



A seven-month-old  
Three-striped Roofed  
Turtle *Batagur*  
*dhongoka* in the Narora  
turtle breeding facility  
(Photo: J. Devaprakash)

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# Project Turtle-Narora

*Project Turtle - Narora is a humble attempt to save freshwater turtles, the keystone species that helps to keep the ecosystem healthy.*

**A**FTER it gently hit the sandy shores of a tiny island, the inflatable motorboat came to a jerky halt. The island, a little bigger than a basketball court, was in the middle of river Ganges and a few miles off Narora — a small town located in the western part of Uttar Pradesh. Except for some birds like cormorants and sandpipers, and aquatic living things like crabs and fishes, the sandy place was empty. No tree was in sight, neither shrubs existed nor crawlers crept over here. The island was almost

bare probably because it got submerged often, especially each time the level of the stream rose high.

As the boatman tossed the rope onto the shore and was tying it with an iron rod that was bored into the ground only a while ago, three other sailors jumped out on the wet sand and climbed up the three-foot-high shore. The group of four led by a turtle expert of Turtle Survival Alliance, a premier non-governmental organization (NGO) that conserves turtles, and two members of Nuclear Power Corporation of India (NPCIL), which helps conserve nature around its nuke lands through its voluntary initiative called “Environment Stewardship Programme”, and a member of the World Wildlife Fund-India had sailed here to find the nests of freshwater turtles. With sticks, soft digging instruments and baskets in their hands, their search began promptly.

In the breeding season, turtles visit high open spaces of islands and shores and grope for an appealing spot to nest. Once the location is chosen, they dig the sand with the help of their hind legs as much deep as possible, and lay the eggs inside the pit. Then they cover the clutch with the same sand that was dug out to keep the eggs warm and protect them from predators. Finally they flee the scene, leaving no traces behind.

A layperson can hardly find any difference between the place where eggs are buried and the place where eggs aren't. But experts can. With two nest-finders, the four-member team scoured the island carefully. Their trained eyes were looking for disturbed vegetation or altered sand and other minute traces. After an hour of intensive search, they found a nest that had a bunch of lemon-sized yellowish-white eggs. They took

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Nest-finders explore an island in the Ganges near Narora  
(Photo: Raja Mandal)



out the eggs one by one, 25 in total, and kept them in a basket on a prepared bed of sand. After a thorough examination, the team identified that the eggs were of the Three-striped Roofed Turtle (*Batagur dhongoka*).

A member of *Batagur* genus, the Three-striped Roofed Turtle is a semi-aquatic species that spends most of its time in freshwater. When out of water, it loves basking in the sun. In water or on shore, the turtle’s hard shell, essentially a bone made up of calcium and phosphorus, acts as armour that protects it from attacks. The shell, brown in colour, grows to a length of about 50 cm with a mild elevation at the center. This hard-shell riverine turtle is not found everywhere in the world. According to references available, it exists only in India and Bangladesh. Even in India, its distribution is restricted to Uttar Pradesh, Madhya Pradesh, Rajasthan, West Bengal, Bihar and Assam.

India’s longest river, the Ganges, with one of its major tributaries, the Chambal, that cover most of these states except Assam is the lifeline of the *Batagur dhongoka*. Of the 24 freshwater turtle species found in India, the river supports 12.

Though the population of the Three-striped Roofed Turtle is not known definitively, wildlife biologists believe that it is descending sharply. The

International Union for Conservation of Nature (IUCN) has classified it as Endangered, as its habitat in India is shrinking constantly, and in Bangladesh it has been declared critically endangered.

Like most freshwater turtles, the *Batagur dhongoka*, too, doesn’t return to its nest once it leaves the buried eggs. Thereafter, the life cycle of the eggs is taken care of by nature. The hatching of eggs happens on its own. If no predator digs out the eggs, if no flood washes away the nest, and if nothing else goes wrong, the eggs hatch in about two months’ time. The hatchlings come out of the sand and instinctively start moving towards the waterfront, finally disappearing into the water – a new world that they have never seen before. Even their foray into the water, which is just few meters from its nest, is not easy. They could be preyed on.

Besides these natural threats, the troubles humans cause to their life are overwhelming. While poaching of eggs and chicks is an old but ongoing form of threat, new ones include sand mining that ruins their habitat completely and island farming that disturbs their breeding sites. With these risks, it is widely believed that the survival rate of freshwater turtles is very low.

And that is why turtle conservationists feel that these are the species of importance and saving them

has to be top priority. Institutions like the Turtle Survival Alliance (TSA) are working relentlessly to save the turtles and to boost their declining populations. Monitoring the key nesting locations of turtles, and protection of turtles’ habitats and captive breeding of endangered turtles are part of their conservation efforts. From time to time, biologists also conduct community awareness programmes to sensitize the public about the importance of turtles in the ecosystem. “Once there was a big population of freshwater turtles in this region and the Ganges was relatively clean then. But now, both are in trouble,” said Dr. Shailendra Singh, Director of TSA-India.

While TSA and the like are striving to protect turtles in every possible way, NPCIL as a responsible corporate citizen set out to support this noble endeavour. As a part of its Environment Stewardship Programme, NPCIL has established a turtle breeding facility called “Project Turtle - Narora, turtle breeding center” with technical guidance from TSA. These two institutions have recently begun a Headstarting programme, a method of conservation that helps raise turtle hatchlings in captivity, in this new facility to boost the population of freshwater turtles that has drastically gone down over the years in the region.

The 25 eggs of the Three-striped



Eggs of the Three-striped Roofed Turtle, *Batagur dhongoka* are being placed in a sandy nest created similar to that of the turtles' actual nest

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Roofed Turtle collected from the tiny island were brought to this breeding center. After their health was checked up, the eggs were buried inside a sandy habitat similar to that of the turtles' natural habitat on the Ganges river islands. The hatchery was equipped with protective instruments to avert the predation of eggs. "It is just a start, we are planning to have this turtle breeding programme on sustainable basis until we get the result we expect," said the caretaker of the turtle hatchery and a full-time employee of Narora Atomic Power Station Mr. Raja Mandal.

On 9 June 2014, nearly two months after the eggs were placed in the hatchery, the hatchlings of *Batagur dhongoka* emerged from the sand. The young ones, which were in good health, were later transferred to the pond inside the facility. A day after they were left inside the pond, the neonates began their routines like feeding and moving around. "They are like kids, playful always. When feeding, they eat jubilantly chopped vegetables like pumpkin and bottle gourd," said Mr. P.D. Mishra, a member of Environment Stewardship Programme.

In the meanwhile, the search for the eggs of the Indian Narrow-headed turtle *Chitra indica*, another endangered turtle species which breeds during July to October, was kicked off. After a couple of attempts, the team found two nests of this soft-shell turtle in the islands and shores of river Ganges close to Narora. About 110 eggs were translocated to the NPCIL-TSA turtle-rearing facility at Narora. In two months' time, the hatchlings of *Chitra indica* appeared, which were later transferred to the pond. A temperature of 30 degree centigrade has been maintained in the pond water with the help of an external heater to cope with the chilling winter.

As of January 2015, the facility had about 130 neonates and 60 eggs of freshwater turtles. The growth of the young ones is monitored by the experts. After they grow enough to know the survival tricks and how to escape predation, the neonates would be released into their natural habitats.

A two-tier strategy has been followed in the conservation of turtles. On the one hand, they are bred in captivity

and released in the wild to boost the population, on the other hand, the people who live close to the habitats of turtles are being sensitized about the significance of these gentle creatures.

The role freshwater turtles play in the ecosystem is remarkable. They help maintain the river by scavenging dead organic material and deceased fish. Besides, they keep a check on fish population, which otherwise would become a menace. Turtles also greatly contribute to the nutrient cycle.

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"With many more breeding programmes like these and a comprehensive conservation plan, we hope that the turtle population will improve and so will the cleanness of the Ganges," said Dr. Shailendra Singh, Director of TSA-India.

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