

Western Honey Bee

Status

- Venomous sting
- Possible health threat

General Information

There are about 20,000 known species of bees in the world, 4,000 species in North America, and 1,600 in California. Six species of bees have a **social structure**, produce **honey**, and are called honey bees. The best-known social species is the **western honey bee** (*Apis mellifera*). It has been in human **cultivation** for over 3,500 years for its pollination services, wax, and honey. Native to Europe and Africa, it was introduced into North America by the earliest colonists, escaped cultivation, and spread throughout the New World.

Life Cycle

Honey bees have four stages in their life cycle: **egg**, **larva**, **pupa**, and **adult**. Worker bees build six-sided wax cells in sheets (comb), which are used for raising young and for storing food. The queen lays a single egg in a wax cell. A few days later, the larva hatches from the egg. The larva remains in the cell and the workers feed it a mixture of honey and pollen. As they eat and mature, they outgrow their skin, grow a new skin layer, and shed the old one, a process called **molting**. After the fifth growth-molt cycle, usually two weeks later, the bee spins a cocoon in the cell and enters the pupal stage. About a week later, the adult honey bee emerges from the pupal case. The process of changing body forms while maturing is called **metamorphosis**.



Honey bees have three different adult body types (**castes**) in their society: **workers** (sterile females), **queens** (females), and **drones** (males). A honey bee colony (**hive**) usually contains a single queen, dozens of drones, and up to 60,000 workers. Queens may lay up to 2,000 eggs per day. Drones develop from unfertilized eggs, while females (queens and worker bees) develop from fertilized eggs. Workers feed the larvae, queen, and drones; clean and guard the hive; gather pollen and nectar from flowers; and make honey. Queens mate once, then spend the rest of their lives laying eggs; they are fed and cleaned by workers. Drones are produced in spring and summer. They do not work and are fed by workers.

Bee Swarms

In spring and summer, colonies produce new queens and drones. A queen leaves the colony with drones and several worker bees, a process called **swarming**. If the queen is new, the drones try to mate with her while in flight. When the swarm flies, you'll see hundreds of bees in the air and hear a loud buzzing sound. Sometimes they all land together to rest, then fly away 24-72 hours later. Once they find a suitable site for a new hive, they construct **wax combs** and begin to raise new workers.



Health Risks

Honey bees have a sword-like **stinger** edged with tiny backward-facing barbs. When

they sting, the barbs hold the stinger in the victim's skin. The base of the stinger has a large **venom sac** attached to the bee's internal organs. After the sting, the bee pulls away, tearing its organs, which results in the bee's death. The venom sac has small muscles that pump venom through the stinger and into the victim. A small sac next to the venom sac contains chemicals (**alarm pheromones**) that are pumped into the air. When nearby honey bees sense the pheromone, they fly to the source and attack the victim. A sting from a single bee can quickly turn into a multiple-stinging event.

The venom of a single sting is usually not dangerous; however, the venom of several stings can cause problems. Victims who are allergic to the venom may have an **anaphylactic** reaction after only one sting. Symptoms of anaphylaxis include pain, tightening airways, difficulty breathing, irregular heartbeat, and unconsciousness; death may result if untreated.



Protect Yourself

If attacked by bees:

- Run away in a straight line
- Cover and protect your head (pull clothes over your head)
- Find shelter in a building or a car
- Call 911

If stung:

- Remove the stinger immediately, but don't squeeze it
- Scrape the stinger with your fingernail or a dull, thin object
- Wash the sting area with soap and water
- Apply an ice pack to reduce swelling and reduce pain
- In the case of a serious reaction (dizziness, difficulty breathing, blood pressure drop), seek medical attention

Call a beekeeper or a pest control professional to remove hives from buildings, yards, and gardens.

