



Research Article

First confirmed record of *Schizodactylus monstrosus* (Orthoptera: Schizodactylidae) based on its nymph from Bangladesh

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ARTICLE INFO

Article History

Received: 22 November 2023

Revised: 16 May 2024

Accepted: 06 July 2024

Keywords: Dune cricket, Nymph, Distribution, Diversity, Conservation, Sylhet hilly area.

ABSTRACT

The orthopteran insect group is poorly explored, and there is no confirmed record of any species under the Schizodactylidae family in Bangladesh. Here, we provided the first confirmed record of *Schizodactylus monstrosus* under the family Schizodactylidae. A single individual of a species belonging to the family, a nymph of *Schizodactylus monstrosus*, was sighted from a protected area of the country.

Introduction

Schizodactylidae Blanchard (1845) is a family under the order Orthoptera characterized by unique and long tegmina or forewings that are spirally coiled at the posterior end in repose. The family consists of two genera: the winged *Schizodactylus* Brullé (1835), distributed from Turkey to China, and the wingless *Comicus* Brunner von Wattenwyl (1888), distributed in Africa (Leubner et al., 2017).

Schizodactylus possesses several peculiar features that distinguish it from other Ensiferans. Indeed, species of *Schizodactylus* have intimidating habits and apparent predatory adaptations, including raptorial prothoracic legs and powerful, enlarged mouthparts. Both nymphal and adult stages are solitary burrowers, and they prefer to inhabit moist, sandy areas where tunneling is easy. The genus *Schizodactylus* has been reported in China, Thailand, Myanmar, Bhutan, India, Sri Lanka, Pakistan, Afghanistan, and Turkey (He and Liu, 2021). Several new species have been described recently under the genus *Schizodactylus* (Dawwrueng et al., 2018; He and Liu, 2021). However, in India, the genus is represented by only *Schizodactylus monstrosus* Drury (1773). This species is documented in Pakistan and several parts of India, including Assam, Bihar, West Bengal, South India, Jammu and Kashmir, and Chhattisgarh (Chandra and Gupta, 2005), but there were no previous confirmed

records of this insect family from Bangladesh with proper evidence. Ahmad (2008) mentioned species distribution in Bangladesh, India, and Pakistan based on a single literature (Maxwell-Lefroy, 1909). The article mentioned some areas, including Assam, Bihar, Karnataka, Sindh, and Punjab, where the species could be found, excluding Bangladesh.

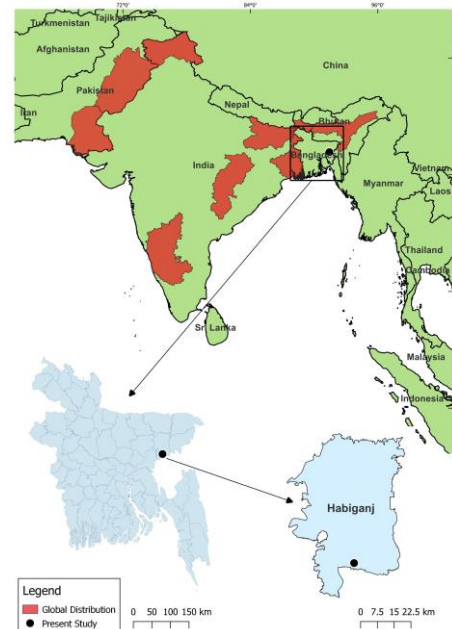


Fig. 1. Global distribution of *Schizodactylus monstrosus* (Maxwell-Lefroy, 1909; Chandra and Gupta, 2005) and present record in Bangladesh.

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During a night survey on 11 August 2023 (at 12:45 AM), a single individual of a dune cricket was found on a sandy and dry stream bed at Satchari National Park (SNP), Habiganj, Bangladesh (24°07'34.9"N, 91°26'39.93"E) (Fig. 1). It is situated in Sylhet's hilly area and is one of the most diverse parks among the 22 bio-ecological zones of Bangladesh. The area is part of a protected National Park, and we were prohibited from collecting samples. Therefore, we only captured some photographs of the species and left the place. The nymph was approximately 2.5 cm long (Fig. 2), with robust eyes and long filiform antennae, longer than the body. Each scape of the antennae was broad with a black dot.



Fig. 2. Lateral and dorsal view of *Schizodactylus monstrosus* observed in Satchari National Park, Habiganj, Bangladesh.

The labrum and mandibles were significant, indicating its ferocious carnivorous nature. The cerci were white and long. The species consists of nine nymphal stages in development, and it takes more than a year to complete its life cycle. The insect walks very fast and often jumps on the sand bed. Adults cannot fly and generally do not unfold their wings. Only the ninth nymphal instar can fly. Adults can be identified based on the dichotomous key following Dawwrueng et al. (2018), while nymphal stages can be separated following Khattar (1972). According to existing knowledge (Khattar, 1972), the specimen is a sixth-instar nymph of *S. monstrosus*.

Little is known about the ecological importance of *S. monstrosus*. It is a burrowing insect commonly known as Dune cricket, Maize cricket, or Monster cricket. The species is extremely nocturnal and keeps in its long tunnel during the day. The tunnel the species makes is unbranched, running deeper until adequate humidity. They burrow the tunnel in the loose, sandy area with plenty of moisture. Excess dryness, hardness, or watery regions are not suitable for their survival. The insect is exclusively carnivorous and feeds on beetles, grasshoppers, and other insects (Khattar, 1972; Khatua et al., 2020).

The orthopteran diversity is poorly studied in Bangladesh, though this group of arthropods is considered one of the most destructive pest insects. Few studies have explored orthopteran diversity (Aktar et al., 2018; Mahdi et al., 2018). However, there were no previous confirmed records of the family from Bangladesh. Based on our understanding, this is the first confirmed record of the family with photographic evidence of the species in Bangladesh. Further studies are highly recommended to explore the status and ecology of the species in Bangladesh.

Acknowledgment

This study was opportunistically conducted during a field study in Satchari National Park and was funded by the Biotechnology Research Centre, University of Dhaka.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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