

1. Anseriformes— These webbed-footed waterfowl, the Swan, Geese, Ducks and Teals. Some Ducks dip themselves into water and some of them swim and wade through swamps. The swans having long necks dig deep into water to reach aquatic vegetation whereas the Geese with shorter necks feed on grass. ●

CONSERVATION OF SEA TURTLES WITH SPECIAL REFERENCE TO THE OLIVE RIDLEY

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Marine turtles, a source of high protein food for tropical and sub-tropical coastal dwellers, are as a group in danger of extinction.

There are 7 species of sea turtles which roam the world. The species are : (1) The leatherback (*Dermochelys coriacea*) reaching a weight of up to 600 kg. and being the largest and most distinctive sea turtle. Important nesting grounds are known in Malaysia, French Guiana and Mexico. (2) The green turtle (*Chelonia mydas*) which is unique amongst sea turtles being mainly herbivorous. They make regular long distance migrations between their nesting grounds and pastures of sea grasses or algae. The species have been heavily exploited

for its excellent meat. (3) The hawksbill turtle (*Eretmochelys imbricata*) is an inhabitant of the coral reefs throughout the tropics. With its hawk-like beak it feeds on a variety of invertebrates and algae. International trade in "tortoise shell" derived from this species has caused a worldwide decline in population numbers. (4) The flatback turtle (*Chelonia depressa*) is endemic to the Australian continental shelf. This carnivorous turtle feeds extensively on crustaceans. This turtle is relatively free from natural predation.

Although, not in endangered status, the high frequency of incidental capture in some trawling grounds is expected to pose problems in its status in near future. (5) The loggerhead (*Caretta caretta*) is found in Atlantic, Pacific and Indian oceans. It is carnivorous and not desirable for meat or shell, but only for eggs. It does not nest in India.

(6) The Atlantic ridley (*Lepidochelys kempi*) ranges from Nova Scotia to the Gulf of Mexico. It is almost extinct due to over-exploitation for

meat and the eggs. (7) The Pacific or Olive ridley (*Lepidochelys olivacea*) distributed all over the world except Australian region. However, their concentration is decreasing steadily throughout the world except for coastal areas of the Bay of Bengal. The largest nesting ground in the world is Gahirmatha, Orissa.

As usual the major predator for Olive ridley is the human being. Turtle eggs are collected in huge numbers and adults are collected in massive numbers when they flock to their nesting beaches. However, due to intense conservation measures, legislation etc. the extent of poaching has been drastically reduced.

In any case, a secure future for the world's sea turtles depends on two main lines of research. The first is to study thoroughly the population biology of the species in order to determine precisely when a population is being over-exploited and what level of egg consumption can still protect them from extinction by statistical methods. However, the

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migratory habits of the turtles make this type of effective conservation very difficult. The other alternative is to devise methods of ensuring protection of eggs, improving hatching success and finally culture of turtles in captivity. All these methods are being tried on different species including the Olive ridley.

With encouragement from Chief Minister, Shri J. B. Patnaik and active co-operation of the Forest Dept., Orissa, some very critical work is being done in my laboratory which has an important and direct bearing on the conservation of the Olive ridley. For the first time in India, the Olive ridley eggs were incubated under artificial but controlled conditions in the laboratory at Utkal University resulting in hatchlings. Further-

more, in collaboration with Dr. Marie T. Dimond a collaborative work was started to determine the effect of temperature on the sex of the hatchlings as the sex in turtles in general, is temperature-labile.

The results indicate that low temperature leads to male and high temperature leads to female differentiation. This has now raised some critical questions regarding a common conservation practice being followed throughout India i.e. translocation of eggs from natural nests to other areas for improving hatching success. This practice of moving eggs to beach hatcheries or to artificial hatcheries is under severe attack by experts because such transfers without determining how it affects the sex ratio may lead to a distortion of sex ratios and ultimately

harm the population. What is even more-disturbing is that we do not have any data on the sex ratio under natural conditions. At least for the Olive ridley population nesting in Gahirmatha, Orissa, I am happy to report that we are now compiling data on the sex ratio of a transplanted nest and, therefore, can provide valuable information if transplantation is leading to any distortion of sex ratio. Using data from our laboratory, it will be possible to assess the desirability of this practice for the largest Olive ridley rookery at Gahirmatha and elsewhere in India.

In addition, it has been possible to raise the hatchlings under controlled conditions in my laboratory. The standardised methods will be of immense value for the future of turtle farming in Orissa. ●

MANGROVES OF ORISSA

K. S. Murty

INTRODUCTION :

Neither the thickly populated Gangetic plains in the North, the industrialised West nor the South which represents the most varied flora in the world has any such rugged and impenetrable jungles

which we were once proud of. Although nature is no less ravaged in the East, Orissa is one of the few States in the region of our country that still retained a few pockets of old verdant jungle.

The forest flora of Orissa comprising the coastal tracts and Eastern Ghats is diversified and rich. Sal (SHOREA ROBUSTA) that does not

occur south of the Godavari is natural at Pathdhara in Kalahandi district. The whole district of Phulbani is Sal forest. In Kalahandi near Nuapalli there is the natural teak forest and there is utter disregard for preservation of this unique pocket. Mahendragiri (5000 ft.) overlooking the Bay, has the Himalayan elements like BERBERIS, RUBUS, THALICTRUM, VIOLA, etc.