

In this issue

Alien invaders in Madurai

The crusades of emperors and kings of yore brought home not only the plunders, but also exotic plants and animals from geographically far regions. In fact, humans became the biggest vectors of seed dispersal and the largest natural promoters of biological diversity...

As the middle class swelled and the economic prosperity allowed life styles that are far more grandiose than the kings and emperors of old, trading in exotic species became a source for viable livelihood. And then emerged a new technology that closed the remaining gap between demand and supply: e-commerce.

Though biodiversity is desirable, there are times when the exotic species becomes a threat to the local ecology. They become invaders and encroach even on the livelihoods of local people. The kings and emperors, or even the middle class, couldn't care less: they are not usually impacted. It is the lower economic class that has to deal with the new pest, weed, predator...

For example, fishermen who depend on their catch from Vandiyur Lake in Madurai, Tamil Nadu is now reeling under the impact of an ornamental fish called *Pterygoplichthys pardalis*.

Originally from rivers of Brazil and Peru, this fish called Amazon sail fin catfish, adorns many aquariums in India. But in Madurai, they have escaped. The inedible ornamental fish has become the largest part of the catch in the lake. Fishermen are forced to throw away most of their catch from Vandiyur Lake.

More than 40 such species of ornamental organisms that have become similarly invasive have been recorded from different parts of the world. The General Article on [page 1404](#) adds to the data needed for evidence-based decisions on the revision of regulations on trade of exotic organisms, especially in the age of online retailing.

Sloth in conservation efforts

Large mammals have disappeared from most parts of the world. Asia, especially India, therefore has an enviable position in the world, because it still sustains the life of many a large animal species. India is a model country, at least in this respect.

Take for example, bears. Out of eight extant species, four are found in India. The case of sloth bear, in the Western Ghats especially, has attracted worldwide interest because it is now considered 'vulnerable'. A large omnivorous animal adapted to a wide variety of altitudes, gradients and vegetation types with a home range of 12 to 85 kilometers will evidently come into conflict with human interests. So they have to be protected.

In Meghamalai (hill of clouds) in Western Ghats, there are sloth bears that live on the fringes. Meghamalai comes under Thenimalai Forest Division. A narrow strip of Thenimalai forest division tapers into Periyar Tiger Reserve. The Reserve, in turn, is adjacent to the Grizzled Squirrel Wildlife Sanctuary. The critical link in this interconnected ecosystem is the tapering corridor of Thenimalai Forest.

Conservation of this critical link is already under strain due to the demands of 'development'. And it has already limited the habitat of sloth bears. A Research Communication on [page 1492](#) explores the occurrence of sloth bear in Meghamalai to prioritize the area for conservation.

Though the animal is large, the area to be covered is also large. Technologies used in counting tigers are costly in terms of money. And sloth bears have not reached that level of national importance to sink in funds. So scientists from Coimbatore had to take a longer road.

They divided the area into grids of 4 km square – much less than the expected home range of the sloth bears. A part of this area in the mountains is inaccessible. Moreover, some are in the middle of the forest. And after all, the critical spaces are where the human activities and bears come into conflict. So they selected 133 of these grids. They then created spatial replicates of 500 meters. Each of the grids would have 5 such replicates. These spatial replicates were further broken into segments of 100 meters. 2 meters on both sides of the segments were examined for bear droppings. Details of certain important parameters were also noted to understand the preferred locations of sloth bear.

Nearly 600 kilometers of walking led to only two sightings of sloth bear. But scientists could collect some very inter-

esting data necessary for taking action on conservation of sloth bears. See [page 1492](#).

Preferences of fruit-piercing pest

Eudocima species of moths come at night and pierces fruits with their proboscis to feed. The internal injury in the fruit leads to a local rotting. The marketability of the fruit gets reduced immediately. As if to add insult to injury, the fermentation in the rot attracts other insect feeders. The losses are huge – sometimes more than 50% of the crop can be destroyed by these pests.

These moths lay eggs on plants of Menispermaceae family. These plants are not usually cultivated but grow widely in tropical areas. So use of pesticides to kill the larvae is not an option. Use of pesticides to ward off the adult moths from ripe fruits is not desirable. And even if it is done, it has not much effect since the contact between the pesticide and the moth is minimal. Since it is a creature of the night, watch and ward of fruits is not feasible. So farmers tried fruit bagging, netting of trees, catching of moths, light traps, and even advancing or delaying cropping to save their fruit crops. But these were also futile. Scientists from Indian Institute of Horticultural Research, Bengaluru, are therefore trying a new strategy: divert the attacking moths to less costly fruits.

Since the moth is nocturnal, it would be guided by chemical aromas from their food source. Bananas and guavas have more smell than pomegranate. And they are less costly. So bananas and guava are perhaps good baits to distract the moths from pomegranate. An earlier study had shown that tomatoes could be used to divert the moths from oranges. So they added tomato also to the study. If it were food that is the main factor, molasses in plastic bags are perhaps easier for the moths to feed. So they added that also as potential bait. The experiment is simple: just hang the baits on the borders of pomegranate orchards. The number of feeding punctures in the baits would reveal the feeding preferences of the moths.

And the result? See [page 1476](#) in this issue.

K. P. Madhu
kp.madhu2000@gmail.com