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## Record of the Critically Endangered Elongated Tortoise *Indotestudo elongata* (Blyth, 1853) at High Elevation, Bhutan

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## Abstract

We report a record of a threatened tortoise species, *Indotestudo elongata*, in a cool broad-leaved forest in central Bhutan at high elevation. The tortoise was observed at an elevation of 1910 m asl, which is the highest elevation at which the species is recorded so far. This gives us an inference that this Critically Endangered species is now adapting to cooler regions at higher elevation.

Keywords: Indotestudo elongata, threatened tortoise

The Elongated Tortoise, *Indotestudo elongata* (Blyth, 1853) belonging to family Testudinidae, is a medium sized, sexually dimorphic tortoise species (Ihlow *et al.* 2016). It is widely distributed across South and Southeast Asia covering Bangladesh, Bhutan, Cambodia, India, Lao People's Democratic Republic, Malaysia, My-anmar, Nepal, Thailand, Vietnam and China (Rahman *et al.*, 2019) (Figure 1). Though widely distributed, the species population has been declining as a result of human disturbances (Ihlow *et al.* 2016). While habitat loss, extensive exploitation for human consumption, and

export trade are the major threats for tortoise conservation across its distribution range (Rahman et al., 2019), Indotestudo elongata is being heavily used for food and traditional medicine throughout its range and are being extensively hunted for local use and export in the international wildlife trade (Ihlow et al., 2016). As a consequence, around 80% of the Indotestudo elongata population has declined in the last 90 years and has been listed as Critically Endangered under criterion A2cd of the IUCN Redlist of Threatened Species during the species redlist assessment in 2018 (Rahman et al., 2019). It is also listed in Appendix II of CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) to strictly monitor its trade.

In Bhutan the species was first observed at Gelephu in Sarpang District in southeast Bhutan on 16 September 2008 as reported by Wangyal, 2012. Later on few other observations were also made from Bhutan's Royal Manas National Park (Wangyal, 2012). Six tortoise

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species including the critically endangered *Indotestudo elongata* are known to be recorded in Bhutan (Wangyal, 2014).

On 7 August, 2020, an individual of *In-dotestudo elongata* was observed at an elevation of 1910 m asl in a cool broad-leaved forest adjacent to an agriculture land in Tsirang, Bhutan (Figure 2). As the observation area was quite close to human settlements, we observed the behaviour of the species and associated threats nearby to confirm that the individual animal was not transported by humans.

We carried out behavioural observation and the species had been found feeding on herbaceous leaves, worms and insects as observed by Ihlow *et al.* (2012) and displayed normal other wild behaviours where we can conclude that the record is in its natural habitat (not-human transported). Wangyal (2012) also reported that there is no report of turtle trade or consumption within Bhutan. Bhutan's Forest and Nature Conservation Rules and Regulations 2017's section 237 and 238 states that "wildlife under this Rules shall not be hunted, killed, destroyed, poisoned, trapped, transported, captured, bred, collected, possessed or kept as pet". However, as the current observation site was not safe for the species as it was close to the settlement with pack of stray dogs in the area, the species was translocated to a similar habitat far from human settlement and disturbances.

According to several studies, *Indotestudo elongata's* distribution range stretches from 50 m asl till 795 m asl. In Cambodia it has been recorded between 50–60 m asl (Hartmann *et al.*, 2013), in Bhutan at 255 m asl (Wangyal *et al.*, 2012), in Vietnam between 100–300 m asl (Ihlow *et al.*, 2012), in the hills of western Thailand between 225–560 m asl (Van Dijk, 1998) and at 795 m asl in Myanmar (Platt *et al.*, 2012).

The animal species was also observed at Pema Gatshel, Nangkor at 1280 m asl in Bhutan (Jigme T. Wangyal personal communication). However, our present record confirms the highest elevation range at 1910 m asl, which is higher than 600 m of the earlier known elevation range across its distribution range.



Figure 2: Image of Indotestudo elongata

According to Senneke (2000), Elongated Tortoise avoids extreme temperature through their activity patterns. Their activities are mainly restricted to early morning and the late evening to avoid the extreme temperatures according to the study. Further, *Indotestudo elongata is* required to use large area and cover a large home range (Ihlow *et al.*, 2014). Therefore, the species might have opted and shifted their distribution to much higher elevations as a result of climate change or its requirement of large home range.

This observation record, besides setting new elevation record for *Indotestudo elongata*, also

suggests that the species might be shifting its range to cooler regions at higher elevations in the context of climate change. However, since there is very limited record of the species at such elevation and habitat type, more surveys are recommended to ascertain if there is a thriving population of the species in the locality. Furthermore, considering the rarity of the species and human induced threats on the rise, the habitats in which the species is found needs to be protected to save the species. We recommend revisiting the conservation status of this threatened tortoise in the Bhutan's Forests and Nature Conservation Rules and Regulations.



Figure 1: Distribution map

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