



STUDY OF DISTRIBUTION AND DIVERSITY OF SNAKE (SQUAMATA: REPTILIA) FAUNA IN JABALPUR, MADHYA PRADESH, INDIA

Altaf Hussain Sheikh^{1*}, Anurag Chaturvedi², Moni Thomas³ and Rita Bhandari⁴

¹Department of Bioscience, R D University, Jabalpur, Madhya Pradesh-482001, India.

²N-57, Jai Prakash Nagar, Adhartal, Jabalpur (482004), Madhya Pradesh, India

³Directorate of Research Services, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh-482004, India

⁴Department of Zoology, Government O. F. K. College, Jabalpur, Madhya Pradesh-482005, India.

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ABSTRACT

Snakes are fascinating creature and play an important role in the ecosystem functioning. Due to their predatory nature, they are involved in diverse food webs and ecological guilds. In this context the present study reports 22 species of snakes belonging to 8 families grouped under 18 genera from district Jabalpur of Madhya Pradesh. Forest area seemed more diverse than agricultural and rocky areas. Most probable reason might be anthropogenic activities in agricultural areas and difficulty in locating the snake in rocky area.

Keywords: Distribution, Diversity, Snake fauna, Jabalpur.

INTRODUCTION

Snakes are the modern reptiles, appeared the fossil record during the time of the dinosaurs. Snakes are considered a successful group of predatory vertebrates that occupy a wide range of environments in tropical as well as temperate environments (Smith, 1943; Pauwels *et al.*, 2008). There are about 3273 species of snakes known worldwide, out of which 302 species have been reported from India (www.indiansnakes.org). There are about 153 species of fresh water snakes making about 5 per cent of all known snakes (Pauwels *et al.*, 2008). A total of 52 venomous species are reported from India, among which 32 are over the land (examples are Pythons, Vipers, coral snakes, Cobras, King cobra, Kraits) and 20 are Sea snakes (Chandra and Gajbe, 2005). Out of the total 302 snakes found in India, 44 have been reported from the state of Madhya Pradesh (www.indiansnakes.org). This region is relatively less explored and more surveys can bring many more species to light. Present study presents updated knowledge about the distribution and species abundance of snakes in the Jabalpur district of the Madhya Pradesh.

Study site

Jabalpur district lies in the eastern half of Madhya Pradesh-the central Indian state. Geographically it lies between 23⁰ 10' North latitude and 79⁰ 59' East longitude with a total geographic area of 5211 sq. km. The district lies in the catchment of Narmada- the longest river of Central India. Narmada has its tributaries, viz. Hiran, Gour, Ken and Sone touching the district. Jabalpur with a forest cover of 1078 sq. km i.e. about 20.69 per cent of its geographical area (State of Forest Report, 2003), serves as the corridors for Bandhagrah Tiger Reserve, Kanha Tiger Reserve, Pench Tiger Reserve and Bilaspur Tiger Reserve.

MATERIAL AND METHOD

The study was conducted from June 2014 to November 2016 including all seasons but extensive field expeditions were carried during post summer and monsoon months due to natural abundance of Snake species. All snakes were documented during day and night surveys which were based on opportunistic visual sightings, road kill examinations in urban and roads passing through the forest areas. The field expeditions were carried at Madan Mahal

*Corresponding Author: Dr. Altaf Hussain Sheikh, Department of Bioscience, R D University, Jabalpur, Madhya Pradesh-482001, India, Email: khushialtaf1986@gmail.com, Mobile: +91 7477040374

Hills; Dumna area; agricultural lands around Garha, Adhartaal and Vijay Nagar areas. No specimen was physically harmed or collected due to legal constraints and ethical causes. All species were identified by using latest available taxonomic literature and field guides like Whitaker and Captain (2004); Pyron and Wallach (2014). Taxonomic notes were also taken which will be used in future studies. Habitat is divided into three major categories namely Rocky hills, agricultural plains and undisturbed and partially disturbed forests. Species which were observed

more than 10 individuals are considered as common while those whose individual count was less than 10 during study are considered uncommon.

RESULTS AND DISCUSSION

During the study period, 22 species belonging to 8 families of snakes were observed. The distribution and abundance of the observed snake fauna is presented in the table 1 and Plate 1.

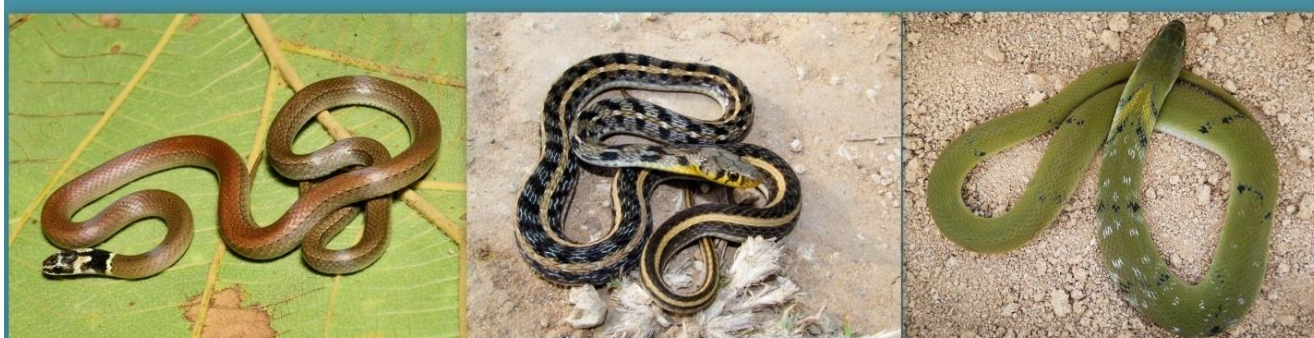
Table 1. The distribution and abundance of snake fauna in Jabalpur.

S. No.	Species	MM	DA	AA
PYTHONIDAE				
1	<i>Python molurus</i> LINNAEUS, 1758	C	C	C
ERYCIDAE				
2	<i>Eryx conicus</i> SCHNEIDER, 1801	C	UC	C
3	<i>Eryx johnii</i> RUSSELL, 1801	UC	NF	NF
COLUBRIDAE				
4	<i>Argyrogena fasciolata</i> SHAW, 1802	UC	UC	C
5	<i>Dendrelaphis tristis</i> , DAUDIN, 1803	C	C	UC
6	<i>Boiga trigonata</i> SCHNEIDER, 1802	UC	UC	NF
7	<i>Coelognathus helena helena</i> DAUDIN, 1803	C	C	C
8	<i>Lycodon aulicus</i> LINNAEUS, 1758	C	C	C
9	<i>Lycodon striatus</i> SHAW, 1802	NF	UC	UC
10	<i>Oligodon arnensis</i> SHAW, 1802	C	C	C
11	<i>Oligodon taeniolatus</i> JERDON, 1853	UC	UC	NF
12	<i>Ptyas mucosa</i> LINNAEUS, 1758	C	C	C
SIBYNOPHIIDAE				
13	<i>Sibynophis subpunctatus</i> DUMÉRIL, BIBRON & DUMÉRIL, 1854	NF	UC	UC
NATRICIDAE				
14	<i>Amphiesma stolatum</i> LINNAEUS, 1758	C	C	C
15	<i>Macropisthodon plumbicolor</i> CANTOR, 1839	NF	UC	UC
16	<i>Xenochrophis piscator</i> SCHNEIDER, 1799	C	C	C
ELAPIDAE				
17	<i>Bungarus caeruleus</i> SCHNEIDER, 1801	C	C	C
18	<i>Naja naja</i> LINNAEUS, 1758	C	C	C
VIPERIDAE				
19	<i>Daboia russelii</i> SHAW & NODDER, 1797	C	C	C
20	<i>Echis carinatus</i> SCHNEIDER, 1801	NF	UC	NF
TYPHLOPIDAE				
21	<i>Indotyphlops braminus</i> DAUDIN, 1803	C	C	C
22	<i>Indotyphlops porrectus</i> STOLICZKA, 1871	NF	C	C
Total Species		17	21	18

Abbreviations: Madan Mahal Hills (including human settlements adjacent to hills: MM; Dumna area (including airport road): DA; Agricultural areas adjacent to city: AA; Not found: NF, Common: C, Uncommon: UC.

Plate 1





13. *Sibynophis subpunctatus* 14. *Amphiesma stolatum* 15. *Macropisthodon blumbicolar*



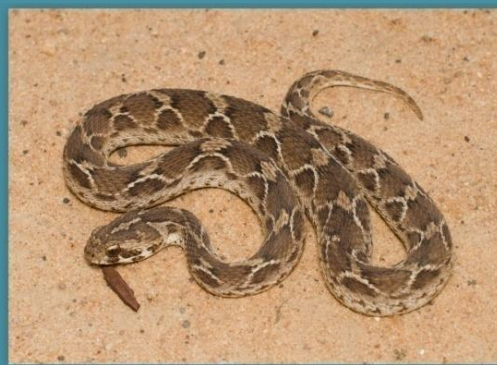
16. *Xenocrophis piscator*

17. *Bungarus caeruleus*

18. *Naja naja*



19. *Daboia russelii*



20. *Echis carinatus*



21. *Indotylops braminus*



22. *Indotylops porrectus*

Total 22 species under 8 families and 18 genera were documented from three different habitats which are tabulated above with their population status. Out of 22 species 11 species were found commonly in all three habitats which indicate they can survive in multiple natural and modified habitats. Species like *Eryx johnii* and *Echis carinatus* were restricted to a particular habitat as can be seen above. Future works can throw more light into population status and type of habitat of these species. *Argyrogena fasciolata*, *Boiga trigonata*, *Lycodon striatus*, *Oligodon taeniolatus*, *Sibynophis subpunctatus*, *Macropisthodon plumbicolor* and *Echis carinatus* can be considered uncommon for Jabalpur area as their sightings were less than 10 and infact sometimes not more than 2 even after extensive field surveys. While observing the habitat wise total count, rocky hills have least number of species. However rocky hill habitat is always hard to explore due to technical issues and species living there are known for better use of rocks for activities, this makes any kind of documentation tough in such habitats. Maximum number of species can be observed in disturbed and partially disturbed forest habitats particularly in Dumna area, indicating value of forests in ensuring safe and diverse habitat for wildlife. Interestingly 18 species have been reported from agricultural lands and highly modified lands of Jabalpur. In this habitat arboreal snakes like *Dendrelaphis tristis* and *Boiga trigonata* were not found or found in very less number, this is due to lack of natural forest cover and extensive anthropogenic activities.

Some previously reported species like *Lycodon travancoricus* (D'Abreu, 1928) and *Trimeresurus gramineus* (Nelson, 1909) were not seen during survey. Probably they were documented from some other habitat or their habitat is destructed to the limit where they are hard to reconfirm. Previous work by Chandra and Gajbe (2008) lists 16 snakes from Jabalpur which includes two species which were not seen during the present study. Overall, after present work, the total numbers of snake species reaches to 24 which can increase by more extensive surveys in future.

CONCLUSION

Comparatively India has a rich and diverse Squamata fauna consisting of 302 species out of which 44 belong to the State of Madhya Pradesh. The present study reports 22 species of snakes belonging to 8 families grouped under 18 genera from district Jabalpur of Madhya Pradesh. Different habitat sites showed more or less even distribution of snakes. Madan Mahal area seemed less diverse

comparatively; the most probable reason could be its rocky nature. To conclude more extensive studies are needed which could bring many more interesting species of snakes to light from Jabalpur.

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