

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

PROGRESS REPORT (FEBRUARY - APRIL, 2021)



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BY

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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)

BRIEF SUMMARY OF PROJECT ACHIEVEMENTS

FIELD SURVEY IN STUDY AREAS

- 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.



RETRIVAL OF SECONDARY EVIDENCES

- 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*, *Nilssonina hurum* and *Cyclemys gemelli*.



COMMUNITY AWARENESS

- 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.



CAPACITY BUILDING PROGRAMMES

- 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.



HANDLING AND HANDS-ON TRAINING

- 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.



PRE AND POST QUESTIONNAIRE SURVEY WITH LOCAL COMMUNITY

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*

SL. NO.	NAME OF PARTICIPANT	PRE	POST
1	MHAO MURRY	2	1
		NO	YES
		NOT SURE	YES
2	MONGCHIO NGULLIE	2	2
		NO	YES
		YES	YES
3	SAMUEL NGULLIE	3	1
		NO	YES
		YES	YES
4	ZAMONTHUNG NGULLIE	3	2
		NO	YES
		NOT SURE	YES
5	ZANA MURRY	2	1

		NO	YES
		YES	YES
6	CHUMUDEMO NGULLIE	2	1
		YES	YES
		YES	YES

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. playnei* is commonly known as the Burmese Black Mountain Tortoise, and is larger and darker in colour, having a charcoal to black upper shell (carapace).

Difference between subspecies of *Manouria*

IUCN Status: Critically Endangered (Assessed in July, 2004)
WLP Act (1972) - Schedule IV

Ecological importance

They significantly contribute in clearing 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 northeast India (Assam, Nagaland, Mizoram) in the extreme east through Bangladesh and extending on 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, banana, mushrooms, papaya, green leafy vegetables and fruits.

Adult *M. emys*

Identification

1. Male have bulging, 5th central scute

2. Males have small, flat 5th central scute

3. Males have larger 5th central scute

4. Females have small, flat 5th central scute

Trivia: The carapace length can reach up to 600 mm and weighting up to 37 kg. They live in mid elevational wet hilly forests (1000 m approx). *M. e. playnei* reaches sexually maturity at about 15 years in captive condition.

Breeding & nesting

M. emys seems to have more complex vocalizations and other communication methods than other tortoises. It is the only species among other chelonians 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 21 to more than 50 eggs, which incubate for 63 to 84 days.

Threats & Conservation

Manouria emys is considered to be critically endangered by at least 80% in its range. This species is severely threatened by over-harvesting and exploitation for the food and pet trade and by habitat destruction. 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 target for poaching. It is now considered to be critically endangered and is on the verge of becoming extinct in the wild.

To know more Contact us

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