

Honey Bees in New Mexico

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European and Africanized Honey Bees in New Mexico

Honey bees have been in New Mexico since the 1500s when the earliest Spanish missionaries and settlers imported them along with other livestock. English, French, German, and Dutch settlers also brought what we now call **European honey bees**. In Europe, these honey bees had been selectively bred for hundreds—if not thousands—of years to be relatively docile, productive livestock. Through the years, honey bees were valued not only for honey and wax production but also, most importantly, for the pollination services they provide. Serious problems resulting from bee stings were rare and primarily related to allergic reactions. However, since 1993 serious stinging incidents have become much more common with the introduction of a subspecies of honey bee that originated in Africa.

Africanized Honey Bees Imported into Brazil

In an effort to bolster honey production in the tropics, a Brazilian government agency imported honey bee queens from sub-Saharan Africa in the mid-1950s. Whether by accident or intentional release, some of the mated queens escaped the experimental apiary and established new colonies in the countryside. Over the next decade, the now feral African colonies spread over much of South America.

By the 1970s, Africanized honey bees were moving into Central America, and into Mexico by the late 1980s. Their aggressive defensive behavior made their rapid spread alarming. Rather than tolerating people or animals near their colonies as European bees usually did, Africanized bees were highly unpredictable and dangerously defensive. Many people and animals were attacked and stung, often severely. Because medical services and communications were limited, the exact toll of Africanized honey bees on human and animal lives in Central America and Mexico will never be known. The popular name “killer bee” originated with some of the early sensational news stories from this time. The preferred name is **Africanized honey bee** (Figure 1). Despite extensive efforts in South and Central America, it became clear that neither eradication nor containment was possible. Going forward, the best approach to preparing people for living with these insects is education.

Africanized Honey Bees' Arrival in New Mexico

The first Africanized honey bees in the U.S. were collected and identified after a stinging incident in south Texas in 1990. By the end of that year, eight

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Texas counties were confirmed infested. Arizona was the second state to become infested after Africanized honey bees arrived there in the early 1990s. New Mexico's first encounter with Africanized honey bees followed in October 1993, when a rancher in Hidalgo County complained of persistent stinging attacks at a corral for range cattle. The offending bees had established their colony in an old tire used by the rancher to hold salt. He reported several bees stinging him every time he visited to check his cattle, forcing him to take refuge in his vehicle.

Over the next few years, other southwestern New Mexico counties became infested with Africanized honey bees, which arrived in Eddy County by the mid- to late 1990s. By 2009, virtually all New Mexico counties north to I-40 and Santa Fe County were infested.

Following their introduction to New Mexico, Africanized honey bees also became established in southern California, virtually all of Arizona, southern Nevada, southern Utah, most of Texas, more than half of Oklahoma, western Arkansas, and northwestern Louisiana. In 2005, Africanized honey bees were also accidentally introduced via a ship into the port of Tampa, Florida, and are now widespread in that state.

How Do Africanized Honey Bees Change Our Perceptions of Honey Bees in the Southwest?

Africanized honey bees have retained their highly unpredictable and seriously defensive behavior despite over 50 years of acclimating to habitats in the Americas. Initially, scientists hoped Africanized honey bees would hybridize with their gentler European cousins, resulting in more tolerable strains of honey bees. This apparently has not happened on a scale large enough to make any appreciable difference in their behavior.

Part of the difference in behavior lies in their origins. Africanized honey bees were not domesticated and selectively bred by African people as European honey bees were by Europeans. Instead, Africanized honey bees fended for themselves and were continually subjected to colony predation by both animals and humans gathering honey, wax, and larvae for food. Only the most defensive bees avoided destruction by these predators.



Figure 1. Africanized honey bee. (Photo courtesy of Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Sciences, Bugwood.org.)

Unlike the more docile European honey bee, Africanized honey bees do not tolerate the presence of humans or animals near their colonies. Guard bees will respond to perceived intruders by landing glancing blows or “buzzing” them. Failure to retreat often incites a stinging attack, made worse by the odor of bee venom and dying bees, which agitates bees. All honey bee workers have barbed stingers; once the stinger is plunged into skin, the bee cannot escape without tearing off internal organs, which is fatal. Despite this, depending upon the size of the colony, dozens to thousands of bees may respond.

European honey bee colonies in good health tend to overpopulate their existing hive in the spring, when nectar and pollen are readily available. The old queen will leave the old hive, taking several hundred to several thousand workers with her; this is **swarming**. Swarming bees leave the old hive en masse, with the queen leading. While swarming, European honey bees generally are very docile, although the swarm should still not be disturbed. Swarms may remain in one spot overnight, resuming flight the next sunny, warm day, or they may remain for several days. At some point, a scout bee will indicate that a suitable site for nesting has been located, and the swarm will settle in that location. Africanized honey bees swarm in the same manner but more readily, and not just in the spring. They can also be very aggressive while swarming.

Reacting to Bee Swarm Attacks

When all honey bees in New Mexico were European, our recommendation to the general public was to simply leave honey bees alone. “Do not make any sudden movements, and walk away if bees are agitated,” was the standard recommendation. Since Africanized bees are much more easily provoked, our recommendations have changed.

What can you do to minimize the danger? Some of the old rules still apply. Don't disturb honey bees. If you see more than one honey bee and suspect a swarm is nearby, stay away from the area. If one or two bees are acting agitated, you can generally still walk away, watching carefully for additional bees. However, if someone is being attacked by a swarm of honey bees, it is almost certainly a swarm of Africanized bees. In that case the most important recommendation is simple: **Run**. Run to a shelter with doors—a car, a shed, a house. As you run, pull up your shirt or jacket collar to protect your face and neck. You can also use your hands and arms to protect your face and neck. These are the most dangerous places to be stung because the resulting swelling can cause problems with breathing. If you are carrying a young child, bury the child's face in your chest or under your clothing to protect his or her face and neck.

Try to focus on getting several doors between you and the bees. If children are inside the house, tell them to hide in the bathroom or closet. Do not stop. Do not swat at the honey bees. Do not try to fight them with insect repellents, aerosol insecticides, or water. Concentrate only on running to safety.

If some bees follow you into the house, keep on going. Close doors behind you until there are relatively few bees. Keep in mind that a few bee stings will not hurt most people; what you need to avoid is receiving hundreds of stings.

If you get into a car to avoid the bees and can drive away safely, do that, even if some bees are in the car with you. Don't forget to roll up the windows. When you are down the road you can exit the car to avoid the bees you carried with you. If you can leave the car in sunlight it may heat up and kill the bees remaining in the car. Honey bees will die after 10 minutes at only 125°F, but it may take the car some time to reach that temperature.

If you are in a room or a car where there are only a few bees and they have already stung you, remember that they can't sting again. Bees have only one stinger and it remains in the victim. Sometimes bees will die almost immediately after stinging, but often they will live at least a few minutes and may continue to act aggressively. This can be disturbing but is not dangerous.

If you are able to get safely inside a structure, concentrate on removing stingers. Venom is continually pumped into the skin for about a minute. You may

have a chance to reduce the amount of venom injected if you quickly get inside and can immediately get some stingers out. If you're stung on your hand or arm and are wearing any rings, remove them immediately before swelling cuts off circulation to those fingers. If there are any bees under your clothing, grab each bee through the clothing and squash it. If you have been stung through clothing, lift the clothing from your skin, which will remove the stingers. Finally, concentrate on areas where skin was exposed. Speed is the most important factor, so use your fingers to scrape or pull the stinger out. The face and neck are the most important areas to protect, so start there. Children, the elderly, and those with allergies to bee stings are most sensitive. Attend to them first.

Many guidelines, including Scout manuals, concentrate on the method of removal, with an emphasis on scraping out the stinger with a fingernail, knife, or credit card. Recent research indicates that the speed of removal is by far the most important factor. Scraping a stinger is preferred, but pulling it out immediately is more effective than taking time to locate a knife or credit card.

Follow up by cleaning affected areas with soap and water and apply ice to relieve pain and swelling, if these things are available. Signs of venom sensitivity include pronounced swelling and reddening, “hives,” and itchy or hot palms and feet. Fainting, heart palpitations, swelling of the face or throat, or difficulty breathing or seeing require immediate medical attention. Call 911 or, if possible, have someone drive you to the nearest medical clinic for evaluation and treatment. You could pass out while driving.

Immediate medical attention is also justified if you have been stung many times. How many times is many? It depends. Children, older people, and those with compromised immune systems or other medical issues may not be able to withstand as many stings as a young, healthy adult. Most deaths from multiple stings occur in people in their 70s or 80s with reduced heart and lung function. The toxic dose (LD50) of honey bee venom is 8.6 stings per pound of body weight for an average person. This would be about 1,000 stings for an otherwise healthy adult. But a child of 35 lb would receive a lethal dose from only 300 stings, which is possible with an aggressive swarm.

If someone has been stung many times, even if the incident did not require an emergency room visit, follow up with your physician. Large doses of venom can induce secondary problems later. Examples are kidney problems, which can be serious if not detected early and treated.

Steps can be taken to reduce risks from Africanized honey bees. Most importantly, be aware of your surroundings. A colony or swarm will make a buzzing or humming sound and will also be noticeable from a

distance, since bees can be seen flying to and from the location of the swarm or colony. If you are allergic, over 60, have chronic health problems, or have children with you, it would be prudent to avoid any colony or swarm of bees.

Outdoor workers particularly should keep an extra set of keys inside their work vehicle, which they should park as close as possible to their work site. Keep the windows rolled up and doors unlocked when possible.

Do not attempt to control honey bees yourself. Do not try to drive them off. If bees are on your property, hire a professional licensed pest control applicator who has experience with honey bees.

General Precautions

- Be aware of your surroundings. Watch and listen for bees when outdoors. Listen for buzzing or humming. In particular, be aware that a number of bees entering and leaving the same area may indicate a colony or swarm.
 - Carefully enter sheds and outbuildings. Bees may have become established since the building was last entered.
 - Walk around and examine work areas before using noisy power equipment such as lawn mowers, chain saws, weed whackers, hedge trimmers, or tractors.
 - Never disturb a swarm or colony.
 - Teach children to be cautious around bees and to report when they see more than a few bees.
- Consider wearing a long-sleeved shirt, pants, and boots when doing yard work during the growing season or when you know bees are very active in your yard. Tuck pant legs into boots.
 - Higher-risk individuals doing yard work should consider wearing a hat and a bee veil or mosquito veil. (Mosquito veils can often be bought at Army surplus stores.)
 - Avoid scented products, such as cologne, perfume, or deodorant, when working or playing outside.

Bee-Proofing Your Buildings and Yard

- Remove potential nesting sites (buckets, cans, empty boxes, old tires).
- Seal openings longer than 1/8 in. in walls and around chimneys, windows, plumbing, etc.
- Install screens (1/8-in. hardware cloth) over rainspouts and cavities in trees or fence posts to prevent nesting.



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