

# The NZ Forest Service contribution to plantation forestry

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## ABSTRACT

*The Forest Service's very considerable contribution to plantation forestry has few, if any, equals in the world. The Service was fortunate in having visionary leaders in management and in research at key times in its 68 years of existence. These gave New Zealand not only a technological lead in plantation forestry, but also a whole new industry which satisfies both internal wood demand and an increasing export market. These plantations have been a very significant contribution to the conservation of New Zealand's indigenous forest.*

Two essential management elements underpin every successful enterprise: a clear vision or goal (i.e. an organization must know where it is going and why) and operational efficiency.

For forestry enterprises the long-time interval between initial planting and final harvesting makes the vision component even more important, since to even get started requires a vision of what the world will be like decades ahead. On the operational front, efficiency can be more difficult to assess because of the time interval and because only rarely does competition apply.

On a large number of counts, the NZ Forest Service must be regarded as a successful organization. The Department can take a great deal of credit for the more than one million hectares of plantations and for an industry that has long satisfied almost all New Zealand's wood needs and whose current export earnings of more than \$5 billion will increase manifold in the next two to three decades. (The annual planting rates of both the State and private sectors are shown in Figure 1). New Zealand leads the world in many aspects of plantation technology and in some aspects of utilization, especially those related to radiata pine. The NZ Forest Service over the last 68 years has made a very considerable contribution to plantation forestry.

## THE BEGINNING — THE ELLIS ERA, 1919 to 1928

The far-sighted and comprehensive 1913 Royal Commission (Anon 1913) had recognized the need for fast-growing exotic plan-

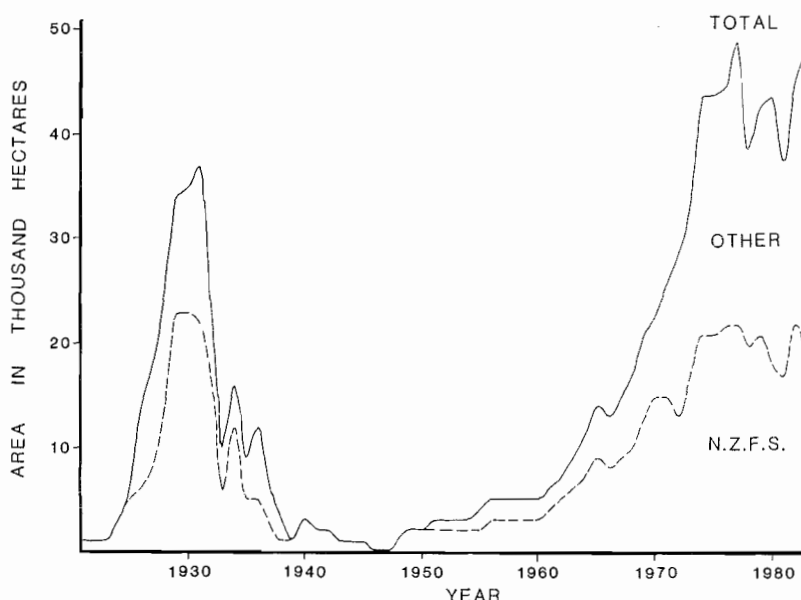


Figure 1 — The annual planting rates of both the State and private sectors.

tations and had identified radiata pine as the prime species for planting. To achieve this, the Commission recommended strengthening the forestry branch of the Lands Department rather than the creation of a separate Government Department. However, advice and pressure from influential individuals (such as Sir David Hutchins and the Hon. G.M. Thomson) and organizations (such as the N.Z. Forestry League) led to the establishment of a separate Department in 1919 (Allsop 1973). The Department advertised worldwide for a Director (see Figure 2).

A 32-year-old Canadian, L.M. Ellis, was appointed. Ellis, who was strongly influenced by the North American conservation movement of the first decade of the twentieth century, brought vision and realistic enthusiasm to the position. His major policy reviews of 1920 and 1925 were far-sighted and comprehensive.

The 1920 review highlighted the need for (among other issues):

- a progressive timber sales policy
- adequate facilities for technical education
- encouragement of private tree growing

## NEW ZEALAND.

A Chief Inspector of Forestry is required by the New Zealand Government. Salary £600 per annum increasing to £700. Candidates should be graduates of a School of Forestry of recognized standing. Full particulars and forms of application obtainable from the High Commissioner for New Zealand, 415 Strand, London, by whom complete applications will be received up to the 20th of January, 1920.

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Figure 2 — 1919 advertisement for the First Director of the NZ Forest Service.

- forestry and forest products research
- administration and protection of forest flora and fauna.

Ellis claimed that this policy "... should ensure the permanent and adequate supply of timber for New Zealand ...". By adopting alternative higher revenue earning timber sales policy and by the setting up of a Forestry Development Fund, Ellis also claimed that these "... should result in immediate increased forest revenues to the State ..." (the Government did not accept Ellis' ideas for either an alternative sales policy or a Forestry Development Fund).

Ellis' 1925 review claimed that the "... virgin softwood resources would be economically exhausted by the period 1965-70". Ellis' review further claimed that the area of plantations had to increase from the present 63,000 acres, (25,500 hectares)

to 300,000 acres (120,000 hectares) by 1935 if New Zealand was going to provide the wood necessary for "... progress and future prosperity". A diagram in the 1926 Department's Annual Report clearly shows the 1935 Target effort (reproduced here as Figure 3).

One of the gravest injustices done to New Zealand's forestry forefathers is the often-made claim that the forestry plantings of the late 1920s and early 1930s were the result of the depression. Certainly, the depression helped: Ellis's projected total of 120,000 hectares of planting by the State was actually achieved in 1931. This effort, however, was not an accident or just one great act of faith. In an earlier publication (Sutton 1978) I argued that this initial effort at plantations was more strategically based (i.e. they had identified their future market opportunities and needs, and how to achieve them) than the plantings of the second boom from the 1960s onwards. Ellis argued for encouragement of planting by other organizations and individuals whose contribution was expected to be about one-third that of the State. In the end the contribution of the other organizations, companies, etc, was very similar to that of the State (as it has been throughout the last 70 years — see Figure 1).

This concentration of planting over a short period and the emphasis placed on radiata pine was severely criticized by overseas visitors for the next few decades. Yet, with hindsight, we can now argue that the effort should have been for more rather than for less. Ellis in 1927 proposed that New Zealand continue planting over the next 25 years until two million hectares of idle waste or deteriorated lands had been planted. This he claimed "... would make New Zealand the principal wood-goods supplier to the empire". Even though the British Empire is no longer a trading force, we must marvel at Ellis' vision. We can only dream now of what might have been.

Ellis left New Zealand in 1928. Why he

left has not been recorded.

Once the depression planting ceased, the nation appears to have lost interest in forestry, and NZ Forest Service was almost reabsorbed by the Lands Department. The change came in 1939 with the stimulus given by the war effort and by the appointment of A.R. Entrican as Director. Entrican, like Ellis, was the man for the time.

## THE ENTRICAN ERA — 1940-1960

What Ellis did for resource establishment, Entrican achieved for utilization. Entrican recognized that economic harvesting, processing and marketing techniques had to be developed before the plantations could be profitably processed. Entrican established a sawmill at Waipa to process plantation trees. He also advocated the establishment of a large-scale pulp and paper industry to utilize sawmill wastes, arisings and thinnings. That advocacy eventually led to the Tasman Pulp and Paper Company being established at Kawerau in 1955 to utilize the wood resources from Kaingaroa Forest.

One of the paradoxes of Entrican's era was that tree planting was at such low levels for most of his 20-year era (see Figure 1).

Entrican placed tremendous importance on training and education. Under Entrican's guidance the woodsmen, ranger and overseas forester training schemes began. Short courses at the Forestry Training Centre were also initiated. That investment provided not only the Department but the whole of the New Zealand forestry sector with a cadre of trained people for all positions. Forestry and forest products research was given considerable emphasis during the Entrican era.

The initial forest plantings were not tended. However, because of the siren outbreak and because of the needs of industry, the next generation of plantations would have to be managed. The first major contribu-

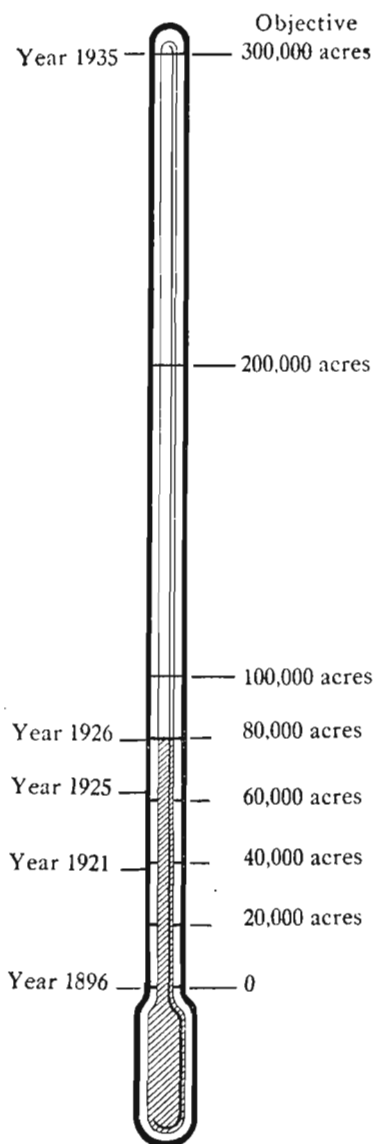


Figure 3 — An extract from the 1926 Annual Report showing a planting target for the NZ Forest Service of 300,000 acres (120,000 hectares) by 1935.



1930 planted *Pinus radiata*, photographed in 1985.

tion to this was that of J. Ure in Kaingaroa Forest. His contribution to plantation management has not been adequately acknowledged. Although we tend today to regard Ure as a conservative, his work in the late 1940s in Kaingaroa on tending regeneration of radiata pine (Ure 1949) was far more revolutionary than Craib's South African work a decade earlier. Ure's proposals were for earlier and heavier thinning than Craib ever proposed (a fact almost always missed by commentators, including many from within New Zealand). Ure tried to evolve a practical and economic solution to management. His major aim was to "... maximize returns for the minimum addition of capital".

Throughout its long history, the Forest Service has always concentrated on sawlog production. In more recent times, this effort has intensified, with pruning becoming more and more accepted. The Department often tried to maximize tree size and quality, and hence returns, while also maximizing volume production: something which it is not possible to achieve.

It is difficult now to appreciate the problems of winning acceptance for radiata pine in an era when the Government, because of housing demand and sawmiller pressure, continued to dispose of NZ high-quality indigenous resource at nominal stumpages. The position was not at all helped by the major lending authority (the State Advances Corporation) refusing to lend on houses built of radiata pine.

## THE POST ENTRICAN ERA — 1960 ONWARDS

This period was noted for many achievements. The NZ Forest Service played a key role in three Forestry Development Conferences in 1969, 1974 and 1981. These Conferences focussed attention on the opportunities for forestry and played no small part in increasing the planting effort over the last 20 years.

Innovative research, especially in all aspects of plantation growing and utilization, was given strong support. Much of that work has been successfully transferred. Establishment methods now virtually guarantee 100% survival on every site — a unique achievement by world standards. Silviculture is much more a science than an art. The management tools available are now far more comprehensive than could have been envisaged even 10 years ago. The results of innovative leadership in research are that New Zealand leads the world in many plantation technologies.

Throughout its history the Forest Service played an important role in a whole host of activities related to plantation forestry. These include: extension forestry; statistics, projections and policy; fire control; timber inspection; surveillance of harmful biological agents; recreation and public education.



Loading pine logs in Hanmer Forest, Canterbury. Production from New Zealand's pine forests will double in the 1990s as a result of the second planting phase. (Photo NZFS)

With such a creditable role of achievements, it may seem surprising that the Forest Service has now been broken up. We must ask the question:

## WHERE DID THE NZ FOREST SERVICE GO WRONG?

A case can be argued that what has happened to the NZ Forest Service is not in any way its own fault. The break-up resulted from a Government policy decision to corporatize as many Government Departments as possible and to separate trading and service functions. The fact that other Government agencies are also being restructured and corporatized at the same time can be advanced to support this view.

However, it can be equally argued that if the Department was functioning satisfactorily, there would have been little need for drastic restructuring. A truly strategic organization should have constantly reviewed its goals, monitored its efficiency (at all levels) and been aware of the changing political climate. Had that been done, the Forest Service would have been better prepared to withstand political changes.

By the 1980s the NZ Forest Service had lost most of its vision. The lead started by the 1913 Royal Commission, Ellis, Entrican and, more recently, by the first two Forestry Development Conferences had not been sustained. The Department increasingly saw itself as a provider of wood. I well remember having a heated discussion with one recent Director-General who argued that the Department should not be concerned with markets. The Department's job was to grow the wood: it was industry's job to process and market it. The Department

had many warning signals, e.g. the 1980 Forest Industry Study by the Development Finance Corporation noted that "... without clear goals, management action cannot be properly judged ...", and, "If there has been failure on the part of the Forest Service ... [it is] in its apparent inability to clarify its goals ...". The Study recommended that the Department establish units for both sector planning and marketing services. The recommendations were largely ignored.

The Department also saw forest establishment as a social service providing employment in depressed regions. While this may have been a worthy objective and may have been justified economically on a marginal basis, the total profitability, especially taking location and other factors into account, was never properly reported to the politicians.

Operationally, the Department had reasonable control of direct costs. However, this efficiency did not extend to overheads. The expenses on staff, buildings and other overheads was out of balance.

There was no adequate mechanism for strategic review.

## THE FUTURE

Political Scientist, Professor Margaret Clark, claimed recently that corporatization could well be the first stage in what will eventually be privatization (Clark 1987). There will certainly be no shortage of buyers for most of the new Forest Corporation's assets. Asset realisation must be attractive to any Minister of Finance with a large current account deficit.

Although privatization is almost certain-

ly inevitable, the new Corporation will resist this for as long as it can. It will be operationally efficient but is most unlikely to have the people or the resources to be visionary. There will be little attempt to play a strategic role. New Zealand can only hope that the private sector now takes up the lead given to it by many of the visionary leaders within the Forest Service over the last 70 years. Only then can New Zealand forestry maintain and increase its place in world forestry.

FINAL COMMENTS

The NZ Forest Service compares favourably with similar organizations in other countries. In its vision, efficiency and especially in its support (well, tolerance at least) of innovation it has had few, if any, equals. The NZ Forest Service effort has given New Zealand a lead in plantation forestry — a lead more significant than most realize. It is an intriguing exercise to consider what the world forestry might be like today if the New Zealand plantation effort had never existed. We can safely claim that without the New Zealand example, Chile's forestry efforts would have been much less. Australia, too, relied heavily on the New Zealand experience in justifying its forestry expansion from the 1960s onwards.

But it is in the area of plantation technology that New Zealand probably has made its greatest impact. In many areas of research, technology transfer and forest operations (nurseries through to thinning) New Zealand leads the world. It is surprising that (except for Chile) most of the forestry world still remains ignorant of the New Zealand experience and contribution. I am continually amazed to see publications from North America and Europe (and sometimes even South Africa or Australia) which ignore earlier and far more advanced and comprehensive work from New Zealand. This is especially so in the area of silviculture.

An American visitor in 1970 succinctly summed up the NZ position when he commented "you guys have solved problems we don't yet know exist". When the forestry world wakes up to our lead, the visitor problem could be beyond our means to cope.

The NZ Forest Service played a vital role in giving New Zealand not only a technological lead in all key areas of plantation forestry but also a whole new industry.

In the present climate it is heresy to suggest it but in more objective times the NZ Forest Service efforts in plantation forestry will be increasingly seen as the single greatest contribution to forest conservation. Unlike today's philosophy, the NZ Forest Service foresaw the need and tried hard to conserve New Zealand's indigenous forest while at the same time satisfying wood demand as quickly as possible using fast-growing introduced tree species. It would have achieved much more, especially dur-

ing its first 40 years, but for the influences of the politicians (and their desire to provide New Zealanders with cheap houses), the sawmillers and the conservative lending authorities.

All of New Zealand (and maybe the whole forestry world) owes the NZ Forest Service a great deal for its contribution to plantation forestry.

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