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HONEY BEES IN AND AROUND BUILDINGS

Michael Merchant[1] and Molly Keck[2]

Honey bees (*Apis mellifera*) are considered the most beneficial insect to humans because of their ability to pollinate crops and the products they provide directly such as honey and wax. Honey bees contribute more than $16 billion annually to US agriculture and pollinate approximately one third of the crops we consume. In recent years, much has been written about the decline in the honey bee population; however, most declines have occurred in managed bee colonies. The status of wild honey bee colonies remains unknown. What is known, is that honey bees can become unwelcome guests, nesting in and around our homes, schools, and businesses. In addition, the presence of Africanized honey bees increases the chance of stinging attacks. For these reasons, people should know how to protect their homes and businesses from a honey 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, can also become pests in and around structures. It is usually easy to distinguish bees from wasps. Honey 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, and have distinct "waists." Another way to tell the two types of insects apart is to find their nest or hive. Honey bee colonies build wax combs in which to rear their young and store food. Social wasps form nests of paper-like material.

Figure 1. 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.)*

Texas A&M AgriLife Extension publications *Paper Wasps, Yellowjackets and Solitary Wasps* and *Mexican Honey Wasps* provide more information on wasps.

HONEY BEES

The honey bee is a truly social insect that lives in colonies. The honey bee life cycle consists of egg, larva, pupa, and adult stage. Within a colony there is a single queen, thousands of workers and a few hundred seasonal drones. The queen is the only female that can lay fertilized eggs and can live 2 to 5 years. She controls the colony by releasing chemicals called pheromones. Without a queen, a colony will rapidly decline and eventually die.

Drones are the only male bees and there are many of them in healthy colonies during the spring and summer months. During winter months, drones may not be found at all because they consume more food than a colony can support in the cold season.

A honey bee colony consists mostly of worker bees. Workers are infertile females, but can lay unfertilized eggs if the queen is absent or declining. Workers perform many functions based on age. When they first emerge from their cells as adults, worker bees act as house cleaners. As they age, they progress through roles of nurses, construction workers, guards, and eventually foragers. Worker bees gather food and produce honey and wax. A healthy colony can have as many as 60,000 workers.

Figure 2. Honey bees can construct large wax nests rapidly once they enter a home. For this reason, honey bees and nests should be removed as soon as possible. *(Photo courtesy of USDA-ARS).*

[1] Extension Entomologist
[2] IPM Program Specialist, Texas A&M AgriLife Extension

AFRICANIZED HONEY BEES

Honey bees are native to Europe, Africa, and Asia. It is believed they were introduced to the Americas by European settlers in the early 16th Century. Since then, beekeepers have introduced many different strains of honey bee. Each strain (or race) has distinct characteristics, such as gentleness or good honey production, that can be used in breeding. Because all races are the same species, they can interbreed.

Figure 3. An Africanized honey bee (left) and a European honey bee (right). Despite size differences in these two individuals, the two strains cannot be distinguished visually. *(Photo courtesy of USDA-ARS.)*

To improve honey production, an African race of honey bees was introduced by bee breeders in Brazil in the mid 1950s. This race was known to be very good at producing honey but was also known for its aggressive behavior. In 1957 some of these Africanized bees escaped from the breeding program and spread throughout South and Central America. Africanized bees entered South Texas in 1990.

Since then, Africanized honey bees have interbred with wild European honey bees and have spread throughout Texas. As of 2006, when formal testing programs were halted, Africanized honey bees had been detected in 163 of Texas' 254 counties. Today it is assumed that most feral bee colonies in Texas carry some genes of African descent and therefore may be aggressive.

HONEY BEE ATTACKS

Africanized honey bees and European honey bees look the same to the untrained eye. Only DNA testing or microscopic measurements can determine whether a colony is of European descent or is some form of African hybrid.

Figure 4. An Africanized honey bee (left) and a European honey bee (right) on a honey comb. Despite the color differences in these two individuals, the two strains cannot be distinguished visually. *(Photo courtesy of USDA-ARS.)*

The behavior of these two forms of bees is very different. Although even managed European honey bee colonies can be dangerous and attack anyone who gets too close to the hive, Africanized bees tend to be more sensitive to disturbance, send more bees to defend the nest, and tend to pursue for longer distances. Pets and livestock in confined areas near an Africanized honey bee nest are very vulnerable to attack because they cannot escape. Known honey bee colonies near confined animals should be killed and removed immediately.

If honey bees attack you, follow the ACE guidelines:

A – Alert others in the area
C – Cover head and face, do not block vision
E – Exit. Get into a car or house immediately and stay there. Do not stop to find the bee colony, do not waste time.

Do not "play dead," they will continue to sting as long as you are in their territory. If you see someone being attacked, do not attempt to wash the bees off with a water hose—get them and yourself out of the area.

Once you are safely away from the bees, remove stingers as quickly as possible. 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, seek medical attention immediately.

MANAGING FORAGING BEES AND SWARMS

Honey bees do not purposely seek out victims to sting. When their nest is threatened, however, they will not hesitate to sting an intruder. You can decrease your risk of being stung by learning more about honey bee behavior.

Foraging bees. A foraging bee is a worker that flies away from the nest to collect nectar, pollen, or water. Foragers have nothing to defend and are not likely to sting unless provoked. Bees visiting flowers and other food sources should not be disturbed.

To discourage honey bees from gathering around a home or business, remove or prevent their access to attractants such as ripe fruit, open soda cans, or anything sweet. Keep garbage receptacles covered and away from doorways. Bees tend to visit birdbaths or swimming pool decks in late summer when other water sources dry up. Once they collect water, bees will leave the area.

Honey bees are sometimes attracted to sugar water in hummingbird feeders. This may keep the birds from visiting the feeder. Special screens or nectar guards can

Figure 5. Queen bee (center) among her workers. Bees are likely to sting only when they perceive a threat to the nest or the queen. *(Photo courtesy of Molly Keck.)*

be attached to hummingbird feeders to exclude bees but still allow the birds to feed.

Swarming bees. Honey bees may leave a nest site for a variety of reasons. Sometimes entire colonies leave a nest (abscond) because of overcrowding, heat, pest infestation, insufficient food or water in the area, or some other disturbance. Colonies may also split (swarm) as a mode of reproduction. In these cases, about one fourth of the old colony remains in the nest, while the rest of the adult bees and the old queen go on to establish a new nest. Swarming usually occurs in the spring or summer for various reasons, including overcrowding.

Figure 6. Honey bees are valuable pollinators and rarely sting when they are away from the nest searching for nectar. *(Photo courtesy of Molly Keck)*

In both scenarios, worker bees leave the old nest site with a queen. Such swarms occasionally stop to rest or scout out an area for potential nesting sites. During rest stops the worker bees gather around the queen to protect her, while scout bees look for a new location to start a nest. Honey bees in resting swarms are relatively docile when left alone, and usually relocate within 48 hours. If such swarms are in sites away from people or buildings, they pose little threat and should not be disturbed. When bees abscond or swarm, they may settle near a home or area with high human traffic. Sometimes they may establish a nest inside the walls of the home, or in some other undesirable location.

Figure 7. A honey bee swarm. *(Photo courtesy of B. Pierson.)*

Swarms that land near structures or high traffic areas should be managed. If you do not wish to kill the bees, a local beekeeper may be willing to do a live removal and relocation of the colony. Honey bee swarms are less likely to sting, but trying to manage them by yourself, for instance by spraying them with water, is not recommended.

MANAGING BEES IN BUILDINGS

The most important step in managing bees in buildings is prevention. To keep bees out in the first place, 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 ⅛ inch. Chimneys should be properly capped. Removing a honey bee nest can cost hundreds of dollars, so prevention is the best, cheapest 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

Collecting a swarm or managing a honey bee colony in a building should be left to professional pest control companies. They have the skill and equipment to do a proper job. The Texas A&M AgriLife Extension Service, the Texas Apiary Inspection Service, fire departments and other government offices generally do not perform honey bee control or collect bees to determine if a colony is Africanized. However, your county Extension office may be able to give you a list of local professionals. According to state law, if you are paying someone to remove a honey bee nest, the person must be a registered beekeeper or a licensed pest control professional. Registered beekeepers without a pest control license may charge to remove bees if they do not use pesticides. Pest control professionals must have a valid pest control license through the Texas Department of Agriculture and may or may not use pesticides.

Look for a company that is familiar with extermination and/or removal of honey bee nests. Failure to remove a honey bee nest from a structure can lead

to big headaches later. The larger the nest, the more problems you may have with odor 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 reinfest the building unless the nest is removed.

Experienced pest control companies know how to locate a honey bee 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. If there are any immature bees in the comb when pesticide is applied, they may continue to emerge up to 10 days after treatment.

Although some pest control companies repair any damage caused by nest removal, most prefer to recommend a contractor for that work. It is important to seal all entrances tightly once the bees are gone so that they will not reenter building.

Some pest control companies make the effort to remove the bees alive, although this is not always practical or possible. Removing bees alive generally takes more time and may cost more. Many pest control companies prefer to simply exterminate the colony and remove the old hive.

HONEY BEE REMOVAL

With media stories focusing on the decline of managed honey bees, some people prefer to save honey bee colonies and have them removed instead of eliminated. In some cases, an experienced beekeeper or licensed pest control professional can remove the honey bee colony alive. This process may take longer than extermination and if the entire nest is not removed, the colony may repopulate. Whether you choose extermination or live extraction is a personal decision, but you should be well informed about which is best for your budget and location.

The Texas Apiary Inspection Service maintains a list of the beekeepers that are registered to move honey bees between counties and have requested to be on a list of beekeepers who do bee removals. To see whether a beekeeper is properly registered and may charge for bee removal services, go to *http://txbeeinspection.tamu.edu/ bee-removal/*. The Texas Apiary Inspection Service does not endorse any beekeepers on the list, nor warrant that persons on the list are qualified to do bee removal.

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 honey bee colony needs to be removed, contact the owner or the Texas Apiary Inspection Service at 979-845-9713.

For more information on honey bees, please visit *http://honeybeelab.tamu.edu* or *http://txbeeinspection.tamu.edu*.

Bee careful!

- If honey 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.
- Do not assume that spraying a liquid insecticide or dust into the honey bee nest entrance 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 bee nest removal 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.
- Do not try to use honey or wax removed from a treated nest because they are often contaminated with dust, insulation, or insecticides, and are thus unsuitable for human use.

TIPS FOR PROFESSIONAL HONEY BEE NEST REMOVAL

- **Be prepared. Do not attempt to control honey 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 honey bee or wasp removal 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 harness provides security and leverage for lifting heavy comb.**
- **Encourage customers to have backyard bee swarms collected or exterminated. Honey 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.**

- **Educate customers about the importance of honey bee nest removal and remove the nest as part of your service. Provide the name of a reliable contractor or handy-man who can repair any damage to sheetrock or ceilings.**
- **Try to locate the nest before opening walls or floors. Honey bee nests can be located with special equipment. A stethoscope can be used to locate the hive by sound. Newer motion-detecting equipment can also be used to locate nests in walls and floors. Sometimes bees can be located by the warmth generated by their activities.**
- **Use a smoker to calm agitated bees. Smokers are available from bee supply companies. Do not use a smoker inside a building, as 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 the nest.**
- **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, or carpet beetles.**
- **Have your technician, the homeowner, or a contractor seal the nest entrance and other potential entrances after you leave, as bees can reinfest old nest sites.**