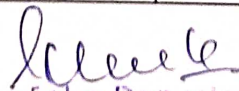


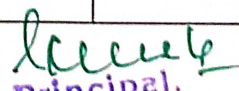
Veerashaiva College, Ballari
DEPARTMENT OF ZOOLOGY

Articles/papers published by the staff in journals

Title of paper	Name of the author/s	Department teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal
Assessment of surface water quality of channarayapatna in Hassan District, Karnataka with respect to trophic status	G. Mallanagoud	Zoology	International Journal of research in pharmaceuticals and nano sciences	2016	ISSN : 2319-9563	
Hydrochemistry of fresh water (tanks) in Hospet city based on WQI	G. Mallanagoud	Zoology	International Journal of Science Technology and Engineering	2016	ISSN : 2349-7849	
Studies on Environmental status of some selected surface water tanks in and around Hospet city, Karnataka (India) using phytoplankton	G. Mallanagoud	Zoology	IJSART – Volume 3 Issue 2 - FEBRUARY 2017	2017	ISSN: (Online)- 2395-1052	
Cyclical dissimilarities in Zooplankton structure of some selected lentic habitats in and around Hospete city , Karnataka	G. Mallanagoud	Zoology	International journal of recent advances in multidisciplinary research 2017	2017	2350-0743 Issue- 6 Volume -4	
Seasonal Dissimilarities in Composition And Diversity Of	G. Mallanagoud	Zoology	IJS DR21090 01 International	September 2021	ISSN: 2455-2631 ©	

Zooplankton in Kamalapura Water Tank, Hosapete Taluk, Newly Born Vijayanagara District, Karnataka (India)			Journal of Scientific Development and Research (IJS DR) www.ijedr.org		September 2021 IJS DR Volume 6 Issue 9	
Diversity and Seasonal Variations of Zooplankton in Kampli Water Tanks in and Around Hosapete City, Karnataka (India)	G. Mallanagoud	Zoology	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	September 2021	ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429 Volume 9 Issue IX Sep 2021- Available at www.ijraset.com	
Gene Regulation and Expression In Prokaryotes And Eukaryotes	G. Mallanagoud	Zoology	International Journal for Research and Analytical reviews(IJRA R))	June 2020	ISSN: 2348-1269;P-ISSN:2349-5138 Impact Factor: 7.17 Volume 7 Issue II Available at www.ijrar.org	


 Head of the Department of
 Department of Zoology,
 Veerashaiva College, Ballari.


 Principal,
 Veerashaiva College,
 BALLARI-583 104.

Veerashaiva College, Ballari
DEPARTMENT OF ZOOLOGY


Articles/papers published by the staff in journals

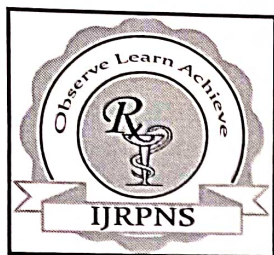
Title of paper	Name of the author/s	Department teacher	Name of journal	Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal
Status, diversity and conservation threats of migratory wetland birds in Magadi Bird Sanctuary, Gadag district, Karnataka, India	Dr. G. Manohara	Zoology	Journal of Entomology and Zoology Studies	2016	E-ISSN: 2320-7078	UGC List SL No – 6507
A case study on visitation of migratory bird Bar-headed geese to Magadi lake (Magadi kere), Gadag, Karnataka, Ballari	Dr. G. Manohara	Zoology	Ecology, Environment & conservation	2017	ISSN 0971-765X	
Avifaunal studies on Bannigola back waters of T. B. Dam Hagaribommanahalli, Ballari, Karnataka, India	Dr. G. Manohara	Zoology	Asia Pacific Journal of Research	2017	ISSN (o) :2347-4793 ISSN (p) :2320 - 5504	
Evaluation of the Merits and Challenges of Desiltation and development on the Biodiversity with special reference to Avifauna of Magadi Lake, Gadag District, Karnataka, India.	Dr. G. Manohara	Zoology	Asia Pacific Journal of Research	2017	ISSN(P) :2320-5504 ISSN(O) :2347-4793	UGC List SC No-45797
Impact of desiltation on the re-visitation of migratory birds to Magadi lake Gadag, Karnataka India	Dr. G. Manohara	Zoology	International Journal on Environmental Sciences	2018	ISSN -0976-4534	UGC List No - 7783

Studies on bird and fish assemblage in Daroji lake, Ballari, Karnataka	Dr.G. Manohara	Zoology	JETIR	2019	ISSN -2349-5162	
Studies on macro - invertebrate population and their relationships with environmental factors in Daroji lake, Ballari, Karnataka	Dr.G. Manohara	Zoology	JETIR	2019	ISSN -2349-5162	
Avifaunal studies on Magadi Lake, Shirahatti (T), Gadag (Dt), Karnataka, India.	Dr.G. Manohara	Zoology	<u>Environm</u> <u>ent and</u> <u>Ecology</u>	2019	ISSN : 0970-0420	
Studies on migratory birds of Bannigola, Ankasamudra and Magadi Wetlands of North Karnataka, India.	Dr.G. Manohara	Zoology	Internatio nal Journal of Zoology Studies	2019	ISSN: 2455-7269	
Check list of avifauna on Ankasamudra lake, Hagaribommanahalli (Taluk) Ballari District, Karnataka, India.	Dr.G. Manohara	Zoology	Internatio nal Journa l of Ecology and Environm ental Sciences	2021	ISSN (O) :2664-7133 ISSN (P): 2664-7125	
ತಲೆಬಾತುಗಳ ಪಯಣ - ಒಂದು ಅಧ್ಯಯನ	Dr.G. Manohara	Zoology	Kuvempu university science	2021	ISSN: 2277-9523	
Comparative study of avifaunal diversity and density of Bannigola, Ankasamudra and Magadi Wet land areas	Dr.G. Manohara	Zoology	Internatio nal Journal of Ecology and	2022	ISSN(O): 2664-7133 ISSN(P): 2664-7125	

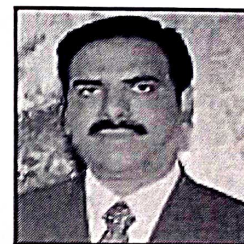
of North Karnataka,India.			Environm ental Sciences			
Comparative analysis of passerine and non- passerine birds of wetlands of Bannigola, Anka Samudra and Magadi of North Karnataka, India	Dr.G. Manohara	Zoology	Internatio nal Journal of Zoology Studies	2022	ISSN: 2455- 7269	


 Head of the Department
 Department of Zoology,
 Veerashaiva College, Ballari.


 Principal,
 Veerashaiva College,
 BALLARI-583 104.



**International Journal of Research
in
Pharmaceutical and Nano Sciences**
Journal homepage: www.ijrpns.com



**ASSESSMENT OF SURFACE WATER QUALITY OF CHANNARAYAPATNA IN
HASSAN DISTRICT, KARNATAKA WITH RESPECT TO TROPHIC STATUS**

S. Manjappa^{*1}, Bharathi², Suresh B³, G. Mallanagoud⁴

¹*Department of Chemistry, UBDT College of Engineering, Davangere, Karnataka, India.

²Department of Environmental Science, Kuvempu University, Shankaraghatta, Shimoga,
Karnataka, India.

³Department of Civil Engineering, Bapuji Institute of Engineering and Technology, Davangere,
Karnataka, India.

⁴Department of Zoology, Veerashiva College Bellary, Karnataka, India.

ABSTRACT

Due to rapid changes in the population and jump in the community life style including development have led to the degradation of natural water system. Lentic water tanks are most important and traditional natural water tanks in our surrounds. They have been widely utilized by mankind over the centuries. Channarayapatna water body was chosen for a water quality analysis since currently this water tank is receiving sewage from the around the area and altering status of the water body due to anthropogenic and agricultural activity. We have found a general relationship between trophic status of a water body and the aquatic plants present there. In the present study indicates, the quality is altering due to presence of various aquatic plants and also these are indicating as indicator. The present study was carried out to estimate the parameter like physical and chemical characteristics in water in Channarayapatna water body, Hassan District, Karnataka of India from January to December 2014. The trophic status was assessed by using multi variate indices and also results are correlated with seasonal changes in the water quality. The contents of temperature, pH, salinity and dissolved oxygen were recorded maximum and minimum in the present study were: 26.0-35.0; 25.0-33.5; 8.0-35.0; 7.2-8.2 and 2.8-5.5 respectively. The ranges of nitrate, nitrite, phosphate and silicate were: 5.2-14.3; 0.8-3.2; 0.3-2.20 and 0.2-0.8 respectively. The present investigation indicates that the two water bodies are in moderate Eutrophic condition during the study period (January, 2011 to December, 2014).

KEYWORDS

Parameters, Water body, Karnataka and Trophic status.

Author for Correspondence:

Manjappa S,
Department of Chemistry,
UBDT College of Engineering,
Davangere, Karnataka, India.
Email: drsmubdtce@gmail.com

INTRODUCTION

Limnology is a part of the science which consists a great deal of detailed field as well as laboratory studies to understand the fundamental and practical aspects and problems associated with the freshwater environment, from a holistic point of view (Adoni *et al*, 1985)¹. Lakes can be defined as bodies of standing water occupying a basin. It may vary from

Hydrochemistry of Fresh Surface Water (Tanks) In Hospet City (India) based on Water Quality Index (WQI)

G. Mallanagoud
Assistant Professor
Department of Zoology
Veerashiva College, Bellari, Karnataka, India

Manjappa S
Associate Professor
Department of Chemistry
U.B.D.T.College of Engineering, Davangere,
Karnataka, India

Suresh B
Assistant Professor
Department of Civil Engineering
Bapuji Institute of Engineering & Technology, Davangere, Karnataka, India

Abstract

The present work is intended to be analyses concerning with fresh surface water (lakes) quality in Hospet city (India) based on water quality index (WQI). Water quality index (WQI) is a tool to identify the quality of surface water and it used for to calculate for different surface water resources especially lakes, in Hospet city, Karnataka, (India), for the session June 2007 to May 2008; comprising of three seasons, summer, winter and rainy season. Sampling points were selected on the basis of their importance. Water quality index was used to calculate indices calculator given by National Sanitation Foundation (NSF) information system. The calculated (WQI) for various studied fresh surface water lakes showed fair water quality in monsoon season which then changed too medium in winter and poor for summer season. The results obtained for the WQI from the different sampling stations were found to be varied from 34.80 to 36.26 for Monsoon season, 38.52 to 48.67 for winter and 55.05 to 84.94 for summer seasons. The results conclude, Kampli and Komalapura tanks receives domestic and agricultural run-off from the adjoining areas. Kampli and Kamalapura tanks also declined in aesthetic quality over past decade following invasion of aquatic weeds such as hydrilla and water primrose, so the reasons to import water quality change and measures to be taken up in terms of surface water (lakes) quality management are required. Somalapura tank showed medium water quality rating in all season except monsoon season.

Keywords: Surface Water, Water Quality Index, Agriculture and Domestic, Tanks

I. INTRODUCTION

Water is one of the abundantly available substance in nature. It is an essential constituent of all the animals and vegetable matter and forms about 75% of the matter of earth's crust. Water is the mother liquid of all forms of life. It is the vital essence, miracle of nature and the great sustainer of life. The essentiality of water for living systems is quite evident as without water, there is no life. The essentiality is a continuous reminder of the aqueous origin of life. Water is a chemical compound and may occur in liquid or solid or in gaseous form. All these three forms of water are extremely useful for providing comforts and fulfilling basic needs (Onweluzo and Akuagbazie, 2010).

Karnataka state is endowed with 6.31 lakhs hectare of freshwater resources consisting of 4.15 lakhs hectare which includes ponds and tanks and 2.16 lakh hectare reservoirs. In addition, the state has 6000 kms of river stretch and 3000 kms length of canal. The freshwater resources of the state constitute about 9.3% of the country's total freshwater resources. Water is polluting due to contaminate received from agriculture and industrial activity. Its means water by foreign matter such as micro-organism, chemicals industrial or other wastes, or sewage from surface runoff. Such matters deteriorate the quality of water and render it unfit for its intended uses. Water pollution is the introduction into fresh/ground/ocean waters of chemical, physical or biological material that degrades the quality of the water and affects the organisms living in it (Chandaluri, *et al.*, 2010).

The water we use is taken from lakes, tanks and rivers, and from underground (ground water) and after we have used it and contaminated it most of it returns to these locations. Water pollution also occurs when rain water runoff from urban and industrial area and from agriculture land and mining operations makes its way back to receiving waters (river, tanks, lake or ocean) and into the ground.

Water quality index (WQI) is one of the most effective tools to communicate information on the quality of water to the concerned citizens and policy makers. Many civilizations that flourished after developing reliable water supply collapsed when supply was exhausted or its quality deteriorated. Assessment and management of ground as well as surface water

Studies on Environmental Status of Some Selected Surface Water Tanks in and Around Hospet City, Karnataka (India) Using Phytoplankton

G. Mallanagoud¹, S. Manjappa², T Suresh³, Suresh B⁴

¹ Department of Zoology, Veerashiva College Bellary- 583275 Karnataka, India

² Dept. of Chemistry, University BDT College of Engineering, Davangere – 577005, Karnataka, India.

³ Department of Chemistry, Vijayanagara Sri Krishnadevaraya University, Bellary-583104, Karnataka, India

⁴ Department of Civil Engineering, Bapuji Institute of Engineering & Technology, Davangere – 577 004, Karnataka, India

Abstract- This study focuses on assessment of phytoplankton present and the water quality of selected water tanks in and around the Hospet city, Karnataka state. Surface water samples were collected in the identified three location of the selected water tanks and assessed for its water quality status based on its physico-chemical parameters (temperature, pH, total dissolved solids, and dissolved oxygen), Shannon-Wiener diversity index, and Palmer's pollution index. A total of 50 species belonging to four groups of phytoplankton were identified from the selected water tanks in the present study. The physico-chemical parameters in all the study locations showed significant differences ($p < 0.05$) but were within the permissible limits for freshwaters. The Shannon-Wiener diversity index was highest in the Daroji water tank to the lowest at Kampli tank water then Somalapura water tank. All the selected water tanks in and around the Hospet city indicate that the water is exposed to organic pollution. Continuous monitoring of the water tanks is necessary.

Keywords- Surface water, phytoplankton, water tanks Shannaon-wiener diversity and domestic activity.

I. INTRODUCTION

Water is one of the abundantly available substance in nature. It is an essential constituent of all the animals and vegetable matter and forms about 75% of the matter of earth's crust. Water is the mother liquid of all forms of life. It is the vital essence, miracle of nature and the great sustainer of life. The essentiality of water for living systems is quite evident as without water, there is no life (Omar WMW, 2010).

Water pollution due to organic materials is one of the most significant issues in present days. Most of the freshwater bodies are under remarkable pressure from human communities and developmental actions in an around the water tanks. Increasing in the addition of nutrient into the water tanks from the surrounding has been deteriorating water quality of surface water ecosystems (Natividad et al., 2014).

Physico-chemical constraints of any surface water tanks though, provide a good indication about the chemistry and quality of water. These parameters will not give the clear picture of the ecological condition of the surface water body due to lack of proper assimilation with ecological factors (Karr et al., 2000).

Phytoplankton are free moving, unicellular, microscopic and colonial autotrophic organisms that grow in aquatic environments whose movement is more or less dependent upon water movements (Cecilia Medupin, 2011 and Suresh, 2015). Phytoplankton are also called as biotic communities, microscopic organism and minute species since these are living inside the water. The biotic community is the outcome of the integration and interaction of different physical, chemical and geo-morphological characteristics of any water body, biological assessment is a useful alternative in assessing those systems (Stevenson and Pan, 1999). Phytoplankton are considered as important component of aquatic flora, play a key role in maintaining equilibrium between abiotic and biotic components of aquatic ecosystem (Arfi, et al., 2003).

The surface water bodies are most important for all living organism including other human activities like drinking and agricultural practices. Research studies on the phytoplankton counting aspects are of great significance in developing resources of a water tanks including all types of water body. A number of researchers have studied the phytoplankton diversity of lentic and lotic water bodies (Pawar et al., 2006; Tapashi and Mithra, 2011; Sayeswara et al., 2011; Vasantha et al., 2012, Suresh, 2015).

In India 80 % of the surface water is vulnerable to pollution as more than 95 % of the sewage in the country is not treated. Lotic water bodies like rivers and streams play a very important role in maintaining the biodiversity and over all ecological balance in nature. However, the water quality of fluvial systems is deteriorating due increase in the amount of



ISSN : 2350-0743

www.ijramr.com

International Journal of Recent Advances in Multidisciplinary Research
Vol. 04, Issue 06, pp.2610-2618, June, 2017



REVIEW ARTICLE

CYCLICAL DISSIMILARITIES IN ZOOPLANKTON STRUCTURE OF SOME SELECTED LENTIC HABITATS IN AND AROUND HOSPET CITY, KARNATAKA (INDIA)

¹Mallanagoud, G., ²*Manjappa, S., ³Suresh, T. and ⁴Bharathi, H. R.

¹Department of Zoology, Veerashiva College Bellary- 583275 Karnataka, India

²Dept. of Chemistry, University BDT College of Engineering, Davangere – 577005, Karnataka, India

³Department of Chemistry, Vijayanagara Sri Krishnadevaraya University, Bellary-583104, Karnataka, India

⁴Department of Environmental Science Kuvempu University, Shankaraghatta, Shimoga, Karnataka, India

ARTICLE INFO

Article History:

Received 27th March, 2017

Received in revised form

02nd April, 2017

Accepted 21st May, 2017

Published online 30th June, 2017

Keywords:

Surface water,
Zooplankton,
Water tanks,
Correlation.

ABSTRACT

This study focuses on seasonal dissimilarities of zooplankton structure of selected lentic habitats in and around the Hospet city, Karnataka state. Three lentic habitats were identified and sampling was done in the identified four location of the selected water tanks and assessed for its water quality status based on its physico-chemical parameters (temperature, pH, total dissolved solids, hardness, calcium, phosphate, nitrate and dissolved oxygen), during February 2015 to January 2016. A total of 16 species belonging to four groups of zooplankton like 4 protozoan, 4 rotifera, 3 cladocera and 3 copepodain the present study. The physico-chemical parameters of water were compared with standard values recommended by BIS and WHO. Significant correlation in water quality and zooplankton abundance were observed in different seasons. In the present study, the total zooplankton population was low in summer, moderate in pre monsoon, monsoon and high in post- monsoon. The zooplankton structure was more in the Daroji water tank to the lowest at Kampli tank water then Somalapura water tank. Zooplankton populations have shown positive correlation with all the physico-chemical parameters in pre-monsoon, except pH (-0.8686).

INTRODUCTION

Surface water is one of the abundantly available substance in nature comparatively ground water during different seasons. Surface water is main source for all the animals and vegetable matter including human beings and forms about 75% of the matter of earth's crust. Hydrological cycle is mainly involved between air and water. Water is the mother liquid of all forms of life. It is the vital essence, miracle of nature and the great sustainer of life. The essentiality of water for living systems is quite evident as without water, there is no life (Omar WMW, 2010). Beginning with 1970s, in some of the countries were built the many reservoir for water supply hence the reservoirs are the main source for energy generation and also food chain. Currently some of the surface water tanks were suffer from eutrophication problems with an increase in macrophytes being one of the most severe problems (Roldu' n 2003). Zooplankton species are play a role in cycling of carbon and elements in the biological cycling in the surface water bodies. Based on the environmental conditions zooplankton dynamics and the mechanisms driving their variability are

highly susceptible during different seasonal variations, especially in low laying water, semi-enclosed barks with heavily populated coastal areas where increased anthropogenic nutrient input severely affects marine communities (Marcus, 2004 and Suresh *et al.*, 2009). In the food chain zooplanktons plays as role since zooplankton provides nutrients, proteins, fats, carbohydrates and mineral salts to fish which are depending upon the zooplankton species (Guy, 1992). Presence of zooplankton in the surface water is depending upon the availability of nutrients and climatic conditions along with physico-chemical parameters, season, water depth and vegetation cover (Neves *et al.*, 2013). Sinha and Islam (2002) and Park and Shin (2007) explained in their study, most of the species of phytoplankton and zooplankton organisms are cosmopolitan distribution. ecologically, zooplankton are one of the most important biotic components influencing all the functional aspects of an aquatic system, such as food chain, food webs, energy flow and cycling of nutrient which is present in the form of organic matter and also called as human. Karnataka state is endowed with 6.31 lakhs hectare of freshwater resources consisting of 4.15 lakhs hectare which includes ponds and tanks and 2.16 lakh hectare reservoirs. In addition, the state has 6000 kms of river stretch and 3000 kms length of canal.

*Corresponding author: Manjappa, S.,
Department of Chemistry, University BDT College of Engineering,
Davangere – 577005, Karnataka, India.

SEASONAL DISSIMILARITIES IN COMPOSITION AND DIVERSITY OF ZOOPLANKTON IN KAMALAPURA WATER TANK, HOSAPETE TALUK, NEWLY BORN VIJAYANAGARA DISTRICT, KARNATAKA (INDIA)

G. Mallanagoud¹, Vijaya S Gulalakayi², L. R. Dindalkoppa³, S. Manjappa⁴ and Suresh B⁵

¹Department of Zoology, Veerashiva College Ballari- 583104, Karnataka, India

²Department of Zoology, Vijayanagar College, Hosapete. 583201, Karnataka, India

³Department of Zoology, KRCEs GGD Arts BMP Com & SVS Science College Bailhongal, Belgavi- 591102, Karnataka, India

⁴Department of Chemistry, University BDT College of Engineering, Davangere – 577005, Karnataka, India.

⁵Department of Civil Engineering, Bapuji Institute of Engineering & Technology, Davangere – 577 004, Karnataka, India

Abstract: The present work focusses on the general ecological investigation on zooplankton population dynamics in terms of species composition and density in Kamalapura water tank in Hospet city, newly born Vijayanagar district, Karnataka state. A total of 36 zooplankton taxa were identified and five classes namely Rotifera (14), Copepoda (6), Cladocera (7), Ostracoda (6) and Protozoa (4). The same trends were observed in terms of percentage with decreasing order Rotifera contributing 38.8%, followed by Cladocera (19.5%), Copepod, (16.8%), Ostrocods (16.7%) and Protozoa (11.2%). Maximum species richness was recorded 7.73 Margalef's index (R1) at station D1 during pre-monsoon season and 1.16 Menhinick index (R2) at station K-3 during post-monsoon season, minimum Species richness was recorded 7.24 Margalef's index (R1) at station K-2 during pre-monsoon season and 1.09 Menhinick index (R2) at station D3 during pre-monsoon season. Maximum species diversity was recorded 0.05 Simpson's index (λ) at station D1 during the entire study, minimum species diversity was recorded 0.03 Simpson's index (λ) at station K-3 during the study period. Maximum of 2.86 Shannon - Weiner index (H') at station D2 during post monsoon season and minimum of 2.42 Shannon - Weiner index (H') at station D2 during pre-monsoon season. Maximum species evenness was recorded at stations K-1 and K-3 during post-monsoon season, minimum species evenness was recorded at station K-1 during pre-monsoon season. The study also indicates Kamalapura water tank is subjected to pollution due to addition of vehicular pollution and fertilizers from agricultural lands including domestic waste from the human habitation. This indicates the enrichment of water with nutrients leads to production of species, which in turn leads to the increased productivity and other undesirable biotic changes.

Keywords: zooplankton, seasonal, species, population, diversity and water tanks

Introduction:

In the present says, pollution from organic substances in the water bodies is one of the most important. Due to population explosion and developmental activities in and around the lentic water bodies are putting pressure on almost all the freshwater bodies. Increasing in the nutrient load into the lentic water tanks may leading into the deterioration of water quality of those lentic water bodies (Smitha, *et al.*, 1999 and Dhrubajyoti Bordoloi and Baruah, 2014). Physico-chemical variables are the good indicators of any water body and quality, that alone does not reflect the existence condition of the ecological factors of the water body due to lack of proper incorporation with ecological environment (Karr, *et al.*, 2000). Since a species community is the outcome of the integration and interaction of different physical, chemical and geo-morphological characteristics of any water body, biological assessment is a useful alternative in assessing those systems (Stevenson and Pan, 1999).

Planktons succession is depend upon the ecology of the lentic water body and several studies have described the patterns and underlying phenomenon of the seasonal dissimilarities (Rothhaupt, 2000). However, the knowledge of the species composition and dynamics of plankton followed by zooplankton species creates a crucial feature for the analysis of the trophic level in lentic water bodies for the evaluation of the possible and optimal application of different water resources.

Food chain is depends upon the phytoplankton species composition since they the called as primary producers in the lentic water bodies and in open water resources. Zooplankton are also acts as an indicator of the polluted quality of water. In the food chain, due to the interdependence existing between phytoplankton and zooplankton species which systems are composed, these dynamics in the plankton populations convert to changes in the trophic level of food chain and the productivity of the lakes.

The biological spectrum of the lentic fresh water bodies is multidimensional where zooplankton are useful in bio-monitoring the ecological disturbance caused by a number of physico-chemical factors, sewage pollutants and other anthropogenic factors. Although, voluminous literature is available on the plankton population of freshwater habitats of valley (Pandit, 1998), scanty



IJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 Issue: IX Month of publication: September 2021

DOI: <https://doi.org/10.22214/ijraset.2021.37912>

www.ijraset.com

Call: ☎08813907089

E-mail ID: ijraset@gmail.com



Diversity and Seasonal Variations of Zooplankton in Kampli Water Tanks in and Around Hosapete City, Karnataka (India)

G. Mallanagoud¹, Vijaya S Gulalakayi², L. R. Dindalkoppa³, S. Manjappa⁴, Suresh B⁵

^{1,2}Department of Zoology, Veerashiva College Ballari- 583104, Karnataka, India

³Department of Zoology, KRCE GGD Arts BMP Com & SVS Science College Bailhongal, Belgavi- 591102, Karnataka, India

⁴Department of Chemistry, University BDT College of Engineering, Davangere – 577005, Karnataka, India

⁵Department of Civil Engineering, Bapuji Institute of Engineering & Technology, Davangere – 577 004, Karnataka, India

Abstract: This study focuses on assessment of zooplankton with special reference to seasonal variation and selected physico-chemical variables of Kampli water tanks in Hosapete city, Karnataka state. A large quantity of manmade activities near the water tank. During the study period, 48 species of zooplankton - 14 species of Rotifera, 12 species of Cladocera, 6 species of Ostracoda and 4 species of Copepoda were observed. Among zooplankton, Rotifera was (645 no./Org) noticed as the dominant group in the entire the study period and the maximum count was identified in the summer period while less numbers were noticed during winter season. Zooplankton community is also significantly correlated with some physico-chemical variables. The analytical results during the study period indicate that the scattering and density of zooplankton species were encouraged by prevailing physical and chemical features of the aquatic ecological condition.

Keywords: Kampli, water tank, zooplankton, diversity, seasonal and domestic activity.

I. INTRODUCTION

Water is one of the abundantly available substance in nature. It is an essential constituent of all the animals and vegetable matter and forms about 75% of the matter of earth's crust. Water is the mother liquid of all forms of life. It is the vital essence, miracle of nature and the great sustainer of life. The essentiality of water for living systems is quite evident as without water, there is no life (Omar WMW, 2010). Water pollution due to organic materials is one of the most significant issues in present days. Most of the freshwater bodies are under remarkable pressure from human communities and developmental actions in an around the water tanks. Increasing in the addition of nutrient into the water tanks from the surrounding has been deteriorating water quality of surface water ecosystems (Kamble, *et al.*, 2005). Physico-chemical constraints of any surface water tanks though, provide a good indication about the chemistry and quality of water. These variables will not give the clear picture of the ecological condition of the surface water body due to lack of proper assimilation with ecological factors (Karr, *et al.*, 2000). Plankton are free moving, unicellular, microscopic and colonial autotrophic organisms that grow in aquatic environments whose movement is more or less dependent upon water movements (Cecilia Medupin, 2011 and Suresh, 2015). Plankton are also called as biotic communities, microscopic organism and minute species since these are living inside the water. The biotic community is the outcome of the integration and interaction of different physical, chemical and geo-morphological characteristics of any water body, biological appraisal is a useful alternative in assessing those systems (Stevenson and Pan, 1999). Plankton are considered as significant component of aquatic fauna and flora, play a key role in maintaining equilibrium between abiotic and biotic components of aquatic ecosystem (Arfi, *et al.*, 2003). The surface water bodies are most significant for all livening organism including other human activities like drinking and agricultural practices. Research studies on the zooplankton counting aspects are of great significance in developing resources of a water tanks including all types of water body. A number of researchers have studied the zooplankton diversity of lentic and lotic water bodies (Kar and Kar (2013); Pullie and Khan (2003); Manjare, (2015); Miah, *et al.*, (2013); Suresh, 2015). In India 80 % of the surface water is vulnerable to pollution as more than 95 % of the sewage in the country is not treated. Lotic water bodies like rivers and streams play a very significant role in maintaining the bio-diversity and over all ecological balance in nature. However, the water quality of fluvial systems is deteriorating due increase in the amount of raw sewage entering the rivers. The increase of pollution is caused by population growth and increasing urbanization. Related to this is the industrialization that also causing huge environmental problems (Zargar and Ghosh, 2006). Karnataka state is endowed with 6.31 lakhs hectare of freshwater resources consisting of 4.15 lakhs hectare which includes ponds and tanks and 2.16 lakh hectare reservoirs. In addition, the state has 6000 kms of river stretch and 3000 kms length of canal. Water pollution is the introduction into fresh/ground/ocean waters of chemical, physical or biological material that degrades the quality of the water and affects the organisms living in it (Pandey, *et al.*, 2009).



ISSN No. : 2321-9653

IJRASET

**International Journal for Research in Applied
Science & Engineering Technology**

IJRASET is indexed with Crossref for DOI-DOI : 10.22214

Website : www.ijraset.com, E-mail : ijraset@gmail.com

Certificate

*It is here by certified that the paper ID : IJRASET37912, entitled
Diversity and Seasonal Variations of Zooplankton in Kampli Water
Tanks in and Around Hosapete City, Karnataka (India)*

by

G. Mallanagoud

*after review is found suitable and has been published in
Volume 9, Issue IX, September 2021
in*

*International Journal for Research in Applied Science &
Engineering Technology*

Good luck for your future endeavors

By [Signature]

Editor in Chief, IJRASET

ISRA
JIF

ISRA Journal Impact
Factor: 7.429



45.98
INDEX COPERNICUS



THOMSON REUTERS
Researcher ID: 15-9551-2016



TOGETHER WE REACH THE GOAL
SJIF 7.429

WWW.IJRAR.ORG

UGC and ISSN Approved, 5.75 Impact Factor

editor@ijrar.org

UGC and ISSN Approved

An International Open Access Journal
UGC and ISSN Approved | E-ISSN 2348-1269,
P- ISSN 2349-5138

INTERNATIONAL
JOURNAL OF RESEARCH
AND ANALYTICAL REVIEWS

IJRAR.ORG

INTERNATIONAL JOURNAL OF RESEARCH
AND ANALYTICAL REVIEWS (IJRAR)

*International Peer Reviewed, Open Access
Journal*

E-ISSN 2348-1269, P- ISSN 2349-5138 | Impact factor: 5.75 | ESTD Year: 2014

UGC and ISSN Approved and added in the UGC Approved List of Journals .

Website: www.ijrar.org



Website: www.ijrar.org

IJRAR

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) (E-ISSN 2348-1269, P- ISSN 2349-5138)

International Peer Reviewed, Open Access Journal
E-ISSN 2348-1269, P- ISSN 2349-5138 | Impact factor: 5.75 | ESTD Year: 2014
UGC and ISSN Approved and added in the UGC Approved List of Journals .

E-ISSN 2348-1269, P- ISSN 2349-5138

This work is subjected to be copyright. All rights are reserved whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication of parts thereof is permitted only under the provision of the copyright law, in its current version, and permission of use must always be obtained from IJRAR www.ijrar.org Publishers.

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) is published under the Name of IJRAR publication and URL: www.ijrar.org.



E-ISSN 2348-1269, P- ISSN 2349-5138

©IJRAR Journal

Published in India

Typesetting: Camera-ready by author, data conversion by IJRAR Publishing Services – IJRAR Journal.

IJRAR Journal, WWW.IJRAR.ORG

E-ISSN 2348-1269, P- ISSN 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) (IJRAR) is published in online form over Internet. This journal is published at the Website <http://www.ijrar.org>, maintained by IJRAR Gujarat, India.



INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Ref No : IJRAR/Vol 7 / Issue 2/ 310

To,
Mallanagoud.G.
Publication Date 2020-06-22 05:36:26

Subject: Publication of paper at International Journal of Research and Analytical Reviews (IJRAR).

Dear Author,

With Greetings we are informing you that your paper has been successfully published in the International Journal of Research and Analytical Reviews (IJRAR) - IJRAR (E-ISSN 2348-1269, P- ISSN 2349-5138). Thank you very much for your patience and cooperation during the submission of paper to final publication Process. It gives me immense pleasure to send the certificate of publication in our Journal. Following are the details regarding the published paper.

About IJRAR : UGC and ISSN Approved - International Peer Reviewed Journal, Refereed Journal, Indexed Journal, Impact Factor: 7.17, E-ISSN 2348-1269, P- ISSN 2349-5138

UGC Approval : UGC Approved Journal No: 43602

Registration ID : IJRAR_243506

Paper ID : IJRAR2004310

Title of Paper : GENE REGULATION AND EXPRESSION IN PROKARYOTES AND EUKARYOTES

Impact Factor : 7.17 (Calculate by Google Scholar) | License by Creative Common 3.0

DOI :

Published in : Volume 7 | Issue 2 | June 2020

Publication Date: 2020-06-22 05:36:26

Page No : 232-240

Published URL : http://www.ijrar.org/viewfull.php?&p_id=IJRAR2004310

Authors : Mallanagoud.G.

Thank you very much for publishing your article in IJRAR. We would appreciate if you continue your support and keep sharing your knowledge by writing for our journal IJRAR.

R.B.Joshi

Editor In Chief

International Journal of Research and Analytical Reviews - IJRAR
(E-ISSN 2348-1269, P- ISSN 2349-5138)



An International Scholarly, Open Access, Multi-disciplinary, Monthly, Indexing in all Major Database & Metadata, Citation Generator

Manage By: IJPUBLICATION Website: www.ijrar.org | Email ID: editor@ijrar.org



INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

E-ISSN: 2348-1269, P-ISSN: 2349-5138

The Board of
International Journal of Research and Analytical Reviews (IJRAR)
Is hereby awarding this certificate to

Mallanagoud.G.

In recognition of the publication of the paper entitled
GENE REGULATION AND EXPRESSION IN PROKARYOTES AND EUKARYOTES

Published In IJRAR (www.ijrar.org) UGC Approved - Journal No : 43602 & 7.17 Impact Factor

Volume 7 Issue 2 , Date of Publication: June 2020 2020-06-22 05:36:26

PAPER ID : IJRAR2004310

Registration ID : 243506



R.B. Joshi
EDITOR IN CHIEF

UGC and ISSN Approved - Scholarly open access journals, Peer-reviewed, and Refereed Journals, Impact factor 7.17 (Calculate by google scholar and Semantic Scholar | AI-Powered Research Tool) , Multidisciplinary, Monthly Journal

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS | IJRAR

An International Scholarly, Open Access, Multi-disciplinary, Indexed Journal

Website: www.ijrar.org | Email: editor@ijrar.org | ESTD: 2014

Managed By: IJPUBLICATION Website: www.ijrar.org | Email ID: editor@ijrar.org

Gene regulation and expression in prokaryotes and eukaryotes

*Mallanagoud.G. Assistant Professor of Zoology, Veerashaiva College, Ballari.

Abstract

This paper attempts to study prokaryotic, eukaryotic gene expression that occurs at the epigenetic, transcriptional, post-transcriptional, translational, and post-translational levels. Each somatic cell in the body generally contains the same DNA. (A few exceptions include red blood cells, which contain no DNA in their mature state, and some immune system cells that rearrange their DNA while producing antibodies.) In general, the genes that determine whether you have green eyes or brown hair, or how fast you metabolize food are the same in eye cells and liver cells, even though these organs function quite differently. In other words, in any given cell, not all genes encoded in the DNA are transcribed into mRNA or translated into protein. Cells in the eye make a certain subset of proteins, and liver cells make a different subset of proteins. In addition, at different times, liver cells may make different subsets of liver proteins. The expression of specific genes is a highly regulated process with many levels and stages of control. This complexity ensures expression of each protein in the proper cells at the proper time. For a cell to function properly, necessary proteins must be synthesized at the proper time.

All cells control or regulate the synthesis of proteins from information encoded in their DNA. The process of “turning on” a gene to produce mRNA and protein is called **gene expression**. Whether in a simple unicellular organism or a complex multi-cellular organism, each cell controls when its genes are expressed, how much of the protein is made, and when it is time to stop making that protein because it is no longer needed. Since prokaryotic organisms are single-celled organisms that lack a cell nucleus, their DNA floats freely in the cell’s cytoplasm. When a particular protein is needed, the gene that codes for it is transcribed in mRNA, which is simultaneously translated into protein. When the protein is no longer needed, transcription stops. As a result, the primary method to control how much of each protein is expressed in a prokaryotic cell is the regulation of transcription. Eukaryotic cells, in contrast, have intracellular organelles that add to their complexity. In eukaryotic cells, the DNA is contained inside the cell’s nucleus, where it is transcribed into mRNA. The newly synthesized mRNA is then modified and transported out of the nucleus into the cytoplasm, where ribosomes translate the mRNA into protein. The processes of transcription and translation are physically separated by the nuclear membrane; transcription occurs only within the nucleus, and translation occurs only in the cytoplasm.

Key words: RNA biogenesis; RNA function; RNA mechanism; RNA-mediated adaptive immunity; epigenetic control; gene regulation

WWW.IJRAR.ORG

UGC and ISSN Approved, 5.75 Impact Factor

editor@ijrar.org

UGC and ISSN Approved

An International Open Access Journal
UGC and ISSN Approved | E-ISSN 2348-1269,
P- ISSN 2349-5138

INTERNATIONAL

JOURNAL OF RESEARCH

AND ANALYTICAL REVIEWS

IJRAR.ORG

**INTERNATIONAL JOURNAL OF RESEARCH
AND ANALYTICAL REVIEWS (IJRAR)**

*International Peer Reviewed, Open Access
Journal*

E-ISSN 2348-1269, P- ISSN 2349-5138 | Impact factor: 5.75 | ESTD Year: 2014

UGC and ISSN Approved and added in the UGC Approved List of Journals .

Website: www.ijrar.org



Website: www.ijrar.org

IJRAR

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) (E-ISSN 2348-1269, P- ISSN 2349-5138)

International Peer Reviewed, Open Access Journal

E-ISSN 2348-1269, P- ISSN 2349-5138 | Impact factor: 5.75 | ESTD Year: 2014
UGC and ISSN Approved and added in the UGC Approved List of Journals .

E-ISSN 2348-1269, P- ISSN 2349-5138

This work is subjected to be copyright. All rights are reserved whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illusions, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication of parts thereof is permitted only under the provision of the copyright law, in its current version, and permission of use must always be obtained from IJRAR www.ijrar.org Publishers.

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) is published under the Name of IJRAR publication and URL: www.ijrar.org.



E-ISSN 2348-1269, P- ISSN 2349-5138

©IJRAR Journal

Published in India

Typesetting: Camera-ready by author, data conversation by IJRAR Publishing Services – IJRAR Journal.

IJRAR Journal, WWW.IJRAR.ORG

E-ISSN 2348-1269, P- ISSN 2349-5138

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) (IJRAR) is published in online form over Internet. This journal is published at the Website <http://www.ijrar.org>, maintained by IJRAR Gujarat, India.



INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

Ref No : IJRAR/Vol 9 / Issue 1/205

To,
G.Mallanagoud
Publication Date 2022-01-15 17:22:41

Subject: Publication of paper at International Journal of Research and Analytical Reviews (IJRAR).

Dear Author,

With Greetings we are informing you that your paper has been successfully published in the International Journal of Research and Analytical Reviews (IJRAR) - IJRAR (E-ISSN 2348-1269, P- ISSN 2349-5138). Thank you very much for your patience and cooperation during the submission of paper to final publication Process. It gives me immense pleasure to send the certificate of publication in our Journal. Following are the details regarding the published paper.

About IJRAR : UGC and ISSN Approved - International Peer Reviewed Journal, Refereed Journal, Indexed Journal, Impact Factor: 7.17, E-ISSN 2348-1269, P- ISSN 2349-5138

UGC Approval : UGC Approved Journal No: 43602

Registration ID : IJRAR 242049

Paper ID : IJRAR22A1205

Title of Paper : Hardy-Weinberg Principle, Population Genetics

Impact Factor : 7.17 (Calculate by Google Scholar) | License by Creative Common 3.0

DOI :

Published in : Volume 9 | Issue 1 | January 2022

Publication Date: 2022-01-15 17:22:41

Page No : 630-639

Published URL : http://www.ijrar.org/viewfull.php?&p_id=IJRAR22A1205

Authors : G.Mallanagoud

Thank you very much for publishing your article in IJRAR. We would appreciate if you continue your support and keep sharing your knowledge by writing for our journal IJRAR.

R.B.Joshi

Editor In Chief

International Journal of Research and Analytical Reviews - IJRAR
(E-ISSN 2348-1269, P- ISSN 2349-5138)



Indexing
CiteSeer^x



SSRN .docstoc

Google

Scribd

Open Access

publons

semantic scholar

DOI

Crossref

Scopus

Emerald

Elsevier

Springer

Wiley

Taylor & Francis

Blackwell

John Wiley & Sons

An International Scholarly, Open Access, Multi-disciplinary, Monthly, Indexing in all Major Database & Metadata, Citation Generator

Manage By: IJPUBLICATION Website: www.ijrar.org | Email ID: editor@ijrar.org



INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG

An International Open Access, Peer-reviewed, Refereed Journal

E-ISSN: 2348-1269, P-ISSN: 2349-5138

The Board of
International Journal of Research and Analytical Reviews (IJRAR)
Is hereby awarding this certificate to

G.Mallanagoud

In recognition of the publication of the paper entitled

Hardy–Weinberg Principle, Population Genetics

Published In IJRAR (www.ijrar.org) UGC Approved - Journal No : 43602 & 7.17 Impact Factor

Volume 9 Issue 1 , Date of Publication: January 2022 2022-01-15 17:22:41

PAPER ID : IJRAR22A1205

Registration ID : 242049



R.B. Joshi

EDITOR IN CHIEF

UGC and ISSN Approved - Scholarly open access journals, Peer-reviewed, and Refereed Journals, Impact factor 7.17 (Calculate by google scholar and Semantic Scholar | AI-Powered Research Tool) , Multidisciplinary, Monthly Journal

INTERNATIONAL JOURNAL OF RESEARCH AND ANALYTICAL REVIEWS | IJRAR

An International Scholarly, Open Access, Multi-disciplinary, Indexed Journal

Website: www.ijrar.org | Email: editor@ijrar.org | ESTD: 2014

Manage By: IJPUBLICATION Website: www.ijrar.org | Email ID: editor@ijrar.org



Hardy–Weinberg Principle, Population Genetics

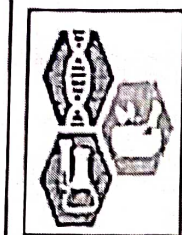
***G.Mallanagoud. Assistant Professor of Zoology, Veerashaiva College, Ballari.**

Abstract

This paper attempts to study the Hardy–Weinberg principle in population genetics, also known as the Hardy–Weinberg equilibrium, that establishes allele and genotype frequencies in a population will remain constant from generation to generation in the absence of other evolutionary influences. The unifying concept of population genetics is the Hardy-Weinberg Law (named after the two scientists who simultaneously discovered the law). The law predicts how gene frequencies will be transmitted from generation to generation given a specific set of assumptions. In the simplest case of a single locus with two alleles denoted A and a with frequencies $f(A) = p$ and $f(a) = q$, respectively, the expected genotype frequencies under random mating are $f(AA) = p^2$ for the AA homozygotes, $f(aa) = q^2$ for the aa homozygotes, and $f(Aa) = 2pq$ for the heterozygotes. In the absence of selection, mutation, genetic drift, or other forces, allele frequencies p and q are constant between generations, so equilibrium is reached.

The Hardy-Weinberg equilibrium is a principle stating that the genetic variation in a population will remain constant from one generation to the next in the absence of disturbing factors. When mating is random in a large population with no disruptive circumstances, the law predicts that both genotype and allele frequencies will remain constant because they are in equilibrium.

The Hardy-Weinberg equilibrium can be disturbed by a number of forces, including mutations, natural selection, nonrandom mating, genetic drift, and gene flow. For instance, mutations disrupt the equilibrium of allele frequencies by introducing new alleles into a population. Similarly, natural selection and nonrandom mating disrupt the Hardy-Weinberg equilibrium because they result in changes in gene frequencies. This occurs because certain alleles help or harm the reproductive success of the organisms that carry them. Another factor that can upset this equilibrium is genetic drift, which occurs when allele frequencies grow higher or lower by chance and typically takes place in small populations. Gene flow, which occurs when breeding between two populations transfers new alleles into a population, can also alter the Hardy-Weinberg equilibrium.



E-ISSN: 2320-7078
P-ISSN: 2319-6800
JEZS 2016, 4(1): 265-269
© 2016 JEZS
Received: 10-07-2016
Accepted: 11-08-2016

G Manohara
Department of P.G. Studies and
Research in Applied Zoology,
Kuvempu University,
Shankaraghatta-577451,
Shimoga, Karnataka, India

M N Harisha
Department of Post Graduate
Studies and Research in Wildlife
and Management, Kuvempu
University, Jnan Sahyadri,
Shankaraghatta-577451,
Shimoga, Karnataka, India

B B Hosetti
Department of P.G. Studies and
Research in Applied Zoology,
Kuvempu University,
Shankaraghatta-577451,
Shimoga, Karnataka, India

Status, diversity and conservation threats of migratory wetland birds in Magadi Bird Sanctuary, Gadag district, Karnataka, India

G Manohara, MN Harisha and BB Hosetti

Abstract

The study revealed a total of 33 wetland bird species belonging to 11 families were recorded from Magadi Bird Sanctuary of Gadag District, Karnataka. Among the family, Scolopacidae dominated the list by the representation of 8 species, followed by the Anatidae with 7 species and least by Laridae, Gruidae, Rallidae, and Recurvirostridae with one species each. Of the total birds recorded based on the density and abundance, Bar-headed geese was found as the dominant species, followed by the Demoiselle Crane, Brahminy Shelduck, Lesser-whistling Duck, Black-headed Ibis, Spot-billed Duck, Black Ibis, and Common Coot, etc. The study also revealed that the lake is a vulnerable wetland harboring plenty of resident as well as few migratory birds. Four globally near threatened species were recorded like Black-headed Ibis (*Threskiornis melanocephalus*), Painted Stork (*Mycteria leucocephala*), Black-tailed Godwit (*Limosa limosa*) and River Tern (*Sterna aurantia*) have a protected status under the schedule IV of Indian Wildlife Protection Act, 1972. The present study location is also facing tremendous conservation challenges by the impact of anthropogenic alteration of the habitats in and around the lake.

Keywords: Bar-headed geese, demoiselle crane, wetland birds, Magadi bird sanctuary, threatened species

1. Introduction

Bird migration is a phenomenon it includes the regular, seasonal movement of populations from one geographic location to another, and is common among most varieties of birds that has long fascinated scientists and other observers. It is marked by the eventual return to the original place of departure and is most evident among certain bird species that usually follow a yearly cycle. An estimated 1,855 bird species (19% of extant species) are migratory, making regular cyclical movements beyond their breeding distribution, with predictable timing and destinations^[1].

Migratory waterfowls are one of the most remarkable components of global biodiversity^[2]. Water birds are not only the most prominent groups which attract people to wetlands, but also are good bio-indicators and useful models for studying a variety of environmental problems^[3]. Out of 310 species of wetland birds found in India^[4], almost half of these are migratory and visit India from their breeding grounds in China, Russia, central Asia, Tibet and from across the entire range of the Himalaya.

Monitoring of wetland birds provides valuable information on the ecological health and status of wetlands and can be a vital tool for developing awareness regarding the conservation value of the wetlands. The importance of local landscapes for conservation of avifauna can only be understood by knowing the structure of the bird community of that region^[5].

The availability of feeding and roosting habitats is very important for these migratory species, which in some cases migrate up to thousands of kilometers. As wetlands provide a wintering ground for many trans-equatorial species of migratory birds, several wetlands in the country have been identified as being internationally significant under the Ramsar Convention. However, wetlands in India, are facing tremendous anthropogenic pressures^[6], which can adversely influence the structure of bird communities^[7, 8, 9].

Knowledge of the arrival dates and breeding dates of bird is important for studying long term trends of changes in timing of breeding in the ongoing climate changes^[10]. Therefore, such information could be used as an indicator tool and impact assessment on the system.

There are no reports on avifauna from this habitat; hence the present study has been conducted to prepare a check list and to focus on the ecological status, diversity and conservation threats of wetland migratory birds in the Magadi Bird Sanctuary.

Correspondence

M N Harisha
Department of Post Graduate
Studies and Research in Wildlife
and Management, Kuvempu
University, Jnan Sahyadri,
Shankaraghatta-577451,
Shimoga, Karnataka, India

A case study on visitation of migratory bird Bar-headed geese to Magadi lake (Magadi kere), Gadag, Karnataka, India

G. Manohara and B.B. Hosetti

Department of Applied Zoology, Kuvempu University, Shankaragatta,
Shivamogga 577 451, Karnataka, India

(Received 2 June, 2017; accepted 10 August, 2017)

ABSTRACT

The present study confirmed that the migration of Bar-headed geese to Magadi bird's sanctuary, Gadag district, Karnataka from Magnolia in large numbers up to 6000-7000 every year is a regular phenomenon during the past 10 - 15 Years. Some of the Bar-headed geese are tied with collar IDs. Among them some Bar-headed geese with same collar ID are visiting repeatedly every year to the Magadi Lake. It revealed that they are very much loyal to the Magadi Lake since more than a decade. These Bar-headed geese are also facing tremendous conservation risks by the anthropogenic activities around the lake and low rain fall in the catchment area during consecutive years. The census data revealed that the bird population was 6000 in 2015 and 5000 during 2016 respectively.

Key words : Bar-headed geese, Collar IDs, Magadi bird sanctuary, Migration

Introduction

Migration is a fascinating behavior of birds and there is much yet to learn. When many of us think about migration, the image of geese winging their way to south in their wrinkled V-shaped flocks is one that often comes to mind. The migration of geese is an example of the annual, large scale movement of birds between their breeding (summer) homes and their non breeding (winter) grounds (Miyoko chu's book song bird journeys, Hand book of Bird biology by Carnell lab of ornithology, 2014).

The Bar-headed geese are long distance and charismatic migrants. According to Del Hoyo et al. (1992) size of Bar-headed geese is 71-76 cm, weighs 2-3kg, unmistakable, sexes alike, juvenile has pale grey head and neck with brown strip running through eyes, across crown and backward down the

neck. Forages mostly on land by grazing on grasses, roots, stems, sea-weeds on coasts etc. Breeds on mountain lakes generally at 4000-5000m in the palaearctic region and winters in the low land swamps and lakes in India and some neighboring countries.

These migratory birds are using wetlands as stop-overs, and they come down to these wetlands to feed, take rest and again continue their migration (Uttangi, 2002). Negimalal (1971) discussed about the breeding migration and present status of the bird sanctuaries in India. Prakash and Mahopatra (1993) have extensively studied the movement, pattern, status and distribution of water fowls in the Pulicat bird sanctuary, Tamilnadu.

Newton (2008) states that the Bar-headed goose breeds near wet lands across the vast trans-Himalayan highland, and further north in central Asia.



ISSN (o) : 2347-4793

ISSN (p) : 2320-5504

Asia Pacific Journal of Research

Certificate of Publication

This is to certify that Manohara G. & B.B.Hosetti has published Research article entitled " Avifaunal studies on Bannigola back waters of T.B.dam Hagaribommanahalli (Taluk), Bellary (Dt) Karnataka, India " in Asia pacific Journal of research (A Peer Reviewed International Journal), Vol - 1 Issue - LV, September 2017, pp: 59-74.

www.apjor.com


Chief Editor



Evaluation of the Merits and Challenges of Desiltation and Development on the Biodiversity With Special Reference to Avifauna of Magadi Lake, Gadag District, Karnataka, India.

Manohara, G and B. B. Hosetti

Department of Applied Zoology, Kuvempu University, Shankaraghatta, Shivamogga-577451.

ABSTRACT

The present study is focused on the evaluation of the benefits and the challenges of desiltation and development on the biodiversity with special reference to the Avifauna of Magadi lake. This site is an important destination for nearly 33 species of migratory birds in north Karnataka region during winter, which include Bar headed geese, Brahminy duck, Painted stork, Herons, Demoiselle cranes, Woolly necked stork etc. The avifaunal diversity and density has been declined during the study period of two years from 2015-16 and 2016-17 due to lack of rain. Lake was dried and non availability of food in the lake. Habitat destruction and disturbance caused by desiltation work at large scale and JCBs are the major reasons for the habitat transformation. Desiltation improved the water storage capacity of the ecosystem, but altered the ecology of the lake itself. It leads to shifting of birds to neighboring ponds. To avoid this shifting of birds and sustainable upkeep of the wetland, alternative arrangements of water supply from nearby source was needed.

Key words: Magadi lake, Desiltation, Migratory birds, Ecology.

INTRODUCTION:

Wetlands are the important habitats for fishes, insects, amphibians, reptiles, birds and other wild life (Hosetti, 2001) and are also highly fertile and productive aquatic ecosystems. Wetland habitats act as ideal wintering grounds for migratory water birds. The water body provides considerable ecological diversity to support a large population of wetlands birds (Islam and Rahmani, 2005). According to Donor, A.S. et al., (2012) birds are essential animal group of an ecosystem and maintain a stable tropical status. They feed on vegetation, fishes and other animals of the lake. They play a vital role as potential pollinators and scavengers and are rightly called as bio-indicators (Mehta and Julka, 2002). Wetlands constitute a treasure of biodiversity. The social demand and dependence on wetlands provides an unaccountable economic value to such habitats. Due to inadequate attention and ignorance of common man, wetlands are referred as wastelands in the past, lead to the process of urban sprawl and development. Inventory and conservation of avifauna of wetlands gained its momentum after Ramsar convention in 1972. It also demands an urgent need to develop the conservation strategies and management plan by monitoring, inventorying and documenting the diversity with special reference to avifauna (Water fowl). Deviprasad et al. (2009) reported that siltation affects the lakes flora and the fauna contained in it. Human activities in catchment area and *Salvinia* - an alien weed infested in the pond has curtailed the water holding capacity and hampered the wading ducks and pulverized the flora of the pond. The present study is conducted to study the effect of drought and desiltation of lake on diversity and density of avifauna.



IMPACT OF DESILTATION ON THE RE-VISITATION OF MIGRATORY BIRDS TO MAGADI LAKE GADAG, KARNATAKA INDIA

Manuhara. G and B.B. Hosetti

Department of Applied Zoology
Kuvempu University, Shankaraghatta, Shivamogga-577451, Karnataka

Research Paper

Received: 16.02.2018

Revised: 25.02.2018

Accepted: 15.03.2018

ABSTRACT

The present study is concerned to the evaluation of the merits and the de-merits of post desiltation process of the lake on avifauna of Magadi lake. In North Karnataka Magadi lake is an important site which receives more than 33 species of migratory birds along with Bar headed geese, Demoiselle cranes, Woolly necked storks, Ruddy shell duck, Painted stork, Herons, Black winged stilt, River terns, Wagtails, Sand piper etc. During the winter season of 2015-16 avifauna diversity has been declined. In 2016-17 (upto Feb 2017) no migratory birds were cited because the lake was completely dried due to lack of rain water since 2 years. Meanwhile alteration of ecology of the habitat by desiltation programme also added to the disturbance. Hence all members of avifauna dispersed to neighbouring ponds. Due to heavy rains during rainy seasons (June-September 2017) lake was completely filled with water and rejuvenated the ecological activity in the pond habitat which has made the lake to attract the migratory guests again, but bit later and less in density. It confirms that rejuvenation of the lake help in sustainable maintenance of migratory and local avifauna of the Magadi wetland of Gadag.

Keywords: Re visitation, Migratory Birds, Desiltation, Ecology, Habitat, Greater flamingo, Bar headed geese and Brahmini duck.

INTRODUCTION

Petrides (1968) defines the ecology as environmental interactions which control the welfare of living organisms, regulating their distribution, abundance, production and evolution. Three interacting aspects of ecology namely, form, functions and factors integrate together to construct triangle of nature (Misra, 1967). These aspects are known to play an important role in maintenance of health of ecological conditions of wet lands because these are the treasure of biodiversity. The wet lands provide considerable ecological diversity to support a large population of avifauna (Islam and Rahmani, 2005) and also important habitats for fishes, insects, amphibians, reptiles, birds and other wildlife (Hosetti, 2001). Wet land habitat act as ideal wintering ground for migratory water birds. Melita and Julka (2002) studied the role of birds as

potential pollinators and scavengers and are rightly called as bio-indicators. In spite of this due to inadequate attention and ignorance of common man wet lands are referred as waste lands in the past led to the process of urban prawl and development. Only after Ramsar convention (1972), wetlands and their avifauna conservation gained its momentum. It also demands an urgent need to develop the conservation strategies and management plan by monitoring, inventorying and documenting the diversity with special reference to avifauna. Now a days, lack of sufficient rain, siltation, desiltation and other anthropogenic activities are also curtailed the water holding capacity and hampered the wading ducks and pulverized the flora of the pond, especially desiltation of the lake with huge JCB and HITACHI Machines altered the ecological conditions of the lake. The present study

*Corresponding author: hosetti57@gmail.com, qmanohareta@gmail.com

STUDIES ON BIRD AND FISH ASSEMBLAGE IN DAROJI LAKE, BALLARI, KARNATAKA

A. R. Kulkarni¹, G. Manohara² and Sreenivasa, V^{1*}

¹College of Non-Conventional Vocational Courses for Women,
Kolhapur, Maharashtra, India

^{2,3}Department of Zoology, Veerashaiva College, Ballari

Abstract

A study was carried out to record the bird species in Daroji Lake near Sandur, Ballari District, Karnataka. In the present study a total of 34 birds were identified and classified to ten orders and 24 families. Among them Ardeidae and Scolopacidae were found to be the highest composition (11 %) followed by Anatidae, Charadriidae, Jacanidae, Laridae, Ciconidae and Rallidae with 6 % each and others were found to be 3 %. Among fishes population, Catla catla, Mrigal, labeo spp. Tilapia, *Channa punctatus* and low valued fishes like *Glossogobius giuris*, *Mystes*, *Xenentodon cancila*, *Garra* sp., *Paraambassis ranga*, *Hyporhamphus xanthopterus*, *Gambusia*, were recorded during the study. Though the lake does not provide nesting and roosting place directly, it was found that the visitation of these birds is directly correlated with the availability enormous fishes as food items.

Key words: wetlands, charadriiformes, carps, Daroji lake

Introduction

Wetlands are habitats for many number fauna and flora around the world. These are distinct ecosystems with specific functional characteristics and economical values. However, they are also ecologically sensitive and adaptive systems (Turner *et al.*, 2000). In India, wetland ecosystems are distributed in different geographical regions ranging from extreme north to south. According to the Directory of Indian Wetlands 1993 (WWF and AWB, 1993), the areal spread of wetlands was around 58.3 m ha. As mentioned in Space Applications Centre (SAC) National Wetland Atlas (2011), 201,503 wetlands were identified and mapped in India. These wetlands are considered to be a vital part of hydrological cycle and are highly productive systems which supports large biological diversity and provide a wide array of ecosystem goods and services including irrigation, domestic water supply, freshwater fisheries and water for recreation (Wetlands Rules, 2010). Different types of wetlands provide important breeding sites for wildlife and provide a refuge for several migratory birds. According to Agarwal (2011) approximately between 1200 and 1300 number of species of migratory birds recorded from India. In wetlands, aquatic bird communities have been demonstrated to be influenced by their environment factors like water availability and their physical-chemical properties. Assemblage of birds and their composition can also be influenced by local ecological interactions such as food and predation. Wetland

STUDIES ON MACRO-INVERTEBRATE POPULATION AND THEIR RELATIONSHIPS WITH ENVIRONMENTAL FACTORS IN DAROJI LAKE, BALLARI, KARNATAKA

A. R. Kulkarni¹, Sreenivasa, V^{2*} and G. Manohara³

¹College of Non-Conventional Vocational Courses for Women,
Kolhapur, Maharashtra, India

²Department of Zoology, Veerashaiva College, Ballari

Abstract

An investigation was made on the study of macro invertebrate communities in Daroji Lake from July 2018-to December 2018. In the present study, it was found that the order Odonata comprises five species viz., *Lestes*, *Aeschna*, *Ephedra*, *Synthemis* and *Coenobagaster* followed by Hemiptera (5 species) *Bufo*, *Notonecta*, *Nepa*, *Lechmanis* and *Gerris*. Ephemeroptera and Plecoptera comprise *Ephemer* sp., *Leptophlebia* sp. and *Pteronarcys*, *Capnia* respectively. Whereas Megaloptera and Trichoptera showed single species *Nomasthermus* *dayanensis* and *Chimarra* each. The percentage composition indicated that Odonata showed maximum 33 % followed by Ephemeroptera (23 %), Hemiptera (19 %), Megaloptera (10 %), Plecoptera (10 %) and Trichoptera (5 %). The predicted Shannon-Wiener diversity index was found to be (SW=1.50) and Family Biotic Index (FBI) ranged between 1 and 2 (with five 11 points), indicated the fair representation of benthic organisms. The analysis of physicochemical parameters indicated fluctuation from July to December. These changes were attributed to the drastic water level fluctuation of the Daroji Lake. However, physicochemical and biological data showed they were within the standards.

Keywords: Benthic fauna, Daroji Lake, Family Biotic Index, Shannon-Wiener diversity index

Introduction

The benthic zone is the bottom region of water bodies such as a lake, pond, or stream. In freshwater systems, organisms that are larger than 250-500 microns are called macro invertebrates. Generally the presence of a diverse assemblage of long-lived taxa such as the larvae of Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddis flies) indicates a relatively healthy water body that is not subject to high degrees of pollution (Form and Sitar, 2017). These insect groups (the "EFI") are thus considered indicators of relatively healthy water bodies (Ghani *et al.*, 2014). On the other hand, proliferation of oligochaetes and some members of the family Chironomidae may be indicative of organic pollution or stagnant water (Philips, 1980).

Avifaunal Studies on Magadi Lake, Shirahatti (T), Gadag (Dt), Karnataka, India

Manohara G., A. R. Kulkarni

Received 15 January 2019; Accepted 20 February 2019; Published on 13 March 2019

Abstract The present study was conducted on the avifaunal diversity of Magadi lake, Shirahatti (T), Gadag (Dt), Karnataka. The study revealed that the study area inhabiting several local and migratory bird species. The Magadi wetland attracts every year more than 100 species of wetland birds which includes both local and migratory. Highest population of Bar-headed geese, Demoiselle cranes, Ruddy shelduck, Herons, Coots, Grebes, Painted stork (NT), Cormorants, Waders, Black winged stilt, Black tailed godwit, Sand pipers, Ibis were registered during the study. The hitherto study also revealed that the family Anatidae contributed highest percent (74.04%) and dominated the entire lake by Bar headed geese. The remaining families occupied further ranks with 2.73% to 0.5%. The wetland is facing shortage of rainfall, anthropogenic pressures, siltation, reduction in storage of water.

Keywords Bar headed geese, Demoiselle crane, Wetland birds, Migratory birds, Threatened species.

Introduction

Migration is either regular or seasonal movement which takes place in response to changes in food availability, habitat and weather conditions. Migration is marked by the annual seasonality (Peter et al. 2001). Non-migratory birds are said to be resident or sedentary. Approximately 1800 species of the world's 10,000 bird species are long distance migrants (Seckerioglu 2007, Rolland et al. 2014).

Wetlands are defined as areas of marsh, fen and peat land or water, whether natural or artificial, permanent or temporary with water that is static or slightly flowing fresh, brackish or salt, including areas of marine water, the depth of which does not exceed 6 meter (Hosetti 2002). Wetlands constitute a treasure of living community, birds inhabiting wetlands for feeding, breeding, nesting or roosting are called as wetland birds (Paramesh and Gupta 2013) which comprises birds groups like water fowl and waders. Kattan and Franco (2004) opined that monitoring of wetland birds provides valuable information on the ecological health and status of wetlands and can be a vital tool for developing wetlands. The importance of local landscapes for conservation of avifauna can only be understood by knowing the structure of the bird community of that region.

The abundancy of wetlands in South Asia is declining due to anthropogenic pressures which can greatly influence the structure of the bird and decline in several water bird populations (Bird Life International 2004). Hence it is an important factor to understand and control the underlying causes in order to prevent the loss of key components of the

Manohara G.
 Department of Zoology, Veerashaiva College, Ballari 583104,
 Karnataka, India

A. R. Kulkarni*
 College of Non-Conventional Vocational Courses for Women,
 Kolhapur, Maharashtra, India

e-mail : gmanoharacta@gmail.com

*Corresponding author

International Journal of Zoology Studies

Indexed Journal, Refereed Journal, Peer Reviewed Journal

ISSN: 2455-7269

Publication Certificate

This certificate confirms that **Manohara G** has published article titled **Studies on migratory birds of Bannigola, Ankasamudra and Magadi Wetlands of North Karnataka, India .**

Details of Published Article as follow:

Volume : 4
Issue : 6
Year : 2019
Page Number : 85-90
Reference No. : 8021
Published Date : 26 Dec, 2019

Regards
International Journal of Zoology Studies
www.zoologyjournals.com
article.zoology@gmail.com
+91-9999888931



Check List of avifauna on Ankasamudra lake, Hagaribommanahalli (Taluk) Ballari District, Karnataka-India

G Manohara^{1*}, BB Hosetti²

¹ Department of Zoology, Veeerashaiva College, Ballari, Karnataka, India

² Department of Applied Zoology Kuvempu University, Shankuragatta, Shivamogga, Karnataka, India

Abstract

A field study was conducted on the avifaunal diversity of Ankasamudra Lake. Ankasamudra is a small village located in Hagaribommanahalli Taluk, Ballari district, Karnataka-India, between 15° 7' 50.44" N and 76° 13' 52.83" E. This lake is located at the outskirts of the village Ankasamudra near the backwaters of Tungabhadra Dam (T.B Dam) spreaded in 244 ha area. It is being filled with both either natural rainwater or by lifting backwater of T.B Dam. Since it is filled with water throughout the year and Acacia trees grown in the lake provided space for nesting, roosting and breeding for bird species during winter season, which include several local and migratory bird species (approximately 166 species) such as waders and other birds. Highest population of Rosy Starlings and Barn Swallows are noticed in addition to Comb duck, Black tailed Godwit, Long tailed stints, Northern Shovelers, Pintail ducks, Painted storks, Open billed ducks, Spoon-billed ducks, Cormorants, Egrets, Moor hens, Black winged stilts, Glossy ibis, Black-headed ibis, Purple heron, Grey heron, Common teals, Whistling ducks, Spot billed ducks, Garganey, Pelicans, White ibis, Oriental darters, Blue tailed green bee eater, Sand pipers, Red shank, Painted snipes, raptors like Brahminy kite, Marsh harriers and other prominent residents were also recorded. It was found that more than 40 migratory species are cited and 15 species breeding in the lake. The present study observed that the density and diversity of avifauna of this wetland in North Karnataka indicates that it is highly preferred wetland for birds and also emerged as a breeding paradise of birds. Recently it has been declared as Conservation Reserve of birds by the Govt. of Karnataka. It is one of the important bird areas in the Northern Karnataka.

Keywords: wetland avifauna, Ankasamudra, wetland and Ballari district

Introduction

Bird migration is a phenomenon which includes the regular, seasonal movement of birds from one geographic location to another (Salim Ali, 1996)^[1]. It is common among many varieties of birds that has fascinated scientists and bird watchers. It is marked by the eventual return to the original place of departure and is most evident among certain bird species that usually follow annual cycle. An estimated 1,855 bird species are migratory making regular cyclical movements beyond their breeding distribution, with predictable timing and destinations (Kirby *et al.*, 2008). According to Ramsar Convention 1971, wetland is a land area that is saturated with water either permanently or seasonally. Birds inhabiting wetlands for feeding, breeding, nesting or roosting are called as wetland birds (Paramesh Kumar and Gupta, 2013)^[20], which comprises bird groups like water fowl, waders, king fishers, passerines and raptors.

According to Morrison *et al.*, (1986)^[17] and Jenkins (1988)^[12] that birds are considered as indicators of environmental quality in various management programs. Wetlands harbor a large number of threatened birds in addition to variety of wildlife and are vital to their survival (Kumar *et al.*, 2005)^[13]. These wetlands are providing food and shelter at least for 20% of threatened bird species in the Asiatic region which is far more than 10% of the globally threatened birds (Kumar *et al.*, 2005)^[13].

Fraser and Keddy (2005)^[17] opined that although Wetlands are one of the most productive ecosystems and severely affected habitats next to tropical forests, they are being neglected in

densely populated country like India. In the last century, over 50% of wetlands in the world have been lost, and the remaining wetlands are degraded to different degree because of the adverse influence of human activities (Bird Life International, 2003).

The wetlands of South Asia are facing tremendous anthropogenic pressure, which can greatly influence the structure of the bird's community (Bird life International, 2003). In spite of all these pressures Ankasamudra Lake is attracting about 166 species of both migratory and resident birds.

Migratory water fowls are the most remarkable components of global biodiversity (Li and Mundkur, 2004)^[14] and out of 310 Indian wetland birds, 107 species are winter migrants (Kumar *et al.*, 2005)^[13], water birds are not only the prominent groups which attract people to wetlands, but also good indicators and useful models for studying environmental problems (Urli *et al.*, 2005)^[24]. Complex characteristics like water chemistry, aquatic vegetation, invertebrate fauna and physical features of wetlands and habitat structure are significantly influence birds species and in selection of wetlands (Emlen *et al.*, 1986; Heglund *et al.*, 1994; Tellaria *et al.*, 1992; Gandiwa *et al.*, 2013)^[6, 10, 23, 24]. Hence, it is an Important factor to understand and control the underlying causes in order to prevent the loss of key components of biodiversity of the wetland habitats (Tanmay Dutta, 2011)^[22]. An attempt is made in the hitherto study to discuss the importance of Ankasamudra wetland to avifauna in the arid lands of southern India.

ದಿ|| ಪ್ರೊ. ಬಿ.ಬಿ. ಹೊಸಟ್ಟಿಯವರಿಗೆ ಸಮರ್ಪಣೆ ಮಾಗಡಿ ಕೆರೆಗೆ ಪಟ್ಟಿ ತಲೆಬಾತುಗಳ ಪಯಣ - ಒಂದು ಅಧ್ಯಯನ

ಜಿ. ಮನೋಹರ

ಸಹ ಪ್ರಾಧ್ಯಾಪಕರು, ವೀರಶೈವ ಕಾಲೇಜು, ಬಳ್ಳಾರಿ.

ವಲಸೆ ಎನ್ನುವುದು ಒಂದು ದೇಶದಿಂದ ಮತ್ತೊಂದು ದೂರದ ದೇಶಕ್ಕೆ ಪ್ರಯಾಣ ಮಾಡುವುದು. ಇಂತಹದೊಂದು ಆಶ್ಚರ್ಯಕರ ಮತ್ತು ಬೆರಗುಗೊಳಿಸುವ ಚಿತ್ತಾಕರ್ಷಕ ಜೀವನ ವಿಧಾನ ಪಕ್ಷಿಗಳಲ್ಲಿ ಸರ್ವೇ ಸಾಮಾನ್ಯವಾಗಿ ಕಂಡು ಬರುತ್ತದೆ. ಇದನ್ನು ಇಲ್ಲಿಯವರೆಗೆ ಸಂಪೂರ್ಣವಾಗಿ ಯಾರು ಅರ್ಥಮಾಡಿಕೊಳ್ಳಲಾಗಿಲ್ಲ ಮತ್ತು ನಿರಂತರ ಅಧ್ಯಯನದ ಅವಶ್ಯಕತೆಯಿರುವುದು ಕಂಡುಬಂದಿದೆ. ನಾವು ಪಕ್ಷಿಗಳ ವಲಸೆಯ ಬಗ್ಗೆ ಯೋಚಿಸಿದಾಗಲೆಲ್ಲಾ, ಚಳಿಗಾಲದಲ್ಲಿ ಉತ್ತರದ ಕಡೆಯಿಂದ ದಕ್ಷಿಣದ ಕಡೆಗೆ ಇಂಗ್ಲೀಷ್ ವರ್ಣಮಾಲೆಯ V ಆಕಾರದಲ್ಲಿ ಆಗಸದಲ್ಲಿ ರೆಕ್ಕೆ ಬಡಿಯುತ್ತ ಹಾರಿ ಹೋಗುತ್ತಿರುವ ಹಕ್ಕಿಗಳ ದಂಡು ಮನಸ್ಸಿನ ಚಿತ್ರಪಟದಲ್ಲಿ ಮೂಡುವುದು ಸಹಜ. ವರ್ಷಕ್ಕೊಮ್ಮೆ ಕರ್ನಾಟಕದ ಮಾಗಡಿಗೆ ಬೃಹತ್ ಪ್ರಮಾಣದಲ್ಲಿ ವಲಸೆ ಬರುವ ಪಟ್ಟಿ ತಲೆ ಬಾತುಗಳ ಪ್ರಯಾಣವೇ ಒಂದು ಸೋಜಿಗದ ವಿಷಯವಾಗಿದೆ ಮತ್ತು ಅದರ ಕುರಿತಾದ ಕೆಲವು ವಿಸ್ಮಯಕರ ಸಂಗತಿಗಳನ್ನು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ದಾಖಲಿಸುವ ಪ್ರಯತ್ನ ಮಾಡಲಾಗಿದೆ.

ಡೆಲ್ ಹೋಯೋ ಮತ್ತಿತರರ (1992) ಪ್ರಕಾರ ಪಟ್ಟಿ ತಲೆ ಬಾತು ಒಂದು ಮಾಂತ್ರಿಕ ವರ್ಚಸ್ಸಿನ ಪಕ್ಷಿಯಾಗಿದ್ದು ಅದರ ಅಳತೆ 71-76 ಸೆಂ.ಮೀ., ತೂಕ 2-3 ಕೆ.ಜಿ. ಹೆಣ್ಣು ಗಂಡುಗಳ ಮಧ್ಯೆ ಯಾವುದೇ ವ್ಯತ್ಯಾಸವಿಲ್ಲದ, ಗೊಂದಲರಹಿತವಾಗಿ ಗುರುತಿಸಬಹುದಾಗಿದೆ. ಮರಿ ಪಟ್ಟಿ ಬಾತುಗಳು ತಿಳಿ ಬೂದು ಬಣ್ಣದ ತಲೆ ಮತ್ತು ಕುತ್ತಿಗೆಯನ್ನು ಹೊಂದಿದ್ದು ಕಂಡು ಬಣ್ಣದ ಪಟ್ಟಿಯು ಕಣ್ಣಿನಿಂದ ಪ್ರಾರಂಭವಾಗಿ ನೆತ್ತಿಯ ಮೇಲೆ ಹಾದು ಕುತ್ತಿಗೆಯವರೆಗೂ ಸ್ಪಷ್ಟವಾಗಿ ಹರಡಿರುತ್ತದೆ ಆದ್ದರಿಂದಲೇ ಇದಕ್ಕೆ ಪಟ್ಟಿ ತಲೆ ಬಾತು ಎಂದು ಹೆಸರು ಬಂದಿರುವುದು. ಹಾಗೆಯೇ ಇವುಗಳು ನೆಲದ ಮೇಲೆ ಬೆಳೆಯುವ ಹುಲ್ಲು, ಹುಲ್ಲಿನ ಬೇರು, ಕಾಂಡ ಮತ್ತು ಕಾಳಿನ ಧಾನ್ಯಗಳನ್ನು ತಿನ್ನುತ್ತವೆ. ಹಾಗೂ 4000-5000 ಮೀ ಎತ್ತರದ ಹಿಮಾಲಯ ಪರ್ವತ ಪ್ರದೇಶಗಳಲ್ಲಿರುವ ಕೆರೆಗಳ (ಭಾರತ, ನೇಪಾಳ, ಚೀನಾ, ಲಡಾಕ್) ಮಧ್ಯೆ ಮಾರ್ಚ್-ಏಪ್ರಿಲ್ ಅವಧಿಯಲ್ಲಿ ಸಂತಾನೋತ್ಪತ್ತಿ ಮಾಡುವುದು ಕಂಡು ಬಂದಿದೆ (ನ್ಯೂಟನ್, 2008).

ಚಳಿಗಾಲದ ಸಮಯದಲ್ಲಿ ಬಹಳ ದೊಡ್ಡ ಸಂಖ್ಯೆಯ ಪಟ್ಟಿಬಾತುಗಳು (50,000 ದಿಂದ 60,000) ಮಂಗೋಲಿಯಾದಿಂದ ಹಿಮಾಲಯ ಪರ್ವತವನ್ನು ದಾಟಿಕೊಂಡು ದಕ್ಷಿಣ ಭಾರತಕ್ಕೆ ಬರುತ್ತವೆ ನಂತರ ದಕ್ಷಿಣ ಭಾರತದ ಬಹುಶೇಕ ರಾಜ್ಯಗಳ ತಮಗೆ ಸೂಕ್ತವೆನಿಸಿದ ಕೆರೆಗಳಲ್ಲಿ ಕನ್ಯಾಕುಮಾರಿವರೆಗೆ ಹಂಚಿಕೆಯಾಗುತ್ತವೆ.

International Journal of Ecology and Environmental Sciences

Indexed Journal, Refereed Journal, Peer Reviewed Journal

Online ISSN: 2664-7133, Print ISSN: 2664-7125

Publication Certificate

This certificate confirms that **Manohara G** has published article titled **Comparative study of avifaunal diversity and density of Bannigola, Ankasamudra and Magadi Wet land areas of North Karnataka, India .**

Details of Published Article as follow:

Volume : 4
Issue : 1
Year : 2022
Page Number : 157-166
Reference No. : 5012
Published Date : 15 Mar, 2022

Regards
International Journal of Ecology and Environmental Sciences
www.ecologyjournal.in
ecology.article@gmail.com
+91-9999888931

International Journal of Zoology Studies

Indexed Journal, Refereed Journal, Peer Reviewed Journal

ISSN: 2455-7269

Publication Certificate

This certificate confirms that **Manohara G** has published article titled **Comparative analysis of passerine and non- passerine birds of wetlands of Bannigola, Anka Samudra and Magadi of North Karnataka, India .**

Details of Published Article as follow:

Volume : 7
Issue : 1
Year : 2022
Page Number : 114-117
Reference No. : 8019
Published Date : 25 Jan, 2022

Regards
International Journal of Zoology Studies
www.zoologyjournals.com
article.zoology@gmail.com
+91-9999888931