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FOREST Pest LEAFLET

Pacific Forestry Centre

The Golden Buprestid

A Wood-Boring Beetle

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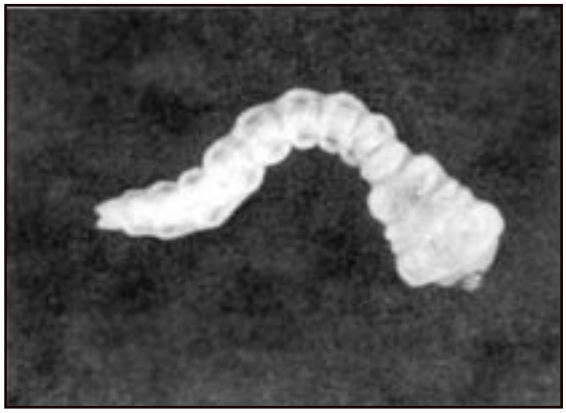

Figure 1. Golden buprestid larva.

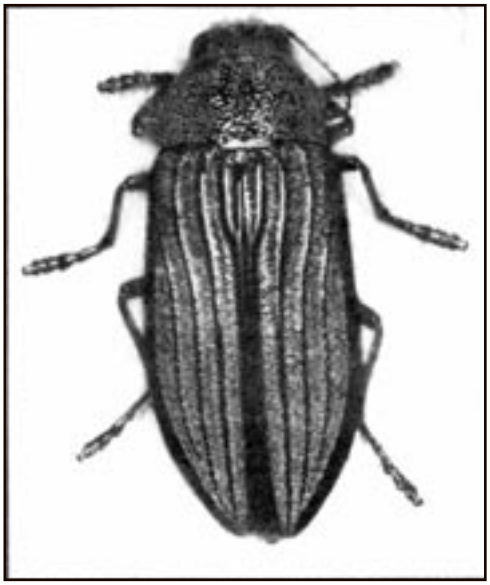

Figure 2. Golden buprestid adult.

Introduction

The golden buprestid, *Buprestis aurulenta* Linnaeus (Coleoptera: Buprestidae), is a common wood borer of conifers in British Columbia. This beetle is most troublesome as a pest of wood in service, particularly in buildings, where its damage consists of mined timbers or boards, and exit holes cut through finished surfaces. Although the golden buprestid is common throughout much of British Columbia, it is rarely abundant enough to cause significant damage. From one to five beetles emerge from a house of average construction. Only rarely have five or more beetles been found in a single board or timber.

Distribution and hosts

This beetle is native to western North America, ranging from central British Columbia to southern California. Douglas-fir is the preferred host, although pine, spruce, true firs and western red cedar may also be attacked.

Description

Egg: Pearly white, oval and flattened.

Larva: A young larva is about 2 mm long and 0.5 mm wide. A mature larva is about 38 mm long and 6 mm wide; creamy white with brownish mouthparts (Figure 1). The abdomen is long, slender and conspicuously segmented. The thorax is broad and flat.

Pupa: Approximately 12 mm long, 5 mm wide; creamy white.

Adult: 12 to 20 mm long, 5 to 8 mm wide. The beetle is metallic green or blue, except for the borders of the grooved wing cases and the underside of the body, which are coppery-gold (Figure 2).

Life history and habits

Adult beetles select recently dead trees, dying trees, or unseasoned logs on which to lay their eggs. These materials become particularly attractive when they have had bark injuries such as those caused by fire, logging, or lightning, etc. Unseasoned

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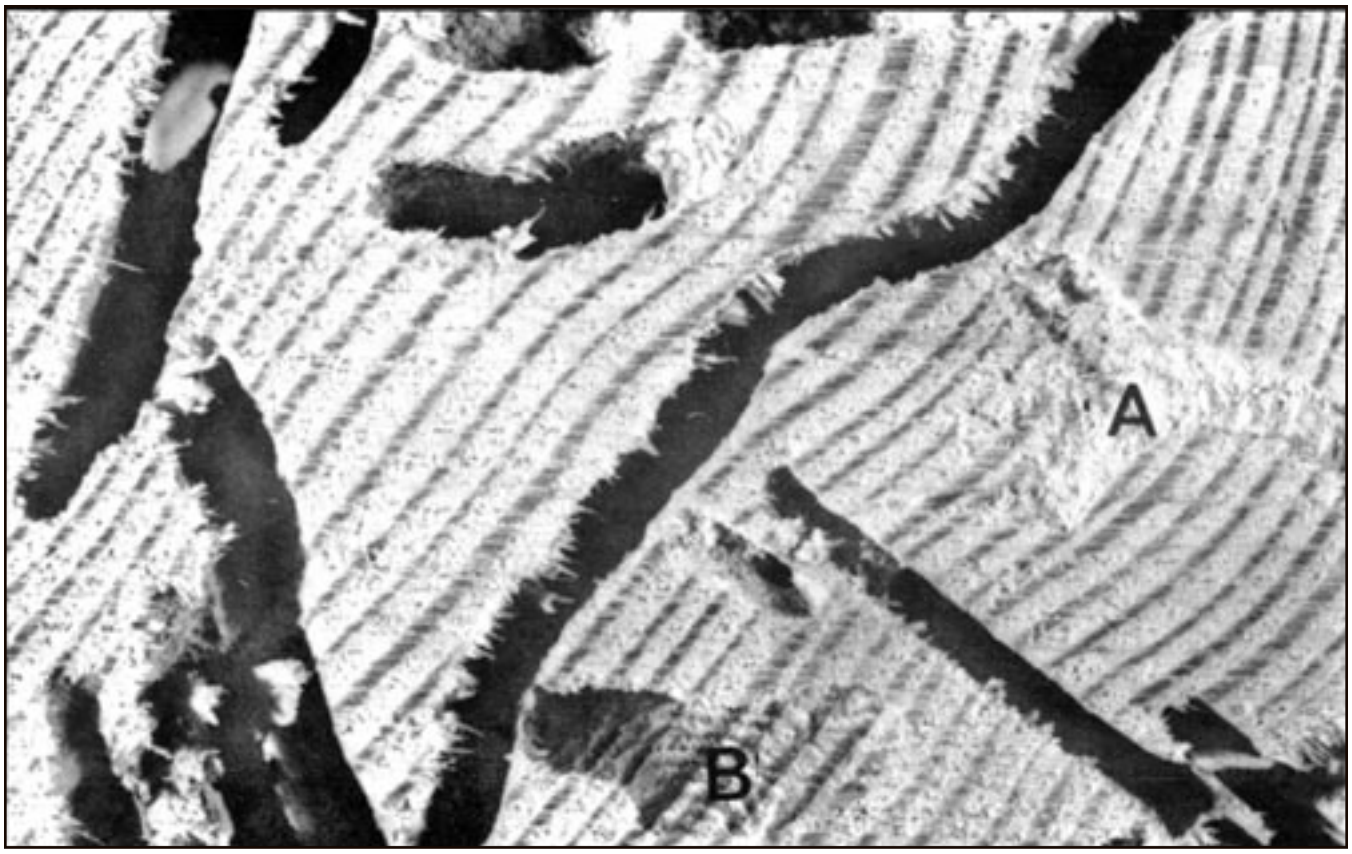

Figure 3. Cross section of larval tunnels. A. Larval tunnel packed with frass. B. Fine grooves on wall of tunnel.

lumber with attached bark may also be attacked. In late spring or summer, the females seek out sites where they can lay their eggs in close proximity to wood, such as in bark crevices and scars. Eggs are laid singly or in masses, are surrounded by an adhesive secretion, and hatch soon afterwards. The newly emerged larvae bore into the wood, usually 1 to 2 cm below the sapwood surface where they excavate mines which are enlarged as the larvae grow in size (Figure 3); occasionally, heartwood is penetrated. Galleries are oval or flattened in cross section and are tightly packed with fine, light-colored frass. Walls of the galleries are finely grooved by the larvae as they feed (Figure 3B). Mature larvae pupate at the end of the larval galleries during late summer, transform to adults in the fall, and overwinter in the galleries. Under natural conditions in the forest, the larval stage lasts 2 to 4 years. The following spring, the adult beetles chew through to the surface, leaving typical oval emergence holes (Figure 4). Emerged adults require a period of feeding on Douglas-fir foliage before they mature and mate. This foliage feeding causes no significant damage. When infested wood is subjected to seasoning and low humidity, as it is in structures, the life cycle of the golden buprestid is so altered that the larvae may live up to 60 years and adults may emerge from the wood at any season.

Damage and detection

Larvae may cause varying degrees of damage, depending on the grain of wood and the number and proximity of larval galleries. Structural damage or noticeable wood destruction is rare and only occurs in special situations, such as when a large number of larval galleries are close together in wide-grained wood. Larval mining most frequently occurs in framing materials, flooring or sashwork; typically, the damage is light and is mainly limited to marring of the wood surface by emergence holes. Holes may occur in the original infested lumber or in adjoining woodwork. Unless the emergence holes are exposed to the elements, further deterioration is unlikely to occur.

Detection of infested lumber before it is used in construction may be difficult as the flattened tunnels made by early-instar larvae are small, 0.5 to 1.0 mm wide (Figure 5). Larvae in structures can sometimes be located by their audible chewing sounds. At other times, the location of larvae or their mines may be seen when a larval mine breaks the surface or when the mine causes a slight dimpling or troughing of the wood.

Prevention and control

To prevent attack by the golden buprestid, logs and recently killed standing trees, particularly Douglas-fir, should not be left in the forest during late spring and summer when adult

Figure 4. Oval emergence hole of adult.

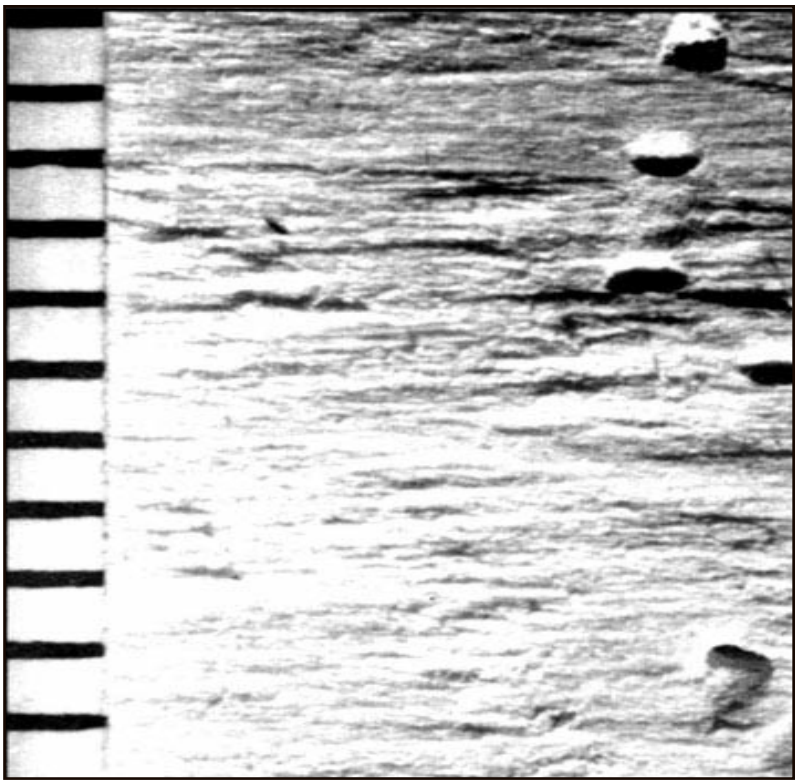

Figure 5. Tunnels of early-instar larvae. Scale in mm.

beetles are flying, nor should unpeeled logs or lumber with attached bark be stored near forested land during the flight period. The risk of infestation at mills can be reduced by prompt peeling of susceptible materials.

Lumber used in construction should be free of attached bark and larval mining holes. When lumber has been properly kiln dried, all stages of the insect are killed.

If a problem is discovered in completed buildings, it is seldom necessary to attempt control measures since the golden buprestid rarely causes structural damage, and reinfestation of structures by emerging adults is not known to occur. Damage is mainly restricted to the presence of an occasional emergence hole which, if located on the weather side, should be flooded with copper or zinc naphthanate and closed with putty to kill any adjacent larvae, arrest incipient decay, and prevent entry of other insects or rain; interior holes may be plugged with wood paste and refinished. Where structural damage has occurred, the infested timbers should be replaced.

Occasionally, larval tunnels break the surface and frass can be seen being ejected from the opening; in these situations, the larva will be close by and may be impaled on a sharpened wire.

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