In this issue

Mammalian Diversity, Distribution

Conservation in the Western Ghats

The Western Ghats is a biodiversity hotspot. The high richness of threatened and endemic species makes it a globally important mammalian hotspot, especially since the region also has a high-density of human population. The Western Ghats, stretching over 1600 kilometres across the states of Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra and Gujarat, hosts two Biosphere Reserves, ten National Parks and more than three dozen Wildlife Sanctuaries and Reserved Forests. But there was no clarity on areas that need coordinated conservation efforts. Data on the diversity and distribution of the threatened and endemic mammalian species for making evidence-based decisions in the region were also lacking. The Review Article on **page 38** in this issue addresses that lacuna.

On the shape file of the Western Ghats, the scientists overlaid 10 square kilometre grids as units for sampling. On the nearly 12,800 grid cells, they superimposed the geographical range map of all the species, with adequate demarcation of categories defined by the International Union for Conservation of Nature. Then, scores were given to each grid cell, considering cells having more than 70% of total species as priority areas for conservation, cells with more than 18 threatened species as high priority and areas with less than 18 threatened species as a moderate priority.

The updated information on the distribution of mammals in the Western Ghats helped identify the areas for conservation efforts. The Review Article is a wakeup call to the people living in the region, making them aware of the stewardship role they have to play, to conserve the richness of biodiversity for their children. Such periodic updating of biodiversity in the region is necessary lest the mindless push towards infrastructure development destroy diversity.

Temple Tank Trick

To alleviate algal blooms

The Padmanabhaswamy temple, Thiruvananthapuram, Kerala, has a large, more than 13,000 square metre tank. After a renovation of the tank, in August 2019, the water turned green with an algal bloom. The lack of oxygen in the lower layers led to decomposition and the emission of foul odour, making the water unsuitable for temple rituals.

An urgent and acceptable remedy was evidently needed to solve the problem.

A team of researchers stepped in to face the challenge. They identified the microalgal species: *Spirulina plantensis* was the primary problem. The water was highly alkaline, conducive for the growth of the species. The nitrogen-fixing photoautotroph increased ammonia levels and reduced the levels of phosphates and nitrates in the tank.

The researchers adopted an integrated approach to solve the problem. First, they blocked all below-ground seepage, including water from a sewage-filled canal. Violent aeration ameliorated the hypoxic conditions. Bales of paddy straw in onion nets were immersed in the tank to allow exudates from the straw to seep out and inhibit algal growth. Black baby clams and tilapia fish, aquatic organisms that consume microalgae, were introduced into the tank. Water transparency improved gradually and, by October, the algal bloom almost subsided, making the tank useful again.

Many other temple tanks and public ponds in Kerala are facing the same problem. The locals can either adopt these tricks to make the waterbodies useful for bathing and economically productive with tilapia and black baby clams, or they could think of harvesting spirulina, a nutraceutical, to be sold in the market.

Read the Research Article on **page 73** in this issue for details.

Nesting of a Pollinator Bee

The bee species, *Braunsapis picitarsis*, is an important pollinator of many crops, especially the cucurbits, in South India. In this issue, researchers from the Kerala Agricultural University present their study of the nesting habits and biology of the pollinator.

They collected the bees and the branches of the plants with soft cores where the species create nests. The tubular nests revealed a pattern in laying eggs and the provision of pollen for the larvae. They also documented the growing and moulting of the larvae.

Though the article targets researchers, there are tips that are also beneficial for farmers. So flip to the Research Article on **page 102** for the details.

Measuring Roadside Pollution

Case study of Kolkata

Emissions from vehicles due to the burning of fossil fuel, the abrasion of asphalt-top roads by tyres and vehicle brake systems contribute to magnetic contaminants in roadside dust. So the magnetic susceptibility of roadside dust can serve as a proxy measurement of vehicular pollution.

Researchers in Kolkata collected roadside dust from fifty locations in their city, selected based on traffic density, degree of automobile exhaust fumes and roadside dust.

Besides testing the magnetic susceptibility of the dust under different conditions, they examined the elemental compositions using an energy-dispersive spectrometer and the structure of the dust particles to draw inferences useful for the city authorities to take corrective steps to reduce vehicular pollution.

The people of Kolkata may like to read the Research Article on **page 56** in this issue.

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