CHAPTER 6

OTHER WOOD-DESTROYING INSECTS

LEARNING OBJECTIVES

After completely studying this chapter, you should:

- Know what to advise lumber and construction companies and consumers to do to prevent wood-boring beetle infestations.
- Know the various families of wood-boring beetles and their characteristics.
- Know inspection, management, and control methods for wood-boring beetle infestations.
- Know which longhorned beetle is a structural pest, how to identify it and control it, and how to prevent structural damage.
- Know the signs of carpenter ant infestations and what areas to inspect for excess moisture.
- Know the habits and habitats of carpenter ants and where to inspect for nest locations.
- Know procedures for preventing and controlling carpenter ant infestations.
- Know how to identify carpenter bees and understand their habits and habitat.
- Know procedures for preventing and controlling carpenter bee damage to wood.

Wood-destroying organisms other than subterranean termites cause millions of dollars in damage to wood products each year. These organisms and their prevention and control are discussed here.

PREVENTION OF WOOD-BORING BEETLES

The wood-boring beetles of economic concern include the **true powderpost beetles, false powderpost beetles, furniture and deathwatch beetles**, and the **old house borer**. Most of the procedures that will prevent attack on wood before it is used are the responsibility of those who harvest, mill, or store the wood. Those who use wood must take precautions to reduce the chances of building an infestation into structures and furniture.

Though the pest management professional is usually called in after an infestation is suspected, it is important that this person be a knowledgeable consultant to the lumber and construction industries, as well as to consumers, on the prevention of damage by wood-boring beetles. Steps that can be taken to prevent beetles from infesting buildings include:

- Inspect wood prior to purchase.
- Use properly kiln- or air-dried wood.
- Seal wood surfaces.
- Use chemically treated wood.
- Ensure good building design.

Using kiln- or air-dried wood in construction is one of the least expensive and most practical preventive measures. A few beetle species can survive and reinfest wood that has been properly dried. Sealing wood surfaces with varnish, shellac, or paint eliminates the habitat necessary for egg laying, but it is usually not feasible to seal the surfaces of structural timbers. Using chemically treated wood (treated by fumigation, wood preservatives, or insecticides) will provide beetle-free wood, but using treated wood is usually cost prohibitive. In addition, fumigation will not protect the wood from future infestation. Using good building design and practices such as

proper ventilation, drainage, and clearance between wood and soil will tend to reduce the moisture content of wood in a structure, creating less favorable conditions for beetle development. Central heating and cooling systems also speed up the wood drying process.

POWDERPOST BEETLES

Three families of beetles have at least some members that are called "powderpost beetles." These are the true powerderpost beetles in the family Lyctidae, the false powerderpost beetles of the family Bostrichidae, and the furniture and deathwatch beetles of the family Anobiidae.

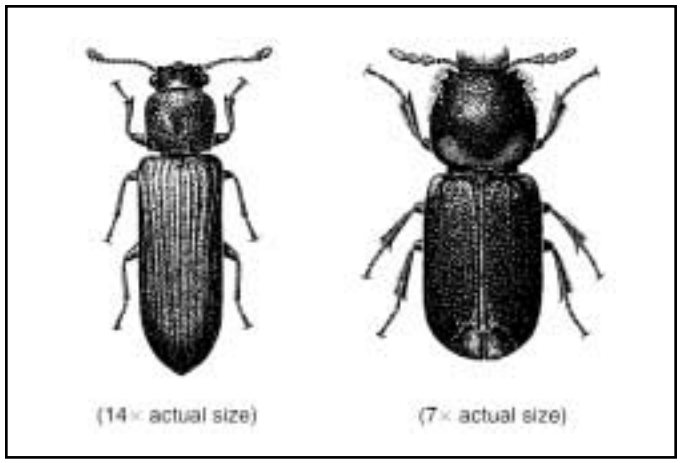

Figure 6.1. Two of the insects referred to as powderpost beeltes . *Left: Lyctus planicollis*, one of the true powderpost beetles of the family Lyctidae. Note the two-segmented antennal club typical of the members of the family. *Right: Scobicia declivis*, a false powderpost beetle of the family Bostrichidae. Note the more cylindrical body shape and the three-segmented antennae characteristic of most members of this family (Provonsha).

They all damage wood in about the same manner and require the same control measures. The surface of infested wood is perforated with numerous small "shot-holes," each about the size of a pencil lead. Any jarring of the wood causes powder to sift from these holes. Cutting or breaking infested wood may reveal masses of packed powder that is produced by the feeding of grublike larvae and, to a lesser extent, by the adult beetles.

Figure 6.2. Anobiid beetle damage in pine floor joist—note frass being pushed out of old exit holes (USDA Forest Service).

True Powderpost Beetles

Family Lyctidae

The **true powderpost beetle** is small, slender, flattened, and reddish brown to black. It varies in length from about 1/8 to 1/4 inch long. The female lays her eggs in the pores of the wood. These beetles attack only hardwoods, eating only the sapwood, which contains the starch required in their diet. Once hatched, young larvae bore into the wood. Unlike termites, they are unable to digest cellulose. Consequently, most of the wood eaten passes through the larvae and is left behind as a powdery ***frass***. Thus, lyctid damage is characterized by the fine powder falling from the surface holes in hardwoods.

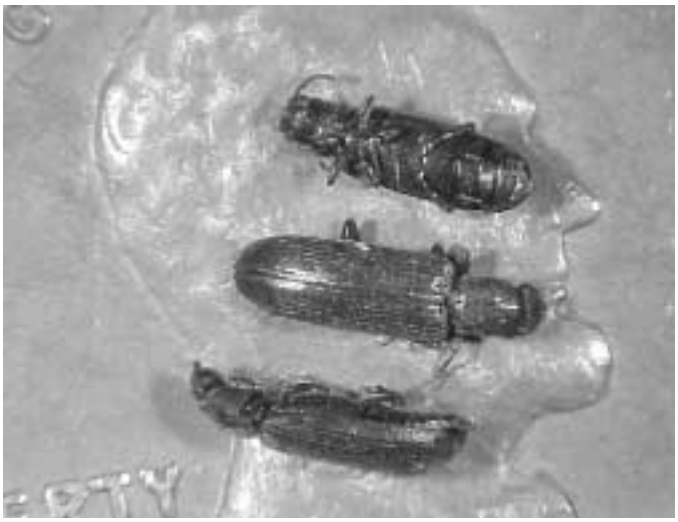

Figure 6.3. True powerderpost beelte adults (Lyctidae)—*Lyctus* spp (H. Russell, Michigan State University Diagnostics Services).

Figure 6.4. True powderpost beetle adult (Lyctidae)—*Lyctus brunneus*—laying eggs between a glass slide and a cardboard (USDA Forest Service).

Figure 6.5. True powderpost beetle adult and larva—*Lyctus brunneus*—by an exit hole (USDA Forest Service).

False Powderpost Beetles
Family Bostrichidae

The adult of the **false powderpost beetle** is more robust than that of the true powderpost beetle. Its body is cylindrical with a roughened thorax surface. Its head usually is not visible from above. Color varies from dark brown to black, and length ranges from 1/8 to 3/8 inch. Like the true powderpost beetles, it digests the starch in the wood but not the cellulose. However, false powderpost beetles will attack softwoods as well as hardwoods. Unlike lyctid and anobiid beetles, female bostrichid beetles bore directly into wood to lay eggs.

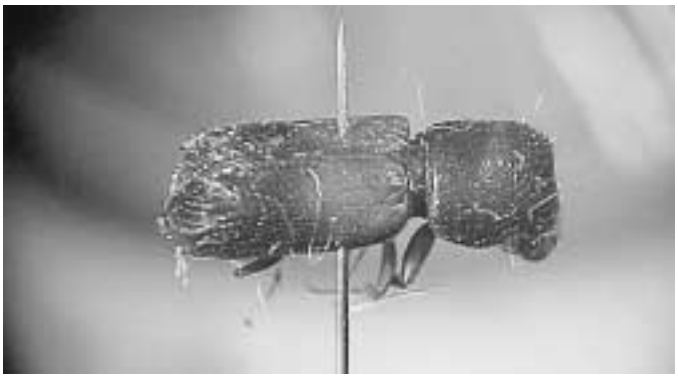

Figure 6.6. False powderpost beetle adult (Bostrichidae)—redshouldered shothole borer, *Xylobiops basilaris* (H. Russell, Michigan State University Diagnostics Services).

Figure 6.7. False powderpost beetle adult (Bostrichidae)—bamboo powderpost beetle, *Dinoderus minutus* (USDA Forest Service).

Furniture and Deathwatch Beetles
Family Anobiidae

Anobiid beetles are usually slightly less than 1/3 inch long and red to brown to black. They deposit their eggs in cracks and crevices of all types of seasoned wood, though these beetles seem to prefer the sapwood of softwood trees. Unlike the other powderpost beetles, anobiids have a digestive enzyme that allows them to digest cellulose. An infestation is characterized by a coarse, powdery frass containing bun-shaped fecal pellets.

Figure 6.8. Anobiid beetle adult—*Euvrilletta peltatum* (USDA Forest Service).

Figure 6.9. Anobiid beetle larva—*E. peltatum*. Note frass and damaged wood (USDA Forest Service).

Within this group, the **furniture beetle** will infest structural wood as well as furniture. The **deathwatch beetle** prefers structural timbers in damp areas. Its name comes from the ticking sound made by the adult, which can be heard in the quiet of the night. Joists, subflooring, hardwood flooring, sills, plates, and interior trim are the parts of buildings that deathwatch beetles most frequently attack. In addition, they may damage furniture and other products.

Figure 6.10. Eastern deathwatch beetle (Anobiidae)—*Hemicoelus carinatus* (H. Russell, Michigan State University Diagnostics Services).

Figure 6.11. Lyctid beetle damage in framing around mirror (USDA Forest Service).

Control and Management of Powderpost Beetles

Inspection

Periodic inspections are needed to determine the condition of wood and to locate any evidence of attack by wood-destroying beetles.

- Visually examine all exposed surfaces of wood (painted and unpainted); also sound by tapping or probe wood with a knife.
- Interview homeowner or building occupants and ask whether they have noticed any signs of beetle infestation (beetles, holes in wood, frass, etc.).
- Look for evidence of beetle attacks in attics, crawl spaces, and unfinished basements and storage areas. The signs are more likely to be undisturbed in these areas, and the absence of finishes on wood leaves more wood surface exposed to reinfestation.
- Collect beetles, larvae, frass, wood samples, or any other evidence that needs to be closely examined with good light and magnification to determine the identification of the attacking beetles.
- To be certain that the infestation is active, try to find fresh frass, which is the color of newly sawed wood, or live larvae or adults in the wood.

Refer to Tables 6.1 and 6.2 for information on how to identify beetles.

Table 6.1. Comparative biological information on the three families of powderpost beetles.

	Family		
Characteristic	**Lyctidae**	**Bostrichidae**	**Anobiidae**
Size	1/12 to 1/5 inch	1/8 to 1/4 inch	1/8 to 1/3 inch
Shape	Flattened	Cylindrical, roughened pronotum	Oval, compact
Color	Brown to black	Brown to black	Reddish brown
Head visible from above	Yes	No	No
Antennal club	2-segmented	3- to 4-segmented	None
Egg placement of hardwoods	Deposited in pores of hardwoods	Female bores into wood to lay eggs	Laid in cracks or old exit holes in wood
Required moisture content of wood*	6 to 30 percent	6 to 30 percent	13 to 30 percent
Average life cycle	1 year	1 year	1 to 3 years

* Wood found in structures is considered dry with a moisture content less than 20 percent.

Source: M.P. Levy, *A Guide to the Inspection of Existing Homes for Wood-inhabiting Fungi and Insects*, U.S. Department of Housing and Urban Development, Washington, D.C., 1975.

Table 6.2. Timbers attacked by common wood-boring insects.

	Timbers Attacked					
	Unseasoned	**Seasoned**	**Softwood**	**Hardwood**	**Sapwood**	**Heartwood**
Lyctids		+		+	+	
Bostrichids	-	+	-	+	+	
Anobiids		+	+	-	+	-
Round-headed borers	+		+	+	+	-
Old house borers		+	+		+	
Flat-headed borers	+	-	+	+	+	+
Wharf borers		+	+	+	+	+
Scolytids	+		+	+	+	+

Note: + means yes; - means occasionally.

Source: M.P. Levy, *A Guide to the Inspection of Existing Homes for Wood-inhabiting Fungi and Insects*, U.S. Department of Housing and Urban Development, Washington, D.C., 1975.

Habitat Modification

Alteration of environmental conditions might one day be the only procedure necessary to eliminate some infestations of wood-boring beetles. No wood-destroying beetles in buildings develop rapidly in dry wood. If the use of vapor barriers, ventilation, and central heat can dry wood and keep it dry, the use of other control measures may not be necessary. Here are some techniques to reduce favorable habitat for wood-destroying beetles:

- **Moisture meters** can be used to determine the moisture level in the wood. Every effort should be made to reduce the moisture content of the wood to be protected to below 20 percent.
- Where economical and practical, infested wood should be removed and replaced.
- Electric current treatment and heat control may be used in some wood-boring beetle infestations.

Every situation of wood-boring beetle infestation needs to be evaluated before you decide on the treatment method or combination of methods to be used.

Pesticide Application

There are certain similarities in control measures recommended for the control of wood-boring beetles, but in many instances specialized techniques are required. If it can be determined that the damage in a particular instance was caused by one of the true powderpost beetles, it will be necessary to concentrate control activities on articles made of hardwoods. In most cases, this will involve a thorough application of insecticide to all exposed hardwood surfaces.

If the infestation involves bostrichid or anobiid beetles, the scope of the treatment is altered to some extent. Unless the professional can make a definite species determination and thereby establish the various woods subject to attack, it must be assumed that the pest endangers both softwoods and hardwoods. In addition to determining the type of wood being attacked, each problem must be analyzed in light of the severity of infestation, the possibility of reinfestation, the area of the structure being attacked, the speed of control needed, and the cost the property owner can bear. Some guidelines follow.

- Residual sprays provide effective control in most cases. Sprays should be applied at low pressure (to reduce splashing) using a flat-fan nozzle to obtain thorough coverage.
- The best penetration to tunnels is provided by a fumigant, but the danger in handling these materials and the fact that they have no effective residual life limit their desirability. Fumigation may be necessary when it is impossible to control powderpost beetles via insecticidal sprays. An example is when the beetles have moved into walls and other inaccessible areas.
- Water-based insecticide emulsions, in most cases, are considered safer and more effective than oil-based emulsions. Oil solutions present a possible fire hazard, greater expense, greater hazard and discomfort to the applicator, and danger of damaging plants near the treatment area.
- Do not allow any treated surface to be walked on or handled until it is thoroughly dry.

In treating finished wood, such as furniture or flooring, it is best to use an oil solution to avoid spotting or in any way changing the appearance of the finish. To be certain the oil-based solution will not damage the finish, apply only a small amount to an out-of-the-way area and allow it to dry before making a complete treatment. Insecticide should be applied to the entire surface of the infested wood using a flat-fan nozzle at low pressure, or by using a soft-bristled paintbrush. If there are only scattered patches of infestation, treat only the infested boards. Avoid overtreating (i.e., until the solution runs off or puddles), particularly on hardwood floors laid over asphalt paper or asphalt-based mastic. The asphalt will be dissolved by excess oil and may bleed through the finished floor. Any excess solution should be wiped up

immediately. Be careful not to mar the surface if the spray has temporarily softened the finish. An oil carrier may have a solvent action on some wood finishes. Therefore, keep all objects off treated areas for about 24 hours or until all stickiness has disappeared.

Follow-up

Check for signs of reinfestations of lyctid and anobiid beetles. Bostrichid beetles will rarely reinfest structural timbers.

WOOD-BORING WEEVILS
Family Curculionidae

Though they are not particularly common, several species of weevils will infest structural timbers. Because they are found in wet and rotting wood, they are considered a secondary problem to the wood rot. They are capable of extensive tunneling and will make a wood rot problem far worse.

Weevils are easily recognized by the presence of an elongated snout. The wood-boring weevils are small insects about 1/8 inch long. They leave small tunnels about 1/16 inch in diameter in the heartwood or sapwood of softwoods, hardwoods, or even plywood.

Control is usually restricted to the removal and replacement of damaged wood. The wood is frequently already damaged by moisture by the time the weevils arrive. It may be appropriate to lower the moisture of the wood in conjunction with an application of borate insecticides, but these decisions will need to be made on a case-by-case basis.

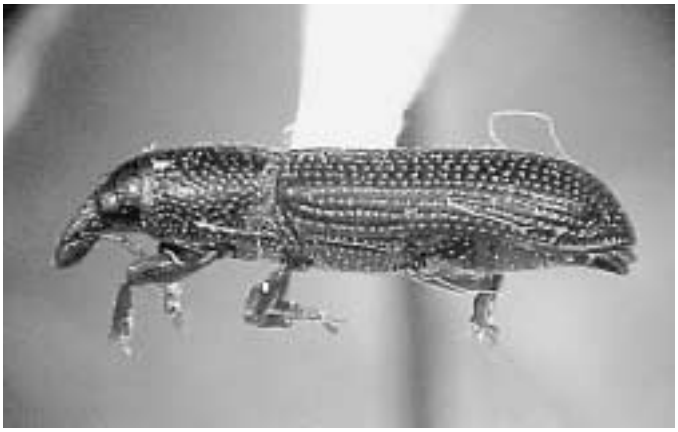

Figure 6.12. Wood-boring weevil, *Cossonus* spp. (H. Russell, Michigan State University Diagnostics Services).

LONGHORNED BEETLES
Family Cerambycidae

Species in this family (more than 1,200 species recorded in the United States) feed as larvae on living trees, recently felled trees and logs, and seasoned lumber. Indoors, the only species of major economic importance that can reinfest dry, seasoned wood is the **old house borer** (*Hylotrupes bajulus*). Larvae hollow out extensive galleries in seasoned softwood (e.g., pine). The old house borer is frequently a pest of new structures, although it is found in older buildings.

Adults are about 3/4 inch long and grayish brown to black with two white patches on the ***elytra***. The dorsal surface is densely covered with light-colored hairs. On the ***pronotum*** are two black, shiny bumps. The long, gray hairs surrounding these bumps give an owl-like appearance.

Figure 6.13. Old house borer adult (Cerambycidae)—*Hylotrupes bajulus* (H. Russell, Michigan State University Diagnostics Services).

The beetles of this family lay their eggs in cracks or crevices in bark or on the surface of rough-sawn timbers. The larvae are wood borers. Mature larvae are large, varying from 1/2 inch to 3 or 4 inches long. The body is long and narrow and a light cream color. The rear portion of the head is partly drawn into the body, so that only the mandibles and other mouthparts are easily seen. Larvae are called **round-headed borers**.

The life cycle of the old house borer ranges between 3 and 12 years. Because this beetle has a very long life cycle and can infest the same piece of wood again and again, it

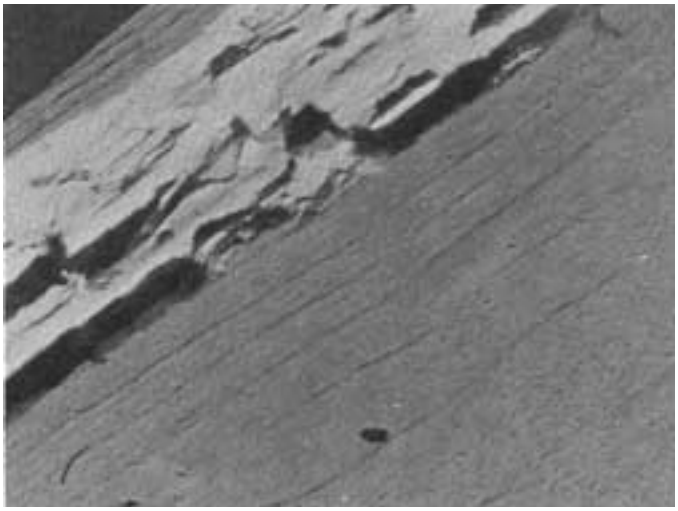

Figure 6.14. Old house borer damage with oval exit hole and powder-filled galleries in interior of wood.

may be many years before serious structural damage is recognized. The exit holes of emerging adults do not occur in very large numbers until the infestation has been established for several years. This, along with the fact that larvae will do extensive feeding without breaking through the surface of the wood, make it necessary to inspect infested wood very carefully to detect old house borer damage. Refer to Table 1 in Appendix C for a comparison of old house borers with other wood-boring insects.

Control and Management of Longhorned Beetles

Inspection

Rough wood should be probed or struck to detect weaknesses or the presence of boring dust. If exit holes are present, they will be broadly oval and about 1/4 to 3/8 inch in diameter.

Habitat Modification

A common source of these beetles is firewood brought indoors. Thus, firewood should be brought indoors only when it will be used soon after.

Keeping wood dry will slow down larval development—larvae grow faster in wood that provides a protein source in the form of wood-decaying fungi.

Pesticide Application

Control programs involve only the treatment of softwoods, to which this pest is restricted. Infestations of this beetle often involve extensive excavations, and larvae may be considerable distances from the obvious points of infestation. If the infestation is too widespread for spot treating with residual sprays, fumigation may be necessary. Other long-horned beetles require no control.

Follow-up

Careful and thorough inspection is necessary to determine the extent of a newly found infestation. Old house borers are the only longhorned beetles that will reinfest structural timbers, and damage may not be noticed for several years.

CARPENTER ANTS (*Camponotus* spp.)

There are many species of carpenter ants in North America; few enter structures to forage and fewer nest in structures. But these two habits (foraging and nesting inside), coupled with their large size and vigorous activity, make these invaders impossible to ignore. In Michigan, the black carpenter ant is the primary pest species. As their name implies, carpenter ants work in wood but do not digest it.

Figure 6.15. Carpenter ant, *Camponotus pennsylvanicus*.

BLACK CARPENTER ANT (*Camponotus pennsylvanicus*)

The workers range in size from 1/4 to almost 1/2 inch; the queen is 3/4 inch. Outside workers can be confused with field ants (*Formica*), which do not enter structures. Carpenter ants have an even, smooth, arching profile beginning just behind the head and descending to the waist, or ***petiole***, which has one ***node***. Field ants and most other ants have bumps or spines along the profile of the ***thorax***, particularly near the petiole. The black carpenter ant's abdomen is covered with gray or yellowish hairs, but the basic black color is still obvious. The head and thorax are black in the majority of individuals, but the sides of the thorax and parts of the legs of a few may be dull red.

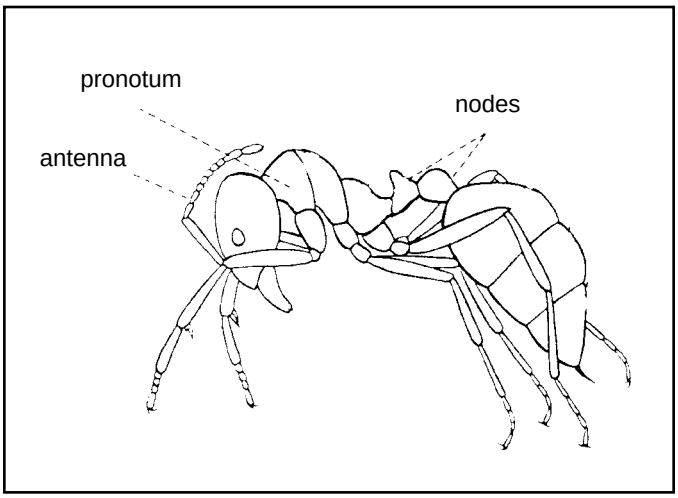

Figure 6.16. Identifying features of ants.

A carpenter ant colony begins in isolation but not necessarily in wood. This first brood may be under a stone, in a roll of tarpaper, or in innumerable other secretive spots, but the colony soon moves into wood (such as a fallen log, tree hole, stump, or structure wall). When carpenter ant workers excavate nest galleries, they use their jaws as gouges and make tunnels by shaving out small pieces. Unlike termites, they do not eat the wood. It has

no nutritional value to them, and they discard it by dropping it out of the nest area or by piling in one place and discarding the whole pile later. This pile of carpenter ant shavings, called sawdust, is very soft and is made up of pieces like those a fine chisel would make. Gritty construction sawdust in attics or on sills can be left over from construction or repairs and might suggest carpenter ant shavings to those who do not know the difference. The process of ant gallery excavation results in galleries with very smooth sides. No mud is involved (like that in the tunnels of subterranean termites), and there is no dust or pellets (like those produced by wood borers or dry wood termites), only numerous large, smooth, brown-stained tunnels that provide harborage for the carpenter ant colony (see Table 6.3). A nest or colony might harbor several thousand inhabitants. Large colonies of carpenter ants in critical areas of structures can cause structural damage, but the colony more likely resides partially in structural wood and partially in void spaces (e.g., between roof boards, between studs under windows, or between subflooring and shower bases).

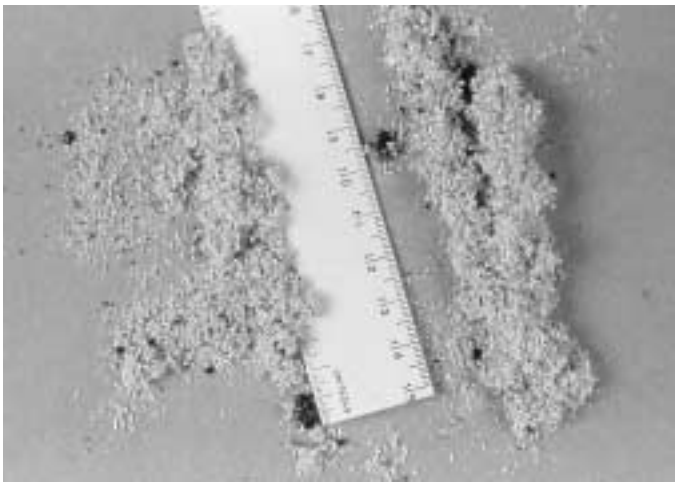

Figure 6.17. Carpenter ant shavings.

The most common outdoor harborage is a living tree with a rotted spot inside. Other common sites are stumps or firewood. The carpenter ant is a valuable link in the reduction of plant cellulose. It is not surprising that mature wooded neighborhoods often have structural carpenter ant problems. New neighborhoods or developments built on cleared woodlots can inherit ant colonies from trees. Some colonies are brought in with building materials. Rustic cabins, summer homes, and park structures will likely become infested sooner or later.

Black carpenter ant workers forage for food such as honeydew, insects, and juices from ripe fruit. Indoors, they like sweets, meats, fruit juices, and moist kitchen refuse. Carpenter ants always prefer a humid atmosphere. Vines on building walls, branches, and telephone wires provide a bridgelike access into structures. Carpenter ants will invade both decayed and new wood inside structures.

ANT AND TERMITE SWARMERS

The swarming of small, dark insects near or inside a structure panics people who fear their homes are infested by termites. Pest management professionals must be able to distinguish between ant and termite reproductives and communicate the differences clearly and confidently to their clients.

Principal differences are:

- ***Ants*** have a complete metamorphosis—that is, they go through the egg, larva, pupa, and adult stages, all of which look different from the others. Ant workers are adults.

  Termites have a gradual metamorphosis. They go through the egg, nymph, and adult stages. Nymphs look like adult workers. Reproductives are dark-bodied.

- ***Ants*** have a thin or "wasp" waist (called the **petiole**) between the thorax and abdomen.

  Termite waists are NOT narrow. Termite bodies are straight-sided with no constriction. Thorax and abdomen blend together.

- ***Ants*** have elbowed antennae. A long, straight segment connects to the head. Remaining segments flex and bend.

  Termite antennae are entirely flexible. They are made of many small segments strung out like beads. Termites wave them in front, using them to touch and feel.

- ***Ant*** reproductives have two pairs of wings. The front pair is wider and markedly longer than the back pair. Often ants have a black dot near the tip of the front wings, and dark wing veins can be seen. Ant wings do not break off easily.

  Termite wings are long and narrow; both pairs are the same shape and almost the same length. Termite wings break off with a touch. If termite swarmers have been crawling, their broken wings litter the swarm area. Termite wing veins cannot be seen with the naked eye.

Figure. 6.18. Ant vs. termite reproductives.

Control and Management of Carpenter Ants

Inspection

It is important to discover whether carpenter ants are nesting inside or outside. If nesting inside:

- Their presence usually indicates a moisture problem in the building.
- They may have excavated galleries for harborage in structural wood.

Black carpenter ants are often associated with moisture problems. In the majority of cases, carpenter ants make their nests in wood that has been wet and infested by a brown rot fungus. Dark fungus stains on the wood indicate the presence of such moisture. Moisture in wood can be caused by:

- Improper attachment of wooden additions, dormers, and hollow wooden columns that absorb moisture.
- Patios or porch floors, door sills, downspouts, or grading where water collects or drains toward the structure.
- Regular gutter overflow that pours rainwater down the side of the building as well as back onto roof boards, fascia, soffits, etc.
- Leaking roof valleys.
- Improper ***flashing*** around chimneys, vents, and skylights.
- Improper roofing or holes in the roof.
- Window sills directly exposed to rain.
- Lack of ventilation in any area where moisture accumulates.

Inside, moisture accumulates:

- Around any leaking plumbing or drains (especially shower drains).
- Unvented attics and crawl spaces.
- Unvented dishwashers, washing machines, icemakers, etc.

The many nesting sites, foraging entrances, and food and moisture sources offer clues for inspection and location of the nest. The area where the majority of ant activity is seen may identify a nest site if entry from the outside can be ruled out. Carpenter ants are more active at night, and inspection at that time may be helpful.

Habitat Modification

- Where nests are located inside, remove and replace infested structural wood.
- Stop the intrusion of moisture.
- Caulk and screen actual and potential ant entryways.
- Ventilate areas where moisture accumulates, regrade where necessary, and repair roofing, guttering, etc.
- Recommend trimming trees where branches touch a structure or overhang roofs. Tree removal may be necessary.

Pesticide Application

- Eliminating colonies and nesting sites is a primary way to eliminate carpenter ant infestation.
- Use pesticidal dust or pressurized canned aerosols when nests are in wall voids. Sprays are less effective.
- When indirect treatment is required, liberal placement of acceptable bait stations can be used.
- Dust, spray, or bait can be used on outside colonies (e.g., in tree rot).
- Professionals should evaluate trees with rotted places.
- Honeydew-producing insects involved in feeding carpenter ants should be treated with pesticides (e.g., oils and pesticidal soaps) that will not eliminate parasites and predators.

Follow-up

Carpenter ant infestations often cannot be controlled in one visit. Painstaking inspection is needed to make management effective.

CARPENTER BEES (*Xylocopa* spp.)

Carpenter bees are solitary insects that live only one year. The most common carpenter bee, *Xylocopa virginica*, is distributed throughout the eastern half of North America. This bee is a large insect with a hairy, yellow thorax and a shiny, black abdomen. Superficially, it resembles yellow and black female bumblebees, which are social and more closely related to honeybees. Western carpenter bees are also large, shiny, sometimes metallic, and shaped like bumblebees.

Figure 6.19. Carpenter bee, *Xylocopa* spp.

Carpenter bees bore in wood and make a long tunnel provisioned with pollen for their eggs. They prefer to enter unpainted wood and commonly tunnel in redwood and unpainted deck timbers. They will also go into painted wood, especially if any type of start hole is present. New females reuse old tunnels year after year. They are also attracted to areas where other females are tunneling. Egg laying and tunnel provisioning occur in the spring.

Males hover around the tunnel entrance while the female provisions the nest and lays eggs.

Figure 6.20. Carpenter bee damage.

Males dart at intruders belligerently but they can do no harm—they have no stingers. Because these bees are not social, there is no worker caste to protect the nest. Stings by females are rare.

New adults emerge after the middle of summer and can be seen feeding at flowers until they seek overwintering sites, sometimes in the tunnels.

Control and Management of Carpenter Bees

Carpenter bees drill into the end grain of structural wood or into the face of a wooden member, then turn and tunnel with the grain.

Dust tunnels or inject with pressurized liquid insecticide. Insert a dusted plug of steel wool or copper gauze in the tunnel. Fill the opening with caulk, wood filler, or a wooden dowel. A dusted plug stops new adults that otherwise would emerge through shallow caulking. Caution should be taken, especially if technicians are working on ladders and if they are not experienced with these rather harmless bees.

SUMMARY

Wood-destroying insects other than termites are capable of causing significant damage to structures, furniture, and other wood products. Pest management professionals must be able to distinguish between wood damage caused by termites and damage by other wood-destroying pests. These signs are often characteristic of the pest species involved. Proper identification of the pest species will allow application of the appropriate control techniques. In many cases, habitat alteration (such as reduction of moisture in wood) is all that is needed to control the pest adequately.

CHAPTER 6

Review Questions

Chapter 6: Other Wood-destroying Insects

Write the answers to the following questions and then check your answers with those in the back of the manual.

1. Who is most responsible for ensuring that the procedures for preventing attack on wood before it is used are done?

   A. Homeowners and pest management professionals

   B. Building inspectors and construction workers

   C. People who harvest, mill, or store wood

   D. All of the above

2. What can the pest management professional advise lumber and construction industries and consumers to do to prevent wood-boring beetle infestations?

3. There are a few beetle species that can survive and reinfest wood even after it has been properly kiln dried.

   A. True

   B. False

4. What aspects of building construction will help keep wood dry?

5-18. Match the following families of powderpost beetles with the appropriate description.

A. Lyctidae

B Bostrichidae

C. Anobiidae

D. All of the above

____ 5. Also known as false powderpost beetles.

____ 6. Also known as true powderpost beetles.

____ 7. Small “shot-hole” openings in wood surfaces are an indication of infestation.

____ 8. Includes furniture and deathwatch beetles.

____ 9. Reddish brown, 1/8 to 1/3 inch long, oval-shaped and compact body.

____ 10. Deposits eggs in pores of hardwoods.

____ 11. Brown to black, 1/8 to 1/4 inch long, cylindrical body with roughened pronotum.

____ 12. When infested wood is cut or broken, the interior may reveal masses of packed powder that is produced by the feeding of grublike larvae and to a lesser extent by the adult beetles.

____ 13. Will not attack softwoods.

____ 14. Brown to black, 1/12 to 1/5 inch long, flattened body.

____ 15. Female bores into wood to lay eggs.

____ 16. Have a digestive enzyme that allows them to digest cellulose.

____ 17. Eggs laid in cracks or old exit holes in wood.

____ 18. Powderlike frass contains bun-shaped fecal pellets.

19. Which powderpost beetle gets its name from making a ticking sound?

A. Furniture beetle

B. Deathwatch beetle

C. True powderpost beetle

D. False powderpost beelte

20. What are the signs of powderpost beetle infestation?

21. It is not necessary to examine the surfaces of painted wood for powderpost beetle infestation.

A. True

B. False

22. Habitat alteration alone may be all that's needed to control certain powderpost beetle infestations.

A. True

B. False

23. If true powderpost beetles are identified as causing damage, where should control activities be concentrated?

A. All softwood surfaces

B. All hardwood surfaces

C. Both hardwood and softwood surfaces

D. None of the above

24. If bostrichid or anobiid beetles are identified as causing damage, where should control activities be concentrated?

A. All softwood surfaces

B. All hardwood surfaces

C. Both hardwood and softwood surfaces

D. None of the above

25. Which pesticide application method is the most effective at penetrating into tunnels for wood-boring beetle control but is also the most dangerous to handle?

A. Fumigation

B. Residual sprays

C. Baiting

D. Oil-based emulsion

26. In most cases, residual sprays provide effective control of wood-boring beetle infestations.

A. True

B. False

27. Why are oil-based insecticide solutions considered more dangerous to use than water-based solutions?

28. In treating finished wood, such as furniture or flooring, it is best to use an oil solution to avoid spotting or in any way changing the appearance of the finish.

A. True

B. False

29. What are some precautions to take when treating wood flooring with oil-based insecticide solutions?

30. The old house borer is a member of which beetle family?

A. Powderpost
B. Longhorned
C. Anobiid
D. Bostrichid

31. Which is NOT a characteristic of the old house borer?

A. Oval exit holes, 1/4 to 3/8 inch in diameter.
B. Infest softwood.
C. Long-lived (3 to 12 years).
D. Damage appears shortly after infestation.

32. The old house borer is frequently a pest of new structures, though it is found in older buildings.

A. True
B. False

33. What distinguishes a carpenter ant infestation from a termite or wood-boring beetle infestation?

A. Galleries with very smooth sides; brown-stained tunnels.
B. Mud-lined tunnels; presence of dust or pellets.
C. Galleries with very smooth sides; presence of dust or pellets.
D. Smooth brown-stained, mud-lined tunnels.

34. Carpenter ants forage for _____ to sustain themselves and the colony.

A. Honeydew, sugars, and insects
B. Wood
C. Honeydew alone
D. Pheromones

35. Indicate whether the following statements are characteristic of ants or termites.

A. Ant
B. Termite

____ Front pair of wings is wider and longer than the back pair.
____ Have "petiole" between thorax and abdomen.
____ Young are nymphs.
____ Undergo complete metamorphosis.
____ Thorax and abdomen blend together; not narrow.
____ Wing veins not visible with the naked eye.
____ Leave many broken wings in swarm area.
____ Have elbowed antennae.

36. If the carpenter ant colony is found outside but the ants are a problem inside the building, advise the client to:

A. Use pressurized canned aerosols in wall voids.
B. Trim trees where branches overhang or touch roofs.
C. Use electric current and heat treatment.
D. Caulk and/or screen to prevent ant entryways.
E. B & D

37. What areas should be inspected for the presence of moisture to prevent carpenter ant infestations?

38. Which is NOT true about control of carpenter ant infestations?

A. Inspecting during the day when carpenter ants are more active may be helpful.
B. Dust, spray, or bait can be used on outside colonies (e.g., in tree rot).
C. Use pesticidal dust or pressurized canned aerosols when nests are in wall voids.
D. When indirect treatment is required, liberal placement of bait stations can be used.
E. Use oils and pesticidal soaps to help control honeydew-producing insects involved in feeding carpenter ants.

39. Which is NOT a characteristic of carpenter bees?

A. Prefer unpainted wood.
B. Females reuse tunnels year after year.
C. Males have no stingers.
D. Frass found in tunnels.
E. Pollen and eggs placed in long tunnels.

40. Describe the procedure for managing carpenter bee infestations.