



## **Powderpost Beetles and Other Wood-Infesting Insects<sup>1</sup>**

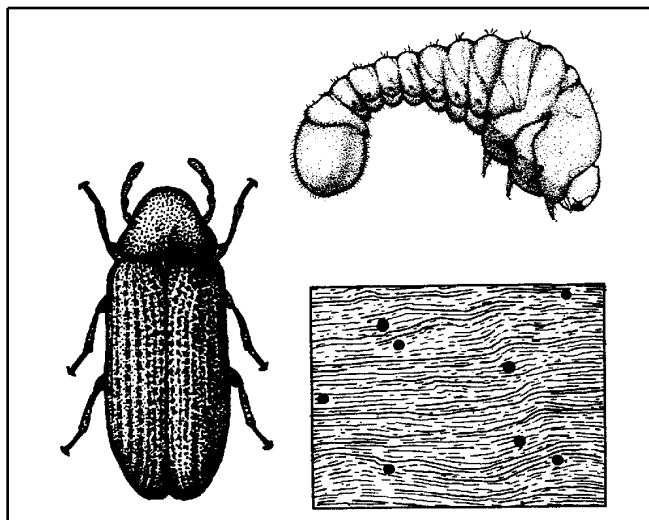
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Powderpost beetles can be serious pests of structures in Florida. The larvae of these beetles live in and consume dry, seasoned wood. The most common types of powderpost beetles in Florida are Anobiid, Lyctid, and Bostrichid beetles. Other wood infesting pests are oldhouse borers and carpenter bees. This publication explains how to recognize powderpost beetles and other wood-infesting pests as well as their damage to wooden structures (see Table 1).

### **Anobiid Powderpost Beetles**

Anobiid powderpost beetles (Figure 1) are usually about 1/16 to 1/4 inch long, reddish brown or grayish brown to dark brown. The body is cylindrical, elongated and covered with fine hair. The head is covered by pronotum from top view; the last 3 segments of antennae are usually lengthened and broadened. The larvae are white, "C" shaped grubs with rows of small spines on dorsal side. The beetles' life cycle lasts 1 to 10 years depending on the species. Anobiid powderpost beetles infest seasoned softwood and the sapwood of seasoned hardwoods.

Most commonly, infestations of Anobiid powderpost beetles are found in structural timbers made of softwood, such as beams, sills, joists, studs,



**Figure 1.** Deathwatch beetle (Anobiidae).

subflooring, and plywood. In addition, Anobiids will infest hardwood furniture, wall paneling, window and door molding, hardwood floors, and furniture. Woods such as maple, beech, poplar, and pine are especially susceptible to attack. They prefer to infest wood with high moisture content in poorly ventilated areas in crawl spaces of houses, utility rooms, and garages. Under favorable conditions, the infestation then spreads into walls and other areas of the structure. Infestations develop slowly but wood can be reinfested year after year.

1. This document is ENY-266, one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published: March 1994. Revised: May 1999. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department WWW site located at <http://www.ifas.ufl.edu/~entweb/entomolo.htm>.

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### Signs of Infestation

The key to avoiding serious problems with Anobiid powderpost beetles is early detection and control. Usually, homeowners see the damage rather than the beetles. The larval damage occurs entirely below the surface of the wood where larvae eat tunnels. This damage is not usually seen until the wood disintegrates. However, the adults emerge from the wood leaving emergence holes and powder-like frass that sifts from the holes.

Emergence holes from Anobiids are 1/16 to 1/8 inch in diameter, round in shape. Cigar-shaped frass is found loosely in tunnels and in small mounds outside of emergence holes. The frass is powderlike but feels gritty to the touch.

### Bostrichid Powderpost Beetles

Bostrichid powderpost beetles (Figure 2) are 1/8 to 3/4 inch long, reddish brown to black in color. Their bodies are elongated and cylindrical with a roughened thorax. Heads are concealed by the pronotum from above; the antennae are short with 3 or 4 enlarged sawtoothed terminal segments. The larva is white, "C" shaped with no spines on body. The life cycle is 1 year. Bostrichids infest seasoned softwood and hardwood; especially unfinished floors, window sills, furniture, etc. Bamboo items are especially susceptible to attack by some species of Bostrichid beetles.

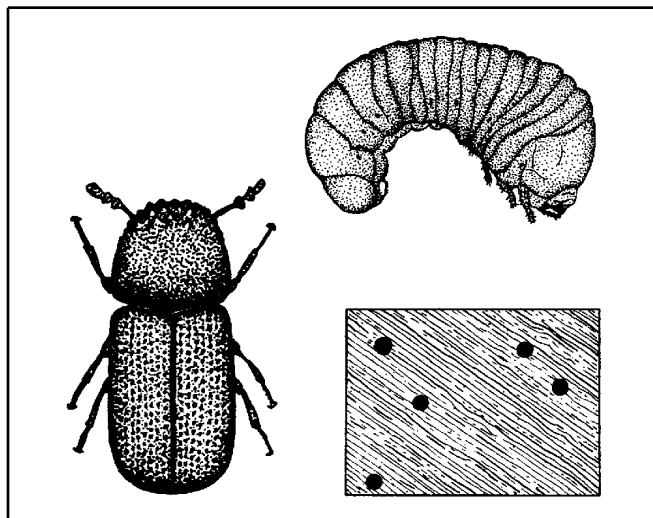


Figure 2. Bamboo borer (Bostrichidae).

### Signs of Infestation

The round emergence holes are 1/8 to 3/16 inch in diameter. Sawdust-like frass sticks together and is found tightly packed in galleries but not in entrance holes.

### Lyctid Powderpost Beetles

Lyctid powderpost beetles (Figure 3) are about 1/4 inch long, brown in color, body elongated and slightly flattened, prominent head not covered by pronotum, antennae with a 2-segmented terminal club. The larvae are white, "C" shaped, with 8th abdominal spiracle enlarged. This beetle's life cycle is 6 months to 4 years.

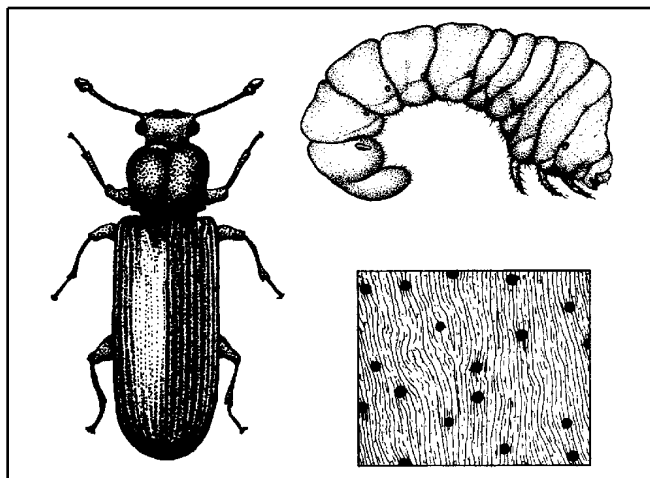


Figure 3. Powderpost beetle (Lyctidae).

Lyctids infest the sapwoods of hardwoods; mainly ash, hickory, oak, maple and mahogany. Consequently, most infestations are found in wood paneling, molding, window and door frames, hardwood floors, and furniture. Imported tropical hardwoods are especially infested with Lyctids because of poor storage and drying practices prior to shipment to the U.S. Joists, rafters, and subfloors of houses are not usually infested with Lyctids because they are usually made of pine or other softwoods.

Lyctids rarely infest wood older than 5 years. Therefore, infestations are usually in new homes or newly manufactured articles. Infestation usually results from wood that contained eggs or larvae at the time of purchase. Typically the item was made from wood that was improperly dried or stored.

## Old House Borer

The larvae of the old house borer (a long-horned wood boring beetle - Cerambycid) (Figure 4) sometimes infest softwoods in Florida. The adult beetle is grayish-black, 1/2 to 3/4 inch in length with several white markings on the wing covers and long antennae. The female lays eggs in crevices of logs or timbers. The larvae hatch and require 3 to 5 years or more to mature. The larvae are 1/2 to 1 1/2 inches long and are white, segmented and have an enlarged, brownish head. They bore through the wood making irregular galleries. During quiet times, their feeding may be heard as a clicking or rasping sound. The beetles emerge through an oval hole about 1/4 to 3/8 inch in diameter.

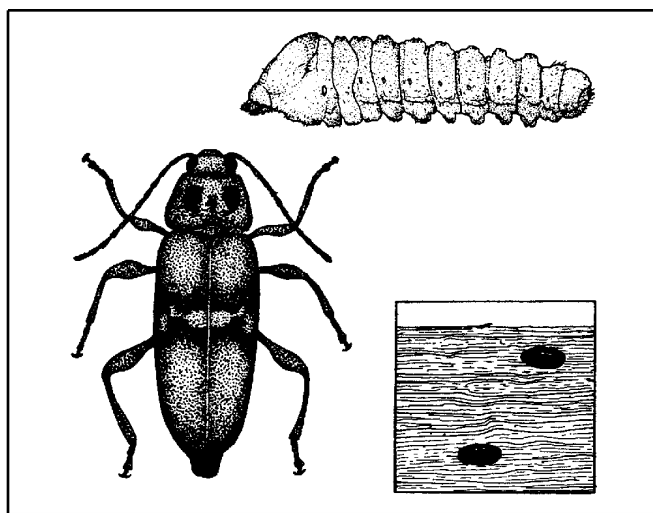


Figure 4. Old house borer (Cerambycidae).

### Signs of Infestation

The key to avoiding serious problems with old house borers is early detection and control. Usually, homeowners see the damage rather than the beetles. The larval damage occurs entirely below the surface of the wood where larvae eat tunnels. However, their frass occupies more space than the volume of wood that is consumed. Therefore, they fill the tunnels in the wood completely causing a blistering or rippled effect. The frass is a fine, powder-like dust that is found loosely packed in tunnels and in small piles outside of the hole. The frass is extremely fine and feels like talc but usually has small pellets of frass mixed with it. Adult emergence holes are oval and 1/4 to 3/8 inch in diameter.

## Control of Anobiid, Bostrichid, and Lyctid Powderpost Beetles and Old House Borers

There are several options for control of powderpost beetles and oldhouse borers. Selecting the best option depends on a number of factors, such as the severity of infestation, the location of infestation, potential for reinfestation, and cost of treatment. Powderpost beetles and oldhouse borers damage wood slowly so there is plenty of time to make a decision on control options.

- **Prevention.** Most beetle problems are introduced into homes in lumber or finished wood products (i.e., furniture, paneling, or flooring). Most serious infestations occur when infested wood is installed in the house. Inspect wood to insure that wood is not infested at the time of home construction.
- **Wood finishes.** Powderpost beetles only lay eggs on bare, unfinished wood. Beetles will not infest wood that is painted, varnished, waxed, or similarly sealed. Beetles emerging from painted or varnished wood were either in the wood before finishing or were a result of reinfestation by eggs that were laid in emergence holes of adult beetles. Sealing holes prevents reinfestation from eggs laid within the hole.
- **Wood replacement.** Infested wood can be replaced if the infestation appears to be localized. For instance, if emergence holes appear in a member of a door or window frame, the piece can be removed and replaced with a new, uninfested wood.
- **Surface treatment.** Insecticides are labeled for surface treatment of bare, exposed wood. Spraying or brushing insecticides onto infested wood creates a barrier that kills adult beetles as they chew their way out of wood. The barrier also kills newly-hatched larvae as they attempt to bore into wood. For the surface treatments to work properly, they must penetrate the wood. Therefore, the wood should be unfinished or sanded to remove the finish. In certain situations, the surface treatment can penetrate the wood sufficiently to kill larvae within the wood to

prevent the further marring of the surface by additional emergence holes of adults.

- Fumigation. Fumigation is considered the most effective method of controlling wood-boring beetles. However, fumigation can be the most costly method of control and does not provide residual protection of the wood. Only pest control operators certified to apply fumigants can do fumigation work. Fumigation of infested furniture or small articles like picture frames and baskets can be done without fumigating the entire structure. Some pest control operators will fumigate infested furniture inside fumigation chambers at their business so that the entire building does not need to be tented and fumigated.

### Carpenter Bees

Carpenter bees (Figure 5) are 3/4 to 1 inch long and closely resemble bumble bees except that their abdomen is a shiny metallic greenish-black; whereas, the abdomen of bumble bees is very hairy. These insects sometimes build their nests in solid wood such as weather boarding, railings, supports and trim of buildings. Their nests are in the form of tunnels 3 to 6 inches deep in the wood. The entrance hole is about 1/2 inch in diameter. The holes are very clean and appear as though they were made by a drill. Damage to wood is seldom extensive.

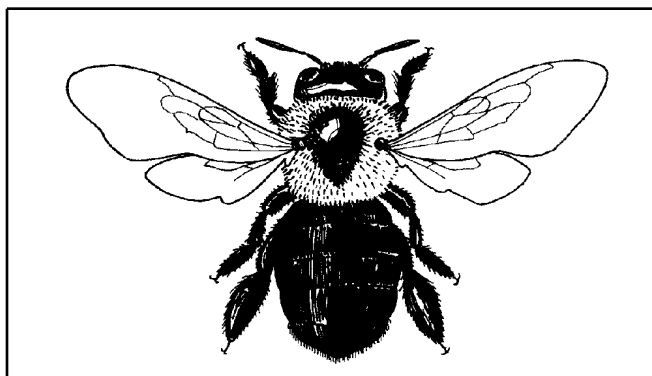


Figure 5. Carpenter bee.

### Control

Carpenter bees can be controlled by blowing a small amount of insecticide dust into the holes. After a few days, plug the holes with plastic wood, putty, or a similar material.

**Table 1.** Classification of families of beetles which attack wood.

	Living wood	Diseased and/or dying trees and also logs	Dry, seasoned wood
True powderpost beetles (Lyctidae)			X
Deathwatch beetles (Anobiidae)		X	X
False powderpost beetles (Bostrichidae)	X	X	X
Round-headed borers (Cerambycidae)	X	X	X
Weevils (several families, Curculionidae included)	X	X	X
Flat-headed borers (Buprestidae)	X	X	
Ambrosia beetles (Platypodidae & Scolytidae)	X	X	
Bark & engraver beetles (scolytidae)		X	

**Table 2.** Pesticides Available for Powderpost Beetles and Other Wood-Infesting Insects

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<b>Biflex TC (Emulsifiable concentrate)</b>		<b>Bifenthrin - 25.1%</b>		
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None

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Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<p>The diluted emulsion must be adequately dispersed in the soil to establish a barrier between the wood and the termites in the soil. To provide the greatest protection against termite reinfestation, it is important to apply as close to labelled volume of the finished emulsion as is practicable. Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. In the home, all food processing surfaces and utensils in the treatment area should be covered during treatment or thoroughly washed before reuse. Do not use in food/feed areas of food handling establishments. Not for use in USDA Meat and Poultry Plants.</p>				
<b>Conquer (Emulsifiable concentrate)</b>		<b>Esfenvalerate - 3.48%</b>		
<b>Wood Surfaces</b>	Death Watch Beetles, Old House Borers, Powderpost Beetles, Carpenter Bees	None	None	None
<p>Apply as a coarse, wetting spray to exposed pests and to the damaged areas of wood, spraying into galleries or tunnels in the exposed wood. Also spray around doors, door frames, windows and other areas where these pests may enter the house or hide. Spray into cracks and crevices and, if necessary, drill small holes and spray into inaccessible wooden structural voids where these pests are suspected.</p>				
<b>Demon EC (Emulsifiable concentrate)</b>		<b>Cypermethrin - 25.3%</b>		
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	None	None	None
<b>Demon TC (Emulsifiable concentrate)</b>		<b>Cypermethrin - 25.3%</b>		
<b>Wood/Wood Products/Lumber (structural)</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles, Carpenter Bees	Do not contact until dry	None	None

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Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
Use spray at a rate of 1 gallon per 1,000 sq. ft. Don't apply until location of heat pipes, ducts, water and sewer lines, and electrical conduits are known and identified.				
<b>Demon WP (Wettable/soluble powder)</b>		<b>Cypermethrin - 40.0%</b>		
<b>Commercial Warehouses/Industrial Buildings/Storage Buildings</b>	Carpenter Bees	Do not contact until dry	None	None
Do not use as a space spray. Use only in well-ventilated areas. Do not use in warehouses while raw agricultural commodities for food or feed are being stored. Do not use in warehouses where raw or cured tobacco is stored.				
<b>Dragnet FT (Emulsifiable concentrate)</b>		<b>Permethrin - 36.8%</b>		
<b>Wood/Wood Products/Lumber (structural)</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None
Apply emulsion to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable. Applications may be made to inaccessible areas by drilling and then injecting emulsion with a crack and crevice injector into the damaged wood or void spaces. Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Do not apply to electrical fixtures, switches or sockets.				
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles, Carpenter Bees	Do not contact until dry	None	None
This product prevents and controls termite infestations in and around structures and constructions. This product may be used for broadcast treatment of wood for the control of wood infesting insects and nuisance pests outside of a structure.				

**Table 2.** Pesticides Available for Powderpost Beetles and Other Wood-Infesting Insects

Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
<b>Equity (Emulsifiable concentrate)</b>		<b>Chlorpyrifos - 23.5%</b>		
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None
Do not use above ground for control in buildings housing agricultural animals. Do not use for above ground control of wood destroying insects in food areas of food handling establishments. Use sufficient amount of spray to cover wood to wetness. Application may be made to inaccessible areas by drilling and injecting the emulsion.				
<b>Flee Insecticide (Emulsifiable concentrate)</b>		<b>Permethrin - 36.8%</b>		
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	None	None	None
Apply to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable. This product is labeled for broadcast treatment of wood for control of wood-infesting insects.				
<b>Prelude (Emulsifiable concentrate)</b>		<b>Permethrin - 25.6%</b>		
<b>Wood/Wood Products/Lumber (structural)</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None
For soil or wood treatment to control termites and wood boring beetles.				
<b>Wood Surfaces</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	Do not contact until dry	None	None



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Trade Name (Formulation)		Common Name - %		
Site(s)	Pest(s)	Re-Entry Time	Preharvest Time	Retreatment Interval
Do not treat soil beneath structures that contain wells or cisterns. Care must be taken to avoid runoff. Do not treat soil that is water-saturated or frozen. Do not treat while precipitation is occurring. Overall broadcast application must be limited to attics, crawl spaces, unfinished spaces and other generally unoccupied spaces.				
<b>Vikane (Fumigant)</b>		<b>Sulfuryl Fluoride - 99.8%</b>		
<b>Wood/Wood Products/Lumber (structural)</b>	Death Watch Beetles, False Powderpost Beetles, Flat Headed Borers, Old House Borers, Powderpost Beetles	None	None	None
For use in dwellings (including mobile homes), buildings, construction materials, furnishings, and vehicles including automobiles, buses, surface ships, rail cars, and recreational vehicles (but not including aircraft).When fumigating, observe local stae, and federal rules and regulations including such things as use of chloropicrin, clearing devices, positive pressure self-contained breathing apparatus, security requirements and placement of warning signs.Do not re-enter treated areas until aerated and ventilated with fans for at least 8 hours or Interscan or Miran detector has a reading of <5 ppm.				