



Report on tail bifurcation in *Hemidactylus* gecko from Odisha, India



The bifid tail of the *Hemidactylus* sp.
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Caudal autotomy, the voluntary self-amputation of the tail by intravertebral breakage followed by regeneration, is a phenomenon observed in many reptile species and is widely recognized as a means of avoiding predation (Slowinski & Savage 1995; Clause & Capaldi 2006). It aids in evading predators (Maginnis 2006), and it can negatively impact reproductive fecundity, as the tail serves as an energy reserve for females to produce eggs (Smyth 1974). The loss of the tail in lizards can impair various aspects of their ecological and physiological well-being, including behaviour, movement, foraging,

metabolism, prey-predator relationships, and reproductive fitness (Bateman & Fleming 2009).

After the release of a tail along the fracture plane of a caudal vertebra, the regeneration process can occasionally result in malformations, such as a split or multi-branched tail (Higham et al. 2013).

Baum & Kaiser (2024) reviewed tail furcation in lizards, reporting its occurrence in 250 species across 25 families based on existing records. They noted that 78% of these species exhibit



bifid tails, 13% are reported to have tails that are either bifid or multifid and 9% of species are documented to display exclusively multifid tails. Notably, tails with more than three branches are exceedingly rare, with only 10 such cases reported.

Tail bifurcation has been reported in gekkonids belonging to the genera *Cyrtodactylus*, *Gehyra*, *Gekko*, *Gonatodes*, *Hemidactylus*, and *Lygodactylus*. In the case of the House Gecko *Hemidactylus frenatus* Duméril & Bibron 1836, records of tail abnormalities exist across several continents (Caicedo-Martínez et al. 2022).

Tail furcation in the genus *Hemidactylus* has been reported in 14 species around the world. The species include *agrius* Vanzolini, 1978; *almakhwah* Šmid et al., 2023; *bowringii* (Gray, 1845); *Hemidactylus* sp. (as *H. brookii*); *flaviviridis* Rüppell, 1835; *frenatus* Duméril & Bibron, 1836; *giganteus* Stoliczka, 1871; *gleadowi* Murray, 1884; *leschenaultii* Duméril & Bibron, 1836; *mabouia* (Moreau de Jonnés, 1818); *persicus* Anderson, 1872; *platyurus* (Schneider, 1797); *prashadi* Smith, 1935; and *turcicus* (Linnaeus, 1758) (Baum & Kaiser 2024).

On 29 January 2021 at 0033 h, in Jagannath Vihar, Baramunda, Bhubaneswar, Odisha, India (20.2872° N, 85.7905° E) a large sized House Gecko was observed moving during the night. The gecko appeared normal and healthy, despite minor scars on its right forelimb and left hindlimb, as well as a small healed scar on its tail. Photographs of the lizard were sent to an expert and was tentatively identified as *Hemidactylus flaviviridis* Rüppell based on the

following combination of characters: stout body, oval head, small head scales, and dorsum lacking tubercles (Das & Das 2017). However, accurate species identification requires a specimen, which was not collected. Therefore, the identification at the species level could not be confirmed. The gecko was observed over the next 10 days before it disappeared from the area. Notably, the gecko had a bifurcated tail, which split around a quarter of the way down from the base. During this period, no difficulties in locomotion or food gathering were noted, although the gecko moved slowly.

There are several reports of tail bifurcation in lizards across India. One of the recent records from Odisha was reported by Fullonton et al. (2024), and our observation represents the second report of tail bifurcation in a lizard from Odisha, India. Such reports are important as they contribute to understanding rare morphological anomalies in reptiles, providing insights into developmental biology, ecological adaptations and the potential impact of environmental factors such as predation and habitat stress.

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