

A STUDY ON CONSERVATION AND DEVELOPMENT OF LINGAMBUDI LAKE, MYSORE

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Abstract: Srirampura has a lake that has fresh water and is located approximately 8km away from the city center. The largest and oldest lake in Mysore is named after Mysore Maharaja Krishnaraja Wodeyar III, who established it in 1828. One of the best places to visit for relaxation and rejuvenation in Mysore is the lush surroundings that cover an area over 260 acres. This lake is a picturesque setting for guests to unwind amidst lush vegetation and a calming body of water. It also takes pride in having over 250 different species of birds. To ensure their availability for future generations, conservation of natural resources involves protecting and sustainably managing resources like water, soil, forests, and biodiversity. Lake development and protection are crucial for the long-term health and sustainability of these precious ecosystems.

Keywords: Conservation, Lakes, Ecosystem, Development.

Abbreviations:

L.L :- Lingambudhi Lake

A :- Acceptable

MA :- Marginally Acceptable

DO :- Dissolved oxygen

TP :- Total phosphate

Turb :- Turbidity

SC :- Specific Conductance

IWQI :- Innovative water quality index

I. INTRODUCTION

Water is essential and one of the most plentiful resources of nature and it is a primary necessity for the survival of life. The living world's existence depends on the availability of water, both in terms of quality and quantity. The rapid industrialization, urbanization, modern civilization (increased population) have led to the increasing demand for water in domestic, agricultural, industrial sectors. Surface water comprises of flowing freshwater system (lotic) such as river, streams, canals etc. and static freshwater system (lentic) like ponds, lakes and reservoirs etc. the lakes comprise one of the most production ecosystems.

1. A word lake coming from "Latin" word "Lacus" is a large body of water (large and deeper than a pond) with in a body of land. A lake is an area filled with water, a larger of water surrounded by land. According to prepp Indian Administrative service UPSC Coaching Centre.

2. Many lakes are artificial and constructed for industrial or agricultural use. For hydro-electric power generation or domestic water supply or for aesthetic. Recreational purposes or other activities.

The lingambudi lake a major bird habitat in the city, is set to see better days as the forest department processes to develop it on the lines of the karanji nature park and conserve it as a biodiversity hotspot. Nearly 250 birds species reside in the sediment beds along its periphery.

Objective:

The objective of this study is to the gain the preservation and development of lingambudi lake in mysore.

Study area:

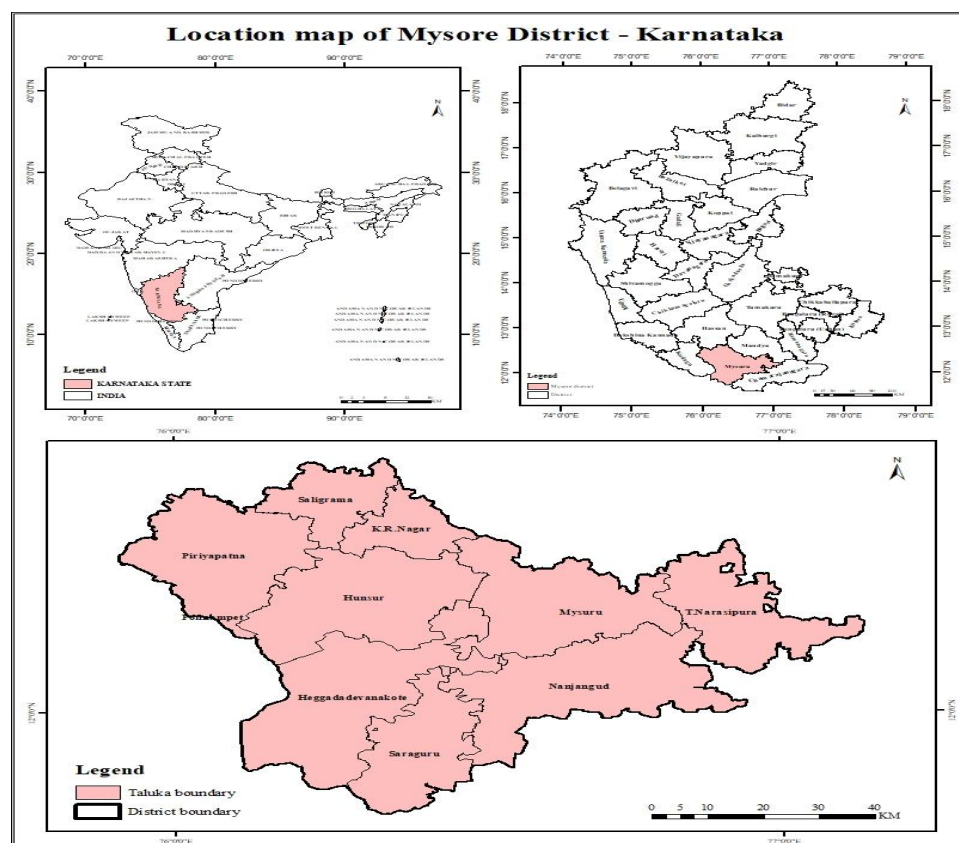
Mysore, the second – biggest city in the state of Karnataka, is a historical and heritage city. Geographically, Mysore city is situated between latitudes 12° 18' North and longitude 76° 39' east. It is situated 770 meters above sea level. (Feet : 2.526).

It covers 6307 square kilometers sqkm and 30,01,127 people living there. Mysore is situated in the Deccan's southern region plateau.

It is warm and cool in Mysuru, Mysuru has a mild climate all year round. In the winter, the lowest temperature is usually fifteen degrees Celsius with summertime seeing the highest. It is approximately 35 degrees Celsius. 86 centimeters the average yearly rainfall in millimeters.

Lingambudhi lake is a lake that has a continuous freshwater supply and is located in the river Cauvery basin. Since its construction in 1828 until the late 1980s, The lake served as a resource for drinking water, irrigation, and fish production. as a site for washing clothes and cattle; and as a place of religious worship for the people of Lingambudhi Palya, a village in the vicinity of the lake.

Study area map:-



II. METHODOLOGY

A through review survey was carried out to find out more regarding the creation and maintenance of lingambudi lake in mysore.

An extensive survey of reviews was undertaken to find out the preservation and development of lingambudi lake in mysore. Online journals, thesis, articles and newspapers were accessed through search engines like google scholar, research gate, shodhganga and online editions etc.

IBA stands for indole-butyric acid. Collected information through IBA criterias and Indianaturewatch. Websites and the mysorenature.org websites. Using field guides, Data gathered through direct counts during the field survey of species were categorized and recognized.

The size, shape and usage nature of anthropogenic disturbance and a brief planktonic algae. (study period 2010-2023)/ A brief description is presented in table -1

Water sampling procedures are same as described by Hosmani(1975).

The analysis of water chemistry variables (APHH 1998) such as dissolved oxygen (DO) total phosphorous(TP), turbidity (TURB) and Specific conductance (SC) discussed.

Table -1 Details of the Lake

Sl.No	Characteristics	Lingambudi Lake
1	Latitude	12 17 N
2	Longitude	75 27 E
3	Monitoring agency	MID
4	Highest flow level(mtrs)	727.09
5	Area (Sqkm)	0.841
6	Water Spread area (Sqkm)	0.124
7	Dry area (Sqkm)	0.701
8	Catchment area (ha)	414
9	Water spread (ha)	36
10	Fore shore area (ha)	60
11	Silt Depth (mtrs)	0.21
12	Total Silt depth (10 power 3 (m3)	7.45
13	Lake capacity (m1)	1507.7
14	Phytoplanktonic blooms	Nil
15	Marshy area (sq km)	0.138
16	Aquatic weeds	Nil

Table -2 :- Innovative water quality of Lingambudhi lake mysore

Parameters	Lingambudhi Lake	
Stream direction	DS	US
DO(% Saturation)	94	58
TP(mg/1)	0.6	0.5
Turb(MTN)	0.4	03
SC(MS/C)	466	436
FC no/100/10power 4	.088	.009
IWQI	2.2	1.9
Quality Rating	A	M

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III. RESULTS AND DISCUSSION

Lingambudhi Lake :- Lingambudhi lake is a lake in the city of mysore. The lake was built by Maharaja Krishnaraja Wodeyar iii in 1828.

Mysore city has three healthy and surviving water bodies – kukkarahalli, karanji & Lingambudi, supporting moderate bio-diversity among them, Lingambudhi stands first in terms of richness entirely due to its location bordering growing city Lingambudhi lake is a perennial freshwater lake situated in the basin of river cauvery.



Lingambudhi lake was a typical village lake in the rural surroundings of the city of mysore. The lake was serving as a source of drinking water. Irrigation and fish produce ; as a site for washing clothes and cattle; and as a place of religious worship for the people of lingambudhi palya a village in the vicinity of the lake.

On August 28th 2023 the DCs office sent a notification regarding the Forest Department's 2001 proposal.

Finally, the forest department was granted ownership of the lingambudhi lake and its environs as protected forest areas. Lingambudi lake has now been designated as a protected forest due to this millstone, which was one of the significant features in this history (Manjunath Sadashiva 2007).

Topography:-

Lingambudhi lake was one located on the edges of mysore city, but now it has been swallowed up by expanding city dwellings. The lake is geographically located at 12° 16' 20" N AND 76° 31' E to the southwest of mysore city at an altitude of 730m above mean sea level. From the city center, the lake is situated at a distance of 7km.



Fig: Last patches of Pandanus groove

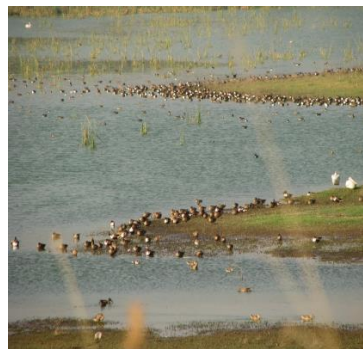


Fig: Congregation of migratory ducks



Fig: Rare migratory Arboreal bird Verditer Flycatcher-CS Kulashakara

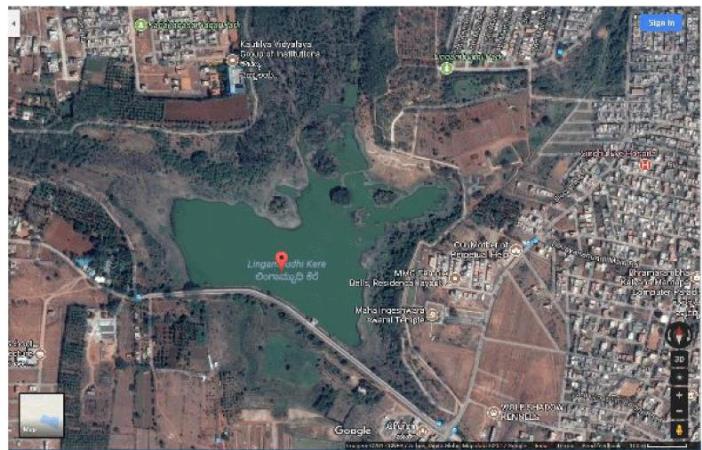


Fig: Indian Pitta



Fig: Black winged stilts

There was an attempt to hand over the place to Mysore Zoo for conservation. Lake was once considered as the flying highway of winter migratory birds. Variety of migratory birds used to arrive and congregate (22,000 in year 1995) in September third week and then gets spread out. Again, just before summer, march- April, spread out birds starts arriving from different direction, assemble and fly back towards northern direction to their breeding ground. Water birds involved in congregating were - Garganey, Shoveller, Common Teal, Pintail, Common Sandpiper, Spotted Sandpiper, Green Sandpiper, like. Gull billed Tern, Black bellied Tern, Black headed Gull, Brown headed Gull, European Roller, Pallas Grass hopper Warbler, Eurasian Curlew, Terek Sandpiper, Curlew sandpiper, Pied Avocet, Thick-billed Green Pigeon (escapee?), Verditer Flycatcher, Tickell's Green Leaf Warbler, Red-necked Phalarope are some of the rare birds observed over a decade and half.



Breeding activity of Pelicans, Spoon bills, Ibises, Grey Herons and Cormorants were recorded here for two consecutive years, 2000 and 2001. Episode of birds' death too has been observed here. Altering the sanctuary entirely to cater the need of human beings has threatened the healthy habitat of migratory birds. Era of Digital photography resulted in finding a few rare migrants and local birds' proper identification and authentication that made the check list more elaborative. It was the Lake's location as a habitat accommodating many listed residents and migratory birds had influenced the Outer Ring Road realignment decision in order to protect the Lake.

Category of Birds	Reasons for categorizing	No. of species	Remarks
Resident species	Breeding, foraging and roosting for a minimum of four years	91	Result reveals 09 species are absent; 13 species population reduction; 15 resident species become visitors; 2 species population increased. Balance 52 species are maintaining status quo.
Local species	Only foraging	37	Result reveals 5 species are absent; 8 species population reduction. Balance 24 species are maintaining status quo.

Rare Local species	Species recorded less than three times	14	These are not considered for variation study.
Regular Migratory species	Winter migrants that are regular every year	42	Result reveals 6 species are absent; 18 species population reduction; 1 species population increased. Balance 17 species are maintaining status quo.
Rare Migratory species	Winter migrants observed less than three times	26	These are not considered for variation study.
New regular migratory species	Observed arriving only in the last 3 season regularly, might continue to arrive	2	Solitary birds have been sighted regularly; hence, mentioning here
Vagrant	Not supposed to be present in entirely different habitat	1	Thick billed Green Pigeon, a Himalayan habitué, may be an escapee from one of many Tibetan colonies around Mysore. It is not considered for variation study.
Total		213	

The bird data for the period 2000 to 2010 is in declining trend, both in population as well as in species occurrence. Totally 213 species of birds are recorded during January, 2000 – January, 2010 – a span of a decade is listed in Annexure-I. These birds are categorized for comparison purpose as follows;

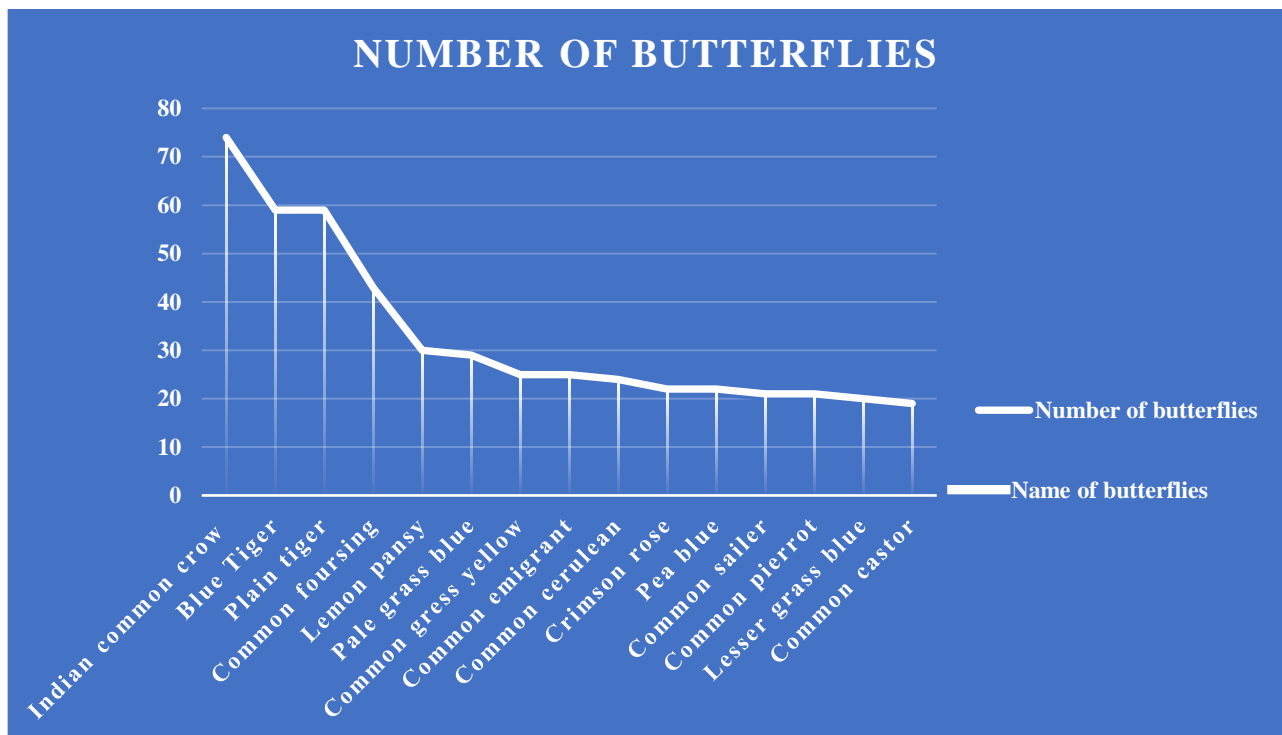
Totally 172 species are considered for change in the occurrence and population study out of recorded 213 species, excluding the 41 species (Local and Migratory) recorded less than three times. Changes of 79 species, 46% of 172 common birds consisting of resident, local and regular migratory are conspicuous. Lingambudhi Lake environment undergone man made changes in habitat structure and food abundance, influencing the density and diversity.

Butterfly :-



Abundance of Butterflies (first fifteen species)

Types of Butterflies	Number of butterflies
Indian common crow	74
Blue Tiger	59
Plain tiger	59
Common foursing	43
Lemon pansy	30
Pale grass blue	29
Common gress yellow	25
Common emigrant	25
Common cerulean	24
Crimson rose	22
Pea blue	22
Common sailer	21
Common pierrot	21
Lesser grass blue	20
Common castor	19



IV. CONCLUSION

This involves managing and restoring lakes through various strategies, including addressing pollution, implementing sustainable practices and engaging stakeholders. Lakes are vital water bodies that serve numerous purposes, including providing essential resources, supporting biodiversity and contributing to local economies. conservation includes conserving habitat, preventing deforestation, maintaining soil organic matter, halting species extinction, reducing over fishing and mitigating climate change.

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