

Honey Bees in and Around Buildings

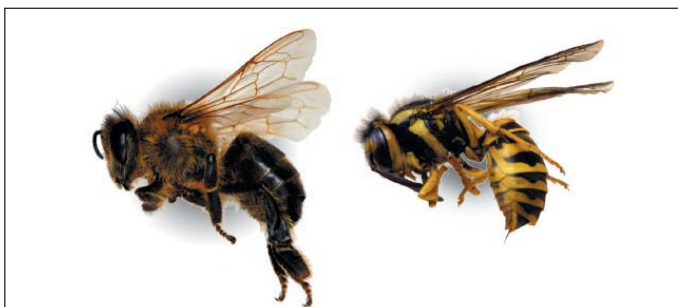


Chris Sansone and Michael Merchant*

Honey bees are an important part of the natural landscape and valuable to the Texas economy. The beekeeping industry in Texas generates an estimated \$10.4 million annually. Agricultural crops pollinated by bees have a value of \$40 billion. Unfortunately, honey bees become unwelcome guests when they nest around homes, schools and businesses. The presence of the Africanized honey bee in most Texas counties makes the risk of encountering bees even greater. People should know how to protect their homes and businesses from bee infestation.

Bees vs. Wasps

Honey bees are not the only stinging insects that can set up residence in a building. Social wasps, such as paper wasps, hornets and yellow jackets, also can become pests in and around structures. It is usually



A honey bee (left) is distinguished from a yellowjacket wasp by its hairy body and wide rear legs designed for carrying pollen. (Photo courtesy of Michael Merchant.)

easy to distinguish bees from wasps. Bees are generally hairy, with stout bodies and wide, flattened hind legs for carrying pollen (*see figure*). Wasps are generally smooth or have scattered hairs; they also have distinct “waists.” Another way to tell the two types of insects apart is to find the nest or hive. Honey bee colonies build a wax comb in which to rear their young and store food. Social wasps form nests of paper-like material.



Bees can construct large wax nests rapidly once they enter a home. For this reason, both bees and nests should be removed as soon as possible. (Photo courtesy of USDA-ARS.)

The Mexican honey wasp or Mexican bee, *Brachygastra mellifica*, is the only wasp that stores honey, but its nest is made of a paper-like material and not wax comb. The Mexican honey wasp is smaller than a honey bee and very docile; there is usually no need to remove its nest.

Wasp nests are often found under the eaves of buildings or under porches, steps, benches or furniture.

Social wasps are quick to sting when defending their nests. Their attacks can be severe because they cooperate to defend the nest and because individual wasps can sting repeatedly. Honey bees can sting only once. Texas Cooperative Extension publication L-1828, *Paper Wasps, Yellowjackets and Solitary Wasps*, provides more information on wasps.

*Extension Entomologists, The Texas A&M University System.



Honey bee workers surround a queen bee. Bees are likely to sting only when they perceive a threat to the nest and queen. (Photo courtesy of USDA-ARS.)

Honey Bees

The honey bee, *Apis mellifera* Linnaeus, is a social insect that lives in colonies. Each bee colony contains one fertile queen, drone bees and worker bees. The queen is the only female that can lay fertilized eggs and she can live 2 to 5 years. The drones are male bees. Their function is to mate with new queens. Drones cannot sting. The number of drones is highest in the spring and summer. Most bees in a colony are workers. Workers are infertile females. They perform most of the functions bees are known for, such as making honey and defending the colony. There may be as many as 60,000 workers in a healthy, productive colony. The average number is 30,000.

Honey bees occasionally move all or part of their colony to new nesting locations. This behavior is called “swarming,” and it is part of the colony’s normal reproductive process. Swarms occur most often in the spring and early summer and usually start as colonies become crowded. When a colony prepares to swarm, the bees produce a new queen. The old queen and about half of the worker bees will leave the parent colony to establish a new colony, allowing a new queen to take over the remaining colony. When a swarm selects a new nesting site, the bees begin building comb in which to store food and rear young. A new colony will become defensive within 2 to 4 weeks.

Honey bees are not native to the Americas. The Spanish introduced the first honey bee colonies in the early part of the 16th century. There are many races of *A. mellifera*, and all have different physical characteristics and behaviors. However, since all the races are the same species, bees from one race can mate with bees of another race.

European bees introduced to Brazil and other tropical areas either did not survive or did not produce honey as successfully as in temperate climates. In an effort to improve honey production, scientists in South America crossed European bee races with African bee races. Honey production did improve, but an unfortunate result of this cross was that the hybrid bees exhibited the highly defensive behavior of the African race. The Africanized bees inadvertently escaped from a lab in South America in 1957, spread throughout most of South and Central America, and entered the United States through Texas in 1990.

Honey Bee Attacks

Africanized and European bees are so closely related that it is almost impossible to tell them apart except with genetic analysis or laboratory measurements. However, their behavior is very different.

Africanized bees are more sensitive to nest disturbance. When disturbed (by activity near the colony, vibrations from lawn equipment, etc.), established honey bee colonies may respond by attacking anything within their territory. This is true for both Africanized and European bees. However, Africanized bees respond more quickly, send more bees from the colony to drive the intruder away, and pursue intruders farther than European bees do.

The venom of Africanized and European bees is chemically identical, but Africanized bees are a greater threat because they are more likely to sting in greater numbers. Children are more susceptible to the venom than adults.

Pets and livestock in confined areas are extremely vulnerable to bee attacks because they have no way to escape. Pet and livestock owners should watch for bees in the area and make sure animals can seek shelter (e.g., a “doggy door” or other escape route).

If attacked by bees, you should cover your face and move out of the bees’ territory as fast as possible. European bees usually defend an area within 100 yards of the colony, while Africanized bees will defend an area within 400 yards of the colony. Taking shelter in a car or house is often the best strategy, even though a few bees may follow. Do not try to trick the bees by hiding or playing dead because they will continue the attack as long as you are within their territory.

If you see someone else being attacked, do not attempt to keep the bees off of the victim with a water hose.



An Africanized honey bee (left) and a European honey bee. Despite size differences in these two individuals, the two strains cannot be distinguished visually. (Photo courtesy of USDA-ARS.)



An Africanized honey bee (left) and a European honey bee on a honey comb. Despite color differences in these two individuals, the two strains cannot be distinguished visually. (Photo courtesy of USDA-ARS.)

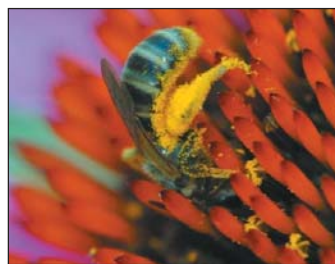
Once away from the attack, remove the stingers as soon as possible. Stingers should be scraped out with a fingernail, knife or some other sharp object. Stingers continue to inject venom for many minutes after the initial sting. The sooner a stinger is removed, the less venom will be injected. If you

experience hives, difficulty breathing, or other signs of an allergic reaction, you should seek medical attention immediately.

Managing Foraging Bees and Swarms

Honey bees are not truly aggressive—that is, bees do not search for someone or something to attack. But like social wasps, honey bees are highly defensive and will attack anything that seems to threaten the colony. You can lessen your risk of a bad experience with bees by learning more about their behavior.

Foraging bees. It is common to see honey bees foraging for food and water around homes and other structures. Foraging bees are away from the colony and are not likely to sting because they have nothing to defend. Bees visiting flowers and other food sources should be left undisturbed. To discourage



Bees are valuable pollinators and rarely sting when they are away from the nest searching for nectar. (Photo courtesy of Michael Merchant.)

foraging bees from gathering around a home or business, remove or prevent access to attractants such as ripening fruit, opened soda cans and pet water dishes. Make sure outdoor garbage receptacles are covered and well-sealed. Some flowers, trees and shrubs attract bees when in bloom. It is impractical to try to remove all the plants that might attract bees, so people with a fear of bees or allergies to bee venom should simply avoid those areas when bees are foraging.

Swarming bees. Many people have never encountered bee swarms even though they occur every year. With literally thousands of bees in the air, swarms may appear dangerous. In fact, they pose little threat. Eventually the swarm will land and remain clustered in one place for a few hours or several days. During that time, scout bees are looking for a suitable nesting site. Once the scouts find a new nest site and communicate its location to the swarm, the bees will move on to their new home.

If a swarm lands in a remote site, it should be left alone. The swarm does not contain stored food or immature bees so the bees have nothing to defend and are unlikely to sting.

Swarms that land near buildings or high traffic areas should be managed. Bees may try to nest in wall voids or floors of buildings if they can gain entry. Professional and hobby beekeepers are often unwilling to collect swarms because of the possibility of introducing diseases, mites or Africanized bees into their own colonies. If no one can be found to remove a swarm near a building or in a high traffic area, the swarm may need to be destroyed.

The presence of a swarm may also indicate that a colony is nearby. Newly formed swarms tend to gather near their former nesting site for a short while after emerging. You should scan the area carefully to determine if there is a colony nearby that should be controlled.

Because swarms do not have a nest to defend and the bees in the swarm are often full of honey, swarming bees are usually more docile than established colonies and less likely to sting. However, there is always a risk when working around bees. Therefore, Texas Cooperative Extension recommends that you contact a pest control professional to manage a swarm.



A honey bee swarm. (Photo courtesy of B. Pierson.)

Managing Bees in Buildings

The most important step is to prevent honey bees from entering a building. Block all holes where pipes and wiring enter, cracks in window framing, knot holes in wood siding, weep holes in bricks, and cracks where wood and brick join. Most of these holes can be filled with caulking, but holes necessary for air flow should be blocked with wire screen. The screen mesh should be less than 1/8 inch. Chimneys should be properly capped. Removing a honey bee nest can easily cost hundreds of dollars, so prevention is the best solution.

Honey bees that have moved into a structure should be destroyed as quickly as possible. The longer you delay, the more difficult the job is.

Hiring a Professional

The job of collecting a swarm or managing a colony in a building should be left to skilled, professional pest control companies. Professionals have the tools and equipment to do a proper job. Texas Cooperative Extension offices, fire departments and other government offices generally do not engage in bee control or collect bees to determine if the bees are Africanized. However, your county Extension office may be able to give you a list of local professionals. Make sure the person or company you hire has a valid license through the Texas Structural Pest Control Board. Without this license, professionals cannot legally charge for bee control.

Look for a company that is familiar with both extermination and the removal of bee nests. Failure to remove a bee nest can result in big headaches later. The larger the nest, the more problems you may have with odors (from dead bees and fermenting honey), staining, and other pests such as ants, cockroaches, carpet beetles, wax moths and rodents. Traces of old comb are highly attractive to bees, and they will re-infest the building unless the nest is removed.

Experienced pest control companies know how to locate a nest and remove it with minimal damage to the structure. Large bee colonies may have to be treated more than once before they are eliminated. Immature bees in the comb at the time of pesticide application may continue to emerge up to 10 days after treatment.

Although some pest control companies repair the damage caused by nest removal, most prefer to recommend a good contractor for that work. It is very important to seal all entrances tightly once the bees are controlled so that bees won't find their way into the building again.

Some pest control companies make the effort to remove bees alive, although this is not always practical. Removing bees alive is difficult, takes more time, and costs more. Most companies prefer to simply exterminate the colony and remove the hive.

Managed Bee Colonies

It is illegal for anyone other than an apiary inspector to kill any managed colony of honey bees without the owner's permission. If a managed colony needs to be moved, contact the owner. All apiaries must be marked in some way that identifies the owner. Contact the state apiary inspection service (979-845-9714) for assistance in identifying the owner of any problem colonies.

For more information on bees, please visit <http://honeybee.tamu.edu>.

Bee Careful!

- If bees are in a building, don't block the entry points. Bees trapped in a wall will search for or create an alternate exit and may emerge inside the building.
- Don't assume that spraying a liquid insecticide or dust into the bee entry point will solve the problem. A nest may be several yards from the entrance, and insecticides applied at the entrance often fail to kill the colony. In addition, killing the bees may make it harder for a professional to locate the nest for removal. It is best to leave control to the experts.
- Never use fumigants or any flammable compounds in structures. These seldom work well against protected bee nests and can pose a fire or explosion hazard.
- Don't try to use honey or wax removed from a treated nest because they are often contaminated with dust, insulation or insecticides and are unsuitable for human use.

Tips for Professionals

- Be prepared. Do not attempt to control bees or other stinging insects without wearing proper protective gear. Beekeeping supply houses sell veils, gloves and protective suits. Even if the gear is rarely used, your safety is worth the investment.
- Make sure your technicians are comfortable around bees and on ladders. Do not assign a bee or wasp control job to anyone who has a fear of heights or bees or who has a history of allergic reactions to insect stings.
- Use a safety harness. A harness is essential if you will be extracting hives from the top of a ladder. A harvest provides security and leverage for lifting heavy comb.
- Encourage customers to have backyard bee swarms collected or exterminated. Bee swarms, while not as aggressive as bees in a nest, can be even more expensive to control should they take up residence in the home. Liquid dishwashing detergent mixed with water can be sprayed through a B&G sprayer to kill exposed bees (Note: Do not try this on bees that have moved into a building). Soapy water is less likely to agitate bees than other methods. A mixture of 1 cup of liquid soap or detergent in a gallon of water will immediately disable bees that are wetted with the solution. Wetted bees die quickly. Continue to spray the swarm as the outer layer of bees falls to the ground. All bees must be thoroughly covered with the soapy water to ensure that the swarm is eliminated. Catch dying bees in a garbage bag or trash can as the bees are sprayed with the soapy solution.
- Educate customers about the importance of bee nest removal and remove the nest as part of your service. Provide the name of a reliable contractor or handyman who can repair any damage to sheetrock or ceilings.
- Try to locate the nest before opening walls or floors. Bee nests can be located with special equipment. A stethoscope can be used to locate the hive by sound. Newer motion-detecting equipment also can be used to locate nests in walls and floors. Sometimes bees can be located by the warmth their activities generates.
- Use a smoker to calm agitated bees. Smokers are available from bee supply companies. Do not use a smoker inside a building; smoke odor can persist indoors for weeks.
- Pyrethrins can be used for immediate nest removal, but be sure to apply a residual insecticide to the nest area after the comb is removed to prevent bees from rebuilding. Resmethrin (or another labeled pyrethroid) has worked better if you will be treating the nest first and returning later to remove it.
- Remove as much of the hive, honey and dead bees from the nest location as possible. Masses of dead bees and nest debris can cause infestations of cockroaches, ants and carpet beetles.
- Have your technician, the homeowner or a contractor seal the nest entrance and other potential nest entrances after you leave. Bees frequently reinfest old nest sites.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M AgriLife Extension Service is implied.

Texas A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

More Extension publications can be found at *AgriLifeBookstore.org*

Educational programs of the Texas A&M AgriLife Extension Service are open to all people without regard to race, color, sex, disability, religion, age, or national origin.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating.