

R E P O R T

PRELIMINARY STUDIES ON THE FEEDING ECOLOGY OF THE OTTER *Lutra lutra* AT PITCHAVARAM, EAST COAST OF INDIA

G. UMAPATHY AND G. DURAIRAJ

Department of Zoology, University of Madras, Guindy Campus, Madras 600 025, India

ABSTRACT: Observations were made on the distribution, food and feeding ecology of common otter, *Lutra lutra* in Uppanar and Coleroon rivers at Pitchavaram in the east coast of India. In freshwater, fish were the dominant prey item, whereas in estuarine habitat, crabs formed half the prey. By direct observation, the otters spent 40% of the day swimming/hunting, and 70% of feeding dives were successful.

INTRODUCTION

Otters are considered as the indicators for the healthiness of the wetland habitats (FOSTER-TURLEY et al., 1990). Otter population is showing a decline from many wetlands due to their destruction by pollution and other human induced stresses like deforestation and conversion into agricultural and aquaculture lands (FOSTER-TURLEY et al., 1990). Studies on the European otters have indicated that in any given area one time human disturbance could be a major factor for the decline of the otter population (JOINT OTTER GROUP, 1977). Studies on the population and feeding ecology of Indian otters are very limited (PRATER, 1988; HUSSAIN, 1992). In the present study, observations were made on the distribution, food and feeding ecology of common otter, *Lutra lutra* in Uppanar and Coleroon rivers at Pitchavaram in the east coast of India.

MATERIAL AND METHODS

The study area include Pichavaram mangrove forest and about 5 km stretch of Coleroon and 5 km stretch of Uppanar rivers ($11^{\circ} 25' N$, $74^{\circ} 47' E$). Block I is on the Coleroon River, about 2 km south of the confluence with its distributary into the Bay of Bengal, the Uppanar River. Block II is 7 km of the estuarine Uppanar (including the mangrove forest), and Block III is 8 km of the freshwater Uppanar River. The banks of these rivers are covered with open land, cultivated land, aquaculture ponds and thick bushes. The mouth region of the Uppanar river is occupied by an extensive mangrove forest.

RESULTS AND DISCUSSION

Analysis of the spraints indicated (Table 1) the dominant prey species for these otters in block I was fishes (71.54%) while crabs, prawns and insects contributed 14.3%, 7.15% and 3.57% respectively and the unidentified organisms 3.57%. In block II the crabs were the dominant prey items (45.45%) with fishes (36.36%), prawns (9.07%) and insects (9.0%) forming the rest. In block III fishes (68.18%) were the dominant prey items and prawns, crabs and insects constituted 13.64%, 9.1% and 9.1% respectively. It is a well known fact that the fishes formed the major food item of otters (MACDONALD and MASON, 1987) and especially in *Lutra lutra* (KRUUK et

al., 1987) but in some habitats, a change in the food preference was seen with the crustaceans forming the main food item (MACDONALD and MASON, 1987). The food habits of otters are studied by the percentage occurrence of the food item in the spraints. This is an indirect method and it is biased. Especially the crustaceans which have higher proportion of hard particles will be over represented in the analysis of the spraints (TILER et al., 1987).

Table 1. Occurrence of prey species in the spraint analysis in the Pichavaran area

Area	Fish		Crab		Prawn		Insect		Others	
	A	R	A	R	A	R	A	R	A	R
Block I n=20	20	71.54	4	14.30	2	7.15	1	3.57	1	3.57
Block II	4	36.36	5	45.45	1	12.50	1	12.50	0	0.00
Block III	15	68.18	2	9.10	3	13.64	2	9.10	0	0.00

* A - signifies actual abundance, R - signifies relative percentage

Otter diurnal activity of otter were recorded for about 638 minutes of which 42.84% (273.4 min) of time was spent for moving or swimming, 30.87% (190 min) for resting, 20.3% (129.4 min) for feeding, 3.79% (24.2 min) of time for playing and 2.14% (14 min) for other activities (Table 2). Generally, activity studies are made using radio telemetry (ESTES et al., 1987), which provides an indirect information on the activity of the animal. In the present study the results made by direct observation give exact time activity budget of the animal.

Table 2: Time activity budget of otter in Pichavaran area

	Period of observation	Swimming	Resting	Feeding	Playing	Other
Minutes	638.4	273.40	197.90	129.40	24.20	14.00
%		42.84	30.87	20.30	3.79	2.14

During feeding activity of otter, 54 feeding dives were recorded in the total observation period, of which 39 dives (72.0%) were successful (Table 3). In the successful dives, otter captured fishes for 22 times (56.4%), whereas crabs 8 times (20.5%), prawn 1 time (2.5%) and unidentified forms 8 times (20.5%). This indicates that crab can be an alternative or secondary prey items for otter. The feeding activity study corroborates, the scat analysis of the otters of the area indicating fish as the major food item, followed by crabs and prawns.

Table 3: Percentage of feeding success and prey capture by the successful dive

	Total feeding dives observed	Successes	Failure	Prey caught during successful dive			
				Fish	Crab	Prawn	Unidentified
N	54	39	15	22	8	1	8
%		72.0	27.8	56.4	20.3	2.5	20.5

ACKNOWLEDGEMENTS – This research work was supported by grants of the Tamil Nadu Forest Department, Tamil Nadu, South India.

REFERENCES

- ALTMAN, J. (1974).** Observational study of social behaviour sampling methods. *Behaviour* **49**: 227-267.
- ESTES, J. A., UNDERWOOD, K. E., KARMANN, (1986).** Activity-time budget of sea otter in California. *J. Wildl. Manag.* **50**: 626-637.
- FOSTER-TURLEY, P., MACDONALD, S. M., MASON, C. F. (1990).** Otters. Action plan for their conservation. IUCN, Gland, Switzerland.
- HUSSAIN, S. A. (1992).** The wild otters of the Chambal. *Sanctuary Asia* **12**(5): 24-31.
- JOINT OTTER GROUP (1977):** Otters. Nature Conservancy Council/Society for the Promotion of Nature conservation. London.
- KRUUK, H., CONROY, J. W. H., MOORHOUSE, A. (1987).** Seasonal reproduction, mortality and food of otters (*Lutra lutra L.*) in Shetland. *Symp. Zool. London* **58**: 263-278.
- MACDONALD, S. M., MASON, C. F. (1986).** Otter, ecology and conservation. Cambridge University Press, Cambridge.
- PRATER, S. H. (1988).** The book of Indian animals. B. N. H. S. Cambridge University Press, Cambridge.
- TILER, C., EVANS, M., HEARDMAN, C., HOUGHTON, S. (1987).** Diet of the smooth Indian otter (*Lutra perspicillata*) and fish eating birds. A field survey. *J. Bombay Nat. Hist. Soc.* **86**: 65-70.