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Sighting of Giri's Geckoella, *Cyrtodactylus varadgirii* Agarwal, Mirza, Pal, Maddock, Mishra, and Bauer 2016 (Squamata: Gekkonidae), near buffer forest area in Pench wildlife Sanctuary Maharashtra

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ABSTRACT

Giri's Geckoella, scientifically known as *Cyrtodactylus varadgirii*, is a species of gecko found in the Western Ghats of India. Giri's Geckoella is a small gecko, with a snout-to-vent length of around 60-70 mm. It has a slender body and a relatively large head. The dorsal surface is grayish-brown with dark brown blotches and spots. The ventral surface is cream-colored. It has dilated toe pads that help it climb on vertical surfaces. This species is endemic to the Western Ghats of Maharashtra and Goa states in India. It is found in evergreen and semi-evergreen forests, typically on rocks, tree trunks, and human habitations within forested areas. Its known distribution range is relatively small, spanning only a few localities. Giri's Geckoella is listed as "Endangered" on the IUCN Red List of Threatened Species. The main threats to this species include habitat loss and degradation due to deforestation, urbanization, and human disturbances. Its small distribution range and specific habitat requirements make it vulnerable to extinction. This species was first discovered and described by scientists in 2011. The specific epithet "varadgirii" is a patronym honoring the contributions of Dr. Varad B. Giri, an Indian herpetologist who studied the reptiles of the Western Ghats. Giri's Geckoella is a unique and threatened species of gecko, highlighting the importance of conserving the biodiversity of the Western Ghats region. Efforts are needed to protect its remaining habitat and ensure the survival of this endemic reptile. The present paper is for new distribution record of Giri's Geckoella.

Key words: Giri's Geckoella, New distribution, Pench Wildlife Sanctuary, Maharashtra

INTRODUCTION

Giri's Geckoella (*Cyrtodactylus varadgirii*) is a critically endangered gecko species endemic to the Western Ghats of India. First described in 2011, this small gecko has a highly restricted distribution range,

previously known only from a handful of localities in the states of Maharashtra and Goa. Due to its limited geographic range and ongoing threats of habitat loss and fragmentation, Giri's Geckoella is listed as Endangered on the IUCN Red List of Threatened Species. Understanding the precise distribution and

habitat requirements of threatened species is crucial for informing conservation strategies and management actions. Despite being a relatively recently discovered species, new information on the distribution of Giri's Geckoella can provide valuable insights into its ecological needs and potential for persistence in the face of environmental changes. In this study, we report a new distribution record for Giri's Geckoella, extending its known range within the Central India. This finding not only expands our knowledge of the species' geographic distribution but also highlights the importance of continued exploration and monitoring efforts in understudied regions. The discovery of additional populations of Giri's Geckoella can have significant implications for conservation planning, such as identifying potential new areas for protection, assessing population connectivity, and informing future research priorities. Furthermore, this record

underscores the importance of the Central India for biodiversity conservation, harboring numerous endemic and threatened species. By documenting new distribution records and enhancing our understanding of the spatial ecology of species like Giri's Geckoella, we can better inform conservation efforts and ensure the long-term survival of these unique and irreplaceable components of India's rich natural heritage.

METHODOLOGY

Opportunistic survey of reptiles in the buffer zone of Pench Tiger Reserve, the location is about 12 km far away from the Khubala Gate of Pench Tiger Reserve. The location is a wetland near agriculture farmland ($21^{\circ}25'29.7''\text{N}$ $79^{\circ}01'04.2''\text{E}$) is come under the Sanctuary area.



Fig. 1: Bird eye view of the buffer zone of Pench Tiger Reserve and Sanctuary

Historical feature of Giri's Geckoella

Originally reported as *Gymnodactylus collegalensis* from Balarangans (in the former Kolegal State), Yelandur, Karnataka, the Kollegal Ground Gecko is actually *Cyrtodactylus collegalensis* (Beddome 1870). The northernmost portion of the species' range was noted by Sekar (1994) in Maharashtra's Sanjay Gandhi National Park. The species was reported by Vyas (1998) from the Gir National Park, and there are other records from Dhule and Chandrapur (Mirza et al. 2010) and Little Rann of Kutch (Walmiki 2013). Following the identification of north and south Indian forms by Agarwal et al. (2016), Giri's Geckoella (*Cyrtodactylus varadgirii*) is now the designation given to the populations from Gujarat, Madhya Pradesh, and Maharashtra.

RESULTS

New Distribution area (Pench Wildlife Sanctuary)

The Pench Tiger Reserve and Wildlife Sanctuary is a prominent protected area situated in the Satpura hill ranges of Madhya Pradesh, India. Established in 1977 and later becoming part of the Pench Tiger Reserve, it covers an area of around 292 sq km. The sanctuary is characterized by dry deciduous forests, teak forests, grasslands, and the Pench River flowing through it. Pench is known for its rich biodiversity, including endangered species like the Bengal tiger, leopard, sloth bear, and Indian wolf. It is particularly renowned for its avifauna, with over 285 bird species recorded. The sanctuary plays a crucial role in tiger conservation efforts and is part of an important tiger habitat landscape. Its effective conservation measures aim to protect this valuable ecological asset and its diverse flora and fauna for future generations. This

new central Indian locality of *Cyrtodactylus* for the species.
varadgirii represents the northeastern most localities

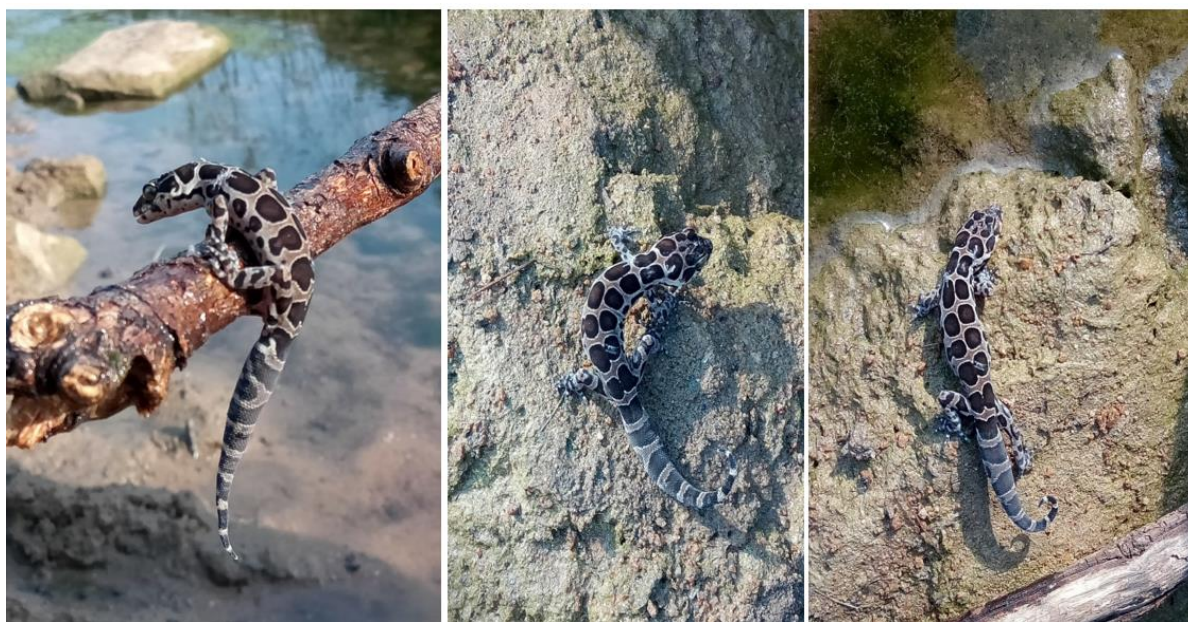


Fig. 2. Dorsal view of photographic record of Giri's *Geckoella* near Pench Wildlife Sanctuary, Maharashtra.

Giri's *Geckoella* is a small gecko species, with adults having a snout-to-vent length (SVL) ranging from approximately 60 to 70 millimeters. It has a slender body and a relatively large head in proportion to its body size. The dorsal (upper) surface of Giri's *Geckoella* is grayish-brown in color, with dark brown blotches and spots scattered across the body and tail. The ventral (underside) surface is cream-colored. The head is large and slightly depressed, with a blunt snout and large eyes with vertical pupils. The limbs are well-developed, and the gecko has dilated toe pads on its feet, which help it climb on vertical surfaces such as rocks and tree trunks. The tail is relatively long and slender, and it can be easily detached (autotomy) as a defense mechanism if grabbed by a predator. It inhabits rocks, tree trunks, and human habitations within forested areas. Giri's *Geckoella* is one of the widely distributed but poorly known ground dwelling geckos from India (Figure 2).

DISCUSSION

A critically endangered species of gecko native to India's Western Ghats, the Giri's *Geckoella* is extremely rare in Maharashtra (Mirza et al., 2011; Giri et al., 2017). Only a few locations in the state—mainly in the northern Western Ghats region—have records for this species. Giri's *Geckoella* distribution records in Maharashtra include Sawantwadi and Amboli in Sindhudurg district (Mirza et al., 2011; Giri et al., 2017) and Radhanagari in Kolhapur district (Giri et al., 2017). The Northern Western Ghats wet deciduous forests ecoregion, which is defined by a distinctive combination of evergreen and semi-

evergreen forest habitats, is where these places are located (Olson et al., 2001).

In the present opportunistic survey of reptiles in the buffer zone of Pench Tiger Reserve, the location of the findings of Giri's *Geckoella* is about 12 km far away from the Khubala Gate of Pench Tiger Reserve. The location is a wetland near agriculture farmland is come under the Sanctuary area. Another opportunistic reporting of the Giri's *Geckoella* in Pench Tiger Reserve (PTR) which is considered as the first record of this reptile (TOI-26 Sept 2023) this gecko located by the tourist guide NM Neware in Chorbahuli range and photographed. According to the officials 53 reptile species were recorded.

The Giri's *Geckoella* lives in these wooded regions; it is frequently observed on tree trunks, rock outcrops, and even within the boundaries of human habitations (Mirza et al., 2011; Giri et al., 2017). It looks that the species has certain preferences for microhabitats; it seems to do best in places with appropriate humidity and temperature. Curiously, Giri's *Geckoella*'s known distribution records in Maharashtra span an elevational range of roughly 100 to 700 metres above sea level (Giri et al., 2017), indicating possible effects of elevation on the species' patterns of dispersion. The known range of the species in Maharashtra may still contain under sampled areas and distribution gaps despite concentrated efforts to map it. Comprehensive surveys in these locations may yield important information about the connectivity of populations within the species and assist in locating other populations that may be essential for conservation efforts. Regretfully, because Giri's *Geckoella* is so rare in Maharashtra, it is extremely

susceptible to a number of challenges, chief among them habitat degradation and loss (Giri et al., 2017; Molur and Walker, 1998). Further investigations ought to concentrate on obtaining a more profound comprehension of the ecology, population dynamics, and genetic diversity of the species (Giri et al., 2017). The creation of focused management plans and conservation initiatives can both benefit from these researches. To safeguard the remaining habitats of Giri's *Geckoella* in Maharashtra, partnerships between researchers, conservationists, and local populations are also crucial for spreading awareness and carrying out practical conservation measures (Molur and Walker, 1998; Giri et al., 2017).

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