

EDUCATION

Wild encounters



Nandita Jayaraj

FEBRUARY 03, 2018 15:30 IST
UPDATED: FEBRUARY 03, 2018 15:30 IST

SHARE ARTICLE



PRINT

**Meet Elizabeth V. Mathew who has made a life in the field of arachnology.**

About 40,000 species of spiders have been discovered in the world so far, but experts believe that these are only a fraction of those that exist. The World Spider Catalogue 2016 states that 1,700 species have been reported from India. These numbers are not surprising because spiders seem to survive and thrive in all kinds of environments – from deserts to seashores, from trees to caves, from under rocks to over water and inside houses. Most spiders are cannibalistic, so attempts to rear them often don't work (as they would attack and eat their own kind). That means that arachnologists like Elizabeth V. Mathew have no option but to step out into the wild to study these creatures in their natural habitats.

What is arachnology?

Arachnology is the study of arachnids, a class of wingless and antenna-less insects that includes scorpions and spiders. This involves naming spiders, figuring out how they are evolutionarily related, studying how they behave and interact with their habitat, their distributions across geography, their anatomy and physiology, and so on. Loss of spider biodiversity is bad news because they occupy important places in the food cycle. Being prominent predators, they act as a natural pest control system. Moreover, spider extracts have shown to be medicinally important, and their is enormous interest in the scientifically-unique properties of spider silk.

Research

Within spiders, Elizabeth is most interested in a group of spiders called Cyrtophora. These are nicknamed tent-web spiders because of their characteristic three-dimensional pyramid-shaped webs. As of 2009, there were seven species of Cyrtophora spiders recorded in India, and Elizabeth has explored several areas in India to look for them. Recently she was part of a team that rediscovered another Cyrtophora species. Because of the shape of their webs, these spiders thrive between small shrubs, so this is where she looks for them.

Spiders generally don't like bright light. So, early mornings and late evenings are the favourite times of the day for arachnologists. When she successfully spots a Cyrtophora spider, Elizabeth first takes pictures of it.

Then she has to collect it in a specimen bottle filled with alcohol. Back in her lab, she observes it up-close using a special microscope called a stereomicroscope which allows her to see the whole specimen clearer than with a normal compound microscope.

Elizabeth's area of expertise is taxonomy, the science of describing species based on their various features and classifying them in the appropriate categories. This is the most efficient way to document the biodiversity of an area. Once documented, she can compare the biodiversity of spiders in different areas. If a particular area is rich in important species, arachnologists can alert authorities and push for that locality to be labelled as a biodiversity hotspot.

A report that revealed the rich biodiversity (including the presence of rare endemic spiders) in Aranmula in Kerala helped the government reverse its decision to construct an international airport there.

Education

Elizabeth did her bachelor's and master's in zoology at Sacred Heart College in Ernakulam, which reportedly has the only arachnology-devoted research centres in south India. She became interested in spiders while accompanying her professor abroad when he presented his paper on spider research.

This made her decide that the arachnids would be the topic of her PhD under renowned arachnologist PA Sebastian.

The author is a science writer and co-founder of the Life of Science project. To know more about women scientists of India and their research, visit www.thelifeofscience.com.