Chapter 13

Indian Turtle Conservation Program:
An Overview

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India's freshwater turtles face an unprecedented onslaught of pressures, ranging from intensive harvesting to large-scale habitat loss. Nearly 60 percent of the 28 native turtle and tortoises species are now in danger of extinction.

In call to action, the Madras Crocodile Bank Trust, the Turtle Survival Alliance, and Conservation International jointly developed the "Conservation Action Plan for Endangered Indian Freshwater Turtles and Tortoises", through an exhaustive weeklong workshop in Lucknow, Uttar Pradesh in 2005. National and international turtle biologists, conservationists, university professors, and forest department officers attended the workshop. The action plan identified the ten most threatened turtle species and recommended species-specific conservation actions, to be implemented with the collaboration of various local and regional conservation organizations with facilitation from the Turtle Survival Alliance and the Madras Crocodile Bank Trust.

The Turtle Survival Alliance/Madras Crocodile Bank Trust team quickly started implementing the recommendations for the endangered Red-crowned roof turtle, *Batagur kachuga* (Plate 13 A) in the National Chambal (River) Sanctuary. The Red-crowned Roof turtle conservation program was chosen as the flagship project for the country as the turtle is very charismatic (see photo) and it was felt there was a high probability of the project quickly and successfully securing a viable population of the turtles, all while serving as a model for other turtle conservation programs throughout India and abroad. With fewer than 400 adult females remaining in the wild (based on yearly nesting surveys), decisive conservation actions were clearly warranted.

In four field seasons (2006-2009), more than 350 nests of *B. kachuga* and over 2000 nests of the sympatric three-striped roof turtle, *Batagur dhongoka*, have been protected through the establishment of 11 *in-situ* riverside hatcheries (3-4 hatcheries per year) along the lower and middle Chambal River (Plate 13 B). The vast majority of the hatchlings were released within 24 hours of hatching after being permanently marked by injecting a decimal coded wire tag (DCW) under the dermis of a hind limb and/or a colored plastic cable tie attached to the trailing edge of the rear shell. By surveying for marked turtles, the hope is to document the rates of hatchling survivorship and dispersal. This is crucial part of the project as it is the standardized means of gauging how successful the hatch-and-release program is in augmenting the wild turtle population.

A select few turtles were reserved for headstarting. Headstarting is the practice of rearing juveniles in captivity until they reach a size assumed to afford them greater survivorship when released into the wild. The theory is that juvenile turtles are at the most vulnerable to predation when small, but as they rapidly grow the number of potential predators is greatly reduced. Hence, by headstarting turtles the population will grow at a more rapid rate due to increased survivorship at this vulnerable life history stage.

Two modest headstarting facilities were established in the village of Garhaita, near the town of Etawah, Uttar Pradesh and at the Deori Gharial Rehabilitation Centre near the town of Morena, Madhya Pradesh to facilitate the headstarting in the lower and middle Chambal River (Plate 13 C). Currently more than 1,000 *Batagur kachuga* are being reared in these two facilities with a plan to monitor their survival and movement patterns upon release.

In 2007, this project gained momentum when San Diego Zoo' Institute for Conservation Research joined this turtle conservation effort and was expanded as a joint Turtle Survival Alliance/San Diego Zoo's Institute for Conservation Research/Madras Crocodile Bank Trust's Indian Turtle Conservation Program. The program is now aimed at conserving multiple endangered species of turtles as well as to improve protection of a significant portion of India's endangered turtles' habitats (Plate 13 D and H).

In 2008, we launched a conservation effort for the endangered Indian Narrow-headed soft shell turtle, *Chitra indica* with a grant from Cleveland Metroparks Zoo. This giant (up to 120kg) but delicate turtle species is being extensively hunted throughout its range for its outer cartilaginous rim of its shell, referred here in India as "calipee". [In most of Latin America "calipee" is the term used to describe the fat from green sea turtles, *Chelonia mydas*, used in making "turtle soup". The green sea turtle gets its name from the color of the soup made from this fat. Coincidentally this Indian softshell turtle "calipee" is being used in Asian countries for a very different style and color of gelatinous soup.]

As part of the *Chitra indica* project, we launched a turtle poacher conversion initiative aimed at simultaneously locating elusive remnant breeding populations (via directly engaging -poachers to conserve the turtles rather than harvest them). We also engaged the ex-poachers in additional alternative-livelihood practices on upper Ganges, Yamuna, and Chambal Rivers and in the *Terai* region (a biodiversity hotspot in the foothills of the Himalayan Mountains). In two field seasons, we protected 25 *Chitra indica* nests (over 2500 eggs!). The nests were moved to *in-situ* hatcheries for safeguarding and over 2000 hatchlings have been released back into the wild (Plate 13 E). This year (2009), five nests have been translocated to hatcheries on Ganges River as well as five nests being protected on the Chambal River. Approximately 150 hatchlings will be transferred to the Kukrail Gharial (and Turtle) Rehabilitation Centre in Lucknow, Uttar Pradesh for headstarting. The remaining majority will be released directly into their riverine habitats.

Additionally, with the help of these former poachers, we have been able to locate a few remnant populations of several other endangered species of Indian turtles, including the Crowned River Turtle (*Hardella thurjii*) and the Indian Eyed Turtle (*Morenia petersii*). Moreover, we were able to help teams from various state forest departments in tracking eight illegal shipments of turtles in the *Terai* region from information volunteered by participating reformed poachers (Plate 13 F). Furthermore, a community based *Chitra indica* rescue facility was established near the town of Colonelganj in the Gonda district of Uttar Pradesh. This currently functions to hold turtles seized in illegal wildlife trade from the Sarju and Ghaghra rivers on a temporary basis until their release back into the wild.

Our last initiative launched in 2008, was the start of our efforts to conserve the Indian River Terrapin "*Batagur baska*" in *Sunderbans* of West Bengal. This turtle is India's most endangered turtle as well as being one of the most critically endangered turtles in the world. Currently there are no known breeding populations remaining and less than 20 animals surviving in captivity. Sadly, no captive breeding has been successful to date. [During the 2005 workshop, it was not known that Indian River terrapin (*Batagur baska*) in the Sunderbans was a distinct species from other populations of Batagur baska (now known as Batagur affinis) in Southeast Asia.] Long-term permission has been sought to launch a captive breeding program at the West Bengal Forest Department Station "*Sajnekhali*" and at the Madras Crocodile Bank Trust using the captive stocks at both facilities. At present, the Madras Crocodile Bank Trust has two adult females but no male. These two females occasionally lay unfertilized eggs; hence, all efforts should be made to secure 1-2 males on breeding loan from Sajnekhali. MCBT has had great success in recent years breeding *Batagur kachuga* and we hope that they can repeat their success with *Batagur Baska* once males have been secured.

In 2009, we launched several new initiatives, including the construction of a "green" energy efficient head-starting facility with solar powered water pumps and bio-filtration systems, aimed to increase the capacity of our turtle headstarting program, the construction of an education center in the village Garhaita, as well as implementing wide-ranging environmental education programs through the Chambal National Sanctuary. Support for these new initiatives came from the Disney Worldwide Conservation Fund, Beneficia Foundation, and the Turtle Conservation Fund.

Today our Indian turtle conservation program is truly comprehensive in nature, with multiple species initiatives that institute multifaceted approaches to turtle conservation and human welfare. We have specifically integrated our *in-situ* and *ex-situ* conservation and research initiatives with activities that address the localized social factors and in-come based needs of the people living within India's most critical turtle habitats.

Furthermore, the program is positively affecting five endangered turtle species, the Red-crowned roof turtle (*Batagur kachuga*), the Three-striped roof turtle (*Batagur dhongoka*), the Indian river terrapin (*Batagur baska*), the Indian narrow-headed Softshell turtle (*Chitra indica*) and the Crowned River Turtle (*Hardella thurjii*).

However, we still need to expand our efforts to include the Assam roof turtle (*Pangshura sylhetensis*), the Black softshell turtle (*Nilssonia nigricans*), the elongated tortoises (*Indotestudo elongata*), Leith's softshell turtle (*Nilssonia leithii*) and the Asian giant softshell turtle (*Pelochelys cantorii*).

Recently we identified five important turtle conservation regions to implement the recommendations of action plan more efficiently and effectively (Plate 13 G). These areas are the Chambal region in North-Central India (including the Yamuna and upper Ganges River), the *Terai* region in North India, the states of West Bengal and Orissa in East India, the Assam region in Northeast India, and the Western Ghats in Southern India (Kerala and Karnataka).

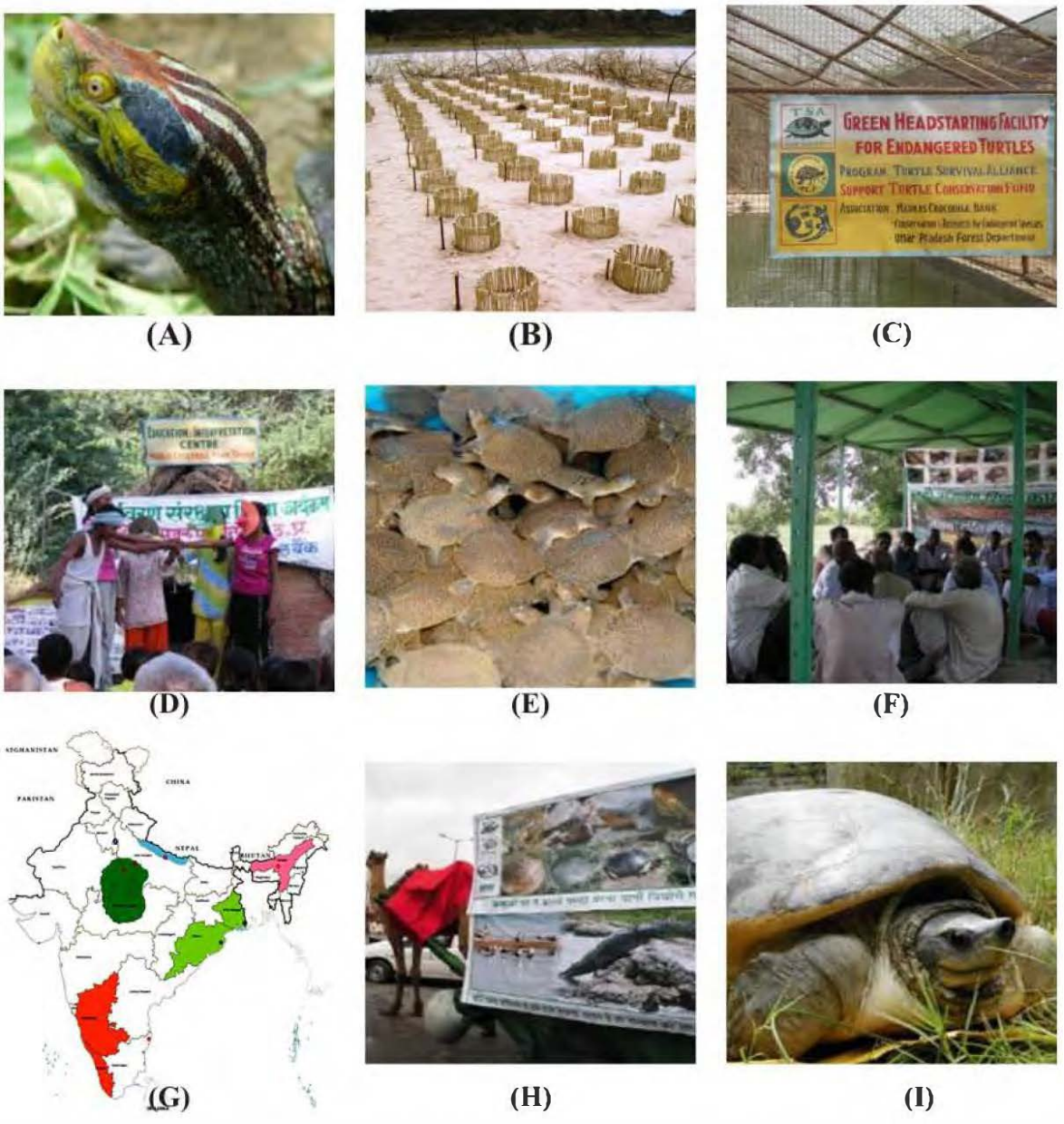
The new vision of the program is to ensure the establishment of at least five wild self-sustaining populations and five captive assurance colonies for each endangered turtle species in next ten years.

We hope that our regional actions will not only help conserve the flagship turtle species (such as *Batagur kachuga*) (Plate 13 I) but also other endangered turtles and their associated habitats. These are small steps in a forward direction to protect India's waterscapes and their enigmatic inhabitants.

The program is gratefully supported by growing number of agencies like Turtle Survival Alliance, Turtle Conservation Funds, Disney Worldwide Conservation Fund, Beneficia foundation, San Diego Zoo's Institute for Conservation Research, Nature's Own, Cleveland Metro parks Zoo and Cleveland Zoological Society, EAZA Shellshock, British Chelonia Group, Pat Koval and WWF Canada, Rufford Small Grant Foundation, Sedgwick Zoo and plethora of volunteers and regional and local conservation organizations in different project areas.

The conservation program team members are Brian D. Horne, Shailendra Singh, Rishikesh Sharma, Ashutosh Tripathi Nikhil Whitaker, Bhasker M. Dixit, Rupali Ghosh, Chittaranjan Baruh, Khem B. Bhadauria, Pradeep K Saxena, Bikas K Saha and Suresh Pal Singh. The valuable partners of the turtle conservation program are Uttar Pradesh, Madhya Pradesh, Rajathan, West Bengal, Assam state Forest Departments, Centre for Environmental Education, Terai Environmental Foundation Gharial Conservation Alliance, Development Alternatives, Lucknow University, BBAU Central University in Lucknow, Guwahati University, Katerniaghat Foundation, and Nature Exploration Group.

Plate 13



(A): A male of Red-crowned Roof Turtle, *Batagur kachuga*; it is estimated that less than four hundred adult females survive in Chambal River; (B): An in-situ turtle hatchery on the Chambal River; every year thousands of hatchlings are released from these hatcheries; (C): An energy and water efficient turtle headstarting adjacent to the Chambal National Sanctuary has been recently completed; (D): Local village children performing a skit based on the conservation challenges faced by the wildlife in the Chambal National Sanctuary; (E): Newly hatched *Chitra indica* awaiting release at in-situ hatchery on Ganga River; (F): A "turtle-poacher rehabilitation meeting" is in progress in the Terai region; such workshops help to convince poachers to engage in alternate livelihood practices rather than continue turtle poaching; (G): Map showing different regional turtle project areas; Red dots showing the current project sites while the green dots showing the proposed sites; (H): Our "Mobile Conservation Education Unit" on a camel cart during a rally along the sanctuary and (I): River Terrapin (*Batagur baska*), the most endangered Indian turtle, only 12 individuals are known to exist in captivity. Photos By: A: Rick Hudson; B, E: Ashutosh Tripathi; C, D, F, H, I : Shailendra Singh