RESEARCH CENTRE AND POST GRADUATE DEPARTMENT OF ENVIRONMENTAL SCIENCES

ALL SAINTS COLLEGE, THIRUVANANTHAPURAM

PROJECT REPORT ON

OBSERVATION AND APPRECIATION OF SPIDER DIVERSITY NEAR HUMAN HABITATION

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Introduction

Spiders are invertebrates which belong to the group of animals known as Arachnids. They are found in a variety of places from mountain tops to underground caves; in fact, anywhere where there is prey on which they can feed. The variety of species, each with its own particular ecological requirements, makes spiders an excellent group to survey when assessing the health of habitats.

These are extremely important to agriculture and horticulture. They are predators and their main preys are insects, many of which eat our crops and pester our livestock. Their populations can be huge: possibly in excess of five million per hectare in temperate grassland. Consequently, they can have an enormous impact on agricultural productivity and are essential natural pest controllers. In Britain alone, it has been estimated that spiders eat more than the weight of the human population in insects each year

General appearance

Spiders have a body divided into two parts: the front section is called the cephalothorax and the back part is the abdomen. They have eight legs, which are attached to the cephalothorax. There is also a pair of pedipalps, which look like small legs, at the front of the body. In most adult male spiders, the pedipalps are swollen at the end, and contain complicated structures used in mating. Most British spiders have eight eyes (some have six) and the size and arrangement of the eyes is one of the features which can help distinguish different groups. At the end of the abdomen there are spinnerets. These are obvious in some groups of spiders, but much harder to spot in others. The spinnerets produce silk, which can be used for a number of purposes including making a web, wrapping up prey, protecting eggs, helping the spider move from one area to another and is even used for communication. All spiders have fangs, which they use to bite their prey with, and most have venom glands. However, the majority of spiders have fangs too small to penetrate human skin, and so are harmless.

In this project, we have searched for spider varieties that are residents of our households and gardens and understood their varied habitats and habits. Photos were taken and compared with the data available in the internet. Some of the spiders identified thus are shown below:

Oxyopes shweta

Oxyopes shweta is a species of lynx spider distributed in India and China. It is an active hunter and is commonly seen in green leaves of plants actively searching for prey. It is a type of garden spider, commonly seen in grasses and shrubby vegetation during daytime. At night they rest underneath the leaves. Females tend to protect their egg sac by covering them. They are solitary active hunters and do not build web.

Plexippus paykulli

Plexippus paykulli is a species of jumping spider, because they jumps short distances to attack a mobile prey. They are seen associated with buildings and houses. They may be found near light sources for catching insects attracted by the light. It is covered with short greyish hairs and two white spots on either side of the posterior end of the abdomen. Immature spiders resemble the females. The female creates an egg sac about three centimetres in diameter in a concealed location under floorboards. These spiders build a silken retreat instead of web at an elevated position such as the edge of the ceiling from which it makes hunting forays. This gave the spider a greater likelihood of a successful outcome without prior detection.

Pholcus phalangioides

Pholcus phalangioides, commonly known as daddy long-legs spider. It is also known as the skull spider, since its cephalothorax resembles a human skull. These spiders are found on the ceilings of rooms, caves, garages or cellars. They are carnivorous predators that feed on insects, other spiders, and other small invertebrates. The two smaller legs up front is known as palps and are important in the predation and mating of this species. *Pholcus phalangioides* is known to be harmless to humans. Their webs has been reported with several medicinal uses. Silk contains vitamin K, which helps in wound healing. Their primary defence strategy in moments of predation is whirling.

Aargiope pulchella

Aargiope pulchella is a species of Orb-weaver spider family, Araneidae. The female spins an orb shaped web. Males occupies on periphery of female's web. It is a synanthropic species, which is living in associated with humans. These species are also found in forests, sewages, woodlands and gardens. It is an entamophagous predator that preys on a wide range of insects. Female spins web in a zig zag manner. If disturbed, it drops to the ground, returning to its original position when disturbances pass.

Nephila pilipes

Nephila pilipes is a species of golden orb web spider, because their web appears as yellow. These species are found in moist habitat with no direct sunlight. They prey upon only few species. These species always avoid wasp, ants and other insects which produce toxic substances. Web is not symmetrical. Mainly these species construct web in trees, bushes, against buildings etc.

Hasarius adansoni

Hasarius adansoni, known commonly as Adamson's house jumper. It is a species of jumping spider common and associated with people in most of the warmer parts of the world. H. *adansoni* is found in warmer climates around the world. It has also been introduced worldwide in greenhouses. These spiders build a silken retreat at night, which is about twice the length of the animal. Although the same retreat is sometimes reused, others are built in the vicinity.

Conclusion

Spiders are common organisms seen in almost all ecosystems and particularly in and around human habitation. They provide numerous ecosystem services. They are a group of economically important organisms as both pest feeders and as pests. Being members of the largest phyla, their diversity is great. The role they play food chain is significant. The intension of this project was to observe the common spiders which are seen close to human habitation and to appreciate and understand their role in ecosystem. This objective is fulfilled as we made observations over a period of one month enthusiastically and gathered knowledge about their habit, habitat and activities.

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