

Marvellous togetherness of nature

The fascinating interaction between wasps and fig trees

By Shiba Desor

Some time ago I came across these lines in a book of poems by Rabindranath Tagore:

*I went to see high mountains, I went to see oceans,
Only I did not see, on the step of my door
The glittering dew drop on the wheat ear'*

The poem made me realise that I too focussed most of my attention on the big things: big events, big objects, big achievements! Being an animal lover it was also about knowing how a tiger hunts or how an elephant behaves. For me, the 'unglamorous' but amazing diversity of insects was all lumped into the category of 'bugs and bees'.

The more I started to observe these bugs and bees, the more I realised that the smallest animals have an equally important role to play in the web of life. For example, I learnt about a small ant-sized insect called the fig wasp, which has such extraordinary

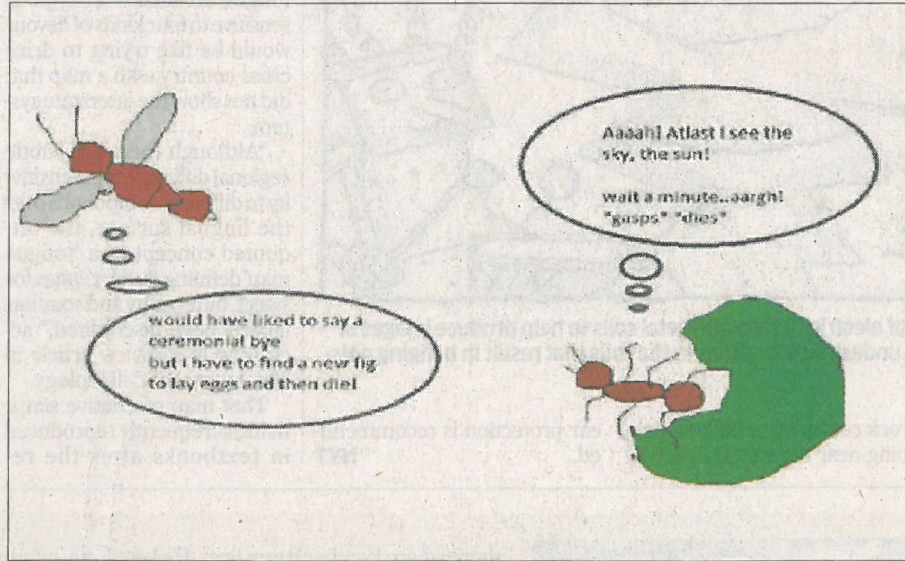


ILLUSTRATION: SHIBA DESOR, KALPAVRIKSH.

power that if it is removed from its forest, the whole nature of the forest could be changed (the types of plants and animals in it and the physical environment like temperature and rainfall). And I also found out that this wasp could do this even though it spent most of its life (and is even born!) trapped inside a fruit! Sounds unbelievable, doesn't it? Yet for fig wasps this is true, and this is the story of how it happens.

Different roles

What are the roles for male and female fig wasps?

About 850 species of trees, shrubs and climbers, includ-

ing the peepul tree and the banyan tree are collectively called fig trees. The fig wasp is a type of insect which lives inside the fruit (fig) of a fig tree.

Male: Imagine a life where you are born as a larva inside the fleshy part of a fruit. This is the story of the life for every male fig wasp. On maturity, the males chew their way out of the fleshy part and move to the inside of the fruit cavity where there are other wasps. They mate with female wasps. After this, they chew up the fruit wall so that the females can escape. But the male fig wasps themselves cannot fly away as they are wingless and

die. So, a male fig wasp seldom 'sees the light of day'.

Life cycle of a female

While the male's life may appear to have very few activities, the female's is crowded.

► The female fig wasp must escape from the fruit cavity to the outside world (The first step is accomplished when the male chews the fruit wall to help the female leave the fig.)

► Once she is outside, she has to spot another fig tree which has flowers – hidden within its figs – which are ready for pollination. The fig tree needs the wasp for pollination, and releases



A fruiting fig tree. PHOTO: PRADEEP CHAVAN.

chemicals that attract the wasp.

► When the wasp reaches the fig, it uses the many teeth it has to make its way to the very thin opening at the top of the fruit. While the opening is lined with male flow-

ers, the inner surface of the fig is lined with female flowers. The wasp goes inside and deposits the eggs – at the same time the pollen is also deposited on the female flowers. The male wasp dies shortly afterwards inside the fig.



Fig wasps.

Each fig tree needs a fig wasp

The life of the fig tree and the fig wasp are so interconnected that they are mutually dependent on each other for completion of the life cycle and reproduction! This process has been going on for as many as 80 million years. The relationship is very special – and specialised. Usually, each fig tree species has a certain fig wasp species which can pollinate it. The same is true of the fig wasp species which can only lay eggs in fig trees of certain species.

Today, the fig wasps and many other such insects like bees, which serve as crucial pollinators, are under threat due to indiscriminate pesticide use and the fact that nat-

ural vegetation is disappearing, forcing these insects to travel vaster distances for food and to lay eggs. With fig wasps under threat, we risk losing not just these fascinating species, but also the fig trees that they depend upon. Fig trees, in turn, are crucial in maintaining the health of the whole forest ecosystem because they provide food and home to many animals.

Therefore not only do all living creatures, big and small, provide us with many wonderful insights, every species also has its own web of linkages through which it relates to other species, and quite often, becomes a crucial component of the whole system.

(The writer is with Kalpavriksh.)