

Ecological research to empower forest management: spruce budworm, carbon modeling, and conservation value of plantations

David A. MacLean

Professor, Faculty of Forestry and Environmental Management,
University of New Brunswick, Fredericton, NB

Ecological research that contributes to understanding stand dynamics, with and without natural disturbances, underpins effective sustainable forest management. Management should balance maintenance of natural processes and habitats and populations; conservation and protected natural areas; and consideration of climate change and ecosystem goods and services alongside timber and recreation and habitat values. But in my opinion there is also room for intensive forest management and forest zoning approaches to increase the flow of certain values from certain areas.

I will relate these thoughts to research conducted by colleagues, students and myself for over 30 years, including: 1) the role of spruce budworm as a natural disturbance that causes major uncertainty in timber supply and economic impacts, but also can be used to 'inspire' forest management treatments; 2) modelling of carbon sequestration in forests and forest products and analyses of tradeoffs; and 3) studies of how intensive forest management can be modified to incorporate habitat and biodiversity values. Spruce budworm research is particularly timely now given the current 3.2 million hectare outbreak in Quebec, and rising budworm populations in NB. I will describe how this has led to a major \$18 million early intervention strategy against spruce budworm research program that is beginning in NB.

I will also discuss effective research/industry partnerships and my experiences with the J.D. Irving, Limited Forest Research Advisory Committee, which has guided the research of 31 Masters and PhD students at the University of New Brunswick and Université de Moncton over the last 15 years. The objective of the Forest Research Advisory Committee, originated by former Chair Dr. Gordon Baskerville, is research to empower the forest manager.