



## Impact Note - CFS Atlantic - Making a difference

### Early detection of invasive alien pests

**Recent research conducted by the Canadian Forest Service (CFS) is enhancing the survey for and early detection of invasive alien pests in natural and urban areas. The earlier invasives are detected, the greater the chances of eradicating them or slowing their spread.**

The brown spruce longhorn beetle (*Tetropium fuscum*; BSLB) is a quarantine pest from Europe that has been established near the port of Halifax in Nova Scotia since at least 1990, but was not discovered until 1999. The beetle is infesting and killing mature spruce (*Picea* spp.) in Nova Scotia, and has the potential to spread across Canada and cause premature spruce mortality and significant economic damage. Eradication of BSLB from Nova Scotia is no longer considered feasible, but it is still possible to slow the beetle's spread. The better the detection tools, the more accurately the leading edge of BSLB infestation can be determined and control options targeted. Accurate delimitation of the only known population of BSLB in Canada is critical to slowing its spread.

N° 48E

One of the most sensitive tools for detecting the presence of an insect species is a pheromone-baited trap. Significant improvement in the detection of BSLB was recently made possible with the identification and synthesis of a BSLB aggregation pheromone (attracts both sexes) by Drs. Peter Silk and Jon Sweeney of Natural Resources Canada, Canadian Forest Service. This pheromone, called "fuscumol" (patent granted) after the BSLB's scientific name, *Tetropium fuscum*, is the first chemical of its kind to be described from a longhorn beetle, and the first pheromone reported from the sub-family Aseminae.

In previous years, BSLB survey traps were baited with ethanol and a synthetic "spruce blend" lure that mimics the natural attractants of spruce trees for the insect. Sweeney and Silk tested the attractiveness of fuscumol to BSLB populations in Halifax and Poland in 2006 and 2007. They found that the addition of fuscumol to traps baited with spruce blend and ethanol resulted in a two- to fivefold increase in catch of BSLB. The combined fuscumol + spruce blend + ethanol lure was also highly attractive to another European longhorn beetle, *Tetropium castaneum*, (in Poland) and the native longhorn, *T. cinnamopterum*, (in Halifax). Thus, the new lure will also be useful for early detection of *T. castaneum*, a potentially invasive alien species that has been intercepted at North American ports in the past but is not known to be established in North America.

Fuscumol was used operationally by the Canadian Food Inspection Agency (CFIA) in a 2007 trapping survey in New Brunswick, Prince Edward Island, Newfoundland and Labrador, and Quebec.

## Early detection of invasives . . .

The improved lure resulted in 17 positive finds of BSLB outside the new containment zone boundaries established in the spring of 2007, thus greatly expanding the known area of infestation. Fortunately, no BSLB were detected outside of Nova Scotia.

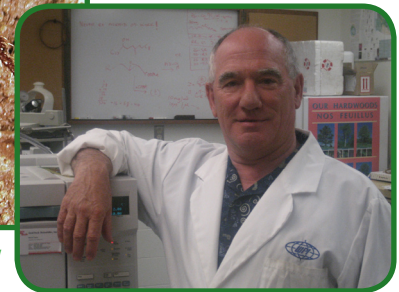
Research is ongoing at the CFS to develop effective methods to survey and control the BSLB and mitigate its threat to our forests. The CFS continues to play a vital role in providing solutions to ensure the future health of our forests and forest sector, bringing science from theory to application in the conservation and management of Canada's forests.



*Dr. Jon Sweeney*



*Female brown spruce longhorn beetle with ovipositor extended*



*Dr. Peter Silk*

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