MERINGA STATION FOREST

Owned by
LANDCORP FARMING LTD

Forest Management Plan

For the period 2019 / 2024

PFOLSEN

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1. Introduction

Principles and Criteria

Landcorp Farming Ltd is committed to adopt the Forest Stewardship Council (FSC) Principles and to meet their Criteria and the FSC standards of good forest management. These standards include ecological, social and economic parameters.

Landcorp Farming Ltd is committed to the PF Olsen FSC Group Scheme that is implemented through the Group Scheme Member Manual and associated documents.

About this Plan

This document provides a summary of the forest management plan and contains:

- Management objectives;
- A description of the land and forest resources;
- Environmental safeguards;
- Identification and protection of rare, threatened and endangered species;
- Rationale for species selection, management regime and harvest plan and techniques to be used;
- Appropriate management of unstocked reserve areas;
- Maps showing plantation area, legal boundaries and protected areas;
- Provisions for monitoring and protection.

2. Forest Landscape Description

Overview

This section describes the physical and legal attributes of the land on which the forest is located. Included in this section are discussions of:

- Location and access;
- Topography;
- Soils;
- Climate;
- Legal ownership and tenure.

Legal ownership

Meringa Station consists of both freehold and leasehold tenure. There are no forests or reserves within the leasehold title. Table 1 lists the legal descriptions and tenure of Meringa Station.

Table 1: Land Tenure of Meringa Station

CT	Legal Description	Tenure	Owner
2007/39	Rangitoto Tuhua 67B4C1C2 Block	Freehold	Landcorp Farming Ltd
1498/61	Rangitoto Tuhua 67B4C1A Block	Freehold	Landcorp Farming Ltd
27A/950	Rangitoto Tuhua 67B3 Block	Freehold	Landcorp Farming Ltd
32D/455	Lot 4 Deposited Plan S 35496	Freehold	Landcorp Farming Ltd
32D/455	Rangitoto Tuhua 67B1 Block	Freehold	Landcorp Farming Ltd
32D/457	Part Rangitoto Tuhua 67B2 Block	Freehold	Landcorp Farming Ltd
32D/457	Lot 6 Deposited Plan S 35497	Freehold	Landcorp Farming Ltd
19B/209	Lot 1 Deposited Plan S 18439	Freehold	Landcorp Farming Ltd
32D/457	Lot 7 Deposited Plan S 35497	Freehold	Landcorp Farming Ltd
437871	Rangitoto Tuhua 67B4C2 Block	Leasehold	The Maori Trustee
415302	Rangitoto Tuhua 67B4A Block	Leasehold	Multiple owners

Location and access

Meringa Station is located off Meringa Road, which in turn is located off the Taumarunui-Ngapuke Road in the Manawatu-Wanganui District. Internal farm roads and tracks provide access to the forest which is situated 8.4 km to the rear of the property.

The location of the forest in relation to potential markets is listed in the Table 2 below and shown in Map 1.

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Table 2: Distances from forest to log markets

Potential Market or Export Port	Distance from Forest (km)	Log Market Type
Mount Maunganui	232	Export
New Plymouth	195.4	Export
Taumarunui	29.8	Pruned (Limited Supply)
Tangiwai	79.5	Pruned (Limited Supply) Domestic Sawlog
Te Kuiti	111.4	Pruned
Karioi	72.8	Pulp

Topography

Meringa Station is rolling to steep hill country of a generally southerly aspect. Altitude of the forested area ranges from 525m to 675m.

A combination of ground based and hauler log extraction methods will be utilised at harvesting.

Soils

The soils at Meringa station are as follows:

Pumice flats – Manunui sandy silt loams derived from Taupo ash of medium to low fertility.

Undulating contour – Taumarunui sandy silt loams derived from ash on argillaceous sand stone of medium fertility.

Easy hills – Pakarae sandy loam derived from Taupo ash on mudstone and sandstone of medium fertility.

Steeper hills – Mahoenui silt loams derived from banded mudstone and sandstone of high to medium fertility.

Of these soils, the pumice terraces are prone to wash under excessive cultivation while the steeper mudstones are subject to slumping in storm events when under pasture.

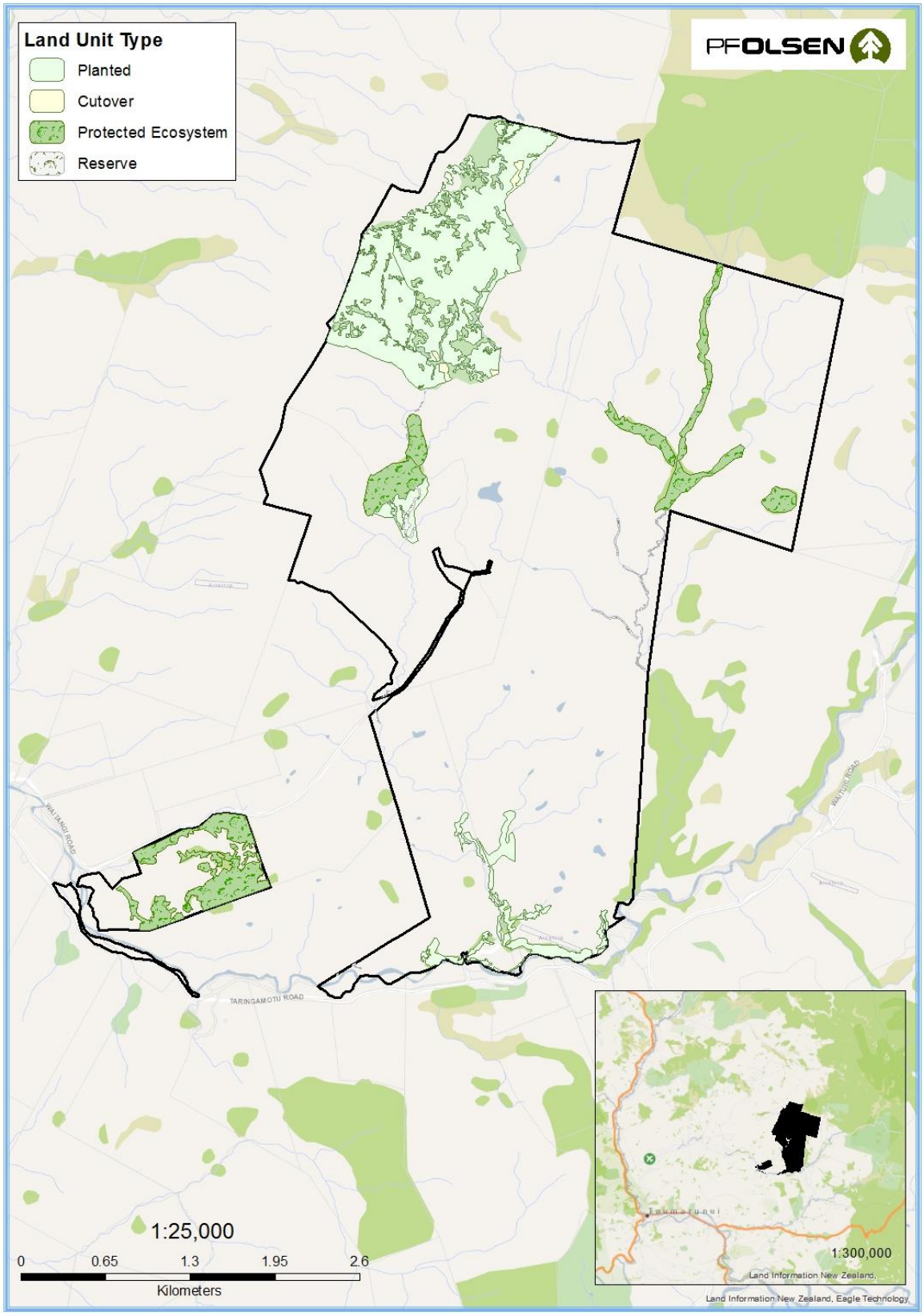
Meringa Station is subject to a Whole Farm Plan under Horizons Regional Council with recommended retirement and regeneration works to mitigate soil slumping issues.

Climate

Rainfall: The average rainfall at nearby Taumarunui 1,449.6 mm per year and is relatively evenly distributed during the year, with the driest months being February to April.

Temperature: The mean annual temperature is around 13.0 degrees Celsius.

Map 1 – Forest Location Map



3. The Broader Landscape

Ecological landscape

Meringa Station is located entirely within the Taumarunui Ecological District (ED) in the King Country Ecological Region. The ED is extensive hill country within the upper catchment of the Wanganui River. It is generally steep, mostly over 300m a.s.l. and frequently above 600m a.s.l. The wide valleys are floored with pumiceous alluvium; elsewhere Miocene to Oligocene mudstone, sandstone, limestone and tuff.

The area was originally entirely podocarp-hardwood forest with podocarp dominance on the valley floors. Only scattered forest remnants remain, with a larger but well-logged tract on a rise up to the Hauhungaroa Range (up the Taringamotu and Pungapunga headwaters).

Today the ED is largely semi intensive sheep and cattle farmland, with small (but increasing) areas of exotic forest.

Protective Status

Table 3 shows vegetation types as required by the National Standard for Plantation Forest Management in New Zealand revised in 2013.

Table 3: Protective status of the ecological landscape

LENZ type	**LENZ F1.1**	**LENZ F7.2**
Original (pre-Maori) percentage of ecosystem type in Ecological District within land title	832,914 ha 100%	558,709 ha 100%
Natural ecosystem area remaining	499,748.4 ha 60.0%	188,843.6 ha 33.8%
Proportion of remaining natural ecosystem under protection	290,853.6 ha 58.2%	104,997.1 ha 55.6%
Protection by certificate holder	28.3 ha 0.01%	44.3 ha 0.02%
Protected areas as a % of management estate	72.6 ha 29.5%	
Protected areas as a % of the aggregated Group Scheme management estate by Ecological District	29.5%	

Historic and archaeological sites

Records of known archaeological and historical places are maintained in the NZ Archaeological Association (NZAA) Site Recording Scheme. The Archaeological Site Probability model published by the Department of Conservation[1] provides further guidance on the probability of pre-European archaeological evidence existing based on the geographical location of the forest and historical occupation of the local area.

The site recording scheme has revealed no known sites within Meringa Station Forest. If a site is found or suspected on any block, the protocols specified in PF Olsen's EMS, and any others specifically developed in conjunction with Heritage New Zealand (HNZ) and Iwi or other stakeholders must be observed. Where such circumstances require, an 'Authority to Modify or Destroy' will be sought from HNZ. Such authorities are similar in function to a resource consent and, if granted, normally come with conditions that must be met. The process to apply for authorities is documented in PF Olsen's EMS.

Note also that Authorities to Modify an archaeological site may sometimes be required from the local District Council and sites of cultural significance are often included in schedules of places and sites of significance in District Plans. Update checks for any sites will be required before any harvesting or related earthworks commences.

Threatened Environments Classification

The Landcare Threatened Environments Classification (TEC) is a measure of how much indigenous vegetation remains within land environments, its legal protection status, and how past vegetation loss and legal protection are distributed across New Zealand's landscape. The TEC is a combination of three national databases:

- Land Environments New Zealand (LENZ)
- Landcover Database 2
- Protected Areas Network

The TEC uses indigenous vegetation cover as a surrogate for indigenous biodiversity, which includes 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. The TEC is therefore most appropriately applied to help identify places that are priorities for formal protection against clearance and/or incompatible land uses, and for ecological restoration to restore lost species, linkages and buffers.

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[1] Arnold, G.; Newsome, P.; Heke, H. 2004: Predicting archaeological sites in New Zealand. *DOC Science Internal Series 180*. Department of Conservation, Wellington. 24 p.

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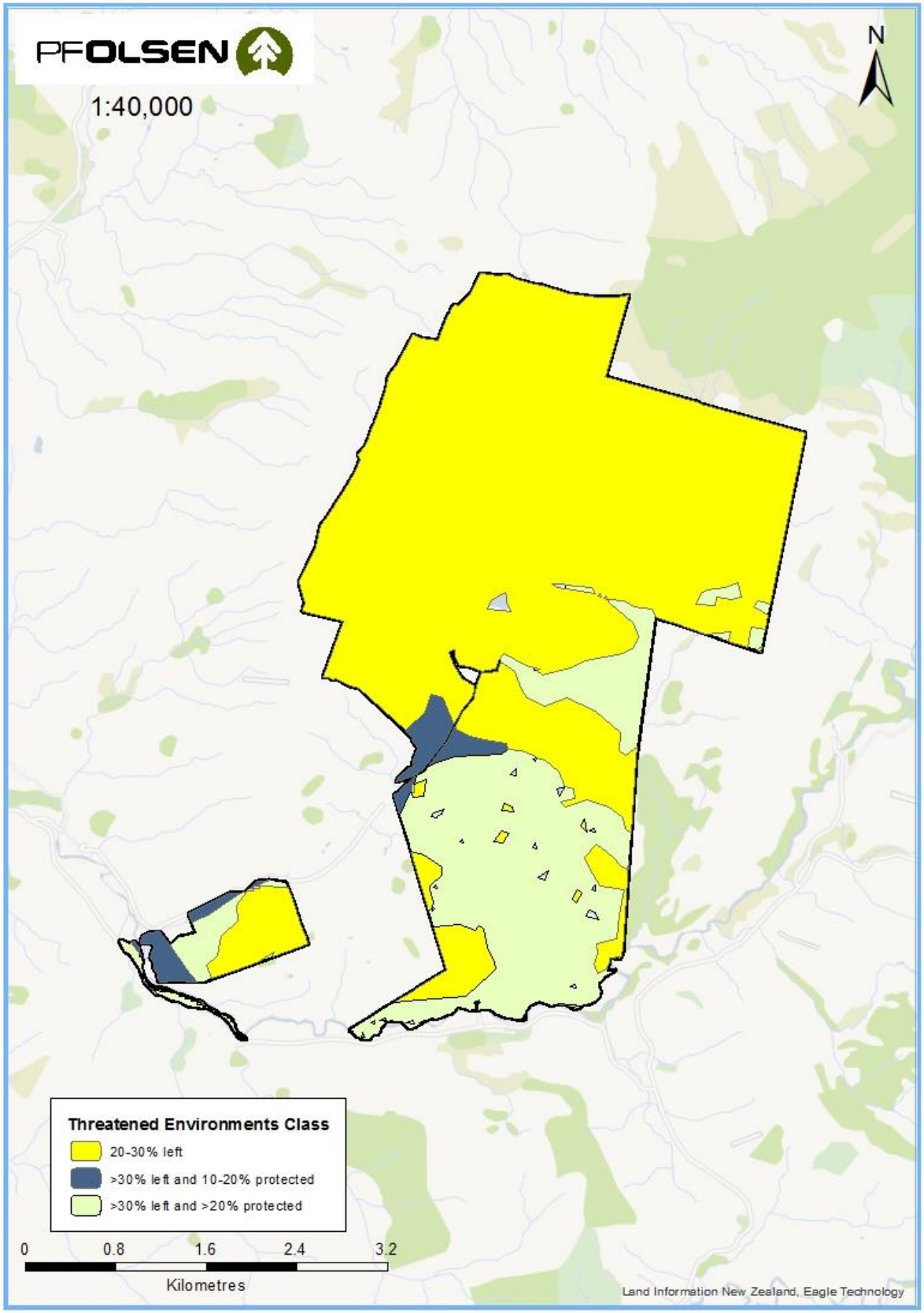
Table 4 shows the threatened environments classifications as they pertain to Meringa Station Forest (Map 2).

Table 4: Reserve areas by Threatened Environments Classification

Category	Area (ha)	Area (%)
< 10% indigenous cover left		
10 - 20% left		
20 - 30% left	1,276.30	73.3%
> 30% left and < 10% protected		
> 30% left and 10 - 20% protected	41.91	2.4%
> 30% left and > 20% protected	423.74	24.3%
Total	1,741.95	100.0%

The TEC status of the small reserves reflects the history of intensive pastoralism in the area. The reserves thus have value due to their paucity in the overall landscape.

Map 2 - Forest by Threatened Environment Classifications



5. Socio-economic profile and adjacent land

Forest history

Meringa Station is a sheep and beef pastoral farming operation with primary focus on lamb finishing complimented by beef breeding and finishing and a ewe flock.

Forestry was established on the station by the previous owner primarily for the purpose of soil conservation. An additional benefit of the forest stands is as shelter for stock and pastoral growth is also improved through shelter from the wind.

The area established in forest was predominantly a low productivity site in agricultural terms due to the instability of the slopes and potential for slips and erosion.

Current social profile

The forests on Meringa station are an, intermittent, incremental contributor to the social profile of the area. The forests are very small in comparison to large forestry players in the region. The land and forests are privately owned and contribution to the local economy by way of added incremental employment and infrastructure is relatively low.
Combining data from the Atlas of Deprivation (Ministry of Health) and average income from Statistics NZ, it is apparent that wealth varies widely across the region. The area of the region where Meringa Station is located appears to be one of the more deprived areas in the region. Age and family statistics for the Manawatu-Wanganui region are fairly similar to national averages.

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Table 5. Key statistics as summarised from 2013 Census[2] data

Census Category	Manawatu - Wanganui	New Zealand
Ethnicity: European	81.3%	74.0%
Ethnicity: Māori	20.6%	14.9%
Formal qualifications	73.0%	79.1%
Unemployment	7.8%	7.1%
Dominant occupation	Professionals	Professionals
Median income	$25,000	$28,500
Family with children	36.6%	42.1%
Internet access	69.8%	76.8%
Home ownership	65.2%	64.8%

Associations with Tangata Whenua

In the 11/16 management plan, Horizons Regional Council identified three iwi organisations that may have an interest in Meringa Station:

- Hinengakau Development Trust (Whanganui iwi)
- Ngāti Tuwharetoa Māori Trust Board
- Tuhua-Hikurangi RMC (Ngāti Maniapoto).

Each group has been written to and has been included in our stakeholder register. When this plan was prepared, only the Tuhua-Hikurangi RMC (Ngāti Maniapoto) could not be found in Te Kahui Mangai[3], the Directory of Iwi and Māori Organisations.

Tenure & resource rights

There are no forests or reserves that are subject to iwi tenure or resource rights.

[2] http://archive.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?request_value=13631&tabname=
[3] http://www.tkm.govt.nz/

Neighbours

Neighbours to the forest estate boundaries have a special interest in the management of the forest. Activities within the forest may positively or negatively impact upon their quality of life or businesses in a number of ways, while inappropriately managed operations could create risks of adverse health, safety and environmental hazards. Neighbours may use the forests for recreational purposes or place reliance on the forests for provision of water quality or quantity services. Boundary issues such as weed and pest control, access and boundary alignment issues may also involve neighbours.

Table 6 lists the forest neighbours and their primary activities (Appendix 1). Some or all of these parties should be consulted when operations are proposed in forest areas adjacent to their boundaries.

Table 6: Forest neighbours

Owner/Occupier	Location
Jefferis Ngapuke Ltd.	Ngakonui-Ongarue Road RD 4 Taumarunui 3994
Tanya Sinton, Simon Virtue, Bailey Ingham Trustees Ltd	Mangakahu Valley Road RD 4 Taumarunui 3994
Powhia Mominn & John Peri	
Jane & Ewen Fraser, Bailey Ingham Trustees Ltd	
Margaret & Barry Leslie	313 Waituhi Road

Regulatory Environment and Risk Management

6. The Regulatory Environment

Regulatory considerations

Forestry operations throughout New Zealand are undertaken within the context of a regulatory framework that aims to ensure wider economic, social and environmental goals are achieved for the populace as a whole.

Failure to meet regulatory requirements is a key business risk that must be managed. The following section summarise key regulatory requirements and risk management controls exercised over forestry operations in the forest.

Health and Safety at Work Act 2015

Leadership, a constant focus on health and safety, and the strong message that safety rates as the number one priority ahead of any other business driver are all highly important for PF Olsen management. The company also takes the following steps to ensure worker health and safety:

- Contractor selection process including emphasis on:
  - safety systems and track record;
  - worker skills and training; and
  - equipment type and standard.
- Work planning.
- Contractor induction.
- Monitoring, including random and reasonable cause drug testing, safe work practices and PPE.
- Incident investigation and reporting, including investing in software, training and processes development to enable good transparency on lag and lead indicators.
- Regular reporting to and interaction with the Client on matters related to safety.
- Regular (annual) review and update of the critical risks as identified in PF Olsen data sets and from Industry indicators. Such a review shall focus on incidents that have caused harm and/or loss, any known cause factors and mitigations and revised controls.

Resource Management Act

Meringa Station Forest is subject to the provisions of the Resource Management Act (RMA) 1991. The RMA sets up a resource management system that promotes the sustainable management of natural and physical resources and is now the principal statute for the management of land, water, soil and other resources in New Zealand. Table 7 lists the organisations relevant to Meringa Station Forest.

Table 7: Regional and District Councils under Meringa Station Forest

Regional Councils [4]	District Councils [5]
Horizons Regional Council	Ruapehu District Council

Under the RMA, each Council has its own planning documents and associated rules that have been developed through public process. Any forestry operations must comply with the rules relevant to the Council area in which the operations are to take place. The contact details for the relevant councils can be seen in Appendix 2.

National Environmental Standard for Plantation Forestry (NES-PF)

Coming into law on 1 May 2018, the NES-PF is a whole new rule hierarchy that applies the same rule set uniformly across most forestry operations in all parts of New Zealand. Operations will come under the legal force of this RMA instrument, though local Councils will retain the ability to regulate specific areas outside the NES-PF, e.g. Significant Natural Areas, Outstanding Landscapes, giving effect to the Coastal Policy Statement etc.

The underpinning the structure of the NES-PF is a rule hierarchy linked to the erosion susceptibility of the lands upon which forestry operations are to be conducted.

Work commissioned by the Ministry of Primary Industries led to the creation of a national spatial map, the 'Erosion Susceptibility Layer' (ESC) that classifies all of New Zealand into a series of four classes of erosion susceptibility from low (green) to very high (red).

The stringency of the rules hierarchy, i.e. whether consents are needed and the degree to which Councils can apply discretion to the conditions attached to a consent, is then tied closely to the recognised erosion susceptibility of the lands involved and the risks created by the operations.
In the case of Meringa Station Forest, Table 8 below indicates the proportion of the forest by the respective ESC classes.

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[4] Regional Councils responsible for soil conservation and water and air quality issues
[5] District Councils responsible for land use and biodiversity issues

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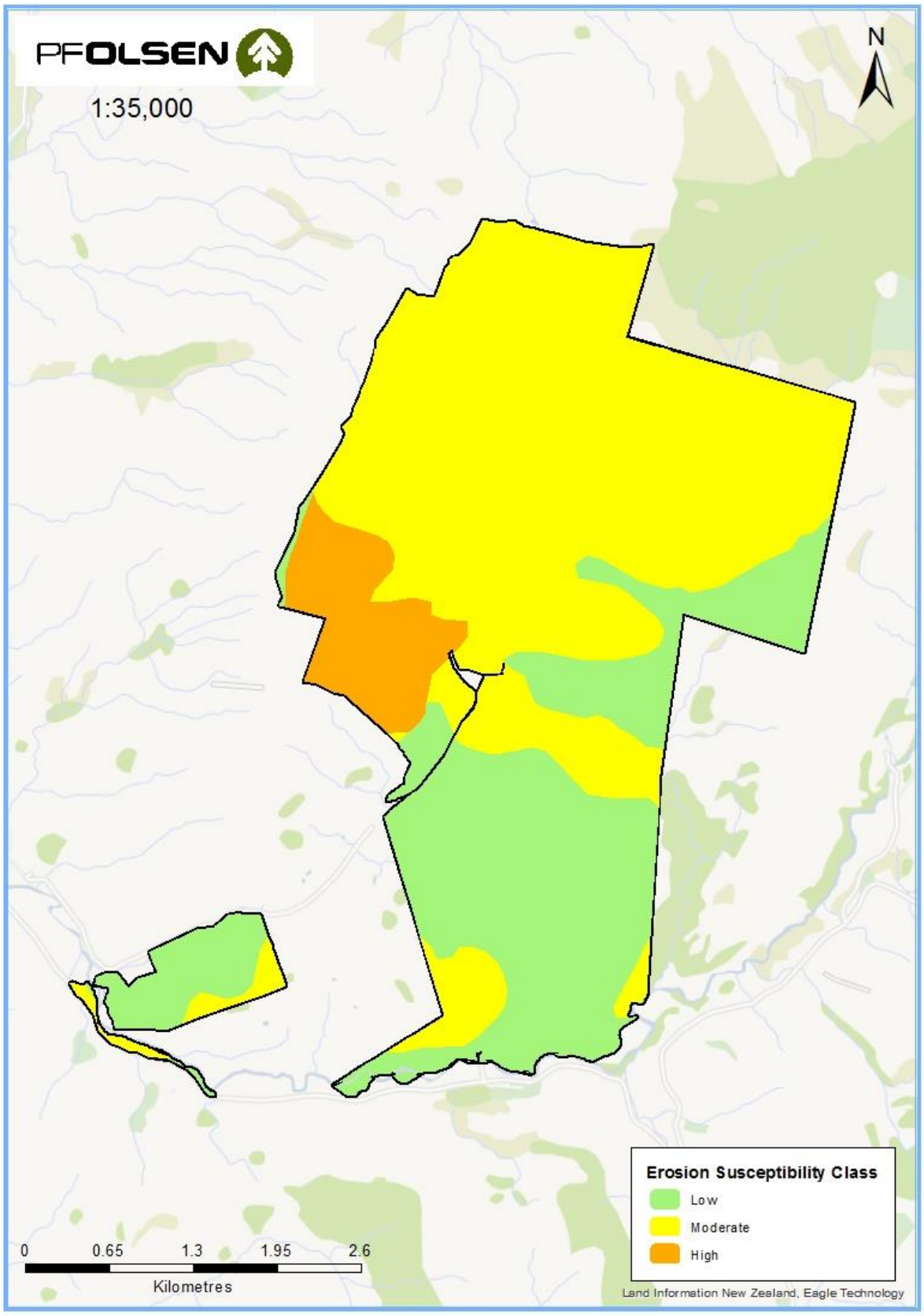
In broad terms, harvesting, roading (earthworks) and new afforestation operations will need consents in the red zone. Earthworks will need consents in orange, and in the green and yellow zones most operations will be permitted subject to conditions. The coverage of the erosion classes within the estate are illustrated in Map 3.

Table 8: ESC Classes (Erosion Risk) for Meringa Station Forest

	Low	Moderate	High	Very High	Very High (8e)	Water
Area (ha)	587.67	1026.87	131.61			1.88
Area (%)	33.6%	58.8%	7.5%			0.1%

Map 3 – National Environmental Standard Erosion Susceptibility Classes in Meringa Station Forest



Heritage New Zealand Pouhere Taonga Act 2014

Under the Heritage New Zealand Pouhere Taonga Act 2014 it is the landowner's responsibility to identify any historic sites on their land prior to undertaking any work which may disturb or destroy such sites. Records of archaeological and historical places are maintained in the NZ Archaeological Association (NZAA) Site Recording Scheme http://www.archsite.org.nz/.

If a site is found or suspected on any block, protocols specified in PF Olsen's EMS, and any others specifically developed in conjunction with Heritage New Zealand (HNZ), archaeologists and Iwi or other stakeholders, will be observed and the necessary Archaeological Authorities obtained with HNZ, and if necessary the local Territorial Authority.

These responses may include, but are not limited to:

- Map and ground surveys to identify, mark and protect known heritage sites.
- Iwi consultation and surveys for unknown sites.
- Archaeological Authorities to modify sites if required.

Accidental Discovery Protocols to stop work and engage experts if sites are discovered during operations.

Consents & authorities held

There are no current resource consents or HNZ authorities that apply to Meringa Station Forest.

At the time of harvest planning any required consents will be obtained. There is no harvesting planned for the period of this management plan.

There are no HNZ authorities that apply to Meringa Station Forest.

The Emissions Trading Scheme

Forests in New Zealand are governed by rules related to New Zealand's Kyoto commitments to reduce the nation's carbon footprint and contribution to associated climate change.

Meringa Station forest contains no area of forest that was existing as at 31st December 1989, therefore no areas that are liable for a deforestation tax.

The entire area of forest was planted on "Kyoto compliant" land that was vacant as at 31st December 1989. These forest areas have been registered to participate in the NZ Emissions Trading Scheme and are subject to the accrual of emissions credits and liabilities under that scheme.

Other relevant legalisation

There are numerous other statutes and regulations that impact on forest operations. Forest owners can be held liable for breaches of these Acts and may be held responsible for damage to third party property. Management processes seek to manage and minimise these risks.

Other relevant legislation is listed in Appendix 3.

7. Commercial Risk Management

Market access retention

It is a major focus of the Property Manager to ensure contracted products are delivered on time and in specification to ensure Landcorp Framing Ltd retains credible access to its markets.

Landcorp Farming Ltd maintains independent third party environmental certification for its estate under Forest Stewardship Council certification (FSC). PF Olsen Ltd acting under the instruction of its client will be responsible for the excecution and maintenance of the required FSC certification elements of which this management plan forms an important component.

Log customer credit risk

There have been a number of NZ sawmills fail in recent years leaving log customers unpaid for the last month's deliveries. The PF Olsen Investment Manager manages customer credit risk exposure and mitigation measures for export markets while PF Olsen manages these risks for domestic log customers.

Infrastructure damage or service disruption

Meringa Station Forest is traversed by several powerline utilities. Risks around these are managed by:

- Identification on maps and on the ground any utilities at planning stage.
- Early engagement with utility owner to plan operations to minimise risks.
- Operational execution of agreed plans with parties specifically qualified for the tasks involved when working close to utilities.

Pests and diseases

Pests and diseases are managed according to any statutory obligations and best practices as identified by scientific research and past experience, with the type and intensity of treatment (if any) subject to what is at risk and the age of trees (see Section 14).

8. Environmental Risk Management

Environmental risk

Environmental risk is managed by PF Olsen as appointed property manager, through a cascade framework from high level 'intent' determined by the Forestry Rights owner, through PF Olsen's own environmental policies, thence through defined and documented processes constituting an Environmental Management System (EMS), supported by monitoring and reporting. PF Olsen's policies and Landcorp Farming Ltd's business objectives are considered to be well in alignment.

Environmental policy

PF Olsen Limited is committed to:

- *Sustainable forest and land management;*
- *Promoting high environmental performance standards that recognise the input of the community in which we operate;*
- *Supporting an environment of continuous improvement in environmental performance;*
- *Obtaining and retaining independent 3rd party forest certification in conformance with the Principles and Criteria of the Forest Stewardship Council and / or the Programme for Endorsement of Forest Certification as specified by forest owning clients, or in any case ISO:14001 Environmental Management Systems.*

In order to achieve these commitments **PF Olsen** (and PF Olsen Certification Scheme Members) will undertake the following:

- Where applicable to a particular forest, comply with the presiding **Certification Standards** as set out in any agreements between the forest owners and PF Olsen.
- **Planning** of operations to avoid, mitigate or remedy degradation of **ecological, heritage** and **amenity** values;
- Compliance with all relevant **legislation** and where appropriate exceed environmental statutory requirements;
- **Training** for all employees and contractors to ensure an understanding of certification member's commitments to high standards of environmental performance, their responsibilities under the environmental legislation and to assist the implementation of sound environmental practices;
- **Monitoring** environmental and socio-economic research and international agreements that may improve PF Olsen environmental and certification performance;
- Regular environmental performance **audits** of operations;
- Support for environmental **research**;
- Undertake forest management in accordance with the principles and ethics of the **NZ Forest Accord** the **Principles for Commercial Plantation Forest Management in NZ**, and other relevant agreements, conventions and accords.
- Promotion of the prevention of **waste** and **pollution**; and efficient use of **energy**;
- Due regard for the well-being of the **community.**

Objectives, targets and monitoring

PF Olsen's objectives, targets and monitoring categorised across 5 key aspects of the business:

1. Economic
2. Legal
3. Social
4. Health & safety
5. Environment

A systematic management approach ensures these objectives and targets remain the cornerstone of PF Olsen's business, backstopped by monitoring processes that form a regular review of practices.

EMS framework

The Environmental Management System (EMS) is an integrated set of cloud based, defined and documented policies, processes and activities that govern the physical implementation of forest management activities. The EMS applies a systematic approach certified to ISO:14001 standards to ensure that prevention of adverse and harmful impacts is effective.

The framework is reviewed annually with the input of an Environmental Management Group (EMG).

Environmental Code of Practice

As a member of the New Zealand Forest Owners Association, all operations carried out on the property should be undertaken in conformance to the NZ Forest Owners Association 'New Zealand Environmental Code of Practice for Plantation Forestry'. This publicly available document sets out guidelines that underpin the requirements for sound and practical environmental management.

Forest Road Engineering Manual

As a member of the New Zealand Forest Owners Association, roading and engineering techniques employed within the forest should conform to the industry best practice as outlined in the New Zealand Forest Owners Association publication, 'NZ Forest Road Engineering Manual', published 2012.

Assessment of environmental risks

Environmental risks arising from forest operations are assessed and managed on a site-by-site basis prior to execution. The relative probability and magnitude of adverse effect attributable to any particular operation on any particular site is highly variable.

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Earthworks, planting and harvesting have the potential to destroy or damage any historic places that may be present. Native vegetation has the potential to be killed by harvesting into the reserve or spraying of the reserve. Water quality can be negatively affected by sediment runoff

because of harvesting, stream crossing and earthwork operations. In addition, the entry of oil and fuel and fertilisers will reduce the quality of water.

The level of potential risk has been evaluated in the matrix as high 'H', medium 'M' or low 'L', or not applicable 'NA' and is thus indicative of the level of care that might need to be applied to ensure the potential for adverse effects is minimised (Table 9).

Table 9: Risk assessment for key aspects involved in forest management activities

Forestry Operational Activities	Environmental Values / Issues matrix												
	Erosion& Sediment Control	Water Quality	Soil Conservation & Quality	Air Quality	Aquatic Life	Native Wildlife	Native Vegetation	Historical &Cultural Values	Landscape &Visual Values	Neighbours	Public Utilities	Recreation Values	Threatened Species
Harvesting	H	H	M	M	M	M	L	L	H	H	L	H	H
Earthworks	H	H	M	NA	M	L	L	L	L	L	L	L	H
Slash Management	M	M	M	NA	L	L	L	NA	L	L	L	L	L
Stream Crossings	H	H	L	NA	H	L	L	L	L	NA	L	NA	M
Mechanical Land Preparation	L	H	L	L	L	L	L	L	L	H	L	L	L
Burning	L	L	L	H	L	H	L	NA	H	H	L	H	M
Planting	NA	NA	NA	NA	NA	NA	L	L	L	L	L	L	NA
Tending	NA	NA	NA	NA	NA	NA	NA	NA	NA	L	L	L	NA
Fertiliser Application	NA	H	L	L	H	NA	L	NA	NA	L	L	L	L
Agrichemical Use	NA	H	L	L	H	L	H	NA	L	H	L	H	L
Oil & Fuel Management	NA	H	L	NA	H	L	L	NA	L	H	L	H	L
Waste Management	NA	L	L	NA	L	L	NA	NA	L	L	NA	H	L
Forest Protection	NA	L	NA	NA	L	L	L	NA	NA	L	NA	L	NA

Hazardous substances management

Hazardous substances are any substances, which may cause adverse environmental impacts and/or injury or health problems if incorrectly handled or used.

The hazardous materials which may be used within Meringa Station Forest are:

- Pesticides
  - Herbicides: for commercial and ecological weeds;
  - Fungicides : for forest fungal disease control; and
  - Vertebrate or Invertebrate Toxins : used for control of pest mammals (e.g hares and possum or wasps).
- Fuels and oils
- Fire retardants : (only ever used if there is a fire)
- Surfactants: to increase herbicide efficacy

Transportation, storage and labelling of these hazardous materials must all comply with the provisions of legislative controls under the Environmental Protection Agency (EPA) and the NZS 8409:2004 Management of Agrichemicals code of practice.

During actual usage, the highest risks are associated with chemical trespass or bulk fuel spillages. These risks are managed by:

- Neighbour consultation over planned spray operations.
- Careful planning and timing of any aerial operations having regard to wind and spray drift.
- Unsprayed buffer strips on neighbour boundaries and 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.
- Moving contractors into the use of double skinned bulk fuel storage tanks as the preferred method of containment for all larger capacity tanks.
- Tracking of all active ingredient usage within the estate.

Risk management includes active involvement in and review of technologies and research into alternative methods for the control of weeds, pests and diseases where these are effective and efficient.

Fuel use is directly related to the machinery used in forestry operations and the market locations. Using modern efficient machine technology is still the primary area where efficiency gains can be made. There is a steady programme to transfer chain bar oils to vegetable based low toxicity oils.

Highly hazardous chemicals

There are five agrichemicals that have been classified 'highly hazardous' (HH) by FSC that are used in forestry and conservation operations within PF Olsen group certified forests. All these five have recently been added to FSC's HH list. Special derogations to continue usage of these chemicals, subject to conditions, are being applied for by PF Olsen as FSC Group Manager in conjunction with the wider NZ certified industry. The derogation process is run according to specific policies put in place by FSC, including extensive canvassing of stakeholder views. These chemical pesticides are listed in Table 10.

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

Table 10: FSC Highly Hazardous chemicals used or potentially used in Meringa Station Forest

Active Ingredient	Purpose	Common Usage
Copper based Products	Fungicide	Needle cast control
Picloram	Herbicide	Establishment weed control
Carbaryl	Insecticide	Localised wasp control
Cholecalciferol	Vertebrate pesticide	Localised possum control
Pindone	Vertebrate pesticide	Rabbit and hare control
Use subject to Animal Health Board emergency provisions only		
Sodium Cyanide	Vertebrate pesticide	Animal Health Board only, ground based possum control
Sodium Monofluoroacetate (1080)	Vertebrate pesticide	Animal Health Board only, extensive aerial possum control

The Managed Plantation Estate

9. Commercial Plantation Estate

Productive Capacity strategy

Forest management is carried out to ensure the productive capacity of the Meringa Station Forest is not compromised. This encompasses multiple aspects that include:

- Pests and weeds and forest health: can reduce productivity
- Inventory: to feed 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.

Forest area

The net stocked areas have been measured from a map produced by PF Olsen (Table 11, Figure 2).

Table 11: Meringa Station Forest Area (ha)

Gross area	Net Stocked Area	Area Awaiting Restocking	Reserves
246.3	155.6	18.1	72.6

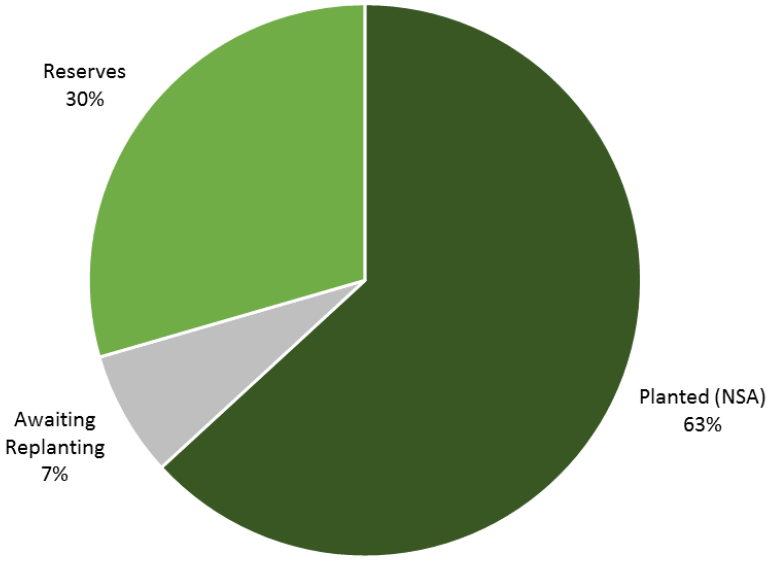


Figure 1: Meringa Station Forest Area (ha)

Current species

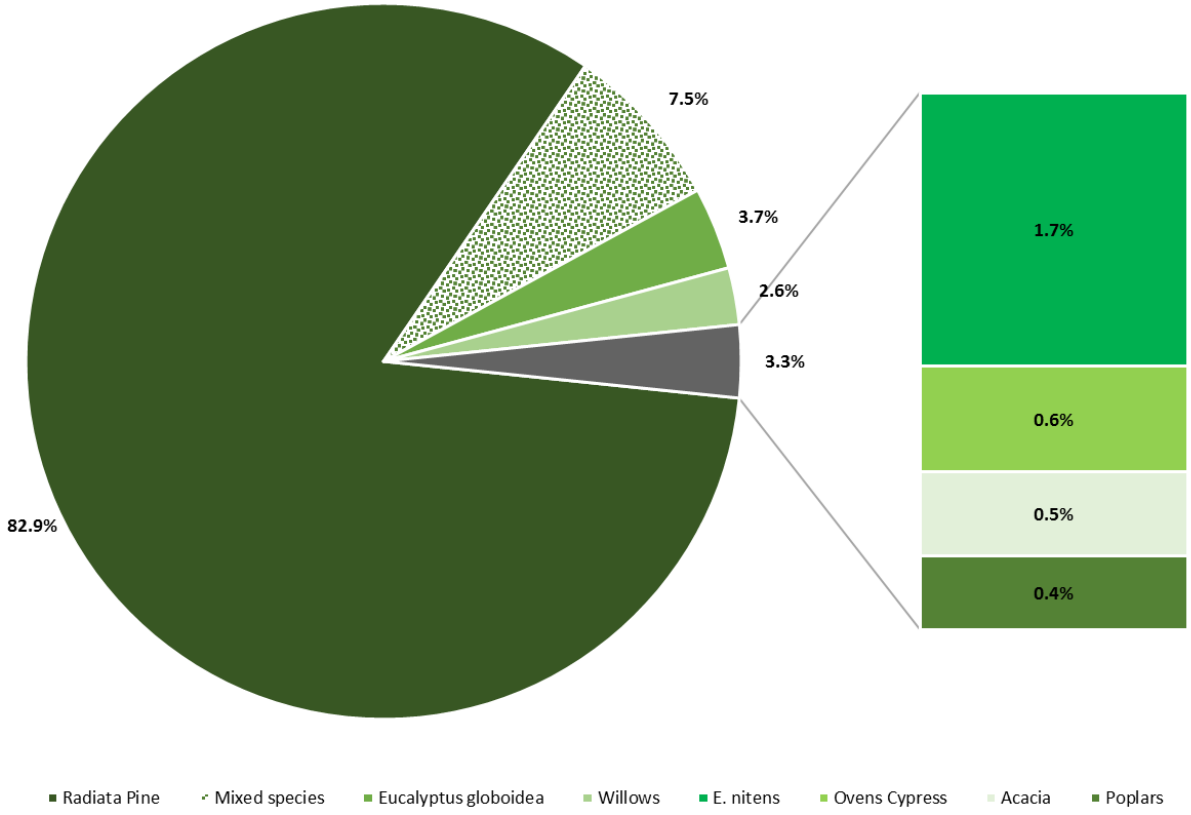
There are a range of species grown in Meringa Station Forest predominantly Radiata Pine (Table 12). These species have been chosen to best meet the management objectives set out above, given the characteristics of the forest land.

Table 12: Species

Species	Net Stocked Area (ha)
Radiata Pine	129.0
Mixed species	11.7
Eucalyptus globoidea	5.8
Willows	4.0
E. nitens	2.6
Ovens Cypress	1.0
Acacia	0.8
Poplars	0.7

The species mix of Meringa Station Forest is Figure 2 below.

Figure 2: Species composition by area for Meringa Station Forest



Productivity indices

Site index is a 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. Equations exist to predict this height given a measured height at any age.

The 300 index is another measure of productivity of a site based on stem volume growth (mean annual increment) of 300 stems per hectare.

The site index for Meringa Station Forest is between 30 – 37.5 m, while the 300 index is 27.5 – 32.5 m^3 / ha / year.

Meringa Station Forest is at the higher end of site productivity in the general area for coniferous forestry sites.

Current crop status

Measurement data from the most recent inventories is summarised to give the current status of the crop (Table 13).

Table 13: Current crop status

Stand	Year Planted	NSA (ha)	Tot. Stocking (sph)	MTH (m)	Mean DBH (cm)	Pruned Stocking (sph)	Pruned Height (m)
MERI-0003-01	1993	47.3	266	27.3	48.2	266	-
MERI-0004-01	1994	96.0	218	29.0	45.2	218	-

10. Commercial Crop Establishment and Silvicultural Operations

Introduction

The choice of species is the most important issue in plantation forestry. The species must be suitable for the site and meet the objectives of Landcorp Farming Ltd. Also important is to ensure that the planting material is of good quality.

Forest operations are implemented to ensure a good quality crop and maximum growth. These operations include land preparation, establishment, weed control, pest and disease control, fire protection, pruning and thinning and general property maintenance.

Forest management goals

Meringa Station Forest's owners are committed to ensure that the forest will be managed to:

- Grow trees and produce logs for the manufacturing of different wood products in New Zealand and overseas with a focus on 'fit for purpose' log production;
- Ensure that the productivity of the land does not decline;
- Ensure that environmental values are identified and maintained;
- Ensure that historic sites are identified and protected;
- Ensure that other forest values and products are identified, protected and where possible enhanced;
- Ensure that the forest estate's contribution to carbon cycles is maintained or enhanced;
- Harvest the trees as close as possible to their economic optimum age and achieve the best possible financial returns to the owners;
- Replant following harvesting where agreements require;
- Meet all statutory requirements and comply with forest industry best practice;
- Provide recreational opportunities where practical;
- Act as a good corporate citizen and neighbour; and
- Ensure all forest management practices are consistent with the principles of the Forest Stewardship Council and NZS AS:4708:2014

These goals are further detailed in 'PF Olsen Key Aspects - Objectives, Targets and Monitoring' (Appendix 4).

Crop species

In Meringa Station Forest, the main crop species grown Pinus radiata.

Radiata pine, when intensively managed, will 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 decorative timber. The unpruned logs can be used for structural timber, for veneer or for feedstock for fingerjointing. The small logs and those with defects and excessive knots can be used for pulp and paper, MDF and other reconstituted wood products such as tri-board and particle board.

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

In New Zealand radiata pine is also the main focus in terms of research and development. Past research and development has resulted in improvements in growth, form and wood characteristics as well as development of a range of finished products, building codes and timber standards.

Pre-establishment considerations

Prior to re-establishment of the tree crop, a review will be conducted to identify whether there are any rare, threatened or endangered species of flora or fauna within the area to be planted and what, if any, adjustments in planning may be required. A plantation crop is likely to confer beneficial habitat buffering rather than cause adverse effects.

Adjustments in planting may be required to accommodate improved environmental outcomes in the subsequent rotation, including the extension of an existing wildlife corridor or riparian area by increasing setbacks at the time of crop replanting.

These considerations are covered by the afforestation checklist and riparian rules contained within the PF Olsen EMS.

Unwanted pine spread

Re-establishment programmes will include a spread risk assessment using the Wilding Spread Risk Calculator to inform decisions about replant boundaries and monitoring or other control strategies if required. There is no intention to plant or replant in other species with known high spread risk. The use of the Calculator is also a requirement under the NES-PF and this will be adhered to.

Re-Establishment

There is no new establishment planned at Meringa Station forest during the period of this management plan.

Tending

The tending regime executed at Meringa Station Forest is a clearwood regime. Tending is complete and there are no further silvicultural operations required.

Tree nutrition

The soils in Meringa Station Forest are not likely to be deficient in nutrients for healthy tree growth. However, there are soils within New Zealand that are deficient in one or more nutrients. The most common nutrient deficiencies are likely to be:

- **Magnesium** – Magnesium deficiency is a particular problem of the Central North Island and is associated with the phenomenon known as mid crown yellowing where the middle of the tree crown turns a yellow colour. Heavily pruned trees and some seedlots are more predisposed to the deficiency than others.
- **Boron** – Boron deficient trees can suffer dieback from the terminal buds and this symptom is closely associated with moisture stress and drought. Trees growing on the drier East Coast of both Islands and on the pumice soils of the Central North Island are prone to boron deficiency.

Foliar samples will be taken if nutrient deficiency symptoms are seen or expected. Fertiliser will only be applied if the health and the growth of the trees are significantly affected.

Site productivity and tree nutrition are actively researched components of industry research programmes in which PF Olsen is an active stakeholder and all harvesting entities are a financial contributor through the Forest Research Levy Fund.

11. Harvesting Strategy and Operations

Harvesting strategy

The harvesting strategy for radiata pine employed at Meringa Station forest is to harvest the tended forest stands as close as possible to their optimum economic age as practical. This is the age at which the growth in volume and improvement in quality is offset by the cost to maintain the forest for another year. The optimum rotation length for radiata pine is expected to be within 25 to 30 years. Stands where minimal tending has been completed may be harvested earlier, particularly when relevant markets are favourable.

Of importance in this assessment is the actual growth of the tree crop, the market for the wood at the time of the harvest and the outlook then and for the near future. These factors, together with logistics such as the availability of suitable harvest contractors and the requirements of resource consents, will determine the actual harvest time.

It is anticipated that harvesting for the total Meringa station forest will be, if not actually undertaken, operationally planned over the course of this plan.

Planning and preparing for harvest

Forward planning is essential when considering harvesting activities. Harvest planning should ideally commence two years before harvesting to enable roading infrastructure to be developed and any resource consents, archaeological surveys, etc. to be undertaken. This reduces the chance of hold-ups to the commencement of harvesting, which can be costly when log prices are fluctuating.

Harvest planning is conducted within a detailed structured framework controlled within the PF Olsen FIPS system. Planners are guided through a total of 100 elements involving environmental, cultural, community, infrastructural, and safety issues that must be addressed as well as direct operational and economic considerations, prior to the issuing of final prescriptions.

Harvesting operations will be undertaken by contractor and supervised by the forest manager.

Infrastructure

The roading and other infrastructure work proposed for the areas to be harvested in the first year are detailed in the Annual Cutting Plan.

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Forest infrastructure includes roads, tracks, landings, bridges and culverts. Design specifications for these are outlined in the 'PF Olsen Standard Specifications for Road and Landing Construction'.

Typically, infrastructure within an early- to mid-rotation age 'greenfields' forest is limited to access for a 4WD vehicle. During harvest planning, upgrades of existing roads/culverts/bridges and planning for new roads, landings and crossings will be identified and scheduled. The type of infrastructure designed and constructed is influenced by topography, harvest duration and intensity of use.

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

Land hand back

The process for land handback is unique to each individual forest agreement. They can involve quite a few steps and vary from block to block.

Contractor management

Prior to engaging a new contractor, a comprehensive review of the contractor's safety systems, safety record, systems of work organisation and equipment is carried out. With regard to crew configuration, where topography and terrain allows, mechanised felling, extraction and processing is a mandatory requirement. PF Olsen as the Property Manager must be satisfied on this review, regardless of the tendered price.

Upon appointment all new contractor crews undergo a comprehensive safety and environmental induction, while PF Olsen Ltd, in conjunction with its contractors and NZQA training providers NorthTec, runs a comprehensive programme of training to ensure the workforce is competent for the work they are required to perform. The formal NZQA qualifications are supplemented periodically by internally run training courses including those on environmental matters.

All harvesting, engineering and silviculture contractors are subject to quarterly contractor monitoring audits and random drug testing. A full safety systems audit is scheduled and carried out annually. Full crew re-inductions take place every 5 years.

Weekly crew visits and monthly (or fortnightly according to risk) KPI assessments including environmental audits pick up corrective actions and follow-up on those. WorkSafe undertakes audits on an unannounced basis from time to time.

12. Forest Inventory, Mapping and Forest Records

Inventory

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

- Pre-assessment: for silviculture rate setting and validating operational timing vs silvicultural targets;
- Quality control: to check contractor's performance and update stand records;
- Mid-crop: to collect measurement inputs for growth modelling;
- Pre-harvest inventory is scheduled for stands around age 24, to collect measurement data on the crop. This is used for harvest planning, marketing and revenue estimation.
- New technologies may see some of this information gathered and analysed using remote sensing in the future.

Mapping

All mapping of Meringa Station Forest is in digital format and is constantly updated in a Geographic Information System (GIS) that is linked to FIPS. The GIS system spatially records a vast array of forest data, from stand and legal boundaries, to reserves, rivers, roads, infrastructure, topography and soils.

Accurate mapping also assists budgeting, planning, calculation of future revenue/tree crop value, calculation of payments, infrastructure location, and harvest planning.

New plantings are remapped from new aerial photography around age four (when the trees are visible on aerial photography) to accurately determine boundaries and areas and also around two years prior to harvesting to assist with harvest planning.

Forest records

Detailed records of each stand's silvicultural management history, productivity, inventory and other attribute data are compiled and maintained in a stand records database and Geographic Information System (GIS). These records form the basis for informing silvicultural scheduling, harvesting schedules and other management activity.

Non-commercial Estate Management & Protection

13. Protected Forests, Habitats, Ecosystems and Species

Introduction

Indigenous biodiversity management in or associated with exotic forests is a normal component of everyday forest management. Environmental certification systems place obligations upon the forest manager to be aware of and, where required, enact procedures to assist with the maintenance and protection of important biodiversity where they are able.

Exotic forests can and do provide a level of biodiversity, though this is often enhanced by natural forest ecosystem remnants embedded within the plantation matrix. These are often the most important contributor to the total of the productive landscape's biodiversity. However, rare and threatened species can also be found associated with exotic forests and may require special attention for management.

Protected ecosystems

Meringa Station forest contains 28.4ha of remnant podocarp- hardwood forest. The predominant species are *Podocarpus totara* with incidence of *Dacrycarpus dacrydioides, Dacrydium cupressinum, Beilschmiedia tawa, Knightia excelsa, Cordyline australis, Sophora tetraptera* and *Pseudopanax crassifolius.* The understorey has been degraded due to past grazing by stock.

Meringa Station also contains 44.5ha of regenerating *Leptospermum* scrubland on steep faces. While unfenced, stock is naturally excluded due to topography though there are plans to fence parts of one of the larger areas.

There is also 23.7ha of riparian reserve zones that have been planted in exotic species (willow and poplar) for stream bank soil conservation purposes. There are large native trees and scattered regeneration amongst some of these exotic plantings, and in the long term the removal of exotic species can be considered, provided soil stabilisation objectives are met by native ground cover. In October 2014, another 1.9 ha of Manuka was planted, and total reserve zone area increased to 25.6 ha.

Finally, Landcorp are currently working with the QEII National Trust to finalise the registration of several areas within Meringa Station as covenanted areas (Table 14). Once completed, approximately 63.5 ha will be protected under the QEII covenant scheme, and will receive additional enhancement, restorative and protective actions such as fencing, plant and animal pest control and supplementary native planting.

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Table 14: QEII Covenanted Areas within Meringa Station

Name	Agreement Type	Covenant Number	Area (ha)	Open Space Type
Graham's Lodge Bush	Open Space Covenant		3.02	Lowland modified primary & secondary podocarp-hardwood forest
Meringa 1	Open Space Covenant	5-06-464	19.75	Lowland modified primary podocarp-hardwood forest
Meringa 2 (Duck Pond & Little Blue Hut)	Open Space Covenant	5-06-465	8.2	Lowland modified primary podocarp-hardwood forest & modified secondary rushland wetland/pond
Meringa 3 (Upper & Lower Totaras)	Open Space Covenant	5-06-474	14.8	Lowland modified primary forest
Meringa 4 (Double Hill & Sinnamon's)	Open Space Covenant	5-06-475	7.0	Lowland modified primary podocarp-hardwood forest
Meringa 5 (Basin Bush)	Open Space Covenant	5-06-476	10.7	Lowland modified primary podocarp-hardwood forest

The protected ecosystems areas are shown on the Forest Stands Map in Section 9 and in Table 15 below.

Table 15: Protected ecosystems and reserve areas

Stand	Area (ha)	Protective Status	Protective Function	Forest Type Description	LENZ Remaining (%)	LENZ Protected (%)	Protection Category
MERI – SECF – 05	9.2	NZ Forest Accord Management Plan Erosion Covenant	Riparian Ecosystem	Warm lowlands softwoods hardwoods	60	58.2	Full
MERI – SECF – 03	7.1		Terrestrial Ecosystem				Passive
MERI – SECF – 04	3.9						
MERI – SCRB – 01	1.9	Passive		Manuka/Kanuka/Broadleaved Hardwoods	33.8	55.6	
MERI – SCRB - 02	97.3	Passive			33.8	55.6	

All protected ecosystems are recorded and ranked on the basis of ecological criteria reflecting the stands representativeness, rarity of species, size and connectivity, function and landscape values. Relative value in terms of the 'ecological landscape' (Section 4) also informs that process.

Actions are prioritised according to the 'Protection Category' status allocated to the areas from the assessments and classifications undertaken (Table 16). The management implications pertinent to each status are summarised in the table below. Prioritisation of work effort will also be

based on the principle of ensuring successful and maintainable outcomes at limited scales as a priority over wide scale but marginally beneficial outcomes.

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Table 16: Protected Ecosystems Management Categories

Protection Category	Primary Management Objective	Activity Level	Monitoring
Passive	• Minimise non-essential damage • maintain area	• Fire protection	• Area- with adjacent stand assessments
	• Observe RPMS obligations	• 3rd party arrangements re: pests • Apply RPMS	• Pests- to meet RPMS
			• General forest health survey
Limited	• Protect from non-essential damage • Maintain area • Maintain function (where practical)	• Fire protection	• Sample forest condition monitoring
	• Observe RPMS obligations	• 3rd party arrangements re: pests, • Apply RPMS • Associated maintenance pest control	• Low level pest monitoring where relevant • Sample related fauna if relevant
Full	• Protect from all controllable damage • Maintain area and function	• Fire protection	• Area monitoring
	• Improve quality	• Specific management	• Forest condition monitoring
	• Observe RPMS obligations	• Targeted pest control • 3rd party arrangements re: pests.	• Pest monitoring where relevant • Related fauna monitoring if relevant
Special	• Restoration if practical	As above, plus: • Fencing • Covenanting • Co-management agreements • Funding where practical	As above, plus • As defined in any restoration agreement

Table 17 details the areas in each protection category within Meringa Station Forest, categorised by protective function.

Table 17: Protected ecosystems management categories by function and area

Protective Function	Protective Category		
	Passive	**Limited**	**Full**
Erosion Control			
Landscape / Amenity			
Non-specific			
Rare Species			
Riparian Ecosystem			9.2
Terrestrial Ecosystem	110.2		
Wetland Ecosystem			
Total Area (ha)	**110.2**		**9.2**

Management and riparian setbacks

A standardised GIS-based stream classification system based on NIWA's River Environment Classification (REC) has been used to develop a rationale for defining riparian management with a set of rules in the EMS that apply to operations occurring near the riparian corresponding with each stream category. Categorisation of each stream reach is done by the physical characteristics of the particular reach, e.g. underlying geology, streambed slope, climate, and reach order.

It also provides the minimum set-backs upon establishment or reestablishment of forest after harvest where riparian setbacks had not existed before. The morphology of streams can mean that the minimum set back is wider in many instances.

The stream categories within the Meringa Station Forest are summarised in Table 18. The total length of waterways within the forest is 0.78 kilometres.

Table 18: Length of stream by REC class

REC Class	Length (km)
Large low wet hard	4.39
Large low wet soft	3.58
Large mod wet soft	0.14
Med low wet hard	13.24
Med low wet soft	1.14
Med mod wet hard	1.24
Small low wet soft	4.02
Small low wet soft	3.67
Small mod wet hard	0.04
Very Small low wet hard	0.03
Very Small low wet soft	0.28
Total riparian length (km)	**31.76**

Rare and threatened species

Records of sightings and locations were originally collected and reported in FIPS, but an app call iNaturalist is now used. Over time these databases have enabled the build-up of a spatial distribution picture of species within different geographical locations.

Recorded sightings within the plantations and indigenous reserves are summarised in Table 19, with bats, dabchick, tui, yellowhammer and kereru all been sighted in Meringa Station Forest. These records are made available to conservation authorities. A listing of key species of interest is held by all contractors and staff, along with the login details for iNaturalist.

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Table 19: Rare and threatened species reported in Meringa Station Forest

NZ Threat Classification System Category	Species	№ Sightings
Nationally Critical	Long-tailed Bat	1
Declining	Longfin Eel	1
	Manuka	2
Recovering	New Zealand Dabchick	2
Not Threatened	Black Swan	2
	Bush Lawyer - White Leaved	2
	Copper Skink	1
	Coprosma rhamnoides	2
	Fantail	4
	Five-finger	2
	Freshwater Crayfish / Koura	1
	Grey Warbler	1
	Hinau	2
	Kahikatea / White Pine	2
	Kereru / NZ Wood Pigeon	4
	Kotukutuku / Tree Fuchsia	2
	Kowhai	2
	Lace Fern	2
	Lancewood / Horoeka	2
	Mahoe / Whitey Wood	2
	Matai	2
	Pate / Seven-finger	2
	Putaputaweta / Marbleleaf	2
	Red Mapou	2
	Rewarewa / New Zealand Honeysuckle	2
	Ribbonwood / Lacebark	2
	Rimu	2
	Sacred Kingfisher	3
	Shaking or Tender Braken	2
	Smooth Shield Fern	2
	Supplejack / Kareao	2
	Tawa	2
	Totara	2
	Tui	4
	Welcome Swallow	1

NZ Threat Classification System Category	Species	№ Sightings
	Wheki-ponga / Golden Tree Fern	2
Unknown	Bully Species	1
	Bat Species	1
Introduced / Exotic	Blackberry	2
	European Oak	1
	Golden weeping willow	1
	Grey Willow	1
	Mallard Duck	2
	Rainbow Trout	1
	Tortured Willow	1
	Yellowhammer	1
Total		**85**

Fish

PF Olsen uses the Freshwater Environments of New Zealand (FWENZ) models to inform the potential for threatened fish species that may be present in streams affected by operations and if necessary any response to such a presence. The Fish Spawning Indicator published by NIWA to accompany the NES-PF is also used, particularly for works over/in stream beds.

Primary management actions in relation to fish, in addition to those already covered under water quality are:

- Development and maintenance of a register of crossings and an inspection routine to ensure fish passage,
- Sound design and construction of all new stream crossings,
- Timing of in bed crossing construction to avoid peak spawning period,
- Minimising damage to streamside environments and provision of setbacks where they were not originally present,
- Identification of, and avoidance and/or buffering of waterbodies during aerial spraying for replanting and *Dothistroma* control or aerial fertilisation if ever required,
- Protection of any wetlands identified within the plantation matrix.

Avifauna

While the local lists of threatened bird species are much more extensive, most of those species habitats are shore, sea, estuarine and river bed focussed. Of the forest birds, many of the more common species listed can be expected to be regularly within or transient through the plantation forest.

Primary management actions in relation to avifauna are:

- Adherence to industry protocols developed for management of NZ falcon kiwi, bats and shortly, lizards.
- Inclusion of threatened species sightings into the PF Olsen sightings database, and subsequently into the NZ Forest Owners iNaturalist – Biodiversity in Plantations Project[6,]
- Minimising damage to natural forest areas and any small wetlands and scrublands during harvest and reforestation, particularly any gully systems that already form natural corridors through the larger plantation areas,
- Promotion of the development of improved riparian corridors after harvest,
- Co-operation with neighbouring landowners undertaking vertebrate pest control within the wider area.

CITES species

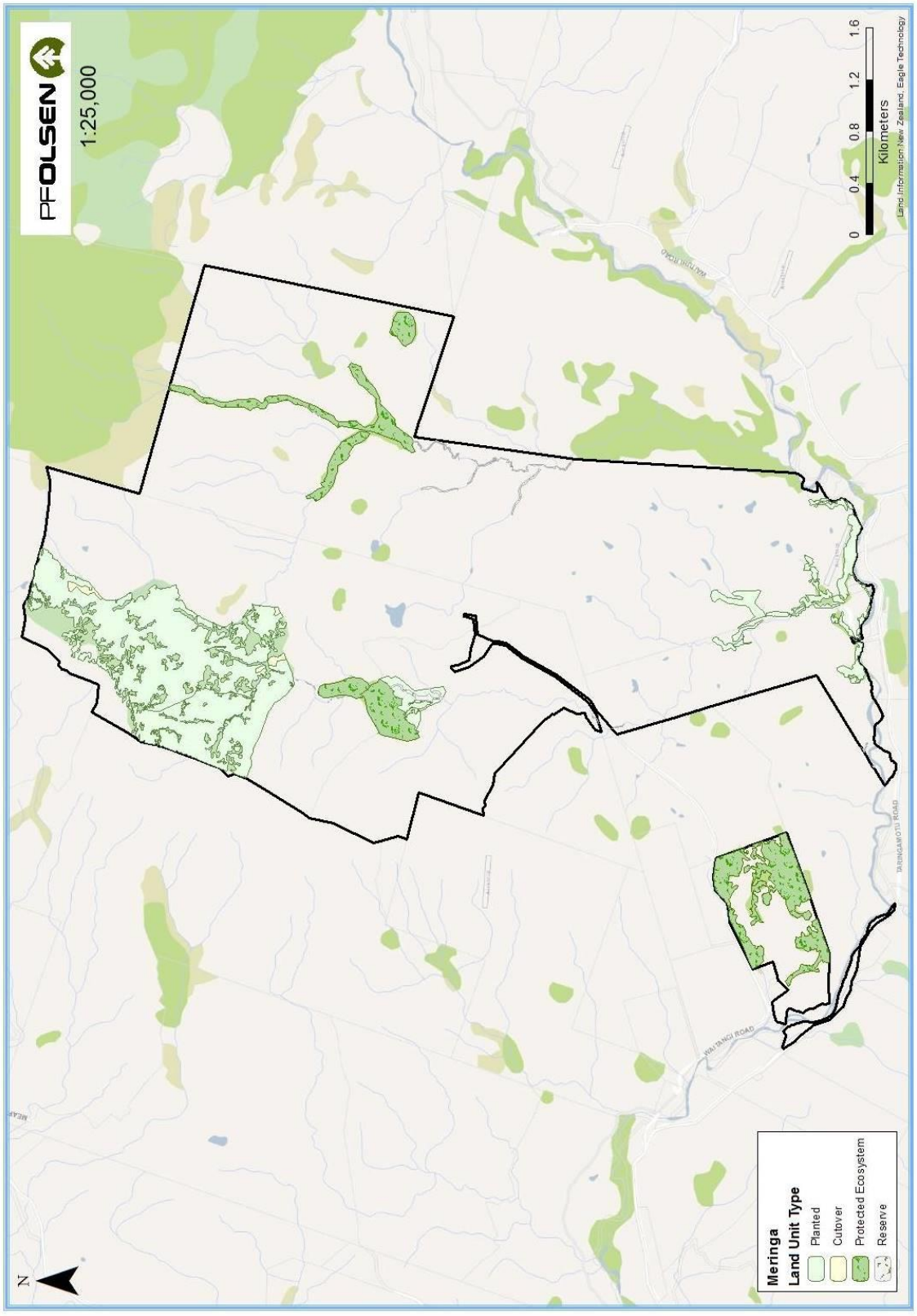
CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments.

Its aim is to ensure that international trade in specimens 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 are available on the Department of Conservation's website.

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

Map 4 - Forest Stands Map



14. Property Management and Protection

Statutory pest obligations

Plant pest management within Meringa Station forest is subject to statutory obligations under the Horizons Regional Council Combined Regional Pest Management Plan and Strategy 2017 – 2037 administered by the Horizons (Manawatu-Wanganui) Regional Council.

The strategy applies to both pest plants and animals and categorises them, in terms of management objectives. The categories, objectives and land owner obligations are summarised the Regional Pest Management Plan. These plans are maintained online by the relevant Regional Council.

Plant Pests

The overall objective in managing plant and animal pests is to:

- Meet statutory obligations under the Regional Pest Management Strategy,
- Reduce their direct impacts on both plantations and indigenous biodiversity values,
- Ensure that any impacts on neighbouring properties are promptly dealt with,
- Monitor the abundance and distribution of these species within Meringa Station Forest.

The major plant species potentially threatening production values within the forest can be seen in Appendix 5.

Pest control

The main animal pests in Meringa Station Forest are the introduced possum and goats. Possums attack the growing tips of both plantation and native trees, causing stem malformation and die back. Possums are also a threat to neighbouring property owners who are farmers as they can carry and spread tuberculosis to domestic stock. The Horizons management objective for possums is suppression aiming to reduce possums to numbers that do not affect regional values. There has been no pest control completed at Meringa Station by the Regional Council for Tb vector control for a number of years.

Goats will also chew the growing tips of young trees and strip bark of trees until the bark hardens. The Horizons management objective for goats is site-lead where a regional value is threatened. There is a high density of goats at Meringa Station forest which have caused damage to the existing tree crop. The trees have grown beyond susceptibility to damage, but intensive pest control will need to be considered for any new establishment.

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Animal pests in Meringa Station Forest will be controlled using ground control methods as required, which prevent impacts on non-target species. The forest manager will coordinate operations with organisations such as the Regional Council and the Department of Conservation to achieve effective and efficient control within the forest area and on neighbouring land, where required.

Pest control has been undertaken in the protected ecosystems over the period of the last plan and this is anticipated to continue as required.

Forest plant pests are low on this estate because of the grazing that restricts plant spread and development of such things as pampas. However, there are wilding pines present within the protected ecosystems and these are being addressed.

Diseases, which can affect the forest trees and adjacent native vegetation, are monitored throughout the year by the forest manager, and once a year by a professional independent forest health assessor. Most diseases cause little damage and do not require control. The exception is *Dothistroma*, a fungus which attacks pine needles. This fungus is controlled using a copper-based fungicide, but only when the infection reaches a critical level.

Dothistroma infection can also be controlled though silviculture by timely thinning and pruning operations, which increases air movement and lowers humidity levels.

Depending on the results of the annual infection inspections there may be a need for Dothistroma control to take place in Meringa Station Forest.

Fire prevention and control

With the weather patterns normally experienced in New Zealand during the period late spring/summer, fire can be a real threat to the forest. This can be minimised by:

1. Having an effective fire plan.
2. Active prevention measures which include restrictions on allowable access, fire prevention signage, publicity when fire danger increases, access to adequate water sources, and selective forest grazing to reduce fuel within stands.
3. Effective detection systems include good communication systems, mapping, and fire plan alert procedures.
4. A close link with the relevant fire authorities, and an understanding of equipment and trained manpower requirements.
5. Good forest management that recognises the influence of terrain, roading network and accessibility, and fuel build-up from silvicultural practice, that will influence fire prevention and control measures.

Fire authority responsibilities

The legal responsibility for fighting forest fires lies with the respective territorial land authorities where the forest is situated. In the case of Meringa Station Forest the Rural Fire Authority (RFA) is the Ruapehu District Council.

In the event of a fire that starts within the forest, the RFA is responsible for attending and providing the resources to extinguish the fire. Where a fire starts outside the forested area and moves into the forest, the RFA has recourse to the Rural Fire Fighting Fund to compensate for firefighting costs.

There is a close liaison with the RFA in terms of developing the fire plan and the maintenance of good communication relative to potential risks and fire danger ratings.

Public liability insurance

It is recommended that Landcorp Farming Ltd maintain public liability insurance cover, with a fire fighting extension, to indemnify against unforeseen adverse activity both within the forest area and adjoining land tenure. In the case of fire spreading from Meringa Station Forest onto adjoining land, Landcorp Farming Ltd would be liable for the firefighting costs and any damage to property.

Landcorp Farming Ltd hold general indemnity insurance with a fire-fighting extension.

Fire insurance

With regard to the location of the forest and the high public activity around the fringes, there will always be the potential for fire. If a fire originates within the forest, the owners will ultimately be liable for suppression costs. A major fire may cost many thousands of dollars to extinguish, with the main costs being the use of heavy machinery, helicopters, and manpower.

In the case of Meringa Station Forest, Landcorp Farming Ltd have a policy of self-insurance.

Other Benefits from the Forest

15. Recreation, Forest Products and Other Special Values

Introduction

Forest plantations may also provide for non-timber forest products that enhance the economic well-being of the owner or legitimate forest users. Non-timber products are an important means of maximising the production capacity of the forest whilst maintaining environmental and social values. The forest management plan provides procedures for developing and managing these resources.

Forests can also provide many other special values, which are also provided for and managed through the forest management plan.

Recreational usage

Recreational usage of Meringa Station Forest is generally reserved for farm staff and neighbours due to security and health and safety concerns. The forest is used for recreational horse and motorbike rides, or to recreationally shoot goat and deer.

The forest does receive some recreational demand from the wider public. Occasionally horse trekkers will pass through the forest and farm as part of a larger trek through the region.

The forest will continue to be open for legitimate use subject to entry by permit. For the last management plan period between 1st January 2016 and 31st December 2018 no forest access or hunting permits were issued.

Non-timber forest products

There are no non-timber products for certified, commercial production currently being produced or developed in Meringa Station Forest.

Other special values

No other special values have been identified in Meringa Station Forest.

Public access roads

There are no public tracks and trials near or within the forest as the forest is located on privately owned farmland. All signage of roads and tracks must be followed and those using the routes will still require a permit if there is any intention to access the forest from the road routes.

These public road locations are publicly viewable in the Walking Access Commission website7. Any users are expected to abide by the Outdoor access code8 published by the Walking Access Commission.

[7] https://www.wams.org.nz/wams_desktop/index.html
[8] http://www.walkingaccess.govt.nz/walkways-and-access/outdoor-access-code

16. Monitoring

Introduction

To ensure that the management objectives identified in this plan are being achieved, various monitoring exercises outside normal operations management have been developed. Monitoring results are summarised and reported to Landcorp Farming Ltd as and when required and are also, where appropriate, made publicly available through the PF Olsen webpage.

Values monitored

Management inspections are undertaken regularly. Table 20 details the full monitoring framework that is implemented and applicable to Meringa Station Forest.

Table 20: Environmental process monitoring framework

Monitored Element	Components	Data Source	Data Medium	Reporting / Website Frequency
Chemical Usage	- A.I Usage - Area Overuse	- Operational Supervisors	- FIPS - Form	- On Demand - Annual
Client Satisfaction	- Post-operation client survey	- Clients	- Survey Form	- Post-operational - Annual
Consultation Activity	- Complaints - Other Interactions	- Operational Supervisors - Planners	- FIPS - Form - Meeting Minutes	- Annual - Annual
Environmental Incidents	- Incident Number - Categories	- Operational Supervisors	- FIPS - Form	- On Demand - Annual
Environmental Goals	- All	- Environmental Management Group	- Meeting Minutes	- Annual
Environmental Training	- Courses - Numbers - Names	- Staff	- FIPS - NZQA	- Annual - Individual
Flora & Fauna	- Species & Status - Frequencies - New Finds	- Operational Supervisors - Public - Crews	- FIPS - Form - Naturewatch	- On Demand - Annual
Forest Estate Structure	- Area: Plantation & Protected Ecosystem - Age-class - Species - Forest Type - Protection Status	- Management Plans - Stand Records	- FIPS Stand Records	- On Demand - Annual

Continued on next page...

…continued

Monitored Element	Components	Data Source	Data Medium	Reporting / Website Frequency
Forest Growth	- PSP Protocols - Periodic Inventory - ISO 9001	- Contractors	- Volume Reconciliations - Estate model	- Periodic-annual - Not on web
Forest Health	- Disease & health	- NFH Surveillance Program[9]	- Document	- Periodic-Annual - Not on web
FSC Membership	- Block - Location - Name	- Certifying Body	- Certificate	- On Demand - Annual
Health & Safety Statistics	- LTI / MTI / TIFR - Accidents & Incidents - Initiatives	- Operational Supervisors	- Noggin	- Monthly - Annual
High Conservation Value Forests	- Condition Trends - Photopoint Monitoring	- Contractors - Supervisors	- Spreadsheet	- Annual
Internal Audit CAR Activity	- Frequency * Category	- Auditors(ees) - Operational Supervisors	- Noggin	- Annual
Log Production	- Total Logs - FSC Certification	- Log dockets at harvest	- Woodtrack	- On Demand - Annual
Operational Monitoring	- Audit Trends - Cause Analysis	- Operational Supervisors	- FIPS - Form	- Monthly - Annual
Pests	- RTC / RTI - Kill Returns - Other	- Contractors - Supervisors - Permitees	- FIPS - Various	- Annual - Where Relevant
Protected Ecosystem Condition	- Condition Trends - Photopoint Monitoring	- Contractors - Supervisors	- Spreadsheet	- Bi-annual if restoration initiated
Recreational & Non-Timber	- Permits Issued	- Branch Offices - Forest Security	- FIPS	- Annual
Resource Consents	- Number - Compliance	- Operational Planners	- FIPS	- Monthly - Annual
Social Survey	- Demographics, Values - Work Conditions	- Contractors	- Survey form	- 3 yearly
Stream Monitoring	- Clarity +/- other specific - Full NOF	- Supervisors - Contractors - BOPRC	- Various	- Operational - BOPRC S.o.E.

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

Other monitoring

Budget versus expenditure is monitored through the PF Olsen FIPS system and presented to Landcorp Farming Ltd when requested. This information is not made public.

Other operational standards are monitored through a variety of concurrent and post operational assessment procedures that cover all critical aspects of the business of the forest. This information which includes log manufacturing quality performance, safety performance, financial and budget performance as well as stakeholder feedback and client satisfaction surveys and other private or commercially sensitive is not made public.

17. Future Planning

Introduction

This plan pertains to the management of Meringa Station Forest and will be adhered to for the next 5 years. Any deviation from this plan will be justified only on the basis that the changes do not adversely affect the environment. Any changes, which are contrary to the policies contained in this management plan, will require a full review of this plan. The next review date for this plan is June 2024.

Deviations from this plan will be justified on the basis that the changes do not adversely affect the environment and are necessary or beneficial to achieving the management goals and objectives.

The forest management plan is used for both medium and long-term planning.

Operation plans

Short term tactical planning is accomplished through development of annual operations plans in conjunction with detailed budgeting. These plans are prepared in accordance with this Management Plan. Harvesting operations are also planned on a block by block basis because of the level of detail required.

This operation plan and associated budget are subject to approval by Landcorp Farming Ltd at the beginning of each financial year.

Stakeholder consultation

Consultation with key stakeholders has been enabled as part of the development of this plan which will be publicly available on the PF Olsen Certification website. Feedback from stakeholders (and others as they become apparent) is monitored, including actions undertaken to resolve disputes and issues and may inform changes in operational practice or future plan reviews.

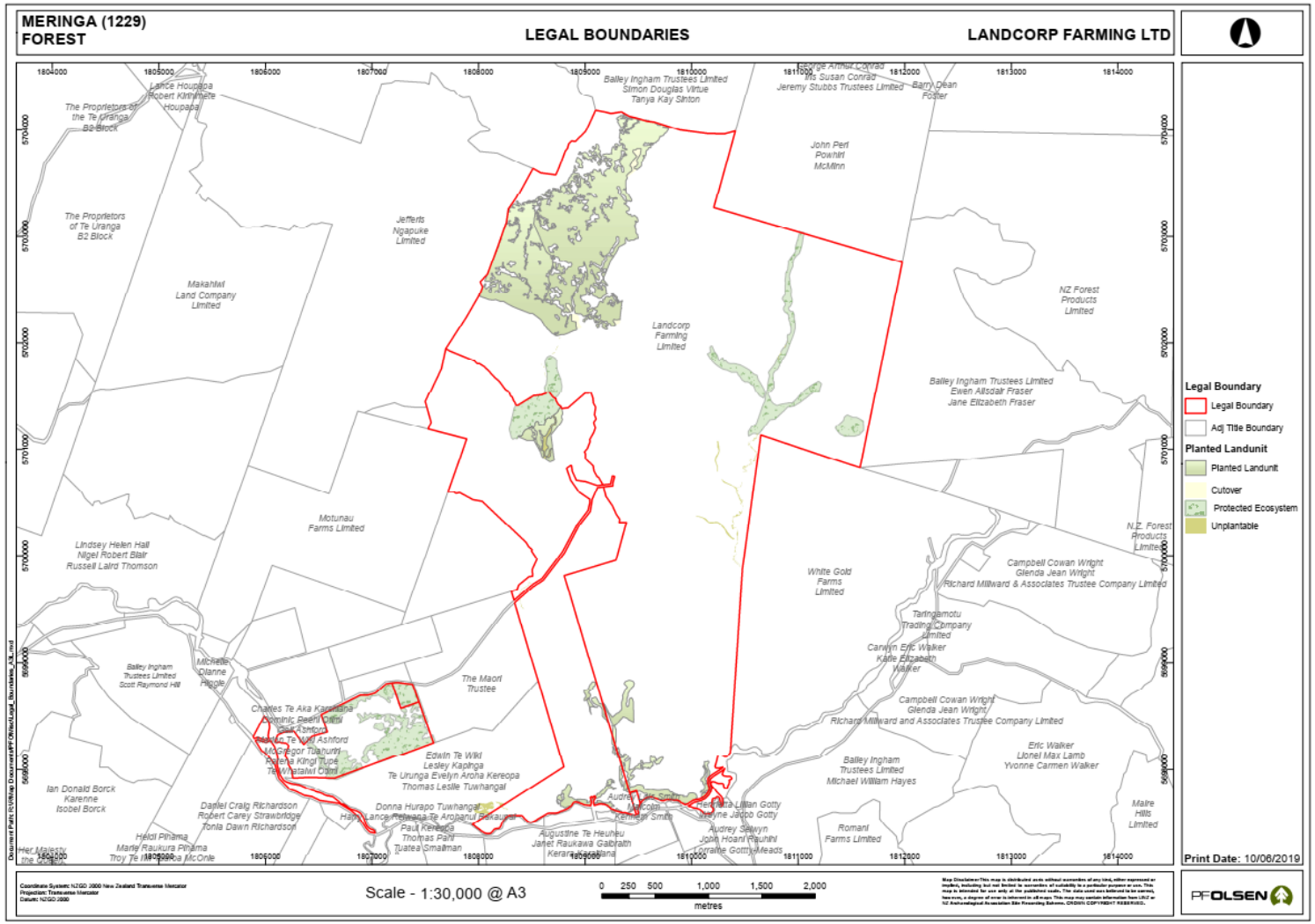
18. Register of Plan Change and Review

Introduction

This plan pertains to the management of Meringa Station Forest and will be reviewed on an annual basis. This section documents specific changes made during each review.

Date	Section / Page	Change

Appendix 1 – Neighbour Location Map



Appendix 2 – Contact details for Regional and District Councils with jurisdiction over Meringa Station Forest

Entity	Phone	Email	Website
Horizons Regional Council	0508 800 800	Web Form	http://www.horizons.govt.nz/
Ruapehu District Council	07 895 8188	info@ruapehudc.govt.nz	https://www.ruapehudc.govt.nz

Appendix 3 – Other Relevant Legislation

Commercially Relevant Statutes & Regulations

- Accident Compensation Act 2001 #49
- Animal Welfare Act 1999
- Biosecurity Act 1993
- Climate Change Response Act 2002
- Conservation Act 1987
- Crown Forest Assets Act 1989
- Fencing Act 1978.
- Fire and Emergency New Zealand Act 2017
- Forestry Rights Registrations Act 1983
- Forests Act 1949
- Forest and Rural Fires Act 1977.
- Forests Amendment Act 1993.
- Freshwater Fisheries Regulations 1983
- Hazardous Substances and New Organisms Act 1996
- Health and Safety at Work Act 2015
- Heritage New Zealand Pouhere Taonga Act 2014
- Noxious Plants Act 1978.
- Pesticides Act 1979.
- Protected Objects Act 1975
- Reserves Act 1977
- Resource Management Act 1991 regulations
- Soil Conservation and Rivers Control Act 1941
- The Treaty of Waitangi Act 1975
- Trespass Act 1980
- Wildlife Act 1953

Relevant regulations to the above legislation also apply as well as various industry Accords, Codes of Practice as listed below:

- New Zealand Forest Accord
- Principles of Commercial Plantation Forest Management
- New Zealand Environmental Forestry Code of Practice
- New Zealand Code of Practice for the Management of Agrichemical
- Climate Change Accord

- NZ Log Transport Safety Accord
- Eliminating Illegal Forest Products in New Zealand
- MoU Federated Farmers and Forest Owners Association and Farm Forestry Association
- New Zealand Forest Road Engineering Manual
- Forest Practice Guides

Appendix 4 – PF Olsen Significant Aspects: Objectives, Targets and Monitoring

PF Olsen Significant Aspects - Objectives, Targets and Monitoring

(within the organisational context)

Objectives

Economic	Legal	Social & Cultural	Health & Safety	Environment
Commercial viability Valuable forest asset Sustainable resource supply Sustainable work	Compliance with the letter Compliance with the intent	Retain our Licence to Operate Respect for our stakeholders, & rights of indigenous people Good employer Accountable in the community	Home safe every day Drug and alcohol free work Culture of care Safest forestry company	Protect biodiversity Protect water Minimise erosion Responsible chemical use

Targets

Economic	Legal	Social & Cultural	Health & Safety	Environment
. Appropriate R.O.L . Maintain and enhance value . Log grade outturn value maximised . Sustained product flows and employment . Appropriate land use	. Zero non-compliance - RMA - Heritage New Zealand Act - Worksafe - Financial - Employment . Professional & transparent . Valid & fair contracts — all staff and contractors . Taxes / payment, and royalties paid	. External complaints < 3% of incidents . Zero unauthorised damage to cultural sites . Customer rankings rising . Recognition of transparency and respect in dealings with Tangata Whenua . Workforce trained and engaged . Communication to community . Contractor / staff training	. Crew visit increase, year on year . LTIFR = 3, TIFR = 7 . Drug free, D&A testing 100% . 100% Safetree signup . Safe Start-up . HPI > 90% close-out by due date . 100% inducted	. Crew performances > 91—92 % Non Compliance = 0, Marginality <1% . Skid check / Post op tail <5% . Zero unauthorised damage to cultural /archaeological sites . Zero unauthorised damage to key terrestrial ecosystems . Rare Fauna BPG's applied . Setbacks on all streams . Chemical A.I usage . Protect enhance key ecosystems (where applicable) . Carbon sequestration . 100 % inducted

Monitoring

Factor	Frequency	Mode
R.O.L against investment model	Annual	Woodstock
Estate valuation	Annual	Financial
Product flows	Annual	Woodtrack
Plantation area / species / reserve trends	5 yearly	FIPS report / GIS
Log quality audits	Continually	Noggin
Client reporting	Monthly	Written
Independent accounting audit	Annual	Written
Forest growth — PSP's, periodic inventory, ISO:9001	Periodic / Annual	FIPS
Forest health	Periodic / Annual	NFH surveillance program
TQM — CAR system	Continually	Noggin
ISO internal audits (sample)	Annual	Noggin

Factor	Frequency	Mode
Regulatory Authority / Worksafe inspections	Monthly	Noggin incidents
Resource consents	Monthly / Annual	FIPS
Archaeological Post-Op AEE's	Monthly	Noggin incidents
Enforcement Actions	Ad hoc	Noggin incidents
Incidents—all forms	Continually	Noggin incidents
Master contracts	Continually	FIPS
Accounts	Continually	FIPS
Formal reporting		
• Manager / Client	Monthly	Written
• SMT	Quarterly	Power Point
• Board	Quarterly	Written
• Company meeting	Annual	Power Point
Independent accounting audit	Annual	Written
TQM — CAR system	Continually	Noggin
ISO internal audits (sample)	Annual	Noggin

Factor	Frequency	Mode
Environmental incidents	Ad hoc	Noggin
Consultation: Pre-certification & post-operation	As required	FIPS / Meetings
Customer survey	Annual	Form
Complaints — meeting minutes	Ad hoc	Noggin + Notes
Social survey	3 yearly	Form
Staff survey	Annual	Survey Monkey
NorthTec gap analysis, NZQA & other training	Annual	Cloud database
1 full day / year environmental advocate training, including cultural awareness	Annual	FIPS training
Formal reporting SMT	Quarterly	Power Point
Recreational Permits	Annual	FIPS
TQM — CAR system	Continually	Noggin
ISO internal audits (sample)	Annual	Noggin

Factor	Frequency	Mode
Safety Incident Management - Statistics & closeout of HPI	Continually	Noggin
Sentinel (near miss)	Monthly	Noggin
Safety system audits	Rolling Quarters	Noggin
D & A testing	Random	External
Safetree	Annual	
Safe Start-ups	Actual	FIPS
Safety Champs Meetings	Bi-monthly	Written
Central Safety Committee	Bi-monthly	Written
Formal Reporting		
• Manager / Client	Monthly	Written
• SMT	Quarterly	Power Point
• Board	Quarterly	Written
• Company Meeting	Annual	Power Point
Induction Records	As required + 5 yearly	FIPS
TQM — CAR system	Continually	Noggin
ISO internal audits (sample)	Annual	Noggin

Factor	Frequency	Mode
Operational Environmental Audits	Monthly	FIPS
Skid checks	Quarterly	FIPS
Environmental Incident Management	Ad hoc	Noggin
Rare Species Sightings Database	Ad hoc	FIPS / NatureWatch
Harvest Planning Checklist	Ad hoc	FIPS
Chemical A.I. Tracking & Weed Matching: review & research	Annual	FIPS
Vegetation / Photopoint monitoring (where applicable)	Annual, Tri-Annual	Document
Water quality	Various	Operational / BOPRC
Regional Branch Compliance	Tri-Annual	FIPS + written
Carbon Sequestration	5 yearly	Estate model
EMG Meeting	Annual	Written
Formal Reporting		
• Manager / Client	Quarterly	Written
• SMT	Quarterly	Power Point
• Board	Quarterly	Written
• Company Meeting	Annual	Power Point
Induction Records	As required + 5 yearly	FIPS
TQM — CAR system	Continually	Noggin
ISO internal audits (sample)	Annual	Noggin

TQM & Roving Quality Managers

Executive Management Team

Appendix 5 – Horizons Plant Pests

Plant organisms classified as pests, their control programmes under the Horizons RPMP, and the agency responsible for management. The plants are listed alphabetically by common name. The page numbers quoted refer to the page in the Horizons RPMP on which the description of the species can be found.

Species	Exclusion	Eradication	Progressive Containment	Sustained Control
African feather grass (pg. 37) *Cenchrus macrourus*		✓ Horizons		
Alligator weed (pg. 37) *Alternanthera philoxeroide*		✓ Horizons		
Arrowhead (pg. 37) *Sagittaria montevidensi*		✓ Horizons		
Australian sedge (pg. 43) *Carex longebrachiata*			✓ Occupier	
Banana passionfruit (pg. 43) *Passiflora species*			✓ Horizons	
Blackberry (pg. 43) *Rubus fructicosus agg.*			✓ Occupier	
Blue passion flower (pg. 37) *Passiflora caerulea*		✓ Horizons		
Bladderwort (pg. 35) *Utricularia gibba*	✓ Horizons			
Boneseed (pg. 43) *Chrysanthemoides monilifera*			✓ Horizons	
Broom species (exotic) (pg. 43) *Cytisus scoparius, Calicotome spinosa* *Genista monspessulana, Spartium junceum*			✓ Occupier	
Californian bullrush (pg. 35) *Shoenoplectus californicus*	✓ Horizons			
Cathedral bells (pg. 37) *Cobaea scandens*		✓ Horizons		
Chilean needle grass (pg. 35) *Nassella neesiana*	✓ Horizons			
Chilean rhubarb (pg. 37) *Gunnera tinctoria, G. manicata and all varieties and hybrids of these species*		✓ Horizons		
Chinese pennisetum (pg. 38) *Cenchrus purpurascens*		✓ Occupier / Horizons		
Climbing alstromeria (pg. 38) *Bomarea caldasii*		✓ Horizons		
Climbing spindleberry (pg. 38) *Celastrus orbiculatus*		✓ Horizons		
Contorta pine (pg. 44) *Pinus contorta*			✓ Horizons	
Darwin's barberry (pg. 44) *Berberis darwinii*			✓ Horizons	
Eelgrass (pg. 44) *Vallisneria species*			✓ Horizons	
Egeria (pg. 44) *Egeria densa*			✓ Horizons	
Evergreen buckthorn (pg. 44) *Rhamnus alaternus*			✓ Horizons	
Field horsetail (pg. 45) *Equisetum arvense*			✓ Occupier	

Gorse (pg. 45) *Ulex europaeus*			✓ Occupier	
Grey willow (pg. 45) *Salix cinerea*			✓ Horizons	
Heath rush (pg. 35) *Juncus squarrosus*	✓ Horizons			
Himalayan balsam (pg. 38) *Impatiens glandulifera*		✓ Horizons		
Hornwort (pg. 45) *Ceratophyllum demersum*			✓ Horizons	
Knotweed (Asiatic and giant) (pg. 38) *Reynoutria japonica and R. sachalinensis*		✓ Horizons		
Lagarosiphon (pg. 45) *Lagarosiphon major*			✓ Horizons	
Manchurian wild rice (pg. 35) *Zizania latifolia*	✓ Horizons			
Moth plant (pg. 46) *Araujia sericifera*			✓ Horizons	
Nodding thistle (pg. 46) *Carduus nutans*			✓ Occupier	
Nassella tussock and Mexican feather grass (pg. 38) *Nassella trichotoma and N. tenuissima*		✓ Horizons		
Noogoora bur (pg. 35) *Xanthium strumarium*	✓ Horizons			
Old man's beard (pg. 46) *Clematis vitalba*			✓ Horizons	
Phragmites (pg. 35) *Phragmites australis*	✓ Horizons			
Purple loosestrife (pg. 38) *Lythrum salicaria*		✓ Horizons		
Queensland poplar (pg. 38) *Homalanthus populifolius*		✓ Horizons		
Reed sweetgrass (pg. 46) *Glyceria maxima*			✓ Horizons	
Rum cherry (pg. 39) *Prunus serotina*		✓ Horizons		
Saffron thistle (pg. 35) *Carthamus lanatus*	✓ Horizons			
Sagittaria (pg. 35) *Sagittaria platyphylla*	✓ Horizons			
Senegal tea (pg. 39) *Gymnocoronis spilanthoides*		✓ Horizons		
Spartina (pg. 39) *Spartina species*		✓ Horizons		
Sweet pittosporum (pg. 36) *Pittosporum undulatum*	✓ Horizons			
Tussock hawkweed (pg. 36) *Hieracium lepidulum*	✓ Horizons			
Tutsan (pg. 47) *Hypericum androsaemum*			✓ Occupier	
Variegated thistle (pg. 46) *Silybum marianum*			✓ Occupier	
Wilding conifers (pg. 64) *(various species)*				✓ Occupier / Horizons
Woolly nightshade (pg. 39) *Solanum mauritianum*		✓ Occupier / Horizons		
Yellow bristle grass (pg. 47) *Setaria pumila*			✓ Occupier	
Yellow ragwort (pg. 47) *Jacobaea vulgaris*			✓ Occupier	

Appendix 6 – Horizons Animal Pests

Animal organisms classified as pests, their control programmes under the Horizons RPMP, and the agency responsible for management. The animals are listed alphabetically by common name. The page numbers quoted refer to the page on which the description of the species can be found.

Species	Exclusion	Eradication	Progressive Containment	Sustained Control
Possum (pg. 64) *Trichosurus vulpecula*	✓ Horizons / MPI			
Rabbit (feral) (pg. 64) *Oryctolagus cuniculus*				✓ Horizons
Rook (pg. 37) *Corvus frugilegus*				✓ Occupier
Wallaby species (pg. 36) *Macropus species*		✓ Horizons		

Note: All of the site-led pest animal species listed in the previous Pest Animal Strategy have been removed and will appear in the new Regional BSP. The reason for this is that Horizons no longer believes it requires rules banning those pests from sale and distribution to effectively manage those pests under site-led programmes. The pests include feral mustelids, feral cats, and koi carp.