



# Africanized Honey Bees

*Keith S. Delaplane*  
 Professor of Entomology

**H**oney bees are among the most well-known and economically important insects. They produce honey and beeswax, and pollinate many crops. In Georgia, a large segment of the beekeeping industry produces queens and package bees for sale to other beekeepers. Although many people make a living from bees, most beekeepers are hobbyists with only a few hives.

## Honey Bees in the New World

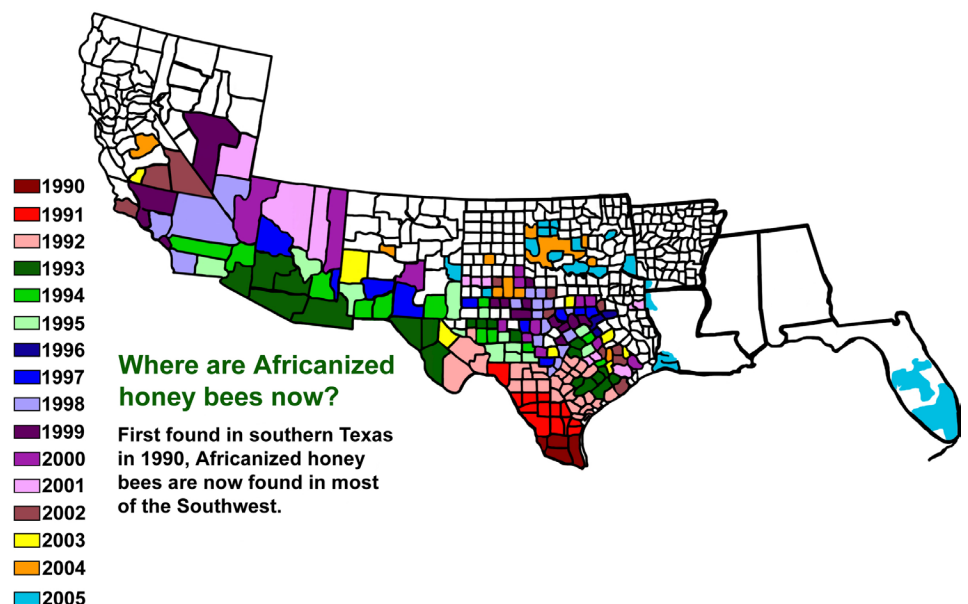
Honey bees are not native to the New World. Most of them are descendants of bees brought to North America and South America by European settlers beginning in the 1600s. Bees from Europe did well in North America, so most areas of the United States today have managed and wild honey bee colonies of European descent. European honey bees were not as well adapted to tropical and subtropical Latin America and can be maintained there only with special care.

## History of Africanized Honey Bees

In 1956, researchers imported honey bees from Africa into Brazil in an effort to improve beekeeping in the New World tropics. These African bees were well suited to conditions in Brazil, and they began colonizing South America, hybridizing with European honey bees (hence the name “Africanized” honey bees) and displacing European bees. Compared to European bees, Africanized honey bees are much more defensive. Large numbers of them sometimes sting people and livestock with little provocation. They are also occasionally known to take over European bee colonies by entering them and killing the resident queen. Because of these noxious behaviors, many beekeepers abandoned beekeeping,

and the media widely publicized these so-called “killer bees.”

The bees spread northward at a rate of about 200 to 300 miles per year, and today every country in Latin America except Chile has established populations of Africanized honey bees. In October 1990, the first natural colony of Africanized honey bees was found in the United States near Hidalgo, Texas. In subsequent years the bees moved in a westerly manner, eventually occupying much of the American Southwest and the southern counties of Nevada and California. By the summer of 2005, Africanized bees were confirmed east of the Mississippi with established populations in Florida.



In spite of the alarm surrounding Africanization, these bees have not caused widespread or permanent chaos. Dramatic stinging incidents do occur, but the quality of life for most people is unaffected. Typically, the commercial beekeeping industries of Africanized areas suffer temporary decline and then eventually recover.

## Differences Between Africanized and European Bees

European honey bees are adapted to winter survival, largely because of their ability to collect large honey supplies. Africanized bees, on the other hand, do not overwinter well and respond to food shortages by migrating. European bees make large, permanent colonies whereas Africanized bees make small to large colonies that reproduce (swarm) often. The table outlines some of the differences between the two types of bees.

Trait	Africanized	European
open, exposed nests	common	rare
location of nests	variable; any kind of cavity including in-ground animal nests, which increases likelihood of human contact	prefer larger cavities, bee hives, hollow trees, hollow walls; rarely in ground
tendency to abandon nest	frequent	rare
swarming rate	higher	lower
stinging behavior	intense; can defend nest at distances of up to 100 yards	moderate to mild; defend nest from 1-20 yards
body size	about 10-20% smaller than European	larger
development time for worker bee	19-20 days	21 days
honey production	acceptable once beekeepers adapt	industry standard
pollination	effective pollinators but risky for farm laborers	industry standard
tolerance of mechanized handling	acceptable if beekeeper limits hives to one per stand or pallet; netting essential	industry standard

## Potential Range of Africanized Bees in the United States

As Africanized bees expand into temperate areas, their tropical adaptations are less advantageous. Cold weather seems to limit both their defensiveness and overwintering capacity. Africanized bees are more defensive in warm tropical regions and less so in cooler zones. In South America the bees do not overwinter south of 34 degrees S latitude, which corresponds roughly to Atlanta, Georgia. (Please note, however, that Africanized bees are found north of this latitude in the American West.)

In areas where their ranges overlap, African- and European-derived bees interbreed, causing “hybrid zones” where bees share African and European traits. In Argentina, Africanized bees dominate in the northern semitropical regions but European bees dominate in the southern temperate areas; the area in between (*ca.* 32-34 degrees latitude) is a hybrid zone where bees have varying degrees of African or European traits. A similar pattern may occur in the United States, with African traits dominating in southern regions.

## Safety Precautions



If and when Africanized bees reach your area, don't panic. Just as you should look out for fire ants and poisonous snakes, however, stay alert for wild bee colonies when you are outdoors. Remember these points:

- Never knowingly approach an occupied bee nest. During daylight hours bees can be seen flying to and from their entrance.
- Do not disturb a swarm of bees. Call a professional bee removal service, the fire department, or your county Extension agent for help removing it.

- Never climb a tree, kick a log or stump, or move trash until you first check if bees are flying in and out.
- Keep an escape route in mind. Never crawl into an enclosed place from which you cannot quickly exit.
- Operators of open-cab tractors are especially at risk from hidden in-ground colonies. Keeping a veil on hand is a good safety precaution.

## If You Are Attacked

Run away or get indoors as fast as possible if you are attacked. **Never** stand in one spot and swat because this only aggravates bees further and increases the number of stings you may receive. Be aware that bees may follow you for hundreds of yards. Do not stop running to hide yourself under water or in leaves, brush or a crevice because bees are likely to find you and inflict numerous stings. The single most important thing is to get away from the colony!

## After an Attack

When a bee stings, the stinger and poison sack remain in the skin of the victim, even after the bee flies away, and venom continues to be pumped into the skin. After you have safely escaped the bees, remove stingers from your skin by scraping or brushing them out. The venom of a single Africanized bee sting is no more toxic than a European bee sting (in fact, it's a little less so). The difference is a matter of dose. Instead of a dozen or so stings, victims of Africanized bees can sustain hundreds of stings. Most people can tolerate 15-25 stings without requiring special medical treatment. Pain, redness and swelling are normal at a sting site and this does not constitute an allergic reaction. People with a history of systemic allergic reactions (fainting, trouble breathing), however, should always carry with them an emergency kit of injectable epinephrine, use it if they are stung, and then immediately see a physician. Anyone who receives more than 15-25 stings should seek medical supervision for possible delayed systemic complications.

## The Role of Beekeepers

Beekeepers are the best defense Americans have against Africanized honey bees. Citizens and lawmakers need to understand this. In the fear

that accompanies the arrival of Africanized bees, some groups may want to ban beekeeping in their municipalities. Without beekeepers, the density of docile European bees in an area will decrease, leaving that area open to infestation by Africanized bees. It is equivalent to "abandoning territory to the enemy." Only beekeepers have the knowledge and resources to maintain high densities of European bees that can genetically dilute Africanized populations.

## Tips for Beekeepers

If Africanized bees move into an area, beekeepers will have to change their management habits. If you keep bees in an Africanized area, observe the following precautions:

- Register every colony with the state Department of Agriculture.
- Re-queen a colony with European stock any time it becomes unusually defensive.
- Mark queens so you can later confirm their identity.
- Do not place hives near penned animals, sidewalks, playgrounds or similar high-traffic areas.
- Plant bushes or place barricades around the edges of apiaries. This forces bees to fly above head level and reduces the chance of them flying into people or livestock.
- Keep colonies at least 2 yards apart to discourage disturbed bees from exciting neighboring colonies.
- Beekeepers may need to re-think the practice of combining several hives on a pallet because the vibration from working one hive disturbs them all. For this reason, beekeepers in Latin America have switched to single hive stands.





- Use plastic-coated gloves instead of leather; bees will sting leather and the embedded stingers contain alarm chemicals that further aggravate the bees.
- Use white-faced veils instead of black. Africanized bees are attracted to dark objects, and a white outer surface minimizes bees massing on the veil and obstructing your vision. The interior side of the netting should be black to minimize glare.
- Smoke hives heavily before entering them; the bees are difficult to calm once angered.



## Acknowledgments

*Gratitude is expressed to David De Jong, Ph.D., University of São Paulo, Brazil, and Eric Mussen, Ph.D., University of California, who made useful comments on this document.*

**Learning** *for* **Life**

### Bulletin 1290 / Reviewed March 2010

The University of Georgia and Ft. Valley State University, the U.S. Department of Agriculture and counties of the state cooperating. Cooperative Extension, the University of Georgia College of Agricultural and Environmental Sciences, offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, gender or disability.

**An Equal Opportunity Employer/Affirmative Action Organization Committed to a Diverse Work Force**