

A Study on Distribution and Behaviour of Smooth-Coated Otter (*Lutrogale perspicillata*) at Kota and Rawatbhata (Chittorgarh), Rajasthan, India

Harshit Sharma¹, Anshu Sharma², Surabhi Shrivastava³

^{1,2}Research Scholars, University of Kota, Kota, Rajasthan, India

Email: [hsharma867\[at\]gmail.com](mailto:hsharma867[at]gmail.com)

Email: [anshuwildindia0114\[at\]gmail.com](mailto:anshuwildindia0114[at]gmail.com)

³Former Coordinator, Department of Wild Life Science, University of Kota, Kota, Rajasthan, India

Abstract: Smooth-coated otter was once distributed in a vast portion of Rajasthan. This situation was reported up to 1965. After this period, it was hunted to get the valuable fur. This destructive practice was observed till the commencement of Wildlife Protection Act, 1972. By this time this species became extinct from a major part of Rajasthan. At present, Smooth-coated Otter is mainly found in the flow area of Chambal River, south-eastern Rajasthan. But here too, due to increasing water pollution and plastic pollution, there is a threat to their existence. It is considered a vulnerable species in the list of IUCN (Saha and Mazumdar, 2008). Travelling, playing, drying and grooming are the most prevalent activities recorded. Present investigations describe the behavioural activities of Smooth-coated Otter in Chambal River. It was mainly observed fishing on Tilapia fish along with other species.

Keywords: Smooth-coated Otter, River Chambal, Behaviour

1. Introduction

The smooth-coated otter, *Lutrogale perspicillata* (I. Geoffroy Saint-Hilaire, 1826), is an oriental species ranging eastwards from Iraq through the Sind, Nepal and Assam to Indochina, Malaya and Sumatra (Sivasothi and Nor, 1994; Hussain *et al.*, 2008; Koepfli *et al.*, 2008; Khan *et al.*, 2010; Lau *et al.*, 2010). There are 13 species of otters spread all over the world and India has three species (Johnsingh and Manjrekar, 2013; Menon, 2014). Out of three species of otter found in India, only one species is reported from Rajasthan which is known as Smooth-coated otter, *Lutrogale perspicillata*, (Sharma and Shrivastava 2019). They are semi-aquatic, social, carnivores, hunting in small family groups (Helvoort *et al.*, 1996). Their presence in an environment can indicate its health, as they are sensitive to aquatic pollution and degradation of the surrounding terrestrial habitat (Fournier – Chambrillon *et al.*, 2004; Lemarchand *et al.*, 2010, 2011). Smooth-coated otter is found in natural habitats in Kota and Chittorgarh. Reaching around 1.2m in length and weighting between 7-10kg when fully grown, the smooth-coated otters generally live in groups of 8-12 animals in study area, with a blend of adults, sub-adults and pups.



Figure 1: An adult Smooth-coated Otter in River Chambal

2. Study Area

The Chambal River basin is spread over Chittorgarh, Bhilwara, Kota, Bundi, Baran, Jhalawar, Tonk, Sawi Madhopur, Karoli and Dhaulpur districts of Rajasthan. Otters can be seen in the Chambal River at various places in Chittorgarh, Bundi and Kota districts. Smooth-coated otters are sighted on the islands surrounded by water in Rana Pratap Sagar (Chittorgarh), Bhainsrorgarh Wildlife Sanctuary (Chittorgarh), Jawahar Sagar Dam (Kota) and Kota Barrage (Kota) built on Chambal River. The study has been done by the research team in these areas. The sanctuary is mainly dry deciduous. Rawatbhata is located at about 50KM away from Kota city.

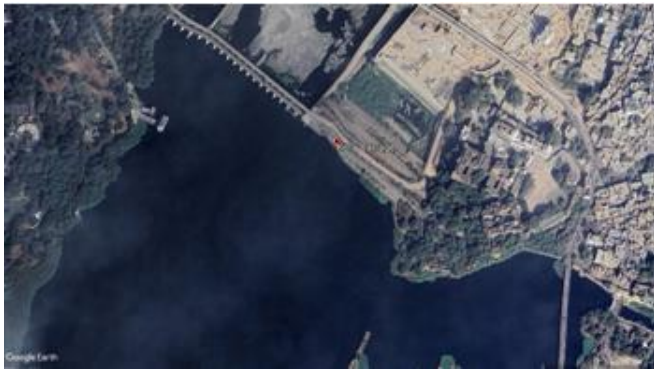


Figure 2: Location map of Kota Barrage, Kota
(Source-Google Erath) (Source-Google Erath)



Figure 3: Location map of Jawahar Sagar Dam, Kota



Figure 4: Location map of Submersible bridge, Rawatbhata
(Source-Google Erath) (Source-Google Erath)

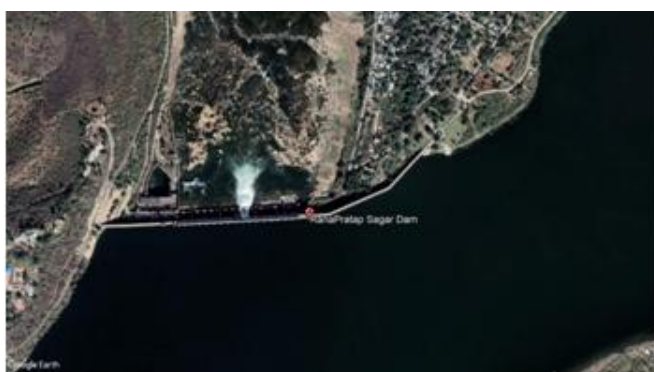


Figure 5: Location map of Rana Pratap Sagar Dam,
Rawatbhata



Figure 6: Bhainsrorgarh wildlife sanctuary, Rawatbhata,
Chittorgarh

3. Methodology

During March 2019 to July 2022, the activities of Smooth-coated otters in Bhainsrorgarh Wildlife Sanctuary (Rawatbhata), Jawahar Sagar Dam and Kota barrage were monitored and captured regularly. During this period got an opportunity to meet some forest personnels and experienced wild lifers as good sources of information. Available older literature was also studied. The survey was done by boat in Chambal River. Primary observations were made with a pair of binoculars (Nikon 12×50). To record the behaviour and number of Smooth-coated Otters, photographs were taken with DSLR camera and telephoto lenses (Nikon D7500 paired with Nikon AF-S Nikkor 200-500MM F/5.6E ED VR). Travelling, feeding, playing and social behaviour of the animal were directly observed during the investigation.

4. Observations

During field work carried out by the research scholars and research supervisor, the observed otters were swimming fast, changing directions by communication calls. It is common behaviour in Smooth-coated otter. Smooth-coated otters are social semi-aquatic mammals. They hunt in groups. They come out of their den after sunrise in the morning. They travel long distances in search of prey. Parents teach their pups to hunt. When in danger, parents alert pups through a whistling calls. When one otter in the group hunts, the other otters present in the group rush towards the prey and fight with each other. They do not like to eat their prey together. It hunts in the morning and evening mainly, but sometimes it hunts even at night as well. After coming out of the water, they spend 15-20 minutes grooming themselves by rolling over rocks and sand. Subadults are seen chasing each other on land or in water and play with one another. It likes to rest in the day time. The smooth-coated otters are mostly fish eater. The number of fish in River Chambal is in abundance, but sometimes they have also been seen eating crabs, molluscs and insects. There are many species of fish such as Tilapia, Catfish, Rohu, Catla, Common Carp, Mahasheer etc. in River Chambal. Due to greater populations of Tilapia fish in the river than other fish species, otters have been mostly seen eating Tilapia. It moves forward marking its territory through urination. It teases other animals coming in its

territory like marsh crocodile, hanuman langur, stray dog and domestic cow. Sometimes they attack humans to protect their pups, when they see humans interfering with their habitat.



Figure 7: The Smooth-coated Otter catching prey



Figure 8: Fighting among group members for a prey



Figure 9: Subadult Otters playing with each other



Figure 10: Smooth-coated Otter family resting on sand



Figure 11: Otters marking their territory



Figure 12: Smooth-coated Otter biting a bull



Figure 13: Smooth-coated Otters teasing a Marsh crocodile



Figure 14: Conflict between Smooth-coated Otters and Stray dog



Figure 16: A dead Smooth-coated Otter found in River Chambal

(All photos copyright by Harshit Sharma)

5. Result

The Chambal River is cleaner than other rivers in Rajasthan and remains full of water throughout the year. Sufficient number of prey is available in the river for the otters to feed. Due to the development of barrage and dam on River Chambal, their number has been restricted to a small area. Other reasons for the decrease in otter populations are poaching for pelts and illegal net fishing which sometimes kills otters. The waste from Kota Thermal Power Plant located on the banks of the River Chambal and the water from the dirty drains of the Kota district is directly dumped into the river. The smooth-coated otters cannot survive in the polluted water and migrate towards clean and unpolluted areas of River Chambal. Thus they can be designated as bio-indicators of unpolluted water. Areas of occupancy of Smooth-coated Otters colonies in the River Chambal reflect that River Chambal is still clean and polluted at its minimum.



Figure 15: Plastic rope stuck around Otter's neck

6. Conclusion

The present study for assessment of the distribution of Smooth-coated Otter reveals that the River Chambal provides an ideal habitat for this rare species. Sufficient food and breeding sites are available in their habitat. If this species is not get protected, then the day is not far when it will go towards extinction species in Rajasthan.

Acknowledgement

The authors are grateful to Shri Devkinandan and Shri Banwari Yaduwanshi, who helped make the study a success by sharing information and experiences.

References

- [1] Allen, S. E. (1989). Chemical analysis of ecological materials. *Blackwell Scientific Publications*, London.
- [2] Bekoff, M.; Daniels, T. J.; and Gittleman, J. L. (1984). Life history patterns and the comparative social ecology of carnivores. *Annual Review of Ecology, Evolution and Systematics*, 15: 191-232.
- [3] Bustard, H. R. (1984). Breeding the Gharial (*Gavialis gangeticus*): Captive breeding a key conservation strategy for endangered crocodylians. *Symp. Zool. Soc. London*; 52: 385-406.
- [4] Champion, H. G. and Seth, S. K. (1968). A revised survey of the forest types of India. *Manager of Publication*, Delhi. pp.404.
- [5] Chanin, P. (1985). The Natural History of Otters. *New York: Facts on File*.
- [6] Eisenberg, J. F. (1981). The mammalian radiation. An analysis of trends in evolution, adaptation, and behaviour. *University of Chicago Press, Chicago*.
- [7] Foster-Turley, P. and Santiapillai, C. (1990). Action plan for Asian otters, In: Otters, an action plan for their conservation. Foster-Turley, P., Macdonald S., Mason, C. F. (Eds.) *IUCN/SSC, Otter Specialist Group. IUCN, Gland*.
- [8] Foster-Turley, P. (1992). Conservation ecology of sympatric Asian otters *Aonyx cinerea* and *Lutraperspicillata*, PhD thesis, *University of Florida*.

- [9] Johnsingh, A. T. and Manjrekar, J. N. (2013). Mammals of South Asia, Vol. I, *University Press (India) Pvt. Ltd.*
- [10] Harker, J. E. (1964). The Physiology of Diurnal Rhythms. *Cambridge University Press*, Cambridge.
- [11] Hussain, S. A. (1990). Ecology of gharial in National Chambal Sanctuary. M Phil thesis, Centre for Wildlife and Ornithology, *Aligarh Muslim University*, Aligarh.
- [12] Hussain, S. A. (1993). Aspects of the ecology of smooth-coated otter (*Lutraperspicillata*) in National Chambal Sanctuary. PhD Thesis, Centre for Wildlife and Ornithology, *Aligarh Muslim University*, Aligarh.
- [13] Hussain, S. A. (1996). Group size, group structure and breeding in smooth-coated otter *Lutraperspicillata*, Geoffroy (Carnivora, Mustelidae) in National Chambal Sanctuary, India. *Mammalia*, 60 (2): 289-297.
- [14] Hussain, S. A. (1999). Reproductive success, hatchling survival and growth of a managed population of Ganges gharial. *Biological Conservation*.87: 261-268.
- [15] Hussain, S. A. (2002). Conservation status of otters in the Tarai and Lower Himalayas of Uttar Pradesh, India. In Otter Conservation-An example for a sustainable use of wetlands. IUCN Otter Specialist Group Bulletin: *Proceedings from VIIth International Colloquium, Trebon, Czech Republic*, 2002 19A: 131-142.
- [16] Hussain, S. A. (2009). Basking site and water depth selection by gharial *Gavialis gangeticus* in National Chambal Sanctuary and its implication for river conservation. *Aquatic Conservation*, 19: 127-133.
- [17] Hussain, S. A. and Choudhury, B. C. (1995). Seasonal movement, home range and habitat use by smoothcoated otters *Lutraperspicillata* in National Chambal Sanctuary, India. pp.45-55. In: *Proceedings of VI. International Otter Colloquium*, Pietermaritzburg.
- [18] Koepfli, K. P.; Kanchanasaka B.; Sasaki, H.; Jacques, H.; Louie, K. D. Y.; Hoai, T.; Dang, N. X.; Geffen, E.; Gutleb, A.; Han, S. Y.; Heggberget, T. M.; Lafontaine L.; Lee, H.; Melisch, R.; Ruiz-Olmo, J.; Santos-Reis, M.; Sidorovich, V. E.; Stubbe, M. and Wayne, R. K. (2008). Establishing the foundation for an applied molecular taxonomy of otters in Southeast Asia. *Conserv. Genet*.9: 1589-1604.
- [19] Menon, V. (2014). Indian Mammals-A Field Guide: pp.300-301, *Hichette Book Publishing India Pvt. Ltd.*
- [20] Saha, G. K. and Mazumdar, S. (2008). Threatened Mammals of India-*Ecology and Management*. pp.1-162, *Daya Publishing House*, Delhi.
- [21] Sharma, S. K. (2007). Study of Biodiversity and Ethnobiology of Phulwari Wildlife Sanctuary, Udaipur (Rajasthan). Ph. D. Thesis, *MLSUniversity*, Udaipur, pp.1-660.
- [22] Sharma, S. K.; Kulshreshtha, S. and Rahmani, A. R. (2013). Faunal Heritage of Rajasthan, India. Appendix Table 3rd: Mammals, pp.603-605. *Springer New York*, Heidelberg, Dordrecht, London.
- [23] Sharma, U. and Shrivastava, S. (2019). Population estimation and Behaviour Study of MHTR, Kota, Rajasthan, India. A dissertation awarded for Masters degree of Wild life science from University of Kota, Kota. Total pp.51
- [24] Sivasothi, N.; and Nor, B. H. M. (1994). A review of otters (Carnivora: Mustelidae: Lutrinae) in Malaysia and Singapore. *Hydrobiologia* 285: 151-170.
- [25] Verma, A. (2008). Mammals of Rajasthan, In, A. Verma (ed.) *Conserving Biodiversity of Rajasthan*. pp.244-253. *Himanshu Publications*, Udaipur and New Delhi.