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Horseshoe crab and rhythms within the mangrove

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Introduction:

Sundarban, the UNESCO world heritage site, is one of the largest mangrove forest in the world around 140,000 Ha, lies on the delta of Ganges, Hooghly of India and Brahmaputra-Meghna river of Bangladesh on the Bay of Bengal. As forming delta Sundraban signifies as a developing ecology with new delta formation, colonization of new species and flourishing communities. The Biosphere reserve, holding up an extraordinary bouquet of floral and faunal diversity. As an intercoastal and intertidal zones it serves as union for many ecosystems. On land of respiratory roots dwells one of the mightiest apex predator the Royal Bengal Tiger (*Panthera tigris tigris*) and on the other hand its muddy saltwater bottom harbours some cryptic crawlers- the horseshoe crabs.

Rhythms of nature:

Nature possess many cues to suggest to its children about their timing to act and govern its creation at intervals, periodically, rhythmically. This article deals with the ecology and patterns hidden within the environmental factors which follows through a transition zone named mangrove.

This mighty mangrove houses the Royal Bengal Tiger at its heart but its water embrace some the rarest creature from ancient times by surviving four mass extinction events on earth- The "Living Fossils" - Mangrove horseshoe crab, *Carcinoscorpius rotundicauda* , is a perplexing arthropod, also named as round-tail horseshoe crab belong to chelicerate arthropods. Every year this crab gather themselves in large populations during both full moon and high tide, the rhythm of water on earth, for one purpose- breeding. It set its aim to "lunar tidal rhythm"—"the regular ebb and flow of oceans and very large inland bodies of water—subjects seashore plants and animals to a rhythmic change."

As a result of the attraction of the moon and the sun, there is a difference in tension and depth between the vast bodies of water on earth, or simply put, tides. If the Moon-Sun-Earth is in a straight line, the tension is deeper, if the Moon-Sun is at right angles to the Earth, the tension is reduced, which are called full and dead kotals respectively. Tides have temporal ratio and periodicity. A rhythm works. We all float in that rhythm - A phenomenon called temporal migration occurs where the crabs rise to the upper bank at certain times of the day.

Many marine organisms that visit or live in the intertidal zone exhibit tidally- organized behavioral rhythms calculating many rhythm of Nature- these are annual rhythms, lunar rhythms, diurnal rhythms and tidal rhythms. They are all proper biological rhythms functioning under stimulation endogenously even though exogenous rhythms are in consistent action. The tidal rhythms and the lunar rhythms concern primarily marine animals, or animals that live in the intertidal zone as intertidal animals often exhibit lunar rhythms (28-day cycles) with coordinating their activities with availability of water in their immediate environments.

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The law of life:

Carcinoscorpius lives at muddy beaches, brackish marches and salt water coastline for millions of years; Ocean favours their course through nearly 400 million of years on earth. Sundarbans sea crabs or mangrove sea crabs are committed to a single mate for life. The larger females carry the boys on their backs, walking towards the shore in the full sea, at this time of full tide, the determination of the future is floating in waves. Sea creatures choose these time as the ideal to mate because of hunters' limitation of predation. As the water swells due to the pull of the moon and the sun, the water level increases and as a result, the strength of the water pull and the intensity of the waves come. As a result the gonads move far away to spread out of reach of the hunter. Nature dictates our habits. Specify behavior and diaries. Be it in adoration or love offering.

Conclusion:

Environmental factors shape the choice and transformation of species-life. Shifts in these very factors and parameters put effect on natures' survival list. Living Fossils carry the code of life from era to era from ancient to recent times within their genomes, habitats and rules to live. Experiencing such creatures can assist us to learn the knowledge of creation within destruction in this critical time. Horseshoe crab hold the space of a flagship species determining the role and criteria for conservation of a coastal area. As Indian Sundarban has a central role in formulating of International Union for the Conservation of Nature (IUCN)'s Red List of Ecosystems (RLE) framework (Keith et al., 2013). RLE identifies the risk and threat of a collapse ecosystem analogous to threatened species of IUCN status. RLE thus provides species level to ecosystem level conservation practices and tool serving as conservation risk identification tools. Roughly four millions of people earn their livelihood and depend on this unique ecosystems as they practice wild fisheries, aquaculture and forestry. Thus Sundarbans are standing on a critical and crucial stage of conservation for both of the wildlife and human inhabitants.

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