NZ is a shareholder in the Radiata Pine Breeding Company and hosts several of their genetic research trials in the Estate.



Figure 24. Radiata Pine Breeding Company forest genetics trial at Berrymans, Golden Downs Forest.

8.4.3 Nutrition Monitoring

An annual nutrient assessment is undertaken each year to monitor the levels of foliage nutrient levels across the Estate. Age three trees are targeted as well as any stands that are beginning to show signs of deficiencies.

8.4.4 Forest Health Monitoring

An annual forest health survey is undertaken to the New Zealand Forest Owners Association (NZFOA) standards to detect any potential new pests and diseases, as well as to monitor changes in existing pest and diseases.

8.5 Research Projects

- OFO NZ is involved with or contributing to several research projects to improve understanding of the effects of plantation forestry.
- OFO NZ contributes funding through the Forest Growers Levy (introduced in 2014), for research that benefits the forest industry. OFO NZ is also part of the Precision Silviculture Program, a seven-year project funded by Forest Growers Research, Forestry Companies, and the Ministry of Primary Industries to transform forest management practices by applying sensing technologies, robotics and automation across forest management operations including nursery tree production, planting, establishment practices, pruning and thinning.

The program addresses labour shortages, the need to improved safety in all forestry operations, and the goals of reducing forestry value chain costs, maintaining a pruned log supply, enhancing productivity, and maintaining license to operate through sustainable practices and reduced chemical inputs. It also supports the transition towards a bioeconomy through developing more effective methods for delivering biomass waste streams for conversion into bioenergy or other uses.

- Since 2019, OFO NZ has funded and supported the Kea Conservation Trust and a Masters (now PhD) student on research and monitoring of Kea (*Nestor notabilis*) within the Estate. The objective of the Masters project is to gain an understanding of Kea abundance, habitat use and feeding behaviour in plantation forests. It is hoped that this understanding can help shape management practices that allow forestry and Kea to inhabit the same space in a safe manor. The report was published in 2023. A [media release](#) about the study can be viewed on the OFO website.
- In 2021, Manaaki Whenua-Landcare Research approached OFO to assist with data from OFO Estate for a 2-year project assessing the 'window of vulnerability' (WOV), which is the period between post-harvest to subsequent canopy closure [from replanting]. This research is important for forest managers to understand landslip susceptibility during the WOV period, and in relation to possible impacts on downstream receiving bodies (i.e. waterbodies, neighbours). The publication was submitted for publishing in late 2023 – [Closing the 'window of vulnerability' » Manaaki Whenua \(landcareresearch.co.nz\)](#)
- In 2023, OFO NZ was part of a collaborative project between four regional forestry companies and the University of Canterbury assessing the likely impact of climate change on radiata pine site productivity. The research indicated that the less productive sites, particularly due to higher altitude, will become more productive with increasing temperature.
- In 2020, OFO NZ in partnership with the Ministry for Primary Industries' and funded under the Sustainable Food and Fibre Futures Fund, commenced a long-term paired catchment study. Partners involved with the study include Manaaki Whenua – Landcare Research, Cawthron Institute, and Envirolink Ltd. The study involves the establishment of a 7-year monitoring program within paired catchments in the Estate to study the performance of sediment control practices utilised in forest operations (including slash). The three catchments (treatment area 1, treatment area 2, control area) are adjoining catchments of similar sized-area, geology and topography, planted in *Pinus radiata* of similar age. Visual clarity monitoring was introduced to the project at the end of 2023 for all five sites (figure 25).

The [Donald Creek Study 2020-2027](#) is updated each milestone year and can be viewed on the OneFortyOne website.

Figure 25. Donald Creek visual clarity water sample collection introduced in late 2023 at five sites within the project study area.



Health, Safety and Wellbeing Policy



1. Home Safe and Well

At OneFortyOne we are driven by our commitment to ensuring that every person comes to work and goes Home Safe and Well every day.

At OneFortyOne we are committed to nurturing and protecting wellbeing through equal consideration of our physical, mental and emotional health.

Together with our employees, contractors, partners and PCBU¹ we are building a culture of wellness to increase the quality of life and reduces the risk of harm for all.

OneFortyOne will meet all legislative Health and Safety requirements² as a minimum and every employee, contractor, partner or PCBU has the right to refuse work if they believe it is unsafe.

We will not encourage or prioritise productivity over wellbeing.

We recognise that mental and emotional health can be a significant contributor to increasing the risk of workplace incidents therefore caring for them is as important as protecting our physical health.

We are committed to developing and maintaining business systems that enable us to share, learn and improve our performance in a consistent, efficient and effective manner.

We encourage honesty and transparency when raising, discussing and solving wellbeing challenges.

We will act in a collaborative and constructive manner.

When incidents do occur, we will show genuine care for all involved and through their recovery.

2. Our Leaders

At OneFortyOne our leaders are accountable for people's wellbeing and you can expect that they will:

- Proactively live our Home Safe and Well commitment.
- Build an empowered environment that encourages all to join into an open dialogue about how we deliver home safe and well together.
- Provide adequate resources to nurture everyone's wellbeing.
- Transparently share our performance and strive for ongoing improvement.

3. Our People

To deliver Home Safe and Well requires everyone to passionately embrace and participate in our wellbeing culture. We all share a responsibility for each other's wellbeing and therefore must be committed to:

- Always behaving in a safe manner and encouraging others to do so.
- Ensuring that all employees are competent or under training (and appropriately supervised) to undertake all tasks in a safe manner.
- Actively participate in wellbeing discussions, programs and training.
- Consistently contribute to how we can collectively improve our wellbeing.
- Always identify hazards, report incidents and contribute to mitigating risks.

A handwritten signature in black ink, appearing to read 'Cameron MacDonald'.

Cameron MacDonald
Executive General Manager Forests

¹ A PCBU is a Person Conducting a Business or Undertaking as defined by relevant legislation.

² Specific NZ legislation includes, but is not limited to, the Health and Safety at Work Act 2015 and the Health and Safety at Work Hazardous Substances Regulations 2017

Appendix II – Environmental Policy and Principles

Environmental Management System – Policy & Principles



Environmental Policy	Maintain OFO’s environmental stewardship and performance by demonstrating the promotion and care of a healthy functioning environment ¹ .
Environmental Management Principle	<p>To identify, evaluate and manage the significant environmental effects² of plantation forestry on the environment.</p> <p>To train and empower employees to manage operations to ensure that desirable environmental outcomes are planned and achieved, and that environmental effects are accepted and sustainable.</p> <p>To work towards the sustainable management of the natural and physical resources we own or manage, to provide for the well-being of future generations.</p>
Community Principle	<p>To provide for managed recreational and community activities within and adjacent to our forests.</p> <p>To consult with stakeholders and demonstrate openness in questions concerning all significant environmental aspects of our activities.</p>
Continuous Improvement Principle	<p>OFO has Forest Stewardship Council® (FSC-C074692) certification. FSC® Principles and Criteria and related Policies and Standards provide for the long-term commitment to continuous improvement in our forest management practices.</p> <p>OFO’s Environmental Management System is one of the foundations of its certification.</p>
Compliance Principle	<p>To manage and control activities to comply with environmental legislation and regulations, and the following voluntary codes:</p> <ul style="list-style-type: none"> ○ Resource Management Act 1991 ○ Resource Management (National Environmental Standards for Commercial Forestry) Regulations 2017 ○ Regional Environment Plans from the Nelson, Marlborough and Tasman Councils ○ New Zealand Forest Accord ○ Principles for Commercial Plantation Forestry Management in NZ ○ NZS 8409 Management of Agrichemicals (and subsequent versions) ○ NZFOA Environmental Code of Practice for Plantation Forestry ○ NZFOA Forest Practice Guidelines ○ Climate Change Response Act ○ Forests (Regulation of Log Traders and Forestry Advisers) Amendment Act 2020 ○ Forest Stewardship Council® Principles and Criteria ○ NZ Wilding Conifer Management Strategy
Tangata and Mana Whenua Principle	To develop a relationship with tangata and mana whenua that is equitable and has clarity and transparency in all processes.

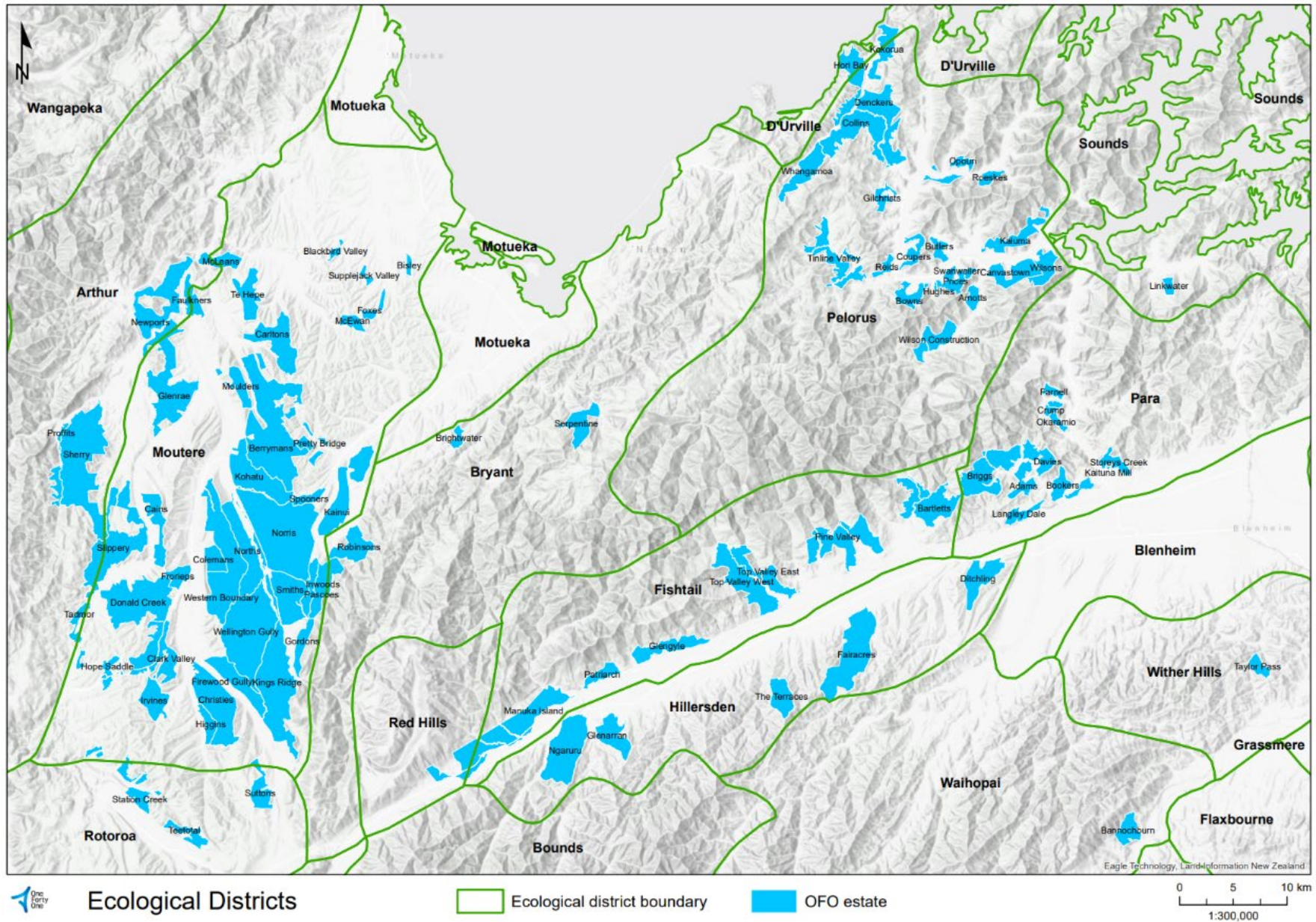
Shaun Truelock
 General Manager NZ Forests
 OneFortyOne New Zealand Limited

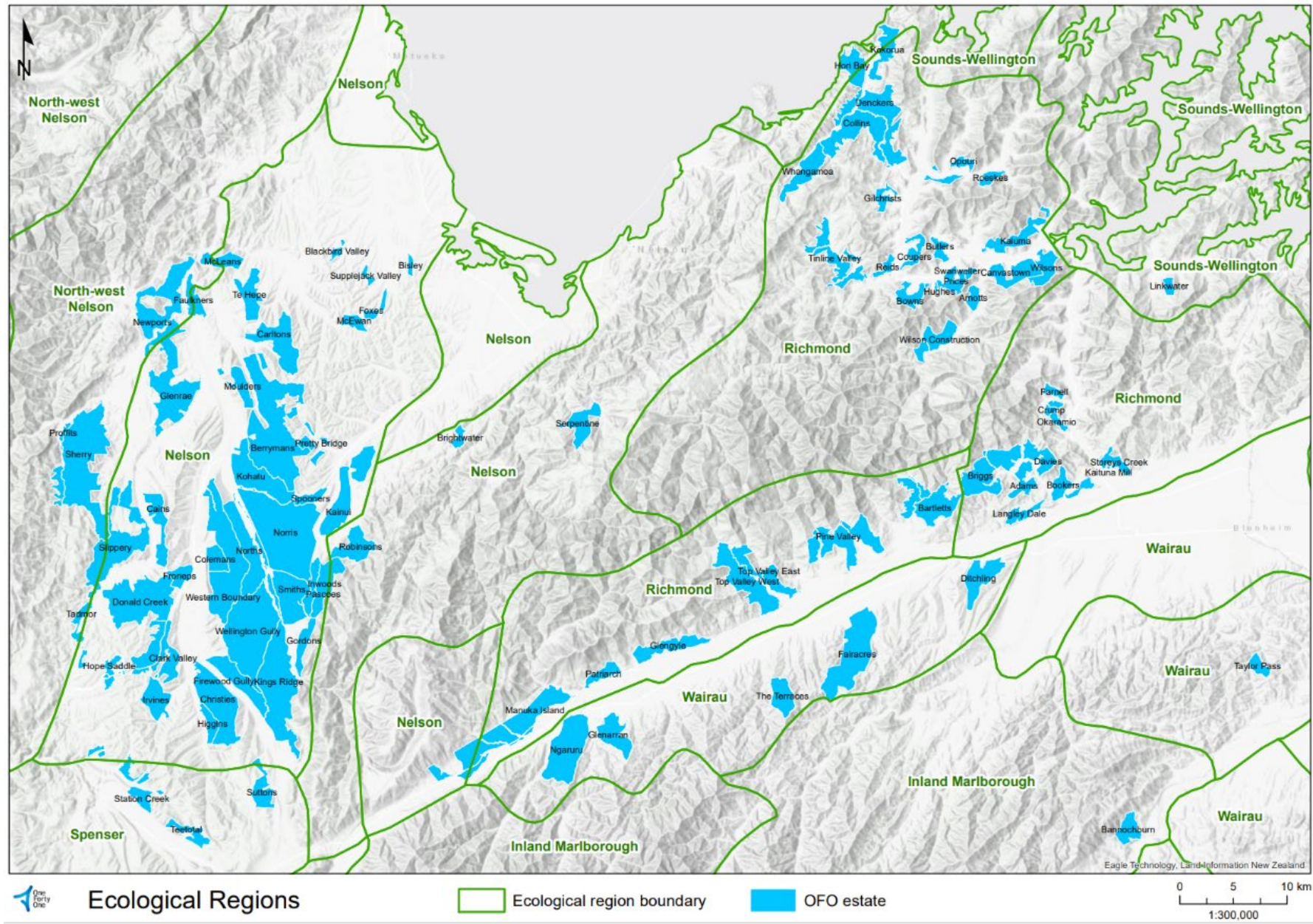
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¹ Environment includes the atmosphere, waterways, soil, landscape, ecosystems, people and communities.

² Significant (environmental) effect includes adverse or beneficial effects. It can be temporary or permanent, past, present or future and any cumulative effects that arise over time or in conjunction with other effects that have been evaluated as having the potential to cause a significant impact on the environment. The main environmental effects relate to: Changes to soil structure and fertility, soil erosion, water quality and yield, air quality, landscape, neighbour relations, biological diversity, pollution of land or water from fuel/chemicals/pesticides/contaminants, carbon sequestration, and cultural values/recreation/aesthetics.

Appendix III – Ecological Districts and Regions over OFO Estate





Appendix IV – Erosion Susceptibility Classification (ESC) across OFO Estate

