The Nicobar Flying Fox – A Riveting Rediscovery

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My passion for studying animal ecology and natural history started at an early age. I was just 10 years old when I wanted to be a conservationist and fortunately during my formative years, I had the chance to travel to several parts of our mega-diverse country. Most of my serious studies were conducted in southern India and my preliminary work dealt with the islands of the so-called "Kala Pani" or the Andaman and Nicobar Islands. There is an old saying that these islands were called so because whoever visited them never returned. It sure made sense to me as I spent almost a decade working there. The remoteness of the islands, coupled with the presence of indigenous tribes, makes them appear to be formidable to some. The thrill of exploring a place where hardly anyone had ventured for a long time, and to study a species ignored by many, caught my attention. There have been few detailed studies on bats, particularly in the islands, and some date back to as early as 1912. No systematic studies or efforts were ever made to document the number of species in the islands. I began my study in 1999, which lasted till 2007. During this period, we documented the different bat species in the islands and their habitats. We also saw that bats, and especially the large fruit bats or flying foxes as they are called, due to their uncanny resemblance to foxes, were being hunted down by tribes, as well as settlers in the islands. Before I divulge more about my study on the Nicobar Flying Fox, let me give you an overview about bats.

Bats belong to the Order Chiroptera and are the only mammals that have evolved powered flight. They are among the few animals that echolocate. Some bats are also among the

smallest of mammals, but are unusually long-lived, challenging the belief that small-sized animals have a shorter life span. They comprise almost 20–25% of the mammalian fauna in any region. Nocturnal by nature, these shy and elusive creatures have been a symbol of fear and are thoroughly misunderstood as they prefer to roost in dark and inaccessible areas. Among mammals bats are second only to rodents, with respect to number of species, and are found in all major land masses, with the exception of Antarctica. Bats occupy all kinds of habitats ranging from tropical, temperate, even to semi-arid and desert areas. In India, there are 119 species of bats out of a total of 950 species in the world. Bats are divided into two subdivisions based on their food habits. The fruit and nectar feeding bats fall under the Suborder Megachiroptera, commonly referred to as fruit bats or flying foxes. The Suborder Microchiroptera consists of insect feeding bats that use the sophisticated technique of echolocation to hunt for food. Bats belonging to this Suborder primarily live in caves.

Legally, Indian bats do not enjoy the privilege of being considered as important species, and are listed as vermin under Schedule V of the Wildlife (Protection) Act, 1972. The only two exceptions are Sálim Ali's Fruit Bat *Latidens salimalii* and Wroughton's Free-tailed Bat *Otomops wroughtoni*, which as of 2002 are listed in Schedule I of the Wildlife (Protection) Act, thus offering these two species the highest degree of protection in India.

Owing to the ability of flight, it is presumed that bats can cross barriers like mountains, seas and rivers, which are otherwise a limitation for most terrestrial mammals, giving them an advantage in being able to establish new territories. This is, however, contradicted by the fact that most species of bats tend to live or remain in particular habitats, restricting their distributional range. **Fruit bats are confined entirely to the tropics and subtropics. In India, too, they do not live in temperate zones, such as the Himalaya. They are, however, seasonal migrants to these areas during the fruiting seasons.**

Sporadic and fragmented information regarding the distribution and ecological role of most bat species in the Indian subcontinent has

The Nicobar Flying Fox, like many other fruit bats, plays a vital role in seed dispersal

The preferred habitat of the Nicobar Flying Fox is the outer edge of mangrove swamps, at up to 200 m above sea level

The Nicobar Flying Fox has separate feeding and roost sites. Unlike most flying foxes that are known to roost in huge colonies, this species typically roosts solitarily in well-camouflage spots

prevented any major steps from being implemented to conserve bats in India. My work in the Andaman and Nicobar Islands is a simple effort to fill in gaps in the knowledge on species distribution in India, especially in remote and unexplored areas of our country. The islands are home to some of the last remaining pristine rainforest habitats and a unique assemblage of flora and fauna, distinct from those found in mainland India. Biogeographically, the islands have been divided into two major divisions, the Andaman Archipelago consisting of more than 300 islands, and the Nicobar Archipelago consisting of around 24 islands. A ten degree channel separates the two island groups from each other. After an extensive survey of more than 50 islands, I was able to record 25 species of bats, this being the first ever systematic survey of the bat fauna in the islands. The results included a couple of new species to the islands and a couple of new subspecies to science.

Our survey was successful in documenting the existence of the Nicobar Flying Fox *Pteropus faunulus*, apart from the other endemic species of the islands. This species is endemic to the Central Nicobar Group of Islands, and is a rediscovery by my research team after almost a century. It was originally recorded and described for the first time by Miller in 1902 from **Car** Nicobar Island, but had not been reported since then.

The Nicobar Flying Fox is a small-sized Pterodid with an average forearm length (a standard measurement which is used to identify species) of 118.5 mm, and about 170 gm weight. It is dark rufous brown on its back, while the hair on the face is grey and white, giving it a grizzled look. The nostrils are tubular and well emarginated like most flying fox species, giving it a fox-like appearance.

The thrill of rediscovering a species after almost a century was accompanied by the startling revelation that this rare and endemic species is locally extinct from the very island

where it was first reported for science. However, we found it on the other islands, namely Trinket, Nancowry, Camorta, Katchal, Bompuka, and Teressa Islands, which together form the Central Nicobar Group of Islands. Though, we had information on the presence/absence of the species in the Central Nicobar Group of Islands, we were not able to locate its day roosts. Thus, we decided to carry out radio-collaring studies, for which we had to capture animals, fit radio-collars on them, and release them for tracking. This was a tough task which required setting up nets at least 25 feet from the ground, and then monitoring them throughout the night for captures. The nets were set up using pulleys and strings for easy movement. Weeks went by and we were not able to catch anything, but our persistence paid off and we were eventually able to capture 15 individuals over a span of 30 days. We radio-collared 11 individuals, successfully tracked 9 individuals to their day roost, and documented their roosting habitat. One radio-collared individual was tracked to a hunter's home on Kamorta Island, who was embarrassed and surprised how we knew he had killed and eaten the bat. This not so pleasant ending of one of my radio-collared individuals confirmed the threat to the species, and we undertook an awareness campaign for this bat. The publicity generated by my team was far-reaching, and hunting in foraging areas has reduced over time. We let the belief take root that all biologists 'had trackers inbuilt in them', and hunters could get easily caught. Sometimes a small lie for a good cause is quite beneficial! After tracking the bats successfully for four weeks, we were confident enough to report that this is the only species of *Pteropus* in India and second in the world which unlike other flying fox species does not roost communally during the day, but is solitary in its roosting habits. The other known solitary roosting *Pteropus* is restricted to the American Samoan Islands. During the entire radio-collaring effort, the tracked bats did not leave the island and the maximum distance they travelled was about 16–18 km in one night from the day roost to the foraging areas.

Our team took up the arduous task of trying to ascertain the probable cause of decline of this endemic species. We were able to identify two main causes for its current plight – hunting

The indigenous people or the Nicobarese in the Nicobar Group of islands believe there are two kinds of bats, the big bat and the small bat. In the local dialect, which varies from one island group to another, we were able to note that the big bat was called *Tayam law* (biggest fruit bat) or *Tayam peh* (medium sized fruit bat) and *Allah* (small fruit bat) or *Alkelein* (insect eating/ funny-faced bat) in the Northern Nicobar Group. In the Central and Southern Nicobar Group the big bats were called *Mok-ne-aka law* (big fruit bat) or *Mok-ne-aka peh* (medium and small fruit bat), while the insect eating or micro bats were called *Hinglenea*.

Involving communities is pivotal for the success of conservation efforts. The author and her team conducted programmes with locals, including children and hunting teams, spreading awareness for the urgency to protect this endemic species

The author and her team measure a Nicobar Flying Fox. Individuals of this species are of an average forearm length of 118.5 mm

Why do bats hang upside down and come out in the dark? – A local legend

A long time ago, there lived a bat who was a postman and used to deliver messages to people, as written script was not yet formulated. During a delivery, the bat fell in love with a girl who asked him to deliver a message to a boy she liked. The bat was upset that someone he liked had fallen in love with someone else, so he lied to both, that each of them believed that the other was ugly! On the day when the boy and girl met, they realised that they had been lied to by the bat and that the bat was responsible for them avoiding each other. So they cursed the bat, because of which he has to hang upside down and can come out only in the dark!

by local communities and the clearance of prime forests for settlements and coconut plantations. Such encroachments decrease the habitat of the species in terms of availability of roosts and fruit bearing trees.

For any effective conservation programme on the Andaman and Nicobar Islands, the involvement of local inhabitants is essential. These people depend on the forest and its resources for their survival, and need to be made aware about the sustainable use of these resources. This approach also stemmed from the fact that the inhabitants, being indigenous people, enjoy special hunting rights under Section 56 of the Wildlife (Protection) Act, 1972. We identified the hunting teams and involved them in our data collection, as well as monitoring work. They became so interested in our efforts to conserve a species restricted to their islands that they imposed a voluntary ban on hunting wildlife during feeding times. Our locally trained teams spread awareness within the villages and helped to build a network of local conservationists. Such measures are a stepping stone, and ensure the establishment of a long-term conservation plan. We are confident that our efforts will bear fruit for this elusive little fruit bat. ■

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