

GLOBAL RE-INTRODUCTION PERSPECTIVES

Re-introduction case-studies from around the globe



**Edited by
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Cover photo: Clockwise starting from top-left:

- Formosan salmon stream, Taiwan
- Students in Madagascar with tree seedlings
- Virgin Islands boa

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Supplementation of Indian Gharial in protected areas of Madhya Pradesh, India

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Introduction

The Ganges river system in North India includes in its fauna two species of crocodiles - the Indian Gharial (*Gavialis gangeticus*) and the marsh crocodile (*Crocodylus palustris*). The Gharial, a fish-eating crocodile with a long snout, is now reported only from India and Nepal. The populations of Gharial in India were driven to very low levels relative to their earlier abundance. The Gharial has been illegally hunted throughout its range for hides, meat and medicine. In addition the loss of habitat from alteration and human settlement, and the use of nylon nets for fishing may have been significant in regulating some local populations. By the end of 1960s the Gharial population was dwindled to less than 150 animals. Efforts to conserve crocodiles in India effectively began in 1972 with the declaration of the Indian Wildlife Protection Act under which all three species of Indian crocodiles were declared totally protected fauna. The Gharial is considered as endangered in IUCN Red Data Book and is listed on Appendix I of CITES. The decline in the population of adult Gharial has raised international alarm. It has prompted the IUCN to classify them as critically endangered on its Red List of species. A Nation-wide crocodile conservation project was initiated in the Country by the Govt. of India during 1975 in technical collaboration with FAO/UNDP. Under the Crocodile Project many crocodile habitats were identified and protected by declaring 13 of them as crocodile sanctuaries. Among them seven (54%) sanctuaries with an area of 2,986 km² are specially created for the protection of Gharial including three sanctuaries in Madhya Pradesh named National Chambal Sanctuary on the Chambal River, Ken Gharial Sanctuary on the Ken River and Son Gharial Sanctuary on Son River in Ganges River System in North India.

Goals

- Goal 1: Provide a suitable and protected habitat for the endangered Gharial in its distributional range.
- Goal 2: Supplement the dwindling population with captive raised Gharial under the "Go and Release Program".



Gharial (*Gavialis gangeticus*)

Reptiles



Gharial habitat on the Chambal River, India

- Goal 3: Develop a trained human resource for the conservation and management of the Gharial and other aquatic animals.

Success Indicators

- Indicator 1: Increase in the population of Gharial.
- Indicator 2: Survival of the released Gharial.
- Indicator 3: Breeding of the released Gharial in the wild.

Project Summary

Feasibility: The Chambal River is perennial, having its origin in Vindhyan Range near Mhow district of Madhya Pradesh (M.P.). It flows in a North-eastern direction, passing through Rajasthan (RAJ) up to the point where its major tributary, Parbati joins it near Pali. Thereafter, it flows in an eastern direction, forming the boundary of M.P. and Rajasthan and M.P. and Uttar Pradesh. It joins the Yamuna River near Bareilly of Etawah district of U.P. The Yamuna, in turn, flows south-east direction till it meets the Ganges at Allahabad. Kali Sindh, Parbati, Banas and Kuno are the important tributaries of the Chambal River. A series of multipurpose dams at Gandhi Sagar (M.P.), Rana Pratap Sagar (RAJ), Jawahar Sagar (RAJ) and Kota Barrage (RAJ) have been erected in the upper reaches of the Chambal River. The deep and fast flowing Chambal River varies considerably. At places the river is shallow and fast and there are many shallow riffle areas. The substrate ranges from mud and silt to sand and rock. At low water periods (April - June) the river is 150 - 250 m wide and has a maximum depth of 20 m. During the wet season (July - September) the river floods naturally and high extents of erosion and deposition of soil take place. During this period the maximum depth of the river is around 50 m. The Chambal River is a good habitat for large number of aquatic animals including a variety of fishes, crocodiles, turtles, migratory birds, aquatic mammals like dolphin and otter.

The National Chambal Sanctuary is managed by the Forest Departments (Wildlife wing) of Rajasthan, Madhya Pradesh and Uttar Pradesh. The Sanctuary headquarters of M.P., U.P. and Rajasthan are at Deori, Dist. Morena; Agra and Kota, respectively. Stopping of fishing activity, maintaining full protection from poaching, extending protection to the habitat and rehabilitation of gharial under 'grow and release' scheme are the management strategies adopted in the National Chambal Sanctuary. Rehabilitation of gharial has been taken up in the sanctuary from 1978. Gharial eggs are being collected from the Chambal River for artificial hatching at Deori Gharial Rearing Centre (DGRC). Rehabilitation of Gharial has been taken up in the National Chambal Sanctuary from 1978. Around 2,000

captive reared Gharial have been released in the Chambal River by Madhya Pradesh and Uttar Pradesh Forest Departments. To avoid any possible migration of Gharial to outside the Sanctuary area, most of the releases were done in the up-stream of the Chambal River near Pali, Baroli and Rameswar ghat where river Banas joins Chambal River. Captive reared muggers were also released in the Chambal River. In addition to release of crocodiles in the Chambal River captive reared Gharial have also been released in Ken and Son Gharial Sanctuaries of Madhya Pradesh. The conservation and management of Indian Gharial received International recognition. In addition to crocodiles, turtles, dolphins, otters and migratory birds also received protection in the Sanctuary. Although due to financial crisis and ignorance, the re-introduction of gharial was ceased for a period of 10 years from 1993 - 2003, Gharial captive rearing program was again started at the Gharial rearing centre, Morena, Madhya Pradesh from 2003.

Implementation: The State Governments of Madhya Pradesh, Rajasthan and Uttar Pradesh are taking conservation management programs including re-introduction of Gharial in the Chambal Sanctuary. The Forest Departments monitor the populations of endangered species in the Sanctuary regularly. As borders between States are political and not ecological, habitats in the Sanctuary are subject to different, or even conflicting, management and land use practices. Senior forest officers of all three States are in-charge of their respective projects. Range officers, research assistants, field assistants, forest guards and boat-men are looking after the protection in the field. Every year the Forest Department of Madhya Pradesh conducts surveys to monitor the populations of endangered species including migratory birds.

Post-release monitoring: Monitoring of the released Gharial is the responsibility of the concerned Forest Department. However, due to lack of scientific intervention the monitoring is not up to the expectation. Although annual surveys were conducted initially for a period of 10 years, monitoring of post-release of Gharial was not carried out regularly. After cessation of monitoring for many years, recently surveys have been carried out to assess the Gharial population in the Chambal and other rivers. If the specific goals of a conservation-oriented re-introduction and the criteria by which success is evaluated depend both on the species' status in the wild and in captivity and the political and social conditions in the region surrounding the release site, then the Gharial re-introduction in the Chambal region is partially successful.



Villagers crossing the Chambal River

Reptiles



Overview of the Chambal River

Major difficulties faced

- Lack of scientific input for project implementation.
- Lack of coordination by different agencies in implementing the project.
- Lack of facilities for regular monitoring of the project.
- Lack of motivation and awareness for scientific research.

Major lessons learned

- There is a need for scientific monitoring of the project.
- Human activities in the project

area should be totally eliminated.

- Care should be taken for socio-economic conditions of the people living in the project area.

Success of project

Highly Successful	Successful	Partially Successful	Failure
		√	

Reasons for success/failure:

- Re-introductions were done unscientifically.
- No post-release monitoring.
- Species is still declining in its population.