

Forestry

Forestry and resource management: NIWA's role

In the context of the Resource Management Act, NIWA can offer a range of skills to the forestry industry, to help it meet its obligations in the sustainable management of the environment and of the forestry resource itself.

IN A WORLD that is running out of wood for its future generations, New Zealand finds itself in a unique position. With over one million hectares of land covered by a rapidly-renewable resource called *Pinus radiata*, forestry has developed into a billion-dollar-a-year export industry, employing tens of thousands of people. Predictions suggest that, by the turn of the century, the industry will be New Zealand's major export dollar-earner.

With such a prominent role in this country's economy, the benefits of the industry are easy to identify. However, forestry also has a direct impact on the environment, affecting a complex network of ecosystems.

Resource Management Act

In the early days of European settlement, logging of native timber continued, unchecked, for decades. There was virtually no consideration of its long-term effects. Nowadays, the introduction of *Pinus radiata* has allowed the industry to become a highly-mechanised, efficient and profitable business. Moreover, since the passing of the Resource Management Act (RMA), it is an industry charged with taking a responsible attitude towards the impacts its operations may have upon the environment.

A gully recently harvested of its crop of Pinus radiata. Continued monitoring will show how the harvest has affected the stream's physical and biological characteristics



While the visual impacts of forestry must be taken into consideration, under the terms of the Act, the protection of aquatic ecosystems is of primary concern. Forestry operations can affect streams, rivers and lakes, as well as coastal waterways. The RMA puts the onus on the industry to monitor its operations and define likely impacts, with a view to either avoiding, minimising or providing some sort of mitigation of these impacts.

Forestry and ecology

The science of ecology relates to (a) the habitats and mode of life of living organisms and (b) the relationship of these organisms to their surroundings. With regard to aquatic ecosystems, the natural order can be affected by forestry operations in a number of ways, including:

- reduced shade (leading to higher stream temperatures in summer);
- increased sediment run-off;
- increased nutrient input (leading to eutrophication in lakes);
- altered physical and biological habitat (affecting food and environment);
- altered flow regime;
- ecotoxicity (from herbicide input during reforestation).

Faced with the possibility of these impacts and given the requirements of the RMA, it is in the interests of the forestry industry to take the initiative in fulfilling their responsibilities. Should this not happen, the Act provides the means to stop, or place controls on, any activity, e.g. logging, that can be shown to be having a detrimental impact.

It is very encouraging that a number of major companies in the industry, have wasted no time in accepting their accountability and in recognising the expertise which NIWA can provide, to assist them.

Specialised knowledge

Collecting and recording data to document the effects of forestry does not, in itself, identify problems, let alone provide answers. The skilled ecological knowledge and interpretation of an experienced aquatic biologist is needed to achieve a real understanding of forestry's impacts.

Specific knowledge of a particular type of environment permits NIWA's biologists to

