



STATUS, DISTRIBUTION AND CONSERVATION OF THE ELONGATED TORTOISE, *Indotestudo elongata* (BLYTH, 1853) IN COX'S BAZAR SOUTH FOREST DIVISION OF BANGLADESH

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ABSTRACT

The present study was carried out on the elongated tortoise (*Indotestudo elongata* Blyth, 1853) in Cox's Bazar South Forest Division of Cox's Bazar District in Bangladesh between July 2012 and February 2013. The elongated tortoise was recorded in four of the 10 Forest Ranges (Rajarkul, Inani, Ukhia and Whykheong) under this Division. It prefers areas around in hilly-rocky streams and creeks. No commercial trade of the species was identified but tribal people capture and consume its meat. There is an urgent need to take necessary steps to stop further loss of its population in the area.

Key words : Elongated tortoise, *Indotestudo elongata*, Cox's Bazar South, Conservation, Bangladesh.

INTRODUCTION

About twenty-eight species of chelonians are known to occur in Bangladesh of which two are land tortoises viz., elongated tortoise, *Indotestudo elongata* (Blyth, 1853) and Asian giant tortoise, *Manouria emys* (Schlegel & Müller, 1840) (Khan, 1982a, b; Das, 1989, 1990; Kabir *et al.*, 2009). Elongated tortoise is distinguishable by its yellowish carapace with smudgy black spots on abdominal scutes (Blyth, 1854; Günther, 1864; Smith, 1931; Pritchard, 1979). It is found around low rocky hilly forest and forest stream (Chakma, 2009). It is an Endangered species globally (IUCN, 2013) and Critically Endangered in Bangladesh (IUCN-Bangladesh, 2000). It is included in CITES Appendix II and First Schedule of the Bangladesh Wildlife (Conservation and Security) Act, 2012. This species is declining due to overexploitation and habitat loss in Bangladesh (Chakma, 2009). No published information is available on the occurrence of the species in the Cox's Bazar South Forest Division, as well as Cox's Bazar District of Bangladesh. So, an attempt was made to carry out an extensive field survey to determine the occurrence of the species, its status and distribution, and pin point possible conservation measures.

MATERIALS AND METHODS

Study area

Cox's Bazar South Forest Division is the southernmost Forest of Bangladesh (Fig. 1). It covers

44,174.91 hectares of forested areas under 10 Forest Ranges and 44 Forest Beats. Present study covered all the ranges that are mostly hilly. These are close to the sea along the western boundary. Many large and small streams and creeks originated from the hills of Cox's Bazar South Forest Division that end up either into the Naf River or the Bay of Bengal.

Vegetation of the Cox's Bazar South Forest Division is mixed-evergreen type but most of the hill forests are denuded due to habitat destruction and illegal encroachments.

Major tree species are Garjan (*Dipterocarpus* spp.), Civit (*Swintonia floribunda*), Chapalish (*Artocarpus chama*), Telsur (*Hopea odorata*), Shimul (*Bombax ceiba*), Koroi (*Albizia* spp.), Bandorholla (*Duabhangia grandiflora*), Jam (*Syzygium* spp.), Uri-am (*Magnifera longipes*), Bhadi/Jiol (*Lannea coromandelica*), Jarul (*Lagerstroemia* spp.), Gamar (*Gmelina arborea*), Figs (*Ficus* spp.) and Ajuli (*Dillenia pentagyna*) (Ahsan, 1984; Kabir, 2012).

Undergrowth consists of Bamboo forests, ground orchard, Bet (*Calamus* spp.) and different types of herbs and shrubs. There are abundant creepers, lianas, and epiphytes, which include *Tinospora cordifolia*, *Spatholobus roxburghii*, *Entada pursaetha*, *Derris* sp., *Ipomoea* sp., *Passiflora* spp., *Oberonia* spp. and others (*op. cit.*).

Field method

The Present study was carried out by direct visual observations and as well as interviewed forestry and forest dependant people (officials, local people, forest

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villagers and tribal people), through prepared questionnaires between July 2012 and February 2013.

They were also interviewed to know the existence of the = 3, $p < 0.05$). Respondents (64.1%) commented that the species, capturing/hunting, conservation, etc. population of tortoise has declined in the study area and Possible tortoise habitat was identified through filled in 100 sets of questionnaires from interviewees. Identified habitats were intensively surveyed in alternate morning and evening session. Emphasis was also given on the evening observations because of the crepuscular habit of the species. Surveys were conducted by the transect method using hilly streams/creeks, walking trails and forest bridle paths. Data were analyzed through SPSS 16.0.

RESULTS AND DISCUSSION

The occurrence of elongated tortoise (*I. elongata*) was recorded for the first time from Cox's Bazar South Forest Division as well as in Cox's Bazar District. Earlier, no other author mentioned the presence of this species from this Forest Division (Kabir *et al.*, 2009; Khan, 2008), although Ahsan (1994) reported it from the Chunati Wildlife Sanctuary of Chittagong Forest Division when Khan (1982b) reported it from the Chittagong Hill Tracts. Das (1990) reported this species at Bhanugachi Reserved Forest in north-east Bangladesh.

The species is rarely distributed at Rajarkul, Inani, Ukhia, and Whykheong Forest Ranges and this survey recorded only 10 individuals from six places (subsites) (Table 1). All the sightings were noted from hilly streams or near hilly streams except Marishbungia of Rajarkul Forest Range where it was found inside forest.

Respondents enter into the forest for timber wood collection (12%), fire wood collection (57%) and also take part in patrolling with the forest officials (31%), but there was no significant difference within each group of people whether they sighted tortoises or not (wood cutter: $\chi^2 = 0.333$, $df = 1$, $p > 0.05$; firewood collector: $\chi^2 = 2.965$, $p > 0.05$ and patrolling forests: $\chi^2 = 1.581$, $p > 0.05$). The categories of person (daily, weekly, fortnightly and monthly) entered into the forest did not vary significantly of seeing tortoises except fortnightly, which was significant (daily: $\chi^2 = 1.143$, $df = 1$, $p > 0.05$; weekly: $\chi^2 = 2.951$, $p > 0.05$; fortnightly: $\chi^2 = 8.067$, $p < 0.01$ and monthly: $\chi^2 = 1.6$, $p > 0.05$).

There was a significant variation between the respondents, those saw elongated tortoises in the forest and those did not see the species ($\chi^2 = 4.84$, $df = 1$, $p < 0.05$). Overall, 39% respondents observed the tortoise within the last two years and only 14% respondents saw the turtle during the last three months.

Following information is based on the respondents who saw the elongated tortoise in the forest. Majority of the sightings (46.2%) by respondents were from the hilly

streams followed by 30.7% in vegetated areas and 23.1% in hilly slopes. Sighting of tortoises varied significantly among the habitats- bush and shrub, hilly slope, near hilly stream, and dense forest ($\chi^2 = 10.129$, df the rest (35.9%) had no idea on the decline. So, the tortoise population is decreasing rapidly in the area. It is declining due to habitat destruction (41.0%); capturing and consuming meat/flesh (23.1%) and the rest (35.9%) do not have any idea on cause of decrease. Of the respondents, 79.1% tribal people capture and consume the flesh of the tortoise, and the rest (20.9%) have no intension of capturing.

Forest dependent people enter into the forest for collecting timber (illegally), fire wood and other forest resources. Sometimes, they come cross elongated tortoises. In most of the cases, they ignore the tortoises, but if captured due to curiosity are soon returned back to the jungle (66.8%), although in some cases captured tortoises are gifted to the tribal people (18.5%), in other occasions (11.1%) were consumed by catchers and the rest (3.6%) were sold to the tribal people. Chakma, Tanchangya and Marma tribes live around the forest of Cox's Bazar South Forest Division. Comparing the decreasing of tortoise due to habitat destruction (including decreasing preferable habitat) and trade (including flesh consumption) was not statistically significant ($\chi^2 = 1.96$, $df = 1$, $p > 0.05$). Usually when a tortoise is captured, it is either released into the forest later, or eaten by the catcher or given someone to eat and these three fates of a captured tortoise did not vary significantly ($\chi^2 = 1.68$, $df = 2$, $p > 0.05$).

Only 48.8% of the people interviewed have some idea on food and feeding habits of the tortoise. Majority (30.8%) mentioned mollusks as food items. They also mentioned grass and leaves (2.6%), fruits (5.1%) and other foods such as scincid lizards (10.3%). Threats to the tortoise can be minimized through conservation awareness programmes (said 7.7% respondents), penalties and fine (30.8%) and prevent wood collection (43.6%) and the rest 17.9% have no conception about tortoise conservation.

Conclusion

The elongated tortoise (*Indotestudo elongata*) population is rapidly declining from the Cox's Bazar South Forest Division since the last decade. This species is an Endangered species globally and Critically Endangered in Bangladesh. Following steps have been suggested to prevent further declination, otherwise it may face local extinction: (1) creation of conservation awareness programmes among the local people about the species and its role in nature and to prevent consuming its flesh, especially amongst the tribal; (2) publicizing the punishment for violating Wildlife (Conservation and Security) Act, 2012, for capturing tortoises and other wildlife. One year jail or 50,000 BDT (1 USD = around 80 BDT) to fine or both punishment

will be applicable for capturing tortoise or other wildlife from nature; (3) arranging local training for forest officials on the protection of forest habitats and resources that will ensure habitat improvement and restoration; (4) enforcement of laws and regulations of the Wildlife (Conservation and Security) Act, 2012; and (5) initiation of captive breeding and re-introduction of the species in the nature can be initiated.

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Table 1 : Elongate tortoise sighting places in Cox's Bazar South Forest Division

Name of the place	GPS Coordination	Group composition		
		Male	Female	Total
Marishbunia, Rajarkul	21°21.391-92°07.08	1	-	1
Shafir Beel, Inani	21°12.263-92°03.436	1	1	2
Dakchhara, Inani	21°10.570-92°03.389	-	1	1
Musakhola, Inani	21°08.612-92°05.834	1	1	2
Swankhali, Inani	21°08.450-92°05.088	1	-	1
Shiler Chhara, Whykheong	21°02.418-92°11.207	2	1	3
		6	4	10



Figure 1: Map of the study area (Red circles indicate the tortoise sighting places), inset location of study site in the Bangladesh Source: Google Earth).

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