

NEW PROCEDURES IN FOREST MANAGEMENT PLANNING IN THE NEW ZEALAND FOREST SERVICE

I. G. TROTMAN*

SYNOPSIS

Following a review of forest management, the New Zealand Forest Service has modified its planning framework to recognize two types of forestry planning; indicative regional development planning of production forests under all ownerships, and prescriptive management planning for State forests. This paper outlines the broad planning considerations and the shortcomings of the previous procedures which led to this change.

Development plans will be used to discuss regional demand and supply, the availability of land for afforestation, will include economic studies to assess the relative profitability of forestry between regions, and will form the basis of achieving regional aims and potential for forest and forest industry development. Management planning should arise from this indicative planning. The new working plans will provide for the statutory control of the management of State forest land and will prescribe in broad qualitative and quantitative terms for all forest operations in State forest. They will form the basis for detailed annual and long-term programmes of work and the justification for the related financial requirements. Detailed planning and control of forest operations will be decentralized to conservators of forests. The format of working plans will be changed to deal with the various activities in self-contained sections which will be capable of easy amendment when necessary. With the exception of limited confidential information, working plans will be open to examination by the public.

To assist in the new management planning procedures, increased use is being made of computer processing and servicing to link the various stages of planning and to keep information up-to-date. Work is proceeding towards forest management simulation and evaluation which will be used in the preparation of both indicative development plans and prescriptive working plans.

BROAD PLANNING CONSIDERATIONS

Under the Forests Act 1949, State forest land may be managed for the establishment, culture, protection, and utilization of trees to yield forest produce; for the conservation of water; for the protection of native wildlife; for the stabili-

*Senior Forester (Management), N.Z. Forest Service, Wellington.

zation of soil, including sand fixation; and for amenity; or for scientific or recreational purposes which are not inconsistent with the maintenance of soil and water values or other important uses.

The Forest Service has met these responsibilities by adopting a policy of multiple-use management on State forest lands. There is increasing interest in State forests, especially native areas, and growing public demand for their use for a number of purposes; such demands are often conflicting. Therefore it is becoming increasingly necessary to identify the dominant use or the prime objective of management of specific areas of State forest land. Such identification has been necessary over State forest land included in the South Island beech projects and over the Mamaku group of forests.

State forests are being zoned into various categories; some areas are to be managed primarily for the conservation of soil and water, others for both conservation and utilization of wood resources, others again for any of the purposes given above. This zoning, indicating the dominant use of specific areas of State forest land, will be an important part of management planning.

SHORTCOMINGS OF THE PREVIOUS SYSTEM

Working plans, to regulate the management of State forest land, are required under the Forests Act. Since 1964 two alternative procedures have been in use. One way was to prepare a preliminary working plan report recording facts and outlining the proposals. If approved it was followed by a working plan containing the necessary prescriptions. The other approach was to assemble a single formal document with a "Part I" consisting of description and past history and a "Part II" containing objects of management, proposals, and prescriptions.

Because growth of trees in the large exotic plantations is rapid and because markets and industries are still developing and technical advances are frequent, these formal plans have tended to be too rigid and static. The detail required has involved so much effort by the limited professional staff that large areas of forest have never been covered by plans, and existing plans have too easily become outdated. In addition, the presentation with background information, discussion, and prescriptions in widely separated sections tended to encourage duplication and repetition and the final documents were often rather disjointed. Frequently there was also insufficient discussion and justification of major proposals and prescriptions — particularly in revisions, where important information was not brought forward.

Economic and marketing considerations dictate the setting up of efficient industrial plants drawing resources from a wide area. Improving communications facilitate drawing resources from a wide area and assist administration. Increased establishment and tending programmes make it also desirable to have flexibility in management to adjust plans and reallocate

resources. With the growing public concern for wise use of the environment, including the management of State forest land, forest working plans, with the exception of limited confidential information, should be open to public examination.

The inter-dependence of many factors has made it difficult to confine State planning to small units; instead in many fields there is a move towards broader central planning and the delegation of detail and routine to a district level.

THE PLANNING FRAMEWORK

After detailed consideration by a management seminar which brought together experienced and senior staff from conservancies and specialists from head office of the N.Z. Forest Service, two types of forestry planning were recognized. These were *indicative regional development planning* of production forests under all ownerships and *prescriptive management planning* for State forests. Broad indicative development planning by regions was seen as a necessary basis for national planning and as a framework for more detailed management plans. Where possible, instead of single forests having their own working plans, State forests are grouped into units under a broader type of management plan.

Development Planning

The country has been divided into planning districts which are large, geographic and economic units within the main Forest Service administrative units (conservancies). Their boundaries are either those of counties or are conservancy boundaries where these do not follow county boundaries. Each such unit will be covered by an indicative regional plan dealing with long-term internal developments and also inter-regional relationships. In regional development plans are recorded and discussed the availability of land for afforestation, demand projections, supply simulations, and economic studies including the relative profitability of forestry between the regions. These form the basis for the rationale for afforestation required by the State and private sectors and for the means of achieving regional aims and potentials. Special attention is given to the development of large exotic forests suitable for integrated industries capable of processing forest products for export.

In development planning, the projections of internal demand are initiated at the national level and are broken down to regional estimates, whereas supply estimates including the availability for export are derived at regional levels and are added to provide national totals. The regional data, including the need for new planting, are assessed collectively and are used in setting national targets. In this way the national figures for internal demand, production, and new planting provide a measure of overall control. A fuller discussion of many of the principles underlying regional development planning has already been published (Williams, 1964). Development planning has concentrated on the national position to date with

results being published as national forestry planning models (Familton, 1969; Hosking, 1972).

Management Planning

State forests with similar management requirements, or with close geographic links, will be combined into "working plan units" to reduce the number of plans required and to allow co-ordinated planning. These working plan units are, with few exceptions, subdivisions of planning districts and will be capable of being combined to show the State's role in such districts. Important factors in grouping forests are population distribution and likely demand for timber and recreation, the communications network, major catchments and the location of protection forests, and the general land-use pattern. The title "working plan" will be retained in formal use to comply with the Forests Act.

The new working plans have the objectives of providing for control on the management of State forest land as required by the Forest Act 1949; and prescribing on the basis of relevant facts and in broad qualitative and quantitative terms, for all forest operations in State forest. By such prescriptions they will be used to guide, constrain, and control the detailed annual and long-term programmes of work and thus the related annual and long-term estimates of expenditure. They will be used to explain and justify Forest Service programmes and related financial needs to Government agencies and committees and to the general public.

In the past, it was not possible to use working plans to justify Forest Service programmes and related financial needs, mainly because of fragmentary plan coverage. Under the new system, every endeavour will be made to provide a complete and up-to-date coverage of all forests and all forest operations so that the objects and targets of individual plans when added together will present an accurate picture of national Forest Service objectives and targets at any time. These objectives and targets should be the basis and justification for the financial programmes necessary to implement them, and their aggregation should provide the basis for departmental annual estimates and long-term financial forecasts. If working plans are to represent truly the current situation at all times, they must be capable of ready amendment. Prescriptions in working plans will be sufficiently broad to reduce the need for frequent revision, with the aim of major revision at not less than five-yearly intervals. However, amendments will be made from time to time to ensure that plans are always up-to-date, so that the current situation is truly represented at all times.

Relationship to Local Detailed Planning and Control

Detail at the compartment level will be drawn up in annual programmes of work based on the broad prescriptions in the working plan. This will lead to a decentralization of detailed planning and control of forest operations. These detailed plans

will cover a period of three to five years, and will be amended annually for the ensuing period under the approval of conservators of forests. The system of prescriptions and quality controls built up over the last few years should be adequate to fulfil any detailed requirements and ensure that the broad working plan prescriptions are given effect stand by stand.

Changes in Working Plan Presentation

Management planning will arise from the indicative development plans. New working plans will start by clearly setting out the Forest Service role in local forestry activities including consideration of production and the environment. The various activities covered in the plans will then be dealt with in self-contained sections. These sections will co-ordinate together the relevant facts, evaluate them, determine the necessary action, and prescribe accordingly. Discussion on roading requirements, for example, will be closely related to the relevant major forest operations, such as forest layout, land preparation, or utilization, rather than being set apart in a separate section on engineering. These self-contained sections will allow arrangement in any order to suit local needs, will be easy to amend, will allow insertion of maps where most appropriate, will be usable as handouts, and can be filed separately so that similar sections from different plans can be combined. With the exception of limited confidential information working plans will be open to examination by the public.

INCREASED USE OF ELECTRONIC DATA PROCESSING AIDS

To carry out the new management planning procedures, increased use is being made of computer processing and servicing. When fully functional, this will form the basis for linking the various stages of planning and keeping plans up-to-date. A computer system, recording detailed information for each forest stand, is in an advanced stage of preparation and will use this information to predict the timing of future operations for inclusion in the rolling annual programmes mentioned earlier.

An inventory system relying on computer processing is already used to provide basic information for the manual preparation of cutting plans. It requires further development in building up growth models, however, so that yield prediction can be processed automatically in the computer. Some use has already been made of a computer in deriving management alternatives for the Murupara working circle of Kaingaroa Forest. Work has commenced on developing a system for forest management simulation, which will be used to set up alternative approaches to management of forests and evaluate these in the light of market predictions and economic returns. Results of such simulation and evaluation will be incorporated both in the preparation of the indicative development plans and in the

preparation of the prescriptive working plans covering State forests.

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R E F E R E N C E S

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