



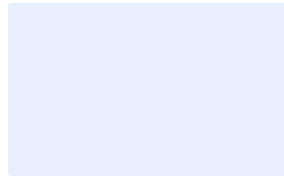
FSC® FOREST MANAGEMENT PLAN

Wightman Forests

Wightman Forestries Ltd

Reporting Period: December 2022 – December 2027

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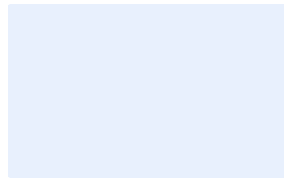
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1. What is this Plan?

About this Plan

This **specific** forest management plan provides details about the Wightman Forestries Limited forests:

- Juno
- Rose Valley
- Waipori

It is to be used in conjunction with the **standard forest management plan**, which outlines the typical management applied to the Forest Stewardship Council (FSC®) Group Scheme estate forests.

Where the forests are managed in a different way than described in the standard forest management plan, this is detailed within this plan, which takes precedence.

Foundation Principle

As a policy the:

- Wightman Forestries Ltd has a long-term commitment to the FSC Principles and Criteria in the management unit, and to related FSC Policies and Standards, and
- Wightman Forestries Ltd is committed to the PF Olsen FSC Group Scheme **NC-FM/COC-000190** processes and associated documents.

The forest owner has sought FSC certification, to ensure that their forests are managed in an environmentally appropriate, socially beneficial and economically viable manner and to obtain the best access opportunities to the local processing market which is seeking to source FSC certified logs.

2. The Forest Land

Location and access

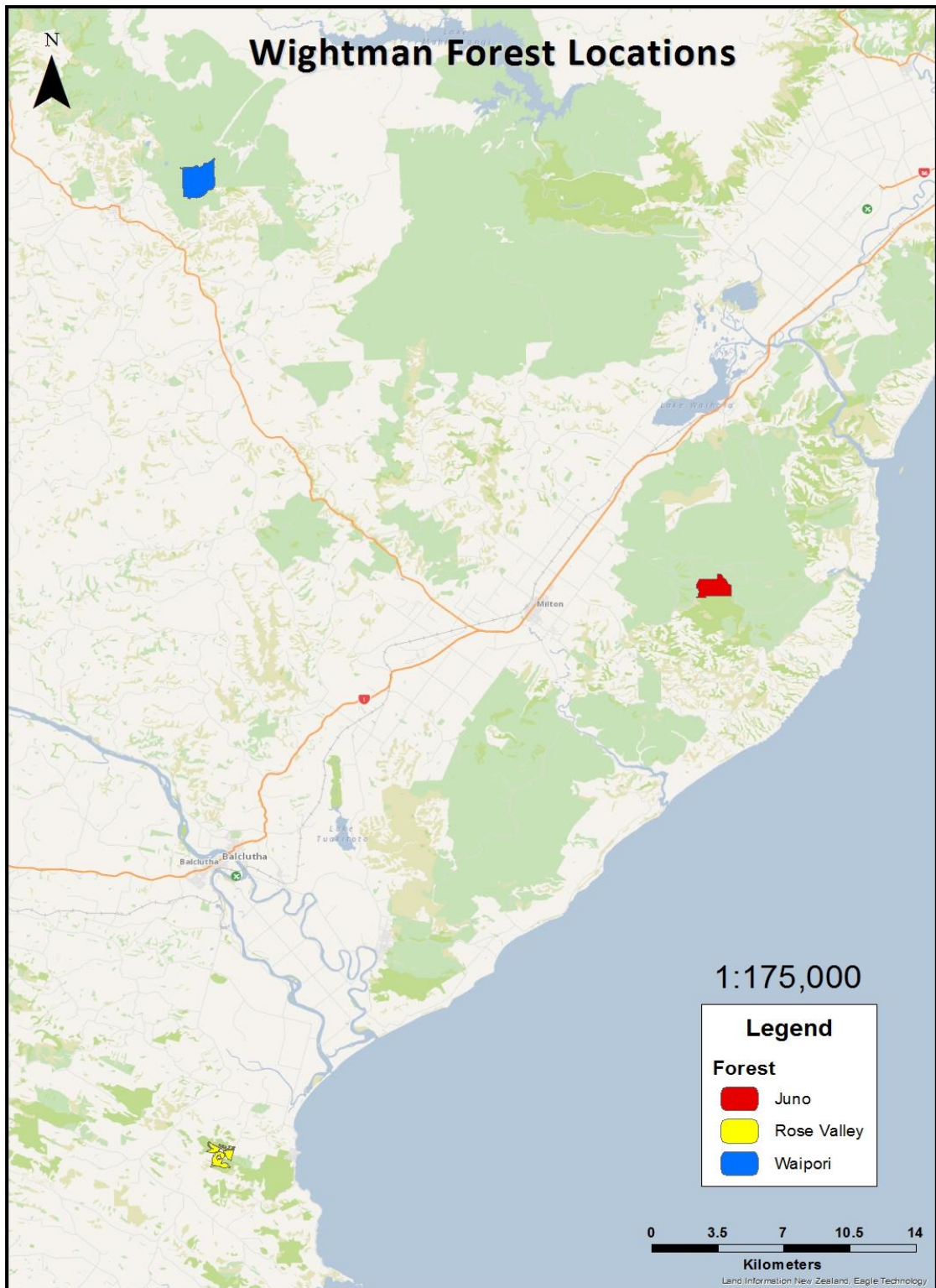
The location map is on the next page.

Forest	Location
Juno	Big Bush Road, approximately 15 km northeast Milton
Rose Valley	Rose Valley Road, approximately 7 km east to Kaka Point
Waipori	Lawrence Waipori Road, approximately 12 km northeast of Lawrence

Forest Area

Forest Maps are in Appendix 1.

Forest	Net Stocked area (ha)	Indigenous area (ha)	Awaiting planting (ha)	Total forest area (ha)
Juno	118.2	51.8		169.9
Rose Valley	91.6	91.1		182.7
Waipori	209.5	32.6		242.1
Total Certified Area	419.2	175.5		594.6



Legal ownership

Forest	Legal Description
Juno	<ul style="list-style-type: none"> • Section 24 and 25 Block VIII, Akatore Survey District 94.2 ha • Section 36 Block VIII and 13 Block VIII Akatore Survey District 20.0 ha • Section 47 Block VIII and 36 Block VIII, Akatore Survey District, 54.4 ha • Section 63 Block VIII and Section 59 Block VIII Akatore Survey District, 14.4 ha
Rose Valley	<ul style="list-style-type: none"> • Section 21 Block III and Section 26 Block IV, Glenmaru Survey District 107.7 ha • Section 11 Block VI and Section 12 Block IV South Molyneux Survey District 40.2 ha • Section 9 Block VI and Section 10 Block IV South Molyneux Survey District, 38.2 ha
Waipori	<ul style="list-style-type: none"> • Part Section 46 Block Tuapeka East Survey District, 56.6 ha • Section 50 Block X and Section 52 Block X and Section 55 Block X, Tuapeka East Survey District, 197.6 ha

Markets

Port Chalmers will provide the market for any export grade logs, while Pan Pac will handle the processing of domestic grades. Lumber will take the chip. Other smaller sawmills may take volume on a case-by-case basis.

Topography

Topography allows for predominately ground-based logging. Some hauler logging will be required on localised steep sections.

Forest	Topography
Juno	Flat to moderately steep. Extends from 280 m to 440 m above sea level
Rose Valley	Flat to moderately steep. Extends from 80 m to 220 m above sea level
Waipori	Rolling to moderately steep. Extends from 240 m to 460 m above sea level

Soil

The soils are predominantly derived from variable loess cover over different parental material. They are generally suited to plantation forestry, with leaching possible heavy rainfall areas.

Forest	Soil Types
Juno	Loess overlying schist and sedimentary rocks.
Rose Valley	Variable cover of loess over tuffaceous greywacke and slope deposits.
Waipori	Variable cover of loess over schist.

Climate

Otago:

- Prevailing winds are westerlies, with strong winds at exposed coastal locations
- Annual rainfall decreases with increasing distance from the western ranges and the eastern coast
- Central Otago is the driest region in New Zealand, with inland areas summer temperatures exceeding 30°C
- Annual rainfall in the western ranges can exceed 2450 mm whilst in Central Otago to the coast rainfall is 360 mm to 980 mm per year.
- Temperatures are generally cooler than the rest of the country with frequent frosts and snowfalls
- On average, coastal Otago receives less sunshine than a lot of New Zealand

3. Ecological Information

FSC requirement: Ecological District

The following table illustrates the percentage of area protected within each of the Wightman forests, compared to the total forest areas. All three forests meet the 10% minimum reserve threshold by ecological district (ED). There are no reserve shortfalls that need to be met.

Reserve areas in Wightman Forests by Ecological District

Ecological District	Forest	Total Forest Area (ha)	Indigenous (ha)	Indigenous (%)	Meets FSC®?	Reserve Shortfall (ha)
Lawrence	Waipori	242.1	32.6	13%	Yes	N/A
Tokomairiro	Juno	169.9	91.1	30%	Yes	N/A
Tahakopa	Rose Valley	182.7	51.8	50%	Yes	N/A

Threatened Environments Classification

Across the Wightman forests:

- 6.9% of the total reserves fall into the < 10% remaining category (most threatened)
- 9.6% fall into the 10 – 20 % remaining category
- 13.4% fall into the 20 – 30 % remaining category
- 70.1% fall into the > 30% remaining and > 20% protected category (least threatened)

Threatened Environments Classification	< 10% remaining	10 – 20% remaining	20 – 30% remaining	>30% remaining & <10% protected	>30% remaining & 10 – 20% protected	>30% remaining & >20% protected	Total Area (ha)
Juno		0.1				51.7	51.8
Rose Valley	3.1	16.8				71.2	91.1
Waipori	9.1		23.5			0.1	32.6
Total Area (ha)	12.2	16.9	23.5	0.0	0.0	123.0	175.5

4. Cultural and Social Aspects

Forest history

Juno forest is second rotation, while Waipori forest is mixed with some first rotation and some second rotation crop. Rose Valley is a first rotation crop.

Forest	Nearest Archaeological Site
Juno	Closest site 1.3 km away (adze findspot)
Rose Valley	Closest site 5 km away (adze findspot)
Waipori	Closest site 2.1 km away (adze findspot)

Current social profile

The predominant land uses surrounding the forests are pastoral farms, woodlots, indigenous forest and plantation forestry (Ernslaw One and Rayonier), with small rural towns servicing the predominantly rural communities. The forests contribute to the social profile of the area. The Wightman Forests are privately owned. There is a modest contribution to the local economy by way of added incremental employment.

Historic and archaeological sites

Records from the 'Archsite' web resource indicate there are no known historic sites within or near the forests. There is a Crown Land water race outside the Waipori forest boundary, as located in an 1875 survey plan. As it predates 1900, it is a protected archaeological sit though is not recorded in the Archsite website.

Tangata Whenua

Ngāi Tahu has statutory acknowledgements and kaitiakitanga. There are 18 regional Papatipu Rūnanga that each have a representative on Te Rūnanga o Ngāi Tahu governing council, which oversees the tribe's activities. The nearest Papatipu Rūnanga to the Wightman Forests are Te Rūnanga o Ōtākou based on the Otago Peninsula, and Hokonui Rūnanga based in Gore.

Tenure & resource rights

There are no known cultural interests in the forest estate and no iwi management plans for the rohe.

Neighbours

Appendix 2 lists the forest neighbours. Some or all of these parties should be consulted when operations are proposed in forest areas adjacent to their boundaries.

5. Regulations

National Environmental Standards for Commercial Forestry (NES-CF) Erosion Susceptibility Classification

The NES-CF regulations are generally based on the Erosion Susceptibility Classification (ESC) of the underlying land. The forests are located on low to moderate erosion risk areas. This means that most forest activities will be permitted activities under the NES-CF, if the permitted activity standards are met.

The table below shows the proportion of each forest by the respective National Environmental Standards for Commercial Forestry (NES-CF) Erosion Susceptibility Classification (ESC).

Productive plantation area (ha) within each ESC Class

Forest	Low	Moderate	High	Very High	Very High (8e)	Total
Juno	118.2	-	-	-	-	118.2
Rose Valley	91.6	-	-	-	-	91.6
Waipori	93.4	116.1	-	-	-	209.5
Total NSA	303.2	116.1	-	-	-	419.2

Council RMA Plans

The Wightman forests fall under the jurisdictions of the Otago Regional and the Clutha District Councils.

The Otago Regional Council has rules in the Regional Water Plan for discharges of sediment and riverbed disturbance, to protect threatened indigenous fish, many of which are found only in Otago. Chapters 12 and 13 of the Plan contain the rules which prevail over the NES-CF (specifically Rules 12.C and 13.5).

Under the Clutha District Plan all three Wightman forests are in the Rural Resource Area. Rules RRA8 (Riparian margins), RRA14 (tree planting on boundaries), and RRA15.IV (standards for activities in Outstanding Landscapes) all have the ability to prevail over the NES-CF.

Consents & authorities held

There are no current resource consents or Archaeological Authorities for the forests.

Emissions Trading Scheme

Waipori Forest currently has several areas registered and applications have been submitted to include further areas of the forest. An application has been submitted for Rose Valley.

6. Managing environmental risk

Assessment of environmental risks

Refer to the Standard FSC Forest Management Plan.

Infrastructure damage or service disruption

Infrastructure is largely in place throughout the forests. A small area of roading may be completed in Waipori in 2022. Prior to harvesting, infrastructure maintenance and minor upgrades may be required.

Pests and diseases

The [Otago Pest Management Plan 2019 – 2029](#) includes several pest plant and animal species that are or may be present within the forests. These include:

- Broom, sustained control
- Gorse, sustained control
- Nassella tussock, progressive containment
- Nodding thistle, sustained control
- Old man’s beard, progressive containment
- Perennial nettle, progressive containment
- Ragwort, sustained control
- White-edged nightshade, progressive containment
- Wild Russell lupin, sustained control
- Wilding conifers, progressive containment
- Feral rabbits, sustained control

A full list of species can be found in the pest management plan.

Pest Control Programme

Pest issues specific to the estate are detailed below.

- **Darwin’s barberry**
 - Survey forests annually

- Remove any found: spray, or cut/paste stump
- Intensive survey around any individuals found
- **Wilding conifers**
 - Survey forest boundary annually
 - Removal of any found, in consultation with landowner
 - Spray, or cut/paste stump
- **Broom, gorse, ragwort**
 - Survey forest boundary annually
 - Based on survey, decide on a timeline to create 10m weed free buffer along boundaries where neighbouring block is relatively weed free
 - Control along roadsides as required to maintain access
- **Possum, rabbit**
 - Survey forests every 5 years
 - Apply control when limits are exceeded
 - Possum: 5% Residual Trap Catch (RTC)
 - Rabbit: level 3 modified McLean Scale
- **Deer, pigs, sheep, goats**
 - Control when deer sign becomes apparent, particularly during the establishment phase of the plantation
 - Ground shooting via forest access permit system

Fire

Wightman's forests are within the Te Kei Forest and Emergency NZ region for forest fire management. The [Fire Plan for Local Area Otago, Te Kei](#) contains additional key information regarding the protection of land and management of fires.

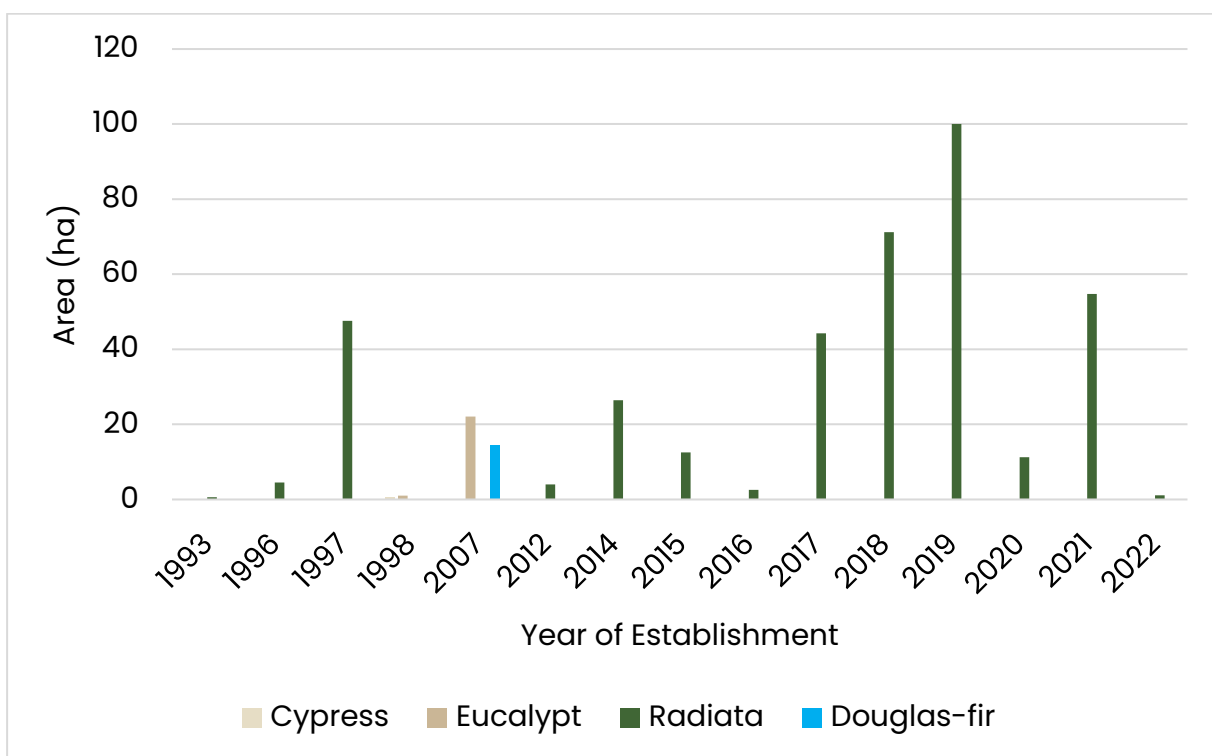
- Juno contains two fire ponds within the forest.
- Rose Valley contains two fire ponds and a creek suitable for water extraction.
- There are no fire ponds established in Waipori however there is a suitable waterbody (stream) in the forest.

7. Commercial Plantation Estate

Current crop

The predominant plantation species across the three forests is *Pinus radiata* (381 ha). There is one stand of Douglas-fir (14.5 ha) planted in 2007 in Waipori forest. Waipori and Juno also contain small areas of cypresses (0.6 ha) and eucalypts (23.2 ha).

Re-establishment will aim to use high quality tree stocks suitable for the site and market. These will be investigated at prior to replanting.



Tending

Current crop’s tending regime:

- Framing regime on all sites.
- New plantings will be at 650 stems per hectare with no tending.

Tree nutrition

The soils are not generally prone to be deficient in nutrients for healthy tree growth.

8. Harvesting Strategy

Harvesting strategy

The potential range of harvest age is 25 to 32 years, depending on growth rates, likely markets and contractor availability.

A small area of approximately 3 ha may be harvested in Juno within the next three years, otherwise these small stands will remain until the surrounding younger trees are ready to harvest.

Infrastructure

Infrastructure is largely in place throughout the forests. A small area of roading may be completed in Waipori in 2022. Prior to harvesting, infrastructure maintenance and minor upgrades may be required.

9. Indigenous Biodiversity

Protected ecosystems

There are 175.5 hectares of reserves within the three Wightman forests. There are no Significant Natural Areas, QEII Covenants, DOC covenants / reserves, or High Conservation Value Forest (HCVF) in any of the forests.

Appendix 4 summarises the ecological work planned for the forests.

Forest	Reserve Area (ha)
Juno	51.8
Rose Valley	91.1
Waipori	32.6
Total	175.5

High Conservation Value (HCV) Forests

All natural areas within Juno, Rose Valley, and Waipori forests were assessed against the FSC HCVF criteria during an ecological assessment by Wildlands¹. No natural areas were identified as meeting the HCVF criteria.

Threatened species

Lizards

Six indigenous lizard species have been identified within 10 km of the forests:

1. Herbfeld skink (Waipori)
2. Jewelled gecko (Rose Valley)
3. Kōrero gecko (Juno)
4. McCann's skink (Juno and Waipori)
5. Southern grass skink (Juno and Waipori)
6. Tautuku gecko (Rose Valley)

¹ Wildlands (2022). *Natural area identification and assessment in three Wightman Forests in South Otago*. Contract Report No. 6457.

Existing protected ecosystems and reserves will be protected during forestry operations to maintain habitat. Any lizards present will also benefit from predator control operations carried out within the estate.

Kārearea (NZ falcon)

Kārearea sightings have been recorded within four kilometres of both Juno and Waipori forests. The NZFOA New Zealand Falcon Management Guide: Plantation Forestry is to be followed if *kārearea* are found within the forest boundaries.

Other Species

Other species may be present within the forests. They include:

- Mohua / Yellowhead in Rose Valley
- Pihoihoi / New Zealand Pipit in Rose Valley
- Long-tailed bats in Rose Valley

iNaturalist (Biodiversity in Plantations) will be used to record sightings.

Fish

Brown trout are the only fish species likely to be within the forests according to the [NES-CF Fish Spawning Indicator](#) tool and Freshwater Environments New Zealand.

There are records of rare/threatened/endangered species near the forests:

Forest	Fish species	Location
Juno	<ul style="list-style-type: none"> • Taieri flathead <i>Galaxias depreciseps</i>; Threatened: Nationally Vulnerable 	Approx 800m from forest boundary
Waipori	<ul style="list-style-type: none"> • Clutha flathead galaxias <i>Galaxias "species D"</i>; Threatened: Nationally Critical • Dusky galaxias <i>Galaxias pullus</i>; Threatened: Nationally Endangered • Longfin eel/Tuna <i>Anguilla dieffenbachia</i>; At Risk: Declining 	Approx 3km from forest boundary, same catchment
Rose Valley	<ul style="list-style-type: none"> • Longfin eel/Tuna <i>Anguilla dieffenbachia</i>; At Risk: Declining 	Approx 1.5km from forest boundary, same catchment

Key ecological management activities are outlined in Appendix 4.

10. Other Special Values: Everything but the timber

Recreation

Following the intent of the [Outdoor Access Code](#), published by Herenga ā Nuku – Outdoor Access Commission, and any signage / barriers in place within the forest, is expected behaviour.

Closures will also apply during times of high fire risk, any *force majeure* state and during forestry operations.

Any approved access is managed through the PF Olsen forest access permit system (for areas outside legal public access areas). For information on how to apply for a permit, please contact the PF Olsen Mosgiel Office 03 453 6819.

Public access roads

The forests do contain some primary public access roads. See maps in Appendix 5. These unformed roads are publicly viewable – refer to the [Herenga ā Nuku – Outdoor Access Commission](#) website.

These routes remain open to the public, subject to any temporary closures as required for safety, as described above. Temporary closures can only be undertaken in conjunction, and with the authority, of the local Territorial Authority.

Any users are expected to abide by the intent of the [Outdoor Access Code](#) published by the Herenga ā Nuku – Outdoor Access Commission, or signage / barriers in place at track or public access points.

Non-Timber Forest Products

There are no FSC certified non-timber forest products ² arising from the PF Olsen Group Scheme member estate.

² In FSC standards, the reference to non-timber forest products is a reference to such products that are able to carry the FSC label. It is not a reference to the presence or absence of other co-products from the forest areas that do not seek to carry the FSC label.

11. Future Planning

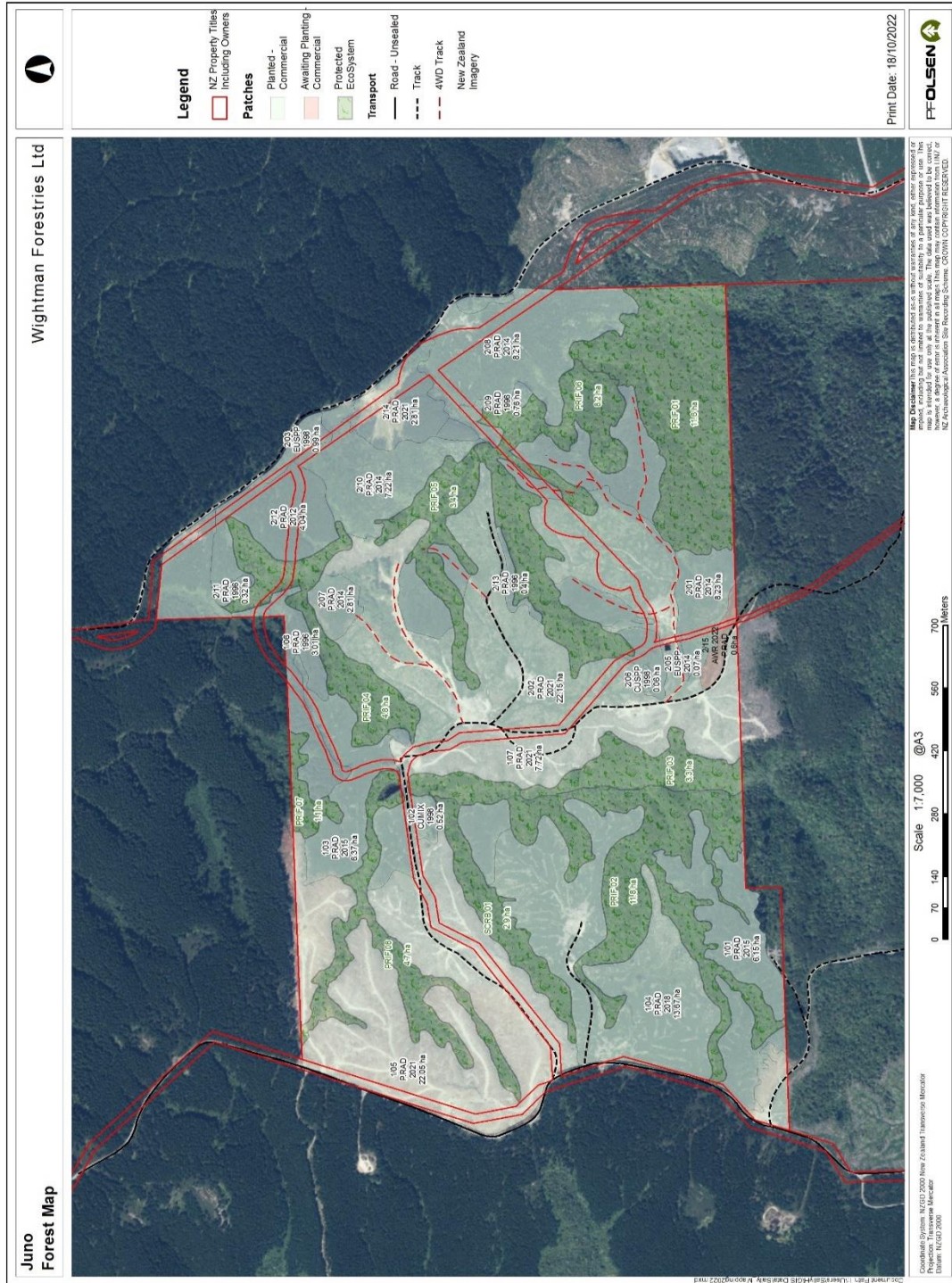
Plan changes & reviews

The next major review date for this plan is September 2027.

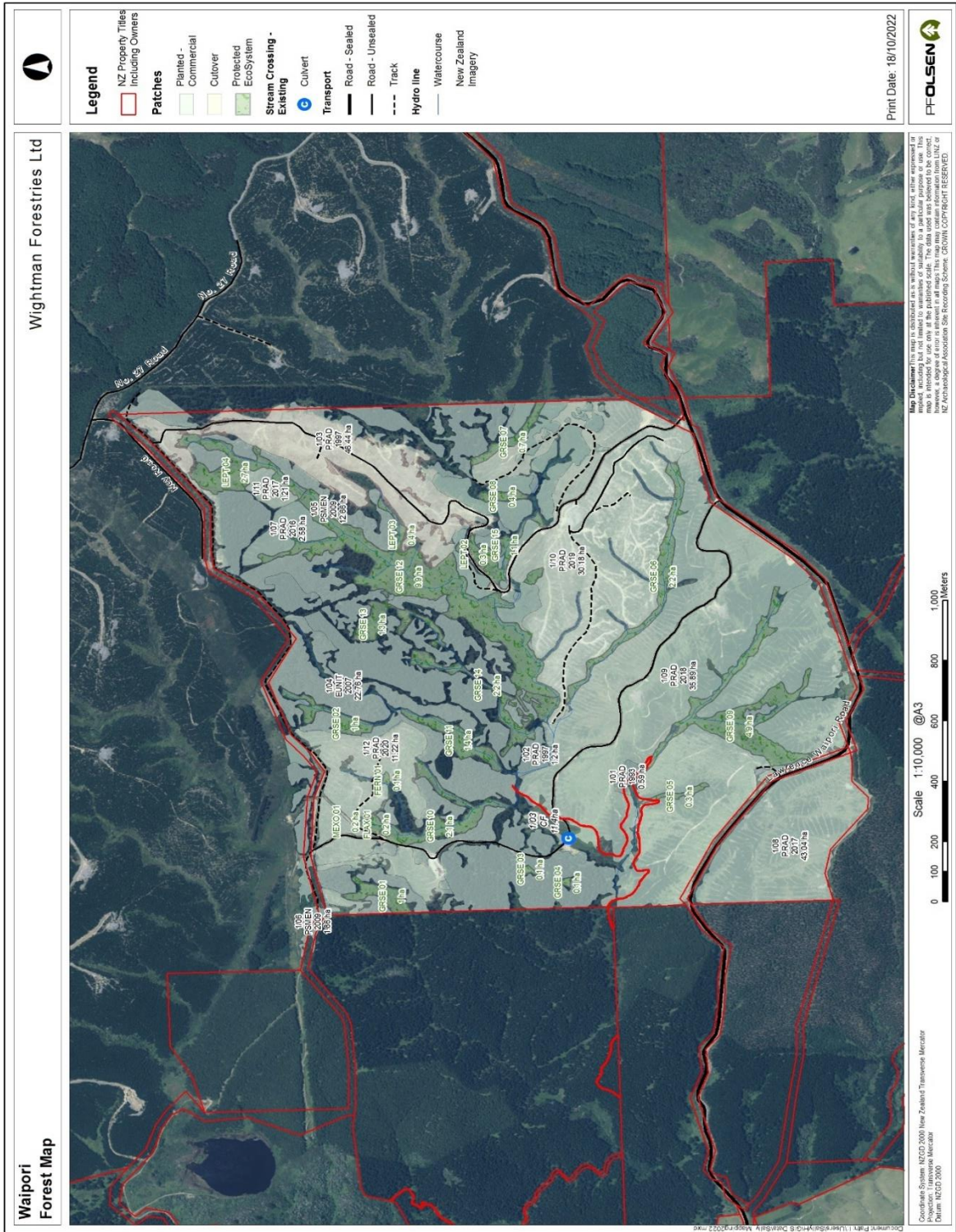
Minor revisions may be made at any time. Any material changes made will be documented below.

Change	Date	Section/Page
Update from NES-PF to NES-CF in Regulations section	Sept-24	Page 13
Update Foundations Principles	Sept-24	Page 4
Moved whole FMP to new template	Sept-24	Whole plan
Updated Ecological Workplan	Dec-24	Appendix 3

Appendix 1: Forest Maps







Appendix 2: Forest Neighbours

Not Publicly Available.

Appendix 3: Ecological Workplan

Activity Type	Required actions	Area/s	Due date
Pest Control – Plants	<ul style="list-style-type: none"> Remove barberry Forest manager to locate and create eradication plan for Darwin’s barberry 	Juno Forest	Completed- ongoing monitoring
	<ul style="list-style-type: none"> Remove Chilean flame creeper from Waipori 	Waipori	Completed
	<ul style="list-style-type: none"> Remove wilding pines from Waipori (LEPT-04) and survey Rose Valley areas (PRIF in particular) 	Waipori and Rose Valley	When adjacent stands are harvested
	<ul style="list-style-type: none"> Monitor forest boundary for broom and gorse, implement control as required to avoid spread to neighbouring property is clear of weeds or actively controlling 	All forests	Ongoing
Pest control – Animals	<ul style="list-style-type: none"> Forest manager to implement control–feral deer, pigs and goats. Imperative to work with the neighbouring forest owners (Juno, Waipori) for success 	All forests	Ongoing
Stock Exclusion	<ul style="list-style-type: none"> Maintain Rose Valley boundary fencing to exclude neighbouring stock from the forest 	Rose Valley	Ongoing
	<ul style="list-style-type: none"> Grazing lease to expire autumn 2025 		May 2025