

Bio Heaters And Bee Scaffolding – New Research Showed Distinctive Beehive Behaviors

Humans and honeybees have shared a close relationship for ages. Bees have been captured & reared for the production of valuable honey. Over a long time, captive honey bees began to outcompete wild honey bees, which were also losing the environment as their local forests were cut down. Then, in the 1940s, beekeepers in Africa began to see outbreaks of a harmful parasite - the Varroa parasite - which immediately spread to hives in Europe and the Americas.

Every commercial bee colony was infected with the Varroa mite and required quick treatment to prevent colony collapse disorder. Unfortunately, this widespread distribution of the Varroa mite has made people assume that wild honeybee colonies must have been wiped out from their European forest habitat.

To search more about these wild bees, Benjamin Rutschmann and Patrick Kohl, Ph.D. researchers at the University of Würzburg, Germany, headed out into the forest. Both set up artificial feeders to attract honeybees in the Hainich forest, northwest Germany and saw the bees returning to their hives. This concentrated scientific effort to map and monitor the bees by these two researchers was a significant step to let people know about wild bees that so many have thought had long since vanished.

Rutschmann and Kohl found the wild honey bees were frequently settling in deserted tree cavities made by dark woodpeckers (*Dryocopus martius*), which are one of a handful of the areas in these woodlands with sufficient room for the honey bees to house their food stores for the long cold weather months. Researchers focusing on dark woodpeckers had the option to give exact coordinates of around 500 deserted tree cavities in Hainich forest and the Swabian Alb Biosphere Reserve in southwest Germany.

"Consistently, we look at these trees," says Rutschmann. "We can track down several bumble honeybee colonies daily because that [in the summer] around 10% of this multitude of woodpecker cavities is involved by bumble bees.

However, these bees are not the strong survivors of an ancient dynasty of wild bees. However, they are more likely to be descendants of escaped swarms from commercial hives re-established in the woodland.

Studying wild honey bee provinces exhaustively is no primary assignment. The cavities can be between 8 to 80 meters off the ground, implying that scientists must get into the tree canopy to get a glimpse. During the beginning phases of building the honeycomb, worker bees should be seen linking legs to form a long chain.

These are frequently referred to as 'festooning honey bees.' Heaps of thoughts have progressed about why they do this, including going about as a platform for the creating comb and as an approach to estimating space. Yet, right now, this is still something of a secret.

At the point when the honey bees erect their combs uninhibitedly in the three-layered space of a tree hollow, a kind of 'sack' of living honey bees, interlocked with each other, forms on the roof of the hollow," explains Dr Jürgen Tautz, retired professor in honey bee biology at the University of Würzburg. "The net shows up incredibly flexible, its 'networks' pulled firmly together now and again and spread wide apart at others."

This net of honey bees remains set up after the honey bees have built their comb. Tautz showed that it may save against intruders and help control the climate inside the tree hollow.

How Scientists Study The Bees?

Captive laboratory hives are not simply used to test the impacts of pesticides. For a long time, honey bees have been examined to assist us with facilitating how we might interpret their learning and memory, yielding information that might help honey bee conservation. To concentrate on the honey bees' learning abilities, scientists normally opt for harmless restraints to hold bees in place while they are exposed to, for example, a particular food or smell.

The honey bees are first chilled down to 4°C (about the temperature of your refrigerator), which makes them nod off, yet doesn't hurt them. Then, while the honey bees are sleeping, scientists can lash them into small harnesses. Once in this arrangement, honey bees can be educated to broaden their tongue-like proboscis in response to a particular stimulus.

By giving the honey bees a sweet treat close to a specific smell, the scientists train the honey bees to connect the smell with the food, and after many rounds, the honey bees will stand out in their proboscis in response to the smell alone.

In addition, carrying out the procedure safely without harming the bees was essential. This is because if the bees were not safe, it would be challenging to study their memory or how they learn.

These 'probosci's extension reflex investigations' have given researchers abundant data about honey bees' learning and memory capacities, and similar procedures have even been utilized for training bees to detect illegal drugs and landmines!

With this stockpile of research methods, researchers are proceeding to acquire experiences in honey bee conduct, environment, and preservation; however,

numerous secrets remain. For example, could wild honey bees survive in the forest long-term? And what is the purpose of those bizarre construction nets?

"More inquiries emerged from the investigations of the honey bees in the forest than we found solutions," says Tautz. Rutschmann says he intends to concentrate on the wild honey bees in Germany to comprehend how they find food in the backwoods climate and what variables influence their drawn-out endurance. Hopefully, they will have a splendid future ahead.