

# Molluscan diversity in and around Junona lake, Chandrapur Maharashtra, India.

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## ABSTRACT

The freshwater molluscs aid in assessment of ecological status of water bodies. Hence, studies relevant to the diversity, distribution and ecology become imperative. The result of the present study indicated the 15 Gastropoda and 3 Bivalvia these species are observed during the study. The present status of molluscs shows richness of Junona Lake. However some anthropogenic activities may be consider as a threat to the mollusks as well as other living organism of this lake. Hence the presence of molluscs can be considered as bioindicators of pollution and ecosystem health. Findings of the present work could be useful for better managements and conservation of molluscan fauna from this region.

**Keywords:** Mollusca , Gastropoda , Bivalvia , Junona , Freshwater.

## INTRODUCTION

Molluscs constitute the second largest invertebrate and most successful group next only to insect, it has been here for over 500 million years [1,2]. The estimate of number of species of molluscs today varies from 80,000 species to 1,35,000 of these 37,000-10,000 are marine, 14,000-35,000 terrestrials and about 5000 freshwater species [1,3].

The phylum mollusca is typically divided into 9 or 10 taxonomic classes out of which the 8 classes all are reported in marine habitat with highest densities, while freshwater molluscs are divide as Gastropoda and Bivalvia (Pelecypoda).

Class gastropoda occurs two groups these are further divided into two subclasses the Prosobranchia which possess a gill for respiration under water and the Pulmonata which have a long for obtaining air directly. Gastropoda species are among the most biologically used indicator to assess the quality of any water impoundment. The absence or presence of certain gastropods species can indicate the present condition of an aquatic habitat. Some of gastropods species also provide food for fishes, birds and human beings.

In present study the historic Junona lake near to Chandrapur city was selected, which was diverse by flora and fauna due to which it attract the tourists for bird watching and fishing. But very few literature are available on status of benthic organism, so present work is carried out to study the biodiversity of molluscan species.

## METHODOLOGY

### Study Area

Junona lake is 8 km from Chandrapur city, located near village Junona at 19.92°N, 79.39°E , which was constructed by the Gond Rajas of Chandrapur in 17<sup>th</sup> Century which is surrounded by dense forest of Chichapalli and contains rich treasure of flora and fauna. It is fresh water annual lake; water is used for irrigation as well as fishing purpose by the villagers.

### Collection, Preservation and Identification

For the present study molluscs were collected by hand picking method during the month of January 2019 to April 2019 and preserved in 5% formalin for further study, dead samples were washed, dried and photographs were taken by Nikon D-3400 camera ,species were identified from the Hand book on Indian Fresh water Mollusca by Ramakrishna and Day, 2007[4].

## RESULTS AND DISCUSSION

The Junona lake harbors a number of aquatic weeds in the submerged as well as floating state on which thrive a large number of organisms, due to abundant

food available throughout the year in the form of aquatic crustaceans, insects and molluscs etc.

In present study, total 18 species molluscan were found out of which 15 species of gastropoda and 3 species of bivalvia were collected from Junona lake which belongs to family Vivipiridae, Thiariidae, Melonidea, Lymnaeidae, Planorbidae, Valloniidae, Unionidae, Parresysiinea.

The quantitative analysis of molluscs was not done but it observed that the *Bellamyia Species* and *Pila globosa* was the dominant than other because the shells of these species were seen scattered throughout the margin of lake compared to other species.

Number of workers conducted studies on molluscan diversity in different parts of India. The freshwater ecosystem in India harbors a rich diversity of molluscs representing 212 species belonging to 21 families out of these 164 species recorded from river and streams[5].

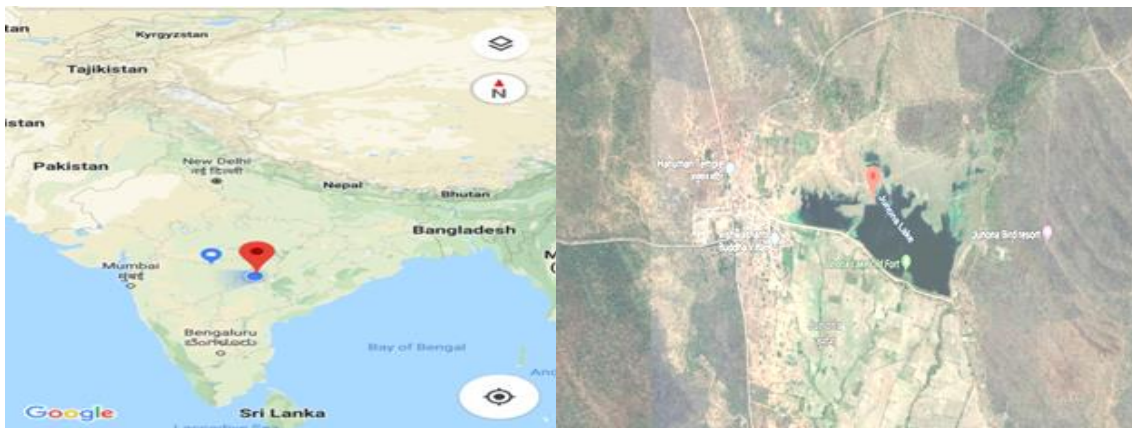
The occurrence of *Bellamyia bengalensis* (Lamarck), , *M. scabra*, *Lymnaea acuminata*, *L. luteola*, and *Pila sp.* from the Junona lake in present study is directly supported by the findings of Subba rao and Patil [5,6].

Kumar and Vyas , reported the eleven species of molluscs from Narmada Sagar, out of which 8 species comprises of *Rachis bengalensis*, *R. punctatus*, *Bellamyia bengalensis*, *Melanoides tuberculatus*, *M. scabra*, *Lymnaea acuminata*, *L. luteola* and *Indoplanorbis exustus* [7].The species of fresh water molluscs as gathered in the present study were quite different and also as reported earlier by some authors[5,6].

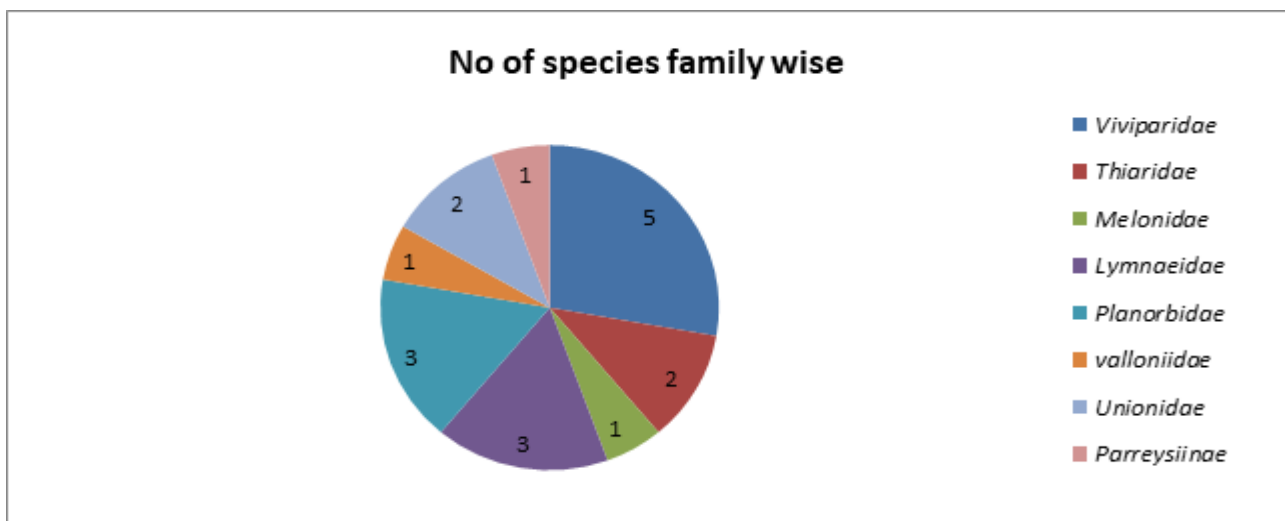
A study on the molluscan diversity of Saipung Wildlife Sanctuary, Meghalaya revealed 13 species of molluscs, out of which 12 species were identified as gastropoda and 1 species of Bivalvia. The freshwater gastropod species comprises *Bellamyia bengalensis*, *F. annadalei*, *Pila theobaldi*, *Thiara (lareba) lineata*, *Brotia (Antimelania) costula*, *Paludomus (Paludomus) conica*, *P. (P.) regulata*, *P. (P.) stephanus* and *Indoplanorbis exustus*.

**Observation Table:**

Class	Order	Family	Taxa	
Gastropoda	Mesogastropoda	Viviparidae	<i>Pila globosa</i> <i>Bellamyia crassa</i> <i>Ballamyia ebornea</i> <i>Bellamyia bengalensis</i> <i>Gabbia orelua</i>	
		Thiaridae	<i>Thiara scabra</i> <i>Thiara lineate</i>	
		Melonidae	<i>Thiara tuberculata</i>	
		Basommatophora	Lymnaeidae	<i>Lymnea acuminata</i> <i>Limnaea luteola</i> <i>Succinela oblonga</i>
			Planorbidae	<i>Perpolita hammonis</i> <i>Gyraulus rotula</i> <i>Indoplahorbi exustus</i>
Valloniidae	<i>Vellomoa dissimilis</i>			
Bivalvia	Unionoida	Unionidae	<i>Lamellidens marginalls</i> <i>Unio occuta</i>	
		Parreysiinae	<i>Parreysia corruguta</i>	



Map shows the location of Junona Lake (Google Source)



As per the findings of researcher from above data the generic as well as species diversity seen in freshwater aquatic ecosystem in different region, Tyagi, 2018 mentioned that there was a variation in molluscan diversity in different fresh water bodies, as earlier studied by different researchers which was not due either a single factor alone but a combination of factors is responsible for such variation. [8]

Malhotra et.al. 1996 reported the maximum mollusc during summer month could be related to some ecological important phenomenon's such as maximum abundance of decomposers, settled organic matter and macrophytes on bottom of water body and also increase water temperature activating the process of decomposition of organic sediments [9]. Bath et al observed that the abundant amount water and vegetation is the important for breeding and feeding of the molluscs. [10]

Considering above factors as reported by Malhotra et.al.[10] and perusal of available literature the abundant amount of molluscan population in Junona lake is due to moderate amount of water ,temperature and available micro and macro vegetation and decomposers .The abundance of molluscan fauna from present study area indicates the rich productivity .The species inhabiting bottom of lake plays an important role in converting organic matter together with the meiobenthos into a biomass, which in turn consumed by the fishes thus helps in the secondary productivity and form an important component in the food web of ecosystem.

## CONCLUSION

In present study the 18 species of molluscs were reported out of which 15 species reported as gastropoda and 3 species as bivalvia which indicates the rich productivity of the lake and the diversity of molluscs not only depend upon the single factor but combination of factors responsible for them such as moderate amount of water, temperature, available micro and macro vegetation and decomposers.

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