

In My Backyard Honey Bees

Nature's Factory Workers



When I was a small boy at Marathon my dad kept bees as a sideline. There were beekeepers in the family...my grandfather Bill Smith and my Uncle J. N. Meeks, as well as my dad's cousin, Jack Smith, processed tons (literally) of honey and had very successful operations. My dad had twenty or thirty hives and kept them south of town near huge fields of white brush and catclaw, which made a particularly sweet and fragrant honey. The following article appeared in the Sanderson Times, September 1, 1950:

"Honey by the tons is sweet income for any section of the country. Last week three apiaries in the Big Bend section sold 89,000 pounds of the nectar. Charles T. Smith of the Toyah Creek Apiaries and the Jack Smith Apiary of Marathon sold 35,000 pounds each in one shipment, John Bennett sold 9,000 pounds from the Maravillas Creek Apiary, and the Johnny Adams Apiary sold 10,000 pounds of honey. Bees thrive in that section of the Big Bend and one of the most delicious products of the white brush and catclaw flavor is gathered twice a year from the hives. Forty-four and one-half tons of honey shipped by only four producers is

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proof that the industry could be expanded to create a substantial income for this section of Texas."

And all of that came from one of Mother Nature's smaller creatures, the honey bee. There are some 20,000 species of bees across the world, but the most economically important of all the species is the Western, or European, honey bee, *Apis mellifera*. These busy little characters are champions when it comes to honey production and storage. They were domesticated centuries ago in the time of the pharaohs, but made their entrance onto the world scene over 34 million years ago. Melittologists, or, scientists who study honey bees, believe the *Apis mellifera* originated in eastern Africa and spread from there to Asia and Europe, but did not appear in the New World until introduced by settlers from Europe.

Like most wasps, ants and bees which arise from the same order, most bees are social and have a hive mentality. There are some solitary wasps, ants and bees, but their numbers are far passed by their social cousins. The hierarchy for these creatures is simple: queen (and drones) and workers. Labor is divided and each member has its own job. Queens produce eggs, drones are there for reproductive purposes and workers do all the work to keep the hive alive. The workers keep the hive clean, forage for food, make the honey, feed the larvae, protect the premises and even cart off the dead. The queen gives off chemicals that inform the workers where she is, and they cluster around her.

Bees have developed a form of communication, through dancing movements. When a forager finds a new source of food she returns to the hive and does a dance on the honey comb, with movements that communicate where the source is located



and even the distance to the new site. In finding the new source the forager has marked the trail with its own chemicals to enable its hive mates to locate it as well. Marvelous creatures!

Queens have the ability to select the kind of sperm they use to fertilize their eggs, all from sperm stored at the mating in the beginning of their reign. Queens and workers are produced from fertilized eggs and drones are produced from unfertilized eggs. That means, for you scientists out there, that the females have two sets of chromosomes and the males have only one set. Sometimes mistakes occur and males are produced with two sets of chromosomes, but the workers detect this after the egg hatches and the double-chromosome drones are destroyed.

At all times young immature queens and drones are kept locked in their cells. When the hive gets too large, the royals are released and remove themselves from the hive to make new hives. This process is called swarming, occurs in May or June, usually, and involves splitting the workers and taking roughly half of them to make the new hive. The swarm moves at the speed of the queen, keeping her safe, and scouts go out to find a new spot. When a proper spot is located, the swarm moves in and sets up housekeeping. The drones, by the way, die in the process of mating with the queen. The drones congregate in large groups and the young queens seek them out. Queens will not mate with fellow hive mate drones, thus avoiding in-breeding. Queens have been known to mate with 60 or 70 drones, so the supply of drones is much greater than the number of queens.

So, what happens if through some accident the queen is killed and there are no immature queens available? Workers select a hive mate and feed her “royal jelly,” a special honey with enzymes and proteins fit only for a queen, and soon the worker becomes a new queen. Workers are infertile, but when receiving the right

chemicals, become fertile.

Honey bees live year round in their hives. When temperatures become colder the workers begin to flex their muscles, generating enough heat in the hive to keep them from dying. Extreme cold weather can destroy them, however. If the hive gets too hot in the summer, the workers place themselves close to the entrance and begin to flutter their wings, setting up air currents that draw cooler air into the hive. They had perfected natural heating and cooling eons before humans.

Finally, something should be said about Killer Bees. We now have killer bees, or, Africanized honey bees, in our area and have had them for some 20 years. European honey bees and African honey bees were cross-bred in Brazil as an experiment to increase honey production, but Africanized queens escaped and moved northward. It took years, but they finally crossed the Rio Grande in the 1990s. They are not cold-tolerant so they have not spread much farther than the southern border states, but where they have, they pose a serious problem. The African bees had a mean temperament, and their cross-bred children inherited that trait. Instead of a few swarming out to attack interlopers (and everyone and everything is an interloper to them) they swarm out by the thousands, and quite a few people have been stung to death by them. Their venom is no more potent than European honey bees, but the sheer numbers overload the victim with venom, generally leading to death. People attacked by Africanized bees have to run for their lives and hope to find shelter in a car or closed building.

Except for the bad boys of the bee brotherhood, honey bees are important to our world, not only for their sweet product, but for the fact that they are the chief pollinators of many of our farm crops. The wide-spread use of pesticides and habitat destruction has decimated the bee population in a few areas and agriculture is suffering from their demise. Think about that the next time you spray your garden with toxic pesticides. There are other, less bee-lethal methods for controlling pests. See your local exterminator or AgriLife agent and they can help.

And, what's in your backyard?