BUILDING ROAD TO RECOVERY OF ASIAN BROWN TORTOISE (Manouria emys phayrei) IN NAGALAND, NORTHEAST INDIA

PROGRESS REPORT (FEBRUARY - APRIL, 2021)

SUBMITTED TO
RUFFORD SMALL GRANT
THE RUFFORD FOUNDATION

BY
Sushmita Kar
APPLICATION ID: 33929-1
EMAIL: sushmitakar123@gmail.com
ACKNOWLEDGEMENT

I extend my heartfelt gratitude towards Turtle Survival Alliance – India for providing me permits and technical support throughout the project works. I would also like to acknowledge Wildlife Conservation Society – India for helping me to thoroughly manage my finances.

I am very grateful to Dr. Shailendra Singh, Director, TSA – India for his consistent support and guidance. My sincere thankfulness for Dr. Prabhat Kumar, IFS, Director, Nagaland Zoological Park for active support in conservation of the focal species and organizing of capacity building programmes at Nagaland Zoological Park, Dimapur. I would like to thank Dr. Parimal Ray from TSA – India for guiding me through my surveys and helping me to get acquainted to the place and project carried out by TSA – India at Nagaland Zoological Park. I thank Mr. Lalit Budhani for welcoming me to learn and handle the species on behalf of TSA – India project.

I deeply thank Mr. Johnny Deb, Forest Guard, Wokha Wildlife Division and Mr. Nitoshe Achumi, Forest Guard, Dimapur Wildlife Division for assisting me during field surveys.

Last but not the least, I express my gratitude towards Zoo Directors of other Northeast Indian zoos for taking interest in regional level capacity building all the zoo keepers and frontline staffs of Nagaland Zoological Park and other zoos.

Sushmita Kar
(Project Investigator)
During February 2021, surveys were conducted in a Community Conserved Area (CCA) located in the interiors of Wokha district for documenting potential habitat and release sites for the species.

3 potential locations were revealed inside the CCA.

The sites were preferred on the basis of forest composition, community structure of plants based on girth classes, availability of swamps, slow flowing streams or low laying ground nearby which could hold water during monsoons, mildly elevated grounds in mid altitudes, availability of food plants and habitat for all life stages, areas able to accumulate high litter depth, a dense canopy cover and accessibility of the site for carrying out post release monitoring.
I had visited villages and areas of the two potential districts while tracing the anecdotal records as two of the recent donations to Nagaland Zoological Park were received from those regions.

In order to do so, I interacted with the local communities who mainly belonged to the Lotha and Sema sub-tribes of the Naga tribe and gathered secondary evidence for the same besides few rounds of questionnaire survey. I was assisted by Forest Guards deputed by Nagaland Forest Department who helped me in communication with the locals in their vernacular language.

We were able to retrieve a few abandoned shells of turtles within the study area including *Manouria emys*, *Cuora amboinensis*, *Cuora mohoutii*, *Nilssonia hurum* and *Cyclemys gemelli*. 
Stakeholder’s meeting was organized at Wokha district in February, 2021 with 6 locals educating them about our focal species *M. emys* through a powerpoint presentation, distributing leaflets and pre and post questionnaire survey.

I also had brief meetings with village chairmans of Kuhoxu, Hovokhu, Hovishe and Hezulho villages in Dimapur district in February, 2021 as a part of secondary data collection and pre-release education and awareness activity.

Village chairman of certain villages started to educate people on their mass gathering at Churches on Sunday about the focal species as a result of preliminary awareness among the Naga communities.
I have conducted one Regional Zoo Keeper’s training at NZP on 3rd April, 2021 with 12 participants from Guwahati, Arunachal and Nagaland state zoos in collaboration with TSA – India and Nagaland Zoological Park.

Also conducted an in-house refresher course on 24th February, 2021 with a total of 8 participants including 5 zoo keepers and 3 frontline staffs at NZP in collaboration with TSA under their MoU with the Nagaland Govt. and with active support from Zoo Director, NZP.

They were mainly trained on identification, ecology, release and handling of turtles and tortoises with the intend to strengthen network of stakeholders and authorities housing M. emys population.
I also had the chance to visit the captive breeding enclosures of *M. emys* at Nagaland Zoological Park, Dimapur supervised by TSA – India to study more about morphometry, handling and observe breeding and nesting and other behavioral aspects of the tortoises in captivity.

TSA - India has successfully established an assurance colony of 85 individuals and were kind enough to provide me an ample exposure to practice hands-on technical aspects related to radio telemetry at the captive enclosure before actually executing it in the wild.
A questionnaire survey was conducted during interacting with a group of people belonging from local communities in Wokha District in February, 2021. I prepared a set of three simple questions as listed below and noted down their responses before and after educating them about the species and the project in order to chalk out a significant change of attitude and effectiveness of the education.

Questions with answering parameters:

1. Do you know about tortoises? (Rating on scale–1/very much, 2/little bit, 3/not at all)
2. Do you think tortoises are helpful? (YES/NO)
3. Do you want to save them? (NO/NOT SURE/YES)

*Note: Responses for PRE and POST columns are entered with respect to serial number of questions*

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PERSONAL SKILL ENHANCEMENT

I have undertaken a 10 days online course on turtles and other aquatic animals at the 4th School of Aquatic Wildlife Biology and Conservation organised by TSA from 1st-10th March and it greatly helped me to enhance knowledge and skills which would help further in carrying out my project.
GLIMPSES OF INFORMATION, EDUCATION AND CONSERVATION
RESOURCE MATERIALS USED AND DISTRIBUTED DURING
TRAINING WORKSHOP

Asian Brown Tortoise (Manouria emys)

Manouria belongs to the class Reptilia, order Testudines, family Testudinidae. This tortoise is the largest inhabiting
Asian mainland, and the fourth largest in the world. Two
subspecies are currently recognized. M. e. emys is commonly
known as the Burmese Brown Mountain Tortoise, and is
characterized by a light to dark brown upper shell (carapace);
while M. e. platuris is commonly known as the Burmese Black
Mountain Tortoise, and is larger and darker in colour. Having
a charcoal to black upper shell (carapace).

Identification

- Upper shell (carapace)
- Scute
- Lower shell (plastron)

Boy:
1. Male have hinged 3rd central scute
2. Males have more prominent plastrum
3. Females have reduced plastrum

Female:
1. Female have no hinged 3rd central scute
2. Females have more prominent plastrum
3. Females have reduced plastrum

Difference between subspecies of Manouria

In M. e. emys pectoral scute extend only halfway to midline of pectoral
In M. e. platuris, pectoral scute continues to extend middle of pectoral

Ecological Importance

They significantly contribute in cleaning up of the forest floor from unwanted litter deposition and facilitate seed dispersal in the forests through its feces.

Global Distribution

They are known to be native to southern and southeastern Asia ranging from northwest India (Assam, Nagaland, Manipur) in the extreme east through Bangladesh and extending up to southeastern Asia through Myanmar, Thailand, Malaysia and Indonesia (Borneo and Sumatra islands). However, records of specimens with characteristics of the M. emys are found as far northwest as Assam in India, and an intergrade between the two subspecies has been reported from southern Thailand to northern Malaysia, and also in Bangladesh.

Feeding Habit

They are chiefly herbivorous, typically feeding on grasses, vegetables, leaves, seedlings, herbs, fruits and fungi, although invertebrates and amphibians have occasionally been recorded in the diet. In zoo captivity, they prefer dietary items like arid plant Xanthium, corn, bananas, mushrooms, papaya, green leafy vegetables and fruits.

Breeding & Nesting

M. emys seems to have more complex vocalizations and other communication methods than other tortoises. It is the only species among other cheloniomorphs to show a tremendous level of parental care. They are unique among turtles and tortoises in building a mound on the surface of the ground, where the female constructs an above ground mound from leaf litter where she provides maternal protection to the eggs. Captive females nest once annually, between April and October, and clutches range from 27 to more than 53 eggs, which incubate for 63 to 84 days.

Threats & Conservation

M. emys is the only extant species in the world that has populations of at least 500 to 5,000 individuals at 15 sites. Like other Asian turtles, M. emys is severely threatened by over-hunting, loss, and fragmentation of its habitat and non-native species. Most records indicate that M. emys populations are sparse and extremely fragmented. Sadly, being such a large species, the species is relatively easy target for hunters and collectors, and its fairly high market value makes it a prime candidate for extinction in the wild.

To know more Contact us
Turtle Survival Alliance – India
Regd. Off: E3, D-17/475, Sector 16, Noida, Uttar Pradesh, India
OR Login to
www.turtlesurvival.org
Certificate of Participation

This is to certify that ____________________________ has participated in a one day long workshop entitled “One-day Regional Tortoise and Turtle Capacity Building and Training Workshop for Chelonian Keepers of North Eastern State Zoos” organised by Turtle Survival Alliance – India at Nagaland Zoological Park, Dimapur on 3rd April, 2021.

(Dr. Shailendra Singh)
Director
TSA- India

(Dr. Prabhat Kumar, IFS)
Director
Nagaland Zoological Park