

FROM THE FIELD

The giant squirrel is as elusive as it is ingenious. Follow Dr. Prachi Mehta as she chases after this streak of lightning and asks an all-important question-

IS THE GIANT SQUIRREL REALLY OF 'LEAST CONCERN'?

Text and photographs
by Dr. Prachi Mehta

It was a hot afternoon in the month of May. While passing through the teak forests of Central India, my Gypsy slowed down near a nala and I suddenly caught a flash of a red-brown patch on the dull grey trunk of a *Terminalia tomentosa* tree. And what I saw startled me.

On one side of the tree was a giant squirrel clutching at the trunk, on the other, was a leopard, also clutching at the trunk and staring intently at the squirrel. Both were glued to their own side of the tree, the squirrel, albeit with fear, and the leopard, I presume, with delight at having encountered a prized catch. The squirrel appeared to be resigned to its fate, as it remained motionless even with the leopard uncomfortably close to it. Just as the leopard was going to take a final leap, it noticed our vehicle and turned its head towards the road. The squirrel, seizing this moment, darted away at lightning speed, leaving behind a trail of alarmed calls and a disappointed leopard. That was a great escape for the squirrel, a great loss for the leopard and a great memory for me.

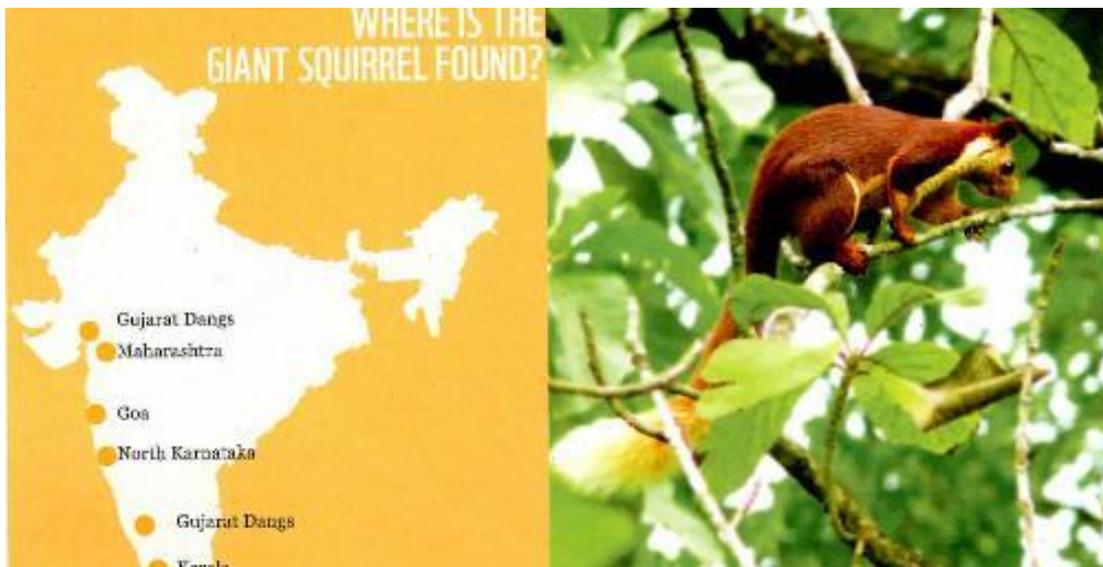
But giant squirrels are not always so lucky. There are several observations of them being preyed upon by eagles, snake, lion-tailed macaque, Nilgiri marten and occasionally leopards. Yet all this is in good ecological faith, so there are no regrets for the loss of the giant squirrel to its natural predator. However, like other

Wildlife, giant squirrels are now also facing the threat of population decline because of anthropogenic factors.

Giant squirrels, as the name suggests, are big squirrels; in fact, the biggest arboreal squirrels in the world. There are four species of giant squirrels in the world, three of which are found in India. The black giant squirrels, *Ratufa bicolor*, is found in the North Eastern States, West Bengal and South-East Asian countries; the grizzled giant squirrels, *Ratufa macroura*, is localised to southern India and Sri Lanka, while the Indian giant squirrels, *Ratufa indica*, is an endemic species, found exclusively in India.

R. indica has five sub-species, four of which are distributed within the Western Ghats (known here as the Malabar giant squirrel), with the fifth one in Central India. Interestingly, *R. indica* shows remarkable variation of pelage with climate gradient. For example, the darkest *R. I maxima* is found towards Kerala, in areas of maximum rainfall; the paler *R. i. bengalensis* is found in West-central Karnataka. Slightly paler to this is the red-brown *R. I indica* of Maharashtra, Goa and north Karnataka, and the palest is the cream coloured *R. i. centralis*, of intermediate but dark pelage, is distributed along the moister forests of Central India. During the early 1990s, surveys conducted by Dr. Sejal Worah, Dr. M. Muni and





This map is solely a representation of real-world conditions and is made available to the Recipient for information purposes only.

Dr. Renee Borges in Gujarat Dangs reported no trace of *R. i. dealbata*. The species has become locally extinct due to excessive hunting pressure, coupled with habitat loss. A survey of arboreal mammals in Karnataka by Dr. Mewa Singh and Dr. Sanjay Molur in 2004 reported *R. i. bengalensis* to be surviving in narrow strips of wet forest in Western Karnataka. Hunting and fragmentation have resulted in population decline of the sub-species, leading to total absence of the species from the plains of Karnataka.

Although one of the endemic sub-species of the country has become extinct and the other sub-species is showing signs of range contraction, the Indian giant squirrel has been categorised under the “least concern” category of the International Union for Conservation of Nature (IUCN). The species is probably perceived to be common owing to its wide distribution and easy visibility. However, personal observations indicated that giant squirrels were not as common in areas they used to be earlier. Next to Gujarat, Western Maharashtra represents the northern-most range of giant squirrel. The forest cover in this region has declined considerably in the last two decades, owing to urbanisation, development projects and commercial plantations.

Based on this concern, my research team planned a survey to assess the current status of the species in the forests of Western Ghats. Generating support for this survey proved to be difficult, since giant squirrels, being in the “least concern” category, do not fit in with the investment priority of most agencies. Fortunately, WWF-India and the Rufford Small Grant Program thought otherwise and provided generous support for the survey, allowing it to take off.

The survey was carried out over a large area of Western Maharashtra on an intensive scale. From October 2011 to June 2012, the research team

Assessed the occupancy of giant squirrel and types of anthropogenic pressures in the area, in a grid-wise manner. Several researchers participated in the survey, but those who successfully brought it to completion was the hard working team of Ranjit Sahoo, Evangeline Arulmalar and Tushar Pawar. The team had a jeep to accompany it, but the surveys were done entirely on foot. About 2000 grids of 2.3 km x 2.4 km were surveyed in six districts of the Western Ghats, including six protected areas and intervening reserved forests. This amounted to a total survey effort of 725 km on foot. Those who are familiar with the rugged terrain of the Western Ghats of Maharashtra will agree that trekking 8 to 10 km daily in this landscape calls for high levels of determination and spirit!

During the survey, all potential forest areas within a range were visited to detect the presence of the giant squirrel. If early enough and lucky, one could spot the red-brown squirrel hanging by its tail and feeding voraciously on the fruits in the sub-canopy. Dr. Renee Borges, whose work on giant squirrel ecology remains unsurpassed, is associated with the project as an advisor. Her earlier research had indicated that giant squirrels feed on fruit, seeds, leaves and bark of trees and 66% of their diet consists of fruit seeds. During her study now, Dr. Borges also recorded many squirrels storing seeds and fruits of certain species in their nests, for use during lean periods.

Giant squirrels are more often heard than seen. They vocalise loudly and when alarmed, the entire forest knows of it! Nests of giant squirrels are other indicators of their presence. Well built, globular structures of twigs and leaves, the nests are used for resting, raising pups, storing food, and as protection from rain, wind and predators. Giant squirrels are known to make multiple nests for spatial and temporal use. They often renovate their old nests and at times, try to invade the well-maintained nest of their neighbours!



Giant squirrels require large forest patches that have tall, mature trees. Being arboreal, they require canopy connectedness between trees, for travelling. During the survey, we found a few areas that, despite having tall, mature forests, did not show signs of the giant squirrel. Although non-detection does not always mean absence of a species, it could indicate that the species is not common there. There could be many reasons for this: the forest patch may be small, discontinuous or lacking diversity; or there could be high hunting pressure. Logging for timber, lopping for firewood and deforestation for development projects are immediate threats faced by the giant squirrels in their current habitat. Giant squirrels are therefore useful indicators of intact, undisturbed forests and canopy continuity. Giant squirrels require large forest patches that have tall, mature trees. Being arboreal, they require canopy connectedness between trees, for travelling.

Hunting of the giant squirrel is common throughout its range. It is eaten for its meat, its ears are used by tribals to make earrings or necklaces, its bushy tail and skin is considered good luck totem, stuffed giant squirrels are displayed in living rooms as impressive showpieces, and it is also kept as an exotic pet. Several elderly villages informed us that they used to hunt giant squirrels earlier but not anymore because of legal protection. They would hunt using guns, or catapults, or catch pups from nests with the help of trained domestic dogs. In many areas, we found traps, snares and catapults used for killing birds and mammals, so hunting for giant squirrels cannot yet be completely ruled out. In some areas, farmers admitted to shooting the giant squirrels with guns because they regularly raided their coconut plantations. However, the behaviour of giant squirrels towards people offers valuable clues to hunting pressures in that area.

Although giant squirrels are found over large geographical range, they are vulnerable to changes in local conditions, which may not be reflected immediately. Due to its long life span (16 years in captivity), the giant squirrel may continue to survive in a degraded habitat, but this does not contribute to perpetuation of the species since such populations may be made of non-reproductive individuals. Giant squirrels have a small home range and will continue to occupy an area if there is no drastic change in its environment. In case of habitat loss, they cannot migrate to another habitat or tolerate sub-optimal habitats such as plantations. If giant squirrels are confined to smaller forest fragments, that population is likely to become extinct.

Like giant squirrels, there are many taxa which inhabit areas outside the Protected Areas. In light of rapid economic and human population growth, there is considerable negative impact on these as well. There is a great need to assess distribution patterns of these species and understand the determinants for their survival. This will strengthen the case for adopting land use practices compatible with other life forms and extending conservation implications outside the boundaries of Protected Areas.

So, in fact, sometimes, it is a good idea to invest resources and concern towards the country's species of "least concern"!

Fortunately for Dr. Prachi Mehta of Wildlife Research and Conservation Society, Pune, professional and personal interests collide in her work. What began as a hobby in the form of bird-watching, soon morphed into career, where she began training with the Wildlife Institute of India (WII), Dehradun as a wildlife scientist. Since then, she has been executive director with Wildlife Research and Conservation Society, an NGO that she helped establish at Pune. Prachi not only gets to work in the areas that she does – she also gets to vacation in them! Apart from working with species close to her heart, Prachi enjoys bird-watching, photography, snorkelling, reading, trekking and star grazing.

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