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Scientists study **avian vampire flies** living in the Galapagos Islands

Ways to control the vampire fly population are currently being sought. Photo: Courtesy Charles Darwin Foundation

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Philornis downsi is now known as the **avian vampire fly**. This insect locates **bird nests** and lays its **larvae**, which then feed on the **blood** of the **chicks** and eventually cause their death. In this way, the invasive fly has become one of the greatest **threats** to the conservation of 22 species in the **Galapagos Islands**.

In an effort to inform people of the **danger** posed by its presence in the **archipelago**, a group of national and international researchers decided to give it a common name. In three words, this summarizes the behavior of the **insect**, which is believed to have been accidentally **introduced** less than six decades ago to the **Galapagos Islands**.

During this short time, the **parasitic fly** has caused the reduction of the populations of 20 endemic, one native and one **introduced** bird species. Of these, the smaller **birds** have been the most affected.

The **mangrove finch**, for example, numbers at about 100 individuals in a small mangrove patch in the western area of Isabela. This **bird** was already **threatened** by rats and cats. The arrival of Philornis **worsened** its situation on the islands.

Charlotte Causton, senior scientist at the Charles Darwin Foundation and coordinator of the Philornis project, explains that research is currently focusing on the **biology** and ecology of this fly. More than 22 institutions from 10 countries have formed a team to evaluate various aspects.

Causton says that, after analyzing the **images** obtained with cameras, it can be observed that the vampire flies wait near the nest until the **adult birds** leave. At that moment, Philornis flies enter to lay their **eggs**. "It's impressive," says the **researcher**.

To locate the nests, the fly also uses its **sense of smell**. With the help of researchers from the State University of New York (USA), tests have shown that the insect reacts to the smell of birds.

Once it finds nests, the avian vampire fly lays its eggs. The **larvae** then settle in the chicks' nostrils, where they make holes that affect the birds. When larger, the larvae drop to the bottom of the nest and emerge at night to suck the blood of the chicks.

This gradually sickens the chicks. They develop anemia, weaken and demand less and less food from the parent birds until they eventually die. Causton says that the **impact** on bird populations is very serious, as all the chicks in the nest may die. During the birds' **nesting season**, the fly is estimated to produce up to four or five generations of insects.

To find ways to **control** the populations of the avian vampire fly, the research team is conducting laboratory tests. Under the direction of Paola Lahuatte, who is in charge of the Philornis downsi laboratory at the Charles Darwin Research Station, a method has been developed to raise the fly larvae without the presence of a **host bird**.

So far, the **researcher** says, nothing like this has been developed elsewhere in the world. The next step is to get the avian vampire fly to reproduce in the **laboratory**. For now, adult flies are taken from the **wild** to obtain their eggs. One of the most recent findings is that the moment when the sun starts to go down, flies are motivated to start **mating**.

Causton explains that they may need to use chemical lures. Researchers at the State University of New York found that males produce **pheromones** to attract females. That, too, is one of the conditions for this **process** in the laboratory.

This research, led by the Charles Darwin Foundation and the Galapagos National Park, will help establish better **methods** to control fly population in the archipelago.

One of the ideas put forward for this task is to apply an **insecticide** that **inhibits** insect growth but does **not affect** birds. Initial results show that it can be injected at the base of the nest where the larvae are found.

Together with researchers from the University of Minnesota (USA), a study is currently evaluating the possibilities of introducing a species of **wasp** that attacks only the avian vampire fly.