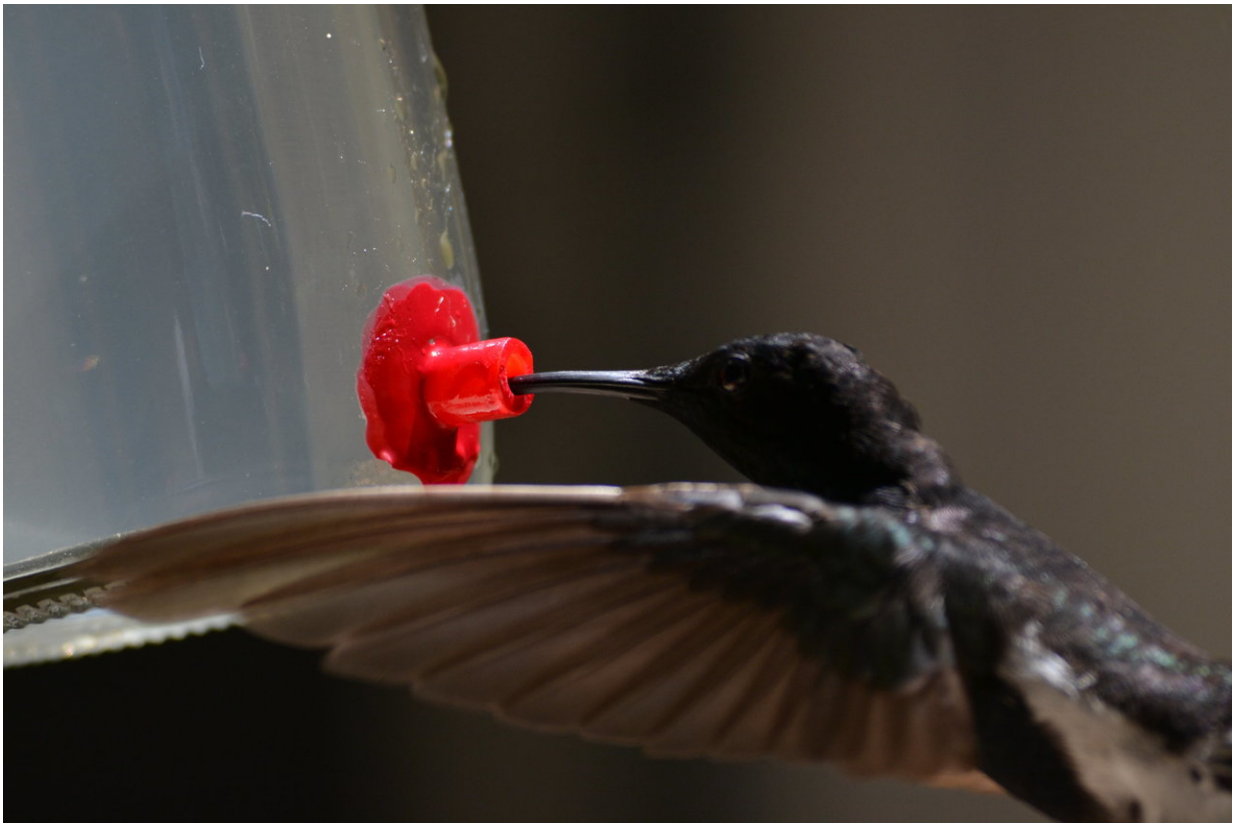


These tropical hummingbirds make cricket-like sounds other birds can't hear

March 5 2018



Black jacobin hummingbird at a feeder. Credit: Ana Lucia Mello

Researchers reporting in *Current Biology* on March 5 have found that a tropical species of hummingbird called a black jacobin makes vocal sounds with an unusually high-frequency pitch that falls outside birds'

normal hearing range. It's not yet clear whether the hummingbirds can even hear themselves, the researchers say.

"These vocalizations are fast and high pitched, and in fact they do not sound at all like your typical bird sound," says Claudio Mello from Oregon Health and Science University. "They sound more like an insect, such as a cricket, or like a [tree frog](#)."

Mello and his colleagues stumbled onto the discovery quite by accident while studying many [species](#) of hummingbirds in the forested mountains of Eastern Brazil.

"We heard prominent high-pitch sounds that sounded perhaps like a cricket or a tree frog," Mello says. "But then we noticed that the sounds were actually coming from these black hummingbirds."

The researchers thought the vocalizations had to be at an unusually high pitch, but they didn't have the equipment needed to measure it. So, on a later trip, they took detectors with them that are normally used to pick up the high-frequency sounds of bats. They confirmed that the detectors picked up on these unusual [hummingbird](#) sounds.

More recently, they made recordings of the sounds using special recording equipment designed to study bat calls. The recordings showed that the sounds were quite remarkable, having a high degree of complexity and being produced at high frequency, including components in the ultrasonic range that humans can't hear.



Photograph of a black Jacobin hummingbird. Credit: Ana Lucia Mello

The discovery suggests that either black jacobins hear sounds other birds can't or that the birds produce sounds they can't even hear. The researchers speculate that the birds might rely on the unusual calls as a private channel of communication. That could be especially useful given that black jacobins live among a diverse group of bird species, including 40 other species of hummingbirds.

"It seems more reasonable to assume they do hear the sounds they make, but we have not yet examined whether this is true," Mello says.

Bird hearing generally has to be tested in a lab, either by recording from

the brains of anesthetized birds or by watching how birds respond to sounds. Those studies aren't amenable to studying hummingbirds in the wild.

The findings suggest that the hummingbirds must have an unusual vocal organ, the syrinx, to produce these sounds. "They would need to vibrate very quickly and likely have a special composition, which may be different from other birds," he says.

Mello says it would now be interesting to study the black jacobins' inner ears to see how or whether they differ from those of other birds. And, if it turns out that the [birds](#) can't hear themselves? Well, that would raise a whole host of other intriguing questions.

More information: *Current Biology*, Olson et al.: "Black Jacobin hummingbirds vocalize above the known hearing range of birds" [www.cell.com/current-biology/f ... 0960-9822\(18\)30074-5](http://www.cell.com/current-biology/fulltext/S0960-9822(18)30074-5) , DOI: [10.1016/j.cub.2018.01.041](https://doi.org/10.1016/j.cub.2018.01.041)

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