Preventing and controlling Powderpost beetles in and around the home

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Figure 1.—Lyctid powderpost-beetle damage to a hardwood tool handle (the emergence holes are clearly visible here.)

Identification

The common name powderpost beetle loosely applies to three closely related beetle families, Lyctidae, Anobiidae, and Bostrichidae. Powderpost beetles breed in dead wood, as well as in dried and cured lumber. It is the larvae's feeding that reduces wood to what scientists call frass—a fine powder or a mass of small pellets. Damage by powderpost beetles occurs in a wide variety of wood products—flooring, molding, paneling, ceilings, furniture, books, tool handles, gunstocks, etc. Damage is usually not evident until adults cut holes (figure 1) and emerge; then the powder becomes visible. Where damage is extreme, wood is converted to a mass of powder or pellets held together by a thin outer surface penetrated by numerous exit holes. Damage this severe usually indicates that several generations of beetles have reinfested the same piece of wood (figure 2).

Lyctidae

Lyctids are the true powderpost beetles. Larval feeding within wood produces a frass as fine as face powder, which will stream from the exit holes at the slightest jar or tremor. The appearance of powder does not necessarily indicate an active infestation. Remove the wood and examine it closely to confirm the presence of life forms of the insect. You may not see adult beetles; however, they're attracted to light and may appear on windows or sills. Have them identified by an expert. There are many look-alike beetles such as bark beetles from fireplace wood.

Joseph Capizzi, Extension entomologist emeritus, Oregon State University, revised this publication with the cooperation of Extension specialists in Washington and Idaho. It was originally published as Extension Circular 1098, by Ben Simko, Extension pest management specialist, Oregon State University, which it now replaces.
Lycids attack only large-pored hardwoods such as oak, ash, hickory, myrtle, and mahogany. Bamboo is also subject to attack.

Adult lycids (figure 3) are flattened, dark brown to nearly black beetles generally 3 to 6 mm long (1 inch = 25.4 mm). Mature larvae are C-shaped and slightly hairy, with 3 pairs of small, spinelike legs immediately behind the head. Larval body color is yellowish-white, and the head is tan to broad (figure 4).

Adult females mate and lay most of their eggs the first week after emergence. Eggs are deposited within pores of wood or in cracks and crevices. Upon hatching, larvae begin feeding on and tunneling into the wood. Most larval feeding outdoors occurs in the spring and summer, but in heated rooms feeding may be continuous. After the larval feeding is complete, pupation occurs just below the surface of the wood.

Adults emerge by chewing a small circular hole 2 to 3 mm in diameter through the remaining wood. The complete life cycle (from egg-laying to adult emergence) ordinarily requires 9 to 12 months; under favorable conditions of high temperature, this period may be reduced to only 6 or 7 months. Under adverse conditions, the life cycle may be prolonged to 2 to 4 years or longer.

Two lycid species that are common pests in the Pacific Northwest are *Lycus planicollis* LeConte and *Lycus brunneus* (Stephens). The latter species is frequently found in furniture made from bamboo.

**Anobiidae**

Members of this group will attack sapwood but rarely attack heartwood (figure 5). Unlike the lycids, anobiids reduce wood to pellets (instead of a fine powder).

Adults of species that are commonly found attacking wood range from 3 to 7 mm long, and their slender, cylindrical bodies are generally red-brown to nearly black. In most anobiid species, the head is bent downwards and is not visible when you view it from above (figure 6). The larvae, similar to lycid larvae, are C-shaped and nearly white, except for a darkened head capsule (figure 7).

The life cycle of anobiids may require 2 to 3 years for completion, depending on the prevailing temperature and condition of the wood. Adult examples are round and range from 1.6 to 3 mm in diameter.

An important member of this family is the native powderpost beetle, *Hadrobregmus gibbicollis* (LeConte). This beetle is most abundant along the coast, where it commonly attacks unpainted Douglas-fir timber in barns and bridges and the basement timbers of dwellings. Greatest damage is usually confined to the lower portion of structures.

The frass of anobiids is tightly packed in the galleries (feeding areas). It is not powdery but composed largely of tiny fecal pellets that give the frass a slightly gritty feel. Once the sapwood is consumed, infestations may die out. If there are large numbers of exit holes and if frass is both bright and light-colored like freshly sawed wood, the infestation is old and active.

In the Pacific Northwest, anobiids are most common in unheated or infrequently heated buildings. They do best in wood with a moisture content above 14%. Coastal second homes, wooden shelters or buildings in rest areas, bridges, etc., are very susceptible to attack.
Bostrichidae

Bostrichids are most abundant in the tropics, so they're not as important as the lyctids and anobiids in temperate regions. However, some species do attack wood in the Pacific Northwest. Most bostrichids feed on the sapwood of hardwoods, but a few also attack conifers.

If you find bostrichid adults indoors, they're typically 3 to 6 mm long, with slender, cylindrical bodies. Their reddish-brown to black color is similar to that of other powderpost beetles. The head projects downward as in species of anobiids and is not visible from above.

The segment immediately behind the head often bears numerous short spines that produce a rasplike appearance (figure 8). The larvae are also C-shaped grubs; however, in this family the body segments immediately behind the head capsule are much wider that the body segments near the tail end (figure 9).

An exception to the general appearance of adults of this family is the “black polycaon beetle,” Polycaon stoutii (LeConte). This coal-black bostrichid is 12 to 25 mm long and its prominent head extends upward. The segment immediately behind the head does not have a spiny surface (figure 10).

The bostrichid life cycle is similar to that of other powderpost beetles, but its egg-depositing behavior is unique. Female beetles bore into wood and prepare “egg tunnels” instead of laying eggs in pores or cracks on the wood surface.

The frass of bostrichids is meal-like and contains no pellets. It is tightly packed in the galleries and does not sift out of the wood easily.

Though they're found occasionally, the bostrichids are not considered serious pests of structures in the Pacific Northwest. When problems occur, they originate in hardwoods shipped in from other more susceptible parts of the country or from other countries. Many of the species do not infest wood after it has been seasoned, so damage is limited to that inflicted by a single generation.

Unfortunately, the damage can be considerable. Therefore, it's important to identify the type of beetle involved so that you can reduce the possible damage and the persistence of the infestation.

The black polycaon beetle attacks any softwood and several hardwoods. It sometimes burrows into the softwood interior of certain multiple-ply veneers, and it produces damage that may not be noted until adult beetles bore through to the surface of panels that have been made into furniture (figure 11).

Prevention and control

Most powderpost beetle infestations are present in wood or wood products before you purchase the wood to use in your home. Even though people do discover infestations when they see new adult emergence holes or powdery frass on finished wood products, it's important to understand that prevention and control should begin at the lumber mill and be continued in lumberyards, builders' lots, and other areas where wood or wood products are stored and manufactured.
An extremely important phase of prevention is sanitation. In nature, beetles breed in old and dried wood, such as dead branches and limbs of trees. Eliminate these possible sources of powderpost beetles to prevent the infestation of valuable wood in your area.

Lumber just after kiln drying will be totally free of wood-destroying insects. However, kiln-dried lumber will be much more expensive than lumber that has not been kiln-dried.

Once you discover an infestation, there are steps that you can take to eliminate the infestation and prevent reinfestation and further damage. Base your decision to use one or more of the control measures described below on the value, size, and use of your infested wood.

**Painting or coating the surface**

Before the female powderpost beetle lays an egg (or begins egg tunneling, as with the bostrichids), she first “tastes” the wood to determine whether it contains enough starch and sugar to nourish her offspring. If you coat the surface with paraffin wax, varnish, shellac, or paint, you’ll prevent “tasting,” and eggs will not be laid. Larvae already in the wood at the time of coating will continue their development, but you will have minimized the possibility of reinfestation by a new generation of beetles. It is also recommended that you patch all existing holes before you apply any surface treatment.

**Freezing**

You can freeze small wooden articles and certain infested furniture, in a home freezer or in a walk-in freezer to kill existing beetles and grubs in the wood. To sufficiently reduce temperatures within infested wood, keep these articles in the freezer (at or below 0°F) for at least 48 hours.

**Insecticides and fumigation**

Some homeowners may wish to employ a certified professional pesticide applicator to control infestations by using an insecticide or fumigant. These treatments may be expensive, and you should consider the value of the infested articles before you begin such treatment.

If you decide to apply an insecticide treatment yourself, without the aid of a professional applicator, consult your Extension agent first, for advice on the legal and safe use of insecticides for control of powderpost beetles.

Do not use insecticides on kitchen utensils, food preparation surfaces, children’s cribs, furniture—or anything that comes in direct contact with people.

The insecticides used for this purpose are meant to soak into infested wood and kill insects inside it through a “wicking” effect. This method presupposes already infested wood and exit holes through which the insecticide can penetrate. The chemicals are applied by brush, mop, or coarse flooding spray.

It’s not a procedure that the homeowner should attempt under most circumstances. The insecticides labeled for this specific use are restricted to professionals.

**Use pesticides safely!**

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the pesticide label—even if you’ve used the pesticide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

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