

# A REVIEW ON THE BIODIVERSITY OF HIGHER CHORDATES AT KHANWARI VILLAGE OF KAUSHAMBI

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## **Abstract**

*The variety of life on Earth, comprising millions of plants, animals, microorganisms and the genes they carry, refers to biodiversity or biological diversity. It simply means the presence of the natural habitats of a wide range of plant and animal species or the diversity of plant and animal life in a given habitat. Biodiversity has a large number of values and is typically represented at three stages genetic diversity, diversity of the organisms, diversity of the environment. In this paper study has been conducted in a village known as the Khanwari. The village of Khanwari is located in Sirathu Block and Tehsil of the Kaushambi district of Uttar Pradesh. For the period from Jan 2017 to Dec 2017, this village was surveyed and studied in depth once a month. The analysis shows the village of Khanwari's rich higher chordate biodiversity. The notable diversity of vertebrates comprises 19 fish genera, 2 amphibian genera, 4 reptile genera, 12 bird genera and 13 mammal genera.*

**Keywords:** *Amphibia, Biodiversity, Birds, Conservation, Fishes, Khanwari, Mammals, Village.*

## **I. INTRODUCTION**

### **Basic Types of Biodiversity:**

Biodiversity is generally defined at three levels: genetics, organisms and ecosystems, all of which work together to establish a unique path to life on Earth[1]. Genetic diversity is the diversity within a population of the fundamental units of genetic knowledge (genes) which are transmitted from one generation to the next. Genetic diversity results in differences, so the basis of speciation is the underlying source of biodiversity and the amount of genetic variation[2]. The diversity of species relates to the variety of species within an area. It is the variability found within the population of a species or between different species of a group.

The species is the true basic unit used for the classification of organisms, and its diversity is the level of biodiversity definition that is most widely used. The diversity of ecosystems is the diversity of environments, and the various types of life within them. On three levels, diversity occurs at the level of culture and environment. Alpha diversity (within group diversity) is first, beta diversity (diversity between communities) is second, and gamma diversity is third (diversity of the habitats over the total landscape or geographical area)[3]. Richard (2015) has suggested that genetic variation plays an important role in a species' survival and adaptability[4]. Thus, there is a tremendous opportunity for various levels of biodiversity: habitats, animals and genetics, and a decrease in biodiversity would result in significant economic, ecological and socio-cultural losses. If we want our human race to thrive, then because biodiversity has meaning for life, we must preserve all biodiversity.

### **Importance of Biodiversity:**

The living organisms on earth are very complex, have various characteristics and are essential to the provision of food, shelter, clothing, medicines, etc. for human life. Productive value, consumption value, social value, aesthetic value, legal value, ethical value, economic value, ecosystem service value and so on are important for widespread biodiversity. In addition, biodiversity also has scientific and evolutionary significance, with each species providing scientists with certain hints as to how life has evolved and will continue to evolve on earth. Biodiversity helps scientists understand the roles of life and the role of each species in ecosystem maintenance. Biodiversity's ethical importance is based on the 'Live and Let Live' principle[5].

## **II. CONSERVING BIODIVERSITY**

There is a rich diversity of animals, plants and microbial life in the living world, which tends to be well adapted to the climate. For the shared survival and life of living beings, this complex nature must be preserved[6]. Biodiversity is depleted by habitat loss and destruction, resource exploitation, unprecedented climate change, deforestation, pollution, etc.

Diseases, changing agriculture, poaching of wild life, etc. Because all the benefits of biodiversity are derived from human beings, they should therefore take careful care of the protection of biodiversity in all its forms and the good health and safety of the future generation[2][7]. Biodiversity protection means the proper management by human beings of the biosphere in such a way that it offers maximum benefits for the present generation and also enhances its ability to meet the needs of future generations. Saving habitats and ecosystems rather than attempting to preserve a single species is the best way to protect biodiversity. Biological conservation: Today, diversity has become a worldwide issue[8]. There are essentially two primary biodiversity conservation approaches: in-situ conservation (within the conservation of biodiversity, Habitat) and conservation ex-situ (outside habitat).

Among any animal phyla, Chordata is the highly established phylum. The presence of the dorsal tubular nerve cord, notochord and pharyngeal gill slits define these. The Chordata is

divided into Chordata lower and Chordata higher. The higher Chordata is represented by a single Vertebrata subphylum in which the vertebral column replaces the notochord. The Vertebrates have 2-4 chambers in their ventral muscular cardiac system. During its embryonic development, a vertebrate has notochord which is replaced in adults by a cartilaginous or bony vertebral column called as a backbone. Taxonomically higher chordates belong to a Vertebrata subphylum that comprises seven living animal groups, viz. Osteichthyes, Cyclostomata, Chondrichthyes, Amphibia, Reptilia, Aves and Mammalia. Cyclostomata is an eel-shaped vertebrate group without jaws or paired appendages, like the lampreys and hagfishes: the living jawless fishes. They have an elongated, eellike body with a circular and suckoral mouth. Fishes are exclusively marine species (Chondrichthyes and Osteichthyes). To support and support the cartilaginous or bony vertebral column, they have Cover the spinal cord, the tubular nerve chord, the 2-chambered ventral muscular organ, the fins as paired appendages and the breathing gills. These are cold blooded animals who do not have the ability to control their body temperature, which varies according to their environment's temperature. Amphibians are a species of vertebrates living on land but breeding in water. These are poikilothermic dikondylic-skull species. There are three orders in the Amphibia class; Apoda (Gymnophiona) which includes limbless amphibians such as ceacilians, Urodela (Caudata) which includes newts and salamanders, and Anura (Salientia) which includes frogs and toads. Reptiles are also poikilothermic, monocondylic skull species. They are mainly terrestrial vertebrates with a locomotion mode of crawling or sliding. In general, there are four orders in the Reptilia class. Chelonia (turtle and tortoise), Squamata (lizard and snakes), Rhynchocephalia (tuatara), and Crocodilia (crocodiles). Homoiothermic or hot-blooded egg-laying vertebrates, distinguished by feathers and forelimbs adapted as wings for flight, are often referred to as masters of air (Aves). Jaw bones are extended to act as hands and mouth simultaneously in a toothless beak. Mammals are homoiothermic vertebrates with more or less hair-covered skin; young are born alive (viviparous) with the exception of a small subclass of monotremes (most primitive mammals consisting of the only remaining members of the Prototheria subclass) and are nourished by milk with a dicondyl skull and a muscular diaphragm. The most unusual characteristic of this group is the presence of mammary glands. Egg laying mammals (Prototheria), pouched mammals (Metatheria) and greater viviparous mammals are part of the Mammalia class (Eutheria). Limnological studies as well as studies on fish biodiversity in fresh water bodies were performed by Prakash et al (2015a, 2015b, 2015c and 2016), Verma et al (2016) and Verma (2016a and 2016b). Verma (2016c) conducted Muntjibpur pond hydrobiological research, while Verma (2016d) performed a preliminary survey of Muntjibpur pond fishes[9][10]. Verma (2017a & 2017b) studied ichthyodiversity and fish conservation status, while Verma (2018) conducted a Muntjibpur pond biodiversity survey. The fish biodiversity of Khanwari pond was studied by Verma et al (2017). In terms of higher chordate diversity, the present research is carried out to assess the entire village.

This village in Khanwari is surrounded by Jiyapur to the east, Tulsipur to the north, Kaini to the south, and Nadin Ka Pura to the west. Climate change impacts the tremendous transparency, the ecology of the landscape and biodiversity. The village in question is more than 75 km from Prayagraj, 10 km from Manjhanpur (Kaushambi district headquarters) and 270 km from Lucknow by road. The nearest railway station is Sirathu (15 km away) and the nearest airport is Bamrauli (Prayagraj) (60 km away).

Using the standard keys of Mishra (1959), Day (1989), Jhingran (1991), Jayaram (1999) and Srivastava (1998), fish have been described. Dinesh (2017) has helped to classify amphibians with the aid of Aengals (2012) as reptiles[11]. The author was also supported in several ways by local citizens for gathering and identification. The village of Khanwari has a rich diversity of vertebrates including (1) 19 fish genera (Verma et al. 2017) described by Catla, Labeo, Cirrhinus, Puntius, Mystus, Wallago, Ompak, Clarias, Heteropneustes, Ailia, Channa, Glossogobius, Anabas, Colisa, Notopterus, Gudusia Setipinna, Xenentodon and Mastacembelus (2) Two amphibian genera: Indian bullfrog (*Hoplobatrachus* or *Rana tigrina*) and common I (*Hemidactylus*), (4) 12 bird genera: Peacock (*Pavo*), Parrot (*Psittacula*), Crow (*Corvus*), Vulture (*Neophron*), Pigeon (*Columba*), House sparrow (*Passer*), Quail, Bulbul, Koel, Owl, Fowl and Egrets and (5) 13 mammal types: shrew, mouse, pig, squirrel, bat, rat, cat, rabbit, jackal, monkey, goat, donkey, buffalo etc.

### III. CONCLUSION

And prior to the age of domestication, human-animal relations had a long history. The exchange of shared benefits has been a tradition between animals and humans. The animals came under domestication as society advanced and now mostly serve as "social substitutes" by bonding. There is, however, a lack of consistent local-level scientific evidence to recommend and identify the most suitable procedures to establish the ecological connection between indigenous people and their diversity of fauna. Thus, such studies will, on the one hand, fill the lacuna of scientific understanding of human-animal interactions and encourage conservation strategies for 19 fish genera, 2 amphibian genera, 4 reptile genera, 12 bird genera and 13 mammalian genera from the village of Khanwari. In the long run, the study will be able to compile a scientific record of the diversity of animal species in a given area as a ready guide for potential studies on the state of the fauna.

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