

# THE CASE FOR PRODUCTION FORESTRY IN WESTLAND

G. J. MOLLOY \*

## SYNOPSIS

*The important role of forestry and the forest-based industries in the economy of Westland is discussed, and the need is stressed to replace indigenous forest as it is logged with exotic forest to maintain this industry.*

*The history of exotic forest establishment is reviewed, and the current rate of new planting is compared with the rate at which indigenous forest is being cut over. Future utilization possibilities are considered on a regional and national basis for the exotic forest now being established.*

## INTRODUCTION

Forestry, sawmilling and the forest-based industries have traditionally made, and will continue to make, an important contribution to the regional economy of Westland. Approximately one-third (520 million cu. ft) of the remaining commercially valuable indigenous softwood forests are located in Westland, and at the planned rate of cutting (10 million cubic feet per annum) these resources should be adequate until the year 2000. The bulk of the remaining resources is located in south Westland. The planting of exotic forest following logging is being concentrated in north and central Westland where the remaining indigenous softwood forests have a cutting life of only twenty years. Some 3,200 acres of indigenous State forest are being logged annually, but the planting rate of exotics is only 1,200 acres. Within the national target of 52,000 acres, approved by the National Development Conference in 1969, the planting rate for Westland was set at a relatively low figure of 1,000 acres per year. Reaction to this allocation from West Coast interests — local bodies, industry and those concerned with regional development — has been adverse and vociferous. Strong local representations have been made that, as the West Coast has been, and will continue to be, exploited in the national interest for its indigenous resources, planting subsequent to logging should be at a rate closely equivalent to the area that is cut over each year. The recent recession in coal-mining in the Grey Valley has given added weight to this argument.

## THE SAWMILLING INDUSTRY

Forty-five sawmills were operating in Westland at 31 March 1969, and during that year they produced fifty million board feet of sawn timber. Following Government acceptance in 1961 of the recommendations of the West Coast Committee

---

\*Conservator of Forests, N.Z. Forest Service, Invercargill.

of Inquiry, which was set up in 1959, the sawmilling industry has been revitalized in Westland. Long-term cutting rights have replaced short-term licences; modern band-saw units have replaced low-capital-cost circular mills; and modern wood processing plants have been installed to process locally sawn timber. Since 1961, under this new policy, twenty-two long-term sales have been approved, six amalgamations of sawmills have taken place, five new band-saw mills have been built, and two bandmills have been upgraded. A new plywod factory, with an annual capacity of twelve million square feet on a 3/16 inch basis, was commissioned, and the number of timber treatment plants has increased from three to eight. It is estimated that some six million dollars has been invested in this "new look" industry and further development is planned.

### THE REGIONAL ECONOMY

In comparison with most other regions in New Zealand, Westland is neither richly endowed with natural resources nor with manufacturing industries to process the available resources. In recent years the coal-mining industry has suffered a serious setback, and this has adversely affected the local economy (see Table 1).

TABLE 1: PRODUCTION FROM STATE COAL MINES, GREY COAL FIELD

Source: Mines Statement, incorporating the report on the workings of the State Coal Mines, 1958 and 1968.

Mine	1958		1968	
	Production—tons	Value \$	Production—tons	Value \$
Blackball	58,416	298,000	—	—
Dobson*	49,427	299,000	46,985	314,000
Paparoa	27,127	109,000	14,389	72,000
Wallsend	58,795	353,000	—	—
Liverpool	88,586	512,000	73,964	521,000
Strongman	129,361	879,000	107,396	751,000
Totals	411,712	2,450,000	242,734	1,558,000

\*Closed, September 1968.

As coal production has declined, the value of timber produced by the local sawmilling industry, as a result of increased processing, has increased, as indicated in Table 2.

In Westland, the timber industry fills a unique role, in that its products contribute slightly more than half of the total value of production from all industry. In no other region in New Zealand is the proportional contribution of the timber industry to the regional economy so high. Even in the South Auckland-Bay of Plenty area, where forest utilization is on a larger scale, the timber industry contributes only 15% to the

TABLE 2: VALUE OF PRODUCTION OF WOOD INDUSTRY IN WESTLAND

Source: N.Z. Official Year Book, 1961 (pp. 516-519); 1969 (pp. 494-499).

Industry Group	1958-9			1966-7		
	Raw Material Cost \$1,000	Added Value (Processing) \$1,000	Total Value \$1,000	Raw Material Cost \$1,000	Added Value (Processing) \$1,000	Total Value \$1,000
Wood products	1,312	1,346	2,658	2,543	3,110	5,653
Total industry	3,110	2,704	5,814	5,388*	4,811*	10,464*

Note: 1. The Westland statistical area coincides with the Land District and Conservancy boundaries.

2. Raw material cost is the total cost of logs landed at plant.

3. Added value is derived by deducting the cost of raw materials from the total value of the finished product at the factory door.

4. Total value is sale value at the factory door, excluding cost of selling and distribution.

\*Figures rounded off; do not add.

value of all industrial production, which increases to 32% with the value of pulp and paper products added (*N.Z. Official Year Book*, 1969, p. 499). Therefore, the economic life of Westland is largely dependent on the timber industry, and it is vital for the future of the region that a sound forest-based industry be maintained.

## EXOTIC FOREST ESTABLISHMENT

### *Cutover Rate in Indigenous Forests*

Some 150,000 acres of State forest have already been cutover in Westland. Cutover terrace forest has little potential either for agriculture or exotic forestry, but the better-drained hill country soils can be successfully established in exotic forest. In addition to the area of State forest which is cutover each year, as shown in Table 3, an estimated 1,500 acres of private forest is also logged annually.

TABLE 3: STATISTICS OF CUTOVER AND EXOTIC FOREST ESTABLISHMENT

Total area of State Forest	....	....	1,875,831 acres
Percentage of total land area	....	....	48.6%
Present annual cutting rate	....	....	3,230 acres (3 yr av.)
Current annual planting rate	....	....	1,229 acres (3 yr av.)
Area of exotic State Forest as at 31 March 1969	....	....	11,037 acres
Area of unplanted cutover State Forest suitable for exotic crops	....	....	139,000 acres

The total cutover area, in all tenures in Westland, is more than 300,000 acres. Of the 3,230 acres of indigenous State forest which are logged annually, it is estimated that half could be successfully established in exotic forest on suitable soil types which are geographically well located in relation to town and transport facilities in north and central Westland. An additional 70,000 acres of cutover State forest is also similarly located on suitable exotic forest sites, and, from the viewpoint of land availability, a balanced annual planting programme of 3,000 acres could well be achieved — 1,500 acres to keep pace with current logging and 1,500 acres of backlog cutover.

### *Exotic Forest Planting Rate*

The problem of fixing planting rates in Westland is one of equating regional needs with the needs of the national economy. Although Westland's planting allocation is only 1,000 acres, the Forestry Development Conference did recognize that national economic considerations might not always be the sole criterion on which forest location was to be determined. Recommendation 24 of the Forestry Sector Report states "that in view of the considerations listed in Recommendation 23, the Government should resist pressures to establish forests in less desirable locations. If it is desired to establish forests for mainly social reasons, that is, to create employment opportunities, to decentralise industry and arrest urban drift, or for other purposes not directly concerned with the economics of forest growing, appropriate allowance should be made for the social costs of these forests when pricing timber for sale".

The need for sound national planning must be recognized, but national planning is cold comfort for those living in any region where development is to be restricted in the national interest. The national interest then tends to become rather remote. The plea from Westland is that, as the indigenous forests of the area have been, and will continue to be, exploited in the national interest, and that, as a well established industry has been developed to utilize these forests, then it is in the national interest, as well as the regional interest, to sustain forest production and the industry which is already established. A policy of forest management, with exotic forests being established on suitable sites at a rate equivalent to the area which is cutover annually is advocated, rather than a policy of "cut out and get out". This is not an alien philosophy, as it should also be the objective of the trained forest manager.

Exotic forest establishment commenced in Westland in 1923 on an experimental basis. The rate of planting was stepped up in the late 1920s coincidental with the planting boom in the central North Island. In Westland, however, it soon became apparent that good growth rates were not being obtained, and planting was curtailed in 1932. In the light of today's knowledge, the sites selected for the first plantings were unsuited to exotic crops, being podzolized terrace soils

with very poor drainage and fertility. Planting in Westland then lapsed until 1958, when with the advent of the light-weight one-man chain-saw it became possible to fell cutover hill country on an extensive scale. Well-drained hill country soils have been shown to support good exotic forest growth, and from a land use viewpoint should ideally be established in exotic forest, as there is no conflict with agriculture as to their use. Chavasse (1954) commented on the potential of these hill country soils (Arahura soil type) and stated that 150,000 acres of this relatively good land is available for exotic forest establishment. Chavasse (1962) has also discussed the relationship of forest soils and land forms in Westland. The rate of clearing was stepped up in 1962 to 1,040 acres a year and reached a peak in 1965-6 when 2,262 acres were felled. Two private sawmilling companies have also commenced clearing and planting freehold cutover forest, as a follow-up operation after indigenous logging.

Within a thirty-mile radius of Greymouth, 115,000 acres of hill country forest, virgin and cutover, has been typed as being suitable for exotic forest establishment. Thus, land is available and the techniques for establishment have been successfully developed — felling, desiccant spraying where required, and burning (Day, 1969). Clean burns can be achieved with good planning and timing, despite the generally wet climate. See Fig. 1.

It is in the national interest that a sound regional economy be developed in Westland which can contribute to our national growth. There is an immediate need to stimulate development to offset the decline of the coal industry. Exotic forest establishment at a rate of 1,000 acres a year will do little more than stabilize the economic contribution of wood-based industries which are now well established, but will not contribute to any major future development. Westland has one major resource — land that is suitable for exotic forest establishment, which is not being fully utilized. Sufficient labour is also available to establish and manage exotic forests at an increased rate of some 2,500 to 3,000 acres of new planting annually. If these resources of land and labour are fully utilized now, a forest asset will be developed which in time should assure the economic prosperity of Westland.

### *Species Selection*

Since exotic forest establishment commenced at Mahinapua Forest in 1923, a wide range of species has been tried in Westland. Over recent years, selection has narrowed on the basis of this early experience to those species with proven performance — for example, radiata pine — and to those which could be successfully established, but for which growth rates, costs of management including animal control, and the ultimate utilization objectives were either unknown or not clearly defined; these are Douglas fir, *Pinus contorta*, *P. muricata*, Sitka spruce and *Eucalyptus delegatensis*. Current planting policy, which will be reviewed in five years, is as follows:



FIG. 1: Afforestation area in Cockeye Creek, Nemona Forest, in central Westland. In the middle distance, areas of radiata pine planted in 1958 to 1962. In the foreground, land cleared in conjunction with logging and recently planted.

N.Z. Forest Service Photo by J. H. Johns, A.R.P.S.

- (1) Radiata pine is to be the main species planted to enable an adequate forest resource to be established to sustain the local wood-using industry by the period 1991-1995. Stands are to be managed on a short-rotation sawlog regime (Fenton *et al.*, 1968).
- (2) No further plantings of Douglas fir are to be made. The performance of the 1,000 acres of Douglas fir which are already established are to be evaluated during this period.
- (3) Further trial plantings are to be made with Sitka spruce, using selected provenances to enable the performance of this species to be evaluated.
- (4) That further species trials of an experimental nature, for example with eucalypts, be limited in area.

### *Growth Rate*

As extensive planting of hill country soils which are suited for exotic forestry did not commence until 1959, data on volume yields are scanty. In Mahinapua Forest, a stand of radiata pine on a well-drained site produced a mean annual increment (4 in. top) of 550 cu. ft per acre over 35 years. From the two oldest plots in radiata pine on hill country soils, it

appears that a site index of 90 to 100 ft can be expected, on the basis of the following sample plot data:

Plot Wd. 97 (Waimea Forest). Age  $11\frac{1}{2}$  years, mean top height 55 ft, mean dbh of 100 largest stems per acre 10.8 in.

Plot Wd. 98 (Nemona Forest). Age  $5\frac{1}{2}$  years, mean top height 25 ft, mean dbh of 100 largest stems per acre 6.0 in.

### *Future Utilization*

The remaining merchantable indigenous resources in north and central Westland are estimated to cut out in about 1991-2 at the prescribed rate of cutting. Almost all of these remaining resources have been committed by long-term sales to an industry which has invested considerable capital in modern bandsawing and processing equipment. This established industry will face a critical shortage of raw material in the period 1991-5 unless exotic forests now being established are ready to come into production at this time to replace the indigenous cut.

Under national planning projections for the supply and disposal of exotic sawlogs, the cut from Westland's exotic forests will be transferred to Canterbury to meet a predicted shortage in that region. Planned sawlog production from Westland to meet the Canterbury deficit is one million cubic feet in 1991-5, rising to seven million cubic feet in 2001-5. At the present planting rate of 1,000 acres of radiata pine a year, it should be possible to produce a cut of 5.9 million cubic feet annually by 1991-5, rising to 11.2 million cubic feet in 1996. Stands managed on a short-rotation sawlog regime are confidently predicted to produce a mean annual increment of 375 cubic feet per acre.

As the total indigenous cut from Westland is now set at 10 million cubic feet annually, the predicted exotic cut based on the current planting rate of 1,000 acres a year will do little more than counterbalance the predicted decrease in indigenous supply. Thus, industry would be maintained at little more than the current level of production. Remoteness from markets, and the lack of a deep-water port, have been advanced as arguments against large-scale exotic afforestation in Westland. It should not be forgotten that Westland is endowed with adequate coal and water resources which could be utilized to advantage by a major wood-using industry provided that a sufficient volume of raw material is available. If a large exotic forest resource is developed, and the raw material is reasonably priced, industry will be attracted to use it, as has happened in other regions in New Zealand, notably the Bay of Plenty. Similarly, over recent years there has been a large influx of outside capital into Westland to establish modern bandmills and processing units to utilize indigenous resources.

### CONCLUSION

Forestry and the forest-based industries make a major contribution to the economy of Westland, and a strong regional

case can be presented for the establishment of exotic forest to replace indigenous forests as these are logged. From the national viewpoint, it may be argued that the establishment in Westland of a major forest resource from which products must be exported may not be in the national interest because of the lack of a deep-water port. It could also be contended that, if sufficient wood resources are available at reasonable cost, then port facilities could be developed to ship this resource.

Recent investigations of the available resources of beech, ironsand and coal indicate that these pooled resources could have considerable export potential with an annual export possibility of \$60 million. This could lead to the development of a deep-water port, and if this eventuates Westland would have a very strong case for a substantial increase in its planting rate.

#### R E F E R E N C E S

- Chavasse, C. G. R., 1954. Potentialities for indigenous and exotic forestry in Westland. *N.Z. Jl For.*, 7 (1): 34-9.
- 1962. Forests, soils and land forms of Westland. *N.Z. For. Serv. Inf. Ser. No. 43.*
- Day, F. G., 1969. Conversion of indigenous forest to exotic species in Westland. *N.Z. Jl For.*, 14 (2): 205-9.
- Fenton, R.; Sutton, W. R. J.; Tustin, J. R., 1968. Profitability of *Pinus radiata* afforestation — short rotation sawlogs (Model V F, 1968 costs and prices). *N.Z. For. Res. Inst. Silv. Br. Rep No. 112* (unpublished).
- Forestry Development Conference, 1969. *Proceedings and Forestry Sector Report.* Government Printer, Wellington.