

Honey Bees in Community Environments – Identification and Biology

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The term ‘bee’ can refer to many insects belonging to different families under the insect order Hymenoptera. Bees are closely related to ants and wasps. Most bees are **pollinators** (Fig. 1) and are regarded as beneficial, but some are feared and considered pests because of their painful stings, and damage caused by nesting activities. **True honey bees** belong to the genus *Apis*. The most common species in North America is the western honey bee (also known as the European honey bee), *Apis mellifera*. This species is domesticated and maintained by beekeepers for the pollination of crops and production of honey.

Wild honey bees (sometimes called feral honey bees) are those that are not domesticated by humans or maintained in managed colonies. They sometimes establish colonies among tree branches (Fig. 2), but more often utilize old or abandoned hives, natural voids such as tree hollows and stumps, rock crevices, or human-made structures such as hollow-block walls, buildings, irrigation boxes underground or even hives established by beekeepers. Wild honey bees are an introduced species, and are known to outcompete native bee species such as bumblebees.

‘**Africanized**’ honey bees, also inaccurately referred to as ‘**killer bees**’ are descendants of hybrids between the African subspecies *Apis mellifera scutellata* and various European species. **All wild honey bees in Arizona are ‘Africanized’ to some extent.** It is difficult to distinguish between the different sub-species because their appearance and many aspects of their behavior are similar (Fig. 3). However, Africanized bees may have a larger alarm zone around their hive, which they will aggressively defend in larger numbers, more rapidly, often chasing intruders or perceived threats over longer distances. Africanized bees are generally less predictable. They exhibit more frequent swarming and migration in response to stress. Sometimes, the entire colony may migrate to a new location in a behavior called ‘absconding’.

All wild honey bees in Arizona are ‘Africanized’, please treat them with extreme caution.

Identification: Adult honey bees are medium to large sized insects, about ¼ to slightly over 1 inch in length depending on the kind of adult or caste. A honey bee colony contains three kinds of adults – queen and workers (females) and drones (males). The workers are the smallest in size, the most numerous and are the individuals most often seen outside the hive. In general, the adults have robust amber-colored to dark brown bodies covered with dense hair. Light and dark stripes may be seen on the abdomen, which also has a stinger at the rear end. Mouthparts (called “proboscis”) may be seen extending below the head. Hind wings are smaller than the front pair. Hind legs are stout and equipped to gather pollen, and in workers, often have yellow pollen-balls attached to them (Fig. 1).



Figure 1. Pollination by honey bees. Note pollen loaded on hind leg

Padmanand Madhavan Nambiar



Figure 2. Wild honey bees with their hive in a tree

Dennis Riggs



Figure 3. Africanized honey bee (left) and western honey bee (right)

Dennis Riggs



Figure 4. Honey bee colony with the queen (center, arrow) surrounded by workers

Waußberg

Figure 5. Section through honey bee hive showing eggs and larvae



Waughsberg

The hive also contains eggs, larvae (“brood”) and pupae in various stages of development (Fig. 5). Newly mated young queens leave their home colony with a group of workers to form a new colony, in a process called “swarming” and the group is called a “swarm”.

How to know if you have bees in or around your home

If a cluster of bees suddenly appears on a branch of a tree (Fig. 6), on a wall (Fig. 7) or on the ground (Fig. 8), this is most likely a resting swarm in search of a new home in which to set up a colony. They will often move on in a few days without intervention and are least aggressive at this time because they do not have brood to protect. However, they can sting if repeatedly disturbed or threatened. It is best to observe the swarm from a distance and hope they do not find suitable nesting sites close to your home or building. If a swarm arrives on public property and the area can be maintained off-limits using caution tape for a few days, this may be all that is needed. But if the swarm is located close to or on a pathway or doorway it may be necessary to have the swarm removed by professionals.

Once a swarm finds a suitable home site, they start to build comb and rear brood. Problems arise when they establish a colony in a place where they pose a risk to people (Fig. 9). In this situation, bees can become pests because of sting incidents, defensive bee attacks, and the structural damage and annoyance that their foraging and nest-building activities can cause. The chances of people getting stung in such situations are much higher once brood are being reared. Most honey bees observed in the landscape are foraging bees from established colonies looking for water, nectar or other sugary, sweet-smelling substances. But if you see multiple bees passing in and out of a cavity, this indicates the presence of a colony within.

Bees and combs should be removed by professionals who have appropriate personal protective equipment.

You can prevent honey bees from nesting in an around your home by following steps outlined in

<http://cals.arizona.edu/apmc/docs/WildHoneyBeeIPM2.pdf>.

There are many kinds of bees and bee-look-alikes. Many of these are beneficial and harmless to people but most can sting if disturbed or provoked. Try to identify the bee or wasp before deciding if it’s a real problem or not.

Additional information

Gouge, D.H., Olson, C., Rehm-Bowler, M. Enriquez, N., Rodriguez, J.M. Bee Management. <http://cals.arizona.edu/urbanipm/buglist/bees.pdf>

Arizona Bee Identification Guide http://pollinator.org/PDFs/AZ_bee_guide_FINAL.pdf

Africanized Honeybees B-Smart information and Safety Rules. http://www.maricopa.gov/emerg_mgt/pdf/killerb.pdf



A PDF of this publication is available on-line at <http://cals.arizona.edu/apmc/docs/WildHoneyBeeIPM1.pdf>

Figure 6. Swarm on a branch



Keith Douce

Figure 7. Swarm on a building wall



Ward Upham

Figure 8. Honey bees starting to nest inside an irrigation box after entering through the hole in its lid



Dawn H. Gouge

Figure 9. Honey bees established inside the siding of a home, after entering through a crack in the wall



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