

# Ticks (*Amblyomma* sp.) on an Indian Star Tortoise (*Geochelone elegans*) in the Gir Forest, Gujarat, India

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The Indian Star Tortoise, *Geochelone elegans* (Testudinidae), is a medium-sized tortoise endemic to the Indian Subcontinent. Typical carapace length (CL) of females is 32 cm but individuals with CL > 50 cm are known; male CL ranges to 26 cm (D’Cruze et al. 2018). The species occurs in scrub forests, grasslands, and some coastal scrublands of arid and semi-arid regions as well as in human-dominated landscapes, including agricultural fields, hedgerows, and plantations, in Pakistan, India, and Sri Lanka (D’Cruze et al. 2018). Three genetically distinct allopatric western, southern, and Sri Lankan populations exist (Gaur et al. 2005; D’cruze et al. 2018).

The largest portion of the western population occurs in Gujarat, where the largest expanse of protected habitat is in the Gir Forest (Das 1995; Vyas 2011, 2015; D’Cruze et al. 2018). The Gir Forest encompasses about 3,200 km<sup>2</sup>, including three protected areas (Gir National Park & Sanctuary and the Pania Wildlife Sanctuary) that provide the last remaining refuge of the Asiatic Lion (*Panthera leo persica*).

On 17 September 2015, returning from a visit to the Gir Interpretation Zone, we encountered a large Indian Star Tortoise (*Geochelone elegans*) at the edge of the road (Fig. 1) about 3 km from Suraigadh (21.20012°N, 70.52464°E). It was a female (23 cm CL) over 18 years old (age estimated by



**Fig. 1.** A large female Indian Star Tortoise (*Geochelone elegans*) having just crossed a road in the Gir Forest, Gujarat, India. Photograph by Manoj Thaker.



Fig. 2. A large female Indian Star Tortoise (*Geochelone elegans*) from the Gir Forest, Gujarat, India, infested with ticks (*Amblyomma* sp.). Photograph by Manoj Thaker.

counting carapacial growth rings). Three large female ticks were attached along a suture on the right side of the carapace (Fig. 2) and another small tick was on the base of the tail. We collected the ticks and, using criteria in Robinson (1926) and Miranpuri and Gill (1983), identified them as *Amblyomma* sp. (most likely *A. clypeolatum*).

Three species of ticks (*Amblyomma clypeolatum*, *A. testudinarium*, and *Haemaphysalis turturis*) have been reported parasitizing Indian Star Tortoises (Liyanaarachchi et al. 2015). In particular, *A. clypeolatum* is known to occur on various populations of Indian Star Tortoises in nature and in captivity (Nathanael et al. 2004). This tick has been recorded from India (including Gujarat) and Sri Lanka (Warburton 1925; Robinson 1926; Sharif 1928; Seneviratna 1965; Sharma 2001). Frazier and Keirans (1990) reported tick infestations on 5 of 9 Indian Star Tortoises in Andhra Pradesh (56%, individuals) but only on 2 of 90 tortoises from Rajasthan and Gujarat. Srinivasulu and Srinivasulu (2002) found ticks on 2 of 19 tortoises. Such widely varying counts suggest that levels vary locally.

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