RESEARCH ARTICLE ISSN: 2349-2678

Contents lists available at www.ijpba.in
International Journal of Pharmaceutical and Biological Science Archive
PubMed (National Library of Medicine ID: 101738825)
Index Copernicus Value 2017: 71.80
Volume 7 Issue 2; March-April; 2019; Page No. 04-09

DIVERSITY OF BIRDS IN KUMARASAMY LAKE AND SINGANALLUR LAKE

S. Abanah Sharon[1] and Dr. J. Roopavathy[2] and S.Geetha[3]

[1]M.Sc., PG and Research Department of Zoology, Nirmala College for Women, Coimbatore-18

[2]Assistant Professor, PG and Research Department of Zoology, Nirmala College for Women, Coimbatore-18

[3]M.Sc., PG and Research Department of Zoology, Nirmala College for Women, Coimbatore-18

ABSTRACT

A bird survey is carried out in lakes of Coimbatore (kumarasamy and singanallur) to examine the diversity and richness distribution of bird species in wetland region. This survey was taken from july 2018 to December 2018 to suitably access the bird diversity. A total number of 50 species from 13 orders and 34 families were recorded. The month of October and November maximum numbers of birds were identified. Pelicaniformes contributed maximum number of species. Finally, least number of birds recorded in Gruiformes, Strigiformes, Psittaciformes, Gariformes, Columbiformes and Podicipitiformes. Maximum bird species were recorded in Singanallur Lake and minimum in Kumarasamy Lake. The study revealed that Kumarasamy and Singanallur Lake acts as a refuge site for many water birds. Hence it is recommended that protection of the wetland from the human disturbance is of urgent need.

Key words: Kumarasamy, Threatened, Gariformes

INTRODUCTION

Biodiversity is a measure of the numbers of species that make up a biological community and is considered to be one of the most important aspects of community organization and structure. The diversity of bird species is expected to vary with habitat type even at the smallest spatial scales. Among the living organisms, birds are regarded as important indicators of environmental fluctuations. Many studies have demonstrated the importance of habitat heterogeneity in wet land bird richness abundance (Svingen and Anderson, 1998: Edwards and Otis, 1999: Fairbairn and Dinsmore, 2001: Riffel *et al*., 2001: Zarate Ovando, 2008). Changes in landscape structure result in habitat loss and fragmentation which in turn affect biodiversity and ecosystem processes in urban areas Buyantuyev and Wu, 2009).

Wet lands support highly valuable pools of biodiversity and genetic resources, but unsustainable development is threatening the bio-wealth and even causing species extinction (Khan 2000) and wildlife protection, recreation and food prevention (Shivaperuman and Jayson, 2000). Wetlands provide breeding site for bird habitats (Ali, 2005) and many services that contribute to human wellbeing and poverty alleviation. One of the best known functions of wetland is to provide habitat for birds (Sampath and Krishnamurthy, 1990; Wetlands are important birds habitats and birds use them as migratory resorts for breeding, nesting and rearing young ones. Birds also use wetlands as a source of drinking water and for feeding, resting, shelter and social interaction. It is considered as a good bio indicators and useful models of the wetlands for studying the various environmental problems (Jayanta Mistry and Saradha Mukherjee, 2015).

However, studying of water birds in a wetland are excellent indicators of water quality and measures of biodiversity. As no detailed study

on water birds of Kumarasamy lake and Singanallur lake wetlands, this study was undertaken to determine the diversity of the water birds. As no detailed study on water birds of Kumarasamy lake and Singanallure lake are available, this study was undertaken to determine the diversity of the water birds.

MATERIALS AND METHODS

A present study was conducted in Muthanamkulam (Kumarasamy lake) and its surroundings in Singanallur lake Coimbatore.

DATA COLLECTION METHOD

Data collection was carried out by three different types, they are given below:

(i) The water bird population was estimated by **direct counting** method

(ii) Another method "**total count"** was used wherever possible, by walking around the wetlands or from specific vantage points to count the birds. Birds of the Indian Subcontinent by Grimmett, Inskipp and Inskipp (1999).were used as field guides and for preparing check list.

(iii) **Point count** method and direct observation methods were used.

Observations were made twice a month in the early morning and late evening. For watching, counting and identifying birds, wide range binoculars were used. Birds systematically conducted from morning 5.00 am to 6.00 am and evening 5.00pm to 6.00pm, using Bushnell binocular (8x42) and birds were identified by their characteristic features in accordance with the identification keys evolved by Ali (2002) Photography was done by making use of Sony Cyber shot W810 20.1 MP digital camera.

DATA ANALYSIS

SPECIES RICHENESS

Variable species of birds were identified from each lake. A graph is drawn on the basis of species richness.

STATUS OF BIRDS

The observed birds were categorized into residential (R), migrant (M) residential migrant (RM), Winter Migrant (WM). Breeding Migrant and passage Migrant (PM). Abundance of birds was categorized as Common (C), Uncommon (U) rare (R) and Occasional (O). (fig 5)

BIRD IDENTIFICATION

Identification of birds was done according to the keys given by Bikram Grewal, available literature on birds and experts help was also sought for identifying birds. They were also used Ali (2002) and their status following Ali and Ripley (2001).

RESULT

During the study period 50 species of birds were observed at Singanallur lake and kumarasamy lake, Coimbatore district. They belong to 15 order and 34 families. The order Pelicaniformes holds 63 bird species and it is the largest order that contributes more birds from the study area. The family Phalacrocorxidae shared 10 number of birds. Second largest family Ardeibae shared 35 birds followed by Threskiornithidae (6), Pelicanidae (6) and Anhingidae (3). The family Passeridae shared 17 number of bird's species, Hirundinidae, shared 4 birds species, Motacilla shared 3 bird species, Starling shared 2 number of birds species and least number only one bird was found in Aves.

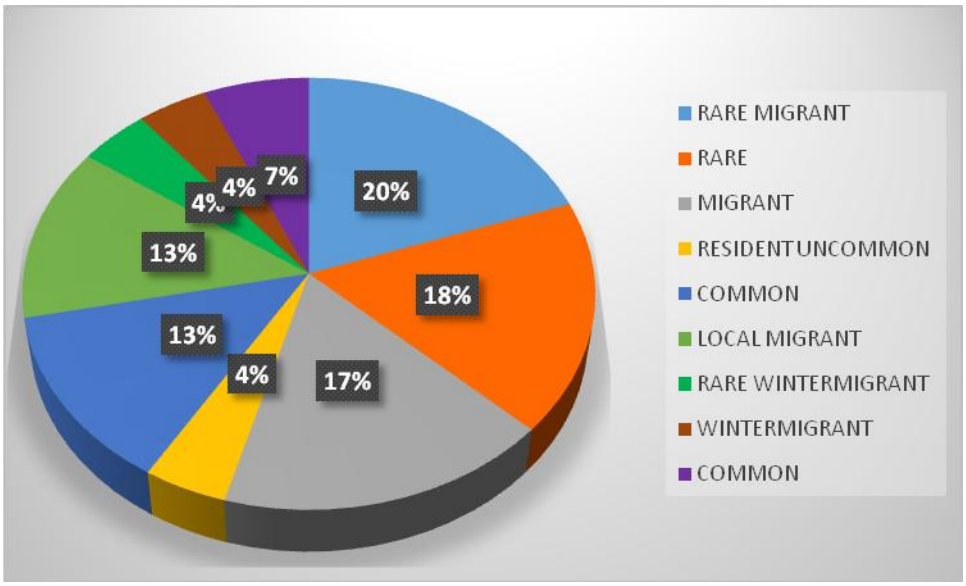
The fifth order Anseriformes hold 11 bird species. Anseriformes belong to Anatidae, followed by Falconiformes (3) Cuculiformes (3) and least number of birds recorded in Gruiformes, Strigiformes, Psittaciformes, Gariformes, Columbiformes and Podicipitiformes. The number of orders in singanallur lake from anseriformes to charadriiformes. The order Pelicaniformes holds a maximum number of bird species observed in the field of study. The maximum number of birds were recorded in Singanallur lake and minimum in Kumarasamy lake

Table 1: Water birds present in Singanallur lake and Kumaraswamy lake

S.NO	COMMON NAME	SCIENTIFIC NAME	order	Family	STATUS
1	Little Cormorant	Phalacrocorax niger	Pelacaniformes	Phalacrocoraxidae	RM
2	Little Grebe	Podiceps ruficollis	Podicipitiformes	Podicipedidae	R
3	Grey Heron	Ardea cinerea	Ciconiiformes	Ardeibae	RM
4	Indian Reef Heron	Egretta gularis	Pelacaniformes	Ardeibae	M
5	Pond Heron	Ardeola grayii	Ciconiformes	Ardeibae	RC
6	Night Heron	Nycticorax nycticorax	Pelacaniformes	Ardeibae	RC
7	Pariah Kite	Milvus migrans	Falconiformes	Accipitridae	M
8	Black Headed Ibis	Threskiornis melanocephalus	Pelacaniformes	Threskiornithidae	RU
9	Painted Stork	Mycteria leucophala	Ciconiiformes	Ciconidae	RM
10	Great Blue Heron	Ardea herodias	Pelacaniformes	Ardeibae	M
11	Blue Tailed Bee Eater	Merops philippinus	Coraciiformes	Meropidae	RM
12	White Browed Wag Tail	Motacilla maderspatensis	Passeriformes	Motacilla	WM
13	Pied Cuckoo	Clamator jacobinus	Cuculiformes	Cuculidae	M
14	Kingfisher	Alcedo atthis	Coraciiformes	Alcedinidae	RU
15	Pigeon	Columbidae		Columbidae	C
16	Eurasian Hobby	Falcon subbuteo	Falconiformes	Falconidae	RM
17	Dove	Columbidae	Columbiformes	Columbidae	C
18	Common Cuckoo	Cuculus canorus	Cuculiformes	Cuculidae	R
19	Crested Serpent Eagle	Spilornis Cheela	Accipitriformes	Accipitridae	C
20	Sparrow	Passeridae	Passeriformes	Passeridae	R
21	Eurasian Coot	Fulica atra	Gruiformes	Rallidae	M
22	Spot Billed Pelican	Pelacanus philippensis	Pelacaniformes	Pelecanidae	R
23	Large Ergret	Egretta grazetta	Ciconiiformes	Ardeibae	RM
24	Common Tern	Sterna hirundo	Charadriiformes	Laridae	LM
25	Common Sand Piper	Actitis hypoleucos	Charadriiformes	Scolopacidae	R/W/M
26	Spoonbill	Platelea falcinellus	Ciconiiformes	Anatidae	R
27	Little ringed plover	Charadius dubis	Charadriiformes	Charadriidae	M
28	Housecrow	Corvus splendens	Passeriformes	Aves	R
29	Swallow	Hirundinidae	Passeriformes	Hirundinidae	RM
30	Jungle crow	Corvus macrorhynchos	Passeriformes	Corvidae	LM
31	Indian peafowl	Pavo cristatus	Galliformes	Phasianidae	R/W/M
32	Asian koel	Eudynamys scolopacea	Cuculiformes	Aves	R
33	Wooly neck stork	Ciconia episcopus	Ciconiiformes	Ciconiidae	R

34	Rose ringed parakeet	Psittacula krameri	Psittaciformes	Psittaculidae	RC
35	Darter or snake bird	Anhinga rufa	Pelecaniformes	Anhingidae	RM
36	Spot billed duck	Anas poecilorhynca	Anseriformes	Anatidae	RM
37	Common myna	Acridotheres tristis	Passeriformes	Starling	C
38	Owl	Strigiformes	Strigiformes	Aves	RU
39	Red wattled lapwing	Vanellus indicus	Charadriiformes	Charadriidae	R
40	Great cormorant	Phalacrocorax carbo	Pelacaniformes	Phalacrocoracidae	LM
41	Common teal	Anas crecca	Anseriformes	Anatidae	M
42	Common coot	Fulica atra	Gruiformes	Rallidae	LM
43	Glossy ibis	Plegadis falcinellus	Pelecaniformes	Threskiornithidae	RM
44	Northern shoveller	Anas clypeata	Anseriformes	Anatidae	WM
45	Oriental White ibis	Threskiornis melanocephalus	Ciconiiformes	Threskiornithidae	LM
46	Whiskered tern	Chlidonias hybridus	Charadriiformes	Sternidae	M
47	Purple heron	Ardea purpurea	Pelicaniformes	Ardeidae	LM
48	Comb duck	Sarkidiornis melanotos	Anseriformes	Anadidae	WM
49	Cattle egret	Bubulcus ibis	Pelicaniformes	Ardeidae	LM
50	Common sandpiper	Actitis hypoleucos	Charadriiformes	Charadriidae	R/W/M

COMMON NAME	SCIENTIFIC NAME	STATUS
Black headed ibis	Threskiornis melanocephalus	RU
Painted stork	Mycteria leucophala	RM
Grebe	Podiceps ruficollis	R
Cormorant	Phalacrocorax niger	RM
Sparrow	Passeridae	R
Large egret	Egretta grazetta	RM
Eurasian hobby	Falcon Subbuteo	RM
Grey heron	Ardea cinerea	RM
Indian reef heron	Egretta gularis	M
Pond heron	Ardeola grayii	RC
Night heron	Nycticorax nycticorax	RC
Paraiah kite	Milvus migrans	M
Great blue heron	Ardea Herodias	M
Common tern	Sterna hirundo	LM
Blue tailed bee eater	Merops philippinus	RM



Graph 1: PERCENTAGE OF VARIOUS ECOLOGICAL GROUPS OF WATER BIRDS

DISCUSSION

During the study period totally 232 birds were identified from 15 orders and 34 families were observed. Which comprises of different varieties of birds in Singanallur lake than Kumarasamy lake which consists of spot billed pelicans, different varieties of herons ,rare birds which are migratory during monsoons and winter seasons, cormorant, egret, stocks and coot varieties, spot billed duck, comb duck ,terns ,common birds like Indian peafowl, crow, sparrow ,myna, cuckoo, eagle, parakeet, kingfisher, owl and pigeons and dove belonging to the columbidae of Aves family. Red wattled lapwing, Northern shoveller , oriental white ibis and common sandpiper are rare migrants and they are seen only during particular seasons, ibis varieties such as glossy ibis were seen more in number at Singanallur lake and few black headed ibis . Birds are a familiar feature of our environment and everyone notices them with great joy. Similar result was identified by Yom-Tov *et al* (2006) and Urfi, (2003).

Then next order Ciconiiformes holds 37 bird species it is the second largest order that belong to 4 families like Arbeidae, Ciconiidae, threskiornithidae and Anatidae. The family Arbeidae shared 17 number of birds followed by cionciidae shared 10number of birds painted stork (5), wooly neck stork (5). The family Antidae spoonbill (7) shared 7 number of bird species followed by Threskiornithidae oriental white ibis (3) this is the least family of the Ciconiiformes. Similar result were identified by Pittock, 2003, Then next order Ciconiiformes holds 37 bird species it is the second largest order that belong to 4 families like Arbeidae, Ciconiidae, threskiornithidae and Anatidae. The family Arbeidae shared 17 number of birds followed by cionciidae shared 10number of birds painted stork (5), wooly neck stork (5). The family Antidae spoonbill (7) shared 7 number of bird species followed by Threskiornithidae oriental white ibis (3) this is the least family of the Ciconiiformes. Similar result were identified by Pittock, 2003.

The present study was investigated to determine the diversity of the water birds. Besides hunting, solid waste dumping near the wetland, open defecation, sewage discharges were some of the human activities found in the wetland. It is recommended to plant high number of acacia tree that would attract high diversity of water birds in the wetland. Creating awareness to the local people regarding the importance of the wetland and water birds.

REFERENCES

1. Ali Z. (2005). Ecology, distribution and conservation of migratory birds at Uchalli wetlands complex, Punjab, Pakistan. Ph.D. Thesis, University of Punjab, Pakistan.

2. Ali, S.(2002) Bombay Natural History Society / *Oxford University Press*, *202 pp* Bird Census Techniques, 2nd ed. Academic Egrets and Little Egrets in Camargue, France. Condor, Press, London. *103: 38-44*
3. Buyantuyev A, Wu J.(2009) Urbanization alters spatiotemporal patterns of ecosystem primary productivity: A case study of the Phoenix metropolitan region, USA. J Arid Environ *73: 512– 520*
4. Edwards N, Otis D. (1999) Avian communities and habitat relationships in South Carolina Piedmont beaver ponds. American Midland Naturalist *141(1): 158–171.*
5. Fairbairn S, Dinsmore J.(2001) Local and landscape level influences of wetland bird communities of the Prairie pothole region of Iowa, USA. *Wetlands 21(1): 41–47.*
6. Grimmett R., Inskipp C. and Inskipp T. (1999). Pocket Guide to the Birds of Indian Subcontinent. Oxford University Press, New Delhi.
7. Khan M.A. (2000). Environment, Biodiversity and Conservation. S.B. Nangina, A.P.H. Publishing Corporation, New Delhi.
8. Jayanta Mistry and Saradha Mukherjee., (2015) Status and threats of waterbirds in Ahiran lake, Murshidabad, West Bengal, India, *5(2),59-64.*
9. Pittock, B.(2003). Climate change: An Australian guide to the science and potential impacts, Australian Green house office, Canberra.Viewed 12 Oct 2004 http://www. greenhouse.gov.au/science/guide/pubs/scienc e-guide.pdf.
10. Riffel SK, Keas BE, Burton TM (2001). Area and habitat relationships of birds in great lakes coastal wet meadows. *Wetlands* 21*(4): 492–507.*
11. Sampath K. and Krishnamurthy K. (1990). Shorebirds (Charadriiformes) of the Pichavaram mangroves, Tamil Nadu, India. *Wader Study Group Bulletin. 58: 24-27.*
12. Sivaperuman and Jayson (2000). Birds of Kole wetlands, Thrissur, Kerala. *Zoo's PrintJ.,15(10): 344-349.*
13. Svingen DN, Anderson SH. (1998) Waterfowl management on grass-sage stock ponds. *Wetlands 18(1): 84–89.*
14. Urfi ,A.,J ,Monnalisa ,S Sandhilyan,MSudha (2013)breeding ecology of bird :why do some species nest singly while others are colonial? *Resonance., 8:22-32.*
15. Wu J. Ecological dynamics in fragmented landscapes. (2009) In: Levin SA (Ed.) The princeton guide to ecology. Princeton University Press, Princeton, *New Jersey pp:438–444.*
16. Yom-Tov, Shlomith Yom-tov, Jonathan Wright, Chris J.R Throne and Richard Du Feu (2006) Recent changes in body weight and wing length among some British passerine birds. *Oikos., 112, 91–101*.
17. Zárate-Ovando B, Palacios E, Reyes-Bonilla H (2008). Community structure and association of waterbirds with spatial heterogeneity in the Bahia Magdalena-Almejas wetland complex, Baja California Sur, Mexico. *Revista de Biologia Tropical 56(1): 371–389*389