SILVICULTURE AND WILDLIFE IN BOREAL IRREGULAR FORESTS: A COOPERATIVE RESEARCH INITIATIVE

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It is generally assumed that fire is the dominant natural disturbance of boreal forests. This assumption might promote the current extensive use of the clearcut system. However, there are portions of the boreal forest receiving abundant precipitations. The interval between successive fires may then be longer than the lifespan of individual trees. Tree mortality creates openings in the canopy, and stands become characterized by an uneven and more diversified structure. Eastern Canada provides an example of balsam fir and black spruce forests having an irregular structure. The biodiversity characterizing the irregular boreal forest appears to stand out from the rest of the boreal forest, but information remains limited. If forest management is to be adapted to stand structure in a way that emulates natural disturbance patterns, alternatives to the clearcut system must be developed.

In 2003, a research program was launched to develop silvicultural systems suitable to maintain the biodiversity and ecosystem function in irregular boreal forests. This research conducted in Eastern Canada involves financial participation from provincial and federal governments, as well as the forest industry and wildlife agencies. The initial five-year research program focuses on three axes. Each of these axes incorporates wildlife and forest components so that integrated scenarios can be developed. The first axis will characterize the ecology of irregular forests by using specifically adapted descriptors. While building on this information, the second axis will define and compare various silvicultural treatments. Some of these treatments will be implemented from an operational point of view. Finally, the third axis will transpose the results of the first two at the landscape level so as to integrate the spatial distribution of stands and silvicultural treatments in terms of forestry operations. This will make it possible to evaluate the impact of the proposed silviculture on ecosystem processes acting at the landscape scale.