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SURVEY OF TEMPLE TANKS AS A REFERENCE FOR CONSERVATION OF TURTLE FAUNA IN KAMRUP (Rural and Metropolitan) DISTRICT

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Abstract: Turtles have existed on earth since the rise of the dinosaurs. They evolved before mammals, birds, crocodiles, snakes and even lizards. Turtles represent one of the most threatened groups of vertebrates. Although turtles have had a successful existence over 200 million years in the history. In natural habitat the turtle population is declining due to over exploitation and habitat destruction (Rao,1986), other general reasons are illegal slaughtering for meat, egg perdition, water pollution and human disturbances (Gupta, 2000). The high price of turtle's meat and egg also influence the collectors for easy earning. The steady decline of turtle population demands a lot of attention.

Ancient Indians had recognized the animals' right to co-exist with men and therefore they were loved, nurtured and even worshiped. In order to impress upon the commoners about their importance, the animals were given the status of gods and goddesses. They declared that almighty incarnates in different animal forms (Kamat, 1994). The turtle occupies an honoured place in many mythologies. According to Hindu mythology, the universe is supported by four elephants standing on a turtle's back. All these superstitions gave good protection to the turtles. Although poaching is a problem, turtles have historically received community sanctioned religious protection in many temple tanks in India (Gupta, 2000). Thus ex-situ conservation of chelonians in temple tanks could also constitute a useful mechanism for endangered turtle conservation.

As a part of the conservation of turtle fauna, the paper has emphasized on some important temple tanks in Kamrup District, Assam.

Keywords: Temple tank, Endangered turtle, Mythological protection, conservation.

INTRODUCTION

In India, traditionally settlements are located in and around the temples and community tanks. The temple complex includes a tank which is an important site for cultural action and the temples and tanks are inseparable. Temple tanks occupy a prime position in the day to day living of the people. For instance in Kancheepuram, there are seven temple tanks corresponding to the days of the week and each tank has its own significance (Cox, 1894). They are still places of socio-religious and cultural activity.

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The turtle has a prominent position as a symbol of religion, mythology and folklore from around the world. Indian mythology is one of the richest elements of Indian culture, which enriches it further and makes it a unique one in the world. According to Hindu mythology turtles are an incarnation of lord Vishnu (Anonymous, 2003). Since time immemorial turtle has been worshiped in many of the ancient temples of India, where turtles have received protection in temple tanks like, Champeswar Temple in Cuttack District in Orissa, Hayagriva Madhava Temple in Hajo, Bhairavi Temple in Kamakhya, Siva Temple in Tinsukia, Assam, Tripureshwari Temple at Udaipur, Tripura.

In Kamrup district there present many temple tanks. These tanks play a major role in the socio-religious activity. The paper reports the temple tanks as a reference for conservation of turtle fauna in Kamrup District, Assam.

THE STUDY SITE

Kamrup Rural district and Kamrup Metropolitan district was created (from original Kamrup district) on 3 February 2003 by bifurcating the erstwhile Kamrup district.

Kamrup Rural district is situated between 25.46° & 26.49° North Latitude and between 90.48° & 91.50° East Longitude. Kamrup Rural district is bounded on the north side by Udalguri and Baska district, on the south side by Meghalaya state, on the east side by Darrang district and Kamrup Metropolitan district and on the west side by Goalpara district and Nalbari district. The geographical area of Kamrup Rural district is 4345 Sq.Km. (Approx. 434500 ha.)

Today 'Kamrup' is confined to only a district of modern Assam. But in the ancient Sanskrit literature, both the name Kamrup and Pragjyotishpur were used as a designation for ancient Assam. In 'Kalika Purana' and 'Jogini-Tantra' however, Kamrup alone appears as the name of this country. Till the Ahom conquest, Pragjyotishpur was known as Kamrup.

Kamrup Metropolitan district is situated between 25.43 ° & 26.51° North Latitude and between 90.36° & 92.12° East Longitude. Kamrup Metropolitan district is bounded by on north side by Darrang district and Kamrup Rural district, on the south side by Meghalaya State and Kamrup Rural district, on the east side by Morigaon district and on the west side by Kamrup Rural district. Geographic Area of the Kamrup Metropolitan district is 216.79 Sq.Km. (Approx. 21679 ha.)

Climate is sub-tropical with semi-dry in summer & cold in winter. Temperature varies from 38.5 C.-7 C. Average humidity is 75%. Annual rainfall varies from 1500 mm to 2600

mm. The important tributaries of the Brahmaputra are Puthimari, Bornoi, Kulsi, Pagladiya, Kalajal Manas, Chaul Khoya, Kalangsuti, Bharalu, Singra, Dibru etc.

METHODOLOGY

The survey was conducted during the period of January 2014 to December 2016. The survey was done in different temple tanks of Kamrup District. Field survey was carried out during day time. Methods applied here mainly interviews of local people, priests, temple committee using photo sheets of turtles, visual encounter surveys (VES). Local people and temple committee help us by sharing their valuable information regarding mythology and protection of turtle in temple tanks. Identification of the species was followed after Das (1995). Observations were recorded in data sheets and all relevant information were recorded.

SURVEY SITES AND OBSERVATION

The Survey sites and observation of Kamrup District are given bellow.

Table E: Data showing the diversity of turtle species in different temple tanks of Kamrup district.

SL	Name of Temples	Geographical Location of Temple	Temple Tank	Status of Turtles	ELEVATION (In meters)	Approx. Area of Tank (In	Name of turtles present in the Temple Tank
1	Aswaklanta Temple (North Guwahati)	$26^0$11’27.9”N and $91^0$43’40.3”E	A	-	87	-	-
2	Basistha Temple (Guwahati)	$26^0$05’67.8”N and $91^0$47’08.8”E	A	-	89	-	-
3	Bhairavi Temple (Kamakhya)	$26^0$09’94.2”N and $91^0$42’30.3”E	P	P	159	0.33 H	Nn,Ng, Nh.
4	Bhuvaneswari Temple (Kamakhya)	$26^0$10’02.2”N and $91^0$42’38.9”E	A	-	210	-	-
5	Daul Govinda Temple (North Guwahati)	$26^0$12’42.7”N and $91^0$44’49.7”E	A	-	59	-	-
6	Dirgheswari Temple (North Guwahati)	$26^0$14’60.7”N and $91^0$44’94.6”E	A	-	78	-	-
7	Ganesh Temple (Sualkuchi)	$26^0$10’02.9” N and $91^0$35’00.8”E	A	-	56	-	-
8	Ganesh Temple (Ganeshguri)	$26^0$08’41.3”N and $91^0$47’11.8”E	A	-	57	-	-
9	Ganesh Temple (Hazo)	$26^0$14’11.1”N and	A	-	54	-	-

		91^{0}32’01.9”E					
10	Gopeswar Temple (North Guwahati)	26^{0}90’06.8”N and 91^{0}42’76.4”E	P	P	61	0.13 H	Ptec, Pten.
11	Hayagriva Madhava Temple (Hazo)	26^{0}14’55.5”N and 91^{0}31’60.5”E	P	P	85	1.33 H	Nn, Nh, Ng, Lp, Gh,Ptec,Pten.
12	Janardan Temple (Guwahati)	26^{0}11’27.5”N and 91^{0}44’46.1”E	A	-	67	-	-
13	Kamakhya Temple (Kamakhya)	26^{0}09’59.9”N and 91^{0}42’23.4”E	P	A	177	0.33 H	-
14	Kameswar Temple (Hazo)	26^{0}14’05.8”N and 91^{0}32’04.5”E	A	-	78	-	-
15	Kedar Temple (Hazo)	26^{0}14’51.5”N and 91^{0}32’63.6”E	P	P	133	0.07 H	Nh.
16	Lankeswar Temple (Lankeswar)	26^{0}12’91.7”N and 91^{0}43’18.7”	A	-	91	-	-
17	Madan Kamdev Temple (North Guwahati)	26^{0}19’10.6”N and 91^{0}44’38.1”E	A	-	97	-	-
18	Manasha Temple (Geruwa)	26^{0}15’22.7”N and 91^{0}34’01.0”E	P	A	57	0.66 H	-
19	Nabagraha Temple (Guwahati)	26^{0}11’23.5”N and 91^{0}45’31.6”E	P	A	99	0.39 H	-
20	Pandu Nath temple (Pandu)	26^{0}10’20.4”N and 91^{0}41’16.4”E	A	-	48	-	-
21	Rudreswar Temple (North Guwahati)	26^{0}12’57.1”N and 91^{0}43’45.3”E	P	A	57	0.19 H	_
22	Sukreswar Temple (Guwahati)	26^{0}11’17.8”N and 91^{0}44’34.2”E	A	-	71	-	-
23	Ugratara Temple (Guwahati)	26^{0}11’26.6”N and 91^{0}45’04.1”E	P	P	68	**No1** 0.69H **No2** 0.69H	Nh, Ptec .
24	Vishwakarma Temple (Durgasarovar)	26^{0}09’55.2”N and 91^{0}43’01.3”E	A	-	61	-	-

A: Indicates absence; P: Indicates presence; (-) : Indicates not necessary.

Name of turtles: *Nilssonia nigricans* – Nn, *Nilssonia hurum*- Nh, *Nilssonia gangetica* –Ng, *Lissemys punctata* –Lp**,***Geoclemys hamiltonii* – Gh, *Pangshura tecta* –Ptec, *Pangshura tentoria* –Pten

RESULT AND DISCUSSION

In Kamrup district from twenty-four (24) temples nine (09) temple tanks were recorded and from these tanks, five temple tanks were observed having turtles. The most endangered soft-shell turtles, *Nilssonia nigricans, Nilssonia hurum, Lissemys punctata & Nilssonia gangetica* from Trionychidae family and *Geoclemys hamiltonii, Pangshura tecta & Pangshura tentoria* from Geoemydidae/emydidae family were observed from these temple tanks (Table E).

In Bhairavi Temple tank *Nilssonia nigricans, Nilssonia gangetica* and *Nilssonia hurum,* in Gopeswar Temple tank *Pangshura tecta* and *Pangshura tentoria*, in Hayagriva Madhava Temple tank *Nilssonia nigricans, Nilssonia hurum, Nilssonia gangetica, Lissemys punctata, Geoclemys hamiltonii, Pangshura tecta,* and *Pangshura tentoria*, in Kedar Temple tank *Nilssonia hurum* in Ugratara Temple *Nilssonia hurum* and *Pangshura tecta* were observed (Table E).

Turtle controls water hyacinth (Eichhornia crossipes) in addition to the control of malaria and other diseases caused by the mosquito (Rao, 1987). Turtle plays an important role in the aquatic ecosystem by feeding different slow moving aquatic animals like crabs, snails, insects, dead animals and their fragments, thus reduces the water pollution (Hossain and Sarker 1993). Freshwater turtles perform a valuable service as scavengers in the tanks, rivers and stagnant water and thus keep the aquatic systems free from pollution (Rao 1986; Tikader & Sarma 1985). Turtles are considered as important bio-indicator of the water quality.

The Survey shows that the district possesses many potential temple tanks to support the conservation of turtle fauna. Here no act is essential to protect the turtles because mythology protects them. Guwahati is a beautiful city of Kamrup district, which is known as the "*Gateway to the North East*" and is situated between the southern bank of the River Brahmaputra and surrounded by green hills and mountains of the foothills of Shillong Plateau. Ugratara Temple has two tanks which is known as Jor Pukhuri, is a landmark area of Guwahati city. The total area of the tanks are approximately 1.33 Hectare. Such types of tanks can be converted into a beautiful center for turtle conservation and at the same time, it will serve as training center for students and the general public in freshwater turtle conservation. Like these two temple tanks, there are so many temple tanks in Assam which can be utilized as turtle conservation center. If this types of turtle conservation will be possible in near future then it will be helpful in the following ways:

- To serve as a rescue centre for freshwater turtles.
- To serve as a centre for education in freshwater turtle conservation.
- Serve as a training center for students and the general public in freshwater turtle conservation (through volunteer programs).
- To function as a freshwater turtle resource center at the regional level.
- Serve as "living" laboratories for freshwater turtle research.
- Local peoples can be engaged in the conservation projects to carry out different works.
- The local community can benefit by providing some important services such as transport and volunteer participation in their everyday activities.
- It helps in economic benefits to them through eco-tourism and edu-tourism activities.

Very few efforts have been made to scientifical study of the chelonians in Northeast region. Some of the notable works that addressed the region are Das (1990), Choudhury (1995), Pawar and Choudhury (2000), Sengupta et al. (2000), Prachag and Gemel (2002), Sarma (2007) and Fritz et al. (2008).

Most of the local people of the district surrounding the temple tanks have no idea about the status of the turtle fauna. But fortunately, they are very much interested after discussion with us. Thus, the most important component at this hour is to bring awareness and educate these local people about the conservation of chelonian fauna in the temple tanks of their locality.

RECOMMENDATION

1. Awareness programmes are essential to educate the local peoples
2. Temple tanks are comparatively secure than other natural habitat of turtle.
3. To start a participatory endangered turtle species conservation programme.
4. The presence of turtles is one of the major attraction for devotees visiting the temple.
5. The turtles are harmless reptilian and loved by all.
6. Soft shell turtles are among the most threatened groups of freshwater turtles that are in need of urgent conservation attention.

CONCLUSION

This turtle conservation efforts made under the present survey will help mainly the endangered species. Awareness creation among the public will help to save the turtle populations from over-exploitation. The community participatory programme also aimed to

increase the level of awareness among the youth for the conservation of biodiversity recourses in our region.

Thus Ex-situ conservation of Chelonians in temple tanks could constitute a useful mechanism for conservation.

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