

# REMOVING HONEY BEE SWARMS AND ESTABLISHED HIVES

*Integrated Pest Management for Home Gardeners and Landscape Professionals*

Large numbers of bees swarming in a tree in your garden or around your home can be unnerving, especially if they establish a hive within your house. However, bee swarms and nests can be safely managed if you follow careful procedures and get proper help.

## WHAT IS A BEE SWARM?

Swarming is the honey bee's (Figure 1) method of colony reproduction. The old queen and about half of the worker bees leave their former nest and seek a new home, usually in the spring but sometimes at other times of the year when local conditions permit. To start the process, certain worker bees, called "scouts," begin to canvass the surrounding territory for a potential new nesting site even before the swarm leaves its original colony.

A departing swarm consists of a large number of bees flying in a cloud that seems to drift along through the air. People not familiar with honey bees are generally frightened by such a mass, which can contain 5,000 to 20,000 bees, but unless a bee becomes tangled in someone's hair, it isn't likely to sting. The queen is in the group, but not leading it. Usually within 100 to 200 yards of the original hive, the bees alight on an object and form a cluster, which looks like a seething, fuzzy glob of insects (Figure 2). Sometimes bees fly from the cluster to collect water and food, but most workers leaving the cluster are scouts that search out potential new home sites for the swarm. When they return from a good site, they dance on the cluster to communicate the location of their find.

A clustered swarm of many bees may appear frightening, but most spring swarm clusters of European honey

bees—the common honey bees in central and Northern California—are extremely docile. It takes quite a bit of stimulation, such as being hit by sticks and stones or squirted with a hose, to induce defensive behavior. The same may not be true for Africanized honey bees or for any swarm of honey bees that has run out of food, as these aren't nearly as predictable and can be very touchy, even as swarm clusters.

Honey bees will nest in cavities having a volume of at least 4 gallons but prefer cavities around 9 gallons. Honey bees also prefer dark cavities with an easily defended entrance that is at least 9 feet from the ground. Hollowed-out trees are ideal sites. However, honey bees may nest in all sorts of cavities such as inside walls of houses; in or around chimneys; in outbuildings, fences, shrubs, water meters, utility boxes, barbecue grills, and soffits; or under decks. Within a few hours to a few days, the swarm's scouts usually reach a consensus about the best available site. Then the swarm takes to the air one last time to move to the new home.

Once in flight, the swarm is guided by scouts and arrives at the new site. It forms a cluster around the entrance with many bees fanning their wings and releasing a chemical signal to guide the others. Then the bees enter their new home, somewhat slowly. This is what most people notice when they see bees clustered on a section of a building. Inside, the low humming sound of the bees ventilating their nest often can be heard.

If the bees don't find a new nesting location, they may begin producing beeswax and forming combs at the



Figure 1. Honey bee.



Figure 2. Bee swarm cluster on tree branch.



Figure 3. Feral beehive with combs.

spot where the cluster formed, such as a tree limb, the overhang of a house, or another unusual place. These "exposed comb" colonies (Figure 3) may exist until fall (or year-round in warm-winter areas), but robbing bees, hungry birds, and inclement weather usually put an end to these colonies and their combs.

# PEST NOTES

Publication 74159

University of California

Agriculture and Natural Resources

Statewide Integrated Pest Management Program

May 2012

## DAMAGE

While they may look frightening, bees that are swarming and carrying honey from their old hive are much less defensive or likely to sting than they would be if they were protecting brood (immature bees) at the old hive. They shouldn't pose much danger if left undisturbed but will sting if provoked. For information about bee stings, see *Pest Notes: Bee and Wasp Stings* listed in References.

Once bees become established, they will begin to build combs for rearing brood and storing food. Although colonies may do no structural harm to the building, occasionally they use water to soften Sheetrock and remove it in order to expand the nesting area. Residents then will notice an enlarging damp area on their wall. In a few cases, the bees actually open a hole through the Sheetrock so that foragers escape into the house, annoying or scaring occupants. Finally, if the colony is killed and not immediately removed, honey will ferment and leak through walls and ceilings, causing damage.

## MANAGEMENT

The need for managing bee swarms or hives depends on the location and whether the bees are establishing a hive. Swarms moving on without establishing a hive aren't a concern. However, bees establishing a colony in a home need to be removed.

### *Swarm Clusters*

Swarm clusters—the correct term for swarms when they aren't flying—are ephemeral by nature and therefore generally don't need to be managed. Whenever the bees locate the proper new nesting site, the swarm will fly off to the new location. The bees usually leave a bit of beeswax at their clustering location, so appearances of additional swarms at that same place can be anticipated in the future.

If the cluster needs to be removed, call a beekeeper. Experienced beekeepers often remove clusters simply by brushing or shaking the bees gently into a cardboard box and carrying them away. Ideally the box should have an entrance

that enables the flying bees to join the already-captured group. Place the box in the shade until nightfall then seal and remove it after dark. The beekeeper should be prepared for defensive behavior by dressing in a bee suit, but dealing with a cluster is usually quite easy. It becomes more difficult, however, when the cluster is hard to reach, such as up in a tall tree, intermeshed with the branches of a shrub, or wedged into the corner of a building.

### *Preventing Establishment of a Colony in Your Home*

Sometimes it's difficult to determine whether a honey bee cluster on the side of a building is simply resting there or moving, one by one, through a hole into an inner portion of a building. If the cluster size is shrinking but hasn't flown away, chances are they're moving in. When the bees first arrive, they are short on food and have to build combs from wax they produce from the honey they are carrying. They must continue to go outside to forage for nectar for the colony to survive.

At this point, they can be "locked in" their new home with screen, steel wool, or something else through which they can't chew to escape. If sealed in, they will die in place over the next week or two. However, trapped bees will search around between the walls trying to find a new way out. Some of them are likely to find their way into the living quarters, especially by following beams of nighttime room lighting. Bees don't fly in the dark, but they will fly to the windows the next morning and stay there most of the day while they die of dehydration. You can safely suck up these bees with a vacuum cleaner hose. Remember there may be live bees in the bag for a couple days after they've been vacuumed up.

### *Removing Established Colonies from Your Home*

Extracting honey bees from buildings is considerably more difficult than collecting swarm clusters. When the colony is first established, only a few pounds of adult bees are present, but these bees rapidly build combs, collect

honey, and begin to rear more bees. A well-established colony may have up to 100 pounds of honey, many pounds of adult and developing bees, and many beeswax combs. Removing such a nest is a challenge. The first step is to determine the exact location of the combs and size of the colony.

Although honey bees can be killed in place inside buildings by using pesticides that are labeled for killing bees inside of structures, this removal option often leads to undesirable consequences. (Note: These chemicals are available only to licensed pest control operators.) If the adult bees fall into a large pile, they may hold their body moisture and rot in place, producing a very bad odor. Liquid from the decomposing mass frequently penetrates the structure, leading to costly replacements.

If the colony is well established, there are further issues associated with killing the colony. Unattended brood can also rot and become very odorous. Unattended honey stores can absorb moisture and ferment, creating gas that causes the cappings holding honey in the cells to burst. Gravity will start moving the honey down attached surfaces until it encounters a horizontal impediment, such as a window frame, doorframe, firebreak, ceiling, or floor. Honey then seeps through the drywall, leading to large amounts of cleanup and expensive replacement. If pesticides were used to kill the bees, then the honey, wax and, dead bees are contaminated and must be handled as hazardous waste.

A better procedure than applying insecticides, especially if you have a beekeeper who is willing to help, may be to eliminate the bees without killing them. First the beekeeper will need to locate the nest by tapping the wall and listening for the hum of the colony. Some beekeepers rely on stethoscopes to find the edges of the nest. Others drill extremely small holes in the wall and insert a fine wire to find the periphery of the nest. To take honey bees and their combs from the nesting spot requires opening a fairly large hole in some portion of the building. That is

best done by a professional contractor so that the hole can be easily closed after the bees are removed.

If the bees are to be saved, the beekeeper gently removes them and their combs. If the bees aren't going to be saved, they can be removed from the void with a vacuum device such as a Shop-Vac. This process tends to stimulate the bees to release an alarm pheromone that smells like bananas and increases defensive behavior, so everyone nearby must be fully clothed in a bee suit. Many beekeepers have baffles and collection containers in their vacuum lines to try to protect and save the bees. If the homeowner has a lot of patience and knowledge, the bees can be "trapped" out of the building using a one-way wire screen device that forces bees that leave the building to relocate into a beehive placed adjacent to the original entrance. For more details see *Removing Swarms and Established Colonies from Private Property* listed in References.

If you can't find a beekeeper to help, call a pest control company with experience with bee removal. Be aware that pest control companies generally will kill the bees before removing them. Don't try to remove the colony yourself unless you have experience and proper equipment.

### **Preventing Future Invasions**

Following extraction of honey bee combs from any site, the odor of beeswax remains. Because honey bees have an extremely acute sense of smell, that odor will be noticeable from a long distance and highly attractive to any future honey bee scouts seeking new nesting sites, long after the previous bees have been removed. Therefore, after bees have been removed from a building, all holes large enough to insert a pencil, or larger, that lead to spacious cavities in the building must be sealed. Although honey bees can chew out of a building through caulk, they won't chew in through it. Larger potential entrances can be covered with screen having six or more meshes per inch. Cavities can be filled with

expandable foam to make large spaces unsuitable for nesting. The area requiring examination and servicing includes the entire side of the building around the previous entrance or both sides of the building, if the entrance were on a corner. If bees can find access to a void adjacent to the previous nesting site, they'll move right in.

During the extraction process, some bees are likely to escape. Also, some honey bee foragers spend the night away from the hive in the summer, so there is likely to be a cluster of bees forming around the entrance after the bees and combs have been removed. That small number of bees can be vacuumed up or eliminated with an aerosol spray labeled for use on wasps and bees outside the home. Be sure to read the label and follow the instructions exactly.

### **Finding Professionals to Assist with Colony Extractions**

It is relatively easy to remove a swarm cluster but a lot of work to remove bees in a cavity. Beekeepers might be willing to collect swarms for free, but generally it isn't worthwhile for them to remove established colonies without charge, and in some areas your only option will be to hire a structural pest control company. This is particularly true in areas colonized by Africanized honey bees, including all Southern California counties.

Both contractors and some beekeepers list their services in the Yellow Pages section of the telephone book and on the Web. Key words include "beekeeper", "beekeeping" and "bee removal." Beekeepers available for swarm calls and extractions also tend to put their names on lists of bee clubs to which they belong. Those clubs usually have Web sites that list locations, such as the Sacramento Area Beekeepers Association.

County agricultural commissioners also have records of beekeepers registered in their counties. Registered apiary locations are confidential, but the names of beekeepers who are experienced in working with the public are often released from county offices. For more in-

formation, visit [http://www.cdfa.ca.gov/exec/county/county\\_contacts.html](http://www.cdfa.ca.gov/exec/county/county_contacts.html).

When arranging a bee removal, be sure you have an understanding of what will be done. Will the bees simply be killed in place—not the best idea, but cheaper—or will the cavity be opened, cleaned out of bees and combs, filled with insulation, reclosed along with all possible entrances, and refinished? A definitive job includes all of these steps but can become expensive.

When it can be done, it is best to have the contractor and beekeeper cooperate in opening the hole, removing the bees, and sealing the hole. For more information, see *Removing Swarms and Established Colonies from Private Property* listed in References.

### **REFERENCES**

- Franks, N. R., and A. Dornhaus. 2003. How might individual honeybees measure massive volumes? *Proc. R. Soc. Lond.* 270(Suppl 2):S181–S182. Available online at [http://rspb.royalsocietypublishing.org/content/270/Suppl\\_2/S181.abstract](http://rspb.royalsocietypublishing.org/content/270/Suppl_2/S181.abstract).
- Mussen, E. C. Sept. 2011. *Pest Notes: Bee and Wasp Stings*. Oakland: Univ. Calif. Agric. Nat. Res. Publ. 7449. Also available online, <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7449.html>.
- Mussen, E. C. 2004. *Removing Swarms and Established Colonies from Private Property*. Available online at <http://entomology.ucdavis.edu/faculty/Mussen/beebriefs/index.cfm>.
- Schmidt, J. O. and R. Hurley. 1995. Selection of Nest Cavities by Africanized and European Honey Bees. *Apidologie* 26:467–75.
- Seeley, T. 1977. Measurement of nest cavity volume by the honey bee (*Apis mellifera*). *Behav. Ecol. Sociobiol.* 2:201–227.
- Villa, J. D. 2004. Swarming Behavior of Honey Bees (Hymenoptera: Apidae) in Southeastern Louisiana. *Ann. Entomol. Soc. Am.* 97(1):111–116. ♦

---

**AUTHOR:** E. C. Mussen, Entomology, UC Davis.

**TECHNICAL EDITOR:** M. L. Flint

**EDITOR:** M. L. Fayard

**ILLUSTRATIONS:** Figs. 1–2, J. K. Clark; and Fig. 3, K. K. Garvey.

University of California scientists and other qualified professionals have anonymously peer reviewed this publication for technical accuracy. The ANR Associate Editor for Urban Pest Management managed this review process.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

This material is partially based upon work supported by the Extension Service, U.S. Department of Agriculture, under special project Section 3(d), Integrated Pest Management.

Produced by UC Statewide  
Integrated Pest Management Program  
University of California, Davis, CA 95616



---

**This and other Pest Notes are available at  
[www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu).**

For more information, contact the University of California Cooperative Extension office in your county. See your telephone directory for addresses and phone numbers, or visit <http://ucanr.org/ce.cfm>.

---

**WARNING ON THE USE OF CHEMICALS**

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original, labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down the sink or toilet. Either use the pesticide according to the label, or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

---

**ANR NONDISCRIMINATION AND AFFIRMATIVE ACTION POLICY STATEMENT**

The University of California prohibits discrimination or harassment of any person in any of its programs or activities. The complete nondiscrimination policy statement can be found at <http://ucanr.org/sites/anrstaff/files/107734.doc>. Inquiries regarding the university's equal employment opportunity policies may be directed to Linda Marie Manton, Affirmative Action Contact, University of California, Davis, Agriculture and Natural Resources, One Shields Avenue, Davis, CA 95616, (530) 752-0495.