



Some hummingbirds are flower robbers. Here's how to spot them

By Celina Zhao | Fri, 7 Jul 2023

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Big feet and short beaks allow the birds to mooch nectar without transporting pollen

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By clinging with its large feet, the short-beaked fiery-throated hummingbird robs nectar from a long-tubed flower. CHRISTOPHER BECERRA

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Like a sword sliding into a sheath, hummingbirds slip their beaks into the tubes of flowers to drink the nectar within. Most hummingbird-pollinated flowers droop upside down, so the animals must nimbly hover to access them, frantically beating their wings up to 80 times a second. Yet some sneaky hummingbirds can cheat the system—with the help of their toes. By clinging onto a nearby petal or stem and stabbing their beak through the flower’s base, they acquire their desired nectar, but skimp on helping the plant pollinate.

Now, researchers have identified the telltale signs of these flower robbers: [Clinging hummingbirds have smaller beaks and bigger feet than do honest hoverers](#). This trend has emerged over 20 separate times in hummingbird evolutionary history, the team reported last month in *The American Naturalist*.

“Hummingbirds aren’t nice guys,” says study author Robert Colwell, an evolutionary biologist at the University of Connecticut. “They’re trying to get the most for the least.”

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Hummingbirds usually can only drink from flowers shorter than the length of their beaks. This is the plant’s way to ensure it’s not giving out nectar for free. When a hummingbird pokes its beak through the front opening of the flower, tiny grains of pollen stick to its forehead. As the bird flits to different flowers, pollen gets transported around.

But zipping about is a taxing workout. In fact, the hummingbird’s hover is the most calorie-intensive form of movement among all vertebrates. Alejandro Rico-Guevara, an evolutionary biologist at the University of Washington, likens the birds to racecars: “They have an impressive engine that allows them to fly backwards, accelerate super-fast, and zoom from flower to flower,” he says. “But because that engine is on the maximum at all times, they need to refuel constantly.”

To survive, hummingbirds must guzzle nearly their body weight in nectar every day. So they’re always looking for ways to get more nectar for less movement. For some hummingbirds, that means using their tiny toes to cling to a nearby branch or flower instead of hovering.

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But scientists hadn’t ever really thought about hummingbird toes before, or even the entire strategy of clinging. So in the new study, Colwell and colleagues had to start from scratch. They analyzed every record of hummingbird behavior they could get their hands on, including photos, videos, field notes, and published papers. From these, they identified 66 species that fed by clinging. These birds all had short beaks, likely because unwieldy long beaks block them from getting close enough to simultaneously cling and feed.

This clinging gives the birds prime access to poke their beaks into previously inaccessible long-tubed flowers. But because the method circumvents where the pollen lies, the animals are not pollinating the plants. “They’re literally just mooching,” Colwell says.

The researchers also noticed that all of these birds were clinging sideways or even upside down, making them wonder whether the birds’ feet were specially adapted to the task.

To find out, the scientists measured the feet of more than 1 100 museum specimens and 400 live birds, representing 220 out of the 330 total species of hummingbirds. They found the hallux claw—which works a bit like a thumb—was significantly longer in clingers. A longer hallux not only provides a stronger grip, but also reduces the effort needed to stay in place against gravity-related forces.

Overall, clingers tended to have shorter beaks and bigger feet than nonclingers. This suite of adaptations “didn’t happen just one, two, three, or four times, but [over] 20 times” in hummingbirds’ evolutionary history, says University of California, Davis ecologist Paulina Gonzalez-Gomez, who was not involved in the study. “That shows you how remarkable this is.”

As for the cheated plants, don’t feel too bad for them, Gonzalez-Gomez says. “You cannot forget that flowers are also trying to provide as little nectar as possible to the hummingbirds, too,” she says. “Everyone is just working in their own best interests.”

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