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Bat tales from Western Ghats

Spoorthy Raman, Sept 8, 2015, DHNS



the echo.

The fascinating thing about bats is that they are the only mammals that can fly. They have a membranous webbing between their 'fingers', which become their wings. They also possess a unique knack of 'echolocation' — emitting sounds at very high frequency, and figuring out the location of various objects by listening to

Bats are usually found roosting in caves, crevices, logs of dry trees, trees and foliage and also sometimes in bamboo thickets. Most of the bats — almost 85 per cent — feed on insects, while the others eat fruits. They are involved with pollination of flowers that bloom at night. When they eat fruits, they carry the seeds within far and wide, because they can fly. They help entire forests survive.

The Western Ghats forests are no exception. These forests house 52 of the 120 species of bats found in our country. At the same time, the mountain range is the most populated among the world's biodiversity hotspots. As a result, the natural vegetation in many places has been destroyed, degraded or fragmented, and the native forests currently cover only six per cent of the land. This has threatened nearly 35 per cent of the local bat population. Bats that require bamboo thickets to roost seem to be the worst affected, since there is extensive cutting of bamboo for commercial purposes in these forests.

Changing landscapes in the Western Ghats have resulted in much of the thick forests, once home to several species of animals, paving way for large coffee and tea plantations. This will result in a considerable change of habitat and needs animals to adapt themselves for survival.

Bat hunt

Different bat species have different degrees of tolerance to human modified landscapes, says Claire Wordley, a PhD student from the University of Leeds, who was looking for bats in the Valparai plateau, Anamalai Hills. She states that some are able to do well in agricultural areas, while some others decline; others disappear altogether.

In 2015, Claire and a team involving researchers from the National Centre for Biological Sciences, Bengaluru, Nature Conservation Foundation, Mysuru and the University of Leeds, UK, conducted a study on how bats seem to be adapting to these habitat changes. This was the first study of bats in tea plantations globally and also the first ecological study in the tropics combining data from the calls bats make, along with capture data.

During the course of this multi-year study, bats were sampled at 43 sites and recorded using bat detectors. The echolocation calls were identified using an echolocation call library developed for the area. Geographic Information System (GIS) was used to calculate distances to food and water resources for the bats. In their study, the researchers found that most bat species were found in coffee plantations grown under native shade trees and forest fragments, but very few were found in heavily modified tea plantations.

Another interesting fact was that most of the bats studied required adequate native tree cover in these plantations to persist. This means that though the plantations have deforested the native forests, they could still help preserve the biodiversity by using native trees instead of silver oak for shade. Small steps in the right direction, like wildlife-friendly agriculture, could add significant value in retaining these winged creatures. The worst part is, India's bats could be disappearing even before we can find out which species are found in this country.

In early 2014, the same group published a paper describing a bat which had never before been recorded from the Western Ghats. Claire and her team were using extremely fine nets called 'mist nets', which they hung stretched between trees at night. Since the nets are very fine, the bats cannot see them; they sometimes get caught in the nets when flying around. The fine nets also do not harm the bats.

On one night, the team came across a strange bat. "I realised it was a Barbastelle bat," said Claire. "I'd only seen them in Europe before, but they have such distinctive faces — with their ears meeting over their heads and their nostrils on top of their nose — I could tell them right away."

The guide books showed that this was an Eastern Barbastelle bat. The guide book also said that the bat was supposed to be found "only in northern India, Pakistan,

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Nepal and Afghanistan." It was a new record for this species. What was thought to be restricted to northern India, was also found in the Western Ghats forests. The study also illustrates another important point: bats have not been studied well in India.

Insufficient research

"Despite the high diversity of bats in India, there are virtually no ecological studies on bats and even their taxonomy and distributions are not well known," says Claire. Information for many species is based only on museum or literature references, with no recent studies on population status or information about where the different species are found.

Of late, there has been an impetus to conservation programmes targeting bats. Dr Bhargavi Srin, a current postdoctoral researcher at the Osmania University, Hyderabad, started a petition in 2013 to save India's Kolar leaf-nosed bat whose roosting cave was threatened by illegal granite mining. This cave is home to five other bat species, including the endemic and endangered Durga Das's leaf-nosed bat.

Bat Conservation India Trust (BCIT) is a non-profit organisation run by Rajesh Puttaswamaiah, which addresses hunting issues in North East India, mapping bat roosts and trying to educate the public about bats to dispel many of the myths. A local tribe in the Indo-Myanmar border called Longfuru Yimchungru practises "bat harvesting" as a part of their culture, where they smoke the roosting caves, thereby suffocating the bats to death. The dead bats are then shared between clan members and their friends outside the clan for feasting. These harvests can kill as many as 12,000 bats per year. BCIT also talks about the potential risks of being exposed to different viral diseases, for which bats are carriers — like the Ebola virus, SARS, etc.

The Indian Bat Conservation Research Unit (IBCRU), an organisation started in 2014 by Rahul Khanolkhar, is involved in documenting and publicising the rich diversity of bats along with the ecological role they play and economical benefits they provide. Bat Roost Database is a citizen's science initiative by IBCRU where people can voluntarily share their observation, information, photographs etc. related to bat ecology and bat sightings, thus helping in getting an idea of what is out there to protect.

With such initiatives coming up to protect bats, conserving them is probably not such a hard task at all.

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