

THE TARARUAS—A DUAL-PURPOSE NORTH ISLAND FOREST

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SYNOPSIS

Tararua Forest covers some 300,000 acres of steep mountainous country in southern North Island and is mainly State Forest (258,000 acres) including 23,000 acres vested in Wellington City Council.

The forest is predominantly red and silver beech with rimu/miro in association at lower altitudes.

The severe storm of 1936, which devastated several thousand acres on the western side of the range, inadvertently demonstrated that the forest plays a most effective protective role in relation to capital values of the order of 700 million dollars downstream, and vital communications.

Nearly half a million people live around the forest, which is extensively tracked and provided with 42 huts to facilitate outdoor recreation.

One road end, recently developed as a picnic site, has attracted up to 16,000 visitors in a year, indicating that there is a tremendous latent demand for this type of recreation.

It is concluded that Tararua Forest plays a most important dual role in southern North Island. Upper catchment protection is without question the most important role in view of the vulnerability and high values off site, but the need for recreation and outdoor education of a large, rapidly growing population is such that maintenance of the forest could be justified for this reason on its own.

INTRODUCTION

Tararua Forest covers some 300,000 acres between the Manawatu Gorge and the Rimutaka saddle in southern North Island and is predominantly State Forest embracing 258,000 acres including 23,000 acres presently vested in the Wellington City Council.

The Tararua Range rises quite abruptly from the Wairarapa plain on the east and Manawatu-Horowhenua on the west, but climbs gradually from 1,500 ft in the north to 4,000 ft in the central portion before falling to 2,500 ft in the south. Highest point is The Mitre, 5,154 ft.

Bedrock is that submetamorphic sandstone called greywacke, shattered in many places by faults, and grading locally into argillites. The mountains are steep or very steep and many streams are likewise on a steep grade and actively down-cutting. Two major earthquakes in 1848 and 1855 caused considerable damage to the eastern Tararuas, dislodging large quantities of material and filling the stream channels with debris (Holloway, 1963).

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The range lies athwart the prevailing westerly wind not far from that notorious wind tunnel, Cook Strait. Persistent and pervasive wind is in fact a prominent climatic feature of the region accentuated on the higher ground where gusts round 100 mph are probably not uncommon.

Rainfall in the central highlands is round 200 in. per annum and cloud hangs round the mountains on all but 80 days in the year. Snow lies above the treeline for 3 to 5 months in the year.

In the central and southern Tararuas, silver beech forms the treeline fringing the 53,000 acres of alpine scrub and grassland above 3,500 ft to 4,000 ft. Red/silver beech forests cover the range between 1,800 ft and 3,500 ft with rimu/miro in association locally below 2,500 ft. Black and hard beech and matai are virtually confined to the drier sites on the east of the range and rimu-rata-kamahahi forest to country below 1,500 ft. Today logging is confined to this latter type and to the mid-altitude rimu-beech association on freehold land in the south-west of the forest. Exotic afforestation being carried out on the eastern foothills will eventually extend the forest to the very edge of the Wairarapa plain.

Pigs, goats, red deer and opossums were introduced and well established throughout the forest by the end of last century. All forest types have suffered modification and impoverishment to some degree and there can be little doubt that the protective efficiency of the cover has been impaired as a result.

Tararua Forest has the distinction of having been selected and promoted by A. P. Thomson and the late A. R. Entrican as the first Forest Park in New Zealand. The primary objects of management are protection and recreation.

PROTECTION

The forest covers steep, broken highlands subject to severe climatic conditions including relentless rainfall and penetrating frosts. The bedrock is not notably resistant to erosion, is weakened by numerous faults and mantled by shallow soils of low natural fertility, themselves highly susceptible to erosion. Many rivers, including the southern source of the Manawatu, rise in the forest, together with numerous minor streams. All descend rapidly before debouching on to the intensively settled Wairarapa and Manawatu-Horowhenua plains and the industrialized Hutt Valley.

These are the essential ingredients that justify the maintenance of a protection forest, but just how much protection does the forest give?

Some measure of the degree of protection given might have been deduced from the aftermath of the 1936 storm; but unfortunately no quantitative measurements were taken at the time and the opportunity was lost.

This storm, comparable in severity to the more recent *Wahine* storm of 1968, devastated several thousand acres of forest in the western Tararuas, particularly in the Otaki, Ohau and Mangahao catchments. The forest cover was completely

destroyed and there was prodigious soil disturbance as a result of wholesale uprooting.

Literally hundreds of slips developed and a marked increase in bed load was noted subsequently in these streams with obvious aggradation in the lower reaches.

In the case of the Ohau, the whole character of the stream changed from limpid clear water and rocky pools to a shingle-choked channel full of log jams and sufficient aggradation lower down to threaten the very course of the stream. It is almost certain that a large part, if not all of the \$95,000 required to control the lower reaches would not have been necessary if the 21,000 acres forested upper catchment was still undamaged.

The combination of devastated forest and no river control works would, in this instance, deprive the country of as much as \$300,000 worth of annual production together with a large bill for periodic flood damage.

The Mangahao hydro-electric station operates on water drawn from the upper catchment and stored in dams with a capacity of 237 million cu. ft. These dams, like others, have always been subject to sedimentation but this increased rapidly between 1944 and 1959 to the extent that 50% of their capacity was lost. The rate of sedimentation subsequently decreased, owing in part to forest recovery from the devastation caused by the 1936 storm. In 1969 the station was closed and after a month's suicing and ponding 75% of the silt was cleared and the station became operational again at full load on a continuous basis for the first time for many years.

It is quite conceivable that complete destruction of the forest cover throughout the 20,000 acre catchment could make this hydro station non-operational thus virtually destroying the capital invested and losing round \$350,000 worth of annual power production.

These two fortuitous examples demonstrate clearly that the forest has a very real value indeed in restraining the natural tendency of steep hills to crumble and form plains.

It is known that the Tararua river systems encompass capital values to the order of \$700 million, of which some \$180 million could be regarded as flood-prone and likely to suffer damage directly from this cause. The only road and rail links between Wellington and the rest of the North Island pass by on either side of the forest and are vulnerable at several points. Breakage of these lines of communication could effectively cork the Wellington bottle and cause widespread economic loss far beyond the scene of actual physical damage.

It has been estimated that the direct cost of repairing flood damage in the Wairarapa amounts to approximately \$50,000 on a five-year frequency with more severe damage half as frequently.

The 1953 Manawatu flood caused \$360,000 damage but this is unlikely to recur thanks to the river containment work carried out by the Catchment Board. In all, \$7 million have been spent on river control work around the Tararuas.

RECREATION

The forest is situated close to the major urban complex of Wellington. In all, nearly $\frac{1}{2}$ million people live around the Tararua, including round 100,000 in the active 18 to 40 class. By the end of the century these numbers will be nearly doubled.

The forest is extensively tracked with reasonable access at many points. There are 42 huts, mostly built and maintained by mountain clubs, but including 14 Forest Service huts, all of which are open to the public.

The forest offers a wide range of tramping trips, from easy walks for the corpulent to gorge trips for the athletic and 50,000 acres of open tops offering some scope for winter skiing to the dedicated.

Interesting and rewarding trout fishing is available in seven rivers and a modest population of red deer offers good sport to the keen and competent deer stalker.

The forest is of some interest botanically, particularly when studied in relation to the Ruahines to the north of the Manawatu Gorge — an inexplicable ecological barrier — and there are always the birds.

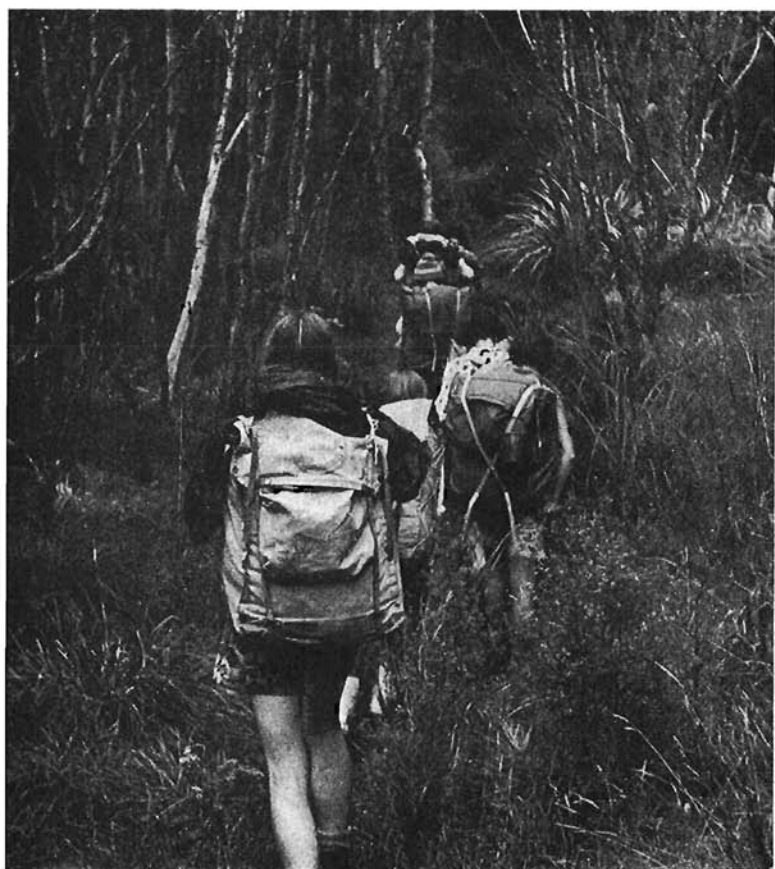
Tramping clubs, particularly the Tararua Tramping Club, pioneered the recreational development of the forest. This work continues largely as a by-product of deer and goat control operations mounted by Internal Affairs Department and later the Forest Service.

In recent years it has become evident that the existing network of huts and tracks is approaching the point where further development could erode the natural wilderness character of the forest. It is also very evident that there is a tremendous latent demand for forest fringe recreational opportunity and that this must be catered for. In view of these things, future development will emphasize facilities on the forest fringe and larger huts in the interior.

The first serious attempt at catering for day visitors and short-stay family parties was made at the Mt Holdsworth road end with its Lodge and picnic facilities which opened in November 1966.

Prior to this developmental work, a mere few hundred people visited the area during the year. Interest increased rapidly after November 1966, with 2,000 visitors recorded up to March 1967. Some 14,000 visitors were counted in 1967-8 and 16,000 are expected by the end of this year. It is of some interest to note that a small area of interplanting, which was carried out with shade-tolerant exotics in the 30s, is now a most attractive setting for a recreation area and is in fact being developed as part of the policy of expansion and diversion to other road ends.

It is very difficult to estimate the number of people who enter the forest at other points on tramping, hunting or fishing trips, and how long they stay, but the existence of 19 clubs around the perimeter and the fact that some of the more popular huts are filled to capacity or beyond on fine weekends is some indication of the interest.



Trampers on the wet-weather track in the Tauherenikau Valley, Tararua Range. (Photo by Rosemary Johns.)

The forest-clad mountains are seen and enjoyed by thousands who live around their feet or who pass by in the air and on the ground. Scenery, like one or two other perpetual resources, attracts visitors to New Zealand, and Tararua Forest must surely fulfil a significant function in this respect.

DISCUSSION

It is conventional to assess the importance of upper catchment protection forests by considering the capital values downstream, but the writer is not aware of any formulae whereby this can be quantified. The forest manager can do no more than list his priorities by forests and catchments, after considering the risk inherent in each.

At the bottom of the list would be the catchment whose waters, however wild, plunge straight into the sea; at the top, the river which threatens the city with its heavy bed load arising from a geologically unstable upper catchment with inadequate plant cover and a hostile climate.

Capital values of the lowlands are readily determined and the direct cost of flood damage can be estimated fairly accurately. It is also possible and usual to predict the value of increased production from flood-prone land to justify expenditure on river control in the lowlands by stop banks and other engineering endeavours. These problems can be solved by formulae.

The forester, however, faces a much more difficult problem and must just ask himself, "How protective is my protection forest?" What effort and expenditure should he apply to reduce the risk of devastation in the lowlands? Would such effort in fact reduce the risk significantly? This, then, is the nub of the matter. What value does the forest have — not in direct monetary value but in the indirect benefits it confers — and how much should be spent to sustain these benefits?

The 1936 storm and aftermath gave a convincing demonstration that Tararua Forest plays a very real and effective role in upper catchment protection. Lowland values are very high and vital communications are at risk. Without this cover the productivity of the adjoining lowlands would certainly be drastically reduced and life could become intolerable within the flood plains of the river system. In addition, 11 towns and some 300,000 people could lose their water supplies and all river control works would be destroyed.

Browsing animals are the only real threat to the wellbeing of the forest and although it has survived almost three-quarters of a century with such aliens within, and although it is still in fair to good order today, the importance of the forest is such that nothing less than stringent animal control should be practised. Fortunately, adequate deer control is being achieved for \$15,000 to \$20,000 per annum, which is very little in comparison with the downstream values and production that is at risk. There is good reason to believe that even this modest expenditure can be reduced in future and more effort directed towards encouraging recreation.

Tararua Forest has long been recognized as an important recreational area despite the rather discouraging climate. It is particularly well placed in relation to a large, rapidly growing urban population to provide the vital antidote to city neuroses. The opportunity it offers for youth training in particular and relaxation in general is enormous.

It is gratifying to know that there is sufficient interest and appreciation in some areas (notably Masterton) to develop the concept of youth training in the forest environment through the establishment of suitable buildings and facilities therein, as there can be no doubt that education of youth in this field will not only widen the horizons of the rising generation but enhance their value to the nation as a whole by diverting their attention from the more degrading temptations of city

life and from the more spectacular cults and issues of modern society.

The recent surge of interest in one road end development on the forest fringe demonstrates very clearly the latent demand for somewhere to go to escape the clamour of the city.

CONCLUSION

Tararua Forest plays a most important dual role in southern North Island. Upper catchment protection is without question the most important role in view of the vulnerability and high values off site, but the need for recreation and outdoor education of a large, rapidly growing population is such that maintenance of the forest could be justified for this reason on its own.

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