

# Public Summary (December 2021)

Northland Forest Managers (1995) Limited (NFM) predominately manages the Forests which Greenheart Group either owns or holds forestry rights to. As part of FSC approval this document provides a summary of NFM's primary elements of our forest management plan

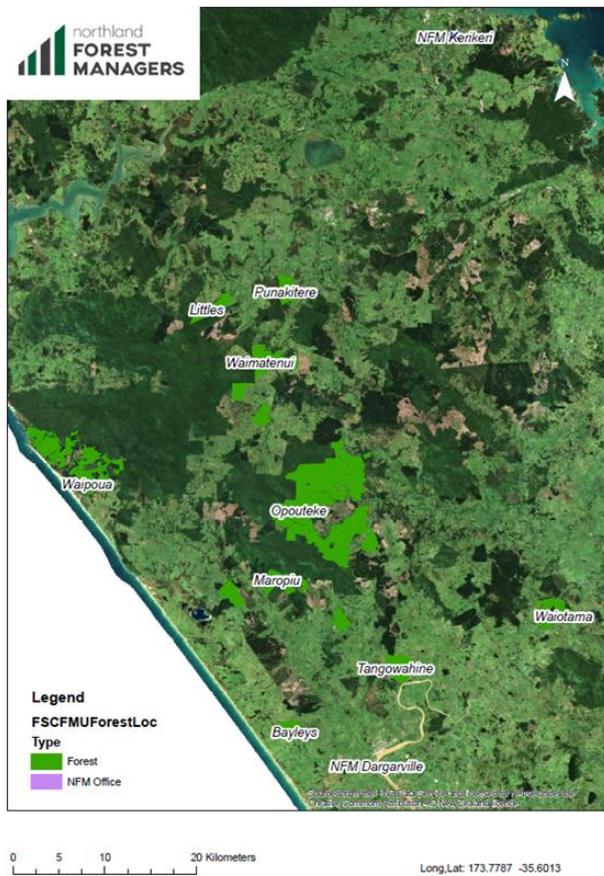
## Management Objectives

- To provide shareholders with a maximised sustainable return on their investment by using up-to-date techniques, methods, processes, and having trained and competent staff.
- To engage with all workers on health and safety matters that may directly affect them and to have practices that give workers reasonable opportunities to participate effectively in improving health and safety in the organisation or undertaking on an ongoing basis.
- To consult, co-operate and co-ordinate activities with additional PCBU's where duties overlap to meet shared health and safety responsibilities to all workers and others.
- To have a risk management process that identifies, assesses, manages and controls risks throughout the organisation's operations.
- To provide adequate information, instruction, and training for workers and additional PCBU's to increase personal understanding of health and safety work risks and to ensure proper supervision and support, including proper handling of hazardous substances.
- Operate in a manner consistent with the principles of the Treaty of Waitangi.
- Engagement with local stakeholders collaboratively to ensure optimal outcomes for employment, and community opportunities and benefits for the wider forestry industry as a whole.
- To protect and enhance the biodiversity within the forest area, while protecting the wider environment from negative impacts through compliance with the Resource Management Act, and the principles of FSC.

## Forest Resources

FSC registration is being sort for following 9 exotic forests in Northland.

Estate	Forest	Non_Prod (Ha)	Productive (Ha)	Total (Ha)	GPS	Ownership	Rotation	Species
GHT/MFV Estate (Greenheart)	Baylys	38	408	446	-35.922,173.761	Freehold	2nd Rotation	P.Rad
	Littles	41	417	458	-35.494,173.67	Freehold	2nd Rotation	P.Rad
	Maropiu_Montieths	190	1236	1426	-35.776,173.753	Freehold	1st and 2nd Rotation	P.Rad
	Opouteke	1680	5707	7386	-35.688,173.808	Freehold	2nd Rotation	P.Rad
	Punakitere	131	308	439	-35.939,174.197	Freehold	2nd Rotation	P.Rad
	Tangowahine	22	514	536	-35.855,173.887	Freehold	2nd Rotation	P.Rad
	Waimatenui	315	1165	1480	-35.56,173.725	Freehold	2nd Rotation	P.Rad
	Waiotama	46	643	689	-35.797,174.07	Freehold	2nd Rotation	P.Rad
	<b>GHT Total</b>	<b>2463</b>	<b>10397</b>	<b>12860</b>				
Te Rorora Waipoua	Waipoua	40.2	1956	1996	-35.664,173.516	Forestry Right		P.Rad
<b>GRAND TOTAL</b>		<b>2,503</b>	<b>12,353</b>	<b>14,856</b>				



These forests are spread over a geographic area from Latitude 35.936S to 35.466S (approx. 160 km). The terrain can vary from rolling to steep hill country. The region is sub-tropical characterised by high humidity and rainfall.

The forests altitude ranges from just below 100m above sea level, to around 500m above sea level, and are characterised by broken topography often requiring both ground-based and cable-based logging to achieve optimal outcomes. Soils can be erodible, and many forests form catchments for waterways in the district.

The Northland region is rich in biodiversity, with the Far North District Council recent Significant Natural Area work, estimated that 40% of the land area in the district was significant, up from 30% in 1999. The forests have their own pockets of indigenous forest, some of which provide habitats for rare threatened and endangered species of flora and fauna, including areas of New Zealand Forest Accord. The Northland regions contain 13 species across all Kingdoms including Bittern, Long Tailed Bats, Heron, and Dwarf mistletoe. FSC certification

has prompted investigation into the indigenous forest areas of the estate and work will begin on restoration of these areas to enhance biodiversity

## Soils

Over 60% of the soil type in the Greenheart Estate are;

- Mottled oxidic granular soils: Oxidic Soils are clayey soils that have formed as a result of weathering over extensive periods of time in volcanic ash or dark volcanic rock. Despite high clay contents the soils are friable, with low plasticity and fine structure. They contain appreciable amounts of iron and aluminium oxides Source: soils.landcareresearch.co.nz
- Weathered orthic recent soils: Orthic Recent soils are ordinary Recent Soils found mainly in sites that have been eroded.

While the Waipoua Forest contain 62% Sandy Ultic Soils occur in strongly weathered aeolian sands.

- Sandy Perch-gley Ultic Soils: Ultic Soils are strongly weathered soils that have a well-structured, clay enriched subsoil horizon.

## Surrounding Lands

- The forests are generally situated alongside other exotic or native forests as this is a suitable land use for some of Northland's tougher terrain. However, some forests still border farm land, with many of the previous land uses being farming

## Socio-Economic Environment

	Northland Region			All NZ
	2006	2013	2018	2018
European (%)	68%	76%	73%	70%
Māori (%)	32%	32%	36%	17%
Pacific peoples (%)	3%	3%	4%	8%
Asian (%)	2%	3%	4%	15%
Middle Eastern/Latin American/African (%)	0%	0%	1%	2%
Other ethnicity (%)	11%	2%	1%	1%
Median Income			\$31,800	\$24,800
Employed full-time (%)	45%	41%	43%	50%
Employed part-time (%)	15%	14%	15%	15%
Unemployed (%)	4%	6%	5%	4%
Not in the labour force (%)	36%	38%	37%	31%
No Qualification			23%	18%
Home Ownership %			68%	65%

Source: statistics New Zealand

## Management systems

Economic analysis has guided the management of forests to a Framing regime, rather than a clear-wood regime. This has shown investment and timeframe vs the differential return is currently classed as uneconomic.

The framing regime, like others, requires a high-quality establishment program to ensure that all planted areas will result in optimal stocking, and thus yield and returns. This is achieved through site specific pre plant and post plant treatments, along with planting quality control, survival surveys and blanking. Further into establishment analysis is carried out to determine that sufficient nutrients are present, and amendments made if necessary

The main treatment for the framing regime is thinning which typically occurs when the trees reach 9 to 11 metres in height. The poor quality, and over stocked trees are removed allowing up to 17 years of optimal conditions for the remaining stems.

To ensure the forest reaches it potential mid rotation inventories are completed, and the results feedback to the establishment and management team to make improvements to treatment regimes and fed forward into planning and forecasting models.

Prior to Harvest Pre-Harvest Inventories are completed to ensure that resource planning is sufficient to meet the anticipated demand.

Access to the forests is maintained over their lifetime through track clearing, and water control maintenance, this ensures that monitoring can be carried out, along with providing access to reserve areas for enhancement and monitoring activities.

After heavy rain events, forests are inspected to determine if any remedial work is required

## Species selection & Harvesting

Pinus Radiata is the primary species in the estate. Historical risk-return based analysis excludes other species from the forests at this stage.

The harvest regime is influenced by tree growth rates, market returns, shareholder expectations, environmental risk along with sustainability of employment. By harvesting some forests at high rate, the local community are exposed to shorter durations of interruption to their daily lives.

Three horizons of planning are completed for the plantations.

- Strategic (long term) which looks at the full rotation expectations
- Tactical (medium term) which looks at expectations over the next 3 to 5 years
- Operational (short term) which looks annually at expectations
  - This is monitored monthly to ensure that expectations can be achieved

## Monitoring

The timeframe compared to other crops, means that monitoring and feedback into the system, of tree growth ensures that at harvest optimal tree growth, yield and quality has been achieved.

Seedling quality – seedlings need to meet a required specification to be plantable, audits are carried out to ensure that the nursery supplied stocks meets standards.

Planting QC – planting contractors are provided with prescriptions outlining planting techniques, stocking rates etc. Audits of these factors are carried out by NFM supervisors.

Tree Nutrition – samples of needles are taken and analysed to ensure no deficiencies exist.

Thinning QC – At approximately 11m, trees are thinned to the required stocking rate by contractors. QC of thinned plots ensures the prescription is being met.

Mid Rotation Inventory – During thinning, inventory of the standing trees is taken to ensure that growth rates meet expectation.

Pre-Harvest Inventory – Pre harvest inventories allow for specific planning of timeframes, optimal product mix and other logistics to ensure that harvesting proceeds in an organised manner.

In addition to the forest management monitoring outlined above environmental monitoring is conducted to

- Ensure that any impacts of the environment are mitigated, and the strict harvest planning requirements are being met
- Monitor the state of the ecological regions within the forest

Harvest plan compliance – internal auditing to the harvest plan ensures the mitigation strategies are effective in protecting the environment.

Water Quality – NFM is initiating water quality sampling pre, during and post operations around strategic waterways to increase its understanding and management required to protect these valuable resources.

Pest Management – professional animal control contractors are used to control pests in the forests, with a focus on wild goats. These contractors record observations and culls as part of their routine work. This gives

an indication of how management plans are proceeding and what adjustments need to be made. In 2021, 734 Goats have been culled in the Opouteke Forest.

## Environmental safeguards

The **Resource Management Act** and the associated **National Environmental Standard – Plantation Forestry** provide strict requirements around 8 operational areas. The requirements determine what is acceptable practice when conducting any task in a forest. Operations require approval from the Northland Regional Council before they are undertaken.

The Northland Regional Council – **Regional Plan** – specifically the air quality sections set out controls to be used around the use of agrichemicals in the environment.

The NFM **Environmental Management System (EMS)** set internal standards for work in the forests in combination with monitoring frequency and reviews.

NFM via Greenheart is bound to comply to the **New Zealand Forest Accord**. The Accord was signed in 1991 and is an agreement between member forestry companies in New Zealand and environmental non-government organisations to promote the protection of certain classes of indigenous forest. NFM is not involved in the harvest of indigenous forest.

NFM is progressing to **FSC accreditation** which requires annual compliance auditing and requires a continuous improvement philosophy especially in the areas of environmental and social sustainability.

## Ecological Areas

NFM has engaged an ecological consultancy to assist it determining the biodiversity and ecological quality of the non-forest areas on the land it manages. This will result in a rating system and action plan for the areas of special significance in the estate.

High Conservation Value (HCV) areas identified using an ecological consultant.

HCV Name	HCV Rating	Area(Ha) within the FMU
<a href="#">Marlborough Forest</a>	2	635
<a href="#">Te Toa Bush</a>	1,2	77
<a href="#">Okaharau Bush</a>	1,2	47

As part of the work for the National Policy on Biodiversity the local councils have completed significant work identifying Significant Natural Areas (SNA's), a number of which are within or intersect the NFM Managed forests.

## High Conservation Value (HCV) areas

NFM has identified areas within the Forest Management Unit that meet the criteria of the FSC's High Conservation Value areas. Management plans are being developed for these in consultation with key stakeholders such as the department of conservation, Fish and Game and territorial authorities.

All HCV areas management plans will be reviewed annually, and management plans adjusted accordingly.

## Rare Threatened and Endangered species (RTE)

As part of this ecological work identification of habitats that may contain RTE is planned, and over time protection and enhancement plans for these areas will be identified.

All forest staff and contractors are given training on identification of RTE's and reported sightings are collated and added to the INaturalist website under NFM's registration.

## Archaeological sites

NFM works closely with local iwi and heritage New Zealand (especially in the Waipoua Forest) to actively protect archaeological sites.

NFM has a subscription to the NZAA website which identifies all registered archaeological sites in New Zealand, this information is used to ensure that NFM's strict policy of not disturbing these sites is planned for and enforced. All contractors have an accidental discovery protocol to guide them in the event an unknown site is found.