

Indigenous Forestry on Private Land:

Present Trends and Future Potential – An Update

An Update of Figures Presented in MAF Technical Paper No 01/6
(2002): ISSN: 1171-4662; ISBN: 0-478-07648-7

Alan Griffiths
Ministry for Primary Industries

May 2017

EXECUTIVE SUMMARY

Historically, over 80 percent of the indigenous sawn timber produced in New Zealand has been kauri and podocarps (mostly rimu with lesser quantities of miro, matai, totara and kahikatea), the remaining 20 percent comprising hardwoods, principally beech and tawa.

With the cessation of rimu production from Crown forests on the West Coast (2002), the ratio of conifer : hardwood production has reversed, in line with forecasts made in 2001. In the year to 30 June 2016, 63% of the 23,000 m³ of logs produced was beech and most of that silver beech. Podocarp logs constituted just 8,059 m³, 34% of total production, including the short term contribution of additional podocarp timber from Conservation land with the implementation of the West Coast Wind-blown Timber (Conservation lands) Act (WCWT Act) 2014.

For the year ended 30 June 2016 the total roundwood (log), production was 23,000 m³, less than half the production of 2001. This is contrary to predictions made in 2001 which estimated that by 2010 there could be up to 72,300 hectares of indigenous forest under approved SFM plans with an allowable annual harvest (under SFM plans and permits), of up to 166,100 m³ (standing roundwood). In 2016 the actual area subject to SFM plans was 52,290 hectares and the allowable harvest (under SFM plans and permits), stood at 73,800 m³.

Wholesale sawn timber prices have roughly kept pace with inflation with heart dressing rimu timber averaging about \$3,000 / m³ and dressing grade beech about \$2,200 / m³. These prices are in line with and probably constrained by the prices of the likely substitutes American white oak and European beech, at \$3,360 and \$2,100 respectively (advertised merchant price for 40 mm wide boards).

The 2016 harvest was about one third of the total available harvest from SFM plans and permits. This low level of harvest reflects a diminished demand for indigenous timber, brought about by competition from imported furniture and timber and consumer perceptions around the availability and use of New Zealand indigenous timbers.

It was forecast in 2001 that by 2010 the value of the finished products produced from indigenous timbers would be up to \$269.5 million. Applying this measure, the actual 2016 performance of the sector is much lower at \$70.3 million. Production has stood at or about this level over the last ten years. In the absence of changes in the availability or pricing of imported furniture in particular, the key to a more vibrant indigenous forestry sector in NZ probably lies with specialised and high end products.

INTRODUCTION

This report is an update of figures and projections covered in MAF Technical Paper No 01/6 (2002). It compares 2016 production statistics and timber values with those prevailing 15 years ago and with projections made at that time of anticipated approvals and potential for production in 2010.

Indigenous timber production in NZ is confined to privately owned forests including SILNA lands, the Longwood and Rowallan forests (Crown land under long term forestry right to the Waitutu Holding Company), and for a restricted period specified Conservation land on which timber is being recovered under the West Coast Wind-blown Timber (Conservation lands) Act (WCWT Act) 2014.

The 2002 report had as a primary objective the forecasting of the scale of indigenous forestry activity and providing supporting data for determining future Ministry resource requirements to administer the Part 3A provisions of the Forests Act (Forests Act) 1949. This update serves to look back at the forecasts that were made, and compare these with current indigenous forest activity and pricing.

The 2002 report was prepared at a time of further change for the indigenous forestry sector, with:

- The harvesting of timber on Crown lands in Westland ending on March 31st 2002; and
- The harvesting of forest on SILNA land in Southland facing an unexpected decline, with the completion of harvesting contracts between one of the larger indigenous sawmillers in Southland and a number of SILNA section owners.

While these factors affected supply in two important regions, nationally the outlook for SFM plan and permit approvals was for an increasing number of applications. The expectation was that the national growth would equal or outweigh the other two changes taking place.

Since 2002 market forces have had a significant impact on the indigenous timber sector in NZ. Importation of furniture and to some extent timber have increased and gained market share, competing on price and increasingly on quality. It is therefore timely that an update of past production and forecasts is undertaken.

This update is a retrospective look at the performance of the sector over the last 15 years and how this relates to the forecasts that were made in 2001. It does not explore initiatives that might enhance the indigenous forestry sector nor forecast future indigenous timber production.

1. APPROVALS & APPLICATIONS FOR HARVESTING FROM PRIVATE INDIGENOUS FOREST

The information presented here is sourced from forestry statistics published by the Ministry for Primary Industries (MPI); the Ministry's SFM plan and permit register and sawmill returns to 30 June 2001 and December 2016. Projections of timber production exclude timber milled under the minor provisions of Part 3A of the Forests Act (e.g. personal use, salvage

etc), with the exception of the “actual” harvest reported for 2016 which includes timber harvested under the minor provisions.

For the year ended 30 June 2001 the total quantity milled under the minor provisions was approximately 2,300 m³ of which 50 percent was salvaged timber. This figure has risen to 9,788 m³ in 2016 with salvaged timber (mostly swamp kauri) and windthrow recovery (mostly Cyclone Ita timber recovery from Conservation and private land), comprising 8,000 m³.

SFM plans, approved and in progress as at 30 June 2001, covered 35 300 ha with a maximum annual sustainable harvest of about 70,100 m³ of indigenous roundwood. Of this, about 90 percent comprised beech and limited quantities of other hardwoods (e.g. tawa). At December 2016 there were 52 approved SFM plans covering 52,290 ha and providing for an annual harvest of all species of 69,985 m³ (excludes one SFM plan which is now not available for harvest).

SFM permits (with a ten year term), approved and in progress as at 30 June 2001, covered approximately 50,300 ha and a **total harvest** of approximately 106,000 m³. At December 2016 approved SFM permits numbered 142, cover 24,835 ha and a total harvest of 38,230 m³. This equates to an equivalent annual harvest of 3,823 m³ per annum cf 10,600 m³ per annum in 2001. The approval of SFM permits peaked between 2005 and 2009 when there were over 500 registered SFM permits. Since then permits have expired faster than new permits have been approved. This is not unexpected given the one-off nature of SFM permits.

Table 1. SFM plans and Permits – Approved Area and Allowable Harvest 2000 / 2001

	Area (ha)	Total Volume/annum (m ³)
SFM plans	35,000	70 100
SFM permits	50,300	10 600 ¹
Total	85,300	80 700

¹ The equivalent annual volume for SFM permits is simply the 10 year total permit volume /10 to enable comparison with annual approved SFM plan volumes.

The average annual rate of approval of draft SFM plans (1 July 1993 to 30 June 2001) was 3,300 ha of indigenous forest producing up to 7,000 m³ roundwood per annum. The average annual rate of approval of SFM permits for this period was 4,900 ha per annum providing for a total or “equivalent annual harvest” of 10,600 m³ of roundwood per annum.

The rate of approvals of both SFM plans and permits was highest between July 1996, when the Transitional Sawmilling Provisions of Part 3A of the Forests Act expired and about 2007, when permit issues peaked. The Transitional Sawmilling Provisions allowed qualifying sawmills to mill pre-approved maximum quantities of timber, harvested on an unsustainable basis and were the preferred option to sustainable forest management for many landowners in the initial days following the introduction of Part 3A.

The rate of approval of SFM plans between July 1996 and June 2001 was 5,100 ha per annum with an approved annual rate of harvest of 10,500 m³ and for SFM permits 7,400 ha per annum with a total or “equivalent annual harvest” of 15,200 m³. These rates were used to project total areas and approved volumes for SFM plans and permits to 2010.

Table 1.1 SFM plans and Permits – Projection to 30 June 2010

	Area (ha)	Total Volume/annum (m ³)
SFM plans	72,300	150,900
SFM permits	105,700	15,200
Total	178,000	166,100

As for SFM permits this accelerating trend did not continue, as the figures in Table 1.2 indicate. Further, only a small number of the registered SFM plans are consistently in production. This reflects a reduction in demand for indigenous timber products that has paralleled increasing importation of manufactured furniture at very competitive prices and the consequent closure of a large number of small to medium size manufacturers in NZ. NZ producers have generally not been able to compete on price and are now largely confined to specialist markets for high quality furniture (mostly rimu), and / or products such as panelling, joinery and flooring timber being produced by the two largest beech producers.

Changing market conditions (including consumer perceptions around the availability and use of New Zealand indigenous timbers), post 2001, led to a lessening in demand for beech and tawa, and to a lesser extent rimu.

Table 1.2 SFM plans and Permits - Approved Area and Allowable Harvest 2016

	Area (ha)	Total Volume/annum (m ³)
SFM plans	52 290 ¹	69,985 ¹
SFM permits	24 835 ²	3,823 ²
Total	77,125	73,808

¹This figure excludes Maungataniwha forest (Hawkes Bay), which while it still has a registered SFM Plan, has been closed to harvesting by its new owner

² Includes SFM permits approved at December 2015 but not registered. SFM permit volume annualised (total approved volume / 10)

The changes in the marketplace over the last 10 – 15 years has seen the original projections for 2010 prove to be optimistic, especially in regard to the total area under approved SFM permits with 24,835 ha in 2016 versus 105,700 ha projected for 2010. The largest impact on the sector has been a diminution in demand for NZ timbers which has resulted in a very small proportion of the allowable volume from SFM plans being harvested- 12,892 m³ out of a possible 69,985 m³, for the year to 30 June 2016.

In 2004 Part 3A of the Forests Act was amended, prohibiting the export of timber from SILNA lands unless the forest was managed under the sustainable forest management provisions of the Act. At roughly the same time, the resource consent requirements for indigenous vegetation clearance in Southland (where most of the SILNA land is located), were becoming more stringent. As a result harvesting in the SILNA lands diminished and at 2016 there was no harvesting of SILNA timber taking place, principally because the market demand isn't there. Draft SFM plans have been prepared for 17 SILNA sections but none have been implemented, again due to questions regarding the economic viability of sustainable management of beech forest at the present time.

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. Together, the podocarps and tawa were predicted to be able to supply about 20 000 m³ of the total indigenous sawlog production by 2010. In 2016 the total softwood and hardwood harvest from SFM plans was 13,326 m³. Currently there are few hardwood species (other than beech) being harvested and the demand for the principal hardwood (tawa), has diminished to the point where there is virtually none being harvested. Rimu, while only available in small volumes retains a level of popularity in the marketplace and a price premium compared to other species like beech and tawa.

2. PRICE TRENDS: 1993 – 2016

The indicative 2001 stumpage figures (return to the forest owner) below are based on average harvesting and transport costs of \$90 / m³ for ground based harvesting and \$140 / m³ for aerial harvesting. The aerial harvesting cost is inclusive of savings on in-forest roading associated with helicopter harvesting, of about \$10 / m³. Depending on location and flight distance helicopter extraction was in 2016 \$150 - \$200 / m³ and with felling and transport, up to \$250.00 / m³. Stumpage values given below are averages based on information provided by forest owners and contractors and apply to sawlogs only.

Wholesale timber prices have been sourced from a sample of sawmillers and current merchant price lists for sales either exceeding 1 cubic metre or in pack lots.

2.1 Rimu

Between 1993 and 1996, when the Transitional Provisions of Part 3A of the Forests Act were in force, rimu prices were constrained by mills with “allowable cuts” being in a position to dictate price to landowners who chose to undertake unsustainable harvests during the transitional period. At this time most of the rimu harvested was being sold to sawmills (or to forest contractors with access to mills with allowable cuts) for as little as \$50 / m³ on stump. This was equivalent to a “mill door” price of about \$150 / m³. Mill door log prices increased to an average of about \$325 / m³ in 2000 and \$375 / m³ in 2001.

In 2016 mill door prices for rimu were in the range \$350 - \$600 / m³. The highest prices paid are for large logs with good form and high heartwood content.

The limited supply of rimu remains in reasonable demand by furniture manufacturers. With the cessation of management of the Crown’s indigenous production forests on the West Coast there has been substitution for rimu where manufacturers are unable to source sufficient and continuous supplies (some manufacturers have replaced rimu with NZ beech and imported timbers such as European beech and white oak). Logistical constraints (principally the unavailability of heavy lift Russian helicopters, with a 4.5 tonne payload), mean that rimu is commonly available only in short lengths. The maximum payloads of the available helicopters are about 1.5 tonne. To meet the demand for longer lengths, species such as salusalu (Fijian rimu) is imported by at least one merchant MPI canvassed in 2016.

There is likely to be increased pressure on supply and price, but only to the extent that rimu prices remain competitive with other comparable domestic or imported timbers.

The 2001 wholesale price for Heart Dressing A rimu timber was about \$2 300 / m³ (based on 100 x 40 mm sawn timber dimension, kiln dried and rough sawn). Inflation adjusted this

would be \$3,250 / m³ today. While the wholesale price has generally kept pace with inflation \$2,500 - \$3,000 / m³ on average, there is significant regional variation in merchant / sawmill prices. For example one large Auckland & Christchurch merchant is listing Heart Dressing A rimu at about \$5,000 / m³ (c. \$4,000 / m³ in 2007).

2.2 Beech

In 1993 the bulk of the beech timber supplied to the NZ and Australian markets came from SILNA lands and was principally Southland silver beech. The approved harvest from privately owned beech forests subject to approved SFM plans is 57,000 / annum (standing roundwood), in 2016. Many of these forests are not in production because of the lack of profitable markets.

Southland silver beech sawlog prices rose from about \$75 / m³ at mill door in the mid 1990's to between \$100 and \$250 / m³ in 2001 depending on quality and individual sales (average \$175 / m³). Anecdotal information on 2001 sales indicated that Southland silver beech was achieving a stumpage (all sawlog grades) of about \$60 / m³ (ground based harvesting). There appeared to be a wider range of values in evidence for beech compared with rimu and tawa, probably attributable to variability in sawlog quality. 2001 sales of red and silver beech sawlogs elsewhere in the South Island average \$215/ m³. Overall the mill price for beech sawlogs averaged about \$200 / m³, indicating a current stumpage value of about \$110 / m³ for ground based harvesting and \$60 / m³ for aerial harvesting. Information obtained in 2016 suggests that the average silver beech sawlog price at mill door remains in the range \$150 - \$200 / m³.

The wholesale price for Dressing A silver beech timber has risen from about \$1,400 / m³ (an inflation adjusted figure in 2016 of \$1,976 / m³), to about \$2,200 / m³, indicating a modest real increase in price since 2001.

2.3 Tawa

Tawa was formerly used for a variety of purposes, including T & G flooring, utility products (handles), kitchen joinery, furniture and for interior timber detailing (skirtings, clashings etc). Like rimu and beech, tawa log prices improved post 1993, with mill door sawlog prices moving from \$75 to \$225 / m³. This equated to a stumpage in 2001 of about \$135 / m³ for ground based harvesting and \$85 / m³ for aerial harvesting. The wholesale price for clean white tawa in 2001 was about \$1,650 / m³. No current figures are available for tawa; the total reported harvest for the year ended 30 June 2016 was 7.0 m³ (logs delivered to mill).

2. VALUE TO THE NZ ECONOMY

The sawn timber (wholesale) values for available harvests at 2001, and actual and available harvests at 2016, are depicted in Tables 2, 2.1 & 2.3 for forests subject to SFM plan and permit approvals.

3.1 Sawn Timber Value

The figures in Table 2 assume all approved harvests are uplifted and sold. Presently not all forests under approved SFM plans are being managed and some are not being subjected to harvests up to the maximum allowable rate.

Table 2. Potential Indigenous Sawn Timber Value at 2001

(Included Approved Harvests under SFM plans and permits and Estimates of Production from SILNA Land and Timberlands West Coast Ltd for 2001.)

Species	Standing Roundwood (m ³)	Sawn Output (m ³)	Wholesale Sawn Timber Value (\$)
Rimu & other podocarps	22,600 ²	12,200 (54 percent) ⁴	23,180,000
Beech and other hardwoods	81,600 ³	24,500 (30 percent) ⁵	29,400,000
Total Value ¹			52,580,000

¹ Based on average kiln dried sawn timber prices of \$1,900/m³ for rimu and \$1,200/m³ for beech;

² Includes Timberlands programmed production of 12,600 m³ for 2001 and 10,000 m³ from private indigenous forests and SILNA land;

³ Includes 20,000 m³ standing roundwood from SILNA land and 61,600 m³ from SFM plans and permits;

⁴ Assumes conversion of total podocarp roundwood to sawlogs of 90 percent and conversion of sawlogs to sawn timber of 60%;

⁵ Assumes conversion of total beech standing roundwood to sawlogs of 60 percent and conversion of sawlogs to sawn timber of 50 percent.

The actual production for 2001 was less than indicated in Table 2 as not all approved plans and permits were being exercised.

Table 2.1 Actual Sawn Timber Value at 2016 (all sources)

(all sources – SFM plans, permits and minor provisions from sawlog returns for 2015 / 2016)

Species	Total Sawlogs ¹ (m ³)	Sawn Output (m ³)	Wholesale Sawn Timber Value ² (\$)
Rimu & other podocarps	8,059	4,835 ³	11,605,000
Beech and other hardwoods	14,984	7,492 ⁴	10,489,000
Total Value ¹			22,094,000

¹ Sawlogs at mill door

² Based on average kiln dried sawn timber prices of \$2,400/m³ for rimu and \$1,400/m³ for beech for sales exceeding 1 m³.

³ Assumes conversion of podocarp sawlogs to sawn timber of 60%; Includes Cyclone Ita timber.

⁴ Assumes conversion of beech sawlogs to sawn timber of 50 percent.

The production of podocarp timber in 2016 was boosted by Cyclone Ita windthrow recovery; about 20% of the sawlog production was from this source.

Table 2.2 Sawn Timber Value at Maximum Approved Level of Harvest – SFM plans and permits - 2016

Species	Standing Roundwood (m ³)	Sawn Output (m ³)	Wholesale Sawn Timber Value (\$)
Rimu & other Podocarps	4,809	2,597 (54 percent)	6,232,000
Beech and other hardwoods	68,988	20,696 (30 percent)	28,975,000
Total Value ¹			35,207,000

¹ Based on 2016 sawn timber prices, refer Table 2.1; Excludes Maungataniwha forest.

The total estimated sawlog value (at mill) in 2016 is \$2.16 million for podocarps and \$8.3 million for beech – SFM plans and permits only.

(4,809m³ x 90 percent conversion to sawlogs x 60% conversion to sawn x \$2,400/m³) (68,988m³ x 60 % conversion to sawlogs x 50% to sawn x \$1400/m³)

Beech sawn output is set at a conservative level. There is a wide variation in timber quality (sawlog versus industrial wood), regionally and between species.

3.2 Contribution of Indigenous Forestry to the NZ Economy

Estimates of the total value of the indigenous timber sector to the NZ economy are based on the value of actual and available production, priced at the retail or wholesale price of the finished goods (e.g. the end users of the milled timber). In the absence of a comprehensive

analysis of export and domestic sales statistics an approximate figure can be arrived at by applying a multiplier to the more easily attained sawlog or sawn timber values.

Thorpe (1998) cites work by Timberlands West Coast Ltd. and the West Coast Regional Council and suggests that the appropriate multiplier from log revenue (mill door price) to final processing, is up to 11. The more recent Tai Poutini West Coast Growth Study (September 2016) applied a multiplier of ten to estimate the end use value of indigenous timber harvested under the West Coast Wind-blown Timber (Conservation lands) Act 2014. This is similar to the figures indicated in the KPMG report to MPI of 2014 (c. 10). The following is an estimate of the value of indigenous forestry to the NZ economy, applying the figure of 10 to the actual and available harvest levels for 2016 (sawlog component) derived from standing roundwood volumes set out in Tables 2.1 and 2.2. The 2001 value is repeated from the original technical paper, based on a multiplier of 11.

Table 3. Current and Potential Value of Indigenous Forestry Industry

Year	Podocarps (\$million)	Beech & Other hardwoods (\$million)	Total (\$million)
2001 (Potential harvest) ¹	83.9	107.7	191.6 ²
2013 (KPMG - allowable harvest-SFM plans & permits)			73.0
2016 (Allowable harvest-SFM plans & permits)	21.6 ³	82.8 ³	104.4
2016 (Current value - actual harvest – all sources)	40.3	30.0	70.3

¹Included allowable harvest from SFM Plans and Permits, Timberlands West Coast Ltd forecast production and an estimated 10,000 m³ from SILNA land.

²The 2001 value was based on a sawlog : end user value multiplier of 11.

³Based on average 2016 sawlog revenues (\$500 / m³ for podocarps and \$200 / m³ for beech & harvest of all allowable timber).

Extrapolation of figures in Thorpe (1998), suggested a total economic value in the year ended 31 March 1997, of about \$200 million. The estimate for 2001 (\$191.6 million) was only marginally lower, despite the fact that podocarp production diminished markedly since 1997 (movement in sawlog prices was a significant compensatory factor). However, this figure was unlikely to be realised in 2001 because not all forest owners were then or are now exercising their SFM plans and permits.

The projection made in 2001 for the 2010 year (\$269.5 million), reflected the predicted increase in the area of beech forest being managed under SFM plans and permits. The 2010 projection was predicted to be potentially conservative if there was a high level of substitution of beech for rimu in the manufacturing industry (given the current price differential between them). However the substitution that occurred was by increasing volumes of imported furniture from around the Pacific Basin, principally countries with low costs of production. This competition with the dearer NZ product saw a significant retrenching of the indigenous manufacturing sector in NZ, with a large number of small to medium sized manufacturers either closing or becoming marketers of the cheaper imported products.

CONCLUSIONS

Predictions of indigenous forestry activity made in 2001 have not been realised, either at 2010 or currently. The principal reason for this has been a progressive increase in the importation of furniture into NZ from countries that have lower costs of production. Some examples include furniture manufactured from rubberwood, European beech, white oak and a variety of natural forest and plantation grown hardwoods from the tropics. These products filled the void left by the reduction in rimu production that began in 2002. While there is still a demand for rimu, it has stabilised, as evidenced by signs of downward price pressure reported by some sawmillers on the increased rimu volumes arising from Cyclone Ita windfall recovery and a period of controlled uptake of rimu by timber merchants through 2016.

A vibrant NZ indigenous forestry sector would ideally have a number of species represented in the marketplace – rimu, red and silver beech, tawa and small volumes of a range of associated species. Rimu, silver beech and to a lesser extent red beech, along with the salvage of swamp kauri, formed the core of the sector in 2016.

There are limits to the extent that costs of production can be reduced without risking increased environmental impacts, whether this be in the inventory of forests and preparation of SFM plans or in logging and sawmilling operations. The fact that there are SFM plans not being exercised suggests that the cost of establishing the plans is not the problem – the lack of demand for the timber is. Some sector participants argue that the export controls should be amended to allow the export of all species in any form (logs, chip or sawn timber), from sustainably managed forest. Currently only sawn beech and rimu timber may be exported, along with finished products and stumps and roots. Another possibility for growth is in the production of specialised or high end products that fill a niche not occupied by imported products, though the potential for that in NZ may be limited by population size. Without some new influences and opportunities, it would be safe to suggest that the sector is surviving, but not thriving and will continue on this course for the foreseeable future.

References

- KPMG, 2013. *Indicative value analysis of New Zealand's privately owned indigenous forests*. Report prepared for the Ministry for Primary Industries.
- Thorpe Tim, 1998. *Investment in Indigenous Forestry*. NZ Forestry, Vol 43, No 2.