

STUDY OF ROCK AGAMA GIVES INSIGHTS INTO URBANISATION, CONSERVATION

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

The Peninsular Rock Agama (*Psammophilus dorsalis*) which is a type of garden lizard has a strong presence in southern India. Habitat loss and other such features of urbanisation have affected the presence of the animal in urban centres. A study carried out by researchers from Indian Institute of Science (IISc), Bengaluru, undertook to characterise urbanisation in the region and also to understand where the rock agama reside in and around Bengaluru specifically.

The study, published in *Frontiers in Conservation Science*, examined several environmental factors that could affect the presence of the lizard and revealed that they are found mainly in rocky places and warm spots. Thus, the inference is that conservation efforts must point towards retaining rocky patches even while reviving landscapes by planting trees.

This lizard is a large animal, strikingly coloured in orange and black. They do not generate their own body heat, so they need to seek warmth from external sources like a warm rock or a sunny spot on the wall. They are important in ecology from different aspects — they can indicate which parts of the city are warming, and their numbers show how the food web is changing.

Maria Thaker from the Centre for Ecological Sciences, IISc, Bengaluru, who is an author of the paper, says that since these lizards eat insects and are in turn eaten by raptors, snakes and dogs, they cannot live in places where there are no insects.

“Insects are critical components of a healthy ecosystem as they provide so many services, including pollination. So, while rock agamas are interesting in themselves, they are also a good model system to understand other aspects of the ecosystem,” she says, in an email to *The Hindu*.

Dr. Thaker’s PhD students Madhura Amdekar and Abhijit Nageskumar along with student volunteers systematically surveyed Bengaluru and the surrounding area. “We counted the number of lizards in over a hundred 20 by 20 metre plots and collected fine-scale habitat information that is not available from satellite data using photographs taken by drones,” says Dr. Thaker.

The research threw interesting insights in the case of urbanisation of Bengaluru. “Distance to city centre and proportion of built-up area are commonly used to understand urbanisation,” says Nitya Prakash Mohanty, a post-doctoral fellow at the centre and an author of the paper.

“After approximately 20 km from the general post office, Bengaluru is a heterogenous matrix of crops, plantations, and rocky habitats,” says Dr. Thaker. Artificial light at night was closely linked with built-up areas in the city, but other ecological conditions such as the number of bird predators or the connectivity of habitats showed large variation and no clear patterns from city centre, she explains.

Usually, biodiversity conservation brings to mind large animals like tigers or elephants or even birds, but organisms like the rock agama play an equally important role in the ecosystem. “In cities such as Bengaluru, there is a lot of flora and fauna that is rapidly disappearing. The rock agama is one such species which is dependent on rocky scrub habitats which are being converted into buildings and plantations,” says K.S. Seshadri, another author of the paper.

The study apart from characterising the way Bengaluru has grown, further underlines that smaller fauna and flora could be key indicators of the health of the ecosystem and need to be preserved, too.

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