

SOUTH ISLAND MANAGEMENT PLAN SUMMARY

2018/19

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1. INTRODUCTION

This document is a summary of the Ernslaw One Ltd. Management Plan for the South Island estate which is certified by Forest Stewardship Council (FSC).

FSC certification is an internationally recognised standard that demonstrates how a company's forests are managed in an environmentally sound, socially beneficial, and economically viable manner. Ernslaw One Ltd. certification was granted through measurement of its operations and practices against the Principles and Criteria developed by FSC which define well managed forests.

Principle 7 of FSC requires Ernslaw One Ltd. to develop a management plan.

Principle 10 of FSC requires Ernslaw One Ltd. to explicitly state in the management plan the management objectives of the plantation, including natural forest conservation and restoration objectives, and which are clearly demonstrated in the implementation of the plan.

The Principles state

Principle 7: Management Plan- A management plan- appropriate to the scale and intensity of operations-shall be written, implemented, and kept up to date. The long term objectives of the management, and the means of achieving them, shall be clearly stated"

Principle 10.1.1: Objectives of tree planting shall be explicit in the management plan, with clear statements regarding the relationship between tree planting and the silviculture, socioeconomic and environmental (i.e. forest conservation and restoration) realities in the region.

Principle 10.1.2: Management objectives for conservation of natural forest and restoration shall be described in the management plan.

Principle 10.1.5: Plantation management objectives, including explicit measures under Criteria 6.2, 6.3, 6.4, 6.9, 6.10, 10.2 and 10.5 intended to maintain and retain indigenous biodiversity, are identified in the management plan and implemented in a timely manner.

Principle 10.1.6: The management plan shall identify the boundaries of the area encompassed by the certificate, which includes the plantation forest plus any designated reserve areas.

This plan is in fulfilment of Principle 7 and the relevant criteria of Principle 10.

This document describes the higher level policies for the South Island estate. The second part details the management plan of each forest under the Ernslaw One Ltd. Certificate SGS-FM/COC-1037.

2. COMPANY PROFILE

Ernslaw One Limited is a private company, registered in New Zealand, with its owners based in Malaysia. The company was established in 1990 when it purchased several Crown Forestry Licences for State Forests from the government, as well as a sawmill. The company has since bought more forests and more land which has been established with trees. Ernslaw One Ltd's primary area of business is plantation forestry. In 2008 the company purchased the Karioi Forest and Pulp Mill, the Waimarino Forest Leases and Tangiwai Sawmill from Winstone Pulp International. A subsidiary company, WPI Limited, operates an integrated thermo mechanical pulp mill and sawmill complex at Tangiwai in the Central North Island

The company has its Head Office in Auckland, and the South Island Regional office in Tapanui. Contacts are as follows:

Head Office:	Private Bag 92826
	Penrose
	Auckland
	Ph: (09) 622 2080
	Fax: (09) 622 2191

South Island Regional Office:	Cemetery Road
	PO Box 36
	Tapanui 9542
	Phone: (03) 204 8061
	Fax: (03) 204 8067

3. MANAGEMENT OBJECTIVES

The mission statement of Ernslaw One Ltd is: “We are committed to creating sustainable softwood forests and delivering premium quality appearance grade wood for products desired by Pacific Rim consumers.” Ernslaw One Ltd’s owners are committed to forestry in New Zealand and have demonstrated this by reinvesting all company earnings back into the New Zealand operation. This commitment has allowed the forest area to increase from the 23,987 hectares purchased in 1990 to a stocked area of 101,700 hectares at 31 December 2017.

4. FOREST RESOURCE

The Southern Region of Ernslaw One Ltd has all of its forests located in rural Otago and Southland (Figure 1).

The following table gives a summary of the areas owned or occupied by Ernslaw One Ltd, their tenure and land use. The land occupied is 29,323 hectares.

Table 1: Ernslaw One Ltd Southern Region Area Summary at 20-1-2017

Region	Cost Centre	Tenure	Total Area (ha)	Stocked Area (ha)	Awaiting Planting (ha)	Indigenous Habitat (ha)	Utilities, Fire Breaks & Gaps (ha)
Otago	Blue Mountains	Freehold	12,866	10,231	908	549	1178
Otago	Clutha	Freehold	5,182	4,104		872	206
Otago	Naseby	Freehold	2,514	1986	38	7	483
Southland	Aparima	Freehold	8,612	6,365	10	1,569	710
		Totals:	29,174	22,686	956	2997	2577

5. SILVICULTURE

5.1. Policy

The South Island Region focuses primarily on growing high quality Douglas-fir sawlogs.

5.2. Methods of Implementation

Ernslaw One Ltd Southern Region has concentrated on establishing a resource of Douglas fir. We currently have 16,467 hectares or 72 % of our Southern Region resource in Douglas fir. The balance of the area consists of 21% in P.radiata and 5% in P.nigra. The remaining 2% is in a variety of minor exotic species including firs, spruce, poplars, pines, cedars, larch and many others.

Radiata pine stands planted before 2002 have been managed to produce clearwood for appearance end uses. This was achieved by adopting one of two regimes; one with pruning to 5.5 metres or a second with pruning to 3.0 metres. Both regimes have final crop stockings of 350 stems per hectare. Tree selection in radiata pine regimes is designed to retain those trees with longer internodes, i.e. longer sections of clearwood between the branch whorls. The products we aim to produce from radiata pine are pruned clearwood logs and clear internode grade logs. Both of these products are used in the appearance grade markets. In stands planted post 2002 a management regime designed to produce high quality small branched unpruned sawlogs has been adopted.

Douglas-fir silviculture is focused on producing medium sized logs with small branches and a high proportion of heartwood. We have two regimes for Douglas-fir, one which involves a single waste thinning and the second, which has an initial waste thinning, followed by a series of production thinning's. The production thinning regime is limited by topography. We envisage that much of the future yield of Douglas fir will be exported as logs or lumber to Asia where it is in demand as a structural/appearance product for building construction.

Corsican pine silviculture is designed to produce post and pole products. The bulk of our Corsican pine resource is planted at Naseby Forest and the silvicultural regime involves multiple production thinning's for post and pole material.

Table 2: Ernslaw One Ltd Southern Region Silvicultural Operations Summary 2016/17

Operation	Total (ha)
Restocking	402
Boron Fertilizing	60
Waste Thinning (radiata pine)	330
Production Thinning (radiata pine)	82.4
Waste & Production Thinning (Douglas-fir)	649
Production Thinning (Corsican pine)	-

6. MONITORING FOREST GROWTH AND DYNAMICS

Ernslaw One Ltd adopts a variety of techniques to monitor forest growth and dynamics. All stands and forest operations are recorded on a computerised stand record system. We maintain a set of detailed 1:10,000 scale compartment maps showing stand boundaries, species, area planted and year of establishment. A selection of stands have permanent sample plots (PSP's) installed following tending and measured for the life of the stand.

Table 3: Averages for most recent PSP Data

Species	No of PSP's	Average Age (yrs)	Mean Annual Increment (m3/ha/yr)	Total Volume Per Hectare (m3)
P.radiata				
D.fir	35	42	18.0	756.0
Dev blk D.fir	74	21	21.0	
Dev Blk P.radiata	5	15	29.9	

Most stands are assessed at mid-rotation and pre-harvest using MARVL (Method of Assessment of Recoverable Volume by Log-Type) inventory. Ernslaw One Ltd is also a member of the Forest Future Forests Research Limited and uses a range of modelling tools including the D.fir and P.rad Calculators and a linear programming tool called Woodstock.

Table 4: Summary of MARVL Inventory Data for Previous 5 Years

Year Assessed	Inventory type	Area Inventoried (ha)	Mean Annual Increment (m3/ha/yr)	Total Recoverable Volume (m3/ha)
2017	PHI	200	-n/a	-
2016	PHI	507	22.3	508.7
2015	MRI	593	20.0	n/a
2014	Pre harvest	113		636
2013	Pre harvest	151		

7. HARVESTING

The current level of harvesting has been increased from 140,000 to 180,000 m³/year from clear felling and production thinning from Blue Mountains and Naseby. The rationale for the rate of annual harvest is limited by the age class of the forest. We have a target clearfell age of 28-30 years for Radiata pine and 40- 45 years for Douglas-fir. Our forest cut is modelled using a linear programming tool known as Woodstock to evaluate and optimise harvesting rate options. For the period July 2016 – June 2017 approximately 330 ha was clear-felled consisting primarily of Radiata pine and Douglas-fir.

8. CARBON FORESTRY

With the passing of the Climate Change Response Act 2002, the scene has been set for development of initiatives to assist with addressing climate change. The creation of the Emissions Trading Scheme (ETS) has provided Ernslaw One Ltd with an opportunity to derive additional value from the forest resource, through the sale of carbon credits.

Throughout the 1990's Ernslaw One Ltd developed new Douglas-fir forests on company owned freehold land which had not previously been under forest cover. As these are forests established after 1990 i.e. Post-1989 forests, they are eligible for entry into the ETS.

The South Island has two regions entered into the ETS, namely within:

Aparima	(Avondale, Barnhill, and Gowan Forests)
Clutha	(Bungtown, Dunkeld, Glenelg, Halwyn, and Morven Forests)

The Forest measurement approach carbon inventory system has been implemented by MPI and the Ernslaw One Southern Region has 84 plots installed, each with its own carbon yield table to provide a greater accuracy of carbon sequestration across the estate. These plots will be remeasured on a 5-year cycle.

The main variable that controls carbon stocks at any given time during a rotation is the thinning regime and the decay or removal of thinning residues. Model outputs for the look-up tables have been averaged based on commonly used thinning regimes and the proportion of forest area thinned. If the regime applied to a forest that will be included in an ETS return does not follow an average thinning regime, the field measurement approach may be required to accurately calculate the amount of carbon sequestered. Pruning is not currently factored into the look-up tables for calculating carbon stocks, nor has it been deemed to have a significant impact on carbon sequestration.

9. EMPLOYMENT SUMMARY

Ernslaw One Ltd Southern Region currently has 11 people employed as salaried staff. There are seven silviculture crews, five harvesting contract crews, a roading contractor and all log transport is contracted out to local businesses. In total approximately 100 people are currently employed on contract within the Southern Region forests.

10. ENVIRONMENTAL PERFORMANCE & COMMUNITY INVOLVEMENT

Ernslaw One Ltd has had an Environmental Management System (EMS) in place since 1998. The EMS identifies our processes and procedures and who is responsible for these. It incorporates an Environmental Incident Procedure, Heritage Site Management, Riparian Management and Monitoring Strategy. The EMS covers consents and permits, both internal and external communication and incorporates an audit and review process. It is a comprehensive document that allows us to meet a high standard of environmental performance.

In 2005 a new section was added to the EMS entitled “Vista Management for Outstanding Landscapes” to summarise the known outstanding landscapes, how we can influence them and how we should manage activities around them. We have reviewed the Integrated Pest Management Strategy to convert the two regional strategies into a national strategy for the company. This process has included a review of chemical use procedures and development of a national chemical use policy. All documents are now housed in an updated Establishment and Silviculture Manual so that staff can access everything they need from one place when considering carrying out spraying or pest control operations.

In November 2007 the Forest Owners association released the New Zealand Environmental Code of Practice for Plantation Forestry. These best practice guidelines have been adapted by Ernslaw One Ltd and copies of the field guide are carried by all harvesting and silviculture crews.

As part of a continual process to reduce the use of agrichemicals Ernslaw One has introduced a stand weed assessment protocol to be employed during the inter rotation period and in the 2 years following replanting. The intention is that only the stands requiring treatment will have residual herbicide applied. Others will receive alternative weed control treatment or nothing depending upon requirements. In its first year of application this policy resulted in a 22% reduction in the use of tree release herbicide.

The closest forests are approximately one hour’s drive from the main cities of Dunedin and Invercargill. Most of the forests are remote from rural settlements and have a low level of recreational use. However Naseby Forest is the exception with the forest extending right up to the town boundary and attracting a high level of recreational use. Naseby is split into a production forest area and a recreational area, which is still managed for production but with greater sensitivity. The recreation area contains many tracks for walking and mountain biking, ponds stocked with trout for fishing and historic gold mining areas to explore.

Ernslaw One is a committed stakeholder of the Blue Mountain Hunter liaison group and has representatives attend all group meetings. Public recreational hunting continues to be available on a weekly ballot for 12 blocks on the Blue Mountains. With more than 200 hunters registered online hunting remains our most popular forest recreational activity. Permission for all publically accessible Otago and Southland forests can be applied for on line at www.Ernslaw.co.nz. Other blocks are available for contractors and locals by arrangement with the forest manager.

For the year from 1st January 2017 to 30th December 2017 some 230 users made over 15,000 applications to hunt in the forest. In addition 20 general entry permits for recreational activities were issued. These permits do not take into account access to the recreation area at Naseby Forest where permits are not required.

Ernslaw One makes donations of logs for firewood fundraisers benefiting local charities and also for local chopping competitions.

Ernslaw One continues to support local community groups fund raising efforts through donations of firewood or opportunities to earn cash for cone picking from the Ettrick seed orchard. Typically this is a very well supported fundraising venture involving upwards of 25 people per day for 2-3 days.

11. IDENTIFICATION AND PROTECTION OF RARE, THREATENED AND ENDANGERED SPECIES

A system has been implemented where staff conduct a walk through of all stands identified in the five year cut plan in order to assess their likelihood of hosting rare, threatened or endangered species. For example, high altitude stands and those with significant wetland features (>1.0 ha) are surveyed by suitably qualified ecologists before harvesting operations begin. Areas containing RTEs are demarcated on harvest planning maps, GIS, and on the ground, where necessary, for exclusion.

Ernslaw One staff assist with the Department of Conservation operation Arc programme to protect the endangered Mohua which inhabit the Blue Mountains. The most recent population survey conducted in October 2014 revealed that the bird counts on the Garden Gully and Rankleburn lines were the highest recorded since the current monitoring method was implemented in 2007; slightly higher than the previous highest counts recorded in 2012.

We have continued recording NZ Falcon sightings in an online database – NatureWatch. From time to time, as required, forest harvesting or land disturbance operations are delayed to allow falcon to nest uninterrupted.

SPS Biosecurity Ltd, formally Target Pest, has taken over the contract for the indigenous vegetation monitoring plots that were established in 2005. The third measurement was completed in the 2009 summer and monitoring of these plots has now switched to every ten years.

A qualified botanist is engaged with Inventory crews to identify any rare threatened or endangered plants (as listed in the FOA regional RTE's list) at the time of carrying out pre-harvest inventory. Should these be identified a management plan will be formulated before any disturbance is started.

The National Institute of Water and Atmospheric Research (NIWA) carried out a stream classification exercise covering the Ernslaw One Ltd estate. This has been used to select 39 sites for field sampling survey of our waterways. Fieldwork is carried out by our in house fresh water ecologist using the NIWA stream health monitoring kit (SHMAK) and a stream health report is produced periodically. In addition all ponds and streams on the estate are regularly monitored by staff for indicator species such as frogs and Koura.

An indigenous vegetation survey program has been carried out across the region. Reserve areas are categorised and recorded in a GIS layer. Further surveys to monitor the health of selected indigenous reserve areas are carried out periodically.