

FOREST DIVISION MANAGEMENT PLAN

Business objectives

- Participate in the Pan Pac supply chain by providing:
 - Accurate wood resource descriptions
 - Integrated and transparent plans
 - Log requirements for the operating and sales plan
 - Infrastructure and shipping to meet the operating and sales plan
- Manage Pan Pac Forest Estate:
 - To maximise value to the company
 - On a long term sustainable basis
 - In accordance with the Forest Stewardship Council (FSC) principles and criteria
- Provide forest services that are consistent with Pan Pac's wood supply strategy
- Target maximum overall return through log supply optimisation

Description of the forest resources to be managed

(Taken from the "Resources" page of the website)

The Forests

Pan Pac Forests is the major forestry company in Hawke's Bay with a total planted forest area of 33,500 productive hectares. Pan Pac Forests has Crown Forestry Licences (CFL) for the four Hawke's Bay ex-State forests (Esk, Mohaka, Gwavas and Kaweka) giving it ownership of the trees. Pan Pac manages the CFL forests in the same way as its own freehold Tangoio Forest

Location Map

Please click on the thumbnail map image on the Resources page

Forest statistics

Please click on the thumbnail image on the Resources page

Description of the silvicultural management system

(Taken from the "Forest operations" page of the website)

Establishment

Land preparation prior to planting can include slash raking, ripping, crushing, cultivation, drainage, firebreaking, burning, scrub cutting, aerial spraying and oversowing.

Oversowing helps suppress aggressive weeds, adds nitrogen and helps protect the soil from erosion, especially on steeper slopes and stream banks.

Traditionally, planting is carried out during the winter months (May to September) when rainfall levels are generally high and the trees are dormant and can best withstand the shock of transplanting.

Planting is done manually with strict quality controls for both the planting stock and the planting method.

Releasing is the term used for controlling weed growth immediately around the newly planted tree and is done using selective herbicides.

Blanking (filling in significant gaps arising from loss of seedlings) is a treatment carried out in the following planting season.

Silviculture

Pruning is the removal of the lower branches, which if left produce knots, grain distortion, loss of strength and visual blemishes in the timber.

Pruning is carried out in three separate operations:

- 1st Prune to approx. 2.8 metres, or 10cm internode diameter, at age 4 to 5
- 2nd Prune to approx. 5.0 metres, or 10cm internode diameter, at around age 6 to 7
- 3rd Prune to approx. 6.5 metres, or 10cm internode diameter, at age 8

Thinning is the removal of a proportion of the stand's trees to allow the remaining trees better growing conditions with reduced competition for sunlight, water and soil nutrients. In selecting trees for removal the first priority is dominant malformed trees then suppressed or sub-dominant trees. Thinning is carried out anywhere between age nine and 14 depending on the stocking.

Production thinning is when the thinned stems are extracted to be used for pulp production and yields approximately 100 tonnes per hectare.

Fertilising is rarely necessary and is only carried out in areas deficient in essential mineral nutrients. Nitrogen, phosphorus and boron are the main chemical elements that need remedying.

Forest grazing with sheep and cattle reduces fire danger and controls some weeds. Also, grazing benefits neighbouring farms by providing supplementary feed for their stock.

Forest Security

Plant and Animal Pests

Pan Pac Forests complies with the strict requirements of the Hawke's Bay Regional Council's Pest Management Strategy regarding the control of animal and plant pests. Pest control contractors are employed for the control of possums, goats, rabbits and hares.

An example of a plant pest is wilding contorta pine, which is of particular concern in the Kaweka area. Pan Pac Forests aims to prevent, to the best of its ability, the spread of wilding trees into natural areas from within its plantation boundaries. Other plant pests requiring control are defined by the Regional Council.

Fire

Pan Pac Forests is a key stakeholder in the Bay Forests Rural Fire District (BFRFD). The BFRFD was set up to protect the major forest areas in Hawke's Bay from fire.

Pan Pac Forests staff follow the Fire Plan provided by the Bay Forests Rural Fire District.

Both staff and contract personnel are trained in fire prevention and suppression and fire safety

Rationale for Rate of Harvest & Species Selection

(Taken from the "Resources" page of the website)

The target clearfell age for radiata pine is 28 years. The rate of harvest is determined using leading edge forest estate modelling software. The resource is over 99 percent Pinus radiata.

Current Annual Clearfell Harvest rates in tonnes:

Radiata pine	Douglas fir
700-750,000	4,000

Production Statistics

Please refer to the production statistics link on the Resources page

Provisions for monitoring of forest growth

(Taken from the "Resources" page of the website)

Pan Pac Forests has 113 permanent sample plots (PSPs) monitoring forest growth in all its forests covering all age classes. They are primarily used to validate yield prediction models.

Forest health is monitored annually by aerial and ground survey of a sample area of each forest by a contract forest health inspector while day-to-day monitoring is carried out by Pan Pac Forests field staff who are trained in forest health surveillance.

Nutrient levels are monitored by foliage analysis of all stands at age 4 and soil analysis of all sites prior to planting.

Pest control is ongoing with pest control contractors using a variety of poisons and trapping methods. Monthly tallies are recorded and reported.

Environmental safeguards based on environmental assessments

(Taken from the “Environmental management” page of the website)

Pan Pac strives for environmental excellence in forest management.

Company Environmental Rules and Guidelines set standards for all operations. Forest operations are monitored to ensure the impact on the environment is minimised. We respect the value of historic and cultural sites. All forest and any new land prior to purchase have an archaeological survey to identify historic or waahi tapu sites. Contact Pan Pac for a copy of the Company's Environmental Rules and Guidelines.

A significant proportion of our land is covered by indigenous forest and scrub. This has been assessed and mapped so that significant areas can be better protected. Threatened species and their habitat have been surveyed and described. Details are contained in Pan Pac's Ecological Management Plan. Contact Pan Pac for a copy.

Environmental Monitoring

Pan Pac Forests' monitoring programme assesses the company's environmental performance by comparing actual performance against legal requirements, company standards, and environmental objectives and targets.

Types of monitoring include:

- Visits prior to, during and after an operation
- A Post Operation Assessment Checklist (POAC) is completed immediately prior to completion of all operations or at the end of each month leaving a “paper trail”. 10% of POAC's are internally audited.
- Plant and animal pests
- Incident records/database
- Compliments / Complaints records/database
- Research is used extensively to monitor environmental effects of operations. Current research includes:
 - Water quality
 - Ecology
 - Soil
 - Catchment studies
 - Agrichemicals
- A Recreation Registrar keeps a record of individual users, compiles statistics and provides information for the review of recreational policy
- A comprehensive land information system records and monitors spatial data of all forest areas.

Pan Pac's forests gain environmental certification from Forest Stewardship Council (FSC)

Pan Pac achieved Forest Stewardship Council (FSC) Certification in December 2001. FSC certification means that the forests are managed according to strict environmental, social and economic standards.

Pan Pac 's sawmill also achieved FSC 'chain of custody' certification. This ensures that the sawmill can track the FSC logs from the forest, through the log yard and milling process to the labelled FSC sawn products.

What is FSC?

The Forest Stewardship Council (FSC) is an independent, non-profit, nongovernmental organisation. It was founded in 1993 by a diverse group of representatives from environmental and conservation groups, the timber industry, the forestry profession, indigenous peoples' organisations, community forestry groups and forest products certification organisations from 25 countries.

The FSC supports environmentally appropriate, socially beneficial and economically viable management of the world's forests. They have developed a set of principles and criteria for forest stewardship. Forests are evaluated by independent accredited organisations and, when certified, forests are visited on a regular basis to ensure they continue to comply with the Principles and Criteria. Products originating from FSC certified forests are eligible to carry the FSC logo.

More information is available from www.fsc.org

Plans for the identification and protection of rare, threatened and endangered species

Threatened species and their habitat have been surveyed and described. Details can be found in Pan Pac's Ecological Management Plan available from Pan Pac. This plan helps to ensure that Pan Pac meets or exceeds relevant legal and local authority plan requirements, codes of practice, and the Forest Stewardship Council's (FSC) principles and criteria relating to ecological values.

The following have been found:

- Falcon in Esk, Gwavas, Kaweka and Mohaka forests
- Kiwi in Esk, Kaweka and Mohaka forests
- Blue Duck in Esk Forest
- Long-tailed bats in Esk, Gwavas and Mohaka forests
- Kakabeak in Esk Forest

Maps showing the forest resource base including protected areas, planned management activities and land ownership

Forest Division has a comprehensive GIS-based mapping system clearly indicating:

- Land ownership and legal boundaries
- Protected areas such as:
 - Archaeological sites and waahi tapu
 - Natural vegetation protected by covenant, local authority planning rules or voluntarily e.g. areas as described in the NZ Forest Accord
- Planted areas and areas to be harvested in the near future

Description and justification of harvesting techniques and equipment to be used

(Taken from the “Forest operations” page of the website)

Harvesting or logging is the felling, extraction, processing and stockpiling of trees and logs.

The decision to use groundbased log extraction, generally by skidder, tractor or excavator, or cable logging by skyline machines, is based on the topography and perceived environmental impact on streams, wetlands, lakes or other sensitive sites. Each individual harvest setting is assessed taking into account environmental and safety considerations and productivity.

Cable logging operations represent 70% of all log extraction.

Forest harvesting is carried out by several contractors running 18 or more crews which requires over 180 harvesting workers.