

Status of Gharial in Ken and Son Gharial Sanctuaries, Madhya Pradesh

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THE GHARIAL (*Gavialis gangetics*) and mugger (*Crocodylus palustris*) have historically inhabited the rivers of the Gangetic system and may still occur or did till recent past in the Kali Sindh, Parvati, Chambal, Kunoo, Sindh, Ken and Son rivers.

In 1979, with the Madhya Pradesh Forest Department initiating a gharial and mugger rehabilitation programme, Chambal, Ken and Son rivers were protected as gharial sanctuaries. Other management measures for the species were also implemented in these rivers, such as physical enforcement of wildlife protection laws, banning of fishing and supplementation of wild gharial populations with captive reared animals. The crocodilians of these rivers have been periodically censused and surveyed.

This note presents the status of gharial in the Ken and Son gharial sanctuaries on the basis of these census and survey operations.

Ken gharial sanctuary

The Ken Gharial Sanctuary was notified in October 1981 and includes the 45km Long stretch of the Ken river from the Bariarpur irrigation barrage to Gumanganj/

Pancham nagar. This stretch of the river forms the border of Chhatarpur and Panna districts of Madhya Pradesh.

There are no easily traceable local or documented reports of the former occurrence of gharial in this stretch of the Ken river which flows between steep rocky banks interspersed in places with flat sandy riverbanks. The area was considered suitable for the management of gharial because of the river depth (max.>22m) and other available characteristics of ideal gharial habitat, such as sandy riverbanks and a fairly good fish population.

Gharial releases and monitoring survey

As already mentioned, no gharial occurred in this sanctuary prior to the reintroductions of captive reared animals in 1985. Since then, a total of 74 gharial have been released at a single location viz. Mohare Ghat in the sanctuary. As against the above reintroductions, the numbers of gharial counted in various years (Sharma et al., 1995) is given in Table 1.

The 15 gharial seen in 1999 belonged to six spatially discrete

Releases and monitoring survey results of gharial in the Ken Gharial Sanctuary, MP		
Year	Gharial releases	Gharial counted in census
1985	10	-
1987	10	-
1993	10	-
1994	-	19
1995	15	-
1996	08	22
1997	01	-
1998	20	-
1999	-	15
Total	74	

groups, each separated from its adjacent group by a mean distance of 2.4km.

Break-up of size classes seen during the 1999 census is as follows :

Large adult males	Nil
Large adult females	03
Small adult females	03
Sub adults	Nil
Juveniles	05
Young below 1.2m.	04

If animals less than 1.2m in length seen during the 1999 census, as well the 20 gharial released in 1998 which belonged to same size class and constitute a transient size class of animals with low probability of residence within the sanctuary, are eliminated from an analysis of the status of gharial in the Ken gharial sanctuary, it will be seen that out of 54 gharial released in the sanctuary prior to 1998, 11 or 20.4% of gharial reintroduced in the sanctuary have been retained within the sanctuary limits. At least 6 or 3.24% of the gharial have

been retained. Resident adults availability of nesting sites, which constitute the main limiting factor in the carrying capacity of this sanctuary, indicates that the sanctuary can support a breeding population of 10 -15 females.

Thus, it can be said, that currently, only 40% of the sanctuary's estimated carrying capacity of gharial adults reside here. At the observed rate of retention of reintroduced gharial, i.e, 3-4%, at least an additional 200 - 250 gharial should be released in this sanctuary. It deserves to be mentioned that the census operations were conducted in early summer so the enumerations of gharial could be lower than that of numbers of gharial actually present. Special efforts to introduce male gharial in adequate numbers should be made, to ensure that the breeding requirements of the sanctuary's carrying capacity of females are fulfilled, and a healthy reserve population of both sexes also reside there.

Son gharial sanctuary

The Son gharial sanctuary was notified in September 1981 and includes the 161 km long stretch of the Son river from the Bhanwarsen/Bansagar dam to Piparghat. This stretch of the Son flows first along the border between Shahdol/Santna and then Shahdol/Sidhi districts and finally in the Sidhi district of Madhya Pradesh. The sanctuary also includes stretches of the Gopad and Banas rivers, totaling

Table 2
Possible population and census results of gharial in the Son Gharial Sanctuary, MP

Year	Gharial releases	Gharial counted in census
PSN*	13	
1981	13	-
1985	30	-
1986	22	-
1988	20	-
1989	20	-
1994	-	32
1996	-	35
1997	01	-
Total	119	

*PSN - Prior to sanctuary notification

an additional 48km. Near the Bansagar dam site, the Son passes through a narrow gorge beyond which the river widens to 1km. At certain points, the river varies widely in depth from knee deep to 15-20 m.

Son gharial sanctuary

In a survey undertaken prior to the notification of the sanctuary, a total of 13 gharial varying in size between 2m and 5m were enumerated from six different sites within the sanctuary area (Khan 1993). Following the notification, 105 captive reared gharial of approximate lengths 1.5 - 2m. were reintroduced in the Son Gharial Sanctuary. The possible numbers of gharial living in the sanctuary as against the numbers observed in census surveys in the recent past (Sharma et. al., 1997) are given in Table 2.

The 35 gharial seen in 1996

belonged to seven spatially discrete groups, each separated from an adjacent group by a mean distance of 20.8km.(7-55km).

The break-up of size classes seen during the census operations (i) prior to sanctuary notification (PSN) and (ii) in 1996 are as follows :

	(PSN)		
1996	Difference		
Large adult males	Nil	Nil	Nil
Large adult females	02	17	+15
Small adult females	02	08	+06
Sub adults	09	06	-03
Juveniles	Nil	04	+04
Young below 1.2m	Nil	Nil	Nil

It may be surmised from the above figures that there has been an increase in the numbers of gharial in the Son sanctuary especially of the adult size classes. This is notwithstanding that in 1996, the census was undertaken in the month of March and a larger number may well have been enumerated in the preceding winter months. In addition to the 105 juveniles reintroduced into the sanctuary , there were 9 sub-adults residing in the sanctuary prior to the reintroductions. Of these 114 animals, 22 were accounted for during the 1996 census, indicating a gross retention rate of 19.3% for the reintroduced animals, and an increment rate of 18.4% in the population of adult females.

The density of gharial in the Son Gharial Sanctuary was found to

be 0.22 gharial/km, which compares poorly with the density of 2.9 gharial/km. found at present in the Chambal (Sharma and Mathur 1997). Though Son is comparably a more favourable habitat, it may be mentioned that it was totally devoid of adult males until a single adult male reintroduction in 1997. No natural breeding was taking place in this sanctuary whereas a healthy population of gharial are regularly and successfully participating in breeding in the Chambal every year.

References

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