



## Working Safely in Areas With Africanized Honey Bees

*Dennis Davis, Project Leader*

**F**orest workers and wildland firefighters working in the southernmost areas of the United States will eventually encounter Africanized honey bees. By 1999, Africanized honey bees had migrated into southern Texas, New Mexico, Arizona, California, and Nevada. They are continuing their progress northward. It is not known how far north they will eventually go. This Tech Tip will help employees to be prepared if they encounter Africanized honey bees.

Africanized honey bees were accidentally released from a research laboratory in Brazil in 1956. They crossbred with more docile European honey bees (*Apis mellifera*) and began to migrate north. In 1990 they reached the southern United States. Africanized honey bees are not the “killer bees” portrayed by movies and television, actively looking for victims. While there have been deaths, people can and do successfully coexist with Africanized honey bees. However, due to the aggressive nature of these bees, you need to know a few facts to work safely in areas where they are found.

Honey bee colonies of European descent defend themselves by stationing guard bees at the colony entrance. The guard bees attack and protect the colony against intruders in the immediate vicinity of the entrance. European honey bees have been selected and bred for a number of traits, including gentleness.

Recent research has shown that Africanized guard bees appear to aggressively patrol and defend territories extending 30 meters or more beyond the

nest entrance. These territories expand and contract in response to frequency of disturbance. Patrolling bees maintain their territory by head butting intruders to drive them away. When butting, individual bees buzz their wings at sound frequencies above those of normal flight and fly directly at the target with their legs extended behind them. Since butting is an easily recognized characteristic of highly defensive bee colonies, anyone encountering bees that head butt should quickly retreat.

The individual Africanized honey bee looks just like the European honey bee. A single sting from an Africanized honey bee is no different than the single sting of a European honey bee. Like the European honey bee, the Africanized honey bee loses its stinger and dies when it stings, so a single bee can sting only once.

While a single sting may not be dangerous, the bee has marked you as a target for other bees. Africanized honey bees aggressively attack the target in large numbers until the target ceases to be a threat or leaves the area. The area the Africanized honey bees defend may be much larger than the area defended by European honey bees.

In addition to being more aggressive about defending their colonies, Africanized honey bees are not as particular about where they nest as European honey bees. Africanized honey bee colonies can be found just about anywhere: in upside-down flower pots, inside the walls of houses (Figure 1), in tires, latrines, hollow trees and logs, bushes, and holes in the ground.





Figure 1—Africanized honey bee colony found in the cabinets of an unused mobile home.

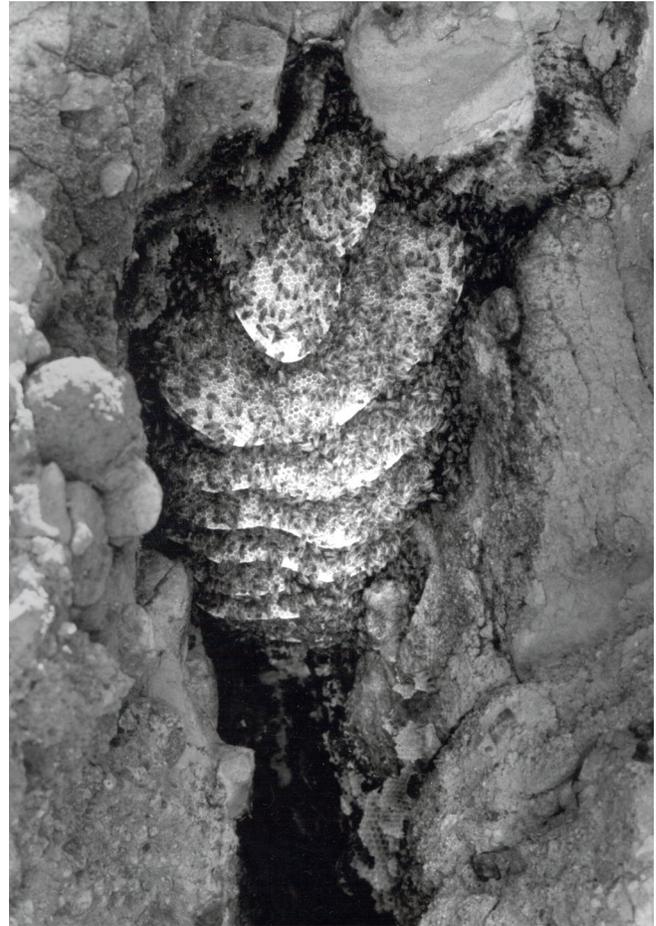


Figure 2—Africanized honey bee colony in a rock crevice.

## How to Avoid Being Stung

Stay away from all honey bee colonies in areas known to have Africanized honey bees. Because honey bees nest in such a wide variety of locations, be alert for groups of bees entering and leaving an opening. Listen for buzzing sounds. Be especially alert when climbing, because honey bees often nest under rocks or within crevices (Figure 2). Don't put your hands where you can't see them.

If you do become aware of a colony, slowly leave the area and keep coworkers away. Do not shoot the colony, throw rocks at it, or try to burn or smoke it out. This will disturb the bees. If the colony's location makes it a threat to others, inform your supervisor or local authorities even if the bees appear to be docile. Honey bee behavior varies over time, especially with changes in colony age and the seasons. Small or young colonies are less likely to be defensive than larger, older colonies. You may pass the same colony for weeks without incident, and

provoke them unexpectedly one day. "Swarming" bees, or bees traveling together in large groups (Figure 3), are less likely to attack. They are in the process of finding a new home and are not protecting an area.

Wear appropriate clothing. When hiking, wear light-colored clothing, including socks. Avoid wearing leather. When defending their nests, honey bees target objects that resemble their natural predators (such as bears and skunks), so they tend to go after dark, furry objects, or leather. Bees see the color red as black. Fluorescent orange is a better choice than red for work clothing.

Avoid wearing scents of any kind. Bees communicate by scent and are very sensitive to odors. Avoid strongly scented shampoo, soaps, perfumes, aftershave, heavily scented gum, and so forth. If horseback riding, avoid using "lemony" or citrus-based fly-control products on your horse. Such scents have been known to provoke an attack. Bees



Figure 3—When bees swarm, most of the bees surround the queen in the top of a tree while others search for a suitable place to begin a colony.

may also be disturbed by strong natural smells, such as the odor of freshly cut grass.

Be extremely careful using any machinery that produces vibrations or loud noises, such as chain saws, weed eaters, lawn mowers, tractors, or electric generators. Check your environment before you begin operating noisy equipment.

Keep your dog on a leash or under close control when hiking. A large animal bounding through the brush will disturb colonies of Africanized honey bees. When the animal returns to its master, the attacking bees will come with it. Be careful not to tie or pen animals near honey bee colonies. Even the mild-mannered European honey bees have been known to attack animals tied near their colonies. Animals that are penned or tied can't escape the bees. If your animals or pets are being attacked, try to release them without endangering yourself.

## What to Do if Attacked by Africanized Honey Bees

**Run Away!** Do not stop to help others. You will bring the bees to them. Small children, the elderly, and the disabled may require assistance when they are being attacked. Once the bees associate you with their target, you will become a target too. Protect yourself before assisting those needing help.

As you are running, pull your shirt up over your head or use a coat or blanket to protect your face. Do not slow down. If you have an emergency bee hood, put it on while you are leaving. The hood will minimize the stings around the sensitive areas of your head. Bees will crawl into clothing to attack, and can sting through light clothing. If you are wearing the Forest Service yellow fire shirts and green fire jeans, you are marginally protected as long as your shirt sleeves are down and fastened around the wrist. You should leave the area as fast as it is safely possible to do so.

**Keep Running!** Do not stop running until you believe you have left the bees' defensive area or you have reached protection, such as a vehicle or building. Do not jump into water, the bees will wait for you to come up for air. Africanized honey bees may chase their victim for more than a quarter mile. If you are trapped, cover up with clothes, blanket, sleeping bag, or whatever is handy.

Do not swat at the bees or flail your arms. Bees are attracted to movement. Crushed bees emit a smell that will attract and anger more bees.

Once you have reached shelter or have outrun the bees, remove all the stingers that are embedded in your skin. Poison sacs attached to the stingers continue pumping poison for up to 10 minutes. Experts now suggest grasping the stinger with your fingers or tweezers and pulling the stinger out immediately rather than scraping it out with a card. It is more important to remove the stinger quickly than to worry about how it is removed.

If you see persons being attacked who are capable of helping themselves, encourage them to run away and seek shelter. Do not attempt to rescue them yourself. You will only increase the chances that you will become a victim. Call 911, the local emergency number, or your dispatch to report a serious attack. If your area is known to have Africanized honey bee colonies, emergency response personnel in your area have probably been trained to handle bee attacks.

If you have been stung more than 15 times, are feeling ill, or find it difficult to get a deep breath, seek medical attention immediately. The average person can safely tolerate five stings per pound of body weight. While 250 stings could kill a child, an average, healthy adult could withstand as many as 550 stings. These estimates do not apply to persons who are abnormally sensitive to bee stings, less than 1 percent of the population. For these persons, a single sting may be life threatening.

## Before Working in Areas Known to Have Bees

As a part of a Job Hazard Analysis for Forest Service work, develop an areawide plan of action in the event a bee colony is discovered or bees attack. This plan should include the nearest hospital and transportation methods. It should also identify any workers who may be especially sensitive to bee stings.

Identify the emergency responders that may be called. Determine ahead of time whether they can deal effectively with an attack. Ask what they recommend doing in the event of an attack. Ask them if they are aware of any known colonies in the area.

Identify a bee professional who can be called to move or eliminate a colony. They can be found in the telephone book's Yellow Pages or by contacting the County or State health departments.

Make sure all employees have a first-aid kit available. Persons who know they are allergic to bee stings should carry their own emergency sting kit (such as the Ana-Kit or Epi-Pen) and be familiar with its use.

## Bee Sting Kits

For many years the type II, III, and IV Forest Service First-Aid kits (available through the General Services Administration) contained an insect-sting medication kit that included an epinephrine inhaler and chlorpheniramine maleate tablets. These medications were intended to dilate bronchial passages and counteract anaphylactic shock long enough to allow the affected person to reach a health-care facility. Beginning in 1999 these insect-sting medication kits were no longer included in the first-aid kits because of problems associated with their manufacture and storage. Similar kits may now be available from medical suppliers.

## Firefighters

Class A firefighting foam and other surfactant agents, such as liquid detergent, found on most wildland firefighting vehicles, will kill bees. The Environmental Protection Agency has conditionally approved nontoxic firefighting foam for this use. Engine crews that are being attacked may choose to spray their personnel with a 1 percent Class A foam solution to quickly remove the bees, **but only after leaving the area where the attack took place.** Do not delay leaving the area to set up the foam proportioner. This will only allow more time for more bees to join the attack. Do not take any action against the nest.

## Smoke

Do **not** take refuge in a smoky area near the fire. You may be placing yourself in danger from the fire. Your best plan is to run in a safe direction, placing as much distance as possible between you and the area the bees are defending. Bees with a colony in a smoky area may be agitated by the smoke, and have a greater likelihood of attacking.

## Bee Hoods

Commercial emergency bee hoods are available. Most of them are cloth hoods with a mesh face panel. They can be carried in a pocket and unfolded and donned if a protective colony is encountered. Users should practice putting the hood on with their eyes closed as many times as necessary to become familiar with the process. Most bee hoods will not go on over the standard-issue hardhat or wildfire helmet. It will be necessary to remove the hardhat. This step should be part of the practice.

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<http://gears.tucson.ars.ag.gov/home/loper/>

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