



● *Wisdom Comes from the West*

Forest Management in North America was originally focused on Central European forestry. As a result of strong social pressure to abandon the system of clearcutting, every effort was made to develop and implement a more "ecological" form of forest management. What can Europe now learn from North America?

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Forest Landscape

Until the 1980s, forest management in the Netherlands was mainly focused on wood production. Other forest functions, such as recreation and biodiversity, often played a secondary role. As a result of social pressure in the 1980s, new forest management systems were developed which aim at integration of various functions within the same forest, making use of natural processes, and in which forest management measures are mainly small scale. Many forest managers have embraced these systems and many aspects of forest management have therefore been improved. Now, twenty years on, it appears that there are opportunities to take the next step. Variation is the key word. Variation in scale, time and measures.

Probos has taken up the challenge and wants to translate this into a new management concept, in cooperation with the Innovatienetwerk (Innovation Network), Natuurmonumenten (Natural Monuments), Staatsbosbeheer (National Forest Service), Kroonlanden (Crown Lands), De Hoge Veluwe National Park, Wageningen University, and the City of Ede. Good forest management is the starting point, taking into account all forest functions but with a landscape-based approach. On the level of a forest landscape, different values can be incorporated, different areas can be assigned different values, and different forest development stages can complete the landscape. The objective is more dynamic forest management which, on a landscape scale, does justice to all forest functions and looks beyond the boundaries of stands and ownership. This can mean that in certain areas more emphasis is placed on wood production while other areas are left



North America still has examples of more natural forest, which provide very valuable information for the management of production forests (photo Mark van Benthem, Probos)

untouched. The intention, in implementing the concept, is not to draw up regulations or directives, but to stimulate forest managers to put questions to themselves on the functioning of their forest on a landscape scale.

Where is the know-how?

The feeling that a next step can and must be made is reinforced by the experiences of expert forest managers in practice. They conclude, for example, that if only small scale intervention is used, species which depend on light and warmth disappear from the forest. It is soon apparent, when looking at professional publications, that an enormous number of relevant books and articles are available from Canada and the United States. This seems easily explained, if one thinks about it. European immigrants applied forestry techniques which they knew from their fatherlands. Because of the enormous scale of the forests and the seemingly infinite supply

of wood, they applied the clearcutting system on a very large scale. By the end of the 20th century, it had become clear that the forests were not infinite after all, and slowly but surely came more social opposition to large scale clearcutting. Full battles erupted between the wood sector and environmental activists, the best known being Clayoquot Sound and the Great Bear Rainforest. As a result, there was a growing need to change forest management to a more ecologically oriented system. The importance of forestry and the forest industry for the economy and for employment meant that funds were available. There was therefore both a need and money to give direction to the changes, on which universities, research institutes, and companies from the wood value chain cooperated. It is therefore not surprising that an enormous amount of expertise built up in this part of the world, and that it produces countless leading publications on the subject.

On the road to know-how

When we received an invitation from the Canadian Embassy to join its legendary "sustainable forest management study tour", we did not hesitate. This trip, with a select group of Europeans, comprised a visit to the boreal forests of Quebec and a visit to the Kamloops area in the province of British Columbia. In the second week, we planned a number of meetings, mostly in the forests, with highly qualified forest ecologists, including Prof. Fred Bunnell and Prof. Hamish Kimmins of the University of British Columbia and Prof. Jerry Franklin of the University of Washington. Forestry practices were examined under the expert leadership of Gerry Fraser and Warren Wartig of Interfor, one of Canada's largest forest companies. Certification systems have tried to translate the more ecologically oriented forest management into principles, criteria and indicators. The regional FSC standard for British Columbia is known as a standard which has succeeded in translating the complexity of forest management into directives, and thereby in forming a good basis for sustainable forest management. For these reasons, we also spoke with Patrick Armstrong, partly because Probos is currently advising FSC Netherlands in the revision of the FSC standard for the Dutch forests.

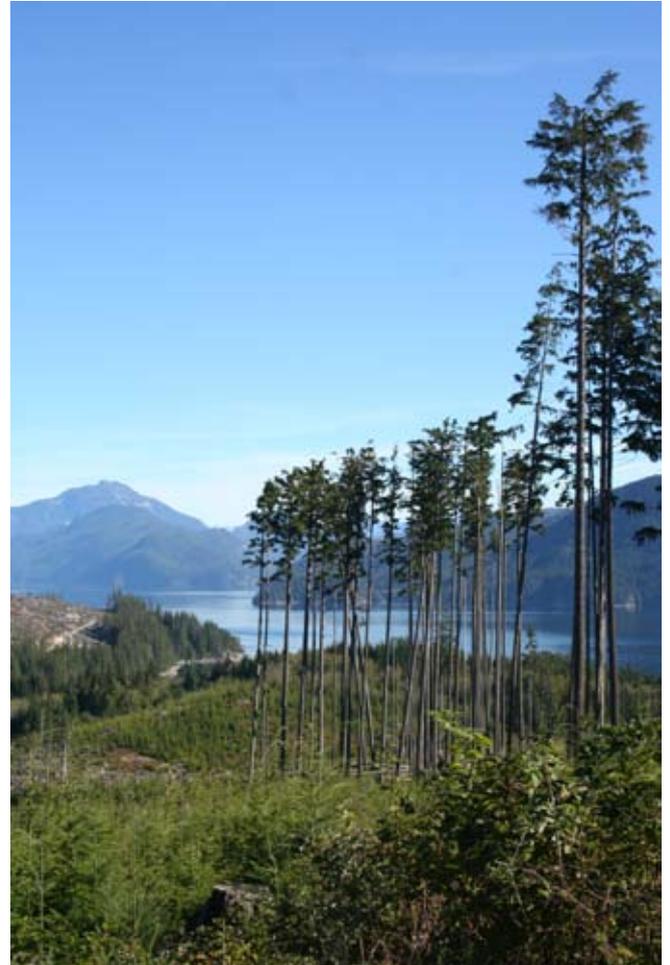
Natural disturbances as a source of inspiration

Canadian foresters were under strong social pressure to abandon the system of clearcutting and to intervene on a smaller scale. Research into natural disturbances in different types of forest shows that small scale intervention cannot be applied everywhere. It is possible in some forests on the west coast, but things are different in the boreal forests.

This becomes clear in Quebec. The natural disturbances here comprise mainly forest fires. Forest fires affecting tens of thousands of hectares are not uncommon. A bus tour through an area where a forest fire has reduced 55,000 hectares of forest to ashes makes this all too obvious. The plants and animals in these boreal forests have adapted over the centuries to this type of natural disturbance. The core idea of ecological forest management is therefore to replicate these natural disturbances as much as possible in wood harvesting - for example in terms of scale, intensity, and type. People are well aware that forest fires are not the same as wood harvesting; in wood harvesting, for example, much of the biomass is removed, but they try to achieve a forest mosaic which is as natural as possible. Which does not mean that they necessarily maintain the same scale as Nature does. As Fred Bunnell puts it: "The forest practitioner is never allowed the freedom of expression that nature simply takes as her own".

Retention harvesting

One result of clearcutting is that typical characteristics of mature forest disappear such as old trees with holes, dead wood, and highly



An example of retention harvesting where, in this case, some trees remain standing in a cluster and thereby retain characteristics of older forest (photo Mark van Benthem, Probos)

structured forest. Retention harvesting was introduced to retain these characteristics, and thereby at least some of the species. In retention harvesting, at least some of the trees are left standing for at least one rotation. The trees remain standing individually or in clusters. The positive effects of this management system on biodiversity and on the experience of the forest are underscored in practically all research into forest ecology. The visual effect of leaving 15 to 20% of the basal area standing in a harvesting area is amazing. This management system has been embraced



by many forest managers but for a number of reasons is unfortunately not applied everywhere. Retention harvesting is also intended to bring about connections in the forest, known as connectivity. Connectivity is very important in order to give species a sufficiently large habitat and the opportunity to move from one suitable habitat to another.

Variation

An important part of ecological forest management is variation. The thought behind it is that variation results in a large number of different habitats and thereby in good opportunities for broad biodiversity. In professional jargon this is known as creating heterogeneity. It involves, for example, varying the time and frequency, the scale and the intensity of intervention. By "playing" with this type of concept, a forest manager can create a varied forest. "Forestry is as much an art as a science", says Fred Bunnell on the subject. Long

term planning is important, because the intended values must not be only present in today's forests, but also in 10 and 50 years.

Translation to the Netherlands

Obviously, experiences in North America cannot be translated into the Netherlands situation on a one to one basis. The scale is totally different, the biodiversity in North America is (partially) still dependent on natural disturbances, and there are still areas of natural forest. But the method of planning on a landscape level and the underlying ecological principles are things which we in the Netherlands can learn from. Additionally, variation in time, scale and methods is one of the most important recommendations for Dutch forest management. This means, for example, not only that measures but planning too must be carried out on a different scale. In other words, not only planning and execution at stand level but also on the level of ownership and beyond.

Conclusion

The Canadians are themselves convinced that they manage their forests sustainably. It is evident that they have made great scientific progress and that this has substantially improved forest management in practice, although there are always opportunities for more improvements. The study tour made it clear that forest management in Canada and parts of the United States is innovative. Other countries can certainly learn from it, as Australia has shown. It also provides Probos and its partners with much inspiration and ideas for developing the concept of forest landscapes.

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The effects of different wood harvesting systems are studied, accompanied by Gerry Fraser (l), Warren Wartig (2nd from r) of Interfor, and forest ecologist Prof. Hamish Kimmins. (photo Mark van Benthem, Probos)