DIVERSITY OF BIRDS IN KUMARASAMY LAKE AND SINGANALLUR LAKE

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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 wetland bird richness abundance (Svingen and Anderson, 1998: Edwards and Otis, 1999: Fairbairn and Dinmore, 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 Phalacrocorixidae 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 Kumarawamy 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                    | Ciconiiformes     | Ardeibae        | RC     |
| 6    | Night Heron                | Nycticorax nycticorax             | Pelacaniformes    | Ardeibae        | RC     |
| 7    | Pariah Kite                | Milvus migrans                    | Falconiformes     | Accipitridae    | M      |
| 8    | Black Headed Ibis          | Threskiornis melanochalpus        | 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 Bowed Wag Tail       | Motacilla maderspatensis          | Passeriformes     | Motacilla       | WM     |
| 13   | Pied Browed Wag Tail       | Clamator jacobinus                | Cuculiformes      | Cuculidae       | M      |
| 14   | Kingfisher                 | Alcedo atthis                     | Coraciiformes     | Alcedinidae     | RU     |
| 15   | Pigeon                     | Columbidae                        | Columbidae        | Columbidae      | C      |
| 16   | Eurasian Hobby             | Falco subbuteo                    | Falconiformes     | Falconidae      | RM     |
| 17   | Dove                       | Columbidae                        | Columbiiformes    | Columbidae      | C      |
| 18   | Common Cuckoo              | Cuculus canorus                   | Cuculiformes      | Cuculidae       | R      |
| 19   | Crested Serpent Eagle      | Spilornis Cheela                  | Accipiteriformes  | 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 grazaetta                 | Ciconiiformes     | Ardeibae        | RM     |
| 24   | Common Tern                | Sterna hirundo                    | Charadriiformes   | Laridae         | LM     |
| 25   | Common Sand Piper          | Actitis hypoleucus                | Charadriiformes   | Scolopacidae    | R/W/M  |
| 26   | Spoonbill                  | Platelea falciellus               | Ciconiiformes     | Anatidae        | R      |
| 27   | Little ringed plover       | Charadius dubius                  | 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      |
| COMMON NAME          | SCIENTIFIC NAME                             | STATUS |
|----------------------|--------------------------------------------|--------|
| Rose ringed parakeet | Psittacula krameri                          | RC     |
| Darter or snake bird | Anhinga rufa                                | RM     |
| Spot billed duck     | Anas poecilorhynca                         | RM     |
| Common myna          | Acridootheres tristis                       | C      |
| Owl                  | Strigiformes                                | RU     |
| Red wattled lapwing  | Vanellus indicus                           | R      |
| Great cormorant      | Phalacrocorax carbo                         | LM     |
| Common teal          | Anas crecca                                 | M      |
| Common coot          | Fulica atra                                 | LM     |
| Glossy ibis          | Plegadis falcinellus                        | RM     |
| Northern shoveller   | Anas clypeata                               | RM     |
| Oriental White ibis  | Threskiornis melanopehalus                 | LM     |
| Whiskered tern       | Chlidonias hybridus                         | M      |
| Purple heron         | Ardea purpurea                              | LM     |
| Comb duck            | Sarkidiornis melanotos                      | WM     |
| Cattle egret         | Bubulcus ibis                               | LM     |
| Common sandpiper     | Actitis hypoleucos                          | R/W/M  |
| Black headed ibis    | Threskiornis melanopehalus                 | 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 Kumara samy 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 Ciconiformes. 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 Ciconiformes. 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.

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