

## CHANGES IN NEW ZEALAND FORESTRY

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### SUMMARY

From 1 April 1987, the New Zealand Forest Service ceased to exist as a Government Forestry Agency, and its functions were transferred to three new and separate organisations.

This paper traces the history of forestry in New Zealand, the leading role played by the Forest Service, some of the factors that led to change and the effects of change.

### INTRODUCTION

I was asked to make a presentation on the changes made to the New Zealand Government Agency, the New Zealand Forest Service, and the effect they are having on forestry of New Zealand. These changes can only be understood from a knowledge of the country itself and its forestry history.

New Zealand has had a short history of human habitation (about 1,000 years) but, in that time, the original forest cover was greatly depleted, firstly by the original Polynesian inhabitants who burnt some areas of forest. Depletion accelerated after 1840 when European settlement began. The forest was used for wood but large areas were also felled and burnt to establish the grassland that is the basis of our economy.

Now only 23% of the land (6.2 million hectares) is covered with native forest and most of this is in national parks and other reserves. The current land use pattern is shown in Table 1.

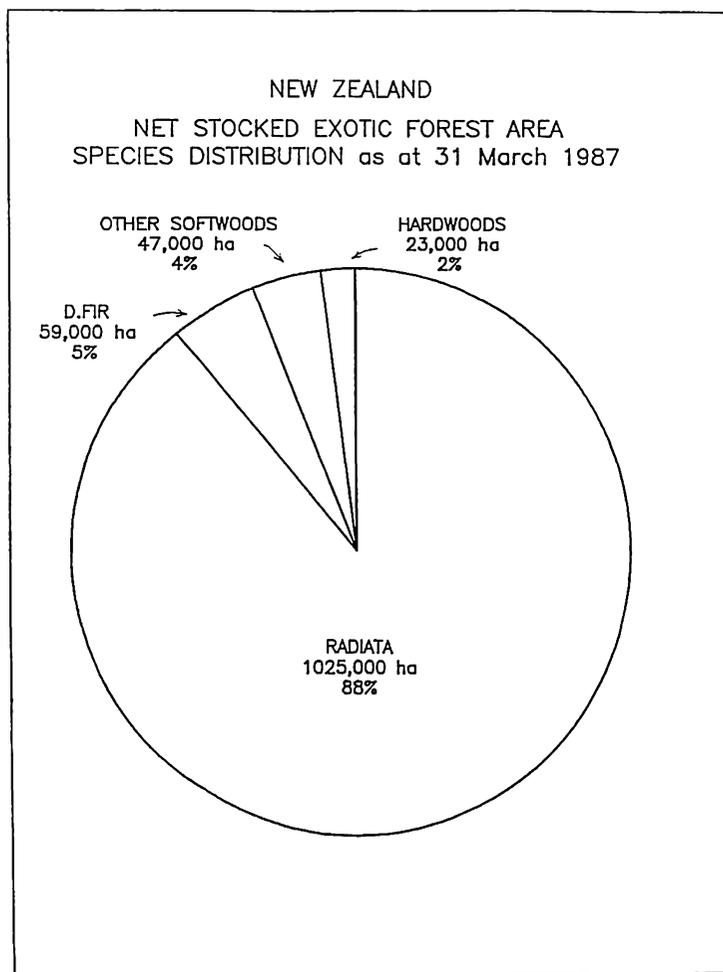
Early this century, it became obvious that our native forests would not supply our future wood needs and plantations of introduced (exotic) conifers were established. We now have about 1.2 million hectares of these plantations of which over 1 million hectares are in one species, radiata pine (Figure 1).

The resource has been mostly planted in two periods: there was a first "planting boom" in the late 1920's and early 1930's; and then, after very little planting between 1940 and 1960, a second "planting boom" has continued almost until the present day. Up to 50,000 hectares per year of new forest were being established.

**TABLE 1: Land use in New Zealand**  
(Total area 27 million hectares)

	AREA	
	million hectares	%
<b>NATIVE FORESTS</b>		
Now	6.2	23
150 years ago	14.3	53
1000 years ago	20.2	75
PLANTATION FOREST	1.2	4
PASTURE AND ARABLE	14.4	54
OTHER NON FOREST	4.9	18
LAKES AND RIVERS	0.3	1

Figure 1



Planting rates have declined abruptly this year because of changes in Government policy including the cessation of grants for establishment of new forest. For this, and a variety of other reasons, rates of new planting are expected to remain lower in future.

New Zealand forestry practice has also changed dramatically. The first plantings were largely untended. They are referred to as the "old crop" in New Zealand. Most of this resource has now been felled.

The "new crop" planted since 1960 has been progressively more and more intensively tended. Initial and final stockings have been lowered and the stands have been high pruned (usually up to 6 m) and thinned. An example of a direct sawlog regime for radiata pine is shown in Table 2. Such schedules are considered most profitable for radiata pine growing on better sites. The schedule aims to maximise profit to the grower and does so by concentrating growth on the final crop trees and maximising clear wood production.

**TABLE 2:** A direct sawlog regime

Year	Operation	Pruning height (m)
0	Plant 800-1250 stems/ha	
5	Low prune 400-600	2.2
	Thin to waste—leaving 400-600	
7	Medium prune 200-250	4.0
9	High prune 200-250	6.0
	Thin to waste—leaving 200-250	
30	Clearfell	

New Zealand has about 10 million cubic metres of roundwood per year available for processing at present, and because there was little planting in the 1940's and 1950's, it will be 5-10 years before wood supply increases to any great extent. Wood available for processing will almost double by the year 2000 and most of the extra that is processed will have to be exported.

The latest published statistics, for the year ended June 1987, showed that about 40% of wood production was already exported as a full range of products to a variety of countries but especially to Australia and Japan (Tables 3 and 4). Reports for the latest year are that exports exceeded 50% of production for the first time because domestic demand was depressed and export receipts were substantially higher. Exports of forest products account for 7-9% of the New Zealand total exports of consumables.

New Zealand is the only country in the world that has gone from total dependence on its

**TABLE 3: Forest products exports—1987**  
(NZ\$ mill June year)

Country	Value	Percentage
Australia	294	37
Japan	202	26
USA	36	5
India	34	4
Taiwan	32	4
China	22	3
All other countries	166	21
Total	786	100

**TABLE 4: Exports by main products—1987**  
(June year)

	Quantity	\$ million (FOB)
Logs and poles (000 m <sup>3</sup> )	429.1	41.9
Sawn timber (000 m <sup>3</sup> )	354.4	93.7
Wood pulp (000 tonnes)	483.3	252.9
Paper and paperboard (000 tonnes)	209.0	176.9
Panel products (000 m <sup>3</sup> )	145.7	62.4
Wood chips (000 BDU)	311.5	43.6
Other forest products	—	114.9
Total	—	786.3

native forest for wood to getting it all from intensively-managed plantations of mainly radiata pine (with a substantial surplus for export).

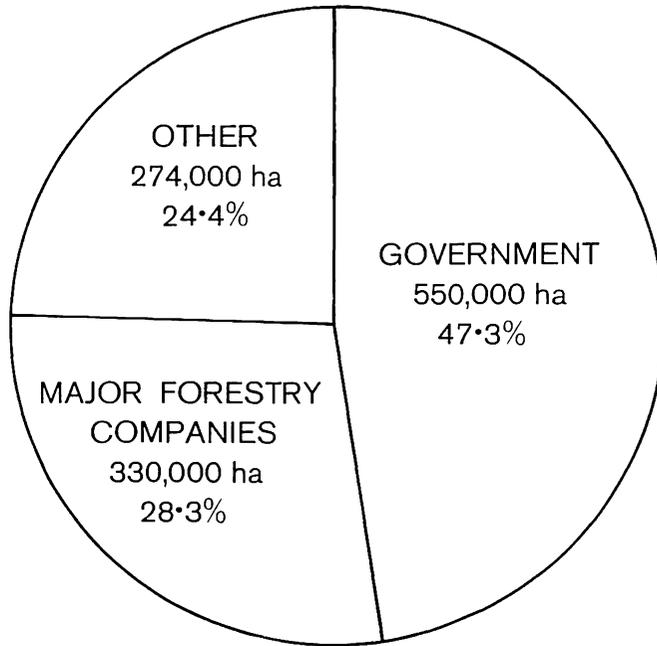
Government, through the Forest Service, has played an important role in :

- establishing plantations (by 1987 it owned almost 50% as shown in Figure 2),
- demonstrating how to process plantation wood that was very different from the native conifers of higher quality available before,
- gaining acceptance from users in New Zealand and in export markets.

At the same time, the Forest Service had many other functions. These can best be understood from a brief account of its history.

FIGURE 2

NEW ZEALAND NET STOCKED  
PLANTATION FOREST AREA  
OWNERSHIP DISTRIBUTION  
as at 31 March 1987



TOTAL AREA 1,154,000 hectares

## BRIEF HISTORY OF THE NEW ZEALAND FOREST SERVICE

### Beginnings

The Forest Service was set up in 1919 in part because of increasing concern at the depletion of our native forests. Three policies relating to these forests were set out by government at that time and were the basis of the Forests Act under which the Forest Service operated:

1. Reservation of protection forests by creating Permanent State Forests which could only

be revoked by Parliament.

2. Identification of Provisional State Forests—forest that could be cleared for agriculture, but before doing so milling of native timber in it had to be carried out in an orderly manner.
3. Expansion of the area of plantations of introduced species to compensate for the depletion of native resources.

The foresight of the early administration of the Forest Service in establishing further plantations was the best protection that could have been provided to save the remaining native forest. Development of a rural fire protection system under the Forests and Rural Fires Act was another important step in protection of the native forest.

The principal activities of the Forest Service in the 1920's and early 1930's were the rapid expansion of the plantation forests and control of logging in the native forest. By 1936, 317,000 hectares of plantations had been established, 53% of it by the Forest Service. This was the first planting boom. There was not enough labour to thin and prune stands so these stands were largely untended except for pruning up to 2.4 m for stand access and fire protection purposes.

These stands have provided most of the wood for the development of New Zealand's radiata pine industry up to the present. Radiata pine was the dominant species but many others were represented especially in Government-owned plantations.

## Utilisation

The period from 1935-1960 saw very little planting but was significant for the beginnings of substantial utilisation of plantation forests.

The State (Government) built two sawmills to demonstrate suitable sawing methods for a resource very different from that of the native forest. The first of these, Waipa Sawmill, commenced production in 1939. It also led the way in development of timber grading, drying and wood preservation appropriate to the new resource.

These mills were retained long after the need for demonstration was over. The Forest Service remained a major producer of sawn timber — Waipa was one of the three largest in New Zealand — as well as being the country's major supplier of logs to other processors.

The increasing size and importance of the forestry sector in New Zealand towards the end of this period, and the increase in export of forest products, led to expansion of product standards, quarantine regulations and control of the wood preservation industry. In all of these, the Forest Service either took the initiative or played a very active part.

## Training and research

The Forest Service expanded after World War II with the addition of staff to manage the expanded resource and its utilisation, and to carry out many new functions. It had its own training centre and carried out all of its own sub professional training. It later provided training for industry and became the national centre for forestry training.

Research was also expanded to provide a better understanding of silviculture, growth and yield in plantations, and to determine the properties and study utilisation problems of plantation-grown wood. A tree improvement programme was started in 1950. What began as research for the Forest Service led to the establishment of a Forest Research Institute providing research and technical support for the whole forestry sector. Staff expanded from less than 20 in 1948 to 450 in 1987 but maximum growth occurred in the 1960's and 1970's.

## Decline of production from native forest

Between 1940 and 1985 there was a 5 fold increase in wood produced from New Zealand forests. Native forests accounted for 87% of the 2,000,000 cubic metres produced in 1940 and only 7% of the 9,600,000 cubic metres produced in 1985.

Production from native forests declined in absolute and in percentage terms and it was the plantations that satisfied the rapidly increasing domestic demand and allowed New Zealand to become a substantial exporter of forest products.

By the 1980's many of the remaining native forests under Forest Service management had been reserved as forest parks. Considerable resources have been spent on providing walking tracks and huts for camping. Other large areas of native forest were already reserved as national parks administered by the Department of Lands and Survey.

Native forests have almost ceased to be a source of wood and are considered now for their protective and recreational role. This change of emphasis occurred gradually and one of the important activities of the Forest Service during this period was control of introduced browsing animals, especially red deer from Europe and possums from Australia.

## The new crop

From the early 1960's until the present day there has been a rapid expansion of plantation forestry. There were in fact three differences from the old crop :

- The objective was to provide wood products for increased export rather than emphasis on domestic self sufficiency.

- Radiata pine was much more dominant.
- As already mentioned, there evolved an intensive silviculture based on early thinning to low final crop stockings and high pruning to produce clear wood.

A total of 240,000 hectares of plantation were established by the Forest Service between 1961 and 1986, another 385,000 hectares by private companies. This rapid expansion was aided by the provision of Government grants to private companies and individuals to establish new forest. These grants, now discontinued, were administered by the Forest Service.

New areas of government plantation were established both on open wasteland and on land previously occupied by native forest, mostly forest that had been logged. However, the latter caused conflict with the environmental movement — they saw the Forest Service as destroying native forest to make way for pines — and this had a strong bearing on the eventual decision of government to set up a Department of Conservation.

## PRESSURE FOR CHANGE

### Environmental pressure

During the late 1970's and 1980's, a strong environmental movement put increasing pressure on government to stop the logging of remaining native forest areas. The various environmental groups also closely monitored the conversion of logged areas to plantation. Attention was particularly concentrated on the activities of the Forest Service in this respect.

The views of environmental groups received a favourable response from the Labour Government elected to power in 1984. Logging in native State Forests has now virtually ceased except for some small areas of the South Island and the environmental forestry activities of the Forest Service have been transferred to a new Department of Conservation.

### Government economic policy

An even more important reason for change, however, was the economic policy developed by the new government. It was determined to create an undistorted and neutral environment for investment, hence the removal of the various establishment grants as well as many other subsidies in other parts of the economy, most notably in farming.

Government was also determined that the various Departments of State be more accountable. It saw conflict in the objectives of a large Department with many functions such as the Forest Service. In particular, it felt it essential to separate commercial activities from the other, non-commercial, functions. It also introduced the concept of "user pays" for services

provided by Government and for which a clearly-identified client existed. This brought changes in the funding of research and of other services to the sector.

## REORGANISATION

From 1 April 1987, the New Zealand Forest Service ceased to exist. It was split into three parts:

1. A State (Government)-owned enterprise, the Forestry Corporation, was set up to manage the government-owned plantations (550,000 hectares or 47% of the New Zealand total) plus small areas of native forest in the South Island to be managed for production. The Corporation also acquired the two State sawmills.
2. All non-commercial activities relating to native forest were transferred to a new Department of Conservation. This Department also took over functions from several other Departments being reorganised at the same time including the management of National Parks.
3. The remaining functions:
  - Policy advice to government,
  - Research,
  - Forestry training,
  - Administration of the Forest and Rural Fires Act,
  - Statutory responsibility for import and export quarantine and related activities,
  - Provision of forestry services to the sector,passed to a new Ministry of Forestry.

## ONE YEAR LATER

One year is too short a period to judge the success of such widespread changes but some points can be mentioned.

### Forestry Corporation

Several loose ends remained to be resolved when the Forestry Corporation came into existence. The most pressing of these was the valuation of the assets being taken over, which was complicated by such factors as the preponderance of young age classes (more than 60% of plantations are less than 15 years old). A valuation is necessary to determine debt/equity levels and to assess financial results on a proper commercial basis.

No agreement was reached during the first year of the Corporation's operations as to the

value of the assets. The Corporation was set up with a much smaller staff than the equivalent part of the Forest Service and announced a cash flow surplus of NZ\$54 million in its first year. Comparable figures are difficult to obtain but there was a deficit of about NZ\$50 million in the equivalent published accounts of the Forest Service the previous year.

### Ministry of Forestry

The new Ministry of Forestry was set up with the philosophy that it is a business “selling” services to government and other clients. Government funding will be reduced very substantially over the first five years.

Research is the largest part of the Ministry. Its funding was 79% from government and 21% from other sources in 1987/88. At the end of five years, government funding will be 55%. Government funding of other parts of the Ministry will also be reduced, notably in the Forestry Services area.

Because the Ministry has neither substantial land nor forest of its own, it can now be seen as neutral in its policy advice to government.

### Conservation Department

The mission of the Conservation Department has a strong emphasis on preservation and protection of the resources under its control. It has a staff of about 1,100 and a budget of about NZ\$100 million. It has wide powers over the New Zealand landscape (controlling more than one third of the land including virtually all native forest) and inshore waters (responsible for the area within the 12 mile zone). It has responsibility for plants, animals and for New Zealand historic places.

It is a new multi-functional Department and its major problem in its first year has been to develop a corporate identity among staff drawn from several different Departments.

## FURTHER CHANGE

One major change affecting the Forestry Corporation has been announced and there have been several changes affecting the Ministry of Forestry as well. In the Budget of July 1988, the Minister of Finance announced that many State-owned enterprises would be sold to private interests. The Forestry Corporation was to be included.

It is possible that this asset will be sold as several separate, regional aggregations of forests. If this happens, the four major private forestry companies may buy extra forests

from the Government. Alternatively new companies may be formed from New Zealand and/or overseas interests. This change has very important implications for the future of New Zealand forestry.

Two functions of the Ministry of Forestry have been passed to other organisations reflecting an ongoing review of the role of Government Departments :

1. Forestry training is now the responsibility of the Education Department.
2. The timber industry has taken over the functions of the Timber Preservation Authority and replaced it by a Timber Preservation Council.

## CONCLUDING REMARKS

Throughout its 68 year life the Forest Service has had a predominant role in the development of the New Zealand forestry sector.

The changes made in the last few years reflect a fundamental change in Government policy, particularly with regard to the role and performance of Government Departments, to what activities the taxpayer should fund, and to Government ownership of commercial assets.

These changes will have a marked effect on the future of the forestry sector in New Zealand as it approaches the period when greatly increased volumes of wood will be available for processing and export.