

In Situ Conservation of Endangered Freshwater Turtles through Community Participation Programmes in the Riverine Chars (Islands) of Brahmaputra, Assam, India



Final Technical report
2010

Chittaranjan Baruah

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***In Situ* conservation of endangered freshwater turtles through
community participation programmes in the riverine chars (islands) of
Brahmaputra, Assam, India**

Submitted by

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Chittaranjan Baruah

A handwritten signature in black ink that reads "Chittaranjan Baruah". The signature is written in a cursive style and is positioned above a light blue horizontal line.

Date: 26.10.2010

LIST OF PROJECT PUBLICATIONS:

1. Baruah, C., Sarma, P.K., and Sharma, D.K. (2010). Status and conservation of Assam roofed turtle *Pangshura sylhetensis* in the Brahmaputra floodplain, Assam, India. *NeBio* 1(3):42–47.
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TURTLE CONSERVATION TEAM

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Executive Summery

At the conjunction of the Himalayan and Indo-Burma biodiversity hotspots, the northeast India has been poorly explored scientifically with regard to conservation and monitoring of turtle fauna. This present study was carried out in the river Brahmaputra to sensitize and educate people about the significance of chelonian presence and their conservation and to start a participatory endangered turtle conservation programme. With fanatical support from the Rufford Small Grant for Nature Conservation, the turtle conservation programme in Assam has been initiated with Conservation education, local awareness programmes and Community participation around different wetlands and in the riverine chars of Brahmaputra. The *in-situ* egg-protection program has been started with the participation of local communities. Field survey was carried out in different parts of Assam. The riparian communities are being interviewed and a series of group discussions were carried out to note their view point for preparing and implementing conservation strategies. Immediate adoption of conservation measures is essential for the conservation of endangered turtle species. As a part of the conservation of turtle diversity, we emphasized on the participatory conservation initiatives with further research on alternative means of livelihoods of rural communities. The project outputs includes linkage development with the local communities, increased the level of awareness among local communities towards protecting ‘their’ nearest turtle habitats and involving the local communities in the protection of turtles, the result of which was reflected in the nest protection programme. Four scientific papers have been published in international peer reviewed journals and the project activities along with findings are presented in national and international seminars.

Introduction:

Northeast India lies at the convergence of the Himalaya and Indo-Burma biodiversity hotspots (Shrestha 2001). Regarding the testudine fauna of northeast India, few scientific surveys or conservation initiatives have been undertaken to date. The region however, has recently been recognized as a tortoise and freshwater turtle priority conservation area (Bhulmann *et al.*, 2009). The islands (Chars) of the river Brahmaputra in Assam provide important habitats (e.g nesting and basking sites) for many species of freshwater turtles, including the Assam roofed turtle *Pangshura sylhetensis* (Jerdon 1870). This species is restricted to the northeast Indian states of Assam, Meghalaya, Arunachal Pradesh, Manipur, Nagaland, West Bengal and Bangladesh. Recently it has been reported from the adjacent Bhutan (Ahmed *et al.*, 2009). It is considered 'endangered' (IUCN 2010), listed as a CITES Appendix II species, and within India receives protection under the Indian Wildlife (Protection) Act, 1972: Schedule I (highest protection category).

It is a small (carapace length up to 20 cm), omnivorous and mostly nocturnal species, inhabiting slow flowing floodplain rivers, streams with woody areas in lowland foothills, forest and oxbow lakes, typically with stands of reed grasses and aquatic macrophytes, as it basks communally on logs on water (Choudhury *et al.*, 1997; Ahmed *et al.*, 2009). Analysis of zoogeography of *Pangshura sp.* provides information and ranges of their natural distribution and boundaries that helps to find out the endemic status of the species.

Study of population status, distribution pattern in an area can be used to formulate conservation strategies and taxonomic relationship among the species. This project reports the present status of *P. sylhetensis* in Darrang, Sonitpur and Udalguri districts of Assam. Several conservation initiatives undertaken in Assam for the conservation of Assam roofed turtle (*Pangshura sylhetensis*) and Black softshell turtle (*Nilssonia nigricans*) in particular, and other turtles and tortoises in general. These include field surveys to evaluate the status and threats to Assam roofed turtle population, instigation of an *in situ* egg protection scheme for endangered turtles, and community awareness and participatory programs to educate local people about the need of turtle conservation and sustainability.

OBJECTIVE:

1. To assess the present habitat structure of endangered turtle species.
2. To determine current threats to turtle population and their habitats.
3. To conduct conservation education and awareness programmes for local communities and document the perception of local people towards turtle conservation.
4. To start a participatory endangered turtle species conservation programme.

STUDY AREA:

Table 1. The study area for *endangered turtle species* in Assam.

Survey area	Longitude	Latitude	Forest type
Jia Bharali River (Nameri National Park)	26°55'20.22"N	92°50'27.12"E	Semi evergreen forest
Biswanath Ghat (Kaziranga National Park)	26°46'30.74"N	93°32'04.86"E	Evergreen and semi-evergreen forests
Gomirighat	26°44'47.93"N	93°38'45.45"E	Evergreen and semi-evergreen forests
Kuruwa Ghat	26°13'32.79"N	91°46'39.74"E	Semi evergreen forests
Kulshi River	26°45'30.74"N	92°02'51.38"E	Evergreen and semi-evergreen forests

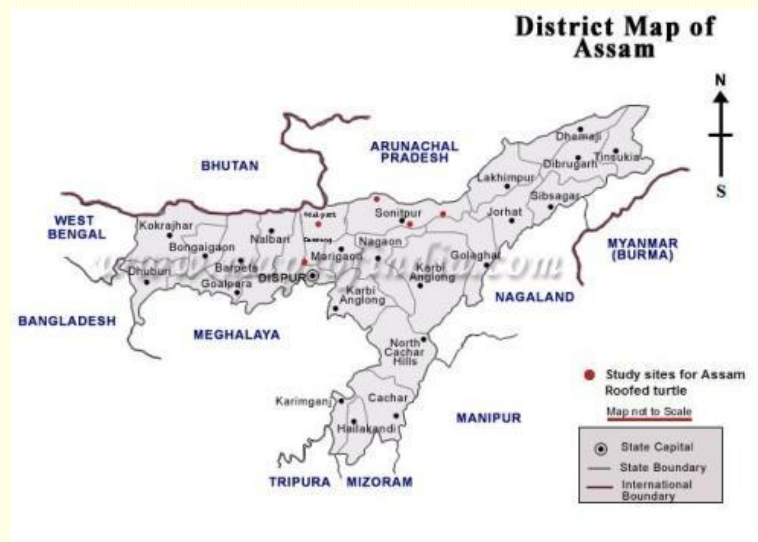


Figure 1: Showing map of Assam along with the study sites of the Assam Roofed turtle.

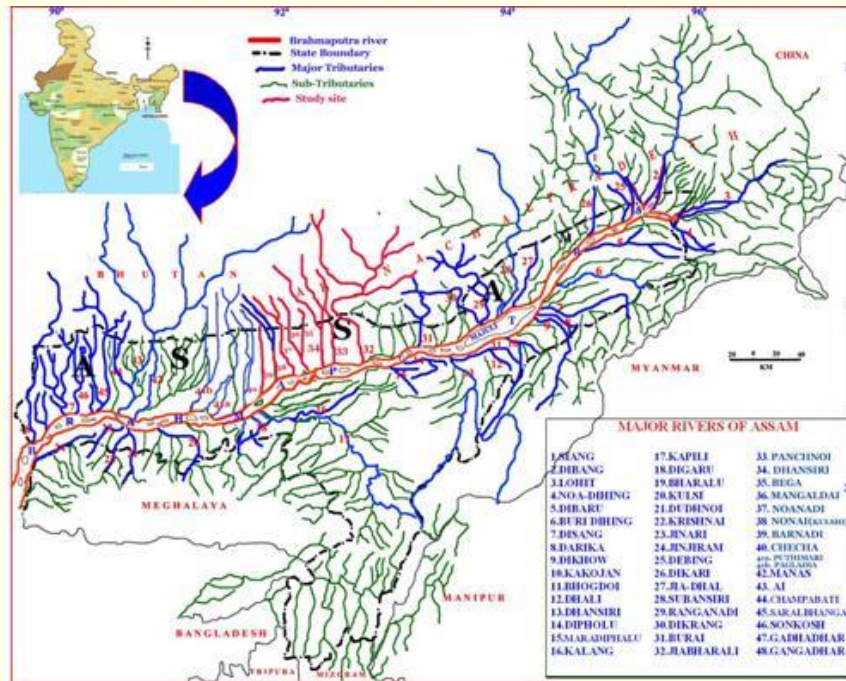


Figure 2: Showing the tributaries of the river Brahmaputra in Assam along with the study sites, red coloured (Map prepared by Dr. P.K. Sarma, team member).

MATERIALS AND METHODS:

Survey: The surveys for turtle habitat will be done by the team members on trails guided by knowledgeable local guides, and using questionnaires and photo sheets. Observations were recorded in a data sheet and all relevant information will be recorded. For identification of the species, Das (1995) will be followed. Poachers, traders and collectors will be interviewed to learn more about their distribution, habitat and extent of exploitation.



Community Awareness: Awareness campaigns are being carried out among the riparian communities, school children's in different places of Assam. Oral and poster/brochure presentations are also conducted among the communities of the. A series of group discussions were carried out with local people and their acceptable view point has been taken into consideration for preparing and implementing future conservation strategies.



Participatory In situ conservation & egg protection: Various sections of the Brahmaputra River in Assam were rapidly surveyed, to select locations for evidence of turtles such as tracks, holes, nests, predated eggs, and the presence of turtles. The nest searching will be performed between 0600 to 0900 hr and 1600 to 1800 hr each day. Fishing nets and a thorn brush barrier are used to fence and to protect the eggs for successful hatching. Local people are being motivated towards the protection of turtles and their nesting habitats.

OUTCOMES:

Involvement of local communities:

We have undertaken questionnaire survey which involved the knowledge of local people in assessing the presence and population status of freshwater turtles.

This project was being proposed to initiate an effort to conserve the endangered freshwater turtles in Brahmaputra river system (within India) through the involvement of local communities residing in and around of the most prioritised identified habitats. It was because the fact that due to the very remoteness of the existed turtle habitats and inadequate management influence in and around most of these habitats to protect the turtles, community-based conservation initiative is the best practice for the long term survival of the species in Brahmaputra river system.

With the help of this project, we have (a) identified those communities residing in and around the most prioritized turtle habitats across riverine islands (chars) of Brahmaputra , (b) involved the most motivated and skilled youths from those communities as a member to the Turtle Conservation and Research Programme (TCRP) after providing proper training, (c) involved the selected community youths in monitoring and protecting their nearest turtle habitats as well as in the awareness raising among the communities from where they belonged and closely guided their activities , and (d) provided a small financial support to one local project assistant and two local field assistants for the valuation of the time they provided for turtle conservation. Therefore, this project involved the local communities residing in and around important turtle habitats in Brahmaputra Valley in all its stages and thus the local communities got maximum benefits (both directly and indirectly) from this project.

***In situ* egg protection program:** The hatching successes of 50% hatchlings for *P. sylhetensis* 10% for *N. nigricans* and 8% for *N. gangetica* were recorded. The number of success was 34 out of the total 50 nests But the eggs rescued from the poacher could not produce a single hatchling might be due to wrong orientation. *P. sylhetensis* began to hatch at the end part of April or first part of May of the year. The hatchlings were measured and selectively photographed, and released in to the Brahmaputra River, near the hatchery area. Releases were made early in the morning (between 6 and 7 am) or late evenings (between 5 and 6 pm), mainly to reduce heat stress and the risk of depredation. Transformation of some of the eggs was performed for *N. nigricans* eggs in a secondary hatchery on the bank.



Plate 1: Turtle's eggs rescued from poacher with the help of local community.



Plate 2: Local community helped for making a field station in the study area.

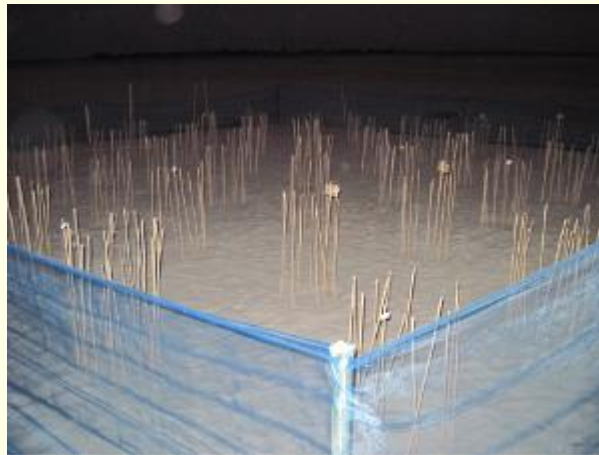


Plate 3: *In- situ* turtle nest protection programme.



(a)



(b)

Plate 4 (a, b): Conserving turtle's egg with the help of local community and field assistants.



Plate 5: During examining the turtle eggs.



Plate 6: Local communities were gifted with playing items (footballs, etc.) to acknowledge their help during nest protection programme.



Plate 7: Community-based turtle nest protection in chars (islands) of the river Brahmaputra.

Ongoing conservation activities: Field surveys are being continued in northeast India. A study has been conducted on the status and distribution of *P. sylhetensis* in the wetlands and rivers of Darrang, Sonitpur, Udalguri, Morogaon, Nagaon, Kamrup districts of Assam. Public awareness campaigns are being continued among the riparian communities in different parts of Assam. We have also created dialogue with regional conservation organizations as well as local researchers, in an effort to build strong partnerships and networks for a wider turtle conservation programme in the region. Training on various aspects of turtle biology and conservation viz survey techniques, egg collection, and hatchery management has been given to several students volunteers.

Community participation program: Awareness raising and capacity building programs are initiated among the riparian community in and around the *in situ* egg-protection sites. The acceptable suggestions of the local people are being taken into consideration for egg protection and conservation network development (Baruah and Sharma, 2010).

Over 3,000 people from 21 villages attended the 11 awareness campaigns, and 12 local youths have been introduced to field techniques. Three former poachers have been employed as field assistants in the Indian turtle conservation project. Oral and poster/brochure presentations continue to be conducted among local communities.



Plate 8: Training on turtle egg handling to forest staff, field assistants and locals.

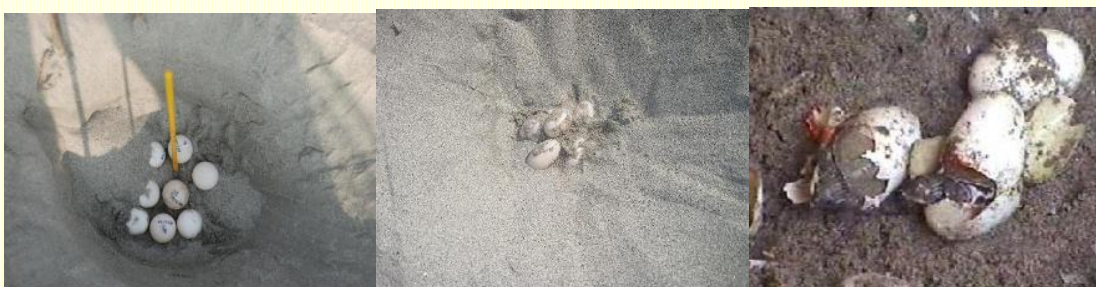


Plate 9: Turtles are hatched out successfully.

World Environment Day Celebration 5th June 2009

A series of events were organized to mark the World Environment Day under the auspices of Zoology Department, Gauhati University, Assam with the support of Rufford Small Grants Foundation in collaboration with Turtle Survival Alliance India Programme, and Assam Forest Department. The activities included a popular talk series on conservation biology among the predominate tribal populations of the Chandubi Beel area, and an environmental awareness programme targeting students and fishing communities (300+) in the Rajapara M.V. School of Assam (Kamrup District). Also, a popular talk on turtles and their importance in the environment and a painting competition with the school children (34) were organized. The main objective of the programme was to create awareness regarding the role of turtles and other aquatic diversity of Assam with special reference to the Chandubi Beel ecosystem. An attempt has also been made to sensitize the participants to various threats to the health of those ecosystems. The chief guest delivered a valuable speech on water resources and their role in biodiversity. The news appeared in the regional esteemed daily, the *Telegraph* on 9th June 2009.



Plate 10: Dr. D.K. Sharma giving lecture during *World Environment Day Celebration*



(a)

(b)

Plate 11: The villagers shared their views in *World Environment Day Celebration at Chandubi. (a&b)*



Plate 12: Painting competition to raise awareness among the school children.



Plate 13: A student shows his painting of Turtle

ii) **Endangered Species Day celebration -**

Over 350 persons attended in various events organized as a part of conservation sensitization. The celebration was helpful in community awareness and capacity building for safeguarding the turtle species. This celebration helped to plan for a series of follow-up meetings, in an effort to save turtle diversity in Assam.



Plate 14: Endangered Species Day Celebration pictures

iii) **World Biodiversity Day –**

Over 300 persons attended the various events held in 2009 and more than 350 participants including different stakeholders attended in the 2010 celebration. The celebration of the World Biodiversity Day helped to generate dialogue among the local community leaders, the district administration, local researchers, and the forest department as well as with the regional conservation organizations, in an effort to build strong partnerships and networks for a wider turtle conservation program in the region.



Plate 15: Former CCF Mohan Malakar gives his lecture on turtle conservation on World Biodiversity Day.



Plate 16: Stakeholder's participation on the World Biodiversity Day celebration.

iv) **World Turtle Day celebration -**

In this programme, there were more than 450 people including local people of Hajo (on the northern bank of the river Brahmaputra), distinguish speakers, school children and some women. Protection and conservation was the common motto of all the participants. The programme drew to a close with a Turtle painting competition amongst the school students. Emphasis was also given on the food scarcity for turtles in the temple pond due to overcrowding and concrete construction of the bank. Analysis of physicochemical parameters inferred that it is one of the best breeding ground for its increase, since the water and the soil quality are at optimum level for breeding.



Plate 17: Picture of World Turtle Day Celebration.



Plate 18: A view of Art competition during World Turtle Day Celebration.

SOCIO ECONOMIC SURVEY:

In Char area of Brahmaputra river of Lahorighat, Morigaon District of Assam, We conduct a socio-economic survey near the riparian community of our study area. The name of the study area is 2 No tengaguri char under Lahorighat police station and The GPS location of the area is N 26°29'01.6'' and E 092°20'41.5''. A total seven char area were surveyed (including study area) during February to April, 2010, survey time starting from 7 am- 5 pm.

The chars are namely -

1. Nangeli Char or village.
2. 1 No tengaguri Char.
3. 2 No tengaguri char.
4. Selmari Kosari gaon char
5. Dhekeramari char.

6. Nonk tengaguri char.

7. Hamu char.

The people of that char area are very familiar about turtle and their eggs but they don't know about the status of the turtle. The people are all Muslim communities so they don't consume turtle's meat or eggs because of religious believe. But some people try to sell the turtle and turtle's egg for money. According to people of that area turtle are available in that area past few years back. But now it's going to threats. According to villager it may be due to fooding, supply of turtle and turtle's egg, poaching, killing etc. All people are interested in conservation of turtle and we are getting good response from them for conserved the turtle's egg in their particular local area.

Many people are depending on agriculture and fishing. The people are uneducated only 5% are educated (means 8th & 9th passed). Maximum are cultivator and fishermen. The people are cultivated vegetables depending their livelihood like potato, tomato, onion, turmeric, zinger, chilly etc. mustered, jute, gehu etc. in every seasonal year.

Table 2: Representing char areas, their population and livelihood status.

Serial no	Name of the char	Total family no	Total population (approx.)	Educated person	Culti-vator	Fisher man	Other	Familiar about turtle
1	Nangeli Char or village.	65 family	520	6%	80%	18%	2%	Yes
2	1 No tengaguri Char.	100 family	800	10%	75%	20%	5%	Yes
3	2 No tengaguri char	40 family	320	2%	85%	14%	1%	Yes
4	Selmari Kosari gaon char	150 family	1200	20%	82%	10%	8%	Yes
5	Dhekeramari char	16 family	128	1%	98%	2%	0%	Yes
6	Nonk tengaguri char.	17 family	136	1%	90%	9%	1%	Yes
7	Hamu char.	60 family	480	5%	80%	15%	5%	Yes

TRADE ASSESSMENT:

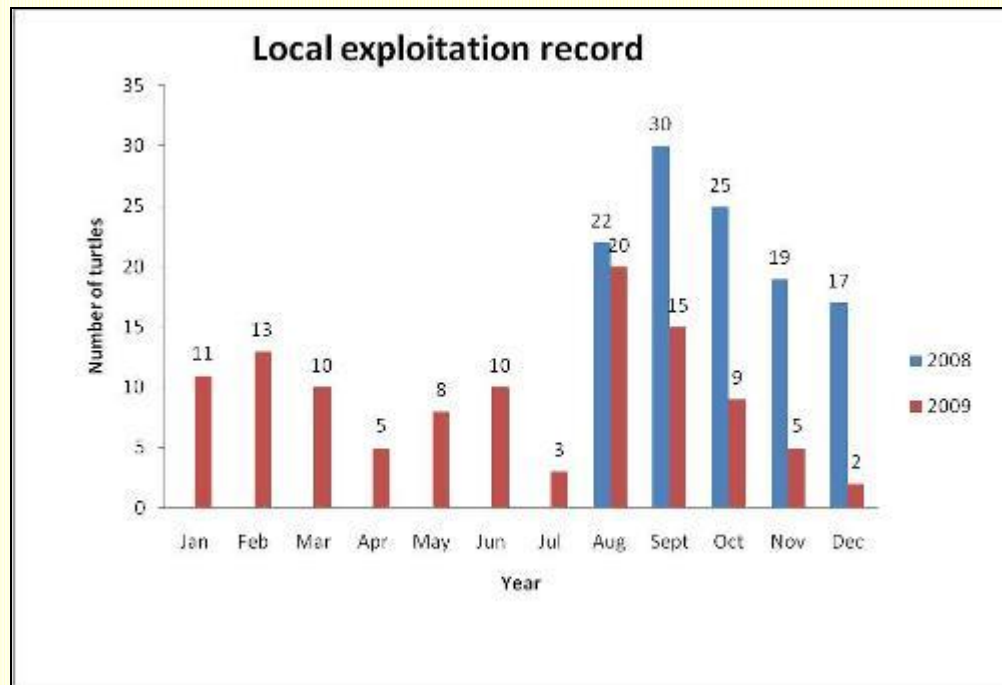


Plate 19: Local trade of softshell turtles in the study site (August 2008- December, 2009).

In brief-The three most important outcomes of the project:

a. Linkage development: Through this project we developed a very good linkage with the local communities residing in and around identified important turtle habitats across Brahmaputra Valley.

b. Awareness increase: With the help of our trained members of “*Turtle Conservation & Research Programme (TCRP)*”, we conducted awareness campaign simultaneously in and around the riverine islands (chars) of Brahmaputra, which increased the level of awareness among local communities towards protecting ‘their’ nearest turtle habitats.

c. Enhancing the endangered turtle species protection: Our experience over last two years turtle conservation in the riverine islands (Chars) of Brahmaputra in Assam teach us that involving the local communities residing around turtle habitats is the best approach at the current situation in Brahmaputra Valley. Therefore, we involved them in the protection of turtles, the result of which was reflected in the nest protection programme.

CONCLUSION:

Surveys indicate that vast areas of riverine habitats are being degraded or lost in all of the study sites. As well as habitat loss, over-exploitation for food and an illegal pet trade are contributing to the rapid decline in freshwater turtle populations in Assam. Immediate adoption of conservation measures is essential for the survival of many turtle species in Assam and also elsewhere in northeast India. A very important conservation component is to educate local people about the decline of tortoise and freshwater turtle population. As a part of the conservation measures we emphasize the need of the participatory conservation initiatives with further research to find alternative means of supporting livelihoods of the many impoverished rural communities in the region. Future planned initiatives include further surveys and ecological research along the rivers with potential turtle habitat in northeast India, establishment of captive breeding centres and release of hatchlings into the wild and wider management and protection of nest sites. We are publishing the conservation account of the endangered turtle species.



Plate 20: Foresters are trained on turtle identification at Burachapari Wildlife Sanctuary.



Plate 21: Small Children in riverine islands are familiar about turtle and turtle eggs



Plate 22: A field survey at Kanziranga National Park with Ranger.



Plate 23: Awareness among the riparian community of river Brahmaputra at Lahorighat, Morigaon district of Assam.



Plate 24: A field survey at Orrang National Park.



Plate 25: Dr. Sailendra Singh (Director, TSA-India) shares his views on turtle conservation with the student of Gauhati University.



Plate 26: Narrow-headed softshell turtle (*Chitra indica*) released by our team in suitable habitat of River Brahmaputra.



Plate 27: Release of turtle in the river Brahmaputra with the help of local communities.



Plate 28: Dr. Sailendra Singh (Director, TSA-India) motivated the local people towards endangered softshell turtle conservation



(a)



(b)

Plate 29: Field survey at future, Kamrup in the site of River Brahmaputra. (a & b)



Plate 30: A small girl holds a shell of turtle as a playing item.



Plate 31: Dr. D.K. Sharma (Project supervisor) during field survey at river Brahmaputra.



Leaflets- English language



Awareness stickers

WHAT NEXT?

We would like to continue the survey and conservation in other parts of northeast India. It is quite essential to develop a better understanding on diverse aspects of the turtle fauna apart from the status and diversity in particular and biodiversity conservation in general. Being a turtle priority conservation area, continuous long-term support is essential for conserving the imperiled turtle fauna of northeast India. We developed “*Turtle Conservation & Research Programme (TCRP)-Network*” to continue our future conservation activities.

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For details of on-going activities, please visit:

www.ruffordsmallgrants.org/rsg/projects/chittaranjan_baruah

<http://www.iucn.org/about/union/commissions/cec/?6105%2FTurtle-Conservation-Programme-Launched-by-CEC-Young-Professional>

<http://www.facebook.com/group.php?gid=135591789808658>

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---SAVE TURTLES---