Conservation of horseshoe crabs programme in coastal district of Baleswar, Odisha, India

Horseshoe crabs in Odisha

Horseshoe crabs are marine chelicerate arthropods of the family Limulidae and the only living members of the order Xiphosuraspite. Despite their name, they are not true crabs but are more closely related to spiders and scorpions. They belong to the taxonomic class Merostomata. Two species are known to be alive today in India, which are Mangrove Horseshoe Crab *Carcinoscorpius rotundicauda* and Indian Horseshoe Crab *Tachypleus gigas* both of which are found in Odisha. Odisha is their largest habitat in India.

Volunteers Surveying Fisherfolk Livelihoods to Understand Challenges and Opportunities for Sustainable Growth

Mangrove Horseshoe Crab
Carcinoscorpius rotundicauda

IUCN: Data Deficient; CITES: Not listed; WPA: Schedule II.
Habitat: Shallow waters with soft, sandy bottoms or extensive mud flats.
Diet: Insect larvae, small fish, oligochaetes, small crabs and thin-shelled bivalves.
Threats: Habitat loss, damage by invasive species and pollution.

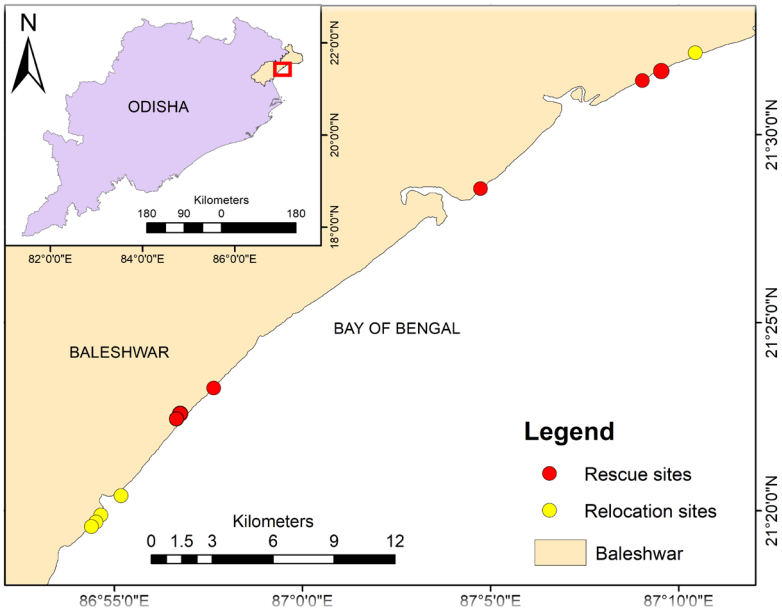
Demonstrating Techniques to Rescue Entangled Horseshoe Crabs by professionals.

Indian Horseshoe Crab
Tachypleus gigas

IUCN: Data Deficient; CITES: Not listed; WPA: Schedule II.
Habitat: Seagrass meadows, sandy and muddy shores at depths to 40 meters.
Diet: Algae, marine worms, clams and other molluscs and dead fish.
Threats: Habitat loss, pollution, fishing nets, motorboats and trawlers.

Significance of Horseshoe Crabs in ecosystem

Their ecological function is to lay millions of eggs on beaches to feed shorebirds,



Rescue and relocation sites at Baleswar, Odisha July 2023 – December 2023.

fish and other wildlife. By scavenging and feeding on decaying matter, they contribute to nutrient cycling in coastal areas, helping to maintain the cleanliness and balance of the ecosystem. Horseshoe crabs are considered indicators of estuarine health. Their presence or absence in a particular area can provide valuable insights into the overall condition of the ecosystem.

The use of horseshoe crab blood in biomedical research contributes to public health and safety. Their large hard shell serves as a microhabitat for many other species such as sponges, mud crabs, mussels, and snails.

The project includes variety of fieldwork, surveys, awareness programmes, community sensitisation, rapport building, volunteer training, beach cleaning drives and much more. The project focuses on the rescue and relocation of horseshoe crabs so that the species can be located in a no-fishing zone where they have habitable surroundings. The conservation efforts over the past eight months have been both challenging and rewarding. The whole project started with the first community awareness event in 2023, where the team conducted an awareness programme for the local fishermen community at Union High School, Dublagadi involving the local community and youth in these activities fostering a sense of environmental responsibility and community pride.

Horseshoe crabs are one of the oldest living fossils. Because of underlying threats, their numbers are declining day by day, for which the team needed to adapt certain methodologies to protect them. The methodologies were implemented by the team for the conservation of the species: community awareness programme, hands-on training programme for the volunteers,

Community sensitization program on horseshoe crab at a local high school.

beach cleaning drive, survey, rescue and relocation of horseshoe crab, capacity building training programme and school and colleges awareness programmes.

The team embarked on a mission to rescue and relocate the horseshoe crabs from various seashores along the coast. The rescued crabs were numbered around 483 and were safely transported to a carefully chosen location near the sea for better survival. A total of 133 live horseshoe crabs were rescued out of 4,000 and relocated to Hanskara. The rescued horseshoe crabs, numbering 208, were saved from Kasafal and Parikhi and relocated to Inchudi. Furthermore, our team rescued 142 horseshoe crabs from Chandipur and Dagra and relocated them to Dublagadi, where the survivability of the species is high. The efforts contribute significantly to the long-term survival of the horseshoe crab population, ensuring their continued presence in natural habitats.

Major highlights and achievements

1. Community awareness: Targeting local fishermen and students at Union High School in Dublagadi. This event aimed to foster environmental responsibility and community pride.
2. Surveys: Conducted to gauge local perceptions and raise awareness about the ecological significance of horseshoe crabs. Monthly reports were generated to track the situation, revealing that 40.7% of fishermen were leaving crabs in ghost nets to die.
3. Volunteer training: Thirty volunteers received hands-on training on rescuing horseshoe crabs, including cutting ghost nets and proper handling techniques.
4. Beach cleaning drives: Conducted at Kasafal and Chandipur, collecting 280 kg of garbage. Another drive removed 430 ghost nets and 260 kg of plastic.
5. Rescue operations: A total of 483 crabs were relocated to safer areas.
6. Awareness programmes: Included wall paintings in Gudupahi and the launch of a conservation camp, attended by notable officials.

Impact and future directions

1. Capacity building: Engaged over 70 participants through various programmes.
2. School and college initiatives: Effectively educated and involved students in conservation efforts.
3. Community campaigns: Enhanced local understanding and participation in conservation activities.
4. Long-term goals: Focus on sustained initiatives to preserve ecological balance and ensure the well-being of horseshoe crabs in their natural habitats.

Acknowledgements

We would like to express our heartfelt appreciation to the principal chief conservator of forest (Wildlife), Odisha, for providing the necessary official permissions that made our work possible. Their support has been instrumental in enabling us to conduct our research effectively and responsibly within the designated wildlife areas. Additionally, we are deeply grateful to the Wildlife Trust of India for their invaluable support through the Rapid Action Project grant. This grant has provided us with the essential resources and funding required to carry out our project successfully. Without their generous assistance, our efforts to conserve and protect wildlife would not have been as impactful.

Submitted by Sambit Patra, Tusar Behera, Swagat Ranjan Kar & Saipriya Nayak, Department of Zoology, Fakir Mohan Autonomous College, Baleshwar, Odisha 756001, India.
Arabinda Singha & Biswajeet Panda, Bikash Saathi NGO, Baleshwar, Odisha 756058 India.
Email: biswajeetpandanature@gmail.com