

# **Managing NZ's Indigenous Forested Lands for Timber; an Update.**

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## **Abstract**

The last two decades of the 20th century have seen major changes in the nature of the indigenous forestry industry in New Zealand. Government policy on the management of State forests for timber production, the passing of the Resource Management Act in 1991 and the Forests Amendment Act in 1993, have collectively changed the face of indigenous forest management. Not only has the emphasis of management moved strongly to forest sustainability (rather than simply timber yield sustainability) but the direct involvement of the Crown in the industry, as a timber producer from Crown indigenous forests, has ceased.

It is forecast that sustainable management of private indigenous forests will support a viable, long term industry that will contribute \$269 million to the New Zealand economy in 2010. A direct benefit and equally important, will be the ability afforded forest owners to reinvest in long term forest maintenance, with equal consideration of natural, amenity and timber values.

Can the same optimistic forecast be made for our indigenous forests generally? Sustainable management of indigenous forests need not always incorporate timber production; similarly "reservation" does not necessarily constitute "protection". Sustainable management of indigenous forest ecosystems relies on funding. Sustainable management that includes timber production is one means of securing funding to achieve conservation objectives.

This paper summarises progress in implementing the provisions of Part IIIA, Forests Act 1949 and discusses the future nature and value of the indigenous forestry industry in NZ, challenges for the industry and management issues being addressed by the Indigenous Forestry Unit, Ministry of Agriculture and Forestry.

**Keywords:** sustainable forest management, ecological sustainability, standards, Forests Act, public image.

## **Introduction**

New Zealand's indigenous forests cover an estimated 24 percent of its land surface, half that present prior to the European colonisation of New Zealand and one third that estimated to have been present before the arrival of Polynesians. Of the 6.4 million ha of indigenous forest, approximately 1 million hectares is privately owned **and** potentially available for management for timber production. A further 300 000 ha of private land, principally indigenous forest, have been either purchased or covenanted in recent years under the Nature Heritage Fund, Nga Whenua Rahui, QEII National Trust and Vote Conservation. Private indigenous forest land includes land held in fee simple, General Maori land and 1906 South Island Landless Natives Act (SILNA) land.

Indigenous timber contributed in a major way to the early development of New Zealand and up to the mid 1950's was the mainstay of the New Zealand timber industry, with roundwood production of c. 1.6 million m<sup>3</sup> in 1955. Plantation grown timber progressively replaced indigenous timber in the building industry and, as the most accessible indigenous forest resources diminished, public pressure mounted for cessation of indigenous timber harvesting from Crown owned forests. When restructuring of government's land administering agencies took place in 1987 (establishment of Conservation Department, Landcorp and Forestry Corporation) the logging of Crown owned indigenous forests was confined to forests in Westland and Southland.

By 1991, when the then government announced its policy providing for the protection and sustainable management of private indigenous forests, the annual production of indigenous roundwood had declined to an estimated 360 000 m<sup>3</sup>, of which half consisted of chip logs and wood chips for export. By the time the Forests Amendment Act (Part IIIA, Forests Act 1949) was passed in 1993, indigenous roundwood production had declined further, partly as a result of a government ban on log and chip exports, to 200 000 m<sup>3</sup> per annum. Of this, one third consisted of the export of wood chips from forests on SILNA lands (SILNA forests being exempt from the provisions of Part IIIA of the Forests Act). Export of indigenous wood chips from SILNA land in Southland has been limited since 1996, principally due to a downturn in international demand.

Over the last 10 years up to 50 percent of the annual production of indigenous roundwood came from the Crown's indigenous production forests on the West Coast (Timberlands West Coast Ltd.). With the government's decision to cease indigenous timber production from Crown forests by 31 March 2002, roundwood production fell below 50 000 m<sup>3</sup>. The indigenous timber industry is in a rebuilding phase, both in terms of structure and scale. This paper reviews progress in implementation of Part IIIA of the Forests Act and forecasts the future state of the indigenous timber industry in New Zealand.

## **Provisions of Part IIIA, Forests Act 1949**

Part IIIA of the Forests Act has three points of focus:

The Indigenous Forestry Unit (IFU) is involved in the administration of the indigenous forestry provisions of Part IIIA of the Forests Act 1949 (Part IIIA), with the purpose of:

*promoting the sustainable forest management of indigenous forest land.* Specifically, it includes the approval, administration and compliance monitoring of:

- indigenous timber export controls;
- indigenous timber sawmill controls;
- sustainable forest management (SFM) provisions;

Some forests are exempt the provisions of Part IIIA; indigenous forest on SILNA land and land administered under the Conservation Act 1987 (The Conservation Act 1987 prohibits the sale of indigenous timber) and planted indigenous forests. Government put in place in 2002 a package to assist SILNA landowners to bring managed SILNA forest voluntarily under the provisions of the Forests Act.

The principal instruments of approval for the management of indigenous forests are SFM Plans and SFM Permits:

**SFM Plans** provide for long-term management of indigenous forests. They must be based on a forest inventory and provide for harvests of timber on a perpetual, sustainable basis while maintaining the forest's flora, fauna, soil and water quality, natural and amenity values and protecting the forest from pests, weeds and fire. Prescriptions contained in the Second Schedule to Part IIIA recognise the general ecological characteristics of the major species groups and specify how they should be managed (kauri (*Agathis australis*), podocarps and shade-tolerant broadleaved hardwoods versus beech (*Nothofagus spp.*) and light demanding hardwoods). SFM Plans must generally be registered against title to the land for a minimum of 50 years. They are appropriate to forest areas where sustainable harvests, either annual or periodic, can be conducted efficiently and profitably and where the landowner is committed to long-term management of the forest.

**SFM Permits** are limited to a 10 year term, provide for a maximum roundwood harvest of 250 m<sup>3</sup> of kauri or podocarps or shade tolerant broadleaved hardwoods, and a maximum of 500 m<sup>3</sup> of beech or light demanding hardwoods, irrespective of the area of forest, providing that the harvest does not exceed 10 percent of the timber standing on the landholding. SFM Permits do not require the depth of inventory or other information necessary in a SFM Plan but are subject to the management prescriptions contained in the Second Schedule of the Act. SFM Permits may be renewed after 10 years but only where the forest has replaced, through growth, the quantity of timber removed under the previous permit. The timber may be harvested at any time over the 10-year term, either as a single harvest or spread over a number of years. SFM Permits are a more practical option for small forest areas, or where the landowner does not wish to manage the forest for timber on a long-term basis.

For each year harvests are to be taken from land subject to registered SFM Plans and Permits, an **Annual Logging Plan** must be submitted to the IFU and approved prior to work commencing.

## Approvals & Applications for Harvesting from Private Indigenous Forest

Historically, over 80 percent of the indigenous sawn timber produced in New Zealand has been kauri and podocarps (principally rimu (*Dacrydium cupressinum*) with lesser quantities of miro (*Prumnopitys ferruginnea*), matai (*Prumnopitys taxifolia*), totara (*Podocarpus totara*, *P.hallii*) and kahikatea (*Dacrycarpus dacrydioides*)), the remaining 20 percent comprising hardwoods, principally beech and tawa (*Bielschmedia tawa*).

With the cessation of timber production from West Coast indigenous production forests there has been a substantial reduction in the supply of rimu, to 10 000 m<sup>3</sup> or less of roundwood annually. Overall future timber production will comprise at least 80% beech.

Table 1a: Area Subject to SFM Plans and Permits, Approved and in Progress at 30 June 2002

	Approved Plans (ha)	Approved Permits (ha)	Plans in Progress (ha)	Permits in Progress (ha)	Total (ha)
<b>North Island</b>	10 220	39 349	6 360	2 096	<b>58 025</b>
<b>South Island</b>	18 702	12 392	1 456	1 639	<b>34 189</b>
<b>Total</b>	28 922	51 741	7 816	3 735	<b>92 214</b>

Table 1b: Volumes Approved for Harvest from Land Subject to SFM Plans and Permits, Approved and in Progress at 30 June 2002

	Approved Plans (m <sup>3</sup> )	Approved Permits (m <sup>3</sup> )	Plans in Progress (m <sup>3</sup> )	Permits in Progress (m <sup>3</sup> )	Total (m <sup>3</sup> )
<b>North Island</b>	17 771	59 896	8 147	5 936	<b>91 750</b>
<b>South Island</b>	44 178	48 136	3 686	5 473	<b>101 473</b>
<b>Total</b>	61 949	108 032	11 833	11 409	<b>193 223</b>

Taking into account the one-off nature of approved SFM Permit harvests, the total above equates to an "equivalent annual harvest" of c. 89 000 m<sup>3</sup>.

In recent years the production of indigenous timber from land subject to approved SFM Plans and Permits has not been at the maximum allowable rate. The production of beech in particular is presently lower than the allowable rate of harvest. There are indications that private industry initiatives, coupled with the contraction in the supply of rimu and other podocarps, will see a significant increase in the harvesting and marketing of beech timber, especially red and silver beech.

## Trends in Timber Use & Forest Management under Part IIIA of the Forests Act 1949

### *Likely Growth to 2010*

The following information and projections in Table 2 are from Griffiths 2002.

The rate of approval of SFM Plans since July 1996 (when transitional provisions of Part IIIA expired) is 5 100 ha per annum with an approved annual rate of harvest of 10 500 m<sup>3</sup>. The comparable rate of approval for SFM Permits is 7 400 ha per annum with an “equivalent annual harvest” of 15 200 m<sup>3</sup>.

Based on these trends the projected area and allowable harvest of indigenous timber from private indigenous forest are:

Table 2: Approved SFM Plans and Permits - Projection to 30 June 2010

	Area (ha)	Total Volume/annum (m <sup>3</sup> )
SFM Plans	72 300	150 900
SFM Permits	105 700 <sup>1</sup>	15 200 <sup>2</sup>
<b>Total</b>	178 000	166 100

<sup>1</sup> SFM Permits will begin to progressively expire prior to 30 June 2010. While dependent on the rate of permit approval/renewal, the total area under permits should begin to stabilise by 2010;

<sup>2</sup> Because the harvest under a SFM Permit is a total, one-off harvest, the estimated annual volume is forecast to remain constant, not increase with area.

The total approved harvest in 2010 is thus likely to be up to 166 100 m<sup>3</sup> per annum, an average rate of about 2 m<sup>3</sup> per ha per annum.

Assuming rates of harvest from SILNA land are maintained at existing levels (about 20 000 m<sup>3</sup> per annum total roundwood), the total indigenous timber harvest by 2010 is likely to be up to 186 000 m<sup>3</sup> per annum, equivalent to pre-1993 levels. Of this sawlog production will be about 110 000 m<sup>3</sup> per annum.

#### *Potential for Long Term Growth*

Of the available (and unfettered) 1 million ha of indigenous forest on private land, up to 50 percent may have potential for sustainable forest management. However confirmation of this requires detailed analysis of the private indigenous forest estate in terms of forest type, degree of past modification and physical constraints to management. Restrictions placed on the management of indigenous forests in some localities (rules in district and regional plans pursuant to the Resource Management Act 1991) may also limit timber production under sustainable forest management.

The three main species groups that have potential for management are beech, the podocarps (principally rimu) and broadleaved hardwoods (principally tawa). Beech will remain the most important species group in terms of production, by virtue of the resource available and superior growth rates compared with the podocarps and most other indigenous hardwood species. The podocarps and tawa are likely to be available in sufficient quantities to supply niche markets but are unlikely to supply more than 20 000 m<sup>3</sup> of the total indigenous sawlog production in 2010.

## Contribution of Indigenous Forestry to the NZ Economy

### *Sawn Timber Value at Projected Levels of Harvest, 2010*

The figures presented in Tables 3 and 4 are from Griffiths 2002. They assume no further price movement in indigenous sawn timber and log revenues. It is possible there will be some movement in the sawn timber pricing of some species (e.g. beech) with the further reduction in rimu availability but this will be limited by the price of available substitutes (e.g. European beech and tawa) and any perceived quality differences between them.

Table 3: Potential Indigenous Sawn Timber Value at 2010

Species	Total Roundwood (m <sup>3</sup> )	Sawlogs (m <sup>3</sup> )	Sawn Output (m <sup>3</sup> )	Wholesale Value (\$)
Rimu & other Podocarps	10 000	9 000	5 400	10 260 000
Beech and other Hardwoods	176 100 <sup>2</sup>	105 660	52 800	63 360 000
<b>Total Value</b> <sup>1</sup>				<b>73 620 000</b>

<sup>1</sup> Based on average kiln dried sawn timber prices in 2001 of \$1 900/m<sup>3</sup> for rimu and \$1 200/m<sup>3</sup> for beech.

<sup>2</sup> Includes 156 100 m<sup>3</sup> from SFM Plans and Permits and 20 000 m<sup>3</sup> from SILNA land;

The total projected sawlog value (at mill) in 2010 is \$3.38 million for podocarps (10 000 m<sup>3</sup> x 90% sawlog recovery x \$375/m<sup>3</sup>) and \$21.12 million for beech (176 100 m<sup>3</sup> x 60% sawlog recovery x \$200/m<sup>3</sup>).

The economic multipliers associated with the conversion of sawlogs to kiln dried sawn timber are 3.0 for both podocarps and for beech. This is less than the figure of 6.5 derived by the NZ Institute of Forestry (Thorpe 1998) and the figure of 4 attributed by Thorpe to *Pinus radiata*, and reflects recent strengthening of sawlog prices.

The estimated multiplier from sawlogs to sawn timber is less than that likely to be attributable to final processing of indigenous timber into finished products. Thorpe (1998) cites work by Timberlands West Coast Ltd. and the West Coast Regional Council and suggests that the appropriate economic multiplier from log revenue (mill door price) to final processing, is up to 11. The following is an estimate of the value of indigenous forestry to the NZ economy, applying the figure of 11 in Thorpe to the projected harvest levels (sawlog component) in Table 3.

Table 4: Potential Value of Indigenous Forestry Industry at 2010

Year	Podocarps (\$ million)	Beech (\$ million)	Total (\$ million)
2010	37.1 <sup>1</sup>	232.4 <sup>1</sup>	269.5

<sup>1</sup> Based on 2001 log revenues (\$375/m<sup>3</sup> for podocarps and \$200/m<sup>3</sup> for beech).

The projection for 2010 (\$269.5 million) reflects the predicted increase in the area of beech forest being managed under SFM Plans and Permits. This projection may well be conservative. Further upward price movement for beech timber is possible if there is a high level of substitution of beech for rimu in the manufacturing industry (given the current price differential between them).

### *Conclusion*

Present predictions of future indigenous timber production are significantly less than Thorpe's 1998 prediction of up to 250 000 m<sup>3</sup> (from private land) by 2003. However, the existing and potential future values of the indigenous forestry industry are significant.

## **Challenges for the Indigenous Forestry Industry**

### *Indigenous Forestry as a Legitimate Land Use*

Indigenous Forestry struggles to build and maintain an image as a legitimate and sustainable industry based on renewable natural resources. The author suggests there are three principal reasons for this:

- The historical legacy of forest exploitation is hard to shake off;
- The industry attracts its share of unscrupulous operators;
- Many forest owners have yet to make the shift from being timber managers to ecosystem managers.

The solutions to these problems lie with the industry and the Crown:

- The industry needs to demonstrate a commitment to sustainable forest management. This will require an investment in the forest for the future;
- There is a need for increased levels of compliance monitoring, provision of information and guidance. The IFU clearly has a major role in these areas.

### *Industry's Role: Ecology Versus Timber Management*

Active, sustainable management of private indigenous forests is one way of providing forest owners the means to re-invest in the forests' future. The control of pests and predators and the maintenance of forest productivity, soils, water quality, natural and amenity values are realistic prospects if the forests are financially self-sustaining.

It is highly unlikely that forest owners generally, will be able fund the levels of protection required to eliminate pests and predators from their forests and restore biological diversity to historical levels. That is proving to be a major challenge even in Mainland Island projects (on Conservation land) with large budgets.

Notwithstanding these difficulties private forest owners must be prepared to devote some of their forest income to long term management and protection, particularly where there are accepted, successful and cost effective methods. This is part of the attitudinal shift required for them to be perceived as managers of ecosystems rather than just producers of wood.

### *Industry's View of the Legislation*

Part IIIA is not regarded as a perfect piece of legislation. Some practitioners see the Forests Act as overly prescriptive. For example, Devoe and Olson (2001) suggest it is too prescriptive and narrow in its portrayal of good indigenous forestry silviculture.

In addition to existing technical amendments contained in the Forests Amendment Bill before the House of Representatives, the Parliamentary Primary Production Committee, in a review of indigenous forestry in 2002, recommended that the definition of sustainable forest management in Part IIIA should be redefined in terms of "ecologically based management principles." While a review of elements of the Forests Act is desirable the IFU believes there is for the time being sufficient latitude in the sustainable forest management provisions to take into account ecological characteristics of forest species and forest types in developing forest management proposals. The interpretation of the Forests Act into the 2002 Standards reflects this belief.

Despite its shortcomings, it provides an economically viable option for achieving sustainability of private indigenous forests consistent with its purpose; *"to promote the sustainable forest management of indigenous forest land"*.

### *IFU's Role: SFM Standards & Guidelines*

As part of the continuous development of information and procedures the IFU has developed a Standards and Guidelines document for SFM Plans and Permits. The primary impetus for this document has been a recognised need to combine the intent and detail of Part IIIA of the Forests Act with existing scientific knowledge pertaining to the ecology and management of indigenous forests and the forest technology available to the industry.

The Standards seek to:

- better define key management criteria, identify indicators of SFM and establish performance measures for assessing compliance of draft SFM Plans and SFM Permit applications;
- update procedures for assessing forest management compliance; and
- integrate essential ecological and technical information and advice into one document for ease of use by forest managers.

The Standards became operative in 2002. The extent to which they are being implemented (particularly in terms of monitoring at forest level) by the IFU is limited by the Unit's resources, unchanged since its establishment in 1993. The IFU has put its case for additional resources to remedy this situation.

*Review of Part IIIA Provisions and Implementation by the Parliamentary Primary Production Committee*

The Parliamentary Primary Production Committee Report: *A Sustainable Future for Our Indigenous Forests 2002*, in its recommendations, highlighted a number of desirable improvements in the administration of Part IIIA provisions:

- "development of a clear set of guiding ecological and sustainable management principles";
- "streamlining the sustainable forest management plan approval process, reduce costs and time delays";
- "providing additional resources to the IFU and review the distribution of IFU staff throughout the country";
- "providing more services and information free of charge to acknowledge the public good component of sustainable forest management";
- "strengthening the monitoring procedures carried out by the IFU";
- "strengthening the sustainable forest management provisions applicable to sustainable forest management permits";
- "providing better education/research and development/monitoring support for forest owners".

*IFU Goals*

In order to play its part in development of a viable and sustainable industry the IFU must be:

- Properly resourced to keep pace with the expanding base of sustainable forest management plans, permits and annual logging plans;
- Well placed geographically to implement compliance monitoring/audit in accordance with the sustainable forest management standards introduced in 2002;
- In a position to retain appropriately skilled professional staff, provide expert advice and support to its clients.

*IFU Resources and User pays*

Funding increases are necessary for the IFU to cope with these expanding workloads and fundamental to this is the establishment of an efficient unit in the North Island. The IFU has undertaken workload reviews and has forecast additional resource requirements which are summarised in Table 5.

Table 5: IFU Additional Resource Requirements (Full Time Equivalents)

2003/04	2004/05	2005/06	2006/07
4	4	5	6

These additional resources are seen as critical to achieving the IFU's performance targets.

The alternative to attracting additional Crown funding is "user pays", an approach strongly advocated by Treasury where the principal benefits of a commercial activity reside with the individual rather than the public at large. While the public good component of sustainable forest management is recognised, the IFU has considered alternative funding options in its business plan prepared for the period 2003/2006. In short:

- Recovering costs proportional to the IFU expenditure on specific applications would be seen to be unfairly influenced by the location of IFU staff and variable costs attributable to other agencies (e.g. DoC, Te Puni Kokiri and territorial authorities). As such application of charges, to say approved SFM Plans and Permits, would logically be applied as a production based levy;
- A levy on timber harvested under approved Annual Logging Plans would require (in terms of current approved rates of harvesting) c. \$10.00/m<sup>3</sup> simply to fund the projected resource shortfall. On the basis of an average stumpage for indigenous timber (primarily beech) of say \$50, this would comprise a substantial proportion (20%) of a forest owner's revenue before forest management costs and overheads.

#### *Future User Charges?*

- The Indigenous Forestry Unit sees a place for a producer levy of some sort, but not before a viable business environment has been established on a stable indigenous forest base. That position has not yet been reached. The IFU suggests an appropriate indicator of an established industry would be at the level of 100 000 ha to 200 000 ha of indigenous forest under approved SFM Plans (present level c. 30 000 ha under approved SFM Plans);

#### **The Future for Indigenous Forestry in New Zealand**

The concept of integrated forest management or "multiple use" was delivered a significant blow in respect of our indigenous forests in 1987 with the separation of the Crown's environmental and commercial activities. Unfortunately nature knows no such boundaries. Owners and managers of indigenous forest land have an opportunity to enhance the image of indigenous forestry by adopting ecosystem management principles and re-investing in the forest. For its part the Crown, through the IFU, has a role in providing quality advice and guidance. The indigenous forest industry is presently in a rebuilding phase and perhaps vulnerable to both market based and environmental interests. There is though the opportunity to establish a viable, long term industry with positive environmental benefits of significant worth to the New Zealand economy.

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