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Carpenter Bees

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Ohio State University Extension Fact Sheet
Department of Entomology
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Carpenter bees are so named because they excavate galleries in wood to create nest sites. They do not consume wood. Rather, they feed on pollen and nectar. Carpenter bees are important pollinators of flowers and trees. Carpenter bees typically are just nuisance pests that cause cosmetic rather than structural damage to wood. Nonetheless, considerable wood damage can result from many generations of carpenter bees enlarging existing galleries in wood.

Large carpenter bees belong to the genus *Xylocopa*. Two native species, *Xylocopa virginica* and *Xylocopa micans*, occur in the eastern United States. There also are a number of native carpenter bees in the western United States. This fact sheet primarily pertains to *X. virginica*, which has the common name of carpenter bee.



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

Meeting Dates

May 28 *Wood Destroying Insects* - John O'Brien, Mastershield

Jun 25 *Geothermal Heating & Cooling Systems* - Nat Gifford from EarthMint

Jul 23 *On Location in Seymour* - Larry Janesky, Basement Systems, Inc.

Holiday Inn
201 Washington Ave
North Haven
(203) 239-6700

Identification

Carpenter bees are large and robust. *X. virginica* is three-fourths to one-inch long, black, with a metallic sheen. The thorax is covered with bright yellow, orange, or white hairs, and the upper side of the abdomen is black, glossy, and bare (Figure 1). The female has a black head, and the male has white markings on the head. Carpenter bees have a dense brush of hairs on the hind legs.

Carpenter bees somewhat resemble bumble bees, except bumble bees have dense yellow hairs on the abdomen and large pollen baskets on the hind legs. Various species of bumble bees and carpenter bees are similar in size. Bumble bees typically nest in the ground whereas carpenter bees nest in wood.

Life History

Carpenter bees are solitary insects that do not form colonies. Male and female carpenter bees overwinter as adults within their old nest gallery. Adults emerge in the spring (April and early May) and mate. There is one generation per year.

The males are not long lived, and the female carpenter bee prepares the nest. Gallery construction is a time- and energy-consuming process, and the female will preferentially refurbish an old nest rather than excavate a new one. When constructing a new nest,

President's Corner

Bernie Caliendo

Why I served. I received a letter from the Governor dated April 16, 2008, stating that my successor on the Connecticut Home Inspector Licensing Board had been appointed. Having been appointed by Governor Rowland on September 22, 1999, and sworn in on July 13, 2000, I felt at the time that it was important to serve on the initial board to try and have an impact on the professionalism that licensing would have on inspectors in Connecticut. On August 18, 2003, I was appointed by Governor Rowland to be the Chairman of the Board and have served in that capacity until now.

Throughout my appointments I continued to propose and promote regulations and policies that were for the good of the profession and not myself. Many times it has been an uphill battle dealing with the incompetence of the Department of Consumer Protection and the contracted testing vendors. I have debated the role of the Board versus the role of the Department through three different commissioners, quoting Connecticut statutes governing our responsibilities, sometimes to no avail.

I am proud of what I've accomplished on the Board, but am disappointed that neglect and politics played a major role in the Department's "holier than thou" attitude on many occasions.

I would like to thank licensing specialist Bob Kuzmich for all the work he conducted for the Board. It's too bad the managers, lawyers, investigators and commissioners weren't as expedient and as competent in following up and, in the end, ignored our requests.

I have no regrets and am actually relieved to be replaced so I can now try to have an impact from the outside.

To all our members who supported me, I thank you!

Bernie

CAHI's July 23rd Monthly Meeting ON LOCATION in Seymour

It's free!

You must sign up on our web site under "Special Events" and click on "Sign-up for July 23rd monthly meeting at Basement Systems in Seymour".

Larry Janesky, President of Basement Systems, Inc., 60 Silvermine Road in Seymour, CT has most generously offered CAHI a free buffet dinner at 6:00 p.m. and a 3-hour presentation with a plant tour ending at 9:30 p.m. at their location.

This meeting will take the place of our Holiday Inn location for July.

3 credits will be received. This is limited to **members only** with no attendance limit. Sign up soon. We have to give Larry a count for food preparations. Directions and more info will be posted in the June and July newsletters.

Members NOTE

**Connecticut Association of Mortgage Bankers
ANNUAL GOLF OUTING
Thursday, June 19, 2008**

CANCELLED

13 FREE CEU's

Our Factory Mutual trips were a great success. The experience to witness their research into the results of natural and manmade disasters and how protective measures can limit catastrophic losses were just phenomenal.



Our Heating Seminar at the ICPA was another informational packed presentation. Chris Jordyn's presentation in the morning and Gary Maturo's presentation on radiant heat topped off the day to this continuing educational seminar.

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the female uses her strong jaws (mandibles) to excavate a clean-cut, round nest entrance hole on the lateral surface of wood in an exposed or unexposed location. This hole is slightly less than 1/2-inch wide, approximately the diameter of her body. She bores into the wood perpendicular to the grain for one to two inches then makes a right angle turn (~90°) and excavates along the wood grain for four to six inches to create a gallery (tunnel). She excavates the gallery at the rate of about one inch in six days.

The female bee creates a series of provisioned brood cells in the excavated gallery. The larval provision consists of a mixture of pollen and regurgitated nectar formed into a ball. The female forms a food ball at the far end of an excavated gallery, lays an egg on top of the mass, and then walls off the brood cell with a plug of chewed wood pulp. A female often creates six to 10 partitioned brood cells in a linear row in one gallery, and she dies soon thereafter. Larvae feed on the pollen/nectar food mass, which is sufficient food for them to develop to the adult stage.

The life cycle (egg, larva, pupa, adult) is completed in approximately seven weeks, although developmental time may vary depending on the temperature. The new adults typically remain in their gallery for several weeks then chew through the cell partitions and venture outside in late August. They collect and store pollen in the existing galleries, but also spend much of their time just huddled together inside a gallery. These new adults hibernate in galleries because they require shelter during the winter. They then emerge the following spring.

Habits

Carpenter bees nest in a wide range of softwoods and hardwoods, particularly if the wood is weathered. Eastern species of carpenter bees prefer softwoods such as cedar, redwood, cypress, pine, and fir. The bees can more easily tunnel through woods that are soft and that have a straight grain. Western species of carpenter bees often nest in oak, eucalyptus, and redwood.

Carpenter bees attack structural timbers and other wood products, including fence posts, utility poles, firewood, arbors, and lawn furniture. In buildings, carpenter bees nest in bare wood near roof eaves and gables, fascia boards, porch ceilings, decks, railings, siding, shingles, shutters, and other weathered wood. These bees avoid wood that is well painted or covered with bark.

The carpenter bee entrance hole in wood may not necessarily be in an exposed area. For example, the inner lip of fascia boards is a common site of attack. Nail holes, exposed saw cuts, and unpainted wood are attractive sites for the bees to start their excavations.



Figure 2. Carpenter bee entrance exposed in wood.



Figure 3. Carpenter bee staining on hole in fascia.



Figure 4. Carpenter bee gallery siding below the fascia.

Economic Importance

Despite their beneficial aspect of being important pollinators of many trees and flowers, carpenter bees also may be nuisance pests around structures. Carpenter bees are noisy, which may be bothersome. These large bees create alarm when they dive-bomb or fly erratically around humans. In actuality, these are male bees, which are territorial but harmless because they lack a stinger. Only females have a stinger. Female carpenter bees are docile and are reported to sting only if handled.

Carpenter bees create a nuisance by excavating round entry holes in wood (Figure 2) and depositing yellowish to brownish streaks of excrement and pollen on surfaces below entry holes (Figure 3). They also produce coarse sawdust from their

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borings. The carpenter bee gallery system is confined within the wood (Figure 4) and hence is not visible.

Carpenter bee damage to wood initially is minor, and carpenter bees seldom cause consequential structural damage. However, their repeated colonization of the same wood can eventually cause considerable wood damage. Carpenter bees preferentially refurbish and enlarge an existing tunnel instead of boring a new one, and a gallery can extend for 10 feet if used by many carpenter bees over the years.

Carpenter bees sometimes construct new tunnels near old ones, with infestations persisting for several years. This complex system of tunnels can result in extensive damage to wood. Wood replacement is necessary when the strength of structural members, posts, poles, and other wood products is reduced due to carpenter bee damage.

Carpenter bees also may be indirectly responsible for unsightly wood damage when woodpeckers riddle the wood with holes searching for the developing carpenter bees to feed upon.

Integrated Pest Management

When dealing with carpenter bees, it is preferable to locate tunnel entrances during the daytime, but treat after dark on a cool evening when carpenter bees are less active. Wear protective clothing to avoid any stings during treatment.

Prevention

Keep all exposed wood surfaces well painted with a polyurethane or oil-base paint to deter attack by carpenter bees. Periodically inspect painted surfaces, because the coatings will begin to deteriorate due to weathering, leaving exposed wood that the bees then can easily attack. Wood stains will not prevent damage. Consider using aluminum, asbestos, asphalt, vinyl siding, and similar non-wood materials that are not damaged by carpenter bees. Seal existing gallery entrance holes to discourage carpenter bees that are looking for potential nesting sites.

Mechanical Measures

A non-insecticidal management approach is to deny carpenter bees access to their galleries by sealing each entrance hole. Thoroughly plug the hole with caulking compound, wood putty, or a wooden dowel affixed with wood glue. If possible, also fill the entire gallery system with a sealant. Carpenter bee galleries are a critical resource, since the bees spend much of their time inside a gallery, and they require its protective conditions to survive the winter. Bees that are trapped inside a caulked

gallery typically will not chew out due to behavioral constraints. This barrier approach has promise for reducing future carpenter bee infestations.

In new nests, the single female often can be swatted and killed, or she can be captured and crushed or otherwise destroyed. Larvae and pupae can be killed by inserting a sturdy wire into the entrance hole and probing into the gallery as deeply as possible.

Insecticides

A chemical treatment using an appropriately labeled insecticide can protect wood for short periods, especially in the spring and summer when carpenter bee nesting activity is apparent. Dust formulations typically provide residual effects and are effective due to the nature of carpenter bee gallery construction. Precisely inject the dust directly into each nest entrance hole and as deep into the tunnel as possible and also apply it to the adjacent wood surface. Wait for a few days before plugging entrance holes since adult bees should be allowed to pass freely to distribute the insecticide within the galleries. Newly emerged bees also will contact the dust when attempting to leave their gallery.

For use as a preventive, an insecticide should be applied to wood in early spring before carpenter bees begin excavating nests. The insecticide kills the bees that contact it on the wood's surface. However, a preventive approach has limitations because of the difficulty in applying a chemical to all exposed wood on the house where bees could nest. Furthermore, such insecticides usually degrade in a matter of weeks or months so repeated applications are needed to maintain a lethal dose of the insecticide. Some pest management companies report good results against carpenter bees by spraying wood with a microencapsulated pyrethroid, Demand® CS insecticide (registered for use only by licensed professional applicators), which contains the active ingredient lambda-cyhalothrin. A number of other pyrethroids (bifenthrin, cyfluthrin, deltamethrin, permethrin, etc.) also are labeled for use against carpenter bees.

Insecticides that act as stomach poisons, such as borates, typically are ineffective against carpenter bees, which do not ingest the wood that they excavate.

Keith L. Smith, Associate Vice President for Agricultural Administration and Director, OSU Extension TDD No. 800-589-8292 (Ohio only) or 614-292-1868

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Carpenter Ants

by Mike Potter, Extension Entomologist
University of Kentucky College of Agriculture

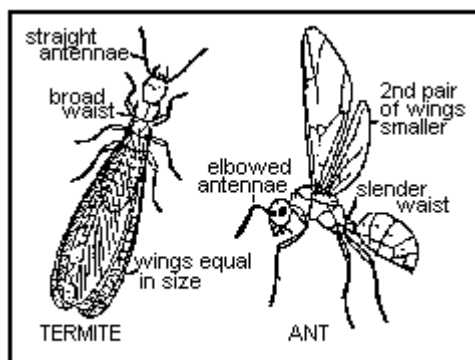
"I keep seeing big, black ants in my house, especially in the kitchen and bathroom. I spray the ones I see, but they keep coming back. What kind of ants are these, where do they come from, and how do I get rid of them?"



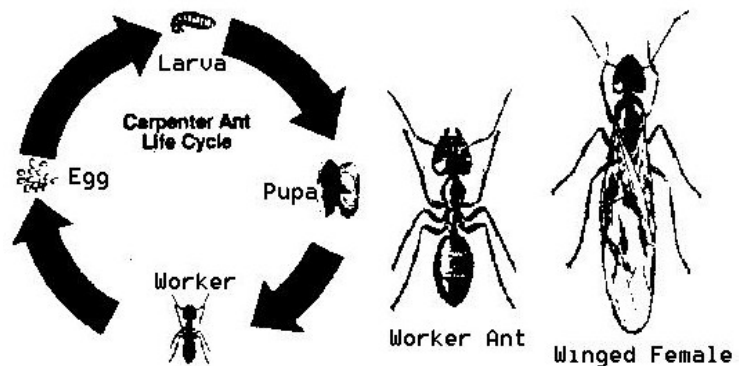
These are the questions typically asked by homeowners who have carpenter ants. Carpenter ants are one of the most common ants found in Kentucky. They are also one of the most difficult to control. This publication will help you determine if you have carpenter ants, and provide tips on how to control them.

Biology and Habits

Carpenter ants, vary in size and color but are usually large (1/4-1/2 inch) and blackish. Occasionally, swarms of winged carpenter ant reproductives will emerge inside a home. Carpenter ant swarms usually occur in the spring and are a sure sign that a colony is nesting somewhere inside the structure.



How to tell winged termites from ants



Carpenter ants are unusually large and blackish in color

Winged carpenter ants can be distinguished from termites by their larger size and shape of their antennae, waist and wings.

Besides being objectionable by their presence, carpenter ants damage wood by hollowing it out for nesting. They excavate galleries in wood which have a smooth, sandpapered appearance. Wood which has been damaged by carpenter ants contains no mud-like material, as is the case with termites. Shredded fragments of wood, similar in appearance to coarse sawdust, are ejected from the galleries through preexisting cracks or slits made by the ants. When such accumulations are found (typically containing dead ants and bits of insects which the carpenter ants have eaten), it's a good indication that a carpenter ant nest is nearby. Oftentimes, however, the excavated sawdust remains hidden behind a wall or in some other concealed area.

Carpenter ants nest in both moist and dry wood, but prefer wood which is moist. Consequently, the nests are more likely to be found in wood dampened by water leaks, such as around sinks, bathtubs, poorly sealed windows/ door frames, roof leaks and poorly flashed chimneys. Nests are especially common in moist, hollow spaces such as the wall void behind a

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dishwasher, or in a hollow porch column. Since there often will be no external signs of damage, probing the wood with a screwdriver helps reveal the excavated galleries. Another technique for locating hidden nests is to tap along baseboards and other wood surfaces with the blunt end of a screwdriver, listening for the hollow sound of damaged wood. If a nest is nearby, carpenter ants often will respond by making a "rustling" sound within the nest, similar to the crinkling of cellophane.

Carpenter ants may establish nests in a number of different locations. It is important to realize that these locations can be either *inside or outside the structure*. Carpenter ants actually construct two different kinds of nests: **parent colonies** which, when mature, contain an egg-laying queen, brood and 2000 or more worker ants, and **satellite colonies** which may have large numbers of worker ants but no queen, eggs or young larvae. The carpenter ants inside a home may have originated from the parent colony or from one or more satellite nests. For example, the ants may be coming from the parent nest located outdoors in a tree stump, landscape timber or woodpile, or from one or more satellite nests hidden behind a wall in the kitchen or bathroom, or perhaps from wood dampened by a roof leak in the attic.

The extent and potential damage to a home depends on how many nests are actually present within the structure, and how long the infestation has been active. Although large carpenter ant colonies are capable of causing structural damage, the damage is not normally as serious as that from termites. In some cases, the damage may be relatively insignificant, but this can only be determined by locating and exposing the nest area.

Control

The best way to control carpenter ants is to find and destroy the nests. This is often easier said than done. Recent studies have shown that carpenter ants follow distinct scent trails between the satellite colonies and the parent nest. Carpenter ants also rely on scent trails to recruit their nestmates to food. With patience and a little effort, homeowners can use this trailing behavior displayed by carpenter ants to locate and eliminate the nests.

When carpenter ants are observed, **don't spray them**; instead, feed the ants small dabs of diluted honey placed onto the back (nonsticky side) of pieces of masking tape. *The best time to do this is late at night since this is when carpenter ants are most active.* After the ants have fed

on the honey, follow them on their journey back to their nest. **Be patient**-- eventually the ants will disappear behind a baseboard, cabinet, or into some other concealed location such as the hollow space (void) within a wall, door casing, or porch column.

Treat wall voids and other hidden spaces where ants are entering by carefully drilling a series of small (1/8 inch) holes and puffing boric acid (available at most hardware stores) into the suspected nest areas. The boric acid powder will disperse in the hidden void and contact and kill the ants. If you suspect the nest is in a wall, drill and treat at least 3-6 feet on either side of where ants are entering so as to maximize the chances of contacting the nest. Carpenter ants prefer to travel along wires, pipes and edges. If you suspect the nest location is in a wall, also treat behind pipe collars and behind **--not in--** the junction box for electrical switch plates/receptacles. **NEVER SPRAY LIQUIDS OR INSERT METAL-TIPPED DEVICES AROUND ELECTRICAL OUTLETS!).**

As noted earlier, carpenter ants seen in the home may actually be nesting *outdoors*, foraging indoors for food and/or moisture. Consequently, the homeowner may end up following the ants they have baited with honey out of the house and into the yard, possibly to a nest located in a stump, or under a log or railroad tie. Once the outdoor nest is discovered, treatment can be performed by spraying or drenching the nest with an insecticide such as carbaryl (Sevin), diazinon, or chlorpyrifos (Dursban). If outdoor nests are suspected, the homeowner should also inspect around the foundation of the building at night with a flashlight, especially around doors, weep holes and openings such as where utility pipes and wires enter the structure. The baiting approach using honey can also be used to trace carpenter ants which are foraging outdoors back to their nest.

Tips When Calling a Professional

Oftentimes, it will be difficult or impossible to locate and destroy the carpenter ant nest(s). In this case, the homeowner may wish to call a professional pest control operator. Pest control companies approach carpenter ant problems differently. Some attempt to locate the nest and selectively treat only in specific areas. Other companies take more of a "shot-gun" approach, drilling and dusting as many potential wall voids and nesting sites as possible. Most companies also apply a perimeter spray treatment around the outside foundation of the home in an effort to temporarily prevent reinvasion. The

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approach which should **not** be used is simply to spray each month where carpenter ants are seen. If no effort is made to locate the nest(s) or probable nest areas, the problem will most likely continue.

Typically, there will be wide differences in price depending on the company and amount of effort expended. Since carpenter ant problems are not always solved on the first attempt, the type of guarantee and reputation of the company should be factored into the purchasing decision.

Carpenter Ant Prevention

A number of steps can be taken by homeowners to reduce the potential for future carpenter ant problems.

1. Correct roof leaks, plumbing leaks and other moisture problems which will attract carpenter ants.
2. Eliminate wood-to-ground contact such as where landscaping has moved soil or mulch up against the wood siding of a home.
3. Clip back tree limbs and vegetation touching the roof or siding of the house. Limbs and branches serve as "bridges" between carpenter ants nesting in a dead tree limb and the structure.
4. Seal cracks and openings in the foundation, especially where utility pipes and wires enter from the outside.
5. Stack firewood away from the foundation and elevate it off the ground. Never store firewood in the garage or other areas of the home, as firewood is a prime nesting area for carpenter ants.

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The Licensing Board meetings are held at 9:30 am,
Department of Consumer Protection, Room 117, 165
Capitol Avenue, Hartford.

The public is always welcome.