EXOTIC FOREST PEST ADVISORY

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Natural Resources Canada, Canadian Forest Service

Lesser Cedar Longicorn Beetle – *Callidiellum rufipenne*

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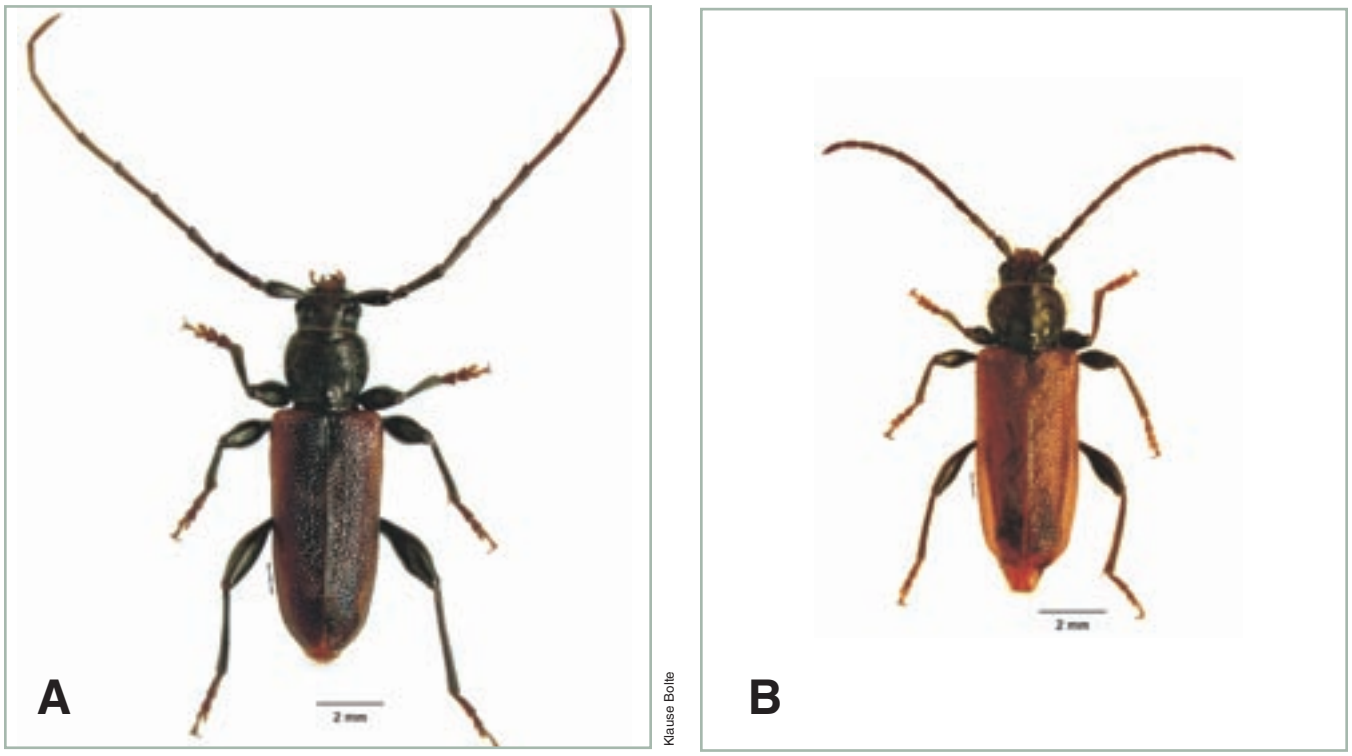

Figure 1 – Adult beetle: a) male; b) female.

Introduction

The lesser cedar longicorn beetle, *Callidiellum rufipenne* (Motschulsky), (Figure 1) a native of northern Asia (Japan, Korea, Taiwan, and mainland China) that was introduced into Italy and Spain, has recently become established in North Carolina. In Japan, this woodborer is not considered a serious pest as it usually attacks freshly felled cedars and cypresses. Degradation of the log value is minimal, as tunneling is restricted to the outer sapwood.

Callidiellum rufipenne has been found in eastern white-cedar, *Thuja occidentalis* L., and eastern redcedar, *Juniperus virginiana* L., nursery stock in Connecticut and in a stand of eastern redcedar in North Carolina. An emergency regulation has been passed by the Legislature of Connecticut to prohibit movement of infested materials and to "eradicate infestations" of the beetle in regulated items.

Figure 2 – Stressed stand of western red and yellow cedar.

Hosts

In North America all native species of cedar, cypress and juniper are threatened. Suspected hosts include the true firs and pines. Stressed trees are the most susceptible.

The Threat

Native stands of cypress trees, especially those under stress, could be at risk.

Western red cedar, *Thuja plicata* Donn ex D. Don, and yellow cedar, *Chamaecyparis nootkatensis* (D. Don) Spach, two of Canada's most valuable timber resources, could be susceptible to attack, especially those trees growing on marginal sites (Figure 2).

Nursery growers of cedars, cypress and junipers will be affected. Urban trees and hedgerows of the cypress family could be damaged.

Quarantine restrictions might be placed on the movement of cedar lumber and nursery stock, nationally and internationally.

Spread/dispersal

The distance that *C. rufipenne* can fly is unknown; however, cerambycids are usually strong fliers. All life stages of this beetle can be present in wood products (solid wood packaging and dunnage), and in ornamental and living trees, so this insect is easily spread through commerce. Dunnage frequently contains larvae, pupae and overwintering adults.

Recognition

Adults average 1 cm in length, varying from 6.25 mm to 12.75 mm. The body is flattened with a brownish black head and a pointed posterior; the abdomen is reddish orange; legs are stout with elongated femurs. The males are iridescent blue-black with reddish patches on the upper anterior corners of the wing covers (humeri). Females have brownish red to red wing covers (Figure 1b). The antennae of the male are slightly longer than the body; the antennae of the female are three-fourths the body length. The first antennal segment black. Males can often be seen sitting in branch crotches.

Larvae can be more than 2 cm in length, with the sides of the head and parts of the eye and antennae a rusty red. The thorax (4.5 mm) is wider than the posterior (Figure 3).

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Figure 3 – Larvae have thorax wider than posterior.

Pupae are milky white to brownish yellow in colour, and are less than 16 mm in length. Long antennae extend to at least the second abdominal segment. The ninth abdominal segment is very short.

Damage to trees

Damage is often difficult to detect. Frass-filled larval galleries, 2-6 mm wide, are curved and increase in width from start to finish (Figure 4). Galleries can girdle smaller branches. Wrinkled bark incisions of around 1 cm in length are sometimes visible and may contain frass. In small branches or stems, larval tunnels may occupy the central portion of plants that are still living.

- Bark may be depressed due to larval tunneling. Infested branches may become brittle. In the fall the bark may crack and expose the gallery underneath (Figure 5). Pupal chambers are from 6 mm to 13 mm in diameter. Elliptical exit holes measure 6-10 mm in diameter.

Life History

In Asia there is one generation per year. Emergence occurs in the spring as early as March, but it can continue into the summer depending on climate. Mating occurs on the bark surface. Males can often be seen perching on tree trunks waiting for females. Eggs are laid in bark crevices and hatch after 2 weeks. Larvae make galleries under the bark while feeding in the cambium layer. Mature larvae bore into the sapwood and excavate pupal cells that are plugged with frass. Pupal chambers can penetrate 4 cm into the wood. The beetle overwinters as an adult. The adults emerge in the spring through frass-packed galleries excavated by the larvae (Figure 6).

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Figure 4 – Curved frassed filled gallery containing larva.

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Figure 5 – Depression in bark with partially exposed gallery.

Detection

What to Look For

- Callused over larval galleries (Figure 7).
- Light red sawdust on branches and trunk.
- A winding gallery system.
- Elliptical exit holes (Figure 8).

Cypress trap logs can be used to attract adult beetles to determine their presence in the area.

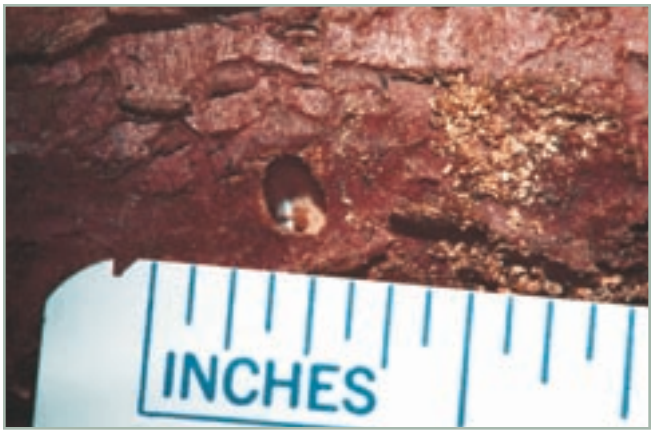

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Figure 8 – Elliptical exit gallery.

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Figure 6 – Adult beetle in gallery before emergence.

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Figure 7 – Calloused over larval gallery.

Control

Proper disposal of infested trap logs, by burning or burying at least 30 com deep, helps contain infestations. Eliminate host material in nurseries, including dead and dying trees. Maintaining healthy and vigorous stands renders host trees less susceptible.

Fumigating solid wood packaging with methyl bromide or sufluryl fluoride will control cerambycid populations. Kiln dying of dunnage before importation to Canada will prevent further introductions of this pest from overseas.

Several species of ichneumonids and braconids parasitize the larvae of the lesser cedar longicorn beetle, and may limit population expansion.

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