



Firewood Insects

Fireplaces and wood-burning stoves have grown very popular over the past several years, creating a demand for firewood. Although wood, considered a renewable fuel resource, is relatively inexpensive, often readily available and can quickly warm a cold room, it can also serve as a home for certain nuisance insects and their relatives. Homeowners become alarmed when sawdust is pushed out of the firewood, faint rustling or gnawing noises are heard and insects emerge to crawl or fly within the house. For the most part, firewood insects are a nuisance by their presence and cause no harm to the home, household furnishings or humans.

Identification

Most insects and their relatives found in firewood are considered either woodboring or shelter seeking.

Roundheaded Borers (1/3 to 3 inches long)

The adults, also known as longhorned beetles, are attracted to dying, freshly cut or recently-killed trees. Eggs are laid in the bark crevices of the green (unseasoned) wood with larvae tunnelling throughout the wood for a year or longer. The amount of feeding depends on the wood moisture and surrounding temperature. After larvae pupate, adults emerge with large amounts of sawdust exuded from the circular exit holes (diameter of a pencil or larger.) Painted hickory borer adults emerge during the spring (April & May) while locust borer adults are found during early autumn (September & October). Both resemble each other, but can be distinguished by emergence time. Locust borers feed on black locust whereas painted hickory borers feed on freshly cut hickory, osage-orange, hackberry, grape and ash. The redheaded ash borer attacks ash, oak, hickory, persimmon and hackberry. Other round-headed borers found in Ohio include the ivorymarked beetle, elm borer, tanbark borer, and pine sawyer. Sometimes these large, multi-colored, strikingly-patterned beetles emerge in the home in January and February when firewood is stored indoors. Except for the old house borer, none of the other roundheaded borers will infest structural or interior wood in the house. Larvae of the old house borer feeds on seasoned softwoods, preferring pine, spruce and fir.



Painted Hickory Borer
photo from
Iowa State University

<http://www.ipm.iastate.edu/ipm/iin/node/181>



Locust Borer photo from U.S.
Department of Agriculture
Forest Service
<http://www.na.fs.fed.us/spfo/pubs/fidls/locust/locust.htm>



Red Headed Ash Borer
photo from
Virginia Cooperative Extension

<http://www.ext.vt.edu/departments/entomology/factsheets/redash.html>



Ivory Marked Beetle photo from
<http://bugguide.net/node/view/21491/bgimage>



Elm Borer photo from
<http://www.forestryimages.org/browse/detail.cfm?imgnum=5017050>

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Tanbark Borer photo from <http://www.whatsthatbug.com/beetles3.html>



Old House borer Photo from <http://www.naturephoto-cz.com/beetles-bugs-butterflies.html>



Pine Sawyer Photo from <http://entopl.okstate.edu/ddd/insects/pinesawyerbeetle.htm>

Flatheaded Borers (1/4 to 1-1/3 inches long)

The adults, also known as metallic wood borers, attack living, dying and weakened trees. Eggs are laid in the bark crevices with larvae tunneling under the bark surface. After larvae pupate, adults emerge out of oval D-shaped exit holes.

In general, flatheaded borers attack fruit, shade and forest trees. The bronze birch borer prefers white or paper birches grown as shade and ornamental plants. None of the flatheaded borers will infest structural or interior wood in the house. Beetles are occasionally found indoors where birch logs have been used for decorative purposes.



Bronze birch borer with two D shaped exit holes. Photo from <http://www.na.fs.fed.us/spfo/pubs/fidls/bbb/bbb.htm>



Metallic Wood Borer, many different varieties. Photo from <http://www.forestryimages.org/browse/subimages.cfm?SUB=356>



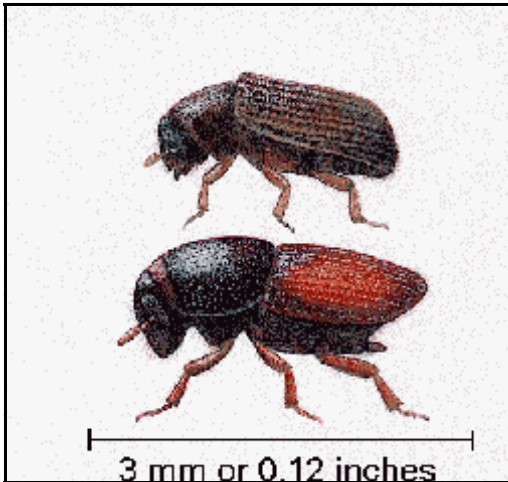
Shothole Borer photo from <http://www.ipm.ucdavis.edu/PMG/S/I-CO-SRUG-AD.001.html>

Bark Beetles (1/16 to 1/4 inch long)

Adults, also known as shot-hole borers, primarily attack dead and dying trees. Adults bore through the bark, forming galleries, grooving the surfaces of both the wood and the inner side of the bark. Eggs in the galleries hatch into larvae which feed in the cambium region. After larvae pupate, adults emerge through numerous small holes about the diameter of small lead shot.

Both the smaller European elm bark beetle and native elm bark beetle attack only elm trees and are important vectors, spreading the fungus *ceratocystis ulmi* known as Dutch elm disease. The shot-hole borer attacks peach, plum, cherry, apple, pear and related trees. Also, there are many pine bark beetles. They will not infest structural

or interior wood in the house. If infested firewood is stored inside the home, beetles can emerge and become quite annoying by their presence. Many appear on windowpane surfaces.



Ambrosia Beetles (1/5 inch long)

Adults resemble bark beetles. They bore into the sapwood and often the heartwood, tunnelling in all directions. Tunnels, about pinhead width, are often stained black. They do not infest structural or interior wood.



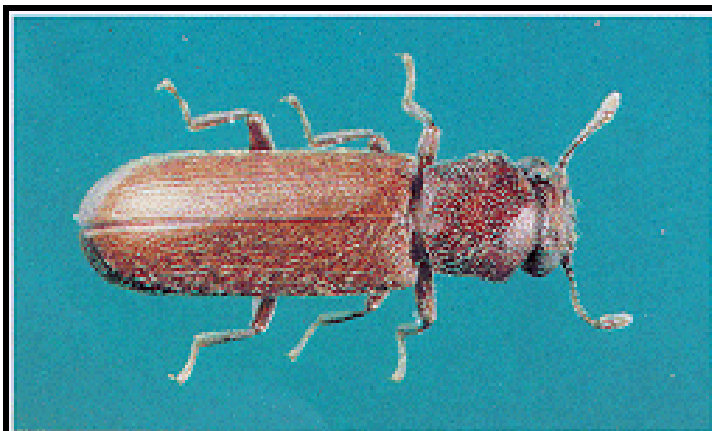
Ambrosia Beetle
Photo from
<http://www.forestryimages.org/browse/detail.cfm?imgnum=0013022>

Smaller European Elm Bark Beetle and Native elm Bark Beetles

Photo from
http://www.na.fs.fed.us/spfo/pubs/howtos/ht_ded/ht_ded.htm

Powderpost Beetles (3/32 to 1/3 inch long)

Adults can be found in dead wood as well as dried and seasoned lumber. Lyctid powderpost beetles attack hardwoods such as oak, ash, hickory and mahogany found in woodwork, flooring, structural wood, furniture, tool handles and firewood. Adults can emerge from firewood in the home and infest structural wood or furniture. Exit holes are about 1/32 to 1/16 inch in diameter. Flour or talc-like frass falls out of the exit holes and cracks. Anobiid powderpost beetles attack both hardwoods and softwoods. Most wood-infesting beetles will not reinfest wood that is painted, varnished, waxed or shellacked. Most beetles do not complete the life cycle in wood with a moisture content below 10 to 15 percent.



True powderpost beetles are only 1/8 to 1/4 inch in length and range in color from reddish-brown to black. Photo courtesy Van Waters & Rogers, Inc.

Powder post beetles photo from
<http://www.doyourownpestcontrol.com/powderpostbeetles.htm>

Carpenter Ants and Termites

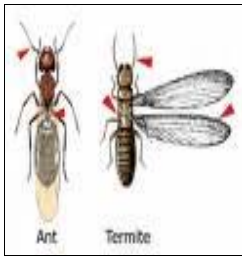
These insects can infest undisturbed piles of damp, unsound, wet firewood stacked on the ground outside. Infestations are usually not noticed until the stacked wood is moved. Infested wood may have concentrations either of ants or termite mud tunnels on the outside surface, especially where damp wood and high moisture conditions exist. Bringing in firewood infested with carpenter ants and termites usually will not result in infestations starting in the house. Both are social insects and the colony becomes so disturbed when the wood is moved, dried, cut or split that establishment indoors is very unlikely. Structural or interior wood should not become infested. However, wood stored in damp, moist basements or stacked on the ground outside against the house for several seasons should be avoided.

Carpenter Bees (3/4 to 1 inch long)

Adults resemble bumble bees, and bore round holes into outside wooden furniture, railings, fence posts, dead tree limbs and other weathered wood. Chances are slim of infesting structural or interior wood.

When firewood is stored directly on the ground, it absorbs and retains moisture within the wood, attracting a wide range of pests including sowbugs, pillbugs, millipedes, centipedes, spiders, bark lice (Psocids) and springtails.

Other pests not as dependent on high moisture that may also use firewood as shelter include cockroaches, crickets, earwigs, flies and ground beetles. Sometimes yellowjacket wasps, paper wasps and bumble bees build nests in firewood piles presenting danger to those moving or stacking firewood. Their queens may overwinter under firewood bark and emerge early to fly within the house when wood is stored indoors under warm conditions.



Ant—"elbowed antennae," clear wings, narrow "waist"

Termite—Antennae are not "elbowed", opaque wings, broad "waist"



Carpenter Bee
Photo from
<http://ohioline.osu.edu/hyg-fact/2000/2074.html>

Figure 1. Carpenter bee.
(Courtesy of Kansas State University.)

Horntail Wasps (1 to 2 inches long)

Adults, also known as the Pigeon Tremex, sometimes emerge in the home causing excitement. Adults have a horny, spear-like long tail. Larvae burrow in maple, elm, beech and other trees. Structural or interior wood is not infested.



Pigeon Tremex photo from
<http://www.forestryimages.org/browse/detail.cfm?imgnum=5019043>

Insects and their relatives seeking shelter include:

Pennsylvania Woods Roaches (1/2 to 2 inches long)

Adults and nymphs live outdoors in hollow trees, under loose bark of dead trees, stumps, logs and in piles of firewood. These roaches are simply accidental hitchhikers into the house and cause no damage to structural wood, household furnishing or humans.

Darkling Beetles (1 inch long)

Adults that feed on bracket fungi are frequently found under loose bark where firewood has been stored outdoors on the ground for several seasons. Damp firewood held over several seasons outdoors usually becomes darkened and moldy. Considerable damage to firewood is caused by wood decay fungi, which send minute, fungal threads called "hyphae" through the damp wood. Green, unseasoned wood is a prime target for decay fungi. Also, previously dry wood placed in contact with moist soil or in storage under high humidity conditions should be avoided.



Adult, nymph and egg stages of Pennsylvania wood cockroaches.
Photo from
http://www.ento.psu.edu/extension/factsheets/pa_wood_cockroach.htm



Darkling Beetle photo from
http://images.google.com/imgres?imgurl=http://eny3005.ifas.ufl.edu/lab1/Coleoptera/Tenebrionid_1.jpg&imgrefurl=http://eny3005.ifas.ufl.edu/lab1/Coleoptera/Tenebrionid

Occasional Pests

Other pests occasionally found in firewood piles include spiders, woollyworm caterpillars and both mice and rats, which make their nests to rear young. Also snakes, which feed on insects and mice, may be discovered when moving sticks of firewood from the woodpile.

Life Cycle and Habits

Most firewood insects and their relatives are active from April to October. Many roundheaded and flatheaded borers complete their life cycle in one year or up to two to four years. Some adults prefer recently cut logs and others seasoned logs. Bark beetles and ambrosia beetles may have two to three generations per year and often attack weakened, dying and dead trees. Powderpost beetles complete their life cycle in three months to one year or up to three years with others living in the wood as long as 30 years before emergence. Powderpost beetles prefer wood that has been cut for several months (seasoned). Carpenter ants and termites prefer damp, moist wood such as old tree stumps and wood in soil contact. Carpenter ants can develop from egg to adult in about two months or up to 10 months in cooler weather.

Termite colonies vary in their life cycle with low populations the first year and active, larger colonies in the fourth year. (Termite establishment is slow depending on moisture, temperature and food.) There is one generation per year for carpenter bees and horntail wasps. The Pennsylvania woods roach life cycle is completed in one to two years, whereas certain darkling beetles require six months.

Control Measures

The most desirable firewood for heating includes ash, butternut hickory, white oak, American beech, red oak, sugar maple, cherry, white birch, rock elm, ironwood, locust, apple, dogwood, persimmon, yellow birch and black walnut. When seasoned (dried) properly, there is more heat per unit than unseasoned (green) wood and many insects are killed within.

Prevention

If possible, harvest living hardwood trees during the mid to late autumn months or early spring to allow some seasoning before winter and spring. At that time, wood borer beetles, primarily attracted by the smell of freshly cut, dying or decomposing trees, would be in the over-wintering, inactive development stage. Trees cut during the summer months, (April through October) and left stacked in the woods, are very likely to become infested. Always remove logs from the forest or woods to reduce insect attack. The sooner the wood is split, the quicker it will dry and become less subject to insect infestations. Un-split wood with the bark left on is very attractive to wood destroying insects and diseases. Firewood from dead trees is more likely to have bark beetle problems. Never stack wood against the house or other buildings. Store firewood outdoors in an open area, as far away from the house as practical, to keep away insects and dirt (debris). Stack firewood off the ground to eliminate serious soil moisture problems leading to wood rot and pest problems. Stacking firewood in loose piles raised off the ground, as well as splitting or sawing into smaller sizes, accelerates drying. (This is needed with logs greater than eight inches in diameter and longer than four feet.) A simple storage rack can be made by placing two-by-fours on concrete blocks. Stack the firewood on top of the two-by-fours allowing an air gap of at least 10 inches between the ground and firewood.

For a cover, one can use a sheet of dark polyurethane plastic or sheet metal roofing to keep the wood dry. During the summertime, the area under the plastic will build up heat, evaporating the moisture and killing various stages of insects and other pests within. Provide proper ventilation if water vapor collects on the plastic cover from the green, unseasoned wood.

Bring only enough firewood into the house to be burned immediately. When cold weather arrives, pieces of firewood can be moved nearer to the house for easy access. Firewood should again be stored on a rack, patio or deck instead of on the ground. Firewood stored inside the home over an hour or so may warm up enough for insects to emerge from within or under the bark and start their spring activities early. Also, do not store firewood in a heated garage or basement for the same reason. Never store indoors over the summer.

Burn older wood first. Try not to carry over large quantities of firewood from season to season. After one to two seasons, unprotected firewood, left outside on the ground, will become tunneled and full of frass from many woodboring insects, develop loose bark for nuisance insects to take shelter and decrease in heat value from wood decay fungi.

Piles of firewood should be inspected during the summer months for active pest populations and moved or re-stacked if practical and necessary.

Insecticides

It is best not to treat firewood with any pesticide. Spray treatments applied to the firewood will not kill wood-borers within. Burning any insecticide-treated firewood indoors could cause a potential health hazard due to the toxic chemical fumes released into the living space by the burning wood.

If a colony of ants or beetles is found in a piece of firewood, it should be discarded outdoors away from the house, rather than burned or treated with insecticides. Any beetles or larvae appearing inside the house can simply be picked up with a vacuum cleaner, broom or dustpan and discarded.

This publication may pesticide recommendations. Changes in pesticide regulations occur constantly, some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office. **READ THE LABEL BEFORE APPLYING ANY PESTICIDE.**

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