BROWN SPRUCE LONGHORN BEETLE

An Invasive Species Threatening Spruce in Canada

Invasive Species Centre

Photo: Georgette Smith, Canadian Forest Service, Bugwood.org

What is it?

Brown spruce longhorn beetle (Tetropium fuscum) is an invasive wood boring pest that primarily attacks stressed and dying conifers. Beetles typically re-infest the same tree each year, creating extensive galleries that block the transport of nutrients. Infested trees weaken and die within 1 to 5 years.

Where is it?

Brown spruce longhorn beetle (BSLB) is native to Europe, Russia, and Japan. The beetle was introduced to Canada in wood packaging material and is thought to have been in Nova Scotia since at least 1990. Interceptions have been made in other provinces, but no established populations have been found outside of New Brunswick (in a small, isolated area) and Nova Scotia.

Trees at risk

Spruce trees (including red, white, Norway, and black spruce) seem to be the preferred host in North America, but BSLB have also been known to infest other types of conifers such as fir, pine, and larch. While this pest can attack apparently healthy hosts, BSLB tends to prefer stressed, dying, and fallen trees.

Signs and symptoms

- Yellowing and browning of needles
- Thinning crowns with remaining needles turning reddish-brown
- White resin or "weeping sap" running down the trunk
- Slightly oval exit holes (about 4-6mm) created from emerging adults
- Irregular larval feeding tunnels under the bark
- L-shaped pupal chambers in the wood
- Sawdust in tunnels or around exit holes

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Impacts

- Loss of native biodiversity
- Loss of large, mature spruce stands
- Reduced wood quality and marketability
- Reduced property and aesthetic value
- Loss of ecosystem services such as carbon storage

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How they Spread

- Spread of brown spruce longhorn beetle has been relatively slow in Nova Scotia.
- Increases in extreme weather events that stress and weaken trees could promote range expansion.
- Adult beetles can fly several kilometers, but usually move locally to re-infest hosts or neighbouring trees.
- BSLB can be unintentionally introduced to new areas through the human-assisted movement of firewood and other infested materials. **Not moving firewood can limit the spread of BSLB.**

Life Cycle

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- Adult beetles have flattened bodies that range from 1-2cm in length. These adults emerge in late spring or early summer to mate.
- Females lay small, greenish-white eggs under bark scales or in bark crevices.
- Hatched larvae feed in the phloem, creating galleries that block the flow of nutrients and sugars throughout the tree.
- Larvae will overwinter and pupate the following spring, then eventually emerge from the host tree as an adult.
- Cycle usually takes 1 year to complete and occurs faster in stressed spruce trees.

Similar Damage

There are a few other reasons why spruce trees may have resin present on the bark:

- Native spruce beetles (Dendroctonus rufipennis) can stress trees, resulting in pitch tubes and resin flow. Brown spruce longhorn beetle will not cause the formation of pitch tubes.
- Mechanical injuries to spruce trees can also activate defense mechanisms, causing similar resin weeping as seen with infestations of brown spruce longhorn beetle.

If you see signs and symptoms of brown spruce longhorn beetle, report the sightings to:

- The Canadian Food Inspection Agency (CFIA)
  www.inspection.gc.ca
- EDDMapS
  www.eddmaps.org

For more information on brown spruce longhorn beetle, visit:

- **Invasive Species Centre:**
  http://www.invasivespeciescentre.ca/invasive-species/meet-the-species/

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