

# **ESTATE MANAGEMENT PLAN**

## **LAKE TAUPO & ROTOAIRA FORESTS**

### **CROWN ENCLAVES, TE RANGIITA & TE WHENUA 1 FORESTS**

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## INTRODUCTION

This document is a public summary of the management plans for:

- Lake Taupo Forest
- Rotoaira Forest
- Crown Enclaves Forest
- Te Rangiita Forest
- Te Whenua 1 Forest.

It has been prepared to comply with the Forestry Stewardship Council (FSC) Principle 7 which requires that.....*A management plan - appropriate to the scale and intensity of the operations - shall be written, implemented, and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.*

## FOREST OWNERSHIP & MANAGEMENT

The above forests are managed by NZ Forest Mangers Ltd on behalf of Lake Taupo Forest Trust (LTFT), Rotoaira Forest Trust (RFT), and the Ministry of Agriculture and Forestry's Crown Forestry Group (Crown Forestry).

NZ Forest Managers Ltd (NZFM) is a privately owned forest management company which undertakes contract management of forests.

Two of the major forest estates that NZFM manage are Lake Taupo Forest and Rotoaira Forest. Other forests managed by NZFM within the scope of the FSC certification process include the Lake Taupo and Rotoaira Crown Enclaves, Te Rangiita and Te Whenua 1.

Lake Taupo and Rotoaira forests were established following the signing of lease agreements between Maori owners of the land and the Crown in 1969 (Lake Taupo) and 1973 (Rotoaira). These lease agreements contain detailed lessor and lessee rights and obligations. They provide the right for the Crown to establish and manage forests on the land in return for payment of a share of stumpage returns to the owners. Maori land owners of the Lake Taupo Forest are represented by the Lake Taupo Forest Trust (LTFT), and owners of the Rotoaira Forest Land are represented by the Rotoaira Forest Trust (RFT).

As a result of negotiations in 2000, the Lake Taupo lease has been varied so that the forest area (along with previously established second-rotation stands) is now being handed back to the lessors as it is harvested.

The Crown Enclaves are relatively small areas of forest established on Crown owned land that adjoin these forests (7 within Lake Taupo and one within Rotoaira) and are logically managed in conjunction with these estates.

Te Rangiita and Te Whenua 1 are forests on Maori land that are owned by the Lake Taupo Forest Trust.

NZFM is contracted by Crown Forestry for the management of Rotoaira Forest, the areas of Lake Taupo Forest that the Crown owns and the Crown enclaves. NZFM is also contracted by the Lake Taupo Forest Trust for the management of the areas of Lake Taupo Forest handed back by the Crown into full Trust ownership.

Co-ordination of management over the mosaic of Crown/Lake Taupo Forest Trust forest ownership is undertaken by FORMAC (Forest Management Advisory Committee) which includes representatives from MAF, the Trust & NZFM. This Committee deals with joint management issues.

The Lake Taupo Forest Trust contract NZFM for the management of Te Rangiita and Te Whenua 1 Forests.

## RESOURCE DESCRIPTION

### Summary

The resources managed by NZFM that are within the scope of this certification are as follows:

Forest	Ownership	Net Stocked Area (ha)	Unplanted - reserves, utilities etc (ha)	Total Area (ha)
Lake Taupo	LTFT/Crown	22,257.0	8,545.7	30,802.7
Lake Taupo Crown Enclave	Crown	530.8	210.8	741.6
Rotoaira	RFT/Crown	9,496.0	6,426.8	15,922.8
Rotoaira Crown Enclave	Crown	48.0	11.5	59.5
Te Rangiita	LTFT	677.1	165.6	842.7
Te Whenua 1	LTFT	94.3	0	94.3
Te Whakao	LTFT	682.0	165.2	847.2
<b>Total</b>		<b>33,785.2</b>	<b>15,525.6</b>	<b>49,310.8</b>

LTFT = Lake Taupo Forest Trust

RFT= Rotoaira Forest Trust

Crown= Crown Forestry, MAF

Table correct as at January 2007

The planted forest areas are dominated by Radiata pine. 98% of Lake Taupo Forest and 98% of Rotoaira Forest are planted in Radiata pine. The other species present include Douglas fir, Larch and Eucalyptus species.

### Lake Taupo Forest

Lake Taupo Forest is established on the eastern shores of Lake Taupo and borders the western boundary of Kaimanawa Forest Park. During the 1960's meetings were held by the Maori owners of the various blocks of land in this area, and it was agreed in principle that afforestation should be undertaken to provide a productive use of the land and provide protection of lake values. In 1969 the land owners agreed to lease the land to the Crown for afforestation. This lease had a 70 year term and involved the Crown undertaking forest establishment and management on the land, with the major return to Maori owners being a share of the final stumpage. This agreement included a process for review of the stumpage share.

The objectives of the original lease are:

- Preventing soil erosion, reducing pollution of the waters of Lake Taupo and of the streams and rivers flowing into and out of the said Lake and minimising adverse changes in river

and lake waters.

- Conserving and protecting fish and wild life habitat and other natural resources of the area.
- Preserving and safeguarding the graves of the Maori people and all historic and sacred places in and around the said land and the areas of natural beauty and scenery and of unique vegetation.
- Consistent with the above purposes establishing managing and protecting a forest or forests thereon and appraising selling realising removing and utilising the produce thereof in a manner consistent with good forestry practices so as to achieve the maximum practicable financial yield to the Minister as forest owner and the Trustees as Lessors.

Establishment of the forest took place between 1969 and 1986, working from south to north. Most areas of the forest have been intensively tended to produce pruned butt logs.

In April 2000 a variation of the lease was agreed which allows:

- The LTFT to resume ownership (from 1 April 2001) of the second rotation stands – 3,352 hectares net stocked area at that time.
- The LTFT to progressively (as first rotation stands are harvested) resume ownership of the cleared land.
- A fixed stumpage share formula to apply to for the balance of the lease – which is now set to terminate on 30 June 2021.

The terrain in Lake Taupo Forest is generally gently rolling hill country, with some steeper country toward the Kaimanawa Forest Park Boundary and around river gorges. Soils are volcanic, derived from the Taupo volcanic centre. These soils vary depending on the exact nature of the volcanic parent material.

The annual harvest levels from Lake Taupo Forest are approximately 480,000m<sup>3</sup> which is close to the long term sustainable harvest level.

### **Rotoaira Forest**

Rotoaira Forest is established on the lower slopes of Mounts Pihanga, Tongariro, Kakaramea and Kuharua. It is established on the shores of lakes Rotoaira and Otamangakau.

The forest was established following the signing of a lease between RFT and the Crown in 1973. This was superseded by a permanent lease in 1974 which was in turn replaced by a new lease agreement in 1980.

The objectives of the lease are:

- Preventing soil erosion, reducing pollution of the waters of Lake Taupo, Rotoaira, Otamangakau and Te Whaiiau and of the streams, rivers and canals flowing into and out of the said lakes and minimising adverse changes in river and lake waters.
- Conserving and protecting fish and wild life habitat and other natural resources of the area.
- Preserving and safeguarding the graves of the Maori people and all historic and sacred places in and around the said land and the areas of natural beauty and scenery and of unique vegetation.
- Consistent with the above purposes establishing managing and protecting a forest or forests thereon and appraising selling realising removing and utilising the produce thereof in a manner consistent with good forestry practices so as to achieve the maximum

practicable financial yield to the Minister as forest owner and the Trustees as Lessors.

The forest was established between 1973 and 1989. Most areas of the forest have been intensively tended to produce pruned butt logs.

Soils are volcanic, with parent material formed from the Tongariro, Ngauruhoe, Kakaramea, Pihanga, and Taupo volcanic sources.

Planted forest is established between 580m and 850m in altitude. The majority of the area is flat to undulating. The current annual harvest level is 180,000m<sup>3</sup>. This level of harvest is effectively sustainable in the long term, although the long-term harvest strategy is continually being revised to accommodate new inventory and harvest reconciliation data and in reaction to market indicators.

### **Lake Taupo & Rotoaira Crown Enclaves**

These are areas of forest on Crown-owned land that were established in conjunction with the establishment of the lease forests. Seven blocks are within or adjoining Lake Taupo Forest and one block is located within Rotoaira Forest. All 8 blocks are managed by NZFM in conjunction with the Lake Taupo and Rotoaira lease forests.

### **Te Rangiita & Te Whenua 1 Forests**

Te Rangiita Forest has been established on Maori land leased by the Lake Taupo Forest Trust, whilst Te Whenua Forest is on freehold land owned by the Lake Taupo Forest Trust. Harvesting in these blocks is not expected until after 2020.

### **Adjacent Lands**

Lake Taupo Forest is bounded by Lake Taupo to the northwest and by Department of Conservation lands (Kaimanawa Forest Park) to the southeast. Most of the northeastern boundary adjoins Fletcher Challenge Forests' Waimahia Block and the southwestern boundary adjoins land (forest and farm) administered by the Corrections Land Board (Justice Department).

Public access to Kaimanawa Forest Park is provided by Kiko Road.

Within Lake Taupo Forest is land owned by TrustPower Ltd who own and operate 3 hydro-electric schemes (dams) developed between 1952 and 1981 on the Hinemaiaia River. Access to the sites is by way of an access licence over the lease.

There are four land blocks located between the Lake Taupo Forest and Kaimanawa Forest Park:

- Pahikohuru No 1 Block – Maori land leased to Fletcher Challenge Forests (“Tiraki Lease”)
- Hautu 1B1B2B5B4 Block – Maori land, currently unoccupied.
- Hautu 1B1B2B5B3 Block – Maori land, currently unoccupied.
- Hautu 1B1B2B5B2B Block – Maori land, currently unoccupied.

Legal access to these blocks is still being negotiated.

Rotoaira Forest consists of 5 blocks with a number of adjacent landowners. Significant adjacent landholders are:

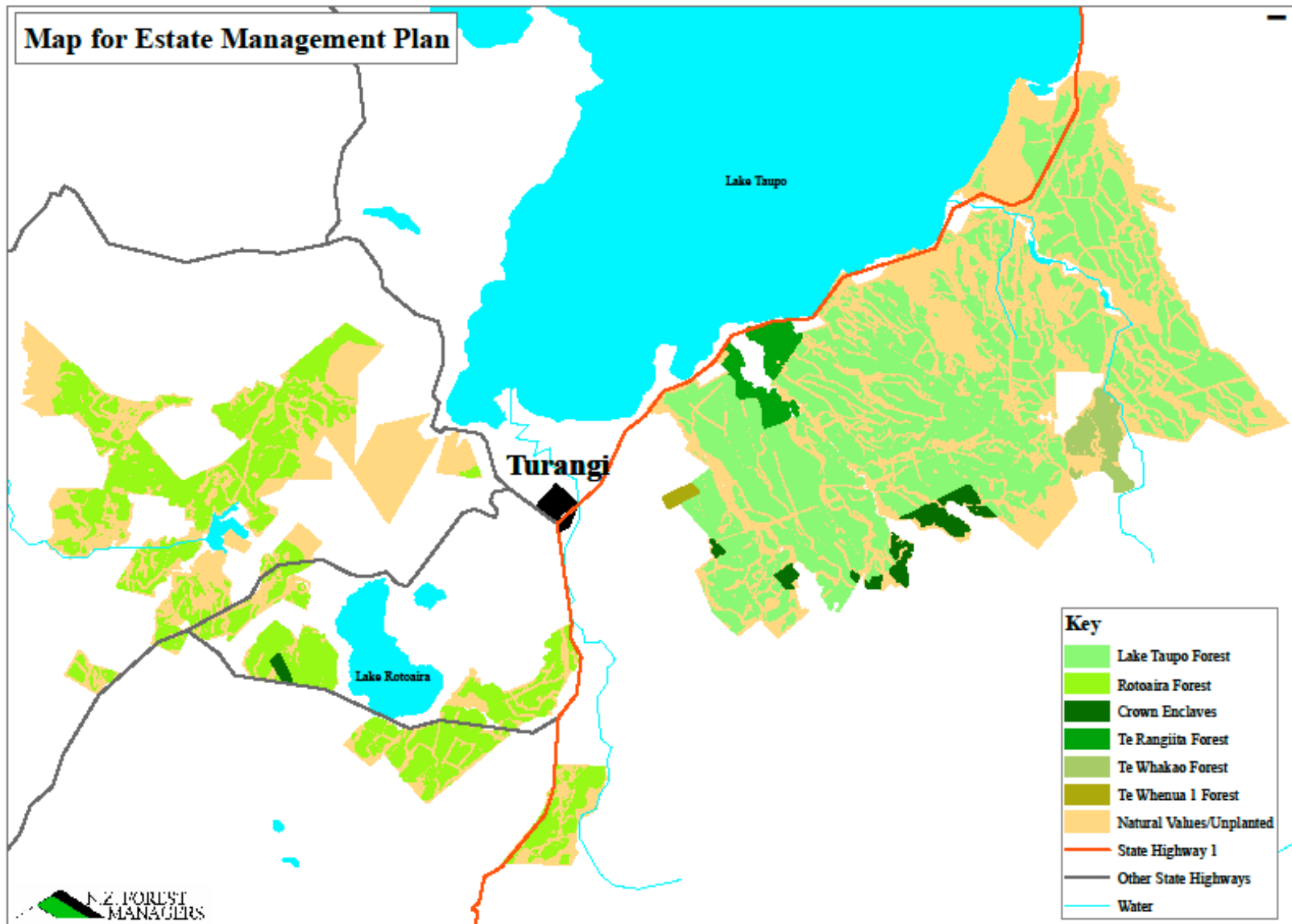
- Department of Conservation (including Tongariro National Park)
- Justice Department
- Lake Rotoaira Trust
- Genesis Power Ltd
- Waihi-Pukawa Station
- Oraukura Station
- Moerangi Station

### **Local Government**

Lake Taupo Forest, the Crown Enclaves, Te Rangiita, Te Whenua 1 Forests and part of Rotoaira Forest all fall within the Taupo District and the Waikato Region (Environment Waikato). Part of Rotoaira Forest (a little over 5,000 hectares), falls within Ruapehu District and the Manawatu Wanganui Region (horizons.mw).

### **LOCATION/AREA**

The map overleaf shows the location of the various forests described in this plan and delineates between planted forest area and unplanted areas which have been retained in natural vegetation.



## MANAGEMENT OBJECTIVES

The objectives of management for the 5 forests covered by this plan are:

- For Lake Taupo and Rotoaira Forests; to meet the legal commitments embodied in the respective leases and subsequent variations (as detailed in the previous section).
- To manage the forests in accordance with FSC Principles & Criteria.

## FOREST MANAGEMENT PRACTICES

Day to day operational management of the forest estate is under the control of NZ Forest Managers Ltd (NZFM). NZFM is a private forest management company based in Turangi and is contracted by both the Crown and the respective Forest Trusts to manage forestry operations over the entire estate. The company employs some 22 staff. Approximately 82 people are employed in contract harvesting operations in Lake Taupo & Rotoaira Forests, and 26 in transportation. Contractor employment in forest establishment and tending operations varies with season between 15 and 50.

Detailed and separate management plans which underpin this summary plan exist for:

- Lake Taupo Crown Lease Forest (Crown portion)
- Lake Taupo Forest (Trust portion)
- Rotoaira Crown Lease Forest
- Te Rangiita and Te Whenua 1 Forests

### Establishment Policy & Practices

#### *Policies*

#### Conversion of Unplanted Areas

No unplanted areas of ecological, cultural or environmental significance shall be converted to production forest.

#### Re-establishment Timing

Re-establishment shall take place as soon as practicable following harvesting except where time is required to allow weed re-growth to be effectively and efficiently controlled in line with an integrated pest management strategy.

#### Species Choice

Species choice will be based on the obligation in both lease agreements to achieve the maximum practicable financial yield to the Minister as forest owner and the Trustees as Lessors in a manner consistent with good forestry practices.

#### Land Preparation Methods

Land preparation shall be carried out in a manner which recognises the objectives of minimising site disturbance and nutrient loss consistent with the need to successfully and quickly establish a replacement crop. Burning of slash shall not be carried out as a routine method of land preparation.

#### *Practices*

- Mechanical land preparation methods (roller crushing and heaping of slash) are carried out when this is required to facilitate planting operations.

- Sites are assessed on an individual basis - in line with an integrated pest management strategy – for the need to carry out pre-plant weed control operations.
- Planting is carried out by hand using (in the case of radiata pine) high GF planting materials at a stocking (in the case of radiata pine) of between 800 and 1,000 stems/ha, depending on site fertility.
- Sites are assessed on an individual basis - in line with an integrated pest management strategy – for the need to carry out post-planting weed control operations (releasing).

## Silvicultural Tending Policy & Practices

### *Policies* Choice of Regime (Tending Schedule)

The choice of tending regime will be based on formal evaluations of costs, benefits and risks. Key factors in the evaluation shall include:

- Growth and yield differentiation between different sites
- Maintaining tree and stand health
- Minimising windthrow
- Maintaining a spread of product types (log grades)

### *Practices* P.radiata - :

<b>Operation</b>	<b>Stems/ha Treated</b>	<b>age (years)</b>
prune 0-2.5m	350	4-5
waste thin	1000 – 600	4-5
prune 2.5-4.5m	350	6-7
Prune 4.5 – 6.5m	320	8 - 9
waste thin	600 –320	8 - 9

The pruning heights are indicative only, as ‘variable height’ pruning is practiced, where each tree is pruned to the maximum of half height. In some cases four pruning lifts will be required to achieve the target pruned height whilst maintaining a target maximum diameter over stubs (DOS) of 17.0cm.

Production thinning, undertaken widely during the first rotation, is not planned for the second rotation.

The owners are investigating whether to prune stands on better quality (higher growth rate) sites to a height to 8.4m. Similarly the owners are considering growing stands on the lowest fertility sites on a non-pruning (‘framing’) regime.

### Douglas Fir and Larch:

<b>Operation</b>	<b>Predominant Mean Ht (m)</b>	<b>stems/ha Treated</b>
waste thin	8-10	to 600
production thin	30	600 - 300

Eucalyptus:

<b>Operation</b>	<b>Predominant Mean Ht (m)</b>	<b>stems/ha Treated</b>
waste thin	10	to 500
production thin	20	500 – 200

**Protection Policies & Practices**

*Policies*

Forest Fire Protection

The Crown, the Trusts and NZFM shall actively participate in the Lake Taupo Rural Fire Committee. The Crown and the Trust shall maintain an agreement with the NZ Defence Force for fire control assistance.

Animal and Plant Pest Control

Animal and Plant Pests shall be controlled in accordance with the requirements of the respective Pest Management Strategies of Environment Waikato and *horizons.mw* and additional operations shall be carried out as necessary to protect planted stands, unplanted areas and forest infrastructure (e.g. roads).

Forest Health

The health of the forests shall be regularly surveyed under the NZ Forest Owners Forest Health Surveillance Scheme and action taken as necessary. The forests shall be annually surveyed for the presence and level of infection of *Dothistroma pinii* and stands above the threshold infection level treated.

Forest Security & Recreation

Access to the forests shall be controlled by the Trusts (who control beneficial owner access) and NZFM (who control worker access). Other requests for access to Trust land shall be considered by the respective Trusts and in the case of access to the Crown Enclaves, shall be considered by Crown Forestry.

*Practices*

Forest Fire Protection

Crown Forestry (through NZ Forest Managers Ltd) is responsible for maintaining fire prevention infrastructure within the forest. Fire control procedures and instructions are set out in a fire plan which is revised annually and audited each year by the Regional Rural Fire Committee. Fire equipment, including fire appliances are housed at Turangi. An Agreement with the NZ Defence Force for assistance with fire suppression (in return for access for training purposes) is in place.

Animal and Plant Pest Control

Regular inspections are made to assess the need for animal control and consultation with the Trusts has been held on effective means of control, particularly for possums. Trapping in most instances has not proved to be effective in controlling possum numbers and 1080 poisoning is presently the favoured control method. Neighbouring landowners and the Animal Health Board are also consulted over possum control operations as necessary. Other wild animals - pigs, deer, goats, hares and rabbits – are confined to localised areas and are controlled as required.

### Forest Health

Annual inspections of the forests by Forest Health Officers are undertaken. Each year between June and August, the forest is surveyed to assess pine needle blight (*Dothistroma pini*) level of infection. Stands with significant levels of infection are sprayed with copper oxychloride in November and December annually. Armillaria root rot has a concentrated occurrence in areas formerly under podocarp/broadleaf forest but is not a major problem as retaining a slightly higher final crop stocking in affected areas ensures a satisfactory final crop. Upper mid-crown yellowing (UMCY) is common in the forest. The precise causes of this disease which does impact on tree growth is thought to be related to magnesium levels. Crown Forestry is a member of the UMCY Research group which is quantifying the effect of the disease and researching treatments.

The forest also has areas that are slightly to moderately deficient in some nutrients including boron, magnesium, nitrogen and phosphorus. Crown Forestry is a member of the Site Management Research Co-operative which provides research and information on the best methods to address the deficiencies.

### Security & Recreation

The lessors are permitted access at all reasonable times to hunt, fish and tend graves of ancestors. The Tongariro, Waitahanui, Hinemaiaia, Tauranga-Taupo, Waimarino and Waitotaka Rivers and the Poutu Stream are important angling rivers. A fishing and access agreement between the local iwi (Tuwharetoa) and the Crown is set down in legislation. Fishing access is by way of a 20 metre (1 chain) wide access strip up the rivers to defined limits for licensed fisherman on foot. The Trusts have access into the Crown lease forests for the purposes of salvaging dead and windthrown indigenous forest material for firewood and cultural purposes. A security control is maintained to exclude trespassers, protect assets and to control illegal activity.

## **Waahi Tapu & Historic Sites Policies & Practices**

*Policies* The Crown shall recognise the role, rights and responsibilities of the Lake Taupo and Rotoaira Forest Trusts as kaitiaki of the waahi tapu and historic sites on their lands.

*Practices* All known graves, historic and sacred places have been recorded and classified using the NZ Archeological Association site recording system and a register of all known sites is maintained in the forest office with a copy provided to the respective Forest Trusts. The sites are also recorded within a GIS database so that they can be identified and protected during any operations. As any new sites are located, they are recorded within the GIS database. In all matters concerning burial sites, historic and sacred places, the respective forest trusts have active involvement.

## Harvesting & Marketing Policies & Practices

### *Policies* Harvesting & Marketing Strategy

A harvest strategy for those forests that have harvest operations underway shall be produced annually. This strategy shall be based on a comprehensive forest description with the twin objectives of:

- Maximising the net present value of the estate
- Maintaining a regular supply of high quality forest produce.

### Sales

Stumpage return (gross sales revenue less production costs) from the sale of forest produce shall be optimised by building a reputation as a “preferred supplier” - on the basis of quality - with a wide customer base.

*Practices* The current marketing strategy for the forest estate involves supplying logs to a range of domestic customers (20 at present) located from Upper Hutt to Thames and a smaller number of export customers (principally Japanese and Korean). The present harvest from the forest estate is 660,000m<sup>3</sup> per annum which is close to the long-term sustainable harvest level.

At present, between 8-10 contract harvest crews operate within the estate. Operations are predominantly ground-based although two hauler operations are currently working in Lake Taupo Forest. All crews source their labour from the Taupo and Turangi areas and a majority of personnel are either beneficial owners or are of Tuwharetoa descent.

## ENVIRONMENTAL MANAGEMENT

The Environmental Management System (EMS) that applies within the forest estate is underpinned by the NZ Forest Managers’ Policy. The Policy states that the estate will be managed in such a way that:

- Recognises the environmental requirements of:
  - the contracts between the forest manager and the forest owner
  - the resource consents applying to the forest estate
  - the *Principles for Commercial Plantation Forest Management in New Zealand*
- Ensures that environmental management and performance is consistent with the Principles and Criteria of the Forest Stewardship Council.
- Ensures contractors and employees are committed to the Environmental Policy.
- Continually reviews opportunities for further environmental improvements.
- Works in partnership with other business organisations, the Government and interest groups where opportunities exist to benefit all parties and the environment.

- Ensures this sustainable forest management commitment is integrated with other key business objectives of financial performance, operating efficiency, customer satisfaction, health and safety and good corporate citizenship.

## **CONSERVATION OF RARE & ENDANGERED SPECIES**

Rare, threatened and endangered species have been identified within the estate and all forest operations adhere to guidelines and procedures outlined in the Environmental Management System (EMS) developed by NZ Forest Managers. These guidelines protect populations from the direct and indirect impact of forestry operations. Monitoring and managing the health and condition of specific populations of rare, threatened and endangered species and representative forest types is on-going.