

Aquatic Bird Diversity in the water bodies of Shivamogga District, Karnataka

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Abstract

In this study, a total of 19 bird species are identified in the 4 villages pond, namely Gowdan kere, Kavvalli kere, Pumpas kere, Halsuru kere, There are 6 migratory bird, Endangered birds 3, holver species diversity was not uniform across the study area the high disparity in species counts from 3 areas could be an effect of both habitat differences and heterogeneity and inconsistent sampling effort. Identified species namely squacco heron, purple heron, Indian pond heron, little egret, Ibis, Great egret, Grey heron, Great cormorant, lesser whistling duck, Australian swamp hen, grey headed swamp hen, goose bid black petrel, mallard, etc.. These four study sites presently face relatively small amount of Anthropogenic pressure from surrounding settlement because of low human density, large portion of study area, the local people dislike it as it does not support any cattle palatable plants which restrict them from grazing in these areas.

Birds are generally utilized as signs of environment integrity. The latest research examine freshwater biodiversity because the maximum threatened of all styles of diversity and wetlands are discovered to be the richest sites by means of holding foremost proportion of the existing avifauna⁷. Wetlands may be seen as natural ecological islands of freshwater habitats surrounded by using terrestrial habitats^{23,39}.

Aquatic birds are feathered bipedal warm blooded animals known for their ecological, economical, ethical, medicinal and scientific value. They constitute one of the

diverse and large number of useful creature among the living being and treasure of biodiversity among the living being and treasures of biodiversity. Aquatic birds' feather show different life style hence considered as bio tools for exploring problems and evaluate environmental quality of aquatic ecosystem. In India more than 1340 species of birds have been identified of all 130 species are depend on aquatic or more semi aquatic ecosystem and constitute the most visible sigma of variety of the life forms in It lands. Wetland are most productive, biologically diverse and very important role in flood control, aquifer, recharge nutrients absorption and erosion

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control. In Karnataka 500 birds' species are reported by various ornithologists. The different aquatic habitats which are attracting a good number of resident birds, resident migrants and migratory bird¹⁶.

A water bird, on the other hand water bird or oceanic bird, is a bird that lives nearby water. In certain definitions, the term water bird is particularly applied to birds in freshwater biological systems, despite the fact that others see no difference from seabirds that possess marine conditions. Some water birds (for example swimming birds) are more earthly while others (for example waterfowls) are more amphibian, and their transformations will differ contingent upon their current circumstance. These transformations incorporate webbed feet, mouths, and legs adjusted to take care of in the water, and the capacity to jump from the surface or the air to get prey in water.

Aquatic birds have attracted the attention of the community and scientists because of their attractiveness, abundance, visibility and social behaviour, as well as for their fun and economic importance. Water birds indicates quality of water and as parameter of local biodiversity³⁴. Birds are the most successfully group of vertebrae.. Birds occur on land, sea and freshwater and in virtually every habitat from the desert to the highest mountains. The world's biodiversity in increasing under threat in many parts of the world currently 24% of mammals 27% of reptiles, 20% of amphibians and 30% of fishes are listed by IUCN as globally threatened with extinction³¹.

Wetland are highly diverse ecosystem especially in aquatic birds species and are

subjected to different threats, Wetlands and resulting in alternation there structure and functionality. Aquatic birds are species that reproduce feed breed in Wetland many of these bird may make use of certain Wetland their annual cycle, while spending another part of concentration and migratory movement. Wetlands are highly diverse biological communities and provides extensive ecosystem services such as water purification flood abatement and climate and destroyed. It was estimated that over 50% total Wetland surface was lost during the last century.

Wetlands are the treasures of avifaunal species richness. The social call for and dependence at the wetlands offer an unaccountable monetary price to such habitats. Wetlands of lentic group shape a positive habitat to various groups of animals specially waterfowl. The study on avifauna of wetlands gain its momentum only after Ramsar convention. Wetlands are recognized to be most efficient and diverse ecosystems in the world. Water birds are perhaps the maximum visible manifestation of faunal variety however many different companies also inhabit those wetlands. Wetlands are fragile ecosystems, which can be speedy deteriorating and shrinking because of man made sports. India has 65,000 wetlands covering a place of 4.5 million hectares⁶. Indian subcontinent represents 2094 bureaucracy belonging to 1200 species of avifauna⁴. The abundance and variety of avian network glaringly indicate the high ecological range of the united states.

Majority of the studies on bird community were focused on the understanding of the shape of a network based totally on the

populace^{14,40,48}. They tried to provide an explanation for the variety, particularly with recognize to the woodland shape or floristic diversity. The presence of a particular species in a type of wooded area was historically defined in terms of the provision of foraging substrates and vegetative layers. In recent years, the trend amongst community ecologists is to explain the feature of a network focusing on habitat choice²⁹. With their various levels, habitat specificity, birds make notable signs of surroundings health and habitat fine. Hence, birds can be used to evaluate the satisfactory of habitats; the developing plantations provide and use them as a surrogate for biodiversity⁹.

Bird network ecology has occupied an vital place in mainstream ecological research for several decades. This pursuit has contributed in a main manner to the conceptual and theoretical framework of community ecology as an entire^{28,48}. Understanding the diversity and shape of fowl groups are essential to delineate the importance of regional or local landscapes for avian conservation³⁰.

Avian network research are effective tools for monitoring a woodland atmosphere²⁵. In the context of avian diversity many studies have identified the factors answerable for version in avifauna from habitat to habitat in India^{11,15,26}. These studies also emphasized the value of avifaunal research in quantifying and tracking wooded area degradation²⁷. In India, several research have centered on adjustments in fowl populations and distribution in natural habitats^{46,47}, however very few have attempted to research the affects of urbanization on birds. However, many Indian cities provide foraging and nesting habitats for birds, particularly

colonial water birds including egrets, herons, cormorants, storks, ibis, spoonbills and pelicans⁴⁵. Additionally, Important Bird Area's (IBAs) affording great populations of resident and wintering waterfowl exist on rivers within several towns¹². Whether included or otherwise, such patches of wasteland are typically the primary victims of city enlargement and may become as habitat islands in a sea of concrete⁴⁶.

Ornithological research suggest that of 2060 taxa recognized from the Indian subcontinent about 350 are migrants that encompass both terrestrial and water birds. Mostly those birds breed outdoor the subcontinent inside the Palaearctic area. The most considerable and stunning iciness migrants to the Indian subcontinent are the ducks and geese (Anatidae) which constitutes approximately 85% of migrant iciness fowl populations of about three million birds, wading and shorebirds and cranes¹. There are about 242 wetland bird species and 67 wetland supported bird species some of the 1300 species of birds recorded inside the Indian subcontinent are recorded in India^{21,41}. Approximately 12% of Asian birds are globally threatened³².

Wetland birds contain about 10% of the globally threatened species and 20% of Asian threatened species. Many species are close to extinction 18 thru disturbance or loss of their habitats, as well as through intensive searching pressure⁴⁴. The majority of the wetland species within the Indian subcontinent are not unusual and a quarter (24%) are rare⁴¹. Of which, 34 are globally threatened species, 34 are critically endangered and one is conservation structured.

India has 47,000 species of flowering and non-flowering plants representing approximately 12% of the arena's floral assemblage and 89,451 species of animals forming 7.31% of the world's faunal assemblage. A overall of 17,000 species of angiosperms, 48 species of gymnosperms, 1, two hundred species of pteridophytes, 2,850 species of bryophytes, 2,201 species of lichens, 14,500 species of fungi, 6,500 species of algae, and 850 species of viruses and bacteria has so far been indexed from India⁴³.

Wetlands are natural repository of diverse group of animals and plants for which they are called as biological supermarkets⁴². Wetland birds can act as rich diversity, bio-indicator of quality and habitat suitability of the wetland for animal survival²⁴. Though so many birds are found dependant on wetland directly or indirectly, the birds which inhabit wetlands for feeding, breeding, nesting or roosting are commonly called as water birds or wetland birds³⁷.

Wetlands are normal store of different gathering of fauna and plants for which they are called as natural grocery stores⁴². Wetlands give both settling material and appropriate territory to assortments of bird species alongside an incredible wellspring of food. A huge quantities of universally significant birds relocate to the wetland and use them as their fundamental rearing, developing, resting, and wintering ground either for the entire year or a couple of months. In wetland environment, birds can assume a huge part as their rich variety is an amazing bio-mark of value and living space reasonableness of the wetland for creature endurance²⁴. However such countless birds are found dependant on wetland straightforwardly or by implication, the birds

which occupy wetlands for taking care of, rearing, settling or perching are usually called as water birds or wetland birds³⁷.

Nevertheless, in recent times aquatic avifauna or the water birds appeal to the attention of the ornithologist and public thru their stunning appearance, excessive visibility, behavioural pattern and so on. Apart from these, water birds are of worldwide significance for their leisure and high economic cost. It has been discovered that forty% of the whole fowl species across the globe are suggested from freshwater wetlands; that is 12% of all animal species³⁸. Out of 310 wetland dependent bird species in India³⁵, 113 species of water birds are mentioned in Assam, which imply 38% discount of avifauna from the wetlands of Assam. To get accurate statistics about the extensive role of water birds in an ecosystem, Basavarajappa¹⁰ emphasised the need of enormous have a look at within the wetlands on the repute and biology of birds associated with them. Apart from this, the study can even help to create consciousness a few of the neighborhood groups about the conservation and importance of the wetlands.

Dewan and Saikia²⁰ recorded 58 species of water birds with 14 families from Kapla wetland complex having 4 wetlands inner. They did survey within the month of April, 2005 to April, 2006. It indicates that avifaunal variety within the wetland is in lowering trend. Comparing each the records it may be predicted that the overall water fowl variety is reducing by using approximately 48% in the Kapla wetland.

The wetland as the centre of enchantment for specific migratory water birds is probably

because of occurrence of numerous plant life and macrophytes which provide better breeding, nesting, resting, feeding opportunities to birds. Deka *et al.*¹⁹, mentioned 36 species of macrophytes belonging to 24 families from the Kapla wetland. However, wanton growth of macrophyte like Water Hyacinth (*Eichhornia crassipes*) within the wetland now and again rapidly covers the water floor which thereby reduces the feeding location for the water birds.

Chakravartty *et al.*¹³ reported 75 fish species comprising each small and big fish from the wetland. The other to be had aquatic fauna like crab, insect larvae also are suitable meals for specific fowl species which magnetize them to this wetland. According to Basavarajappa¹⁰, the native plants like furry scrub, scattered horticulture plant life, stray bushes inside the paddy subject are the most favourable sites for refuge, feeding and breeding for maximum of the water birds and the aquatic fauna like fishes, crabs, worms, insect larvae and so on., located within the water bodies are the primary feed for them. However, the range of water birds were decreasing because of numerous anthropogenic activities moving into and across the wetland, which have direct and indirect impact on it. Fish depletion due to over exploitation, natural pollutants, silting, blockading of the feeding canal inside the wetland¹³ might be the cause which have an effect on the aquatic fowl population feeding on fish. About 25% of the wetland region is used for sizeable crop cultivation in the course of the wintry weather lean season¹⁸, that's a chief problem inside the wetland.

Unplanned use of insecticides or other chemical compounds inside the agricultural

plants all through cultivation pose danger to the water birds through meals infection. As the wetland is leased to non-public birthday celebration, the wetland surroundings is often disturbed by way of full-size fishing activity⁸ resulting high damage or alteration to the aquatic flora. This will make the wetland fallacious for nesting and roosting through the birds¹⁰. Other threats mentioned in the wetland include trapping and killing of water birds using exclusive tool and ringing bell at night time, encroachment to the wetland vicinity for cultivation or human habitation *etc.*²⁰.

Identify difference in species occurrence between historical and current data analyze water bird habitat preference with respect to Wetland restoration finally I discuss water bird response in a general sense to Wetland restoration under condition of urbanization.

Natural riverine areas encompass interfaces between land aquatic system with sharp environmental gradients representing. The most diverse, dynamic and complex biophysical habitats on earth. Although reparation corridors Ill known for the high level of biodiversity the valves. They provide an essential habitat for many species of birds riverine system being prone to large scale habitat alternation due to natural and climatic fluctuation call for diversing potential indicators for monitoring ecosystem.

Objectives :

To study the aquatic birds with the taxonomical characters.

Documentation the aquatic birds species using basic methods.

Study the characteristics of aquatic birds species.

Study Area.

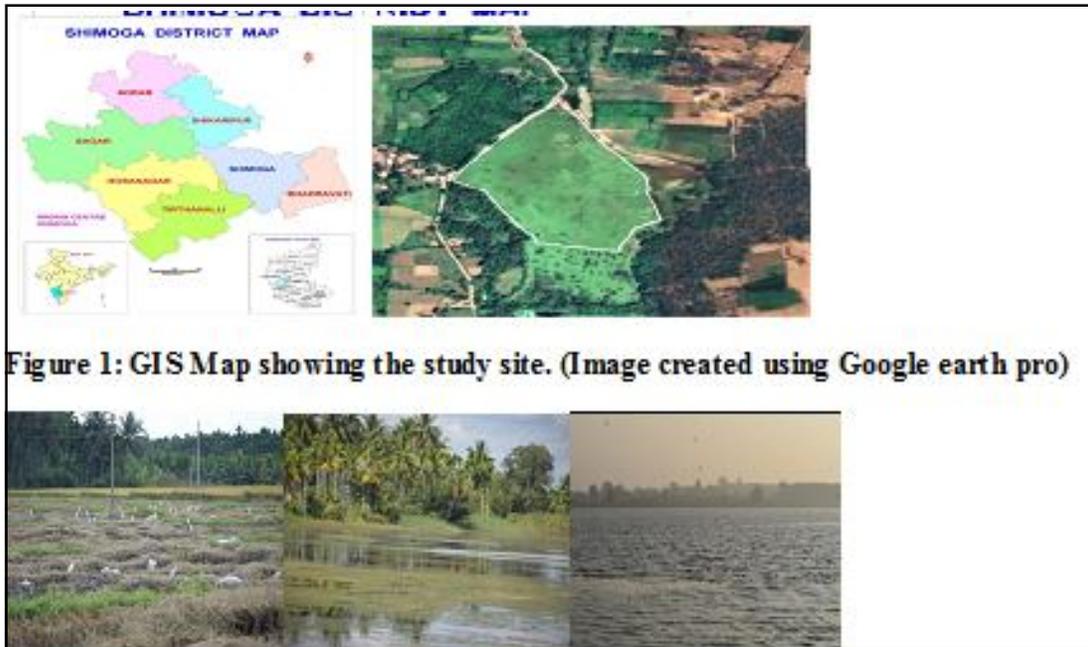


Figure 1: GIS Map showing the study site. (Image created using Google earth pro)

The study area includes three different ponds which are dominated with aquatic birds. Rain water is the main source of water for avifaunal diversity and many nearby villages where they depend on seasonal fishing which is traditionally called kerebete (during summer). Our project work on birds diversity which comprises 4 ponds of the Shivamogga and Chikmagalur district. The ponds such as Gowdankere, Kavalli kere, Halsuru kere and pumpas kere. Geographically, these ponds are located at latitudes (Lat 14°25'59"-14°26'41"N Long 75°6'43"-75°25'28"E) in Shimoga District, Central Eastern Ghats, and situated at the altitude of 565 m above sea level (Figure 1). It includes Eco region area, inland and moist deciduous forest inter spread grassy covers. These ponds inhabits the water spread buffer area of about 34 ha, in rainy season, out of the total 73.68 ha. Remaining area is moist deciduous forest

inter spread with grassy patches. The minimum and maximum temperature recorded in the Wetland is 18°C-36°C respectively and precipitation of 1500-1800mm.

The places are visited 5 times in a 2 month to record aquatic birds by walking along roads and forest oath.

The observation made twice a day form morning 7:00 am to 11:00 am hours and 4:30 pm to 6:00 pm in the evening.

Aquatic birds are observed at village ponds, nearby agricultural ecosystem and marshy area all out search method. birds living in water and marshy area are observed by naked eye and also help of Olympus binocular (10x10) and photography by using Nikon D3600 camera based on color and shape.

I carried out birds' diversity study during December and January.

These are small lakes where storage reservoir is designed for irrigation purpose and the water quality is good whereas fishing is done by Gowdana kere and kavvalli kere the birds migrated to these lakes in December and January month.

Birds sighted are categorized as common and migratory on the basis of regular observation.

The identification of birds was done by using Standard field guide and manuals.



Figure 2 : Aquatic birds found in the water bodies of Shivamogga

Common name :- Squacco Heron
Scientific name :- *Ardeola ralloides*
Family :- Ardeidae
Order :- Pelecaniformes
Genus :- *Ardeola*
Species :- *A. ralloides*

The squacco heron is a small heron 44-47 cm long of which the body is 20-23cm with 80-92cm wingspan. It is of old world origins, breeding in southern Europe and the greater middle east.

It is a migrant bird of Africa. It has short neck with thick bill and buff brown back.

Its appearance is transformed in flight, when

it looks very white due to the color of wings. Its breeding habitat is marshy wetland in warm Countries.

These birds lay there to four eggs. They feed on fish, frog and insects.

Common name :- Purple Heron
Family :- Ardeidae
Order :- Pelecaniformes
Genus :- *Ardea*
Species :- *A.purpurea*

The purple heron is a wide ranging species of wading birds in the heron Family ardeidae. It breed in Africa central and southern Europe, southern and eastern Asia. These birds migrate between breeding and wintering habitat whereas the Africa and tropical-Asian populations.

It is similar in appearance to the more common grey heron but is slightly smaller, more slender and has dark plumage.

The purple heron and October, birds of the western population migrate southwards to tropical Africa, marshes, lagoons and lakes surrounded by dense vegetation. Between August and October, birds of the western population migrate southwards to tropical Africa, returning northwards in march. These are inhabits marshes, lagoons and lakes surrounded by dense vegetation.

This bird flight is slow. Its long toes helps to walk on floating vegetation. It is most active at dawn and dusk. They feed on mainly fish, birds, snakes, lizards, larvae, grasshopper, dragonflies, bees and flies. The eggs are bluish green, the clutch is usually 4 to 5 eggs occasionally seven or eight eggs being laid.

Common name :- Indian pond heron
Family :- Ardeidae
Order :- Pelecaniformes

Genus :- *Ardeola*
Species :- *A. grayii*.

The Indian pond heron or paddy bird is a small heron. Its breeding in southern Iran and East to the India subcontinent Burma and Srilanka. They appear stocky with short neck, short thick bill and buff brown back. During the breeding season. There are record of individual with red legs.

They are very common in India, and are usually solitary foragers but number of them may sometimes feed. They are semi colonial in marshy Wetlands.

The primary food of these birds includes crustaceans, aquatic insect, fishes, tadpoles, leeches. The breeding season begins with the onset of the monsoon.

Common name :- Little egret
Scientific name :- *Egretta garzetta*
Family :- Ardeidae
Order :- pelecyaniformes
Genus :- *Egretta*
Species :- *E. garzetta*

Little egret is a white bird having slender black beak with long black legs and yellow feet in the western races.

Globally, the little egret is not listed as a threatened species and has in fact expanded its range over the last few decades. IUCN is included under "least concern".

The adult little egret is 55-65cm long with an 88-160cm wingspan and weighs 350-550gm.

The breeding range includes southern Europe, the Middle East much of Africa and southern Asia. The little egret habitat varies widely and includes the shores of lentic water bodies.

Common name :- Black Headed Ibis
Scientific name :- *Threskiornis melanocephalus*

Family :- Threskiornithidae
Order :- pelecyaniformes
Genus :- *Threskiornis*
Species :- *T. melanocephalus*.

The ibises are as group of long-legged wading birds in the family Threskiornithidae, that inhabit Wetlands, forests and plains.

Ibises all have long, down curved bills and usually feed as a group, probing mud for food items, usually crustaceans. The word Ibis comes from Latin *ibis* from Greek *ibis*, *ibis* from Egyptian.

The Australian white ibis has become as focus of art, pop culture and memes since rapidly adapting to city life in recent decades and has earned the popular nicknames "bin bird" and "tip turkey".

Common name :- Great egret.
Scientific name :- *Ardea albas*.
Family :- Ardeidae.
Order :- pelecyaniformes
Genus :- *Ardea*
Species :- *A. albas*.

The great egret also known as the common egret, large egret etc is a large, widely distributed egret, with four subspecies found in Asia, Africa, Americas and southern Europe. The great egret is a large heron with all white plumage standing up to 1m tall, this species can measure 80 to 104cm in length and have as wingspan of 131 to 170cm. Weight range from 700 to 1500g.

It has as slow flight. These are occurring worldwide in temperate and tropical habitats. It is one of partially migratory species to which the "Agreement on the conservation of African-European Migratory water birds" applies.

They feed on fish, frogs, small mammals, occasionally small reptiles, crustaceans and insects.

Common name :-Grey Heron
Scientific name :-*Ardea cinerea*
Family :- Ardeidae
Order :- Pelecaniformes
Genus :- *Ardea*
Species :- *A. cinerea*

The grey heron is a long legged wading birds of the heron family, native throughout temperature Europe and Asia.

These birds standing up to 1 meter tall, adults weigh from 1 to 2 k g. They have a white head and neck with a broad black strip. The gray heron is a large bird, standing up to 100 cm in tall and measuring 84 to 102 cm long with a 155 -195cm wingspan .The main call is a loud croaking “frank”.

The gray heron has an extensive range throughout most of the palearctic realm. More northerly parts of Europe birds migrate to south wards. It is slow flight bird.

Greyheron is apex predators in the aquatic ecosystem fish, amphibians, small mammals and insect are taken in a shallow water with heron’s long bill.

This species breeds in a colonies known as heronries, usually in the high trees close to lakes. Being a large birds with poIr beaks, gray herons have few predators as adults but the eggs and young are more vulnerable.

Common name :-Great cormorant
Scientific name :- *Phalacrocorax carbo*
Family :- Phalacrocoracidae
Order :- Suliformes
Genus :- *Phalacrocorax*
Species :- *P. carbo*

It is a large black bird, Weight is reported to vary from 1.5kg to 5.3kg to 102 cm long and 121 to 160 cm wingspan.

Northern birds migrate south and winter along any coast. In Norway the cormorant is a traditional game bird.

Many fishermen see in the great cormorant a competitor for fish because of this it was hunted nearly to extinction in the part.

This species often nests in colonies near Wetlands, rivers and sheltered inshore water this cormorant lays a clutch of three to five eggs that measure 63 by 41mm on average. These bird feeds on fish caught through diving this bird feeds primarily on wrasses, but it also takes sand smelt, flathead and common soles.

Common name :-Lesser whistling Duck
Scientific name :-*Dendrocygna javanica*
Family :- Anatidae
Order :- Anseriformes
Genus :- *Dendrocygna*
Species :- *D. javanica*

It is also known as India Whistling duck or lesser whistling teal in a species of whistling duck that breeds in the Subcontinent and Southeast Asia.

This is a chestnut brown duck is confusable only with the fulvous whistling duck but has chestnut upper tail coverts unlike the creamy white in the latter.

These species feed mainly on plants taken from the water as well as grains from cultivated rice, small fish, frogs, and invertebrates such as molluscs and worms.

The clutch varies from 7 to 12 white eggs they breed during monsoon or rainy season and may vary locally in relation to the food availability. They are not threatened by hunting as they are not considered good to eat .in the Alipore

zoological gardens captive individuals were introduced in the 1930s and wild birds joined this nucleus subsequently.

Common name :- Australasian swamp hen
Scientific name :- *Porphyrio melanotus*
Family :- Rallidae
Order :- Gruiformes
Genus :- *Porphyrio*
Species :- *P. melanotus*

The Australasian swamp hen is a species of swamp hen occurring in eastern Indonesia, Papua New Guinea, Australia and New Zealand.

These species are considered as ancestors of several island species. Includes extinct Lord Swan Hen.

In New Zealand, they are protected as native game birds meaning they may be hunted only under license during the duck shooting season. Nesting, breeding and rearing are as for the general species. Most eggs are laid between August and February with breeding reaching a peak in spring between September and December.

They live in groups of 3-12 individuals and are known together and shriek loudly to defend nests successfully during attacks by Australian harriers.

Common name :- Grey Headed Swamp Hen
Scientific name :- *Porphyrio poliocephalus*
Family :- Rallidae
Order :- Gruiformes
Genus :- *Porphyrio*
Species :- *P. poliocephalus*

It is a species of swamp hen occurring from the Middle East and the Indian subcontinent to southern China and northern Thailand.

The grey-headed swamp hen is one of 15 species in the genus *Porphyrio*. It was classified as a subspecies of *P. porphyrio* until 2015.

The male has an elaborate courtship display holding water in his bill and bowing to the female with loud chuckles.

State wildlife biologist attempted to eradicate the birds but they have multiplied and can now be found in many areas of Southern Florida.

Common name :- Black-winged Stilt
Scientific name :- *Recurvirostra tridactyla*
Family :- Recurvirostridae
Order :- Charadriiformes
Genus :- *Himantopus*
Species :- *H. himantopus*

This species has an extremely large range and hence does not approach the thresholds for vulnerable under the range size criterion. A stilt of southern Europe, Africa and Asia that is distinguished by very long pinkish red legs and plumage largely white but with black wings and upper parts.

It is distributed in India subcontinent, Asia, Africa, Australia, Europe, North America, and South America. It feeds mainly on aquatic insects but will also take molluscs and crustaceans. Adults are 33-36 cm long. They have long thin black bills and are blackish above and white below. Males have a black back often with greenish gloss. Female's backs have a brown hue, contrasting with the black rimmings.

Common name :- Brant Goose
Scientific name :- *Branta bernicla*
Family :- Anatidae
Order :- Anseriformes
Genus :- *Branta*
Species :- *Branta bernicla*

The goose is a bird that has evolved over millions of years to live near freshwater.

rivers, lakes and ponds.

Ducks are medium sized aquatic birds smaller than gees.

Its life span is Canada goose 10 -24 years swan goose 20years.

The giant Canada goose is the largest goose in the world with some individual Weighing more than 20 pounds , they can also be a long lived

They eat roots, shoots, stems, seeds, and leaves, of grass and bulbs and berries.

Common name :- Black Petrel

Scientific name :- *Procellaria parkinsoni*

Family :- Procellariidae

Order :- Procellariiformes

Genus :- *Procellaria*

Species :- *P. parkinsoni*

The black petrel also known as Parkinson's petrel is a medium sized, black plumaged petrel the smallest of the *Procellaria*.

The species is an endemic breeder of New Zealand

Black petrels occurs in subtropical waters around New Zealand, eastern Australia and the specific island.

There are just 2500 breeding pairs of black petrels and their total population, according to bird life from wildlife management international is, some are between 11000 and 21000 birds. They feed on squid and small fishes.

Black petrels are come from offshore islands in northern New Zealand.

Petrel means any of numerous sea birds. It is the medium sized petrel with wingspan average 110cm.

Common name :-Mallard

Scientific name :-*Anas platyrhynchos*

Family :- Anatidae

Order :- Anseriformes

Genus :- *Anas*

Species :- *A. platyrhynchos*

The mallard or wild duck is a dabbling duck that breeds throughout the temperate and subtropical Americas. Life span is 8-10 years.

Mallards are large ducks with hefty bodies rounded heads and wide, flat bills

Mallards ducks are the most common and recognizable wild ducks in the northern hemisphere we'll find mallard ducks near ponds, marshes streams and lakes

The habitat typically use shallow Wetlands and lakes but they will inhabit almost any fresher water habitat

The diet is plant material, including seeds, stems and roots of vast variety of different plants.

It can be found almost anywhere of freshwater across Asia, Europe and north America

They are also found in sea water and brackish water.

Common name :- Red Wattled Lapwing

Scientific name :-*Vanellus indicus*

Family :- Charadriidae

Order :- Charadriiformes

Genus :- *Vanellus*

Species :- *V. indicus*

The Red Wattled Lapwing is an Asian lapwing. The Red Wattled Lapwing was first described in a book by the French polymath.

Red Wattled Lapwing are large waders, about 35 cm long

Wings are light brown in colour with purple to green sheen and back of the neck is black.

Males and females are similar in plumage but males have a 5% longer wing and tend to have a longer carpal spur

The length of the bird is 320 to 350 mm, wings of 208 – 247 mm with the nominate averaging 223 mm, Sri Lanka . 217 mm

Tail length is about 104 – 128 mm.

Common name :- Asian Openbill

Scientific name :- *Anastomus oscitans*

Family :- Ciconiidae

Order :- Ciconiiformes

Genus :- *Anastomus*

Species :- *A. oscitans*

The Asian open bill stork is pre dominative greyish or white with glossy black wings and tail that have a green or purple sheen

The tail consists of features and the preen gland has a tuft

The usual foraging habitats are inland Wetlands and are only rarely seen along river banks and tidal flats

The Asian open bills feeds mainly on large mollusks, especially pila species.

It is reaching up to five feet tall with an eight – foot wingspan, shoebills have yellow eyes, grey feathers, white billers, and a small feathered crest on the back of their heads.

Common name :- Eastern Great egret

Scientific name :- *Ardea alba modesta*

Family :- Ardeidae

Order :- Pelecaniformes

Genus :- *Ardea*

Species :- *A. alba*

Sub species :- *Ardea alba modesta*

The Eastern Great egret, a White Heron in the genus *Ardea*

Eastern – great egret is seen in lakes, rivers and swamps to estuaries, salt marsh and intertidal

mudflats.

It is 83- 103 centimeters in length and weighing 0.7-1.2 kilograms

Its bill is black in the breeding season and yellow at other times and its long legs are red or black.

The eastern great egret has a wide distribution throughout Asia and Oceania, with breeding population in Australia, Bangladesh, China, Nepal and India.

The diet consists of fish, frogs, small reptiles, small birds, rodents, insects, crustaceans and molluscs.

Common name :- Eurasian Coot

Scientific name :- *Fulica atra*

Family :- Rallidae

Order :- Gruiformes

Genus :- *Fulica*

Species :- *F. atra*

The Eurasian Coot also called as common coot or Australian coot.

This bird is found in European countries and parts of North Africa.

It has a salty black body, a glassy black head and white bill with white frontal shield, the sexes are similar.

The Eurasian coot is 36 to 38cm in length with a wing span is 70 to 80cm.

Male bird weighs around 890 gm and females around 750 gm.

The Eurasian coot is noisy bird with a wide repertoire of crackling explosive.

The coot breeds in fresh water lake and ponds. It breeds in Europe, Asia, Australia and Africa.

Dayananda¹⁶ studied the diversity and abundance of wetland birds in Gudavi bird sanctuary of Sorab, Karnataka. He recorded a total of 61 species of birds belonging to 14

families in the 05 years study at Gudavi wetlands. Among them 42.62% are piscivores, 34.43% insectivores and 22.95% omnivores.

During the study period, a total bird species nearly 19 species are identified in the 4 villages pond, namely Gowdan kere, Kavvalli kere, Pumpas kere, Halsuru kere,

There are 6 migratory birds, Endangered birds 3, hover species diversity was not uniform across the study area the high disparity in species counts from 3 areas could be an effect of both habitat differences and heterogeneity and inconsistent sampling effort identified species namely Squacco Heron, Purple Heron, Indian Pond Heron, Little Egret, Ibis, Great Egret, Grey Heron, Great Cormorant, Lesser Whistling Duck, Australian Swamp Hen, Grey Headed Swamp Hen, Goose bird, Black Petrel, Mallard, *etc.*

The four study sites presently face relatively small amount of Anthropogenic pressure from surrounding settlement because of low human density, large portion of study area, the local people dislike it as it does not support any cattle palatable plants which restrict them from grazing in these areas. Heightened scientific attention to the area could be used for increasing awareness about biodiversity conservation locally some places in study area, which I believe specially rich in bird fauna.

To advance the preservation of water birds in America, the Water bird Conservation for the Americas was sent off to work with this over such a huge region. The reason for this drive is to advance worldwide collaboration and association to safeguard water bird living

spaces, make long haul manageability plans, carry out unambiguous preservation plans for areas, and backing legitimate activity for water bird protection on the local and public levels.

The deficiency of wetlands has affected water birds and is driving their elimination in districts where wetlands are contaminated. The ascent of urbanization and businesses has brought about contamination and waste in the water. Moreover, recovery projects for development further undermine destroying the environments of these birds.

These wetlands attracted indigenous as well as migratory bird species. The bird diversity may be attributed to the volume of water, storage, food and assured protection to these birds. Wetland birds should be conserved by controlling encroachment, pollution and anthropogenic activities. This provides an overview of status of wetland birds in the study area.

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