

An Observational Notes on Land Tortoises, Freshwater Turtles and Their Conservation in Corbette Tiger Reserve (CTR), Uttarakhand, India

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Abstract

A four months camera trap study was under taken for tigers and its co-predators, in Corbette tiger reserve in Uttarakhand from June to October 2007 (peak rainy season) in this region. Along with the camera trap work, most of the trails and camera trap spots are visited on foot. Mostly all the half dried river streams are covered during early monsoon and different animals are sighted are recorded including the turtles. The land tortoises like Sal forest Tortoise (*Indotestudo elongate*), Indian Black turtle (*Melanochelys trijuga*) and fresh water terrapin Indian soft shell (*Aspideretes gangeticus*) are encountered in the survey.

Keywords: Turtles, tortoise, Corbette tiger reserve, rivers.

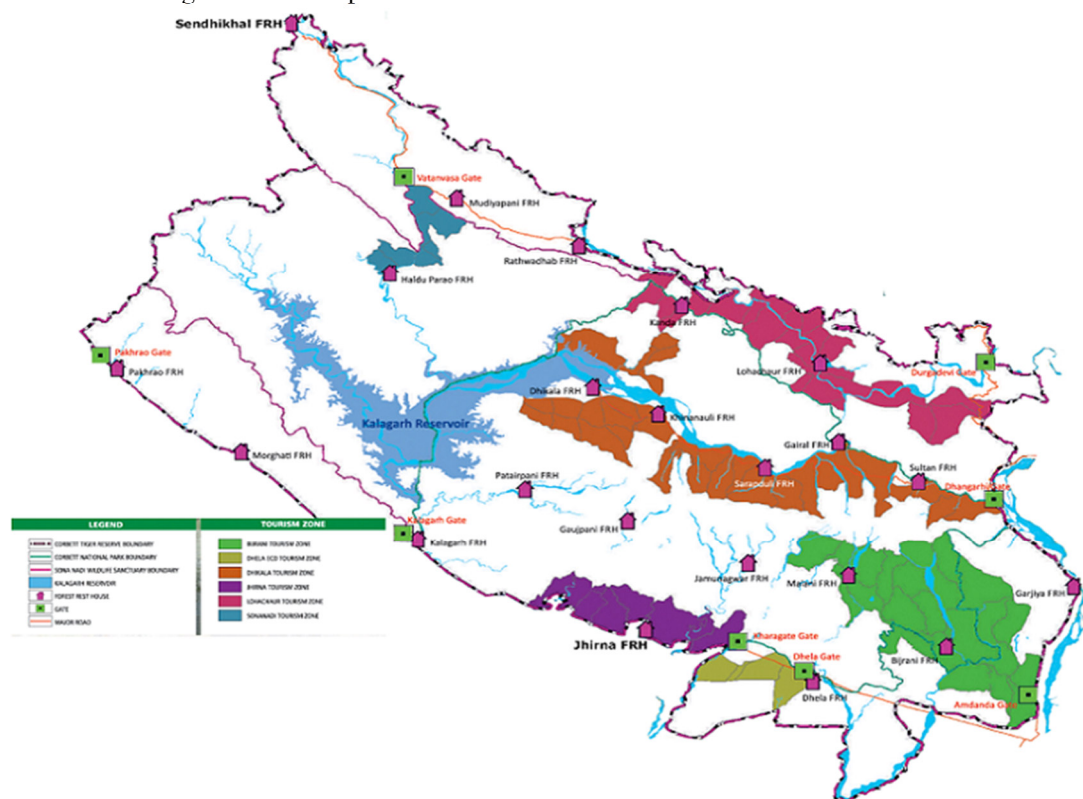
DOI: 10.7176/JNSR/14-11-04

Publication date:September 30th 2023

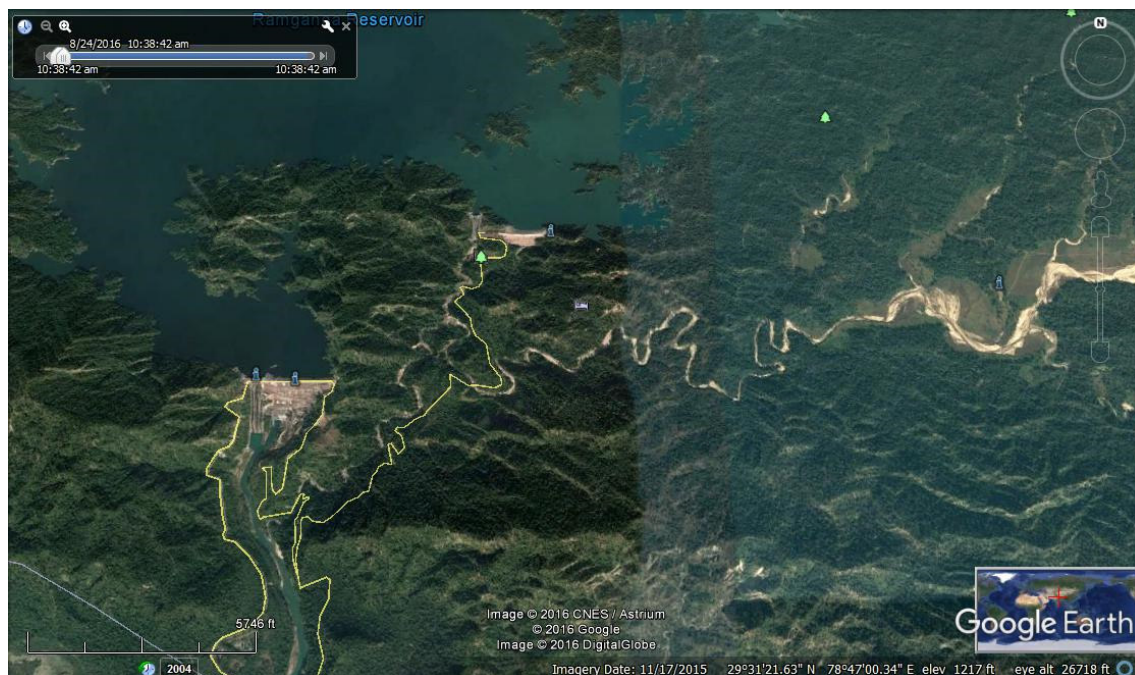
Introduction

After declaration as National park, the Corbette tiger reserve extends 1288.31 sq km spreading over the districts of Pauri, Nainital and Almora . the only national park area covers 521sq km. It coincides the Sonanadi wildlife sanctuary and other reserve forest area, the corbette tiger reserve is formed. Geographically the CTR is located in between Shiwalik Himalayas and the Terai landscape of Utarakhand state. The stream, rivers, and ridges crisscrossing the terrain and most of the rivers flow from north to south direction. This vivid mosaic habitat covers grass land, mountainous and undulated terrains that supports varied wildlife species representing diversity of both Himalayan and Gangetic plain flora and fauna. There are about 550 avifauna species and aquatic and water depended species like otter, mugger crocodile, monitor lizard, and freshwater terrapins and tortoises.

The Corbette Tiger reserve Map



Source <https://www.corbettonline.uk.gov.in/CTRFoundation.aspx>



Map - Area showing primary survey and camera trap area in CTR, Uttarakhand.

Methodology:- During a period of 4 months stay for camera trap work at the Corbette Tiger reserve different species of freshwater turtles and land tortoises are encountered in the survey paths. In major raos (rivers) were seen as these animals could not move so fast, these animals could be approached very closure without disturbance. The forest trails used for camera trap deployment is also surveyed for sighting of ungulates and also for tortoises and turtles. The Sal forest tortoise are also seen in transects. The tortoises also feed on flesh herbivore kill of tigers are seen in the park. Both plastron and carapace side should be measured and photographed. The male black turtle has a more curved plastron that help for mounting during mating in breeding season. The male individual has longer tail than the females.

Results and discussion. During a transect walk one pair of Sal forest tortoise seen on mating posture at 9.40 am morning near to Dhela gate. In another instance one Sal forest tortoise seen in climbing position during crossing a cemented inclined surface of the inner wall of the canal. It provides a greater information about movement of a slow walking animal to a divided major habitat in its territory. The Ramaganga canal divides the two landscapes in east, the major part of Corbette tiger reserve in the east and the Dholkhand range in the west. The canal system was established well before the Independence of the country. At that time, the construction was not so eco -friendly as to help to serve the wildlife corridors/ linkages inside a protected area. There will be some identified reptile passages across the Kalagada- Ramnagar dam road with demarcated migration routes. But presently the constructions on canal embankments should be wildlife / turtle friendly. Canal with less gradient stone packed inner embankments will be helpful for tortoise passage. The Ramaganga canal system was also divide the lower part of the Kalagarh forest area. This canal embankment should be modified to pebbled and rough surfaced slopes rather than long cemented surfaces in identified places which will facilitate turtle movement and other reptiles. The turtles and tortoises are identified by ready references of colour booklets and referred journals like(Colour guide to the turtles and tortoises of the Indian Subcontinent(Das, I 1991)

Table showing landscape and different turtles /tortoises encountered in the forest.



Photo-1 Landscape view along a river stream near Paterpani FRH



Photo 2- Overview of the core area near Goujapani FRH.



Photo -3 Indian Black turtle (*Melanochelys trijuga*) encountered in the carnivore sign survey river stream in Goujapani area.



Photo-4 Indian softshell (*Aspideretes gangeticus*) turtle observed during survey through river beds near Paterpani area.



Photo -5 Sal forest Tortoise (*Indotestudo elongate*)



Photo 6 Sal forest Tortoise (*Indotestudo elongate*)

Care for hatchlings during vehicle drive. We are working in such a period inside this tiger reserve where the park was closed for tourists in monsoon. But we the researcher have to move in the park with much care for turtle and tortoise hatchlings and adults, team were aware about that one could not move careless in forest roads in grass meadows. Mainly the turtle and tortoise hatchlings are emerged during the rain with thundershower and started crawling in around the nests on forest ground. In the meantime, the forest roads are also crossed by these baby tortoises. Care to baby hatchling tortoise should be done during driving on forest roads and a person was sitting

in front seat with the driver was also engaged to keep short distance sight ahead around 5 mtrs look and observe the baby hatchlings passing across road. The vehicle speed should not exceed 20kms per hour during the peak hatchling time. In more than 30 events the hatchlings are picked up in forest road by stopping the vehicle and left free aside.

Table showing encounter rate of tortoise and turtles (June- October 2006)

Sl No	Turtle/ tortoises species	Place / habitat	Habitat feature and sighting nos	Conservation status
1	Sal forest Tortoise (<i>Indotestudo elongate</i>)	Canal embankment	Turtle corridors- 1nos Inside forest trail-2no in matting activity	CITES- Appendix-II, WLPA-Schedule -IV IUCN-Low risk, Threatened Nationally, Data Deficient Globally
2	Indian softshell (<i>Aspideretes gangeticus</i>)	Half drying ditches	Inside forest meadow- 2nos Inside waterhole -1no	CITES-Appendix-I WLPA-Schedule-I IUCN-Vulnerable
3.	Indian Black turtle (<i>Melanochelys trijuga</i>)	River beds and streams	Cool and humid river beds -12nos in Goujpani area	CITES- WLPA-Schedule-IV IUCN-Low risk, Least concern.
4.	Hatchling of black turtle	>300nos During trail survey in Paterpani beat	Forset roads and trails. 20no during drive and walking.	as black turtle adults

Corbette tiger reserve - a suitable habitat for aquatic life and turtles. Major streams and rivulets are originated from the medium elevated hills with altitude 150-250 mts and most of the rivulets are having water throughout the year. Corrbette tiger reserve is also ideal habitat for aquatic fauna including fish (Mahasir), mugger crocodile, land tortoises and freshwater terrapin. The protected water bodies without fishing provide ample food for reptiles like turtles and crocodiles. The fresh water turtle will also consume a variety of aquatic insects and is even known to scavenge for carcasses, with hundreds of turtles occasionally gathering around the body of a dead large mammal. Soft-shelled turtles are primarily carnivores and eat any aquatic life small enough for them to capture. They have extremely long necks and pig-like noses that allow them to sniff for food between the cracks and crevices of rocks. Their diet includes worms, crickets, crayfish and shrimp. According to some literatures, turtles eat pinky mice and small amphibians, such as frogs, earth worms, and scavenge in the water body and clean it from putrefying dead animals like fish, snake, and other small animals.

As the Corbette tiger reserve is well protected, the turtles are conserved in high enthusiasm and hunting is no mean in the sanctuary and peripheral area (Javed, S. and Haneef, F. 1995, Haneef, F. 1995).

Behaviors and responses of turtles: - The innocent and harmless turtles have no amours except withdraw systems of limbs and neck inside the body carapace. The escaping behaviors is just having a speed walk towards thicket or rushing to water. Small ditch like structures are the safe place in the semi dried raos (rivers with stone and pebbles on river beds. Only in some turning curvatures the river deposited loose sands and water where it spends most of the time in feeding and resting. Few of the crawl tracks are seen in undisturbed sandy beds where the presence is assured by following the trail. The black tortoise was captured for photography, it discharges pungent foul smelled secretions with urine and fecal material from cloacal portion. Perhaps it is the mechanism to escape from predators like jackal, hyena, jungle cats and other small cats including marble cat. For my perception there is very few facts about predation of such animals by master predators like tiger and leopard in this tiger reserve and no means the tiger hunt for this animals as prey is very negligence. There are very few instance like scrapping to humans and biting by the Indian softshell turtle during catch. I catch Indian softshell in very difficulty with slippery carapace and able to bring it land by throwing from water to sand.

Conservation- The Indian black turtle is protected by law in India, Myanmar, Nepal and Thailand, which prohibits the killing or capture of wild turtles. It also occurs in a number of protected areas throughout its range, including some of the most secure reserves in the region, such as the Corbett Wildlife Sanctuary in India and the Royal Bardia National Park in Nepal. However, in some other reserves, improved enforcement of protective legislation is required to protect this species from exploitation. It is also recommended that, due to the limited data available on levels of trade and hunting, further surveys are conducted to assess the levels of the threats that this species. Vehicular movement basically during night hours may cause mortality to adult and hatchling of all the species of turtles in this park. Special care should be taken by limiting the speed of the vehicle below 40 kms/ hr and keen eye sight over the passing roadways in side forest area. However, more emphasis is to given for details study of these animals during any research activities inside the park. I am requesting researchers and staff that they should more care towards baby turtle hatchlings. There are also adult turtles that passing in

cart road and forest roads in grass land meadows where visibility to ground track is obstacle by over grown grass blades from both sides.

Acknowledgements

I am thankful to my guide and principal investigator Dr Y V Jhala, Quamer Quresi, Dr K Shankar and Dr Bivash Pandav for timely co-ordination during field work. My colleagues like Bishal, Pruthivi, Purnima, Muzamil have great participation in field work. I am thankful to Rajendra assisting driving and cooking during the study period. There are supports from field staff and local field assistants those have great experience and have knowledge on wildlife survey inside core area of the Park.

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