EVALUATION OF MUGGER CROCODILE RESTOCKING BY MONITORING AND LONG TERM MANAGEMENT IMPLICATIONS

V.VIJAY KUMAR

INTRODUCTION

Crocodile conservation project began during the year 1975, with the objective of increasing the crocodile population in the country. Several states took up this project adopting the strategy of collecting eggs from the wild, hatching and rearing them in captivity and then reintroducing stocks into the wild. Andhra Pradesh is one of the states which has reintroduced around 258 mugger crocodiles in five different sanctuaries.

OBJECTIVES

1. Survival of reintroduced crocodiles, their movement and dispersal either upstream or downstream.

2. To monitor the population trend following reintroduction of captive reared stock.

3. Study the reproductive success by monitoring the nests, hatching, hatchling survival and their dispersal.

4. Recruitment into the breeding population by the reintroduced mugger.

5. To find out if the different age and size class crocodiles have a different habitat preference, and if so, find whether release size and sites are ideal.

STUDY AREA

Muggers are known to inhabit all kinds of fresh water habitats ranging from ponds, river, lake and reservoir. For a comparative study, the three study areas chosen in Andhra Pradesh are:

1. Manjira wildlife sanctuary (Reservoir)

2. Ethipothalla sanctuary (waterfalls)

3. Siwaram sanctuary (Fast flowing river).

Out of these three study areas, Manjira and Siwaram have wild populations where in 1985 the Forest Department released 10 and 15 crocodiles respectively. In Ethipothalla there was no wild population until 8 crocodiles were released by the Forest Department during 1977-78.

Some findings on the habitat preference by various size class muggers in the three study areas are discussed here.

All the three study area nests were located during 1987 nesting season. From the presence of wild populations and 1987 nesting survey, it is assumed that all the three study areas have all size class crocodiles for study purpose.

METHODS

For the purpose of habitat preference studies the crocodiles were divided into

three size classes (<1m, 1-1.5m and >1.7m) and the habitat in the follwoing three types:

1. Overhanging shoreline vegetation and from the shoreline to a depth of 1m. with emergent aquatic vegetation.

2. Upto a depth of 3m. with submerged vegetation and

3. Open water with no vegetation depth above 3m.

Sightings of the crocodiles were recorded in the habitat mapping sheets. Not only the crocodiles, but details about their habitat, water depth, water temperature and air temperature were also recorded.

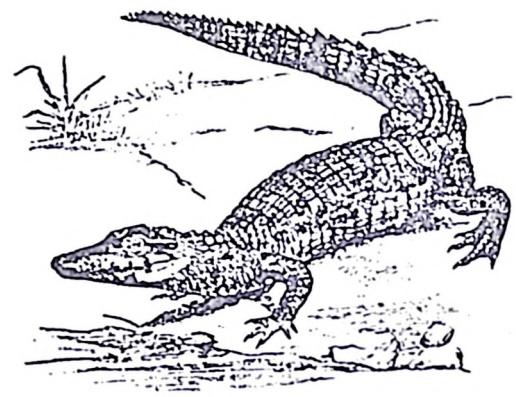
RESULT:

SIGHTINGS OF CROCODILES IN THREE STUDY AREAS

Crocodile size	Habitat type	Manjira (Reservoir) No. of Sightings	Manjira (Reservoir) Percentage	Ethipothalla (Watarfalls) No. of Sightings	Ethipothalla (Watarfalls) Percentage	Siwaram (River) No. of Sightings	Siwaram (River) Percentage
<1m.	1	5	100.00	46	100.00	51	100.00
	2						
	3						
1-1.5m.	1	9	69.23	19	83.36	5	100.00
	2	4	30.77	1	4.55		
	3			2	9.09		
>1.7m.	1	39	66.10	13	30.95	9	34.62
	2	12	20.34	13	30.95	11	42.31
	3	8	13.56	13	38.10	6	23.06
Total sightings/ total survey		77/20		110/19		82/13	

In all the three study areas the <1m size class prefer habitat type 1 and 1-1.5m size mostly prefer habitat type 1 and shows little overlap in other habitat types but the adults show overlap in all the three habitat types in the three study areas.

On seeing the percentage of availability of habitat types (three study areas), one (2.2- 11.5%) and two (4.5-18.4%) are very much less than habitat type three (70.1-93.30). This gives an idea that the crocodiles are not forced to go to habitat types 1 & 2 but they actually prefer these habitat types. Then the question arises as to why they prefer these habitats.



Preference of the habitat may be due to the following reasons:

1. COVER: In case of crocodile or any amphibious forms water is the major cover. But the shoreline vegetation in the habitat type 1 also can give cover to some extent.

2. FOOD: The analysis of 31 faecal samples of crocodiles throw some light about the food habits of different size class crocodiles.

<1m - Insects, fish fingerlings, small frogs.

1-1.5m - Insects, crab, small fishes, frogs.

>1.7m - Animal hairs, bird feathers, bones, fish fins.

The fish collection in Manjira also gives some proof. Out of 671 fish collected, 579 (86.29%) are from habitat types 1 and 2. Out of the 579 fishes 405 (69.95%) are <20cm in length and 174 (30.05%) are 20-30cm. The fish collected in habitat type 3 are above 30cm in length. Occurrence of small size class fishes in habitat 1 provide more food to hatchlings.

Insect collection in Manjira also gives some proof. A total of 176 random scoops were made, equal in all three habitat types, 41 successful attempts were made all in habitat type 1.

CONCLUSION

These insect and fish collection proves the presence of food items in all the habitat types. In winter >30000 migratory birds visited Manjira sanctuary and most of them roost on island or shoreline vegetation (Ipomea cornea) and permanent roosting of thousands of egrets on the shoreline vegetation is very common in Manjira.

1. Availability of below 20cm size fishes and insects keep the hatchlings and yearlings in habitat type 1.

2. Presence of Insects, crabs, molluses and small fishes (20-30cm) make the sub-adults to overlap habitat 1 and 2.

3. Availability of food in all the habitat types make the adults to overlap all the three habitat types.