PF OLSEN FOREST STEWARDSHIP COUNCIL® GROUP SCHEME

Standard Forest Management Plan

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1. Introduction

1.1 About this Plan

- This standard forest management plan provides a summary of the typical management of PF Olsen Forest Stewardship Council® (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.
- The PF Olsen Environmental Hub is a centralised intranet which houses environmental resources for PF Olsen staff. It includes the Environmental Management System (EMS) and associated systems, and internal guidelines and templates for the FSC Group Scheme management and statutory regulations. Links to resources in the Environmental Hub are linked, where relevant, in sections of this plan.
- Promapp is a cloud-based process management software platform that contains PF Olsen's business processes. Links to relevant processes are throughout this plan.

1.2 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.

1.3 Policies and feedback

The following policies are freely available on our website: PF Olsen Policies

- Health, Safety and Wellbeing
- Environment and Sustainability
- Quality and Continual Improvement
- Complaint and Dispute Resolution
- Anti-bribery, Corruption and Collusion

The Public Access Policy is included in Appendix 1.

If you would like to make a complaint or compliment about any PF Olsen managed forest, or forest management activity, please contact your local PF Olsen branch.

2. Regulation

2.1 Regulatory considerations for forestry

Details of environmental legislation are contained in the PF Olsen Environmental Management System.

- Forest operations throughout New Zealand are subject to a range of regulatory requirements.
- Failure to meet regulatory requirements is a key business risk.

The following sections summarise key regulatory requirements.

2.2 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.

2.3 Heritage New Zealand Pouhere Taonga Act 2014

https://www.legislation.govt.nz/act/public/2014/0026/latest/DLM4005414.html

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.

2.4 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.

2.5 Resource Management Act 1991

https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

Within the Resource Management Act (RMA) framework, everyone is responsible to avoid, remedy or mitigate the adverse effects of activities.

2.6 National Environmental Standards for Commercial Forestry (NES-CF)

https://www.legislation.govt.nz/regulation/public/2017/0174/latest/whole.html

The National Environmental Standards for Commercial Forestry (NES-CF) are a Resource Management Act regulation. The regulations are applicable to most plantation commercial forestry activities and have replaced many council rules except where the councils may have more stringent rules in accordance with the regulations, or when the activity is not one of the eight forestry activities regulated under the NES-CF.

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 of the forestry activity.

2.7 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.

Councils can exercise greater stringency through their plans:

- To give effect to some of the policies of the New Zealand Coastal Policy Statement and to enable the objectives of the National Policy Statement for Freshwater Management, 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

3.1 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.

3.2 Log customer credit risk

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

3.3 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

3.4 Pests and diseases

https://www.bionet.nz/rules/pest-management-plans/

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.

3.5 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 from FENZ

Refer to Section 11 for details and Appendix 1 for the PF Olsen Public Access Policy.

4. Environmental risks

4.1 Environmental risk framework

Environmental risk is managed through a cascade framework:

1. High level 'intent' determined by the forest owner.
2. PF Olsen's environmental policies.
3. Defined and documented processes in the Environmental Management System (EMS).
4. Monitoring and reporting.

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

4.2 Environment and sustainability policies

Environmental Hub > EMS > Section 2: Environment and sustainability policies

4.3 Environmental Management System (EMS)

Environmental Hub > EMS > Section 1: Introduction

- Defined and documented policies, processes and activities.
- Governs the implementation of forest management activities.
- Ensures effective mechanisms to manage potential adverse or harmful impacts from operations.
- Formal Review every five years with the input of an Environmental Governance Team (EGT).

4.4 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 Guides[2] published in support of the NES-CF.

4.5 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 2020[3].

4.6 Assessment of environmental and social effects

Environmental Hub > EMS > Assessment of environmental and social effects

The potential for negative, neutral and positive impacts across the range of forestry activities and forest sites is indicated in the Values, Activities and Effects shown in the table below.

The assessment indicates the need to minimise the potential for adverse effects. To manage and mitigate adverse effects, performance standards are included in prescriptions.

Values, Activities and Effects

Need to consider:

- can X result in damage / contamination?

  OR

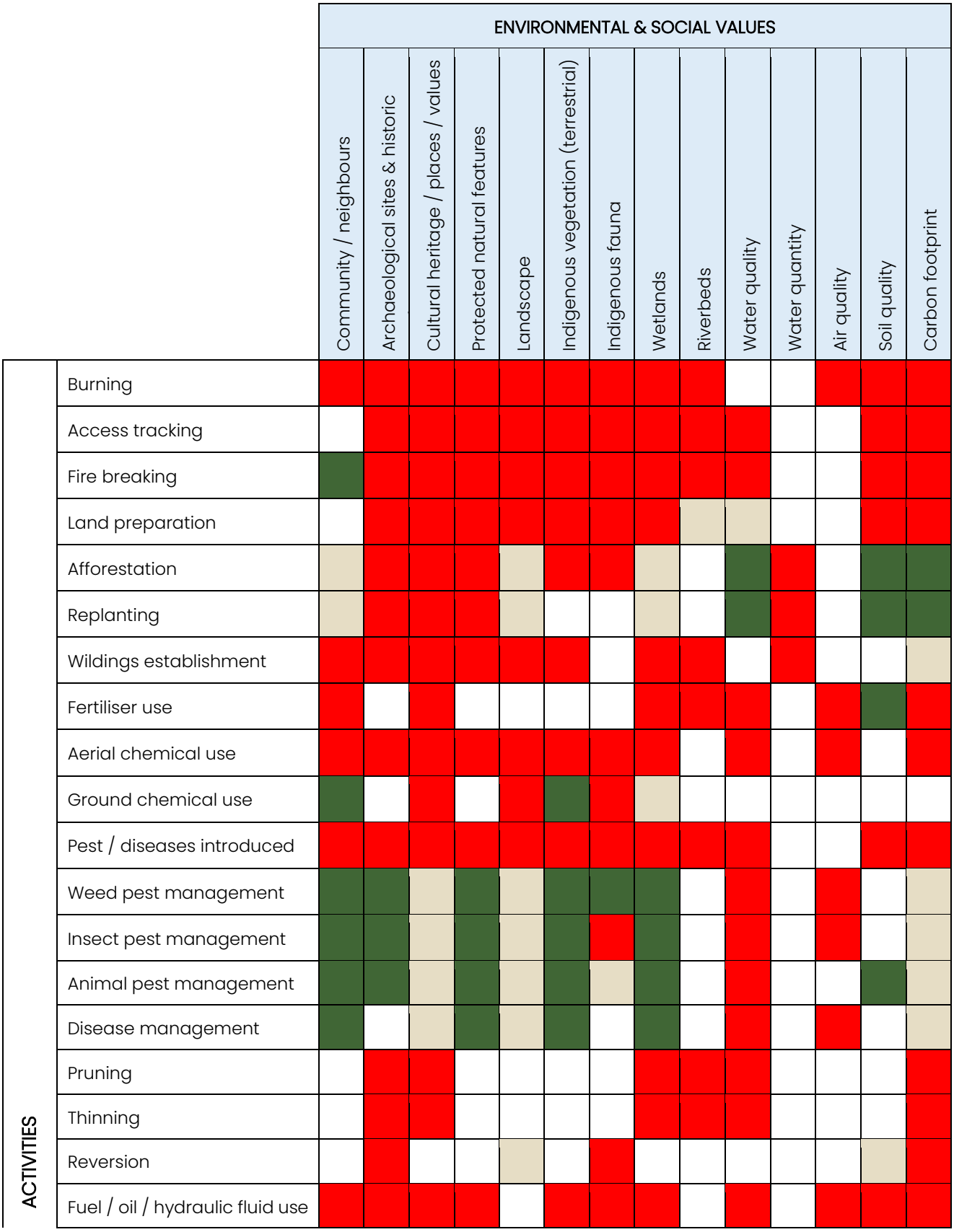
- can X result in a positive impact to Y?

Positive impact

Positive and negative impact

Negative impact

[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


ENVIRONMENTAL & SOCIAL VALUES
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
ACTIVITIES
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
Pruning
Thinning
Reversion
Fuel / oil / hydraulic fluid use

	ENVIRONMENTAL & SOCIAL VALUES													
	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
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 & gravel extraction														
Waste & rubbish dumping														

4.7 Erosion susceptibility: NES-CF ESC red zone

Under the FSC Forest Stewardship Standard for New Zealand (FSC-STD-NZL-02-2023 Plantations EN), there is a requirement to:

1. Assess erosion susceptibility.

   PF Olsen has determined that NES-CF ESC red zone is an appropriate indicator for where potential erosion is very high. GIS assessment of PF Olsen's Group Scheme member's forests identifies the existing productive area under the red zone classification.

2. Evaluate a transition to forestry practices that support soil stability on land identified as having a very high potential for erosion risk.

   Detail is provided in the Specific Forest Management Plan. This evaluation is documented and includes consideration of:

   - Post-harvest retirement to suitable permanent vegetation.
   - Transition to a continuous cover forest.
   - Alternative species, silvicultural practices and regimes.
   - Retirement without harvest and encouragement of suitable long-term soil stability vegetation.

3. Afforestation on NES-CF ESC red zone land is not conducted with a species that requires clear-felling. This requirement came into effect from 15 April 2024.

4.7.1 NES-CF ESC red zone monitoring

The following monitoring program is implemented for NES-CF ESC red zone productive areas.

NES-CF ESC red zone Land type	Erosion monitoring
Productive forest area	Monthly via the Orbica system, OR Within one week of every 1:10 year or greater storm event if access to the forest is available or as soon as possible thereafter.
Ex-productive area, retired from production after 15 April 2024	Monthly via the Orbica monitoring system.
Non-productive area (as at 15 April 2024)	No requirement to monitor.

Orbica monitoring system

- Orbica will take monthly satellite imagery of the identified Red ESC areas.
- Assessment of the areas will be carried out to determine how much (if any) erosion or revegetation has occurred.
- This assessment will then be brought into the PF Olsen Red ESC monitoring web tool to allow PF Olsen staff to identify areas that require remedial work.

5. Hazardous substances

5.1 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.

5.2 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

5.3 FSC Hazardous Chemicals

FSC applies a risk-based approach to rules for the use of chemicals[4] (FSC-POL-30-001 and FSC-POL-30-001a). Chemicals are classified according to an FSC Hazard rating. The rating then requires differing levels of control on use.

No prohibited chemicals may be used in the Group Scheme estate . Substances in the Highly Restricted category are used occasionally, however use is limited, and industry Environmental and Social Risk Assessments (ESRA's) are used to manage any risk of use. The majority of the substances are classified as Restricted.

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
Fipronil	Insecticide (wasps)	Highly Restricted	Localised wasp control
Glyphosate	Herbicide	Restricted	Establishment weed control / pest weed control
Haloxyfop-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
FSC Lists of Highly Hazardous Pesticides Policy FSC-POL-30-001a V1-1 https://connect.fsc.org/document-centre/documents/resource/315

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 are likely to be used once or twice per radiata rotation, and fungicides two to four times.

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

6.1 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.

6.2 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

7.1 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.

7.2 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 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 FSC principles.

7.3 Crop species

The dominant crop species in the PF Olsen FSC Group Scheme forests is radiata pine. Radiata pine (*Pinus radiata*) 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.

P. 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.

There are a range of alternate tree species that are or could be used. Alternative species to *P. radiata* are gaining popularity in recent years with an increasing focus on 'right tree, right place' as forest owners are considering other benefits from the forest, such as effective erosion control, habitat provision and niche timber markets.

7.5 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.
- Areas not suitable for a subsequent plantation forest regime.

Going forward, this will provide better outcomes for the plantation forest and the environment.

7.6 Wilding spread

In accordance with the NES-CF, prior to afforestation and replanting the selected species must be evaluated using the 'wilding spread calculator'[5] to determine if the species is suitable for the site and if any mitigation may be required.

7.7 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 enhancing the soil stability.

7.8 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

8.1 Harvesting strategy

Promapp: *Harvesting Specific*

Environmental Hub > EMS > Assessment of environmental and social effects

The typical harvesting strategy 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 at 25 to 30 years of age (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.

Harvest planning generally commences up to two years before harvesting to enable roading infrastructure to be developed and any required resource consents obtained, archaeological surveys undertaken, etc. 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.
- Regulatory requirements.
- Any other effects of the harvesting on neighbours and community.

An operational prescription for the specific operation is then produced.

8.2 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 4WD access.
- 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.
- Infrastructure requires maintenance.

8.3 Contractor training & management

Environmental Hub > EMS > Section 5: Environmental induction & training

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. Equivalence may be considered in lieu of environmental NZQA unit standards. 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 as required.

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.
- Regular and preferably weekly crew visits.

- WorkSafe undertakes audits on an unannounced basis from time to time.

9. Forest Inventory, Mapping and Records

9.1 Inventory introduction

Forest growth and development is monitored through forest inventory. Forest inventories are undertaken 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.

9.2 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.

9.3 Quality control inventory

Tending quality control is carried out during & 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.

9.4 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.

9.5 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.

9.6 Mapping and stand records

All mapping 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

10.1 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 are important contributors to the productive landscape's biodiversity.

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

10.2 Protection categories

Environmental Hub > EMS > Process and standards - Indigenous vegetation areas and wetlands management

The PF Olsen Environmental Management System guides ecological management targets and actions. Indigenous vegetation within the plantation area is accurately mapped. There are 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 table.

1. Special indigenous areas and wetlands

Covenants

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.

Significant Natural Areas (SNAs)

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.

FSC® High Conservation Value areas (HCV)

Identified by specialists as having met the FSC criteria to be High Conservation Value areas. HCVs are only associated with FSC certified areas.

Protection Strategy

- 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 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 SSWI or RAP or an area that would meet the RAP or SSWI criteria that has not been surveyed.

Sites of Special Wildlife Interest (SSWI)

Recommended Areas for Protection (RAP)

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 m^2 - 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 Reginal Pest Management Plan requirements. – May be disturbed by operations if necessary or available for afforestation (based on obtaining any necessary council approval).

10.3 Ecological Districts and % Reserves

Under the FSC Forest Stewardship Standard for New Zealand (FSC-STD-NZL-02-2023 Plantations EN), there must be dedicated areas protected as conservation area networks (reserves). The criteria require:

6.5.6 An area equivalent to or exceeding 10% of the area of the management unit is identified, mapped, and managed as conservation areas network.

6.5.8 At least 10% of the area of the management unit in each ecological district (overlapping with the management unit), and if not possible, each ecological region, is identified, mapped and managed as a conservation areas network; any shortfall (at the ecological district or ecological region level) is made up through equivalent ecological effort (without compromising the requirements of 6.5.6).

This requirement is checked for each new forest/estate added to the PF Olsen FSC Group Scheme, and the reserve area by management unit is recalculated at least annually. Any shortfalls are addressed in the specific forest management plan.

10.4 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 combines the Land Environments New Zealand (LENZ), Land Cover Database (LCDB) and the protected areas network. These three frameworks combined show:

- 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.

TEC is identified in the FSC Forest Stewardship Standard for New Zealand (FSC-STD-NZL-02-2023 Plantations EN) as a tool to aid in identifying high-value Representative Sample Areas (natural indigenous reserves) where restoration might be warranted (see Criteria 6.5.5). The natural indigenous reserve areas by TEC category is presented and discussed in the specific FMP.

10.5 Threatened species

Environmental Hub > EMS > Process and standards - Indigenous species management

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

Legal obligations require us to identify, manage and protect threatened and other indigenous species, and control pest species. These obligations include the:

- National Environmental Standards for Commercial Forestry
- National Policy Statement for Indigenous Biodiversity
- Convention on international trade in endangered species (CITES)
- FSC® principles
- Local council rules

The New Zealand Threat Classification System (NZTCS – administered by the Department of Conservation) assesses the conservation status (threatened, at risk, not threatened etc) for all indigenous species. Priority for protection is given to threatened species.

Determining the presence of species in operational areas may involve:

- Historic data (DOC staff, council, community, local and national databases)
- eDNA testing (for potential presence/absence)
- Ecological survey by suitable, experienced ecologist
- Sound recordings (e.g. AR4 recorders for bats, kiwi and forest birds)

The management response to a threatened species find may include:

- Ensuring forest operations aren't going to cause or accelerate the decline of the species.
- Where practicable, implement protection/management activities to increase the species numbers with help from the Environment Team and conservation or ecological specialists (e.g. DOC) in the absence of existing guidance.

Records of species sightings and locations are collected using the iNaturalist app project Biodiversity in Plantations[6]. This records sightings in a spatial dataset. These records can be made available to conservation authorities.

10.6 Water body 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[1] 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 table.

[6] https://inaturalist.nz/projects/biodiversity-in-plantations

1. Special water body and riparian areas
Water Conservation Order River[2] Water conservation orders provide recognition of the outstanding amenity or intrinsic values of water bodies at a national level. **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. Notes: Special water bodies would generally be River Environment Classification (REC) Category 3A, 3B and 3C rivers. Setbacks are measured horizontally.
Protection Strategy – 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
Perennial water bodies > 3 m in width - not identified as Category 1 – Special. **Lakes > 0.25 ha** **Outstanding freshwater body** **Water bodies in FSC certified forests** - permanently flowing regardless of width. **Rivers identified by local councils as having significant values** Nominated rivers in regional council / unitary authority plans. **Cultural areas of value** Areas that are special for cultural reasons (e.g. mahinga kai, rongoā). Notes: Important water bodies would generally be River Environment Classification (REC) Category 3A, 3B and 3C rivers. Setbacks are measured horizontally.
Protection Strategy

– 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
Perennial water bodies < 3 m in width - may not have any associated riparian areas. Notes: Limited water bodies would generally be River Environment Classification (REC) Category 1A, 1B, 1C, 2A, 2B and 2C rivers. Setbacks are measured horizontally.
Protection Strategy – 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
Ephemeral water bodies - usually would not have any associated riparian areas. Note: Ephemeral water bodies would generally be River Environment Classification (REC) Category 0A, 0B and 0X rivers.
Protection Strategy – Meet the requirements of the National Environmental Standards for Commercial Forestry. – May be disturbed by operations if necessary.

10.7 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. Mitigation, where required, is provided in operational plans.

10.8 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 in the EMS (Environmental Hub > EMS > Process and standards- Indigenous species management).

10.9 High Conservation Value (HCV) areas

High conservation value (HCV) areas include a series of classifications that reflect important forest ecosystem functions, community needs and cultural values. The FSC HCV area classifications are contained in Criteria 9.1:

HCV Category	Qualifiers
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 & 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 & 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

HCV Category	Qualifiers
	communities or Indigenous Peoples, identified through engagement with these local communities or Indigenous Peoples.

The HCV process is detailed in appendix XX, and covers:

- Identifying HCV sites
- HCV management strategies
- Implementing the management strategies
- Monitoring the management strategies
- Stakeholder and expert engagement

11. Cultural and Social Aspects

11.1 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 database[7].

PF Olsen holds a license to this dataset. All site record information is reproduced in mapping for forest operations. Should there be a recorded site within the forest or in close proximity, the site is reviewed and archaeological advice sought (as required) to protect the site from potential adverse effects of operations. Archaeological Authorities are obtained from Heritage NZ for any operation that has the potential to modify or destroy a site, prior to the operation commencing.

11.2 Statutory Acknowledgements

A statutory acknowledgement is an acknowledgement by the Crown that recognises the mana of a tangata whenua group in relation to specified 'statutory areas'.

Giving Effect to Statutory Acknowledgements:

- Relevant consent authorities, the Environment Court, and Heritage NZ have regard to the statutory acknowledgement.
- Relevant consent authorities forward to the governance entity summaries of resource consent applications affecting an area.
- The governance entity, and any member of, can cite the statutory acknowledgement as evidence of their association with an area.

11.3 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 an 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.

[7] https://archsite.eaglegis.co.nz/NZAAPublic

- 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.

11.4 Social Impact

Environmental Hub > EMS > Process – Assessment of social impact

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
- 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.

11.5 Employment and worker's rights

PF Olsen is committed to the following employment standards:

- Adherence to minimum rights and responsibilities in our workplaces
- Not discriminate on any basis – e.g. on gender, age, race, ethnicity, religion, disability etc.
- Treat everyone equally in regard to recruitment, advancement, job training and salary.
- Respect the right to freedom of association and collective bargaining.
- Monitor progress on how we maintain these standards within our supply chain.

11.6 Contractor and staff social survey

PF Olsen is a significant forest management company spanning all regions of New Zealand. The workforce contracted to PF Olsen is large and includes many individuals from different backgrounds.

In 2012, PF Olsen implemented an anonymous contractor social survey initiative, to be conducted every three years. The survey was extended to PF Olsen staff in 2024.

The purpose is to help PF Olsen better understand its contractors and communities, and the well-being and capacity of the workforce. The information also provides insights of how to improve our working environment and life balance.

The survey covers a wide range of topics, including:

- Time spent in the industry.
- Training.
- Experiences in the industry.
- Thoughts about New Zealand forestry as a whole.

12. Property Protection: Pests, Fire, Insurance, Unauthorised activities

12.1 Plant pests

Environmental Hub > EMS > Process- Pest management

Plant pest control within the forest is required to:

- Manage commercial pests specific to plantation forest health.
- Meet Regional Pest Management Plan requirements.
- Maintain and enhance ecological values.

Herbicides are generally used to control pest plants at establishment or ecological pest plants.

In general, herbicides are applied to desiccate most harvested areas before re-establishment. Application is usually by aerial spraying (helicopter), but occasionally by drone or spot spraying in sensitive areas and where grasses are the main competitor rather than woody weeds. Re-established trees may also be released with another chemical application where necessary, during the first one to two years after establishment to reduce competitive vegetation growth. Pest weed control can also include ground-based manual cut and swab or similar techniques dependent upon the site and pest plant species.

Refer to Section 5 - Hazardous substances for more information.

12.2 Animal pests

Environmental Hub > EMS > Process- Pest management

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 also 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.

12.3 Insects and fungal disorders

Environmental Hub > EMS > Process- Pest management

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 is applied. The spraying occurs before the fungus impacts tree growth. The application may need to be repeated several times depending on the infestation. Timely thinning and pruning can also minimise infection.

12.4 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.
- Community engagement to raise awareness of risks of fire to plantation forest.
- Active prevention measures include:
    - Restrictions on access.
    - Fire prevention signage.
    - Publicity when fire danger increases.
    - Access to adequate firefighting water sources.
    - Constructing/maintaining firebreaks.
    - Site-specific adjustments to silvicultural practice or timing of operations.

Fire and Emergency New Zealand (FENZ) has the legal responsibility for fighting forest fires. FENZ develops regional fire plans, which contain key information regarding the protection of land and management of fires.

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.

If a fire starts **outside the forest** and moves into the forest, those costs remain covered under the fund.

12.5 Fire insurance

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 against the defaulting party may be attempted by FENZ.

We recommend that fire insurance is held and maintained.

12.6 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.

12.7 Public liability insurance

PF Olsen 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.

12.8 Unauthorised and illegal activities

PF Olsen implements measures to provide protection from unauthorised and/or illegal activities within the forest, including illegal harvesting, theft, hunting and rubbish dumping:

- With the approval from the forest/landowner, private access points to the forest are often secured with a locked gate to provide a level of security from illegal activities.
- The PF Olsen forest access system is used to regulate authorised/legal forest access (see section 13).

- Areas that are available for legal public access are presented in section 13. Reference to Specific Forest Management Plans should be made for specific public access to forests.

13. Other Special Values: Everything but the timber

13.1 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).

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									✓		
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.*

13.2 Non-timber forest products

There are no FSC certified non-timber forest products[8] arising from the PF Olsen FSC Group Scheme.

[8] In FSC standards, the reference to non-timber forest products is a reference to 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.

13.3 Recreational access

There is a range of non-forest activities accommodated within forests that provide significant value to the wider community, such as sports events, hunting and apiary sites. These are likely to continue and potentially increase subject to appropriate agreements for access to private land, and management of conflicts.

See the specific FMP for details of recreational access provided in each forest/estate.

See Appendix 1 for the Public Access Policy.

13.4 Legal public access

Some forests have areas available for legal public access. They include:

- Legal roads (formed and unformed)
- Easements
- Marginal strips
- Esplanade reserves
- Reserves under the Reserves Act 1977

Many of the areas subject to these instruments are available to view on the Herenga ā Nuku - Outdoor Access Commission website[9]. Details of legal public access areas in each forest/estate is provided in the Specific FMP. See Appendix 1 for the Public Access Policy.

[9] https://maps.walkingaccess.govt.nz/Viewer/?map=b1d1e76a6c754d11b3f3fd9dfce1eb12

14. Monitoring

14.1 Values monitored

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.

Environmental process monitoring framework

Monitored Element	Components	Data Source	Data Format / Reporting
Chemical usage	• A.I usage • Area treated • Target pest plant species	• Operational supervisors	• GeoMaster • Annual summary report
Client satisfaction	• Post-operation client survey	• Clients	• Survey
Stakeholder Consultation activity	• Complaints • Other interactions • Culturally appropriate consultation	• Operational supervisors and planners • Iwi stakeholders	• Assura • Electronic files • Operational diary notes • Email
Environmental incidents	• Incident number • Categories	• Operational supervisors	• Assura • Dashboard • Weekly review • Annual summary report
Environmental goals	• All	• Environmental Governance Team • Business Strategy	• Meeting minutes
Environmental training	• Courses • Attendees	• Staff	• Jemini • Spreadsheets
Erosion susceptibility	• NES-CF ESC red zone monitoring	• Operational supervisors	• Drone/satellite imagery

Monitored Element	Components	Data Source	Data Format / Reporting
Forest estate structure	• Area (productive & non-productive) • Age class • Species • Forest type • Protection status	• GeoMaster stand records • GIS mapping	• FSC FMPs • Annual summary report • FSC register
Forest growth	• PSP protocols • Periodic inventory	• Contractors	• Volume reconciliations • Estate models
Forest health	• Disease & health	• National Forest Health Surveillance Program[10]	• Document
FSC membership	• Forest location • Forest name • Forest owner	• Certifying Body	• FSC certificate
Health, safety & wellbeing	• LTI / MTI / TIFR • Accidents & incidents • Initiatives	• Operational supervisors	• Assura dashboard • Weekly review • Annual summary report
High Conservation Value Areas	• Photopoint monitoring	• Contractors • Supervisors	• Drone imagery • Electronic files
Log production	• Total volume • FSC volume	• Log dockets at harvest	• Woodtrack
Operational monitoring	• Audit trends	• Operational supervisors	• Assura • Annual summary report
Natural indigenous vegetation condition	• Photopoint monitoring • Drone monitoring	• Contractors • Operational supervisors	• FIPS • Electronic files
Pests	• Residual Trap Catch (RTC) • Rat Track Index (RTI) • Kill returns	• Contractors • Supervisors • Permit holders	• TrapNZ • FIPS

[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 Format / Reporting
Recreational & non-timber values	• Permits issued • Pre-certification consultation	• Branch offices • Forest security contractors • Newspaper ad • Email	• FIPS • Annual summary report • Electronic
Reserve %	• Reserve % by MU • Reserve % by ED/ER	• GIS mapping	• Spreadsheet
Resource consents, archaeological authorities	• Number • Compliance	• Operational staff	• FIPS and electronic • Annual summary report
Threatened species	• Species & status Frequency • New finds	• Operational supervisors • Public • Crews • Eco surveys	• iNaturalist-Biodiversity in plantations • Annual summary report
Contractor and staff social survey	• Demographics • Values • Work conditions	• Contractors	• 3-yearly survey form
Water body monitoring	• Various, e.g. eDNA, clarity, full NOF, MCI, Rapid Habitat Assessment	• Supervisors • Contractors	• Electronic

14.2 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.

15. Industry Participation and Research

15.1 New Zealand Forest Owners Association

Formed in 1926, the New Zealand Forest Owners Association (FOA) represents the owners of New Zealand's commercial plantation forests. It is one of NZ's most influential primary sector organisations. FOA members own/manage:

- Approximately two-thirds of the country's 1.79 million hectares of plantation forests.
- More than 70% of the annual NZ harvest.

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

- PF Olsen being a member of FOA
- PF Olsen representation on FOA working committees.
- Payment of a commodity levy at harvest to the Forest Growers' Levy Trust.

15.2 Forest Growers Levy Trust Research

The Forest Grower Levy Trust (FGLT) is the body responsible for collecting the harvested wood products levy from forest growers and allocating it to industry good projects. Around half of the funds raised by FGLT are allocated to forestry research projects.

Application of the research is via:

- Knowledge gained from the research, involvement in research, and from workshops- and then utilised by contractors, commercial providers and PF Olsen staff.
- The deployment of improved genetics.

15.3 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.

15.4 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 and working sub-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.
- Wahine in Forestry.
- 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

16.1 Operational plans

Short term tactical planning is realised by 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.

16.2 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.

Stakeholders will be consulted during the next major review of this Standard FMP (refer to section 17).

17. Plan change and review

The next major review date for this plan is September 2029

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 - EMS indigenous vegetation management - EMS rare species management - EMS water bodies management	6/03/24	Section 10
Modified ED section to reflect new FSC Forest Stewardship Standard for New Zealand (FSC-STD-NZL-02-2023 Plantations EN)	6/03/24	Page 32
Added section on HCV - definition and how they're identified	6/03/24	Page 39
Updated public access policy	19/03/24	Appendix 1
Added elements of the management plan	05/04/24	Appendix 2
Added contractor social survey	12/04/24	Section 11
Added in erosion susceptibility: NES-CF ESC red zone	12/04/24	Section 4
Reviewed and updated monitoring framework	12/04/24	Section 14
Removed cuprous oxide from FSC Hazardous Chemicals Table, and updated fipronil to highly hazardous, as per the latest version of FSC-POL-30-001a V3.1	14/05/24	Section 5
Added Statutory Acknowledgements	30/05/24	Section 11
Added illegal/unauthorised activities	11/06/24	Section 12
Added recreational access and legal public access	11/06/24	Section 13
Added policies and feedback	27/06/24	Section 1
Review to ensure compliance with the new FSC Forest Stewardship Standard for New Zealand (FSC-STD-NZL-02-2023 Plantations EN)	30/9/24	Throughout

Appendix 1: Public Access Policy

OBJECTIVE

1. To manage non-commercial public access to property while ensuring commercial operations and the environment are safeguarded.

2. To protect clients' interests while recognising public rights of access.

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

1.0 Policy

A To manage non-commercial public access to property while ensuring commercial operations and the environment are safeguarded.

B To recognise public rights of access.

2.0 How this policy will be achieved

- 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 access via public access instruments and 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 PUBLIC ACCESS INSTRUMENTS
PF Olsen recognises the public rights of access via public access instruments (e.g. formed and unformed legal roads, marginal strips, easements etc) but when necessary for safety or fire prevention purposes, may close access in compliance with relevant laws and with the authorisation of the local authority.

Appendix 2: HCV Process

PF Olsen FSC HCV Process

Contents

1. Identifying HCV sites There are 6 HCV categories. Each has unique criteria and method of assessment.

HCV Category	Identification	Criteria	Potential HCV trigger[11]
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.	Past assessments (SNA, PNA etc.) may identify sites as being nationally significant. If not, it is recommended that an assessment is carried out by an experienced qualified ecologist.	Indigenous vegetation, or habitat that is typical, or characteristic, of the indigenous biodiversity of the relevant Ecological District or Ecological Region.	Indigenous vegetation that is similar in composition and structure to the original (1840) vegetation cover.
		Indigenous vegetation that is one of the largest examples of its type within the relevant Ecological District or Ecological Region.	Large intact examples of indigenous vegetation types in the relevant ecological district or region.
		Habitat that supports a typical suite of indigenous fauna that is characteristic of the habitat type in the Ecological District and retains at least a moderate range of species expected for that habitat type in the Ecological District	Indigenous habitat that supports high diversity of the indigenous fauna species typically expected for that habitat type in the Ecological District.
		Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is Threatened or At	A Nationally Threatened species (includes 'Nationally Critical', 'Nationally Endangered', 'Nationally Vulnerable', and 'Nationally Increasing'

[11] I:\BC\ENVIRONMENTAL SP\Certification\FSC\HCV\2024 07 04 - Ecological significance assessment criteria.docx

		Risk, or uncommon, nationally or within the relevant Ecological District.	from the New Zealand Threat Classification System) is resident or commonly uses the site.
		Indigenous vegetation or habitat of indigenous fauna that contains at least a moderate diversity of indigenous species, vegetation, habitats of indigenous fauna, or ecosystems, or has changes in species composition reflecting the existence of indigenous ecotones or complete or partial ecological sequence.	High diversity of indigenous plant species and/or five or more vegetation types, or 10 or more indigenous bird species present. Complete or partial ecological sequence present.

HCV Category	Identification	Potential HCV trigger
HCV 2 Landscape-level ecosystems and mosaics. Intact Forest Landscapes and 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.	Map of HCV 2 sites in New Zealand[12]: Intact Forest Landscapes (intactforests.org)	Large landscape-level ecosystems and ecosystem mosaics, often designated as conservation/forest parks or national parks. Where the intact landscape adjoins the MU and the adjoining sections of the MU are managed as protection zone, these sections of the MU may add to or be part of the larger significant landscape.

[12] Provided by The FSC Stewardship Standard for New Zealand FSC-STD-NZL-02-2023 Plantations EN

HCV Category	Identification	Criteria	Potential HCV trigger
HCV 3 Ecosystems and habitats. Rare, threatened, or endangered ecosystems, habitats or refugia.	Past assessments (SNA, PNA etc.) may identify sites that are particularly rare. If not, it is recommended that an assessment is carried out by an experienced qualified ecologist. National Priority 1: Land environments with 20% or less remaining under indigenous cover National Priority 2: Indigenous vegetation associated with sand dunes and wetlands	Indigenous vegetation cover on land environments that have less than 20% of their original indigenous cover remaining.	At least 5 hectares of Indigenous vegetation on Acutely Threatened (<10% indigenous cover remaining) and Chronically Threatened (10-20% indigenous cover remaining) Level IV land environments.
		Indigenous vegetation type or habitat of indigenous fauna that has been reduced to less than 20% of its pre-human extent in the relevant Ecological District, land environment, or nationally.	Indigenous vegetation or habitat of indigenous fauna that is reduced to less than 20% of its original extent
		The site contains indigenous vegetation or an indigenous species at its distribution limit within the relevant Ecological District or nationally.	A vegetation type or species is present at its national distribution limit.
		An assemblage or community of indigenous species that is distinctive, of restricted local occurrence, occurs in naturally uncommon ecosystems, or is a special ecological or scientific feature.	Vegetation occurring on originally rare ecosystems; associations of indigenous species that are distinctive within the relevant Ecological District.
		Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or	At least a moderate-sized[1] and compact shaped site that is well-buffered to remaining habitats, provides

	National Priority 3: Indigenous vegetation associated with 'originally rare' terrestrial ecosystems: Naturally Uncommon Ecosystems » Manaaki Whenua (landcareresearch.co.nz)	network or provides an important buffering function.	important buffering to one or more natural areas, provides linkages with other large natural areas, and is important for the natural functioning of an ecosystem.
		A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.	Large intact wetlands dominated by indigenous species in the canopy and understorey. Fully or partially buffered by terrestrial indigenous vegetation.

HCV Category	Identification	Potential HCV trigger
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 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.	A disruption of the ecosystem service is likely to cause, or poses a threat of, severe negative impacts on the welfare, health or survival of local communities: - Legal community water supply catchments within or downstream of the MU where the activity of the MU is likely to cause, or poses a threat of, severe negative impacts. - Very high-risk erosion areas. - Areas subject to a soil conservation order. - Forest protecting significant infrastructure or communities from flood events.

HCV Category	Identification	Potential HCV trigger
HCV 5 Community needs. Sites and resources fundamental for satisfying the basic necessities of local communities or Indigenous Peoples (for livelihoods, health, nutrition, water, etc.), identified through engagement with these communities or Indigenous Peoples.	Traditional subsistence living is almost totally absent in New Zealand. Therefore, HCV 5 sites are rare in New Zealand's planted forests[13].	Culturally appropriate engagement that identifies activities that could be considered as being of fundamental importance to satisfy basic livelihood needs.

[13] The FSC Stewardship Standard for New Zealand FSC-STD-NZL-02-2023 Plantations EN

HCV Category	Identification	Potential HCV trigger
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.	Internationally significant heritage sites are designated by UNESCO (http://whc.unesco.org/en/statesparties/NZ). Significant heritage sites are scattered throughout New Zealand, but mainly are found in or around urban areas (http://www.heritage.org.nz/the-list). Consultation with tangata whenua/mana whenua may identify HCV 6 where sites have significant cultural heritage.	Culturally appropriate engagement that identifies activities that could be considered as being of critical cultural, ecological, economic or religious/sacred importance.

2. HCV management strategies

Each HCV area has a management strategy that is developed with the input of stakeholders and experts. The strategy informs the management actions that form the HCV management plan, which is provided in the forest's specific FMP.

HCV Category	Management Strategy		Example management actions
	Maintenance	Enhancement	
HCV 1	Protection zones, harvest prescriptions, and/or other strategies to protect threatened, endangered, endemic species, or other concentrations of biological diversity and the ecological communities and habitats upon which they depend.	Develop, expand, and/or restore habitats for threatened species.	Pest animal control Weed control Setbacks and corridor establishment Covenanting (e.g. QEII) Fencing Wilding conifer removal Restoration/enrichment planting
HCV 2	Maintain the extent and intactness of the forest ecosystems and the viability of their biodiversity concentrations, including plant and animal indicator species, keystone species, and/or guilds associated with large intact natural forest ecosystems.	Restore and reconnect forest ecosystems, their intactness, and habitats that support natural biological diversity.	
HCV 3	Maintain the extent and integrity of rare or threatened ecosystems, habitats, or refugia.	Restore and/or develop rare or threatened ecosystems, habitats, or refugia.	

HCV Category	Management Strategy	Example management actions
HCV 4	Protect any water catchments of importance to local communities located within or downstream of the management unit, and upstream and upslope areas within the unit that are particularly unstable or susceptible to erosion.	Erosion protection measures Fire protection measures Setback establishment Productive area retirement Riparian buffer extension/enhancement
HCV 5	Protect the community's and/or Indigenous Peoples' needs in relation to the forest management unit developed in cooperation with representatives and members of local communities and Indigenous Peoples.	Formalise customary use Formalise access Pest animal or weed control Mapping/signage
HCV 6	Protect the cultural values developed in cooperation with representatives and members of local communities and Indigenous Peoples.	

3. Implementing the management strategies

The management actions outlined in the HCV management plan are ~~generally coordinated~~managed by the PF Olsen Forest Manager, with the assistance of experts and the PF Olsen environmental team where required.

4. Monitoring the management strategies

There are three types of monitoring carried out to assess the effectiveness of the management strategies:

1. **Compliance monitoring**, which ensures the management actions prescribed in the HCV management plan are being carried out appropriately.
    - This is covered by internal PF Olsen operational processes and annual internal monitoring carried out by the PF Olsen environmental team.
2. **Effectiveness monitoring**, which assesses whether the management actions are yielding the results expected.
3. **Threat monitoring**, which assesses the threats identified in the initial HCV assessment and identifies any new threats.
    - Effectiveness and Threat monitoring is outlined in the table below.

HCV Category	Monitored elements[14]	Monitoring scope, scale and frequency
HCV 1	1. The status and area of HCV 1, through monitoring of indicator or flagship species as indicators of habitat quality or changes in the species.	▪ Periodic drone/photopoint monitoring: area change, vegetation condition trends. ▪ Periodic eDNA water testing to monitor species presence/absence (threatened species or pest species) ▪ 5-yearly review of HCV status: assess threatened species population compared to the initial HCV assessment. ▪ 5-yearly review of HCV management plan, including directed stakeholder consultation.
	2. The effectiveness of the activities carried out to conserve, maintain or increase HCV 1 according to the scale, intensity and risk of the operations.	▪ Periodic drone/photopoint monitoring: area change, vegetation condition trends, pest plant incursion. ▪ 5-yearly review of HCV status: assess threatened species population cf. initial HCV assessment. ▪ Periodic eDNA water testing to monitor species presence/absence (threatened species or pest species) ▪ 5-yearly review of HCV management plan, including directed stakeholder consultation.
	3. Compliance with agreements established with neighbours and stakeholders, where applicable.	▪ 5-yearly review of obligations under any agreements established, including directed consultation with stakeholders as required.

[14] From FSC-STD-NZL-02-2023 Plantations EN Appendix H (HCV Framework)

HCV Category	Monitored elements[14]	Monitoring scope, scale and frequency
HCV 2	1. The surface area and status of HCV 2.	▪ Periodic drone/photopoint monitoring: area change, vegetation condition trends. ▪ 5-yearly review of HCV status: assess threatened species population cf. initial HCV assessment. ▪ 5-yearly review of HCV management plan, including directed stakeholder consultation.
	2. The presence of indicator or flag species of the identified landscape status.	▪ 5-yearly review of HCV status: assess threatened species population cf. initial HCV assessment. ▪ Periodic eDNA water testing to monitor species presence/absence (threatened species or pest species)
	3. The implementation and effectiveness of activities carried out to maintain and/or improve HCV 2.	▪ Periodic drone/photopoint monitoring: area change, vegetation condition trends, pest plant incursion. ▪ Periodic eDNA water testing to monitor species presence/absence (threatened species or pest species)
	4. The presence or absence of human disturbance for HCV 2.	▪ Periodic drone/photopoint monitoring: area impact by human-induced disturbances.

HCV Category	Monitored elements[15]	Monitoring scope, scale and frequency
HCV 3	1. The surface area and status of HCV 3: comparing it every year.	▪ Annual drone/photopoint monitoring: area change, vegetation condition trends,
	2. The implementation and effectiveness of the activities carried out to maintain or increase the HCV 3, to confirm whether the objectives are being met.	▪ Annual drone/photopoint monitoring: area change, vegetation condition trends, pest plant incursion. ▪ Periodic eDNA water testing to monitor species presence/absence (threatened species or pest species) ▪ 5-yearly review of HCV status: assess threatened ecosystem condition cf. initial HCV assessment. ▪ 5-yearly review of HCV management plan, including targeted stakeholder consultation.
	3. The reduction in size and geographic presence of the ecosystem or habitat in the area.	▪ Annual drone/photopoint monitoring: area change, vegetation condition trends.

[15] From FSC-STD-NZL-02-2023 Plantations EN Appendix H (HCV Framework)

HCV Category	Monitored elements	Monitoring scope, scale and frequency • Includes engagement with affected and interested stakeholders and experts
HCV 4	1. The implementation and effectiveness of activities carried out to maintain and/or improve HCV 4, so that compliance with the established objectives can be confirmed. Namely, that harvesting practices do not affect water bodies, and that barriers have been established and are maintained to control fires.	▪ Periodic drone/photopoint monitoring of infrastructure and inputs into water in catchments of importance to local communities. ▪ Monthly operational monitoring during harvesting and earthworks. ▪ Monthly representative water quality monitoring during earthworks and harvesting operations
	2. The quality and quantity of water for large plantation forest companies and MU.	▪ Monthly representative water quality monitoring during earthworks and harvesting operations unless already monitored for public water supply purposes.
	3. The incidence of landslides or gullies in the MU, affected areas, their control and status.	▪ Ongoing satellite imagery of red ESC land checking for incidence of landslides and their connection to water bodies, in catchments of importance to local communities.
	4. Incidence and control of forest fire and incipient fires in the MU, affected areas, control and status.	▪ Fire incident reporting and investigation.

HCV Category	Monitored elements	Monitoring scope, scale and frequency ▪ Includes engagement with affected and interested stakeholders and experts
HCV 5	1. The implementation of the strategies established to maintain and/or enhance the HCV; allowing to confirm if the objectives were achieved. 2. Whether the management is affecting the identified HCV 5. 3. Permanent access to HCV 5 used by local communities, Indigenous Peoples or iwi. 4. Type of resource and volume used by local communities, Indigenous Peoples or iwi to cover their basic needs.	▪ 5-yearly review of HCV status: assess values/condition cf. initial HCV assessment. ▪ 5-yearly review of HCV management plan, including stakeholder consultation. ▪ 5-yearly consultation with representatives of local community and Indigenous Peoples, concurrently with HCV management plan.
HCV 6	1. The implementation of the strategies established to maintain and/or enhance HCV 6; allowing to confirm if the objectives were achieved. 2. Whether the management is affecting the identified HCV 6. 3. Permanent access to HCV 6, with which local communities, Indigenous Peoples or iwi have a religious/cultural/economic linkage with the area or the forest. 4. Changes in the status of the HCV 6 with indicators accepted and credible by local communities, Indigenous Peoples or iwi who have a religious/cultural/economic linkage with the area or the forest.	▪ 5-yearly review of HCV status: assess values/condition cf. initial HCV assessment. ▪ 5-yearly review of HCV management plan, including stakeholder consultation. ▪ 5-yearly consultation with representatives of local community and Indigenous Peoples, concurrently with HCV management plan.

5. Stakeholder and expert engagement

<table>
<tr><td rowspan="2">HCV Category</td><td colspan="2">Engagement with affected and interested stakeholders and experts</td></tr>
<tr><td>Identifying HCV sites and

HCV management strategies</td><td>Monitoring the management strategies</td></tr>
<tr><td>HCV 1 Species diversity</td><td rowspan="3">A pre-certification HCV assessment is carried out by an experienced qualified ecologist.

Public consultation is carried out at time of initial certification, when HCV sites are initially identified (concurrently with public consultation on the wider FMP).</td><td rowspan="3">Targeted consultation at each 5-yearly FMP review, for FMPs that have HCVs identified. This is a directed consultation with previously identified affected/interested stakeholders and independent experts (e.g. local Department of Conservation, local territorial authority, community groups, ecologist or equivalent biodiversity specialist).</td></tr>
<tr><td>HCV 2 Landscape-level ecosystems and mosaics</td></tr>
<tr><td>HCV 3 Ecosystems and habitats</td></tr>
<tr><td>HCV 4 Critical ecosystem services</td><td>Not applicable - generally an in-house assessment</td><td>Not applicable- generally an in-house assessment</td></tr>
</table>

HCV Category	Engagement with affected and interested stakeholders and experts	
	Identifying HCV sites and HCV management strategies	Monitoring the management strategies
HCV 5 Community needs	Public consultation with tangata whenua/mana whenua at time of initial certification, when HCV sites are initially identified (concurrently with public consultation on the wider FMP).	Targeted consultation as part of standard pre-operational planning process.
HCV 6 Cultural values		Targeted consultation at each 5-yearly FMP review, for FMPs that have HCVs identified. This is a closed consultation with previously identified affected/interested stakeholders and experts (including mana whenua/tangata whenua).

Monitoring the effectiveness of stakeholder engagement

The effectiveness of stakeholder and expert engagement is measured by the response to invitations to provide feedback:

Stakeholder response	Outcome
Positive	Confirmation that the engagement is effective.
Negative	Confirmation that the engagement is effective, but further work required to address the negative feedback.
No response	Indicates the stakeholder has no interest or opinion to share and signals the end of engagement.

The PF Olsen complaint and dispute resolution policy applies to all stakeholder engagement.

Appendix 3: Elements of the management plan

This table shows the FSC requirements for forest management plan elements[16], and which sections of this document and others fulfil the requirement. For clarity, this document is the 'Standard FMP'.

Each forest or forest estate has a 'Specific FMP' which details the particulars of each forest/estate and its management. Please refer to Section 1 'About this plan' for more information about the FMP structure. All FMPs are available on our website: FSC Management Plans | pfolsen.com

Element 1	How this requirement is met	Where to find supporting information
Objectives, including a commitment to FSC.	Foundation principle	Specific FMP - section 1
		Standard FMP - section 1
	Productive capacity strategy	Standard FMP - section 6
	Forest management goals	Standard FMP - section 7
	Environment and Sustainability Policy	https://nz.pfolsen.com/InfoResources/Policies.html
Element 2	**How this requirement is met**	**Where to find supporting information**
Forest and Land Description.	Forest land	Specific FMP - section 2
	Our certified forests	https://nz.pfolsen.com/InfoResources/About+FSC.html
	Register	https://nz.pfolsen.com/InfoResources/About+FSC.html

[16] from FSC-STD-NZL-02-2023 Annex D.

Element 3	How this requirement is met	Where to find supporting information
Legal Framework.	Legal ownership	Specific FMP - section 2
	Historical and archaeological sites	Specific FMP - section 4 Standard FMP - section 11
	Tangata Whenua	Specific FMP - section 4
	Tenure and resource rights	Specific FMP - section 4
	Regulations	Specific FMP - section 5 Standard FMP - section 2
	Pests and diseases	Specific FMP - section 6 Standard FMP - section 12
	Natural indigenous vegetation reserves	Specific FMP - section 9
	Indigenous biodiversity	Standard FM P - section 10
	Stream protection and riparian setbacks	Standard FMP - section 10
	Public access	Standard FMP - section 13 Specific FMP - section 10
	Hazardous substances risk reduction	Standard FMP - section 5
	Illegal/unauthorised activities	Standard FMP - section 12
Element 4 The results of assessments	**How this requirement is met**	**Where to find supporting information**
Natural resources and environmental values, as identified in Principle 5, 6 and 9.	Ecological District	Specific FMP - section 3 Standard FMP - section 10
	Productivity indices	Standard FMP - section 6
	Environmental and social cost-benefit analysis	Standard FMP - section 13
	Harvesting strategy	Specific FMP - section 8
	Threatened Environments Classification	Specific FMP - section 3

		Standard FMP - section 10
	NES-CF Erosion Susceptibility Classification	Specific FMP - section 5
	Natural indigenous vegetation reserves	Specific FMP - section 9 Standard FMP - section 10
	HCV forests	Specific FMP - section 9
	Biodiversity values by forest	Specific FMP - section 9
	Rare and threatened species management	Specific FMP - section 9 Standard FMP - section 10
	Ecological workplan	Specific FMP - appendix
	Water body protection and riparian setbacks	Standard FMP - section 10
Social, economic and cultural resources and condition, as identified in Principle 2 to 6 and Principle 9.	Current social profile	Specific FMP - section 4
	Historic and archaeological sites	Specific FMP - section 4
	Tangata Whenua	Specific FMP - section 4
	Tenure and resource rights	Specific FMP - section 4
	Neighbours	Specific FMP - section 4
	Recreation	Specific FMP - section 10
	Public access	Specific FMP - section 10
	Other special values	Specific FMP - section 10
	Public access maps	Specific FMP - appendix
	Contractor social survey	Standard FMP - section 11
Major social and environmental risks in the area, as identified in Principle 2, 3, 4, 5, 6 and 9.	Assessment of environmental effects	Standard FMP - section 4
	Environmental risk framework	Standard FMP - section 4
	Erosion susceptibility: NES-CF ESC red zone	Standard FMP - section 4
	Environmental and social cost-benefit analysis	Standard FMP - section 13
	Infrastructure damage or service disruption	Specific FMP - section 6

		Standard FMP - section 3
	Pests and diseases	Specific FMP - section 6 Standard FMP - section 3
	Fire	Specific FMP - section 6 Standard FMP - section 3
	Log customer credit risk	Standard FMP - section 3
	Hazardous substances	Standard FMP - section 5
Rationale for species selection and regime.	Current crop	Specific FMP - section 7 Standard FMP - section 7
	Tending	Specific FMP - section 7 Standard FMP - section 7
	Tree nutrition	Specific FMP - section 7
	Harvesting strategy	Specific FMP - section 8
	Market access	Standard FMP - section 3
	Productivity indices	Standard FMP - section 6
	Erosion susceptibility: NES-CF ESC red zone	Standard FMP - section 4
	Re-establishment considerations	Standard FMP - section 7
The maintenance and/or enhancement of ecosystem services for which promotional claims are made as identified in Criterion 5.1.	NA - no promotional claims made	

Element 5 Programs and activities	How this requirement is met	Where to find supporting information
	Hazardous substances	Standard FMP - section 5
	Contractor training and management	Standard FMP - section 8

Workers' rights, occupational health and safety, gender equality, as identified in Principle 2.	Contractor social survey	Standard FMP - section 11
	Forest Industry Safety Council	Standard FMP - section 15
	Additional representation	Standard FMP - section 15
	Annual summary report	https://nz.pfolsen.com/InfoResources/About+FSC.html
	Environment and Sustainability Policy	https://nz.pfolsen.com/InfoResources/Policies.html
	Health, Safety and Wellbeing Policy	https://nz.pfolsen.com/InfoResources/Policies.html
	Employment	Standard FMP- section 11
	Values monitored	Standard FMP - section 14
	Other monitoring	Standard FMP - section 14
Indigenous Peoples, community relations, local economic and social development, identified, as in Principle 3, Principle 4 and Principle 5.	Recreation	Specific FMP - section 10
	Public access	Specific FMP - section 10 Standard FMP - appendix
	Other special values	Specific FMP - section 10
	Current social profile	Specific FMP - section 4
	Historic and archaeological sites	Specific FMP - section 4 Standard FMP - section 11
	Tangata Whenua	Specific FMP - section 4
	Tenure and resource rights	Specific FMP - section 4
	Neighbours	Specific FMP - section 4
	Stakeholder engagement and neighbours	Standard FMP - section 11
	Contractor social survey	Standard FMP - section 11
	Annual summary report	https://nz.pfolsen.com/InfoResources/About+FSC.html
	Environment and Sustainability Policy	https://nz.pfolsen.com/InfoResources/Environmental+Management.html
	Social impact	Standard FMP - section 11
	Values monitored	Standard FMP - section 14

	Other monitoring	Standard FMP - section 14
Stakeholder engagement and the resolution of disputes; and grievances, as identified in Principle 3, 4, 7 and 9.	Tangata Whenua	Specific FMP - section 4
	Tenure and resource rights	Specific FMP - section 4
	Neighbours	Specific FMP - section 4
	Annual summary report	https://nz.pfolsen.com/InfoResources/About+FSC.html
	Stakeholder consultation	Standard FMP - section 16
	Complaint and Dispute Resolution	https://nz.pfolsen.com/InfoResources/Policies.html
	Values monitored	Standard FMP - section 14
	Other monitoring	Standard FMP - section 14
Planned management activities and timelines, silvicultural systems used, typical harvesting methods and equipment, as identified in Principle 5 and 10.	Current crop	Specific FMP - section 7 Standard FMP - section 7
	Tending	Specific FMP - section 7
	Establishment and silviculture	Standard FMP - section 7
	Re-establishment considerations	Standard FMP - section 7
	Re-establishment methods	Standard FMP - section 7
	Mapping and stand records	Standard FMP - section 9
	Operational plans	Standard FMP - section 16
	Values monitored	Standard FMP - section 14
	Other monitoring	Standard FMP - section 14
The rationale for harvesting rates of timber and other natural resources, as identified in Principle 5.	Harvesting strategy	Specific FMP - section 8 Standard FMP - section 8
	Forest infrastructure	Standard FMP - section 8
	Mid rotation inventory	Standard FMP - section 9
	Pre-harvest inventory	Standard FMP - section 9
	Mapping and stand records	Standard FMP - section 9

	Operational plans	Standard FMP - section 16
	Values monitored	Standard FMP - section 14
	Other monitoring	Standard FMP - section 14
Protecting the forest and management objectives, in particular from pests and natural hazards.	Pests and diseases	Specific FMP - section 6 Standard FMP - section 3
	Plant pests	Standard FMP - section 12
	Animal pests	Standard FMP - section 12
	Insects and fungal disorders	Standard FMP - section 12
	Natural hazards	Specific FMP - section 6
	Fire	Specific FMP - section 6 Standard FMP - section 3 Standard FMP - section 12
	Wilding spread	Standard FMP - section 7
	Erosion susceptibility: NES-CF ESC red zone	Standard FMP - section 4
	Insurance	Standard FMP - section 12
	Protection categories	Standard FMP - section 10
	Threatened species	Standard FMP - section 10
	Water body protection and riparian setbacks	Standard FMP - section 10
	Values monitored	Standard FMP - section 14
	Other monitoring	Standard FMP - section 14

Element 6 Measures to conserve and/or restore	How this requirement is met	Where to find supporting information
Rare and threatened species and habitats.	Ecological workplan	Specific FMP - appendix
	Rare and threatened species management	Specific FMP - section 9
	Protection categories	Standard FMP - section 10
	Threatened species	Standard FMP - section 10
	Fish	Standard FMP - section 10
	CITES species	Standard FMP - section 10
	Wilding spread	Standard FMP - section 7
	Preventing fires	Standard FMP - section 12
	Plant pests	Standard FMP - section 12
	Animal pests	Standard FMP - section 12
	Values monitored	Standard FMP - section 14
Water bodies and riparian zones.	Ecological workplan	Specific FMP - appendix
	Water body protection and riparian setbacks	Standard FMP - section 10
	Wilding spread	Standard FMP - section 7
	Values monitored	Standard FMP - section 14
Landscape connectivity, including wildlife corridors.	Ecological workplan	Specific FMP - appendix
	Threatened Environments Classification	Standard FMP - section 10
	Threatened species	Standard FMP - section 10
	Re-establishment considerations	Standard FMP - section 7
Representative Sample Areas, as identified in Principle 6.	Ecological workplan	Specific FMP - appendix
	Protection categories	Standard FMP - section 10
	Wilding spread	Standard FMP - section 7
	Preventing fires	Standard FMP - section 12

	Plant pests	Standard FMP - section 12
	Animal pests	Standard FMP - section 12
	Values monitored	Standard FMP - section 14
	Re-establishment considerations	Standard FMP - section 7
High conservation values, as identified in Principle 9.	HCV management plan	Specific FMP - appendix
	High Conservation Value (HCV) areas	Standard FMP - section 10
	Ecological workplan	Specific FMP - appendix
	Protection categories	Standard FMP - section 10
	Values monitored	Standard FMP - section 14
Element 7 Measures to assess, prevent, and mitigate negative impacts of management activities	**How this requirement is met**	**Where to find supporting information**
Environmental values, as identified in Principle 5, 6 and Principle 9.	Rare and threatened species management	Specific FMP - section 9
	Fire	Standard FMP - section 3 Standard FMP - section 12
	Pests and diseases	Standard FMP - section 3 Standard FMP - section 12
	Erosion susceptibility: NES-CF ESC red zone	Standard FMP - section 4
	Assessment of Environmental Effects	Standard FMP - section 4
	Environmental and social cost-benefit analysis	Standard FMP - section 13
	Hazardous substance risk reduction	Standard FMP - section 5
	Forest management goals	Standard FMP - section 7
	Re-establishment considerations	Standard FMP - section 7
	Wilding spread	Standard FMP - section 7
	Protection categories	Standard FMP - section 10
	Threatened species	Standard FMP - section 10

	Water body protection and riparian setbacks	Standard FMP - section 10
	Fish	Standard FMP - section 10
Social Values, as identified in Principle 2 to Principle 5 and Principle 9.	Current social profile	Specific FMP - section 4
	Environmental and social cost-benefit analysis	Standard FMP - section 13
	Historic and archaeological sites	Specific FMP - section 4 Standard FMP - section 11
	Assessment of environmental effects	Standard FMP - section 4
	Forest management goals	Standard FMP - section 7
	Tangata Whenua	Specific FMP - section 4
	Tenure and resource rights	Specific FMP - section 4
	Neighbours	Specific FMP - section 4
	Stakeholder engagement and neighbours	Standard FMP - section 11
	Social impact	Standard FMP - section 11
	Contractor social survey	Standard FMP - section 11
	Infrastructure damage or service disruption	Specific FMP - section 6 Standard FMP - section 3
	Fire	Standard FMP - section 3 Standard FMP - section 12
	Recreation	Specific FMP - section 10
	Public access	Specific FMP - section 10
	Other special values	Specific FMP - section 10
Element 8 A description of the monitoring programme, as identified in Principle 8	**How this requirement is met**	**Where to find supporting information**
Growth and yield, as identified in Principle 5.	Values monitored	Standard FMP - section 14
	Forest inventory, mapping and records	Standard FMP - section 9

	Forest area	Specific FMP - section 2
	Other monitoring	Standard FMP - section 14
Environmental values, as identified in Principle 6.	Values monitored	Standard FMP - section 14
	Ecological workplan	Specific FMP - appendix
Operational impacts, as identified in Principle 10.	Values monitored	Standard FMP - section 14
	Erosion susceptibility: NES-CF ESC red zone	Standard FMP - section 4
	Hazardous substances risk reduction	Standard FMP - section 5
	Productive capacity strategy	Standard FMP - section 6
	Annual summary report	https://nz.pfolsen.com/InfoResources/About+FSC.html
High conservation values, as identified in Principle 9.	HCV management plan	Specific FMP - appendix
	Values monitored	Standard FMP - section 14
	High Conservation Values (HCV) areas	Standard FMP - section 10
	Ecological workplan	Specific FMP - appendix
Monitoring systems based on stakeholder engagement planned or in place, as identified in Principle 2 to Principle 5 and Principle 9.	Values monitored	Standard FMP - section 14
	Stakeholder engagement and neighbours	Standard FMP - section 11
	Social impact	Standard FMP - section 11
	Contractor social survey	Standard FMP - section 11
	Annual summary report	https://nz.pfolsen.com/InfoResources/About+FSC.html
	Other monitoring	Standard FMP - section 14
Maps describing the natural resources and land use zoning on the forest management unit.	Forest location map	Specific FMP - appendix
	Forest map	Specific FMP - appendix
	Public access map	Specific FMP - appendix