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Bats in the News - A Ton of Pollen

Flowers pollinated by bats produce “a ton of pollen” compared with flowers that depend on, for example, hummingbirds for pollination, biologist Nathan Muchhala told *ScienceNow*, the online news site for the journal *Science*. Scientists have assumed that’s because bats are such inefficient pollinators that they need more pollen to do the job.

But new research by Muchhala, of the University of Toronto in Canada (and a former BCI Scholarship recipient), “suggests the opposite,” *ScienceNow* reports. “Bats are so good, it pays to pile on the pollen.”

Hundreds of New World plant species depend on bats for pollination, especially in the tropics, and most of them evolved from plants that were originally pollinated by hummingbirds, *ScienceNow* reporter Elsa Youngsteadt writes. Bat-pollinated flowers open in the evenings to accommodate nocturnal bats and produce about seven times more pollen than hummingbird’s flowers.

Muchhala, a postdoc in the lab of pollination biologist James Thomson, questioned the bats-are-sloppy-pollinators explanation for all that extra pollen. Working at a forest in Ecuador, *ScienceNow* said, he noticed that a hummingbird would collect a load of bright pollen on its head at one flower but arrive at the very next flower with just a “light gray dusting.” The birds seemed the more wasteful pollintors.

Muchhala and his colleagues captured bats of two nectar-feeding species – tube-lipped nectar bats (*Anoura fistulata*) and Geoffroy’s tailless bats (*A. geoffroyi*), the website said. They also collected flowers of *Aphelandra acanthus*, a bat-pollinated plant that also attracts some hummingbirds.

The researchers released one bat at a time into a flight cage, then offered a single male flower in a test tube. Then, Youngsteadt reports, “the bat would dart in, snatch a sip of nectar and leave.” Muchhala and Thomson found that the more pollen a bat removed from the male flower, the more it deposited on the female. That pattern held, the report says, over dozens of flower visits by six bats.

For the next step, the experiment was repeated with glossy hummingbirds. But, *ScienceNow* says, the birds delivered just a few pollen grains to the female flowers, regardless of how many they removed from the male flowers. In fact, the birds deposited an average of just one-tenth as much pollen as bats.

The research results were reported in the June issue of *The American Naturalist*.

Muchhala told *ScienceNow* that he suspects feathers do not hold pollen as well as fur. To test that hypothesis, he hopes to repeat the study with pollen from hummingbird-adapted, rather than bat-adapted, flowers.

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