

## Short-sighted management sacrificing health of forests

by David Olie

**T**he Europeans who first arrived in Nova Scotia were undoubtedly awestruck by the forests before them. Towering climax forests of pine and spruce alongside clumps of ancient spreading hardwoods, virtually untouched by the natives, were signs long before lost to European eyes. As early as the sixteenth and seventeenth centuries the great woods of Europe, Britain especially, had been devastated for fuel and timber. Now, spread out like a banquet, was a fresh, seemingly inexhaustible supply of wood, and they came in droves to take advantage of it.

It is obvious to anyone that those mighty trees are gone now, even in most of our parks and "wilderness" areas. No forest could have survived the onslaught that ours have endured over the last three centuries. Ours even less so, because due to our relatively cold climate and thin soil the ecosystem proved to be even more fragile than its Old World counterpart. Today our forests are only of marginal commercial value, and this is the root problem behind the herbicide spray controversy.

Given the current state of our forests, big profits are hard to come by for any tree harvester, from small woodlot owners to giants like Scott Paper, Bowater Mersey and Nova Scotia Forest Industries. To squeeze the last possible dollar out of the woods, the giants, with

the help of their sponsors in government, have increasingly turned to high technology. Low technology management methods, such as selective cutting, are ruled out because of their cost in wages. Even replanting programs have fallen behind to the point where 35 million hectares of clear-cut land in Canada are waiting for re-forestation. In the words of George Marek, a former senior forest management supervisor for the Ontario government, "Our system is built on maximizing exploitation today. The system is going to exploit it right down to the last."

What "the system" is left with are cheap, quick fixes; clear-cutting and herbicide spraying. In clear-cutting, huge mechanical harvesters are sent

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into the woods to cut down everything that stands. Unwanted "trash," chiefly the leaf-bearing hardwood, is left lying on the ground while the marketable timber is trucked out.

The forest industries are built around the long, tough fibres of the needle-bearing conifers, or softwoods. In Nova Scotia these are chiefly the spruce species. Spruce grows straight and fast, and in ideal conditions can be big enough for construction lumber or paper pulp in just 20 years. Hardwoods, although increasing in value for fuel and making

plastics, have little use in the current system.

Ideal conditions are seldom met, however, and clear-cutting is largely responsible. The great harvesting machines compress the delicate soil, wrecking natural drainage patterns and creating a poor environment for young

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roots. The unshaded ground, exposed to the sun, quickly dries out. And, without roots to hold it in place, much of the soil may be washed away by the rain. Forest regeneration under these conditions is a tough proposition, and the desired softwoods are often not the trees to come back.

This is due to a phenomenon called "topping out." A clear-cut forest area will gradually begin to regenerate. From a standing start, hardwoods and softwoods will sprout up at about the same rate. This, however, is bad news for the softwoods. Each spring, the hardwoods spread out a broad canopy of leaves, blocking out much of the sunlight needed by the conifers. This natural advantage will result in a largely hardwood forest, unless it is counter-balanced by some human intervention against the hardwoods. This is the main purpose of herbicide spraying: to knock back the hardwoods in favor of the softwoods.

The problem with sprays is that they constitute an unknown and very possibly unacceptable risk to ourselves and, in the long run, the forests themselves. Two chemical preparations, one recently banned in the U.S., are used for herbicide spraying. Known as 2,4-D and 2,4,5-T, these are quite different from the spruce budworm sprays that caused such controversy in recent years. The active ingredient in the two preparations is a compound called dioxin, one of the deadliest substances known to man. Pure dioxin in an amount equal to five grains of table salt can kill nearly any person. Of course, the spray mixes dioxin in far, far less than pure form, but this poison, nevertheless, kills the leaves of the hardwood trees in our forests, along roadways and under power transmission lines.

There is little agreement in scientific circles as to the harmfulness of dioxin in the concentrations present in these sprays. Two things are certain. First, few other countries allow these chemicals

to be used for any purpose. Second, it is becoming clear that, on this issue, the people of Nova Scotia and other affected areas don't trust the politicians, don't trust the industrialists and are very uneasy about such a deadly substance, in any concentration, being sprayed on themselves and their property. 61% were opposed to spraying in a recent Gallup poll in N.S.

Sprays are not the only way to go, however. One means of assuring conifer growth is simply to replant them after harvesting. As well, there is the "strong back and hatchet" method; simply cutting out the initial hardwood growth in the first ten years or so. The hardwoods usually only have to be knocked back once to assure the dominance of the conifers.

**S**o why spray? Obviously, any other method is labor-intensive, which is good for the unemployed but bad for the profit margins. It is much cheaper to hire one pilot and one plane than a whole crew of trained forest workers, either to plant or to cut. Spraying is the quick fix to this complex problem, in spite of the fact that the operation sometimes has to be repeated to be effective.

The core of the entire forestry problem is that there are nearly as many theories of forest management as there are foresters. Management is paralyzed by the fact that any decisions made in regard to the forests take such a great deal of time to make themselves felt. Despite appearances, a forest is a living, breathing, dynamic system. But its life processes are on such a great scale that they seem painfully slow to us. A correct decision is never rewarded until decades after it has been taken. The results of an incorrect decision may take centuries to be mended. Computerized prediction models and other new technology show promise in helping get over this basic problem, but these tools also depend on the theory and data on which they are based.

Forests need time. Unfortunately, they are almost entirely owned and managed by governments and corporations. Both require immediate benefits from their decisions, and if necessary



the future be damned. This is the main obstacle in the paths of the forest reformers, those in the establishment with concern for the environment and the future.

A forest is, essentially, a garden, and forestry is, essentially, farming. Imagine a farmer who strips his land bare, then sits and waits to see what comes up. He then kills what he doesn't want with chemicals and waits further until what remains is mature. Finally he sends in

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huge vehicles to strip the land bare again, repeating the process without a thought to crop rotation or even replanting. Would he, in the long run, be successful? Or would he instead soon be the proud owner of a wasteland?

What the new breed of forest reformers are aiming for is selective forest management. Fundamental to this is simply knowing, in detail, what is growing in the forests, and why. Among other things, it must be accepted that some woodlands are simply too delicate to be exploited. Amazingly enough, surveys of forest populations and estimates of their yields to harvesters are often very sketchy and hopelessly optimistic, making forest management more guesswork than science.

Selective forest management takes a businesslike approach called the Sustained-Yield Theory. To illustrate, imagine you received an inheritance of a million dollars. Now, you could blow the money, the pool of capital, quickly, spending for fantastic short-term gains. But once the pool is gone, it never completely comes back.

A more prudent, thoughtful person will invest the money, or let a bank invest it for him. A savings account at just six per cent interest will yield \$60,000 per year, more than enough for anyone to live very happily. If you wanted to, you could take, say, \$100,000 out of the initial inheritance and spend it, but thereafter you would only get \$54,000 interest per year. Once the pool is capital is depleted, it might never be built up again.

This is the essence of Sustained-Yield. If you know what the forest contains, and how fast it can replenish itself with proper care, you can determine just how much can be safely taken out each year (the "interest") without depleting the original "pool of capital." This takes patience, forethought, careful study, an increased workforce and, most of all, a rather less greed-oriented set of managers than we have currently. In the long run, however, this is the only way we will improve our forests beyond their current sorry state.

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Aerial spraying - 1983

