

Wood-Boring Beetles and Wasps

There are numerous species of wood-boring insects that occur in houses. Some of these cause considerable damage if not controlled quickly. Others are of minor importance and attack only unseasoned wood. Beetles and wasps all have larval, or grub, stages in their life cycles, and the mature flying insects produce entry or exit holes in the surface of the wood. These holes, and sawdust from tunnels behind the holes, are generally the first evidence of attack visible to the building inspector.

Correct identification of the insect responsible for the damage is essential if the appropriate control method is to be selected. The characteristics of each of the more common groups of beetles and wasps are discussed in the following table which summarizes the size and shape of entry or exit holes produced by wood-boring insects, the types of wood they attack, the

appearance of frass or sawdust in insect tunnels and the insect's ability to reinfest wood in a house.

To use the table, match the size and shape of the exit or entry holes in the wood to those described in the table; note whether the damaged wood is a hardwood or softwood and whether the damage is in a new or old wood product (evidence of inactive infestations of insects which attack only new wood will often be found in old wood; there is no need for control of these). Next, probe the wood to determine the appearance of the frass. It should then be possible to identify the insect type. It is clear from the table that there is often considerable variation within particular insect groups. Where the inspector is unsure of the identity of the insect causing damage, a qualified entomologist should be consulted.

Shape and Size (inches) of Exit/Entry Hole	Wood Type	Age of Wood Attacked	Appearance of Frass in Tunnels	Insect Type	Reinfest
Round 1/50-1/8	Softwood and hardwood	New	None present	Ambrosia beetles	No
Round 1/32-1/16	Hardwood	New and old	Fine, flour-like, loosely packed	Lyctid beetles	Yes
Round 1/16-3/32	Bark/sapwood interface	New	Fine to coarse, bark colored, tightly packed	Bark beetles	No
Round 1/16-1/18	Softwood and hardwood	New and old	Fine powder and pellets, loosely packed; pellets may be absent and frass tightly packed in some hardwoods	Anobiid beetles	Yes
Round 3/32-9/32	Softwood and hardwood (bamboo)	New	Fine to coarse powder, tightly packed	Bostrichid beetles	Rarely
Round 1/6-1/4	Softwood	New	Coarse, tightly packed	Horntail or woodwasp	No
Round 1/2	Softwood	New and old	None present	Carpenter bee	Yes
Round-oval 1/8-3/8	Softwood and hardwood	New	Coarse to fibrous, mostly absent	Round-headed borer	No
Oval 1/8-1/2	Softwood and hardwood	New	Sawdust-like, tightly packed	Flat-headed borer	No
Oval 1/4-3/8	Softwood	New and old	Very fine powder and tiny pellets, tight	Old house borer	Yes
Flat oval 1/2 or more or irregular surface groove 1/8-1/2 wide	Softwood and hardwood	New	Absent or sawdust-like, coarse to fibrous; tightly packed	Round or flat headed borer, wood machined after attack	No

(New wood is defined as standing or freshly felled trees and unseasoned lumber. Old wood is seasoned or dried lumber.)

Lyctid Powderpost Beetles

Lyctids attack only the sapwood of hardwoods with large pores: for example, oak, hickory, ash, walnut, pecan and many tropical hardwoods. They reinfest seasoned wood until it disintegrates. Lyctids range from 1/8- to 1/4-inch in length and are reddish-brown to black. The presence of small piles of fine flour-like wood powder (frass) on or under the wood is the most obvious sign of infestation. Even a slight jarring of the wood makes the frass sift from the holes. There are no pellets. The exit holes are round and vary from 1/32- to 1/16-inch in diameter (Figure 29). Most of the tunnels are about 1/16-inch in diameter and loosely packed with fine frass. If damage is severe, the sapwood may be completely converted within a few years to frass held in by a very thin veneer of surface wood with beetle exit holes. The amount of damage depends on the level of starch in the wood.

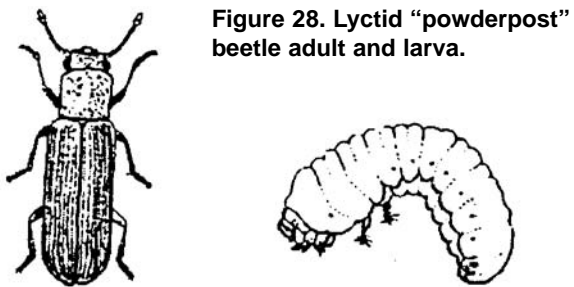


Figure 28. Lyctid "powderpost" beetle adult and larva.

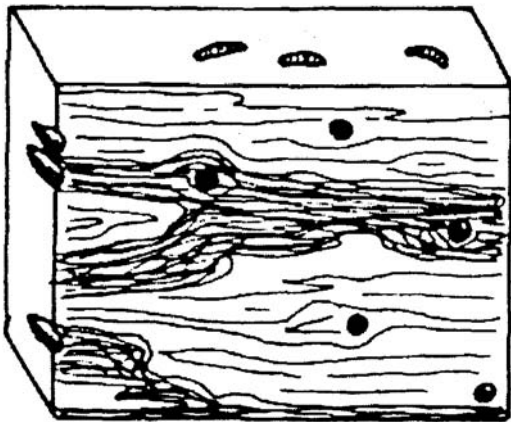


Figure 29. Typical powderpost beetle damage.

Infestations are normally limited to hardwood paneling, trim, furniture and flooring. Replacement or removal and fumigation of infested materials are usually the most economical and effective control methods. For current information on the use of residual insecticides, the inspector should contact the Extension entomologist at his nearest land-grant university or a reputable pest control company.

Anobiid Beetles

The most common anobiids attack the sapwood of hardwoods and softwoods. They reinfest seasoned wood if environmental conditions are favorable. Attacks often start in poorly heated or ventilated crawl spaces and spread to other parts of the house. They rarely occur in houses on slab foundations. Anobiids range from 1/8- to 1/4-inch in length and are reddish-brown to nearly black. Adult insects are rarely seen. The most obvious sign of infestation is the accumulation of powdery frass and tiny pellets underneath infested wood or streaming from exit holes. The exit holes are round and vary from 1/16- to 1/8-inch in diameter (Figure 31).

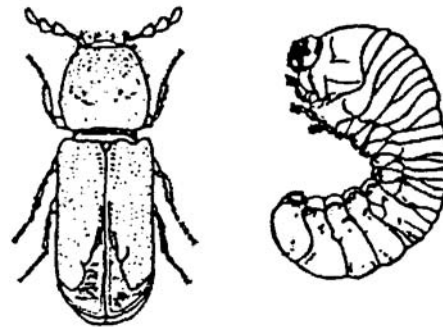


Figure 30. Furniture beetle adult and larva.

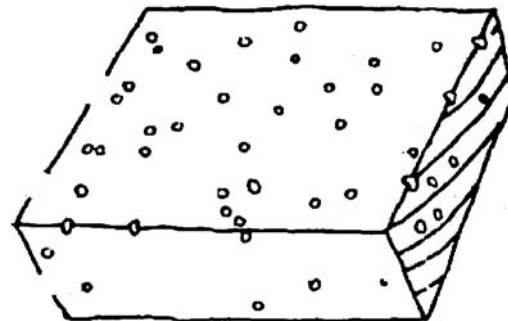


Figure 31. Furniture beetle exit holes.

If there are large numbers of holes and the powder is bright and light-colored like freshly sawed wood, the infestation is both old and active. If all the frass is yellowed and partially caked on the surface where it lies, the infestation has been controlled or has dried out naturally. Anobiid tunnels are normally loosely packed with frass and pellets. It is normally 10 or more years before the numbers of beetles infesting wood become large enough for their presence to be noted. Control can be achieved by both chemical and non-chemical methods. For current information on control of anobiids, the inspector should contact the Extension entomologist at his nearest land-grant university, or a reputable pest control company.

Bostrichid Powderpost Beetles

Most bostrichids attack hardwoods, but a few species attack softwoods. They rarely attack and reinfest seasoned wood. Bostrichids range from 1/8 to 1/4-inch in length and from reddish-brown to black. The black polycaon is an atypical bostrichid and can be 1/2- to 1- inch in length. The first signs of infestation are circular entry holes for the egg tunnels made by the females. The exit holes made by adults are similar, but are usually filled with frass. The frass is meal-like and contains no pellets. It is tightly packed in the tunnels, and does not sift out of the wood easily. The exit holes are round and vary from 3/32- to 9/32-inch in diameter. Bostrichid tunnels are round and range from 1/16- to 3/8-inch in diameter. If damage is extreme, the sapwood may be completely consumed. Bostrichids rarely cause significant damage in framing lumber and primarily affect individual pieces of hardwood flooring or trim. Replacement of structurally weakened members is usually the most economical and effective control method.

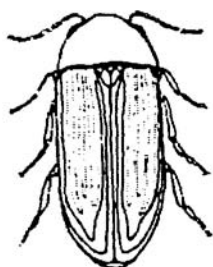
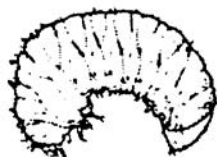


Figure 32. False powderpost beetle the adult and larva.



Other Wood-Inhabiting Insects

There are several other species of insects which infest dying or freshly felled trees or unseasoned wood, but which do not reinfest seasoned wood. They may emerge from wood in a finished house, or evidence of their presence may be observed. On rare occasions, control measures may be justified to prevent disfigurement of wood, but control is not needed to prevent structural weakening.

Ambrosia Beetles – These insects attack unseasoned sapwood and heartwood of softwood and hardwood logs, producing circular boreholes 1/50- to 1/8-inch in diameter. Boreholes do not contain frass,

but are frequently stained blue, black or brown. These insects do not infest seasoned wood.

Bark Beetles – These beetles tunnel at the wood/bark interface and etch the surface of wood immediately below the bark. Beetles left under bark edges on lumber may survive for a year or more as the wood dries. Some brown, gritty frass may fall from circular boreholes in the bark, diameter 1/16- to 3/32-inch. These insects do not infest wood.

Horntails (wood wasps) – Horntails generally attack unseasoned softwoods and do not reinfest seasoned wood. One species sometimes emerges in houses from hardwood firewood. Horntails occasionally emerge – through paneling, siding or sheetrock in new houses; it may take 4 to 5 years for them to emerge. They attack both sapwood and heartwood, producing a tunnel that is roughly C-shaped in the tree. Exit holes and tunnels are circular in cross section, with diameter 1/6- to 1/4-inch. Tunnels are tightly packed with coarse frass. Frequently, tunnels are exposed on the surface of lumber by milling after development of the insect.

Round-Headed Borers – Several species are included in this group. They attack sapwood of softwoods and hardwoods during storage, but rarely attack seasoned wood. The old house borer is the major round-headed borer that can reinfest seasoned wood (Figure 33). When round-headed borers emerge from wood, they make slightly oval to nearly round exit holes 1/8- to 3/8-inch in diameter (Figure 34). Frass varies from rather fine and meal-like in some species to very coarse fibers like pipe tobacco in others. Frass may be absent from tunnels, particularly where the wood was machined after emergence of the insects.

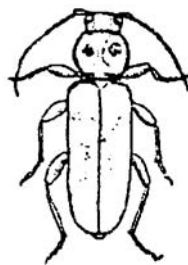
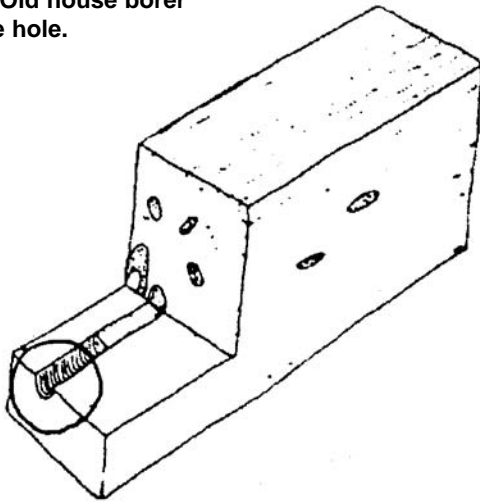


Figure 33. Old house borer adult and larva.



Figure 34. Old house borer emergence hole.



Flat-Headed Borers – They attack sapwood and heartwood of softwoods and hardwoods. Exit holes are oval, with the long diameter 1/8- to 1/2-inch. Wood damaged by flat-headed borers is generally sawed after damage has occurred, so tunnels are exposed on the

surface of infested wood. Tunnels are packed with sawdust-like borings and pellets, and tunnel walls are covered with fine transverse lines somewhat similar to some round-headed borers. However, the tunnels are much more flattened. The golden buprestid is one species of flat-headed borer that occurs occasionally in the Rocky Mountain and Pacific Coast states. It produces an oval exit hole 3/16- to 1/4-inch across, and may not emerge from wood in houses for 10 or more years after infestation of the wood. It does not reinfest seasoned wood.

If signs of insect or fungus damage other than those already described are observed, the inspector should have the organism responsible identified before recommending corrective measures. Small samples of damaged wood, with any frass and insect specimens (larvae or grubs must be stored in vials filled with alcohol), should be taken to the local Cooperative Extension office for identification.