



H U S B A N D R Y

How Long Can an Elongated Tortoise (*Indotestudo elongata*) Survive Without Food?

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The Elongated Tortoise (*Indotestudo elongata*), with a range that encompasses southern Nepal, Bangladesh, Bhutan, northeastern India, Myanmar, Laos, Thailand, Cambodia, Vietnam, western Malaysia, and southern China (Uetz et al. 2021), is the only tortoise native to Nepal. It inhabits a variety of habitats, including open deciduous dipterocarp, mountainous and hilly evergreen, mixed semi-evergreen, and secondary forests, as well as savannah grasslands and dry thorn scrub (Bonin et al. 2006; Ihlow et al. 2016; Rahman et al. 2019). In Nepal it is typically associated with Sal (*Shorea robusta*) dominated forest (Schleich and Kästle 2002; Kästle et al. 2013).

Elongated Tortoises are omnivorous generalists and feed on a variety of foods according to availability by habitat (Ihlow et al. 2016; Rai 2020). It is primarily crepuscular and is most active during the rainy season (Schleich and Kästle 2002; Ihlow et al. 2016; Rai 2020). The Elongated Tortoise is listed as Critically Endangered on the IUCN Red List of Threatened Species (Rahman et al. 2019) and is included in Appendix II of CITES.

The Turtle Rescue and Conservation Centre (TRCC) is the only community-based turtle conservation centre in Nepal and it has been rescuing and rearing turtles since 2012 (Rai 2017). On 9 December 2016, an emaciated Elongated Tortoise (Fig. 1) was rescued by TRCC from a temple in

Lalitpur, central Nepal. It had briefly been kept in a bathroom and provided with food in Kathmandu until transported by car to the TRCC in Jhapa District of eastern Nepal.

Upon arrival, the shell was atypically dark and possibly filthy, so it was thoroughly cleaned with a toothbrush before collection of morphometric data; however, much of the black coloration remained (Fig. 1). This coloration might be attributable to the butter used in temples when burning lamps. The Individual Data Sheet (IDS) of the tortoise, prepared on 14 December 2016 with the code “Ie-02” (adult male Elongated Tortoise), noted that carapace size (straight length x breadth) was 24 x 17 cm, plastron size (straight length x breadth) 20 x 15 cm, shell height 11 cm, and weight 2,260 g.

After taking measurements, the tortoise was quarantined for required treatment and observation. Ripe fruits and chopped vegetables were provided with the addition of Fenbendazole to clear out internal parasites. The tortoise was also given food without added medication. The tortoise did not feed; instead it promptly retreated into a secure hiding place under leaf litter or any other available substrate. As it was winter, the tortoise was left undisturbed for brumation.

As the monsoon began in June/July 2017, all tortoises except this individual emerged from hiding places and were active. In July, liquid Fenbendazole was injected by syringe



Fig. 1. An Elongated Tortoise (*Indotestudo elongata*) from a temple in Lalitpur, central Nepal (left); the rescued tortoise after cleaning at the TRCC (center); dipping Elongated Tortoises in lukewarm water (right) with the rescued tortoise on the right. Photographs by Tanka Bhattarai (left) and Tapil Prakash Rai (center and right).



Fig. 2. An open wound in the left forelimb of the Elongated Tortoise (*Indotestudo elongata*) at the TRCC that healed with treatment (left); Elongated Tortoises in an enclosure at the TRCC (right), with the rescued individual buried in leaf litter in the upper right. Photographs by Tapil Prakash Rai.

(without needle) into this tortoise's cloaca but was instantly expelled. It was dipped in lukewarm water for 10 minutes every 15 days (Fig. 1) and attempts to force-feed it were unsuccessful. On 2 September 2017, it suffered a deep wound of the left forelimb (Fig. 2), which healed with treatment. It was left undisturbed for brumation during the upcoming winter season.

In April 2018, liquid Fenbendazole and food paste was administered orally and Ringer's solution and ciprofloxacin were injected. The tortoise was then transferred to a terrestrial enclosure with other Elongated Tortoises (both males and females) with hopes that this would trigger its innate behav-

ior. Instead, it hid quietly under leaf litter for the entire time (Fig. 2). As this rescued male Elongated Tortoise had not fed since it was brought to the TRCC, it had lost 343 g of weight by 26 October 2018.

When the tortoise was dipped routinely into lukewarm water on 8 June 2019 for 10 minutes, it surprisingly defecated for the first time, producing hard feces approximately 2 cm in length and dark in color. The tortoise was weighed (1,724 g) and subsequently released in a terrestrial enclosure with other tortoises. At that time, it became more active. Also, it would sniff food before leaving it but after a few months it started to eat.



Fig. 3. The rescued Elongated Tortoise (*Indotestudo elongata*) at the TRCC feeding voraciously on ripe papaya (left) and pursuing a female (right). Photographs by Tapil Prakash Rai.

On 6 September 2019, the tortoise was encountered feeding voraciously on ripe papaya (Fig. 3). Thereafter it became very active and would readily feed on food provided. On 5 July 2020, it was observed pursuing a female (Fig. 3) and fighting with other males. Its weight was up to 2,060 g.

Reports on the prolonged survival of turtles without food are abundant but citable references are scarce, and the relevant literature typically lacks the detailed case history like that recorded herein. A captive Indian Flapshell Turtle (*Lissemys punctata*) lived for two years without taking food (Daniel 1983) and an Indian Peacock Softshell Turtle (*Nilssonina hurum*) survived without food for more than a year (Schleich and Kästle 2002). Kept in otherwise species-appropriate conditions, the Elongated Tortoise described here survived without food for two and a half years in captivity, living proof of the sheer resilience of turtles and tortoises. Despite this remarkable tenacity, turtles are among the most threatened vertebrates in the world and are in urgent need of immediate conservation action.

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Literature Cited

- Bonin, F., B. Devaux, and A. Dupre. 2006. *Turtles of the World*. A&C Black, London, United Kingdom (originally published in French in 1996; translated by P.C.H. Pritchard).
- Daniel, J.C. 1983. *The Book of Indian Reptiles*. Bombay Natural History Society, Bombay, India.
- Ihlow, F., J.E. Dawson, T. Hartmann, and S. Som 2016. *Indotestudo elongata* (Blyth 1854) – Elongated Tortoise, Yellow-headed Tortoise, Yellow Tortoise. In: A.G.J. Rhodin, P.C.H. Pritchard, P.P. van Dijk, R.A. Saumure, K.A. Buhlmann, J.B. Iverson, and R.A. Mittermeier (eds.), *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*. *Chelonian Research Monographs* 5(9): 096.1–14.
- Kästle, W., K.R. Rai, and H.H. Schleich 2013. *Field Guide to Amphibians and Reptiles of Nepal*. ARCO-Nepal e.V., München, Germany.
- Rahman, S., K. Platt, I. Das, B.C. Choudhury, M.F. Ahmed, M. Cota, T. McCormack, R.J. Timmins, and S. Singh. 2019. *Indotestudo elongate* (errata version published in 2019). *The IUCN Red List of Threatened Species* 2019: e.T10824A152051190. <https://dx.doi.org/10.2305/IUCN.UK.2019-1.RLTS.T10824A152051190.en>.
- Rai, T.P. 2017. Conservation of endangered turtles in ‘Turtle Rescue and Conservation Center’ at Sukhani Martyrs Memorial Park, Jhapa. *Adhyayan Journal of Mechi Multiple Campus* 6: 81–90.
- Rai, T.P. 2020. An Elongated Tortoise (*Indotestudo elongata*) attempting to prey on a Buff-striped Keelback (*Amphiesma stolarum*) at the Turtle Rescue and Conservation Centre in eastern Nepal. *Reptiles & Amphibians* 27: 297–299.
- Schleich, H.H. and W. Kästle (eds.). 2002. *Amphibians and Reptiles of Nepal: Biology, Systematics, Field Guide*. A.R.G. Gantner Verlag, Ruggell, Liechtenstein.
- Uetz, P., P. Freed, R. Aguilar, and J. Hošek (eds.). 2021. *The Reptile Database*. <<http://www.reptile-database.org>>.