Scientists identify a new species of bee in Puerto Rico. [1]

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When a bee approaches, the common reaction is to run, scream, or panic. But a group of researchers decided to do the opposite: observe them closely. Thanks to that patience, they made an unexpected discovery in the Guánica Dry Forest: the presence of a new species of bee for Puerto Rico, named **Megachile luctifera**.

The discovery, confirmed after three years of research and published in *Caribbean Naturalist*, opens a window into the biodiversity of pollinators in the archipelago. *"This finding gives us a better understanding of the wealth of insects we have on the island,"* explained **Alana Freytes Rivera**, researcher, recent master's graduate in Biology at the University of Puerto Rico, Río Piedras Campus, and current doctoral student in the Department of Geography, Sustainability, Community, and Urban Studies at the University of Connecticut.

Although *Megachile luctifera* had already been documented in Barbados and the Virgin Islands, it had never before been reported in Puerto Rico. The first observation happened by accident, while Freytes Rivera was studying pollinator behavior in the Dry Forest. Since then, 13 females and 12 males have been recorded. In addition to Guánica, the species has also been reported in Coamo and even in Culebra.

The local presence of this bee could be linked to the geological processes that once connected the Lesser Antilles. According to Freytes Rivera, the species may have reached Puerto Rico by flying from nearby islands, expanding its distribution.

The females are distinguished by their black and white striped abdomens, while the males require DNA tests to confirm their identity. Both sexes are medium-sized, about three to five centimeters, and have a flat abdomen covered with tiny hairs.

Unlike the honeybee (*Apis mellifera*), known for forming large colonies, *Megachile luctifera* is solitary. Each female builds her own nest, without depending on others to survive. Although they have stingers, they are not aggressive and rarely sting, even when handled. Their two main missions: to reproduce and to pollinate.

These bees prefer to nest in dry rocks, safe from predators such as insect-eating birds. To reinforce their nests, they cut pieces of leaves—hence their common name, “leafcutter bees”—and use them as building material. In the process, they help pollinate host plants like *Tephrosia cinerea*.

This silent work is vital in fragile ecosystems like the Guánica Dry Forest, one of the most threatened in Puerto Rico and a UNESCO biosphere reserve, Freytes Rivera emphasized. Bees also strengthen the growth of native plants that depend on pollination to reproduce, she added.

However, the extreme conditions of the Dry Forest impose limits. During the hottest hours, between 11:00 a.m. and 1:00 p.m., Freytes Rivera observed that insect activity decreases drastically. Excessive heat increases the risk of dehydration and also affects their diet: nectar can evaporate, and plants often choose not to produce flowers to save energy. All this impacts pollination and, in the long term, the forest’s vegetation cover, she said.

The next steps in the research aim to better understand the ecology of *Megachile luctifera*: from its behavior and nesting characteristics to its interactions with other pollinators. Knowing its distribution in Puerto Rico is also key to protecting the habitats where it thrives.

In that effort, citizen science has been crucial. The **iNaturalist** app, for example, has made it possible to confirm sightings of the species outside of Guánica, expanding the map of its presence in the archipelago. The app is available to everyone and even helped confirm the bee’s presence in Culebra, she noted.

“It’s a tool that involves the entire island in conservation,” highlighted Freytes Rivera.

The discovery of *Megachile luctifera* is a reminder that every detail of nature contributes to the health of ecosystems. *“Everything around us contributes to the stability of our environment, especially if we plant native flora that supports pollinators like this bee,”* the researcher concluded.
