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Balsam Woolly Adelgid Linked to Warm Winter Temperatures

Outbreaks of balsam woolly adelgid, a pest that has been causing extensive damage to balsam fir trees in parts of New Brunswick, Nova Scotia and Newfoundland, has been linked to warm January temperatures in a study supported by Fundy Model Forest.

Drs. Dan Quiring, UNB Fredericton, and Don Ostaff, Canadian Forest Service, in collaboration with colleagues, have studied outbreaks of the adelgid for the past two years in managed and unmanaged stands throughout Atlantic Canada. They found visibly damaged trees in the southern and eastern coastal areas of the province where mean January temperatures were greater than -11C. Damage by the adelgid was rarely found in plant hardiness zones lower than 4b.

However, if winter temperatures continue to increase, the research team expects the aphid-like pest will move westward and northward.

As a result of finding the correlation between outbreaks and temperature, Quiring and Ostaff have been able to recommend steps that forest managers and woodlot owners can take to limit damage. They suggest balsam fir should be grown in areas with the coldest overwintering temperatures (higher altitudes and on north-facing slopes) and high quality sites where trees grow more quickly.

The adelgid attacks balsam fir, the main commercial tree species in this region, making the trees unsuitable for lumber due to uneven shrinkage causing warping and splitting. As well, the pulp from affected trees is inferior to that from normal wood. It was introduced into Canada from Europe early in the 20th century and has caused extensive tree damage on both coasts. It has resurged in recent years and appears as a woolly white mass on branches. There is currently no effective method available to control adelgid outbreaks in forests.

Jason Knox, a forester with the Southern New Brunswick Wood Co-op has seen woodlot owners suffer significant financial loss from having to sell the damaged wood for pulp rather than higher priced stud wood. “In some places, it’s taken stands that we have commercially and pre-commercially thinned and affected them so badly that they have had to cut them before they were fully grown,” he said.

Knowing that the adelgid may cause less damage on higher and north facing slopes will help woodlot owners in making harvesting decisions on their woodlot. If they can feel reasonably sure that they can leave fir trees on the northern slopes without risking too much damage, they could decide to leave them to mature, which should give them a better return, Knox said.



The study gathered information on infestations in New Brunswick, Nova Scotia and Newfoundland. Researchers were able to allay concerns that one of the most intensive and commonly used forest management practice, pre-commercial thinning, was contributing to the resurgence in damage by the adelgid. Although there were small increases in damage by adelgid during the first few years following precommercial thinning, there were no large differences in damage by the adelgid to trees in precommercially thinned versus adjacent unthinned stands 15 years following thinning. The researchers are currently initiating a study to evaluate the effects of commercial thinning on susceptibility to BWA.

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