



STUDY OF AVIAN FAUNA AND HUMAN INTERFERENCE IN WETLAND OF DANRO RIVER

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ABSTRACT:

An avian fauna population near the wetland area signifies the quality of the water nearby, birds usually avoid the reside near polluted water, however the phytoplankton and zooplanktons of the water system are the source of feeding for the birds. In the course of study of the physico- chemical study of the Danro river a survey of the avifauna near the wetlands formed by the river basin was studied and enumerated. There are altogether 62 types of birds were recorded in the survey. Human interferences near the wetlands were also observed.

KEYWORDS:

AVIFAUNA, PHYSICOCHEMICAL STUDY OF WATER, POLLUTION.

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INTRODUCTION

Water has several inimitable properties that make it appropriate for the sustenance of the life. Chemically, water is the amalgamation of unstable hydrogen and oxygen atoms, which after joining makes the stable water molecule. Physically, water provides a nice equilibrium between the properties of cohesion and adhesion, and is accountable for high surface tension, which helps in providing a platform for the existence of organisms like algae, protozoan's, insects and fishes. It has high latent heat of vaporization and fusion, which is due to higher specific heat, and it enables water bodies to defy more temperature fluctuations than the landmasses. It contains numerous salts and other substances, in dissolved state, which are being utilized during metabolic activities. Hence, water has a unique property as a medium for living matter.

Since ages, water has played a significant role in the life of living organisms. The civilization originated, developed and thrived in places, which were near to the rivers and the same have perished when these fresh water sources dried up. Thus, human beings, even after unthinkable development, cannot overlook the empathy towards water. Water plays a key role in aquatic ecosystem and provides food, shelter, and a variety of habitats for a number of organisms and economically important fishes. However, these fresh water bodies are now a day's subjected to large anthropogenic pressures owing to the rapid industrialization, increasing use of fertilizers,

insecticides, and herbicides in agricultural practices. In fact, they are reducing in size owing to their conversion into agricultural, residential and green lands in many places. Such pressures have led to the marked shrinkage of water body, soil erosion, weed infestation, human encroachments, and pollution. As a consequence, there is siltation, a loss of biological diversity and decrease in the density of migratory bird population and deterioration in water quality. Therefore, it is important to document the geographical occurrence of fresh water bodies and to develop methods to protect them. Water quality deterioration is one of the serious threats to aquatic ecosystem leading to the necessity of determining the trophic dynamics of the water body. Therefore, there is a need to economize the use of this precious and scarce resource particularly in the dry and drought like state of Jharkhand where very little work has been done on the freshwater ecosystem. The study of water quality indicates the physicochemical and biological infrastructure of any water body. Studies in aquatic ecosystem were initiated in temperate countries and later followed by the tropical and equatorial countries; India in this perspective is a beginner.

Wetlands are areas of water-saturated lands whether natural or artificial permanent or temporary, and whether the water is static, or flowing, fresh or brackish. Swamps, fens, peat lands, estuaries, bays, sounds, lagoons, ponds,

rivers, springs and reservoirs. Wetlands are important ecosystems internationally recognized as exemplified by Ramsar Convention (1971). They are diverse in terms of habitat, biota, distribution, functions and uses. As per Ramsar convention, the definition of wetlands includes Marine water less than six meters deep covering rivers, coastal areas, as well as most coral reefs.

Wetlands are land areas that are wet during part or year-round because of their location in the landscape. They are moist land areas, which are filled with rich organic matter showing amphibious activity. Wetlands are often rare and unique ecosystems. Since they host such endemic species threatened with extinction.

In India, wetlands are one of the most threatened of all ecosystems. Loss of vegetation, excessive outpouring, water pollution, invasive species, excessive development and road building, have all damaged country's wetlands. About 93 Indian wetlands are included in Asian wetland directory (Scott, 1993). It was later upgraded and published by WWF (IUCN).

India with a varied climate supports a rich diversity of inland and coastal wetland habitats. It has about 4.1 million hectares of wetlands of which 1.5 million hectares are natural and 2.6 million hectares are man-made. With fluctuating water levels, varying sources of water, changing biota, they have very important physical, chemical, biological and socio-economic functions (Ramsar Convention (1971).

Any activity that damages the wetlands and inhibits their functions has local, regional, national and global impacts. Finite freshwater resources are being exploited and degraded at an alarming rate by the activities of mankind Wetzel (1983). In land, Wetland receive water from rain, snowmelt, river outflow, surface overland flow, land water discharge, lake seiches and seepage from streams, lakes, ponds and irrigation system.

In India, wetlands support fundamental needs such as drinking water, natural habitat and flood storage. Wetlands perform several ecological functions depending upon their position and biological characteristics.

Wet lands are significant due to following reasons:

- Biological productivity
- Niche for many species
- Fuel, food, and livelihood for people
- Flood control
- As sewers of pollutants within permissible limits
- Recreational and aesthetic values:
- Recharging ground water resources

MATERIALS AND METHOD

Avifauna study was made by observing the birds throughout the year and taking their photographs. Also, the local people who were actively engaged in bird

watching were consulted. For the socio-economic survey, a questionnaire was made and local people were interrogated on that basis. Book titled "Uttar Bharat Ke Pakshi" was also consulted for the identification purpose.

The present study is undertaken with a view of knowing the avifauna and human interference in the vicinity of downstream zone of the Panghatwa Dam and Danro River.

One of the features with which one can evaluate the importance of wetlands is the bird's population whether breeding or migratory. Danro River has wetlands around the Panghatwa dam and during the cold months from October to March, it becomes a boon for migratory birds. Since long this wetland has been attracting migratory birds. This wetland offer wide scope for bird watchers to explore its rich heritage of avian fauna. and provides shelter to many species of birds that visit the Indian sub-continent in winter. The food for the birds comprises small mollusks, Crustaceans, water plants like *Eichhornia*, *Typha* etc and phytoplankton, all of which are found in abundance here. The birds commonly visiting both the water bodies surveyed during the study included sixty two birds. (Table-1)

Rich avifauna of the place signifies the good health and better water quality of Danro River in wetlands and the studied sites in the present investigation.

OBSERVATION

AVIFAUNA AND HUMAN ACTIVITIES AROUND WATER RESOURCE – A SURVEY:

Folk perceptions were taken by interviewing fisherman and locals. Human activities have increased in the catchment and around the water bodies and are influencing the water quality. Maximum of the catchment area is under forest cover and some of the area is under irrigated cultivation and rest is either fallow land or cultivable wasteland or is not available for agriculture. The increase in population and livestock has resulted in accelerated denudation of the vegetation around the water bodies. Felling, cutting and lopping are almost unabated; grazing is almost unrestricted and the resulting exposing of rocks is common sight. Soil erosion is also common. Though water bodies do not receive any significant amount of sewage directly like the industrial wastes, human excreta are disposed of into the soil where it quickly decomposes. It was estimated that in village Panghtwa site, the population is 3560, if daily 100 gms of organic matter is discharged per person in the water body; the total matter will be 50 – 60 kgs per day (approx). The discharge of their domestic waste will be approximately 270 Kgs. The daily consumption of detergent is approximately 20 - 25 kg at the rate of 350 gms / person and all washing material goes into the water body. There is a cremation ground also on this side of the river where dead bodies are bathed in the river and the bank of river is used for the burning of pyres and the ashes are finally dumped there in. This is one of the factors causing the pollution of the river.

It was observed that the water bodies under study received pollutants in less or more quantity in the form of sewage, household wastes, detergents, cow dung and other chemicals of various types. All these pollutants are responsible to disturb the fragile ecological balance of water, bringing sudden and drastic changes in their physico-chemical parameters.

Water quality is assessed on the bases of (pH, Oxygen concentration, Temperature, (TDS,BOD, COD,DO) inorganic N₂ (ammonium and nitrite ion and phosphorus. Any changes in these physical and chemical variables can affect aquatic biota in a variety of ways. For every use of the river water, different set of contaminants or water quality parameters play deterministic role for water quality assessment. For irrigation use total dissolved solids (T.D.S.), pH, sodium adsorption ratio (S.A.R.) and residual sodium carbonate (R.S.C.) are the most important. For other uses dissolved oxygen (D.O.), biochemical oxygen demand (B.O.D.), carbonaceous oxygen demand (C.O.D.), inorganic nitrogen (ammonium and nitrite ions), phosphorus, suspended solids, are also considered (Annalakshmi and Amsath, 2012). Rich avifauna of the place signifies the good health and better water quality of Danro River in wetlands and the studied sites in the present investigation. All the avifauna were identified by the literature available in the library.

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TABLE 1 AVIFAUNA NEAR THE PANGHATWA DAM

S. No.	Name of Birds	S. No.	Name of Birds
1	Eurasion spoonbill	33	Brown-capped pygmy
2	Brahming Shelduck	34	Pied crested cuckoo
3	Lesser whistling duck	35	Pied kingfisher
4	Spot billed dunk	36	Indian roller
5	Common coot	37	White-breasted kingfisher
6	Pheasant-tailed jacana	38	Stork-billed kingfisher
7	Black-winged shank	39	Common hoopoe
8	Wood sandpiper	40	Golden beaked woodpecker
9	River tern	41	Ashy crowned
10	Egyptian vultures	42	Eurasian golden mole
11	Little cormorant	43	Black drongo
12	Large egret	44	White-bellied drongo
13	Cattle egret	45	Indian trepie
14	Little egret	46	Common wood shrike
15	Lurple heron	47	Red vented bulbul

16	Indian pond heron	48	Common maina
17	Black-crowned night heron	49	Small blue kingfisher
18	Painted stork	50	Rock pigeon
19	Asian open bill stork	51	Spotted dove
20	Sarus crane	52	Red collared dove
21	Oriental white ibis	53	Eurasian collared dove
22	White Bagula	54	Asian pied starling
23	Oriental magpie robin	55	Wood pecker
24	Common tailorbird	56	Indian peafowl
25	Great tit	57	Lapwing
26	Purple sunbird	58	Rose ring parakeet
27	Yellow throated sparr	59	Asian koel
28	Weaver bayas	60	Painted surfowl
29	White-shouldered kite	61	Bank myna, common myna
30	Black kite	62	Marshall's iora
31	Indian grey hornbill		
32	Coppersmith barbet		

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