Article

First record of some jumping spiders (Arachnida: Araneae: Salticidae) from Pench National Park, Maharashtra State, India

Pawan U. Gajbe
Department of Zoology, Shri Mathuradas Mohota College of Science, Nagpur 440009, Maharashtra, India
E-mail: pgajbe884@gmail.com

Received 19 May 2020; *Accepted 25 June 2020*; *Published 1 December 2020*

Abstract
Spiders are one of the most familiar and studied groups of arthropods. They are ubiquitous in most terrestrial ecosystems preying on other arthropods as well as their own type. Jumping spiders belong to family Salticidae and constitute the largest family of spiders. While studying animal diversity in Pench National Park, Maharashtra State, India, five species of jumping spiders were identified, which have not been previously described from the study area. These five species of jumping spiders, namely, *Hasarius adansoni*, *Menemerus bivittatus*, *Plexippus paykulli*, *Plexippus petersi*, and *Telamonia dimidiata* are new records for Pench National Park, Maharashtra.

Keywords Arachnida; Araneae; jumping spiders; Pench; Salticidae.

Arthropods
ISSN 2224-4255
URL: http://www.iaees.org/publications/journals/arthropods/online-version.asp
RSS: http://www.iaees.org/publications/journals/arthropods/rss.xml
E-mail: arthropods@iaees.org
Editor-in-Chief: WenJun Zhang
Publisher: International Academy of Ecology and Environmental Sciences

1 Introduction

Family Salticidae is the largest family of spiders with over 6000 species. These spiders are commonly known as jumping spiders and possess some of the best vision among arthropods. Jumping spiders of the family Salticidae have well-developed eyes, which mediate their highly stereotyped predatory and communicative behaviour (Clark and Uetz, 1990). While moving, most species are capable of jumping very well, which gives them their common name. The largest numbers of species are found in tropical region, however, they are also found in temperate region and desert. They are generally diurnal and active hunters.

In India, not much work has been done on recording the diversity of jumping spiders and most of the Indian jumping spider species remain unknown. Pench National Park is a prominent conservation area in Central India spanning two states, Madhya Pradesh and Maharashtra. Previously, 15 species of spiders have been reported from Pench National Park, Madhya Pradesh (Gajbe, 2004) and 31 species of spiders have been recorded from Pench National Park, Maharashtra (Bastawade, 2004). None of these two studies have reported any spiders from family Salticidae. Hence, the present study is the first record of jumping spiders from Pench National Park, Maharashtra.

2 Materials and Methods

2.1 Study area

Pench National Park (Coordinates: 21°41´35´´N 79°14´54´´E) is located across two states, Madhya Pradesh and Maharashtra in India. Pench National Park, Maharashtra is located in Nagpur District of Maharashtra and was established in 1975 and covers an area of 257.26 sq km. It derives its name from the Pench River, which flows north to south, splitting it into two parts. A dam built across the Pench River has created a wetland region with an area of 72 sq km, out of which 18 sq km area falls in Pench, Maharashtra. The National Park lies in the southern reaches of the Satpura Hill Range. The climate is tropical monsoon type with monsoon rains lasting from July to September. The temperature varies from 5°C in winter to 45°C in summer. The elevation ranges from 275 m to 652 m. The Pench forest has been categorized as tropical moist deciduous forest. Pench has a good population of Bengal tigers, and also provides rich habitat for numerous vertebrate and invertebrate species including spiders.

2.2 Sampling and identification of jumping spiders

While carrying out faunal surveys at various sites in Pench National Park, Maharashtra in 2019 for studying its invertebrate fauna, some jumping spiders were collected and preserved in 70% alcohol. The species were identified in the laboratory with the help of scientific literature (Jackson and Macnab, 1989; Huston, 2017; Zabka and Gardzinska, 2017; Castilho et al., 2018; Ahmed et al., 2019). They were also photographed with a Nikon digital camera for aiding in identification and authentication.

3 Results and Discussion

During the present study, a total of five species of jumping spiders in four genera of family Salticidae have been identified as new records for Pench National Park in Maharashtra region (Fig. 1). This study adds to the arachnid fauna of Pench National Park. A systematic account of the identified species is as follows:

Phylum Arthropoda
Class Arachnida
Order Araneae
Family Salticidae

***Hasarius adansoni* (Audouin, 1826)**

Specimens Examined: 1 female.
Locality: Kuwara Bhimsen, Nagpur District, Maharashtra State, India.
Diagnostic Characters: Body length up to 8 mm. The male is mostly black with partly white pedipalps. A white crescent is present in the posterior region of cephalothorax and another white crescent is present in the anterior region of abdomen.
Distribution: Australia, China, Germany, India, Japan, Taiwan.

***Menemerus bivittatus* Dufour, 1831**

Specimens Examined: 1 female.
Locality: Kuwara Bhimsen, Nagpur District, Maharashtra State, India.
Diagnostic Characters: Body length about 8 to 9 mm. The male has a median blackish longitudinal stripe with whitish stripes on either side of the abdomen. The carapace and chelicerae are also black and brownish-white and the legs have transverse bandings of the same colours.
Distribution: Found in most tropical regions of the world.

Fig. 1 Jumping spiders of Pench National Park, Maharashtra, India. (1) *Hasarius adansoni*; (2) *Menemerus bivittatus*; (3) *Plexippus paykulli*; (4) *Plexippus petersi*; (5) *Telamonia dimidiata*.

***Plexippus paykulli* (Audouin, 1826)**

Specimens Examined: 1 female.

Locality: Sillari, Nagpur District, Maharashtra State, India.

Diagnostic Characters: Body length 7 to 9 mm. The male has black cephalothorax and abdomen with a broad white central stripe, and a broad white stripe on both sides and a pair of white spots near the posterior end of the abdomen.

Distribution: Found in India and many tropical regions of the world in Asia, Africa, North America and South America.

***Plexippus petersi* (Karsch, 1878)**

Specimens Examined: 1 female.

Locality: Khekranala, Nagpur District, Maharashtra State, India.

Diagnostic Characters: Body length 7 to 9 mm. The male is similar in appearance to *Plexippus paykulli*, but the white stripes are not complete.

Distribution: Africa, Cambodia, China, India, Indonesia, Laos, New Guinea, Philippines, Vietnam.

***Telamonia dimidiata* (Simon, 1899)**

Specimens Examined: 1 female.

Locality: Kuwara Bhimsen, Nagpur District, Maharashtra State, India.

Diagnostic Characters: Body length 9 to 11 mm. The female has pale yellowish-white cephalothorax and abdomen. Two longitudinal bright red stripes are present on the abdomen.
Distribution: Bhutan, India, Indonesia, Iran, Pakistan.

Acknowledgements
The author is thankful to the Principal, S. M. Mohota College of Science, Nagpur for facilities.

References

Ahmed J, Khalap R, Kumbhar S, Hill DE, Pearce RJ, Mohan K. 2019. Field notes on the jumping spider *Telamonia dimidiata* in Maharashtra (Araneae: Salticidae: Plexippina). Peckhamia, 181(1): 1-6

Bastawade DB. 2004. Scorpionida, Araneae and Solifugi. In: Fauna of Pench National Park, Conservation Area Series, 20 (Director, Zoological Survey of India, ed). 285-312, Zoological Survey of India, Kolkata

Castilho LB, Andrade MCB, Macedo RH. 2018. Mating and egg-laying behavior of *Hasarius adansoni* (Araneae: Salticidae) and the influence of sexual selection. Journal of Arachnology, 46: 398-403

Clark DL, Uetz GW. 1990. Video image recognition by the jumping spider, *Maevia inclemens* (Araneae : Salticidae). Animal Behaviour, 40(5): 884-890

Gajbe P. 2004. Fauna of Protected Areas-11: Spiders of Pench Tiger Reserve, Madhya Pradesh. Zoos' Print Journal, 19(9): 1624

Huston DC. 2017. Train robbery: *Menemerus bivittatus* (Dufour, 1831) (Araneae: Salticidae) steals larvae of *Technomyrmex sophiae* Forel, 1902 (Hymenoptera: Formicidae) in transit. Australian Entomologist, 44(2): 85-88

Jackson RR, Macnab AN. 1989. Display, mating, and predatory behaviour of the jumping spider *Plexippus paykulli* (Araneae: Salticidae). New Zealand Journal of Zoology, 16: 151-168

Zabka M, Gardzinska J. 2017. Salticidae of Thailand. Part 1, Genera *Plexippus* C.L. Koch, 1846 and *Burmattus* Proszynski, 1992. Annales Zoologici, 67(2): 229-242