



**PF OLSEN FOREST STEWARDSHIP COUNCIL®
GROUP SCHEME**

Standard Forest Management Plan

Author
Signature

Author Name Environmental Team

Date 13 April 2023

Reviewed By



Name Heather Arnold

Role Environmental Manager

Date 11 April 2023

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PF Olsen Limited
PO Box 1127 | Rotorua 3040 | New Zealand
T: 07 921 010 | info@pfolsen.com | nz.pfolsen.com

PF Olsen (Aus.) Pty Limited
Suite 6, 50 Upper Heidelberg Road | Ivanhoe | Vic | 3079 | Australia
T: 1800 054 659 | ausinfo@pfolsen.com | au.pfolsen.com

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1. Introduction

About this Plan

- This standard forest management plan provides a summary of the typical management of PF Olsen FSC® Group Scheme forests.
- It is to be used in conjunction with the **specific** forest management plan.
- If a forest is managed in a different way than described here, it will be detailed in the specific forest management plan
- **Promapp** is a cloud-based process management software that houses PF Olsen's business processes. Links to relevant processes are throughout this plan.

Foundation Principle

Members of the PF Olsen FSC Group Scheme **NC-FM/COC-000190** are committed to the Forest Stewardship Council (FSC) Principles and Criteria for forest management.

2. Regulation

Regulatory considerations for forestry

Promapp: [Environmental Legislation & Resources](#)

- Forest operations throughout New Zealand are subject to a range of regulatory requirements detailed in the linked document above.
- Failure to meet regulatory requirements is a key business risk.

The following sections summarise key regulatory requirements.

Health and Safety at Work Act 2015

<https://www.worksafe.govt.nz/laws-and-regulations/acts/hswa/>

Health, safety and wellbeing are key priorities for PF Olsen.

Heritage New Zealand Pouhere Taonga Act 2014

<https://www.heritage.org.nz/about-us/heritage-new-zealand-pouhere-taonga-act>

Archaeological and historic sites must be identified before any work is undertaken which may disturb or destroy these sites. Refer to section 11 for details.

Emissions Trading Scheme

<https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/>

New Zealand's Kyoto commitments to reduce the nation's carbon emissions and contribution to associated climate change are embodied in legislation – the Climate Change Response Act). Forests in New Zealand are legislated under this Act.

Resource Management Act 1991

Within the RMA framework, everyone is responsible to manage the adverse effects of activities.

National Environmental Standards for Commercial Forestry (NES-CF)

<https://www.mpi.govt.nz/forestry/national-environmental-standards-commercial-forestry/>

The National Environmental Standards for Commercial Forestry (NES-CF) are a Resource Management Act regulation. The regulations are applicable to most plantation forestry activities and have replaced most council rules except where the councils may have more stringent rules in accordance with the regulations. The NES-CF applies to forests of greater than 1 hectare, established for commercial reasons and that will be harvested as well as exotic continuous cover forests (a forest that is deliberately established for commercial purposes, also being at least 1 ha of continuous forest cover of exotic forest species that has been planted and will not be harvested or replanted; or is intended to be used for low-intensity harvesting or replanted).

The stringency of the rules relates to the erosion susceptibility of the land and the risks created by the forestry activity.

Council RMA Plans

<https://www.lgnz.co.nz/local-government-in-nz/new-zealands-councils/>

Administered by councils, District and Regional Plans guide and regulate land use, water management, biodiversity and air quality.

- Rules must align and give effect to National Environmental Standards such as the NES-CF.
- However, councils can exercise greater stringency through their plans:
 - to give effect to an National Policy Statement
 - or to manage forestry in Outstanding Natural Landscapes or in other specific situations. In this case, the local planning rules must then be followed.

3. Commercial risks

Market access

Group Scheme members may seek FSC certification to allow access to local domestic markets that either require or award a premium for FSC certified wood.

Log customer credit risk

PF Olsen manages customer credit risk exposure and mitigation measures for both export and domestic log customers.

Infrastructure damage or service disruption

Third-party infrastructure and utilities may be present within or adjacent to forests. This risk is managed by:

- Identification on maps and on the ground
- Early engagement with the utility owner at the planning stage
- Implementation of operations to plan, by suitably qualified personnel

Pests and diseases

Pests and diseases are managed according to statutory obligations and best practices. The type and intensity of treatment (if any) is balanced with what is at risk. Refer to section 12 for details.

Fire

Fire is always a risk to forests, potentially with risk increasing as the climate changes. Fire risk is managed through:

- Restricting work hours or stopping work in periods of extreme fire risk
- Annual auditing and regular monitoring of contractors' fire prevention and first response equipment before the fire season each year
- Maintenance of trained personnel and fire suppression equipment
- Protocols for pooling of resources as the first response to fires under the leadership of the relevant Fire and Emergency New Zealand (FENZ) organisation

- Management of public and recreational use when risks become high based on advice FENZ

Refer to section 11 for details and Appendix 1 for the PF Olsen policy for Public Access.

4. Environmental risks

Environmental risk framework

Environmental risk is managed through a cascade framework:

- i. High level 'intent' determined by the forest owner
- ii. PF Olsen's environmental policies
- iii. Defined and documented processes in the Environmental Management System (EMS)
- iv. Monitoring and reporting

Promapp is a cloud-based process management software platform that contains PF Olsen's business processes. Links to relevant processes are throughout this plan.

PF Olsen's policies and the Group Scheme member's business objectives are aligned.

Environmental policies

Promapp: [Environmental Policies](#)

Environmental Management System (EMS)

Promapp: [Monitoring the Environmental Management System](#)

- Defined and documented policies, processes and activities
- Governs the implementation of forest management activities
- Systematic approach certified to the ISO:14001 standard
- Ensures effective mechanisms to manage potential adverse or harmful impacts from operations
- Reviewed annually with the input of an Environmental Management Group (EMG)

New Zealand Environmental Code of Practice for Plantation Forestry

PF Olsen is a member of the New Zealand Forest Owners Association. All operations are undertaken in conformance to the New Zealand Forest Owners Association 'New Zealand Environmental Code of Practice for Plantation Forestry'¹.

Operations also follow the relevant Forest Practice Guides² published in support of the NES-CF.

New Zealand Forest Road Engineering Manual

All roading and engineering techniques used within the forest will be in general accordance with industry best practice as outlined in the New Zealand Forest Owners Association publication, 'New Zealand Forest Road Engineering Manual', published 2020³.

Assessment of environmental effects

The potential for adverse impacts across the range of forest operations and forest sites is indicated in the Environmental Assessment of Values. Activities and Effects shown in the table below. At risk are the environmental values.

The ratings indicate the level of care required to minimise the potential for adverse effects, which translate into performance standards in prescriptions.

¹ <https://www.nzfoa.org.nz/resources/file-libraries-resources/codes-of-practice/44-environmental-code-of-practice/file>

² <https://docs.nzfoa.org.nz/forest-practice-guides/>

³ https://www.nzfoa.org.nz/images/NZ_Road_Engineering_Manual_Web_Feb_2020_compressed.pdf

Table 1: Values, Activities and Effects

can X result in damage / contamination?
Or
can X result in a positive impact to Y?

Environmental Values (ISO criteria)

Community / neighbours	Archaeological sites & historic	Cultural heritage / places / values	Protected natural features	Landscape	Indigenous vegetation (terrestrial)	Indigenous fauna	Wetlands	Riverbeds	Water quality	Water quantity	Air quality	Soil quality	Carbon footprint
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Environmental Effects (ISO ENV impact)

ACTIVITIES
(ISO Significant ENV aspects)

	Positive impact	Positive & negative impact	Negative impact										
Burning													
Access tracking													
Fire breaking													
Land preparation													
Afforestation													
Replanting													
Wildings establishment													
Fertiliser use													
Aerial chemical use													
Ground chemical use													
Pest / diseases introduced													
Weed pest management													
insect pest management													
Animal pest management													
Disease management													

can X result in damage / contamination?
Or
can X result in a positive impact to Y?

ENVIRONMENTAL VALUES (ISO criteria)

Community / neighbours	Archaeological sites & historic	Cultural heritage / places / values	Protected natural features	Landscape	Indigenous vegetation (terrestrial)	Indigenous fauna	Wetlands	Riverbeds	Water quality	Water quantity	Air quality	Soil quality	Carbon footprint
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Environmental Effects (ISO ENV impact)

ACTIVITIES
(ISO Significant ENV aspects)

	Positive impact	Positive & negative impact	Negative impact										
Pruning													
Thinning													
Reversion													
Fuel / oil / hydraulic fluid use													
Earthworks & harvest tracking													
River crossings													
Manual tree felling													
Mechanical tree felling													
Harvesting extraction & processing													
Slash management													
Transport of product													
Recreation / public access													
Wildfire management													
Quarries and gravel extraction													
Waste and rubbish dumping													

5. Hazardous substances

Introduction

Hazardous substances are any substances that may cause adverse environmental impacts and/or injury or health problems if handled or used incorrectly. These include:

- Chemicals
 - Herbicides for plantation and ecological weeds
 - Fungicides for forest fungal disease control
 - Vertebrate or invertebrate toxins: used for control of pest mammals, e.g. possums, wasps
 - Fuels and oils
 - Fire retardants – only used if there is a fire
 - Surfactants, that increase herbicide efficacy

Hazardous substances risk reduction

Transport, storage and labelling of hazardous materials must comply with Environmental Protection Agency (EPA) legislation and the NZS 8409:2021 Management of Agrichemicals.

During application, chemical trespass and spill risks are managed by:

- Neighbour consultation about planned spraying operations
- Careful planning and timing of aerial operations, with regard to wind and spray drift
- Unsprayed buffer strips on neighbour boundaries, riparian or other protected reserves
- GPS flight path control and records
- Monitoring and recording of weather conditions during the operation, including using smoke bombs and photos/video
- The use of double skinned bulk fuel storage tanks for larger capacity tanks
- Tracking active ingredient usage against target weeds within the estate
- Active involvement in and review of technologies
- Research into alternative methods for the control of pests and diseases
- Fuel: use modern, efficient machine technology

FSC Hazardous Chemicals

FSC applies a risk-based approach to rules for the use of chemicals⁴. Chemicals are classified according to an FSC Hazard rating. The rating then requires differing levels of control on use.

Of the chemical pesticides used or potentially used in the Group Scheme estate (Table 2), none fall into the Prohibited category. Occasionally some substances in the Highly Restricted category are used; in those instances, use is limited, and industry environmental and social risk assessments (ESRA's) are used to manage the risk. The majority of the substances are classified as Restricted.

Table 2: FSC Highly hazardous chemicals used or potentially used within PF Olsen FSC Group Scheme forests

Active ingredient	Purpose	FSC Hazard	Common usage
Alpha-cypermethrin	Insecticide (Paropsis beetle)	Highly Restricted	Localised control of the Paropsis beetle in Eucalyptus stands
Boric Acid	Fertilizer	Restricted	Component of micro-nutrient fertilization
Brodifacoum	Vertebrate pesticide	Highly Restricted	Ground-based vertebrate pest control
Cholecalciferol	Vertebrate pesticide	Restricted	Ground-based / Vertebrate pest control
Cuprous oxide	Fungicide	Restricted	Needle cast control (Dothistroma)
Fipronil	Insecticide (wasps)	Restricted	Localised wasp control
Glyphosate	Herbicide	Restricted	Establishment weed control/pest weed control
Haloxypop-methyl	Herbicide	Restricted	Establishment weed control/pest weed control
Picloram	Herbicide	Restricted	Establishment weed control/pest weed control
Pindone	Vertebrate pesticide	Restricted	Rabbit and hare control
Sodium cyanide	Vertebrate pesticide	Restricted	Vertebrate pest control, ground-based possum control
Sodium Monofluoroacetate (1080)	Vertebrate pesticide	Restricted	Vertebrate pest control / extensive aerial possum control

⁴ FSC Pesticides Policy FSC-POL-30-001 V3-0 <https://www.fsc.org/en/document-centre/documents/resource/208>

Most of the Restricted pesticides are vertebrate poisons and insecticides targeted at specific pest problems, such as wasps or pest predators or to manage high possum numbers.

Herbicides and fungicides are expected to be used between 1-2 and 2-4 times per radiata rotation respectively.

All the formulations are registered and legally approved for in use New Zealand by the Environmental Protection Agency, subject to various controls, and for the purposes to which they are applied as listed above.

6. Productivity

Productive capacity strategy

Forest management ensures the productive capacity of the forests is not compromised. This includes:

- Monitoring and control of pests and weeds and forest health
- Inventory – inputs into growth estimation, a core step in timing silviculture and formulating the cutting strategy
- Silviculture – to enhance the value of the resource
- Harvesting – achieving a successful harvest in terms of the forest owner's health and safety, environmental and commercial objectives

Productivity indices

Site index is used to measure of productivity of a site in terms of height growth of radiata pine. The parameter used is the mean height in metres of the largest 100 trees per hectare at age 20 years. Models predict this height given a measured height at any age. The type of indices is a measure of productivity of a site, based on stem volume growth by species (mean annual increment MAI) of the stems per hectare.

7. Crop Establishment and Silviculture

Establishment and silviculture

Forest operations are implemented to ensure a good quality crop and maximum growth. These operations include:

- Land preparation
- Establishment
- Species choice is paramount. It must be suitable for the site and meet the objectives of the forest owner
- It's also important to ensure that the planting stock is of good quality
 - Weed control
 - Pest and disease control
 - Fire protection
 - Pruning and thinning
 - General property asset maintenance

Forest management goals

Forests are managed to ensure that:

- Trees are grown and logs are produced for the manufacturing of different wood products in New Zealand and overseas, with a focus on 'fit for purpose' log production
- The productivity of the land does not decline
- Environmental values are identified and maintained, including the protection of water supply catchments
- Archaeological and historic sites are identified and appropriately managed
- Other forest values and products are identified, protected and where possible enhanced
- The forest estate's contribution to the carbon cycle is maintained or enhanced
- Trees are harvested as close as possible to their economic optimum age and to achieve the best possible financial returns to the owners
- Replanting follows harvesting where agreements require
- All statutory requirements and forest industry best practices are met

- We are a good corporate citizen and neighbour
- All forest management practices are consistent with the principles of the Forest Stewardship Council

Crop species

The dominant crop species in the PF Olsen FSC Group Scheme forests is radiata pine. Radiata pine can produce a range of different log types suitable for various processing options:

- The pruned butt log can be used to make knot-free veneer or appearance grade timber
- The unpruned logs can be used for structural timber, for veneer or feedstock for finger jointing
- Small logs and those with defects and excessive knots can be used for pulp and paper, MDF and other reconstituted wood products

Radiata pine is the most common species grown and processed in New Zealand. Export markets are well developed for both finished products and logs.

Pinus radiata is also the main focus for research and development. Past research and development have resulted in improvements in growth, form and wood characteristics, as well as development of a range of finished products, building codes and timber standards.

Re-establishment considerations

Prior to re-establishment of the tree crop, a review will be conducted to identify and incorporate:

- Boundary changes
- Species choice
- Riparian and reserve protection

Which, going forward, would provide better outcomes for the plantation forest and the environment.

Wilding spread

As part of the requirements of the NES-CF, any change in species must be evaluated using the 'wilding spread calculator'⁵ to ensure that the threshold for spread will not be exceeded.

Re-establishment methods

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

The typical re-establishment regime will take place after harvest and may involve:

- Slash raking harvesting debris/waste to enable planting access
- Spot mounding in frost-prone sites
- Line ripping of compacted sites
- Aerial desiccation spraying of weeds (including naturally regenerated pine seedlings)
- Spot spraying of limited sensitive areas where aerial spraying may not be appropriate
- Planting with genetically improved radiata seedlings
- Fertilising sites (where required) at planting by individual tablets placed in a slit with each tree
- Spot releasing or aerial releasing where necessary to eliminate competition from weeds
- Replanting will follow harvesting as it occurs, with only minor deviation for seasonal or operational logistical reasons and boundary rationalisation. This is important for maintaining the soil stabilisation function of the forest.

Tree nutrition

Foliar samples are taken if nutrient deficiency symptoms are observed or expected. Fertiliser will only be applied if the health and the growth of the trees are significantly affected, or where economic analysis demonstrates a benefit.

⁵ <https://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/wilding-tree-risk-calculator/>

Site productivity and tree nutrition are the subject of industry research programmes. PF Olsen is an active stakeholder of this. All harvesting entities are financial contributors through the Forest Research Levy Fund.

8. Harvesting and Contractors

Harvesting strategy

Promapp: Harvesting Specific

Promapp: Complete Assessment of Environmental Effects

The typical harvesting strategy for the PF Olsen FSC Group Scheme is to harvest the forest as close as practically possible to the optimum economic age. This is the age where the growth in volume and improvement in quality is offset by the accumulated interest costs to maintain the forest for another year. The optimum rotation length for radiata pine is expected to be within 25 to 30 years (possibly less for framing or unpruned stands).

Other factors in this assessment are the:

- Actual growth of the tree crop
- Market for the wood at the time of the harvest
- Outlook for the near future
- Logistics such as the availability of suitable harvest contractors and the requirements of resource consents

Forward planning is essential when considering harvesting activities. Planning generally commences up to two years before harvesting to enable roading infrastructure to be developed and any required resource consents obtained, archaeological surveys, etc. to be undertaken. This reduces potential delays to the commencement of harvesting, which can be costly and disruptive in relation to market supply chains and contractors.

The harvest planning process considers the following key requirements:

- Access (including, legal, practicality, public road suitability...)
- Forest infrastructure requirements (e.g. roads, landings, stream crossings...)
- Harvesting configuration (e.g. hauler v ground based and type of harvesting system...)
- Productivity
- Transport logistics
- Safety
- Assessment of environmental effects and mitigation options
- Any other effects of the harvesting on neighbours and community

An operational prescription for the specific operation is then produced.

Where topography and terrain allows, mechanised felling, extraction and processing is a mandatory requirement.

Forest infrastructure

Forest infrastructure includes roads, tracks, landings, stream crossings (e.g. bridges and culverts).

- Typically, infrastructure within an early to mid-rotation age 'green-fields' forest is limited to access for a 4WD vehicle.
- During harvest planning, upgrades of existing infrastructure and planning for new infrastructure will be identified and scheduled. The type of infrastructure designed and constructed is influenced by topography, harvest duration and intensity of use.
- Once established, infrastructure requires maintenance.

The PF Olsen Asset Hazard Register is a GIS-linked database of forest assets that includes bridges, culverts and crossings under resource consent. This provides the framework for a record of the asset attributes, and their associated maintenance schedule, some of which are required under consent conditions.

Contractor training & management

Promapp: Induction and Training (Environmental) - staff & contractors

Promapp: Conduct a Contractor Monitoring Audit

Promapp: Conduct a Contractor System Audit

Before engaging a new contractor, a comprehensive assessment is made of their:

- Safety systems and record
- Work organisation and equipment

PF Olsen must be satisfied with this review, regardless of the tendered price.

All new contractor crews undergo safety and environmental inductions. Crew members are contractually required to hold relevant NZQA qualifications or to be 'under formal training' for those qualifications.

The formal NZQA qualifications are supplemented periodically by internal training courses, including environmental topics. PF Olsen aims to hold a least one day of dedicated environmental training each year for operational staff and contractors.

All harvesting, engineering and silviculture contractors have:

- 6 monthly contractor monitoring audits
- Regular random drug testing
- A full safety systems audit review every year
- Full crew re-induction every 5 years
- Weekly crew visits
- Monthly or fortnightly (according to risk) Key Performance Indicator assessments, which identify any required corrective actions
- WorkSafe undertakes audits on an unannounced basis from time to time

9. Forest Inventory, Mapping and Records

Inventory introduction

Forest growth and development is monitored through forest inventory. Forest inventories are required at different times and for different reasons throughout the life of the rotation:

- Pre-assessment
- Quality control
- Mid-rotation
- Pre-harvest inventory

New technologies may introduce remote sensing to gather and analyse this information.

Pre-assessment inventory

Pre-assessment is the collection of stand parameters before a tending operation. It provides:

- The calculation of contract rate for tending
- A final check on the validity of the regime and timing of operations, i.e. DOS (diameter over stump) targets can be achieved, or crop height is sufficient for the pruning lift scheduled

Sampling intensity is low, however it provides good quality information on the work content involved in each tending operation and sets a base price for negotiation.

Quality control inventory

Tending quality control is carried out during and post operation. The aim is to collect data to:

- Monitor a contractor's performance and make any corrections (if necessary), with minimum delay
- Provide reliable estimates of the state of the crop
- Use as input for growth modelling
- Estimate timing of the next tending operation

PF Olsen's process management system details the procedures to follow for pre-assessment and quality control plotting.

Mid-rotation inventory

Mid-rotation inventory collects stand data for inputs for growth modelling. Mid-rotation inventory is scheduled for between 11 and 15 years of age.

Sampling intensity is targeted to achieve 10% confidence limits on basal area on a stand-by-stand basis. Smaller stands may be aggregated into crop types to achieve this.

Pre-harvest inventory

Pre-harvest inventory obtains estimates of recoverable volume by log grade. This information can be used to develop marketing and harvesting strategies. Pre-harvest inventories are undertaken when stands are five years or less from harvesting.

Sampling intensity is targeted to achieve 10% confidence limits on basal area on a stand-by-stand basis. Smaller stands may be aggregated into crop types to achieve this as in mid-crop inventory. The use of LiDAR is increasingly able to replace plot-based inventory systems.

Mapping and stand records

All mapping of the PF Olsen FSC Group Scheme forests is in digital format. It is constantly updated in a Geographic Information System (GIS). The GIS and forest information system spatially records a large array of forest data, including:

- Stand and legal boundaries
- Reserves
- Rivers
- Roads
- Infrastructure
- Topography and soils
- Environmental values

- Stand operational and cost histories
- Productivity
- Post-harvest yield

Accurate mapping assists:

- Operational budgeting and planning
- Silvicultural payments
- Calculation of future revenue/tree crop value
- Protected ecosystems management
- Infrastructure location
- Harvest planning
- Measuring the performance of a Forest Manager.

In a management audit, forest records can be verified against the status of the tree crop and unit costs derived for each operation.

10. Indigenous Biodiversity

Introduction

Indigenous biodiversity in/around plantation forests is an integral part of forest management. Environmental certification systems place obligations upon the forest manager to:

- Be mindful of indigenous biodiversity.
- Assist with the maintenance and protection of significant biodiversity values.
- Undertake restoration, in specific cases, where they are able.

Plantation forests provide for biodiversity. Biodiversity is often enhanced by natural forest ecosystem remnants within the plantation forest. In combination, these can be important contributors to the productive landscape's biodiversity.

Threatened species can also be present in plantation forests and may require special management.

Protection categories

The PF Olsen Environmental Management System guides ecological management targets and actions. Indigenous vegetation within the plantation area is accurately mapped. PF Olsen has three categories for indigenous vegetation and wetlands:

1. Special – highest ecological value areas.
2. Important – moderate ecological value.
3. Limited – lower ecological value.

A description of the vegetation that falls in each category is in the following tables, and the relevant protection strategy and operational standards.

Table 3: Protected Ecosystems Protection Categories

1. Special indigenous areas and wetlands
<p>Covenants ¹</p> <p>Areas of indigenous vegetation that are legally protected and have binding conditions e.g., survey, pest control, access, disturbance, maintenance and/or enhancement. NOTE: Covenant specific management actions are the responsibility of the landowner unless they have been contracted to PF Olsen.</p>
<p>Significant Natural Areas (SNAs) ²</p> <p>Areas of indigenous vegetation and / or wetlands that have been identified by councils through ecological survey in accordance with the National Policy Statement for Indigenous Biodiversity. They are protected as matters of national importance under the RMA. These could also be wetlands.</p>
<p>FSC® High Conservation Value areas (HCV) ³</p> <p>Identified by specialists as having met the FSC criteria to be High Conservation Value areas. HCVs are only associated with FSC certified areas.</p>
<p>Protection Strategy</p> <ul style="list-style-type: none"> • Maintain area & function. Improve quality. • Restoration if practical and as agreed with landowner. • Site specific ecological management plan e.g., fencing, covenanting, co-management agreements & funding (where practical); forest condition, pest and related fauna monitoring as agreed with landowner. • Pests – controlled to meet Regional Pest Management Plan requirements.

2. Important indigenous areas and wetlands

Forest Accord ⁴ vegetation

- Any area of 5 ha or greater, which has an actual or emerging predominance of naturally occurring indigenous tree species of any height.
- Any natural indigenous forest vegetation of between 1 – 5 ha with an average canopy height of 6 m which is practical to protect.
- A SSWI² or RAP³ or an area that would meet the RAP or SSWI criteria that has not been surveyed.

Sites of Special Wildlife Interest (SSWI) ⁵

Recommended Areas for Protection (RAP) ⁶

Wetlands 0.25 ha or more in size

Permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem adapted to wet conditions.

Riparian areas

Areas where commercial forestry has been set back from the riverbank / wetland (refer to the water body & riparian area management (NZ EMS) process)

Other areas of value

Areas that are special for another reason e.g., cultural values (e.g. mahinga kai, rongoā), memorials, arboretum etc.

Protection Strategy

Maintain area & function.

Pests – controlled to meet Regional Pest Management Plan requirements.

Area monitoring e.g, forest condition, pest and related fauna monitoring if required and agreed with landowner.

3. Limited indigenous areas and wetlands

Natural indigenous vegetation:

- Outside the Forest Accord definition and having values not deemed significant.
- Within commercial forests that does not meet Protection Category 'Special' or 'Limited'.
- Developed during the crop growing cycle.
- Areas too small or of low significance in themselves to warrant the costs of protection or operational interventions.
- In areas to be afforested that do not meet Protection Category 'Special' or 'Limited'.

Wetlands 100 m² - 0.25 ha

Permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem adapted to wet conditions.

Protection Strategy

- Pests – controlled to meet Regional Pest Management Plan requirements.
- May be disturbed by operations if necessary or available for afforestation (based on obtaining any necessary council approval).

Indigenous areas and wetlands operations standards

* unless approved by Regional Manager, mitigation is provided and / or NES-CF consent is obtained.

Operation	1. Special	2. Important	3. Limited
ALL	<ul style="list-style-type: none"> Protect from all damage and as required by any legal instruments, unless otherwise provided for under national regulation and the Environmental Manager has given approval. 	<ul style="list-style-type: none"> Protect from all controllable damage unless otherwise provided for under national regulation. 	<ul style="list-style-type: none"> Minimise non-essential damage.
Afforestation	<ul style="list-style-type: none"> 10 m setback. Remove wildings from SNAs - every 5 years after afforestation. 	<ul style="list-style-type: none"> 5 m setback. Remove wildings from wetlands - every 5 years after afforestation. 	
Pruning & thinning	<ul style="list-style-type: none"> No slash entry. 	<ul style="list-style-type: none"> No slash entry. 	
Earthworks & access tracking	<ul style="list-style-type: none"> No earthworks within 10 m (including sidecast / end-haul)*. No landings within 10 m (including slash)*. 	<ul style="list-style-type: none"> No earthworks within 10 m (including sidecast / end-haul)*. No landings within 10 m (including slash)*. 	
Quarrying & gravel extraction	<ul style="list-style-type: none"> 20 m setback. 	<ul style="list-style-type: none"> 20 m setback. 	
Harvesting	<ul style="list-style-type: none"> Full suspension required*. No processing slash within 10 m (birdsnest / end-haul)*. No harvesting machinery within 10 m (unless to directionally fell and extract trees in the 10 m setback). Existing tracks within 10 m of the indigenous vegetation may be used and are to be decommissioned / covered with slash. 	<ul style="list-style-type: none"> Full suspension required*. No processing slash within 10 m (birdsnest / end-haul)*. No harvesting machinery within 5 m (unless to directionally fell and extract trees in the 5 m setback). Existing tracks within 10 m of the indigenous vegetation may be used and are to be decommissioned / covered with slash. 	

continued

Operation	1. Special	2. Important	3. Limited
Mechanical Land Preparation	<ul style="list-style-type: none"> 10 m setback or no closer than the stump line. 	<ul style="list-style-type: none"> 5 m setback. 	
Replanting	<ul style="list-style-type: none"> 10 m setback and no closer than the stump line. Remove wildings from SNAs - before replanting. Remove wildings from SNAs - every 5 years after replanting. 	<ul style="list-style-type: none"> 5 m setback. Remove wildings from wetlands - before replanting. Remove wildings from wetlands - every 5 years after replanting. 	
Chemical and fertiliser application	<ul style="list-style-type: none"> 10 m setback unless being used for pest control or hand / drone application. No spray drift. 	<ul style="list-style-type: none"> 10 m setback unless being used for pest control or hand / drone application. No spray drift. 	<ul style="list-style-type: none"> For wetlands - 5 setback unless being used for pest control.
Refuelling/ Chemical mixing	<ul style="list-style-type: none"> 20 m setback. 	<ul style="list-style-type: none"> 20 m setback. 	<ul style="list-style-type: none"> For wetlands - 10 m setback
Wilding conifer removal	<ul style="list-style-type: none"> For SNAs - Every 5 years after afforestation / replanting. For SNAs - Before replanting. 	<ul style="list-style-type: none"> From wetlands - every 5 years after afforestation / replanting. From wetlands - before replanting. 	

Ecological Districts and % Reserves

Under the FSC National Standard for Plantation Forest Management in New Zealand revised in 2023, there must be area protected in reserves:

1. equivalent to at least 10% of the MU area, and
2. equivalent to at least 10% of the total area of MUs within each Ecological District (or Ecological Region).

This requirement is checked for each new addition to the PF Olsen FSC Group Scheme. Any shortfalls are addressed in the specific forest management plan.

Threatened Environments Classification

The Manaaki Whenua Landcare Threatened Environments Classification (TEC) is a spatial tool that provides information on the quantity and status of current indigenous vegetation cover relative to its pre-human extent. It shows:

- the remaining extent of indigenous vegetation cover
- legal protection status
- the spatial distribution in New Zealand's landscape

The TEC uses indigenous vegetation cover as a surrogate for indigenous biodiversity (including indigenous ecosystems, habitats, and communities; the indigenous species, subspecies and varieties that are supported by indigenous vegetation; and their genetic diversity).

It uses legal protection as a surrogate for the relative vulnerability of indigenous biodiversity to pressures such as land clearance, extractive land uses, and the effects of fragmentation.

It also helps to identify areas that are priorities for formal protection against clearance and/or incompatible land uses, and for ecological restoration to restore lost species, linkages and buffers.

Threatened species

Plantation forests and their intertwined areas of indigenous vegetation provide habitat for important New Zealand fauna including threatened species.

Records of species sightings and locations are collected using the iNaturalist app project Biodiversity in Plantations⁶. This records sightings into a spatial dataset. These records can be made available to conservation authorities.

Primary management actions include:

- Adherence to industry protocols for the management of threatened species. Management guides are located at <https://rarespecies.nzfoa.org.nz/resources/guidelines/> and are available for:
 - North Island Brown Kiwi
 - Karearea / New Zealand Falcon
 - Bats
 - Kea
- Adherence to PF Olsen management guides for species that haven't yet had industry protocols developed, e.g. Hochstetters frog.
- A list of key species is held by all contractors and operational staff and how to report sightings using the iNaturalist App is part of their induction training.
- Minimising damage to indigenous forest areas during harvest and re-establishment.
- Appropriate design and construction of new stream crossings.
- Promotion of the development of improved riparian corridors after harvest.
- Use of the NES-CF Fish Spawning Indicator as a management tool⁷ to avoid operations involving works in, on or over the beds of streams during spawning periods.
- At all times maintaining good sediment controls around earthworks.
- Identification of, and avoidance and/or buffering of waterbodies, including wetlands during aerial spraying for replanting and *Dothistroma* control or aerial fertilisation operations.

⁶ <https://inaturalist.nz/projects/biodiversity-in-plantations>

⁷ Published by NIWA to support the regulations of the NES-CF

Stream protection and riparian setbacks

PF Olsen has legal obligations to identify and manage water bodies and their associated non-commercial forest riparian areas within our commercial forests. These responsibilities come from:

- New Zealand law.
- FSC principles.
- National Environmental Standards for Commercial Forestry.
- Local council rules.
- Freshwater Fisheries regulations.

PF Olsen has four categories for water bodies and their associated riparian areas:

- Category 1 – Special (Permanently flowing water body with significant values).
- Category 2 – Important (Perennial flowing water bodies > 3 m in width).
- Category 3 – Limited (Perennial flowing water bodies < 3 m in width).
- Category 4 – Ephemeral (Ephemeral – catchment headwater streams).

Water bodies in FSC certified forests that are permanently flowing- regardless of width- fall in Category 2- Important.

A description of the water bodies that falls in each category is in the following tables, and the relevant protection strategy and operational standards.

1. Special water body and riparian areas
<p>Water Conservation Order River² Water conservation orders provide recognition of the outstanding amenity or intrinsic values of water bodies at a national level.</p> <p>FSC® High Conservation Value area (HCV) ³ Identified by specialists as having met the FSC criteria to be High Conservation Value areas. HCVs are only associated with FSC certified areas. The setback distances may be altered in consultation with an ecologist & forest owner.</p> <p>Notes: Special water bodies would generally be River Environment Classification (REC) Category 3A, 3B and 3C rivers. Setbacks are measured horizontally.</p>
<p>Protection Strategy</p> <ul style="list-style-type: none"> • Maintain area & function. • Enlarge riparian areas if practical and as agreed with landowner. • Site specific ecological management plan e.g. water quality monitoring as agreed with landowner. • Pests – controlled to meet Regional Pest Management Plan requirements.

2. Important water body and riparian areas
<p>Perennial water bodies > 3 m in width - not identified as Category 1 – Special.</p> <p>Lakes > 0.25 ha</p> <p>Outstanding freshwater body</p> <p>Water bodies in FSC certified forests - permanently flowing regardless of width.</p> <p>Rivers identified by local councils as having significant values Nominated rivers in regional council / unitary authority plans.</p> <p>Cultural areas of value Areas that are special for cultural reasons (e.g. mahinga kai, rongoā).</p> <p>Notes: Important water bodies would generally be River Environment Classification (REC) Category 3A, 3B and 3C rivers. Setbacks are measured horizontally.</p>
<p>Protection Strategy</p> <ul style="list-style-type: none"> • Meet the requirements of the National Environmental Standards for Commercial Forestry. • Pests – controlled to meet Regional Pest Management Plan requirements.

3. Limited water body and riparian areas
<p>Perennial water bodies < 3 m in width - may not have any associated riparian areas.</p> <p>Notes: Limited water bodies would generally be River Environment Classification (REC) Category 1A, 1B, 1C, 2A, 2B and 2C rivers. Setbacks are measured horizontally.</p>
<p>Protection Strategy</p> <ul style="list-style-type: none"> • Meet the requirements of the National Environmental Standards for Commercial Forestry. • Pests – controlled to meet Regional Pest Management Plan requirements.

4. Ephemeral water body and riparian areas
<p>Ephemeral water bodies - usually would not have any associated riparian areas.</p> <p>Note: Ephemeral water bodies would generally be River Environment Classification (REC) Category 0A, 0B and 0X rivers.</p>
<p>Protection Strategy</p> <ul style="list-style-type: none"> • Meet the requirements of the National Environmental Standards for Commercial Forestry. • May be disturbed by operations if necessary.

Water body and riparian areas operations standards

Notes: * unless resource consent has been obtained for any unavoidable damage.

** unless approved by Regional Manager and mitigation is provided.

Operation	1. Special	2. Important	3. Limited	4. Ephemeral
ALL	<ul style="list-style-type: none"> Protect from all damage and as required by any legal instruments*. Fish passage must be provided and maintained for all stream crossings. 	<ul style="list-style-type: none"> Protect waterbodies and riparian area from all controllable damage*. Retain non-commercial forestry remanent large riparian trees (habitat trees). Fish passage must be provided and maintained for all stream crossings. 	<ul style="list-style-type: none"> Protect waterbodies and riparian area from all controllable damage*. Retain non-commercial forestry remanent large riparian trees (habitat trees). Fish passage must be provided and maintained for all stream crossings. 	<ul style="list-style-type: none"> Minimise non-essential damage. Retain non-commercial forestry remanent large trees (habitat trees).
Afforestation	<ul style="list-style-type: none"> 20 m setback of the stream bank or 5 m from riparian vegetation edge, whichever is the greater. 10 m setback from FSC HCV. (Note: While 10 m is the minimum, slope, soil stability and future harvest disturbance should be considered when defining the setback width). 	<ul style="list-style-type: none"> 10 m setback from stream bank. 	<ul style="list-style-type: none"> 5 m setback from stream bank. 10 m setback for water bodies in FSC certified forests. (Note: While 10 m is the minimum, slope, soil stability and future harvest disturbance should be considered when defining the setback width). 	
Pruning & thinning	<ul style="list-style-type: none"> No slash entry into water body or riparian area. 	<ul style="list-style-type: none"> No slash entry. 	<ul style="list-style-type: none"> No slash entry. 	

continued

Operation	1. Special	2. Important	3. Limited	4. Ephemeral
Earthworks & access tracking	<ul style="list-style-type: none"> No earthworks (including sidecast / end-haul) or landings (including processing slash) within 20 m of the stream bank or 10 m from riparian vegetation edge, whichever is the greater**. 	<ul style="list-style-type: none"> No earthworks within 10 m (including sidecast / end-haul)**. No landings within 10 m (including processing slash)**. 	<ul style="list-style-type: none"> No earthworks within 10 m (including sidecast / end-haul) unless to access and construct or maintain a river crossing, a sediment or water control measure, or a slash trap or debris retention structure. No landings within 10 m (including processing slash)**. 	<ul style="list-style-type: none"> Minimise earthworks and install culverts in roads to convey ephemeral flow. Do not dam.
Quarrying & gravel extraction	<ul style="list-style-type: none"> 20 m setback from stream bank and the riparian vegetation edge. 	<ul style="list-style-type: none"> 20 m setback. 	<ul style="list-style-type: none"> 20 m setback. 	
Mechanical land preparation	<ul style="list-style-type: none"> 20 m (10 m FSC HCV) set back from stream bank or 5 m setback riparian vegetation edge, whichever is the greater and no closer than the stump line. 	<ul style="list-style-type: none"> 10 m setback. 	<ul style="list-style-type: none"> 5 m setback of stream bank. No disturbance of riparian area non-commercial forest vegetation. 	
Chemical & fertilizer application	<ul style="list-style-type: none"> 20 m set back from stream bank or 5 m setback from riparian area unless being used for pest control or hand / drone application. No spray drift. 	<ul style="list-style-type: none"> 10 m setback unless being used for pest control or hand / drone application. No spray drift. 	<ul style="list-style-type: none"> 5 m setback unless being used for pest control or hand / drone application. No spray drift. 	

continued

Operation	1. Special	2. Important	3. Limited	4. Ephemeral
Refuelling / Chemical mixing	<ul style="list-style-type: none"> 20 m setback from stream bank or 5 m setback from riparian vegetation edge. 	<ul style="list-style-type: none"> 20 m setback from stream bank. 	<ul style="list-style-type: none"> 20 m setback. 	<ul style="list-style-type: none"> 10 m setback.
Harvesting	<ul style="list-style-type: none"> No harvesting over the water body or riparian area unless full suspension or a resource consent has been obtained for any unavoidable damage. No processing slash within 10 m (birdsnest / end-haul) of the stream bank and the riparian vegetation edge, whichever is greater**. No harvesting machinery within 10 m (unless to directionally fell & extract trees in the 10 m setback). Existing tracks within 10 m may be used & are to be decommissioned / covered with slash. Directionally fell away whenever safe and practical. 	<ul style="list-style-type: none"> Full suspension required*. No processing slash within 10 m (birdsnest / end-haul)**. No slash left on land that would be covered by a 5% AEP flood event. No harvesting machinery within 10 m (unless to directionally fell and extract trees in the 10 m setback). Existing tracks within 10 m may be used and are to be decommissioned / covered with slash. Directionally fell away whenever safe and practical. Remove slash from water body. 	<ul style="list-style-type: none"> No slash left on land that would be covered by a 5% AEP flood event. No harvesting machinery within 5 m (unless to directionally fell and extract trees in the 5 m setback). Existing tracks within 10 m may be used and are to be decommissioned / covered with slash. Directionally fell away whenever safe and practical. Remove slash from water body. 	<ul style="list-style-type: none"> No use of the flow path as a haul path. Do not dam with slash or processing slash. Achieve partial butt suspension.
Replanting	<ul style="list-style-type: none"> 20 m ** (10 m FSC HCV) set back from stream bank or 5 m setback from riparian vegetation edge, whichever is the greater, and no closer than the stump line. 	<ul style="list-style-type: none"> 10 m setback or no closer than the stump line whichever is greater. 	<ul style="list-style-type: none"> 5 m setback of stream bank and no closer than the stump line. 10 m setback for FSC certified forests. 	<ul style="list-style-type: none"> Do not plant within the ephemeral channel

Fish

The NES-CF Fish Spawning Indicator and NIWA Freshwater Fish Database (NFFD) and Freshwater Environments of New Zealand (FWENZ) models have been used to assess the potential for threatened fish species presence in streams that could be affected by operations, and if necessary, any required response if fish are present.

CITES species

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement. It aims to ensure that international trade of wild animals and plants does not threaten the survival of the species in the wild, and it accords varying degrees of protection to more than 34,000 species of animals and plants.

The full list of New Zealand CITES listed species is available [online](#).

High Conservation Value (HCV) areas

High conservation value (HCV) areas only apply to FSC certified forests. They include a series of classifications that reflect a number of important forest ecosystem functions, community needs and cultural values. The FSC HCV area types are contained in Criteria 9.1, being:

- HCV 1 - Species Diversity: Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels.
- HCV 2 - Landscape-level ecosystems and mosaics: Intact forest landscapes, large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.
- HCV 3 - Ecosystems and habitats: Rare, threatened, or endangered ecosystems, habitats or refugia.
- HCV 4 - Critical ecosystem services: Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.
- HCV 5 - Community needs: Sites and resources fundamental for satisfying the basic necessities of local communities or Indigenous Peoples (e.g. for livelihoods, health, nutrition, water), identified through engagement with these communities or Indigenous Peoples.
- HCV 6 - Cultural values: Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or Indigenous Peoples, identified through engagement with these local communities or Indigenous Peoples.

HCV areas are identified during the development of the FSC Forest Management Plan:

- HCV 1, 2, 3: An assessment of the ecological values of a property is carried out by a suitably experienced and qualified ecologist against the HCV criteria 1 to 3.

- HCV 4 are identified through an internal review of physical attributes of the forest, including sites that protect water supply areas, and sites that mitigate erosion risk in especially sensitive catchments.
- HCV 5, 6 are identified during stakeholder consultation, and with prior knowledge of the area, if available.

11. Cultural and Social Aspects

Archaeological and historic sites

Records of known archaeological and historic places are maintained in the New Zealand Archaeological Association (NZAA) Site Recording Scheme published in the Archsite database⁸.

PF Olsen holds a license to this dataset and all recorded site information is reproduced in mapping for forest operations.

Stakeholder engagement and neighbours

Consultation with stakeholders occurs throughout the rotation of the forest. There are times when consultation is targeted to potentially affected parties (e.g. neighbour to a aerial spraying operation) and times when consultation is more general (such as seeking feedback on a FSC Forest Management Plan).

Neighbours are special stakeholders with a potential interest in the management of the forests.

- Forest operations can positively or negatively impact their quality of life or business.
- Inappropriately managed operations can create health, safety, environmental and biosecurity hazards for neighbours.

Social Impact

Promapp: Manage Certification and Other Stakeholder Engagement

Promapp: Manage and Resolve Disputes GM-PROC-08

Neighbours and communities may be impacted by a change in operational procedure or intensity of operation. Social Impact Assessment is an additional form of Assessment of Environmental Effects that may be needed from time to time where many of the potentially affected parties have little direct representation in decision processes. It also enables us to review our operations to minimise negative impacts.

A Social Impact Assessment may be required if the potential impacts of the operation:

- Will affect communities without representation, or

⁸ <https://archsite.eaglegis.co.nz/NZAAPublic>

- Are not limited to natural and physical (built) environment, or
- Arise from a significant departure from standard practices or terms & conditions, and multiple individuals will be affected through direct or indirect association.

12. Property Protection: Pests, Fire and Insurance

Plant pests

Plant pest control within the forest is required to:

- Manage commercial pests specific to plantation forest health.
- Meet Regional Pest Management Plan requirements.

Chemical herbicides are generally used for establishment weeds or ecological pest plants. Refer to Section 5 – Hazardous substances.

Herbicides are used to desiccate most harvested areas before re-establishment. Application is usually by aerial spraying, but occasionally by spot spraying in sensitive areas and where grasses are the main problem rather than woody weeds. Re-established trees are also released with another chemical application where necessary, during the first one to two years after establishment to reduce competitive vegetation growth.

Pest weed control, where required, can include aerial applications, or ground-based manual cut and swab or similar techniques dependent upon the site and weed species.

Animal pests

Possums are the predominant animal pest in forests. They attack the growing tips of both plantation and indigenous species, causing stem malformation and die back. They are also a nationally significant ecological pest, killing indigenous birds and their eggs.

Deer, goats and pigs are less commercially significant but are problematic for indigenous ecosystems and also eat the growing tips of seedlings/cuttings.

Stoats, weasels, rats and mice have no commercial impact but are a significant ecological threat to all indigenous ecosystems.

Rabbits and hares can be a problem at the time of plantation establishment.

Control of commercially impacting animal pests, where required will generally involve ground-based methods, to prevent negative impacts on planted species.

Insects and fungal disorders

Diseases can affect plantation forests and indigenous vegetation. Forest managers regularly monitor for disease and once a year an independent professional carries out a forest health assessment.

Most diseases cause little damage and do not require control. The exception is *Dothistroma*, a fungus that attacks pine needles. To control *Dothistroma* a copper-based fungicide, sprayed from a helicopter is used. The spraying occurs when a critical level (50%) of infection is reached and before the fungus can stunt growth. This might need to be repeated up to 4 times. Timely thinning and pruning also minimise infection.

Preventing fires

Fire is a potential threat to plantation and indigenous forests. Each forest has its own fire risk profile and needs an appropriate risk management approach. The risk of fire changes season to season. However, there may be increased fire risk due to climate change.

Fire risk and impact can be minimised by:

- Having a fire reduction, readiness, response and recovery plan
- Maintaining a close link with the relevant fire authorities / rural fire control organisation
- Understanding equipment and trained personnel requirements
- Effective fire reporting communications systems and mapping
- Active prevention measures include:
 - a. restrictions on access
 - b. fire prevention signage
 - c. publicity when fire danger increases
 - d. access to adequate fire fighting water sources
 - e. constructing/maintaining firebreaks
 - f. site-specific adjustments to silvicultural practice or timing of operations
 - Community engagement to raise awareness of risks of fire to plantation forest.

Fire insurance

Fire and Emergency New Zealand (FENZ) has the legal responsibility for fighting forest fires.

1. If a fire starts within the forest, FENZ is responsible for attending and providing the resources to extinguish the fire. Costs are borne through a general insurance levy that supports a rural firefighting fund.
2. If a fire starts **outside the forest** and moves into the forest, those costs remain covered under the fund.

In either case, loss of crop value due to fire is responsibility of the forest owner. Many forest owners hold crop insurance. If a fire was caused by negligence or identifiable criminal acts, cost recovery might be attempted by FENZ.

There is a liaison with FENZ in terms of developing the 'fire plan', and good communication about potential risks and fire danger ratings.

We recommend that fire insurance is held and maintained.

Crop insurance

Many PF Olsen FSC Group Scheme members maintain crop insurance cover for fire under a PF Olsen managed crop insurance scheme. This is reviewed regularly.

We recommend that crop insurance is held and maintained.

Public liability insurance

PF Olsen Ltd and PF Olsen's contractors maintain full public liability insurance. This would include cover in the case of fire spreading from the forest onto adjoining land, where the parties could be liable for costs of any damage to the adjoining property. Many PF Olsen FSC Group Scheme members also hold this insurance.

We recommend that public liability insurance is held and maintained.

13. Other Special Values: Everything but the timber

Environmental and social cost-benefit analysis

Forests deliver social and environmental products and services, both positive and negative, to varying degrees. Non-timber products can be difficult to quantify, unlike financial costs and benefits.

The table below rates the relative positivity and negativity of the more common social and environmental products produced *relative* to the most likely alternative primary production system, pastoral dry stock farming.

Table 4: Environmental and social cost-benefit analysis of key non-timber products & services

Environmental or social product	Increasingly negative					Neutral		Increasingly positive				
	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	
Soil stabilisation							✓H				✓G	
Erosion/soil loss				✓H							✓G	
Water quality				✓H							✓G	
Riparian shading					✓H					✓G		
Water quantity					✓G			✓H				
Carbon sequestration				✓H							✓G	
indigenous wildlife habitat			✓H							✓		
Threatened fauna				✓H					✓			
Indigenous fish				✓H						✓		
Air quality							✓H				✓G	
Indigenous vegetation protection										✓		
Landscape / visual			✓H						✓G			
Recreation				✓H						✓G		
Outdoor sports / events			✓H								✓G	
Commercial forest use										✓		
Firewood											✓H	
Local employment							✓G				✓H	

NOTE: where the ratings differ throughout a rotation, 'G' is used to indicate the mid-rotation (growing) stage of the forest, and 'H' refers to harvest or post-harvest.

Non-timber forest products

There are no FSC certified non-timber forest products⁹ arising from the PF Olsen FSC Group Scheme member estate. However, there is a range of non-forest activities accommodated in the estate that provide significant value to the wider community, such as sports events,

⁹ 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.

hunting and apiary sites. These are likely to continue and potentially increase subject to appropriate agreements and management of conflicts. See Appendix 1 for the Public Access Policy.

14. Monitoring

Values monitored

Inspections are regularly undertaken to ensure the management objectives are being achieved. The PF Olsen FSC Group Scheme forests are monitored to ensure compliance and to understand the impacts of operations. The following monitoring may be undertaken, but reference to actual monitoring by forest is contained in the forest specific FMP. Monitoring is presented in the [Annual Summary Report](#).

Table 5: Environmental process monitoring framework

Monitored Element	Components	Data Source	Data
Chemical Usage	A.I Usage Area Overuse	Operational Supervisors	GeoMaster
Client Satisfaction	Post-operation client survey	Clients	Survey
Consultation Activity	Complaints Other Interactions	Operational Supervisors Planners	CRM Electronic files , Operational diary notes
Environmental Incidents	Incident Number Categories	Operational Supervisors	Assura Environmental Dashboard
Environmental Goals	All	Environmental Management Group	Meeting minutes
Environmental Training	Course. Numbers, Names	Staff	Jemini
Flora & Fauna	Species & status Frequency New Finds	Operational Supervisors Public. Crews Eco Surveys	iNaturalist-Biodiversity in plantations
Forest Estate Structure	Area: Plantation & Protected Ecosystem Age-class, Species Forest Type Protection Status	Management Plans Stand Records	GeoMaster Stand Records
Forest Growth	PSP Protocols Periodic Inventory	Contractors	Volume Reconciliations Estate model
Forest Health	Disease & health	National Forest Health Surveillance Program ¹⁰	Document
Monitored Element	Components	Data Source	Data
FSC Membership	Block, location, name	Certifying Body	Certificate
Health, Safety & Wellbeing Statistics	LTI / MTI / TIFR Accidents & Incidents Initiatives	Operational Supervisors	Assura Health & Safety Dashboard

¹⁰ Forest health inspections are undertaken annually, by an independent specialist forest health assessor, through the NZ Forest Owners Association forest health scheme.

Monitored Element	Components	Data Source	Data
High Conservation Value Areas ¹¹	Condition Trends Photo-point Monitoring	Contractors Supervisors	Drone, photos Electronic files
Internal Audit CAR Activity	Frequency * Category	Auditors Operational Supervisors	Assura
Log Production	Total Logs FSC Certification	Log dockets at harvest	Woodtrack
Operational Monitoring	Audit Trends Cause Analysis	Operational Supervisors	FIPS
Pests	Residual Trap Catch (RTC) / Rat Track Index (RTI) Kill Returns Other	Contractors Supervisors Permit holders	TrapNZ FIPS Various
Protected Ecosystem Condition	Condition trends Photo-point monitoring	Contractors Supervisors	FIPS Electronic files
Recreational & Non-Timber	Permits Issued	Branch Offices Forest Security	FIPS
Resource Consents	Number Compliance	Operational Planners	FIPS and Electronic
Social Survey	Demographics Values Work conditions	Contractors	Survey form
Stream Monitoring	Various e.g. clarity +/- other specific, Full NOF. MCI. Rapid Habitat Assessment	Supervisors Contractors	Electronic

Other monitoring

Other standards are monitored but are not publicly available, including:

- log manufacturing quality
- safety performance
- financial and budget performance
- stakeholder feedback
- client satisfaction surveys

¹¹ If there is evidence of a decline in the biodiversity values of a HCV, we will seek approval from the forest owner for a targeted ecological assessment by independent ecologist to determine cause and potential remedial actions.

15. Industry Participation and Research

NZ Forest Owners Association

PF Olsen FSC Group Scheme members support industry initiatives and gain access to research via:

PF Olsen being a member of the New Zealand Forest Owners Association Inc. (NZFOA) <http://www.nzfoa.org.nz/>

PF Olsen representation on NZFOA working committees

Payment of a commodity levy at harvest to the Forest Growers' Levy Trust (FGLT) <http://fglt.org.nz/>

Forest Growers Levy Trust Research

Approximately 50% of the funds raised by FGLT are allocated to forestry research projects. This is usually supplemented by New Zealand Government contestable research funds. NZFOA is contracted to undertake the work.

Application of the research is via:

1. Knowledge gained from the research, involvement in research, from workshops and it is used by contractors, commercial providers and PF Olsen staff
2. The deployment of better genetics

Forest Industry Safety Council

The Forest Industry Safety Council (FISC) was established in 2016 following an independent review of safety in the plantation forest industry. FISC is a forum for the exchange of safety improvement initiatives, and the development of resources for forest managers and contractors. These resources are primarily delivered via the Safetree website <http://safetree.nz/>. FISC is financed jointly by FGLT and the government, primarily the Accident Compensation Corporation (ACC).

PF Olsen's continued support of FISC in the form of senior staff involvement in the Operational Advisory Group and Technical Action Group committees ensures the PF Olsen FSC Group Scheme member's interests are considered, and outcomes are understood and applied.

Additional representation

PF Olsen is (or has recently been) active in a number of organisations/processes that bring benefit to the PF Olsen FSC Group Scheme members including:

- Wood Council of New Zealand (Woodco)
- Regional Wood Councils
- Business Leaders' Health and Safety Forum
- New Zealand Forest Nursery Growers' Association
- Forest Health and Biosecurity Committee
- NZ Forest Owners Association – Transport, Environment and Safety committees
- Log Transport Safety Council
- New Zealand Institute of Forestry Inc.
- New Zealand International Business Forum
- New Zealand Resource Management Law Association
- New Zealand China Council
- Various organisations managing freshwater quality regulations
- Te Uru Rakau – Forest Service and MPI review of the National Environmental Standard for Commercial Forestry
- MFE freshwater and biodiversity legislation
- Council planning matters

16. Future Planning

Operational plans

Short term tactical planning is through annual operational plans in conjunction with detailed budgeting. These plans are prepared in accordance with this Standard Management Plan. Harvesting operations are planned on a block-by-block basis due to the level of detail required.

These operational plans and associated budgets are subject to approval by the forest owners at the beginning of each financial year.

Stakeholder consultation

Consultation with key stakeholders has been undertaken during the development of this plan. Feedback from stakeholders is monitored, including actions undertaken to resolve disputes and issues. Results may create changes in operational practice or plan reviews.

Plan change and review

The next major review date for this plan is **April 2026**

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

Change	Date	Section/Page
Minor editing and data updates	21/4/22	various
Addition of the public access policy in Appendix 1	30/09/22	Appendix 1
New format and minor updates	13/01/23	all
Reviewed and updated monitoring framework	26/01/23	Section 14
Final review and editing for website publishing	11/04/23	all
Formatted headings and table of contents	13/04/23	Various
Updated Table 2 & FSC Hazardous Chemicals Section – checked status of substances against FSC Highly Hazardous Pesticides list and reworded text	26/07/23	Page 14, Table 2
Updated Table 2 – removed carbaryl as no longer used	16/08/23	Table 2
References to 'NES-PF' changed to 'NES-CF'	05/03/24	Throughout
Updated 10. Indigenous Biodiversity to align with new EMS <ul style="list-style-type: none"> - EMS indigenous vegetation management - EMS rare species management - EMS water bodies management 	6/03/24	Section 10
Modified ED section to reflect new NZ FSC Standard	6/03/24	Page 32
Added section on HCV- definition and how they're identified	6/03/24	Page 39

Appendix 1: Public Access Policy

Policy 7 – Property Access – public access NZ/AU

Objectives

1. To manage non-commercial public access to property while ensuring commercial operations and the environment are safeguarded.
2. To recognise public rights of access on formed and unformed legal roads.

Background

Legal

- Local Government Act (NZ)
- Health and Safety at Work Act (NZ)
- Work Health and Safety Act (AU)

Other Standards

- NZ FSC® Criteria 1.1, 1.4
- AU FSC® Criterion 1.4
- AS/NZS 4708 Criterion 11.7.12

Other

- Nothing specific.

How this policy will be achieved – All staff & contractors

A NON-COMMERCIAL PUBLIC ACCESS

Properties will generally be available for non-commercial public use for recreational, sporting, and club/team activities, subject to the activity being undertaken:

- In daylight hours.
- In a safe manner to all parties.
- In compliance with the consent and any conditions imposed by the owner of the property and any other jurisdictional authority.
- Resulting in no damage or inconvenience to the property owner’s commercial activities or the environment, nor any creation of hazards.
- In compliance with any conditions of fire plans and any fire risk assessment.
- In compliance with all laws
- In compliance with PF Olsen’s policies and standards.

B ACCESS PERMITS

Other than in areas publicly signposted as open to the public, all access will be strictly controlled through permits issued at company offices or through parties with delegated authority (such as nominated security managers) to ensure activities may be undertaken safely, without conflict or risk between activities.

C BONDS AND INSURANCE

Specific bonds and insurances may be required, particularly for organised events, depending upon the nature of the proposed activity.

D LEGAL ROADS

PF Olsen recognises the public rights of access on formed and unformed legal roads but may control access to comply with relevant laws or for safety or fire prevention purposes in consultation with the local authority.