



The Wildlife Watch Binocular

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DEMYSTIFYING BATS

BY BINDU GOPAL RAO

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Even as the COVID-19 pandemic rages on, the rumor that the coronavirus in people was caused by bats is just a myth, like many other false accusations that cause the only flying mammal to be feared rather than appreciated.

Bats are nocturnal mammals who are unfortunately very misunderstood. 'Blind as a bat' is probably the most abused phrase. Did you know that bats are not blind? Well if you did not, it's time to take a reality check. Bats do not fly into your hair or eyes nor get stuck to you. Bats have extremely good vision and can fly as close to your nose tip and go back without touching you.

Dr Bandana Aul Arora, a mammalogist and conservationist who has decades of work experience with the Nicobar flying fox and other threatened species in the ecosystem

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of the Nicobar group of islands, India, is dispelling many of these myths. He says, "Bats like other mammals give birth to young ones or pups and are very protective mothers; fruit-eating bats carry their babies till they are independent. They are extremely handsome, have beautiful ears and very charismatic nose leaves." Research is taking place now to understand how they locate their prey. To find prey and their roosts, the method is called echolocation and is mostly seen in insect-eating bats. A bat can eat three times his or her weight each day, so they clearly have no appetite problem!

Rohit Chakravarty, a Ph.D. student at Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany, explains, "Bats perform two main functions that benefit humans and the ecosystem. Fruit-eating and nectar-drinking bats are pollinators of many tropical trees. Three examples of such important trees in the Indian context are some species of mangroves, wild bananas and the mahua tree. This tree has important medicinal properties.

Insect-eating bats eat tons of insects that are pests in rice, corn and cotton farms. These come from studies in the US and Thailand. New studies have also shown their importance in controlling pests in vineyards in France and Chile. Once they have had their fill in the night, they poop in heaps in caves which make for a useful natural fertilizer. Guano mining is an industry (sometimes sustainable, but often not) mainly in Southeast Asia."

Bats are incidentally extremely gifted and don't have hollow bones like birds. Bats are the only mammals that are capable of a true powered flight and fly with their hands, not their arms. They live in huge colonies and like to stay in slightly dark places like caves, beneath bridges, in trees and abandoned buildings because it is cooler. Additional facts: They cannot tolerate extremes of weather. They give birth once a year and do not pair for life. There are about 1000 species of bats worldwide, India has about 119 species. The size range is large: the smallest one, the bamboo bat, is only as big as your thumb, while the flying fox, a fruit eater, has a wingspan of over 5 feet!

Insectivorous bats also actively prey on [mosquitoes](#) - a known disease-carrying vector that affects humans directly.

A recent [study](#) has shown that bats serve as indicators of potential invasive insect species in Spain. **Baheerathan Murugavel**, a Ph.D. student at the Indian Institute of Science Education and Research Thiruvananthapuram, India, said, "To my knowledge, the best practice to manage invasive species in any landscape is to identify them before getting invaded and keep them controlled. Based on the diet of insectivorous bats, researchers in Spain have recently identified a rice pest weevil which is an insect native to North America, with the potential to become invasive in the future. The researchers point out that bats could act as potential natural samplers that could detect (and possibly control) pest species in important growing areas of cash crops, such as the rice paddy."

Dr. Arora has worked extensively on the *Pteropus faunulus* or the Nicobar flying fox which is endemic to the Nicobar Islands and has been rediscovered after 100 years.

It is distributed only in six of the islands there. Unfortunately, this solitary roosting fruit bat is locally extinct from Car island, where it was first seen. As part of her research, she has found 22 species of bats in the Andaman and Nicobar Islands. She said, "**Bats do have direct threats as bats are poached for their meat that is used for medicines, as well as habitat loss. Indirect threats include frequent human entry into caves, and adverse myths that they are disease spreading and blood sucking creatures are other threats.**"

And while bats are resistant to several viruses, the coronavirus is not really something that has come from bats. The Bat Conservation Trust in UK also confirms in this [COVID-19 and Bats - Bats and disease - Bat Conservation Trust](#). "The exact wildlife to human transmission route for SARS-CoV-2 virus is not known as yet. There are two main schools of thought both with adequate support. A precursor of SARS-CoV-2 called RaTG13 (both shared a common ancestor probably 40-70 years ago) originated in a family of bats called 'horseshoe bats'. RaTG13 by itself is not known to infect human lungs because it cannot bind to the lung epithelial cells. Some molecular studies have shown that this virus went into an intermediate host, most likely a pangolin, where it recombined to become SARS-CoV-2 which can infect human lung cells. This view was later challenged in



another paper that showed evidence that the SARS-CoV-2, in fact, originated in horseshoe bats in China 40-70 years ago and has the potential to infect humans directly," says Chakravarty.

Viruses of such zoonotic origins crossing the species-barrier and reaching humans is called a spillover event and it is not something that happens frequently or easily. "One should look closely to ponder what could trigger such spillover events in order to prevent such pandemics in the future. **From COVID-19 it is almost certain that human induced events are likely to be reasons for this. Events like habitat destruction, over-exploitation of wildlife resources, unhygienic wet market systems (that make different wild animals interact) causes wild animals to get over stressed and puts them in close contact with humans.**

To summarize, **"To prevent future pandemics, we need to focus on how humans caught these viruses**

(routes of transmission) instead of blaming the animal origins itself," states Murugavel.

Bats are certainly misunderstood, it's time for us to change our attitude towards this intelligent and vital mammal.

Bindu Gopal Rao is a freelance writer and photographer based in Bengaluru. She has a special interest in the environment. She enjoys birdwatching and looking for local and unusual stories in any destination. You can follow her on Instagram @bindugoplr Rao and view her work on www.bindugopalrao.com.

Editor's Note: This article was written prior to concerns that the novel coronavirus might have originated in a lab in Wuhan, China. So far, its origin is unknown and the jury is still out over whether it was caused by a "spillover" event or a lab leak.