



### A two-tailed Indian giant leaf-toed gecko (*Hemidactylus giganteus*)

Tail autotomy is a common strategy for evading predators in lizards. It has been observed in 13 out of 20 lizard families (Downes, 2001; Bateman & Fleming, 2009). The ability to shed its tail increases a lizard's chance of escape as the attention of the predator is drawn to the writhing or wriggling tail, while the lizard makes its escape. However, the loss of the tail can lead to a range of impacts on the lizard including a decrease in the lizard's social status and increased vulnerability to predators in future (Arnold, 1984; McConnachine & Whiting 2003).

Tail regeneration is a fascinating biological process during which the missing structures are almost always restored, although the regenerated tail generally differs from the original. A lost tail can be regenerated in a lizard throughout the course of its life (Balinsky, 1981; Maginnis, 2006). Some studies suggest that in lizards with regenerating tails there is a gradual increase in the level of reduced glutathione (GSH) a non-enzymatic antioxidant (Mahapatra *et al.*, 2010).

Two-tailed (bifid, two pronged) or occasionally even three-tailed (trifid, three pronged) lizards are not uncommon. The twin tail phenomena usually happens when the tail is only partially broken and does not separate completely from the body, but enough is broken that new tail growth begins. How such a creature manages its balance is puzzling and the impacts of tail bifurcation on a lizard warrants further study.

Although few observation of bifid or bifurcated tails among species belonging to the genus *Hemidactylus* can be found in the scientific literature (Brindley, 1894; Woodland, 1920; Das, 1932; Chan *et al.*, 1984; Kumbar *et al.*, 2011), instances of such observations have been reported in some species belonging to the genera

of Agamidae, Scincidae, Iguanidae, Lacertidae, Gekkonidae and Teiidae (Brindley, 1898; Chandra & Mukherjee, 1980; Anajeva & Danov, 1991; Gogliath *et al.*, 2012; Martins *et al.*, 2013). The grey literature (newspaper reporting) reports two sightings of lizards with bifid tails, the first being a specimen of *Hemidactylus cf. brookii* (Gray, 1845) from Thiruvananthapuram, Kerala and the second a specimen of *Hemidactylus leschenaultii* (Duméril & Bibron, 1836) from Palamaneru, Chittoor district, Andhra Pradesh.

Herpetofaunal surveys carried out in the state of Telangana yielded the sighting of a two-tailed *Hemidactylus giganteus* (Stoliczka, 1871) from Kumari (19°21'31.74"N, 78°24'47.78"E; alt. 390 m), Adilabad District, Telangana, India. The specimen (Fig. 1) was observed to be actively feeding at about 19:00 h on 14 May 2014. Close observation of the specimen indicated that the lizard possessed a distinct regenerated tail beneath a perpendicularly positioned original one. It seems that the original tail had been broken on the ventral side, perhaps during a failed attempt at capture by a predator, but it had not detached completely from the lizard's body. Physiological messages from the site of damage had set in motion the regeneration process, and with the passage of time a fully grown regenerated tail formed while the original tail remained attached. Interestingly, the regenerated tail showed ventral scale pholidosis on its dorsal side.

Though the gecko was observed to be managing a normal life, studies indicate that lizards with lost, mutilated or regenerating tails have been reported to lose their social status with respect to mating success, preferred feeding site and reduced home range (Fox & Rostker, 1982; Fox *et al.*, 1990; Smith 1992; Martin & Salvador, 1993; Althoff & Thompson, 1994; Salvador *et al.*, 1995; Mariappan & Balasundaram, 2003).



**Figure 1:** An aberrant two-tailed *H. giganteus* (note the position of the original tail being perpendicular to the regenerated tail).

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