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DISCOVERY SCIENTIFIC SOCIETY

Spider (Arachnida: Araneae) Versus Snake (Reptilia: Squamata): A spider (*Pholcus*) feeding on a worm snake (*Ramphotyphlops*)

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ABSTRACT

In Indian contexts, spiders' feeding on snake's information is scanty. The first observation of a spider (Pholcidae: Pholcus) feeding on a worm snake (Typhlopidae: Ramphotyphlops) from Vadodara, Gujarat. It is a noteworthy record.

Keywords: Indian spiders; diversity; worm snake

1. INTRODUCTION

Spiders are among the most common and abundant predators in terrestrial ecosystems (Nyffeler and Sunderland, 2003). With >49,000 described species, these animals exhibit an enormous diversity of lifestyles and foraging strategies (World Spider Catalog, 2020). All spiders possess venom glands that are known to capture various types of arthropods (Mc-Cormick and Polis, 1982; Anonymous, 1985). Furthermore, spiders capture a variety of small vertebrates, including birds (Aves), bats (Chiroptera), mice (Muridae), deer mice (Cricetidae), voles (Cricetidae), shrews (Soricidae), rats (Muridae), mouse lemurs (Cheirogaleidae), mouse opossums (Didelphidae), pygmy possums (Burramyidae), fish (Osteichthyes), frogs (Anura), toads (Anura), snakes (Serpentes), lizards (Squamata), newts (Salamandridae), lungless salamanders (Plethodontidae), mole salamanders (Ambystomatida) and caecilians (Caeciliidae) (Neill, 1948; Cokendolpher, 1978; Groves and Groves, 1978; Konig, 1987; Bauer, 1990; Diniz, 2011; Das et al., 2012; Nyffeler and Altig, 2020).

2. OBSERVATION

Recently, we came across a remarkable observation of a snake predated by a spider, consuming the snake as food in nature. On 22nd July 2021, we are roaming in the place compound of Vadodara City. We were visiting an abandoned house to search for spiders in the area. That time we show a worm snake struggling in a web of a spider in the corner of the house (Figure 1). A small size spider with very long legs actively tries to wrap silk fibers around the worm snake (Figure 2). The

trapped worm snake is about 5 cm long (approx.) and the spider's web is an irregular messy shape. After a few minutes of observation, the spider slowly covered the snake under web treads. We take a few evidence pictures of the trapped snake to further identify the snake and spider. However, the latter spider was identified as a daddy-long-legs spider belonging to the genus *Pholcus* sp. (Araneae: Pholcidae). The trapped snake was identified as a member of the genus *Ramphotyphlops*, belonging to the family Typhlopidae.

There are good numbers of evidence and records that arthropods attack small vertebrates (Mc-Cormick and Polis, 1982; Vyas, 2012), especially Arachnids (Nyffeler and Altig, 2020). The Pholcidae are araneomorph spiders containing over 1800 species (World Spider Catalog, 2020). Its body is small compared to its four pairs of legs; therefore, it is commonly known as a daddy long-legs spider. Pholcids hang inverted in their messy and irregular-shaped webs. These spiders are constructed in dark and damp recesses such as in caves, under rocks and loose bark and in abandoned houses. The Gujarat spider fauna contains over 415 species, including three species of spiders belongs the genus *Pholcus* (Yadav et al., 2017).

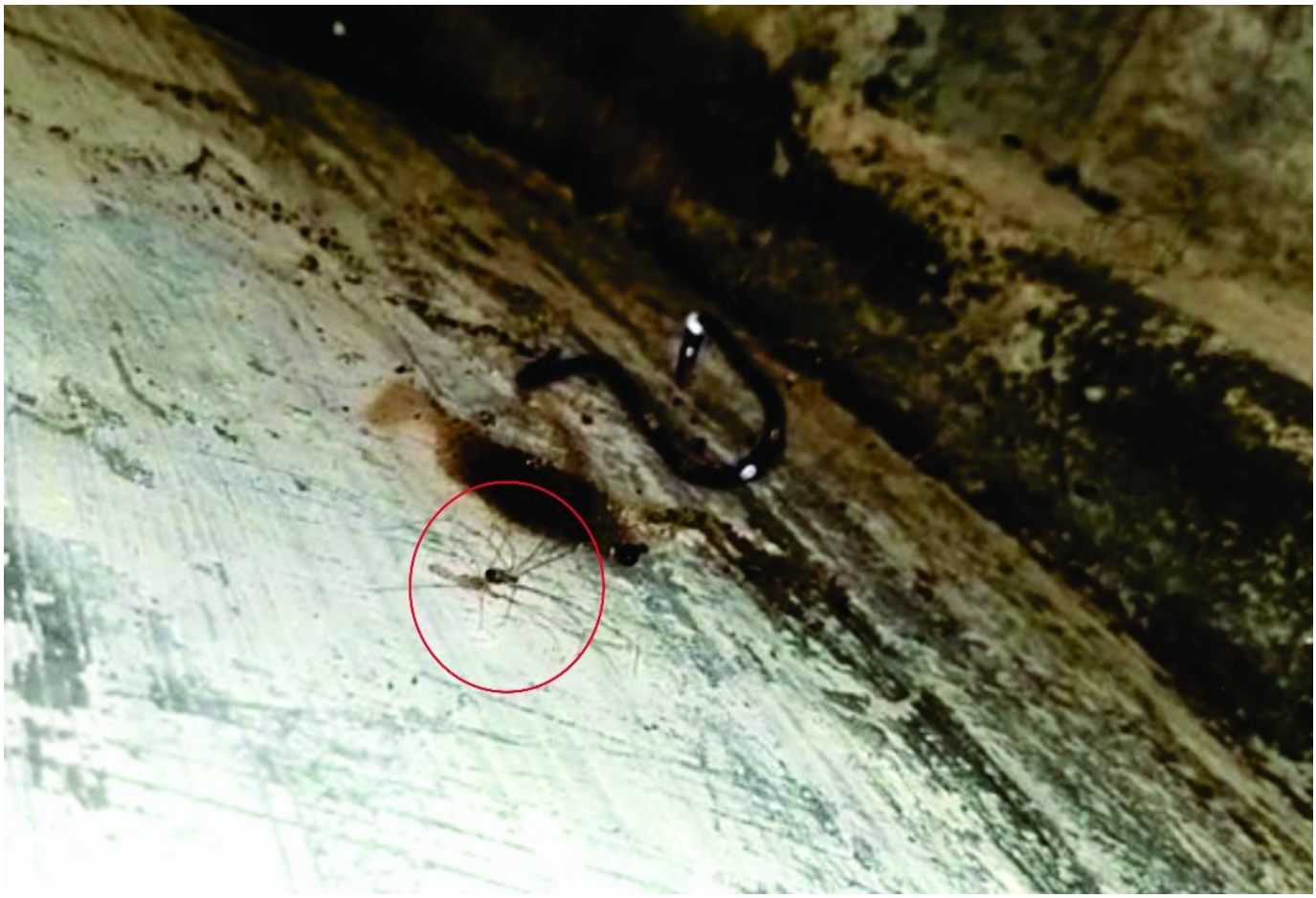

Figure 1 A worm snake (*Typhlops sp.*) trapped in the web with a daddy-long-legs spider (*Pholcus* sp) (Photo Credit: Lalita Pal)

Figure 2 A worm snake (*Typhlops sp.*) trapped in the irregular messy shape web of a daddy-long-legs spider (*Pholcus* sp) (Photo Credit: Lalita Pal)

3. DISCUSSION

We were very surprised about how it was possible such a fossorial terrestrial snake like worm snake (*Ramphotyphlops*) was trapped in the spider's web and tried to solve the mystery because, the web was about the height of two meters in the corner of the ruined house. However, a published compiled document on 'Scolecophidian arboreality revisited' shows numbers of Typhlopidae and Leptotyphlopidae snakes have habits to arboreal activity (Das and Wallach, 1998). According to Das and Wallach (1998), some Scoleophidian snakes are arboreal habits for whatever reasons, which might have due to expanding range, foraging for food and/or following pheromone trails of conspecifics of the opposite sex.

In this case, we presumed a worm snake moved vertically on the cliff of the abandoned house. Also, it was rainy season, so it's encouraging condition for the worm snake to go vertical in some of the crags of the ruined house. This is possible the snake might be moved vertically in search of small insects, ants or termites and may accidentally fall into the spider's web.

Vertebrate predation has been reported previously from various 13 families of spiders (arachnid) recorded, including Agelenidae, Araneidae, Ctenidae, Ganaphosidae, Idiopidae, Lycosidae, Nephilidae, Pisauridae, Pholcidae. Pisauridae, Theraphosidae, Theridiidae and Sparissidae (Bhatnagar, 1971; Gopisundar, 1998; Menin et al., 2005; Vyas, 2012; Nyffeler and Gibbons, 2021) although spider predation on snakes is well documented in the literature. A literature review shows a total of 319 incidents of spiders predating on snakes, including 92 species from seven families of snakes (Nyffeler and Gibbons, 2021).

In Indian contexts, spiders' feeding on snake's information is scanty. However, there was a photographic record from Kana, Madya Pradesh, India, of a giant wood spider (*Nephila maculata*) feeding on an adult common wolf snake (*Lycodon aulicus*) (Figure 3) (Kautubh Thomare, Personal communication). The present observation of a spider (Pholcidae: Pholcus) feeding on a worm snake (Typhlopidae: Ramphotyphlops) is noteworthy.

Figure 3 Snake being predated by a spider: An adult common wolf snake (*Lycodon aulicus*) trapped in the web of a giant wood spider (*Nephila maculata*) (Photo Credit: Kautubh Thomare)

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Informed consent

Not applicable.

Ethical approval

The Animal ethical guidelines are followed in the study for species observation & identification.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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