



“Making a Difference”

The Canadian Forest Service - Atlantic Forestry Centre is studying growth loss and recovery of balsam fir trees following damage caused by balsam fir sawfly, *Neodiprion abietis* (Harris), outbreaks in Newfoundland. This information will help us to predict growth losses at rotation age and enable us to formulate strategies to minimize tree growth losses on some 30,000 ha in Newfoundland.

Dr. Harald Piene, of the Canadian Forest Service in Fredericton, is studying the effects of balsam fir sawfly (BFS) defoliation in western Newfoundland on stand growth. Dr. Piene and his colleagues are comparing the growth resulting from defoliation to undefoliated growth levels and estimating the length of the fir's recovery period. This information will enable forest managers to develop better strategic plans to predict the impact of future infestations on balsam fir.

Small outbreaks of balsam fir sawfly have been recorded since 1947 on balsam fir at scattered points throughout Newfoundland, but the severity of the current infestation in the western part of the Island is unprecedented. The outbreak has persisted since 1991 and has intensified, resulting in large areas of young balsam fir being severely defoliated. The current infestation, which exceeds 30,000 ha, poses a major threat to these young, high-value, spaced balsam fir stands.



Dr. Harald Piene
Landscape Management Network

Sawflies defoliate trees in a manner different from other insect defoliators such as the spruce budworm. Sawflies feed only on older age classes of needles, while spruce budworm feed on needles and buds. At the start of this project, little information was available on growth loss and recovery periods of tree species damaged by sawflies. As a result of his research, Dr. Piene was able to show rapid increases in volume increment due to spacing treatments and subsequent sharp decreases (77-80%) due to defoliation by the balsam fir sawfly. The decreased volume increment and recovery period coincided well with trends in BFS egg densities. Dr. Piene's work clearly demonstrates that, to ensure maximum tree volume growth, future BFS populations should be kept to a minimum by management intervention while trees are recovering.

This research was conducted in cooperation with Corner Brook Pulp and Paper, Abitibi Consolidated, and the Newfoundland Forest Service.

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