

Brown spruce longhorn beetle *Tetropium fuscum*

The brown spruce beetle is a wood-boring insect that burrows into coniferous trees. This exotic beetle has been introduced to Nova Scotia and is damaging spruce trees. It is a concern for Michigan's natural forests, parks, urban landscapes, tree nurseries and Christmas tree industry.

[Michigan risk maps for exotic plant pests.](#)

Systematic position

Insecta > Coleoptera > Cerambycidae > *Tetropium fuscum* (Fabricius)

Global distribution

Northern and central Europe (Scandinavia to Turkey), Russia, Japan, and Nova Scotia, Canada.

Quarantine status

This insect was first confirmed in North America when it was detected in Nova Scotia, Canada, in 1999. Since then, the beetle has been target for eradication in the province. The beetle is listed as an exotic organism of high invasive risk to the United States (USDA-APHIS 2008).

Plant hosts

Conifers, primarily spruce, pine, and fir.

In its native home range of Eurasia, the host records include Norway spruce (*Picea abies*), Sitka spruce (*Picea sitchensis*), blue spruce (*Picea pungens*), Scotch pine (*Pinus sylvestris*), and silver fir (*Abies alba*).

In Nova Scotia, Canada, the beetle has been recovered from red spruce (*Picea rubens*), white spruce (*Picea glauca*), black spruce (*Picea mariana*), and Norway spruce.

Biology

Their life cycle is normally one generation cycle per year. Eggs are laid in batches under bark scales of the host tree. After hatching, larvae feed in the cambium, producing a network of feeding tunnels. Older larvae bore into phloem horizontally for 2-4 cm, and then bore vertically for 3-4 cm, forming L-shaped galleries. Mature larvae pupate at the end of the feeding tunnels. Adults bore through the trunk outward and emerge through exit holes in the bark. They then disperse and mate.

The beetle is considered a secondary forest pest in the native range of Eurasia as it attacks only weakened and felled conifers. However, studies in Nova Scotia indicate that the beetle can kill apparently healthy red spruce and is considered a high risk organism because of its reproductive and dispersal potentials in North American forests.



Adult. (Photo: G. Smith, Canadian Forest Service, Bugwood.org)



Larva. (Photo: S. Sopow, Natural Resources Canada, Bugwood.org)

Identification

- **Adult:** body tan, brown, or reddish-brown, 8-18 mm long and flattened; wing covers with 2-3 longitudinal stripes.
- **Larva:** body yellow-white, 14-28 mm long; head reddish-brown.

Native *Tetropium* species are present in Michigan which may look very much like the exotic brown spruce longhorn beetle. Positive identification requires examination of adults by a trained taxonomist.

Signs of infestation

- Excessive resin flows down the trunk from larval wounds.
Larval entrance holes in bark, approximately 4 mm in diameter.
Networks of irregular feeding tunnels (up to 6 mm in diameter) under the bark.
Browning of foliage.
Dying spruce trees.
Presence of adult beetles (June through August).

Management notes

In Nova Scotia, eradication of infestations has been attempted by cutting and burning infested trees. Other strategies include use of trap trees subsequently treated with chemicals (Dobesberger 2005).

Economic and environmental significance to Michigan

Spruce, pine, and fir trees are widely present in Michigan's natural forests, recreational lands and urban areas. These conifers have commercial importance in ornamental and landscape horticulture and the Christmas tree industry. The environmental impacts of beetle invasion may include loss of biodiversity (e.g., trees killed or weakened by beetle infestation or infested trees destroyed in eradication efforts), and increased risk of wildfires when more trees die. The economic impacts may include restricted movements and exports of solid wood products via quarantine, reduced marketability of lumber, and reduced sales of coniferous nursery plants.

Likely pathways of entry to Michigan

Shipments of solid wood packing material, solid wood



Resin flow on the trunk of red cedar attributed to infestations by brown spruce longhorn beetle (Photo: J. Sweeney, Natural Resources Canada, Bugwood.org)



Damage to spruce cambium by larvae of brown spruce longhorn beetle. (Photo: G. Smith, Canadian Forest Service, Bugwood.org)

products, logs and lumber from Northern and Central Europe, Russia, Japan, and Nova Scotia, Canada.

If you find something suspicious on a susceptible host plant, please contact MSU Diagnostic Services (517-355-4536), your county extension office, or the Michigan Department of Agriculture (1-800-292-3939).

References

Dobesberger, E. J. 2005. Pest reports EXFOR Database: Tetrospium fuscum. (http://spfnic.fs.fed.us/exfor/data/pestreports.cfm?pestidval=123&langdisplay=english)
Locke, S. Brown spruce longhorn beetle Tetrospium fuscum (Fabr.). 2002. (http://dp.biology.dal.ca/webliteracy/projects/beetle/beetle3.html)
USDA-APHIS. 2008. Pests of national concern for fiscal year 2009. (http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/survey/survey-2009/Appendix-G.pdf)

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