



NOTES ON NATURAL HISTORY

The Ecotone of River Cave, a Boon for the Fisherman: a Case Study of Mandhip Khol Cave Complex of Chhattisgarh, India

Akhilesh Kumar^{1*}, Gokul Prasad¹, Siddharth Biswas², Jayant Biswas^{1,2}

¹ISBM University, Block & Tehsil- Chhura, Gariyaband, 493996, Chhattisgarh, India

²National Cave Research and Protection Organization, Raipur, Chhattisgarh, India

Study Area: Rajnandgaon, Chhattisgarh, India
Coordinates: N21°39': E080°58'

Key words: Fishing, Troglodytes, Fish poison, *Casearia tomentosa*

Introduction

The ecotone is a zone that serves as a boundary between two distinct ecosystems. It offers a comfort place for animals coming in search of a nesting place or food. In addition, the edge effects which are the fluctuation in population or community structures often referred to as edge species found in ecotone are also of great interest while we deal with cave ecotone. The mouth or the entrance zone of any cave is indeed a narrow ecological zone harbouring a variety of floristic and faunistic characteristics. However, unlike the other ecotone it bears characteristics of two drastically differing ecological community types. Infact, a zone of steep environmental gradient between two parallel ecosystems has perfectly specified an ecotone and the cave ecotone perfectly justifies it Mosley (2009).

However, ecotones are always prone to unavoidable predatory pressure. Sometimes such pressure could be from the fauna of both ends, but usually, the wilderness zones are dominant over the other. Nevertheless, human encroachments are always in the upper hand in this regard. The cave ecotones are not exceptional to this phenomenon. From time to time several reports suggested that tribals hunt the cave fauna for their own benefit whether it is bat, bird or any other species (Biswas *et al.*, 2011; Biswas, 2022). During our regular visits to the wild caves, we have many times encountered such incidents, when we found how the local tribes are exploiting cruelly the fauna inhabiting the ecotone of the caves. Such incidences are more commonly observed around river caves. One such incident we have studied is briefing here.

Study site

The Mandhip Khol (cave) is located in the Rajnandgaon District of Chhattisgarh. It indeed consists of two parts having two distinct entries; the dried entry and the wet entry. The wet is referred to as Shwet Ganga by the local villagers but in a scientific report, it was named Python cave as during the survey a big python was found to dwell inside

this entry (Ruggieri & Biswas, 2011).

From the Shwet Ganga / the Python Cave, a river stream is coming out and distributing water to its various tributaries serving as the main source of water for various villages. Our observation was based on the ecotone of this Python cave (Plate-1).

Our observation

A local fruit *Casearia tomentosa* which is used as a fish poison is very common in the jungle areas of Chhattisgarh. The fishermen in India generally use the powder of this dried fruit to catch fish (Ajaib *et al.*, 2015; Jawale, 2018; Talukdar *et al.*, 2021).

Annually, during summer days (April to Mid June) when the tributaries get almost dried the native fishes accommodate near the entrance zone (ecotone) of this Python cave (Plate-1). We found that the local villagers brought with them the ground powder of the dried *Casearia tomentosa* which was collected by them from the ambient jungle areas (Plate-2). They spread the powder on the water surface of the ecotone of the Python cave and install a fishing net about 25m away from the ecotone by selecting the narrowest flow zone of the tributary and then waiting



Plate-1: Ecotone of Shweta Ganga/Python cave of Mandhip Khol Cave Complex

*Corresponding Author: kumarakhileshyadav89@gmail.com



Plate-2: Freshly collected wild fruit *Casearia tomentosa* to use it for killing the fishes



Plate-3: Collecting dead fish in a fishing net installed in a narrow tributary



Plate-4: Dead fish were gathered by killing them with *Casearia tomentosa* fruits

for a few hours. While waiting, they again collect fresh *Casearia tomentosa* fruits for their future fishing plan.

Finally, after a time gap of 4 to 5 hours, they collected the dead fish which gathered thereby coming with water flow in the fishing net. (Plate-3,4).

Acknowledgement

We are grateful to the villagers of Narmada for cooperating and explaining their every moment during the study.

References:

- Ajaib, M., Khalid, S., Khan, S.M., Siddiqui, S.Z., Abbasi, M.A., Perveen, S. & Shah, S. (2015): *Casearia Tomentosa*: A Potential Antimicrobial and Antioxidant Source. *J. Chem. Soc. Pak.*, 37(04):811-816.
- Biswas, J. (2022): Biospeleology: the biology of cave habitats from India, pp. 53-86. In: Biswas J. (ed.) **Cave Science: Insight from the Indian Sub Continent**. Pub. by: National Cave Research and Protection Organization, India.
- Biswas, J., Shrotriya, S., Rajput, Y., Sasmal, S. (2011): Impacts of Ecotourism on Bat Habitats in Caves of Kanger Valley National Park, India. *Res. J. Environ. Sci.*, 5(9):752-762.
- Jawale, C.S. (2018): Piscicidal Plants of India. *Trends Fish. Res.*, 7(2): 2319-4758.
- Mosley, M. (2010): Are all caves ecotones? *Cave Karst Sci.*, 36(2):53-58.
- Ruggieri, R. & Biswas, J. (2011): The karst Mandhip Khol-Phyton cave complex in the lenticular limestone interactions of the metamorphic Chhatrela formation (Chhattisgarh, India). *Acta Carsologica*, 40(1):7-14.
- Talukdar, Md. A., Mannan, Md. A., Nijhu, R.S. & Khatun, A. (2021): *Casearia tomentosa* Roxb: A comprehensive review on botany, traditional uses, phytochemistry and pharmacology. *J. Pharmacog. Phytochem.*, 10(5):108-110.

