

Honeybees Survived for Weeks Under Volcano Ash After Canary Islands Eruption

For roughly 50 days, thousands of honeybees sealed themselves in their hives, away from deadly gas, and feasted on honey. “It is a very empowering story,” one entomologist said.



By Maria Cramer

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About 50 days after the Cumbre Vieja volcano in the Canary Islands erupted in September, unleashing lava flows and destroying homes, churches and stores, a beekeeper returned to one of the devastated villages to see what the volcano had done to his hives.

What he found shocked beekeepers and delighted scientists: Inside five hives that had been covered in volcanic ash were tens of thousands of bees, still alive and buzzing away.

Not only had the bees managed to survive the heat and noxious gases of the volcano, but they also had avoided starvation by feeding off stores of honey inside the hive, said Antonio Quesada, a beekeeper in the Canary Islands and a spokesman for the Gran Canaria Beekeepers Association.

Their survival provided a glimmer of good news for La Palma — a resort island in the Canary archipelago of Spain — which was devastated by the eruption, which continues to spew lava. The island of about 80,000 people employs more than 100 beekeepers who manage hives that hold millions of honeybees, and who are vital workers in the local ecosystem and key economic players for those who sell honey throughout the region.

The bees’ ability to stay alive in such dire conditions was also a reminder of their toughness, a characteristic that is often overlooked amid news stories about the very real threats they face from pesticides, parasites and the loss of habitat.

“It’s incredible how such a tiny animal that has been around for hundreds of thousands of years can maintain that resilience, that ability to survive,” Mr. Quesada said in an interview on Wednesday.

The bees, known in the region as the Canary black bee, used propolis, a resin-like mixture sometimes known as bee glue, to seal themselves inside the hive, he said.

“They protected themselves from the gases” of the volcano, Mr. Quesada said. The bees also made sure to leave open a tiny pathway to the outside that they could later use to get out, he said.

That behavior is typical of honeybees, who use propolis, which they produce from substances they collect from plants and buds, to plug tiny gaps in the hive to protect it from rainwater and drafts, said Nathalie Steinhauer, a researcher in the department of entomology at the University of Maryland.

Still, the fact that the bees on the island managed to spend weeks inside the hive insulating themselves from such oppressive conditions was surprising — and even inspirational, Dr. Steinhauer said.

“It is a very empowering story,” she said. “It tells a lot about the resilience of honeybees.”

For over a decade, beekeepers and researchers have raised alarms about bees — which play a critical role in agriculture — dying at high rates, even during the summer when bees are producing food and caring for their young.

Honeybees are not endangered, and beekeepers are able to replace lost colonies throughout the year, said Dr. Steinhauer, who is also a science coordinator for the Bee Informed Partnership, a consortium of universities and research laboratories.

But the high mortality rate is concerning and especially stressful for beekeepers, who must spend considerable time and money replacing dying colonies.

In the United States, the mortality rate has been particularly high, even though the total number of honeybee colonies has remained fairly stable over the last 20 years, according to the Bee Informed Partnership.

Still, honeybees remain adaptable and resourceful, said Keith S. Delaplane, the director of the Honey Bee Program at the University of Georgia and a professor of entomology.

Bees will build hives in tree hollows or abandoned tires, he said.

Stories abound of honeybees that survived forest fires after the worker bees, fanning their wings, managed to lower the temperatures of the hives. When a fire destroyed the Cathedral of Notre-Dame, a beekeeper who kept several hives on the roof was thrilled to find that the bees had stayed alive by gorging on honey.

Dr. Delaplane said entomologists often traded stories of colonies that survived after their hives were swept away by floods.



Lava and smoke rising from the Cumbre Vieja volcano, as seen from Los Llanos de Aridane in the Canary Islands of Spain, in November. Miguel Calero/EPA, via Shutterstock

In the case of the hives in La Palma, the bees were also lucky. The volcanic ash that fell on the hives was porous and light, which allowed for oxygen to enter, Elías González, president of the ADS Beekeepers of La Palma, told EFE, a Spanish news agency.

Hundreds of other hives were also saved and have been taken to other parts of La Palma. Those bees cannot return to the villages where they once were because so much of the vegetation they rely on is covered in volcanic ash or hardened lava, Mr. Quesada said.

The story of the bees that lived through a volcano is likely to become famous among entomologists, Dr. Delaplane said.

“You can’t get much more dramatic than volcanic ash burying bee hives and the bees surviving,” he said. “It’s a little piece of happy news and heaven knows we need it.”

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