WETLAND FAUNAL SURVEY OF SONE GHARIAL SANCTUARY IN MADHYA PRADESH

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Introduction

In the recent years there has been considerable increase in the use of land for non-forestry purposes owing to the ever increasing human population. Besides the growing urbanisation, industrialisation and agriculture are the other principle land uses. Due to depletion of the forest area the wildlife has decreased throughout the world. To balance the ecosystem, the Government initiated several wildlife conservation schemes by declaring various areas as Protected Areas for propagation of wildlife. With the result several forest pockets/river stretches throughout the Indian subcontinent have been declared as National Parks/Sanctuaries. The Sone Gharial Sanctuary in Sidhi District of Madhya Pradesh is one among the many Protected Areas for Crocodiles in India. This stretch (209 km, including tributaries) of the river is used as Gharial releasing site which are reared at different Gharial rearing centres throughout India. The Sone Gharial Sanctuary was a created over the Sone river at Sidhi. The sanctuary includes stretch from Bansagar dam to south of the Mirzapur District at the border of Uttar Pradesh. Within the sanctuary area minor tributaries are also included namely Banas river and Gopad river.

The sanctuary area lies between Long. 81° 20' and 82° 50' E and Lat. 24° 15' and 25° 40' N. This river is a major tributary of the river Ganges which originates from Shosakund in Amarkantak, Bilaspur District of Madhya Pradesh. The river flows through M.P. and U.P. and joins the Ganges in Bihar.

Methodology and Survey Programme

To collect information on the Gharial, Mugger, Turtles population trend in the Sone Gharial Sanctuary, a survey was conducted from Shikarganj to Bichhi in March 1996. Information on other wild animals and birds was also collected during this survey. The survey was conducted from 27.3.96 to 31.3.96. The sanctuary area falling under the Sone river was divided into five stretches and complete stretch was surveyed in a span of five days as shown in Table 1. The survey was done by ordinary boat and on foot. Field binoculars (40 x 20) were used for sighting the animals and birds.

The Gharial sighted were counted and marked on the field map sheets. The total length of the Gharials sighted was estimated and noted. The aquatic insects were collected using an aquatic net and were identified using standard text as reported earlier (Sharma *et al.*, 1990).

Observations and Discussion

Various surveys have been conducted

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for the occurrence of Gharial in different parts of the M.P. State. The present survey was second in succession on this Crocodile Sanctuary. The sanctuary area consisted of sandy banks and rocky hills. The Gharial usually basked on these sand banks. In the present survey a total of 35 Gharials were sighted in the sanctuary area. The maximum population was sighted from Jugdeh Ghat and Kutlideh. The least number of Gharials were sighted in the stretch between Kurwan, Balian and Terideh. During the survey 11 Mugger Crocodiles (*Crocodylus palustris*) were sighted in the sanctuary area. Their maximum number was noted from Jugdeh Ghat to Kutlideh (9) (Table 1). River Sone offers the best available habitat for Gharial. The river can hold a high population of Gharial. There are many areas suitable for basking and resting of this species. The river Chambal has been a major strong hold of Gharial. Sharma *et al.* (1993) reported 898 Gharial in the Chambal river, which increased to 1,108 in 1994 (Sharma *et al.*, 1995b). Releases are suggested to be always made in the upper stream of the sanctuary, as the Gharial have a tendency of moving down stream and if at all they move, short distance towards down stream they will be inside the sanctuary area when released in the upper portion of the sanctuary. Future releases can be made upstream of Terideh (Shikarganj), below the dam area. No further releases at Bichhi and Khairhani Ghat are suggested. Sharma (1985) reported Gharial census of National Chambal Sanctuary and reported 359 releases in the river Chambal during 1979-81. There is a possibility of adverse impact of Bansagar dam on the Gharial habitat in the form of irregular water releases, destruction of basking and nesting sites etc. Such damage to the habitat should be monitored actively and regularly. Sharma *et al.*, 1995b reported maximum number of Turtles among the reptiles in river Chambal.

Chelonian fauna in the Sone river is diverse and seems to be rich in number. One hundred seventy four Turtles were found basking on the sand banks and rocks. Eighteen predated nests of hard shell Turtles were found at the sand banks of Jugdeh Ghat, Kajardeh and Kutlideh. Five species of Turtles were found in the survey area :

Trionx gangeticus
Chitra indica
Kachuga kachuga
Kachuga ahongoka
Kachuga tentoria

Otter is an opportunistic, yet top predator in an aquatic environment which is highly sensitive to any form of disturbance,

Table 1

Census of fauna in Sone Gharial Sanctuary, Sidhi, during 1996

Area covered	Number of animals			
	Gharial	Mugger	Otter	Turtle
Bhaversen Ghat, Terideh	3	1	-	24
Jugdeh Ghat	14	4	2	45
Rampura, Ramnagar Khuheli	5	1	-	17
Kurwah, Balian	2	-	-	32
Bichhi, Kajardeh and Kutlideh	11	5	-	56
Total	35	11	2	174

Table 2

Aquatic insect fauna from the river Sone in Sidhi District of Madhya Pradesh during 1996

Insect communities	Bhaversen Ghat	Jugdeh Ghat	Kutlideh	Bichhi
Ephemeroptera				
Baetis	-	+	+	-
Caenis	++	+	-	+
Odonata				
Anax immeculifrons	+	-	-	+
Ceriagrion coromandelianum	-	++	+	-
Crocothemis servilia servilia	-	-	+	-
Ischnura senegalensis	++	-	-	-
Orthetrum pruinosum neglectum	+	-	-	-
O. sabina sabina	-	+	++	-
Potomarcha obscura	-	-	+	-
Hemiptera				
Anisops breddini	+	++	-	-
A. nivea	+	-	+	-
Laccotrephes ruber	-	++	-	+
Micronecta ludibunda	+	+	-	-
M. siva	-	-	++	-
Plea pelopea	+	+	-	-
Ranatra filiformis	++	+	+	+
Sphaerodema annulatum	+	-	++	-
Coleoptera				
Cybister	+	-	++	-
Hydrophilus livaceous	-	+	-	+
Laccophilus basalis	++	+	++	-
L. elegenes	+	-	-	+
Diptera				
Chironomus	+	+	+	+
Culex	++	+	-	+
Micropsectra	-	+	-	+

Where : - = Absent; + = Rare and ++ = Common.

pollution and habitat destruction. This sensitivity makes the Otter a good indicator species for the status of its environment and especially of clean water and sound water management. Two Otters were sighted near Judeh Ghat. Foot tracks and Spraint (scats) were observed at Ram Nagar and Kutlideh. In an earlier report (Anon., 1995) Smooth Indian Otter was found to be jeopardized on account of construction of Maheshwar hydroelectric project over the river Narmada in Western Madhya Pradesh. Although, in the present study there was no danger to the existence of this species.

However, this species should be protected and efforts should be done, in this direction to conserve these rare animals.

Avifauna is an important constituent of any ecosystem and an important link in the food chain. Various reports are available on the avifauna of Madhya Pradesh (Sharma and Singh, 1986; Sharma *et al.*, 1993, 1995, 1995a and b). During winter season different species of migratory birds regularly visited the Sone river. The following avifauna present adjoining river Sone in Sidhi District of Madhya Pradesh are reported for the first time. All identifications were made only through binoculars.

Phalacrocorax fuscicollis
Phalacrocorax carbo
Phalacrocorax niger
Anhinga rufa
Ardea cinerea
Ardeolagrayii
Bubulcus ibis
Egretta garzetta
Egretta alba
Ciconia episcopus
Xenorhynchus asiaticus
Ibis leucocephalus
Anastomus oscitans
Pseudibis papillosa
Threskiornis melanocephala
Platalea leucorodia
Anser indicus
Dendrocygna bicolor
Tadorna ferruginea
Anas acuta
Anas crecca
Anas strepera
Mergus merganser
Anas poecilorhyncha
Sarkidornis melanotos
Elanus caeruleus
Targos calvus
Gyps bengalensis
Neophron percnopterus
Halioeetus leucaryphus
Pavo cristatus
Grus antigone
Fulica atra
Himantopus himantopus
Esacus magnirostris
Glareola lactea
Venellus indicus
Vanellus matabaricus
Charadrius dubius
Charadrius alexandrinus
Vanellus spinosus
Tringa totanus
Tringa hypoleucos
Sterna aurantia
Sterna acuticauda
Rynchops albicollis
Columba livia
Streptopelia decaocto
Stretopelia tranquebarica
Centropus sinensis
Athene brama
Alcedo atthis
Halcyon smyrnensis
Ceryle rudis
Merops philippinus
Merops orientalis
Coracias benghalensis
Upupa epops
Magalaima haemacephala
Mirafra erythroptera
Ammomanes phoenicurus
Hirundo rustica
Hirundo smithii
Hirundo daurica
Lanius excubitor
Lanius schach
Dicrurus adsimillis
Sturnus pagodarum
Sturnus contra
Acridotheres oristis
Acridotheres ginginianus
Dendrocitta vagabunda
Pycnonotus cafer

Turdoides caudatus
Copsychus saularis
Saxicoloides fulicata
Motacilla flava
Motacilla cinerea
Nectarinia asiatica
Passer domsticus
Molophus lathami

Insects form an important link in the nutritional cycle of an aquatic ecosystem. The density of insects in a water body is a useful index of water quality. Various studies have been made on the use of insects as indicators of water quality (Olive and Dambach, 1973; Sharma and Saxena, 1989; Sharma and Mathur, 1992 and Sharma *et al.*, 1993). In the present study, 24 insect forms were observed forms were observed in the river Sone. The maximum species comprised from the order Hemiptera followed by Odomata, Coleoptera, Diptera and Ephemeroptera respectively. The relative dominance of these insect species is shown in Table 2.

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SUMMARY

The faunal survey conducted in Sone Gharial Sanctuary of Madhya Pradesh during 1996 is reported in this paper. 35 Gharials (*Gavialis gangeticus*), 11 Mugger Crocodiles (*Crocodylus palustris*), Turtles, Otters, Birds and Insects sighted are described.

मध्य प्रदेश के सोन घडियाल संश्रय में आद्रभूमि प्राणि सर्वेक्षण

आर०के० शर्मा व संजय शर्मा

सारांश

मध्य प्रदेश में 1996 में सोन घडियाल संश्रय का सर्वेक्षण कराया गया। इस अभिपत्र में 35 घडियालों (*गेवियालिस गैंजेटिकस*) 11 मगरों (*क्रोकोडायलस पालूस्टिस*) कछुओं, उद्रों, पक्षियों और कीडों का वर्णन दिया गया है जिन्हें वहां पर देखा गया था।

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