

BIODIVERSITY OF WETLAND BIRDS IN NILAMEL AND CHADAYAMANGALAM, KOLLAM, KERALA



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Abstract: Wetlands are lands transitional between terrestrial and aquatic eco-systems. Wetlands are the most productive and the most biologically diverse of all ecosystems. They are extremely important areas throughout the world for wildlife protection. Kerala is well-known for its wetlands. The objective of my work was to understand the diversity of wetland birds in Chadayamangalam and Nilamel area. These areas are blessed with large stretches of wetlands in the form of paddy fields, ponds and canals. For the present study wetland birds were observed for a period from July to December 2012. The observations were made with the help of binoculars also. Their colour pattern, markings, sounds were noted down and photographs were taken and the birds were identified. During the field observation I could come across 14 species of wetland birds. They include 1. Cattle Egret (*Bubulcus ibis*), 2. The Little Egret (*Egretta garzetta*), 3. The Eastern Great Egret (*Ardea alba modesta*), 4. The Eastern Reef Heron (*Egretta sacra*), 5. Black-crowned Night Heron (*Nycticorax nycticorax*), 6. Yellow-wattled Lapwing (*Vanellus malabaricus*), 7. Indian Pond Heron (*Ardeola grayii*), 8. White breasted kingfisher (*Halcyon smyrnensis*), 9. Small blue kingfisher (*Alcedo atthis*) and 10. Red-wattled Lapwing (*Vanellus indicus*). 11. The Indian Cormorant or Indian Shag (*Phalacrocorax fuscicollis*) 12. The Purple Heron (*Ardea purpurea*) 13. The Grey Heron (*Ardea cinerea*), 14. The Pheasant-tailed Jacana (*Hydrophasianus chirurgus*). The results of the present study suggests that these areas form an important habitats for a variety of bird species. Wetlands in India, as elsewhere, are facing tremendous anthropogenic pressures, which can greatly influence the structure of bird community. In these circumstances, it is important to see that the wetland habitats of various water birds are properly conserved through scientific management.

Key words: Wetland, Wild life, Habitat, Ecosystem, Feeding and breeding areas

INTRODUCTION

Wetlands are lands transitional between terrestrial and aquatic eco-systems where the land is covered by shallow water either permanently or seasonally. They play a number of roles in the environment, in water purification, flood control, and shoreline stability (Wikipedia). Wetlands are the most productive and the most biologically diverse of all ecosystems, serving as home to a wide range of plants and animals. There are a number of species which are endemic to wetlands and are hotspot of biodiversity. They improve water quality by filtering out pollutants so wetlands are known as “kidneys” of the earth. Wetlands are extremely important areas throughout the world for wildlife protection. They form feeding and breeding areas for wildlife and provide a stopping place and refuge for waterfowls. Wetlands are valuable source of food, medicines

and materials that support human populations and economies (Kler, 2002). Wetlands also provide opportunities for recreation, tourism, cultural practices and aesthetic appreciation. The predominant wetland in India include flood plains of major rivers, estuaries, saline expanses, freshwater lakes, backwaters, mangroves, tanks, marshes, swamps, paddy fields, and man-made water bodies like reservoirs. These wetlands are under threat due to encroachment, silting, weed infestation, pollution, and indiscriminate development of aquaculture. The combined threat of these factors have given rise to problems such as decrease in biological diversity, deterioration of water quality, sedimentation and shrinkage in area. It has also led to decrease in migratory bird populations, fish and other faunal productivity and prolific growth of invasive aquatic weeds.

METHODOLOGY

For the study large stretches of wetlands in the form of paddy fields, ponds and canals in Nilamel and Chadayamangalam area were selected. Wetland birds were observed in this area for a period from July to December 2012. The observations were made with the help of binoculars also. Their colour pattern, markings, sounds were noted down and photographs were taken and the birds were identified.

RESULTS

During the observation I could come across 14 species of wetland birds

1. Cattle Egret (*Bubulcus ibis*)

Phylum: Chordata, Class: Aves, Order: Pelecaniformes, Family: Ardeidae

Genus: *Bubulcus*, Species: *ibis*

The Cattle Egret (*Bubulcus ibis*) is a cosmopolitan species of heron. In India it is common in a variety of habitats like seasonally inundated grasslands, farmlands, wetlands and paddy fields (Seedikkoya *et al.*, 2002). Freshwater marshes and paddy fields were identified as the most important foraging habitats, Paddy fields were used heavily during wet seasons, but as they became drier, very few birds visit this habitat.

2. The Little Egret (*Egretta garzetta*)

Phylum: Chordata, Class: Aves, Order: Ciconiiformes,

Family: Ardeidae, Genus: *Egretta*, Species: *E. garzetta*

The Little Egret (*Egretta garzetta*) is a small white heron. It is found in wetlands of Europe, Africa, Asia and Australia. The adult is about 55–65 cm long and has long black legs with yellow feet and a slim black bill. Little Egrets eat fish, insects, amphibians, crustaceans, and reptiles. They are mostly silent but make various croaking and bubbling calls at their breeding colonies and produce a harsh alarm call when disturbed.

3. The Eastern Great Egret (*Ardea alba modesta*)

Phylum: Chordata, Class: Aves, Order: Pelecaniformes, Family: Ardeidae

Genus: *Ardea*, Species: *alba*

The Eastern Great Egret (*Ardea alba modesta*), is a large white heron which measures about 83–103 cm in length and 0.7–1.2 kg in weight. Its bill is yellow in the breeding season and black at other times, and its long legs are red or black. The colours of the bare parts change during the breeding season. The breeding plumage is also marked by long neck plumes and a green facial area (Verma *et al.*, 2004). The Eastern Great Egret has a wide distribution throughout Asia and Oceania. The diet includes vertebrates such as fish, frogs, small reptiles, small birds and rodents, and invertebrates such as insects, crustaceans, and molluscs.

4. The Eastern Reef Heron (*Egretta sacra*)

Phylum: Chordata, Class: Aves, Order: Pelecaniformes, Family: Ardeidae

Genus: *Egretta*, Species: *sacra*

The Eastern Reef Heron (*Egretta sacra*), is also known as the Pacific Reef Egret or Eastern Reef Egret. They are found in many areas of Asia including the oceanic region of India, Southeast Asia, Japan, Polynesia and in Australia, Tasmania and New Zealand. Pacific Reef Herons are medium-sized herons, reaching 57 to 66 cm in length (Verma *et al.*, 2004). The species displays an unusual, non-sexual dimorphism, with some members having entirely white plumage and others with charcoal-grey. Eastern Reef Egrets have very short, yellow legs, and the grey variety's throats and chins are marked by a narrow, white stripe. They have brown beaks, gold-yellow coloured eyes with greenish to yellow surrounding areas of faces. Their food include predominantly fish, crustaceans and molluscs.

5. Black-crowned Night Heron (*Nycticorax nycticorax*)

Phylum: Chordata, Class: Aves, Order: Pelecaniformes, Family: Ardeidae

Genus: *Nycticorax*, Species: *nycticorax*

The Black-crowned Night Heron (*Nycticorax nycticorax*), is a medium-sized heron found throughout the world, except in the coldest regions and Australasia. Adults are approximately 64 cm long. They have a black crown and back and the remainder of the body white or grey, red eyes, and short yellow legs.

They have pale grey wings and white under parts. They mainly eat small fish, crustaceans, frogs, aquatic insects, small mammals and small birds. During the day they rest in trees or bushes. They are very noisy birds in their nesting colonies, with *quok* or *woc* calls.

6. Yellow-wattled Lapwing (*Vanellus malabaricus*)

Phylum: Chordata, Class: Aves , Order: Charadriiformes, Family: Charadriidae

Genus: *Vanellus*, Species: *malabaricus*

The Yellow-wattled Lapwing (*Vanellus malabaricus*) is a lapwing that is endemic to the Indian Subcontinent. It is called *Manjakanni* in Malayalam. It is found mainly on the dry plains of India and has a sharp call and is capable of fast flight. They are medium-sized pale brown waders with a black crown which is separated from the brown on the neck by a narrow white band and large yellow facial wattles. The chin and throat are black and the brown neck and upper breast is separated from the white belly by a narrow blackish line. They are dull grey brown with a black cap, yellow legs and a triangular wattle at the base of the beak (Sethi *et al.*, 2010). The tail has a sub terminal black band which does not extend into the outer tail-feathers. The food of the Yellow-wattled Lapwing is beetles, termites and other invertebrates, which are picked from the ground.

7. Indian Pond Heron (*Ardeola grayii*)

Phylum: Chordata, Class: Aves, Order: Pelecaniformes Family: Ardeidae

Genus: *Ardeola* , Species: *grayii*,
Species: *V. malabaricus*

The Indian Pond Heron or Paddybird (*Ardeola grayii*) is a small heron and is very common in India. They are with a short neck, short thick bill and with cryptic streaked olive and brown coloured body. During flight the white colour of the wings can be clearly visible. Its feeding habitat is marshy wetlands (Pandey and Deep Narayan, 1991)..

They feed crustaceans, aquatic insects, fishes, tadpoles and sometimes leeches. Outside wetlands, these herons feed on insects amphibians etc (Santharam, 2003).

8. White breasted kingfisher (*Halcyon smyrnensis*)

Phylum: Chordata, Class: Aves,
Order: Coraciiformes, Family: Halcyonidae

Genus: *Halcyon* Species: *smyrnensis*

White breasted or white throated kingfisher is most common kingfisher found throughout India (Reginald *et al.*, 2003). They have white coloured throat and breast, chocolate brown head, neck and under parts. The white wing patch is visible during flight. The adult kingfisher has a bright blue back. It have a long, heavy pointed bill to hammer their prey to death. It is one of the noisy birds making loud cackling kil-kil call .Its large bill and legs are bright red in colour. White throated kingfisher feeds on fish, tadpoles, lizard, grasshoppers, and insects (Verma *et al.*, 2004).

9. Small blue kingfisher (*Alcedo atthis*)

Phylum: Chordata, Class: Aves, Order: Coraciiformes, Family: Halcyonidae , Genus: *Alcedo*, Species: *atthis*

Small blue kingfisher is widely distributed throughout India. Its dorsal body colour is blue and green, with deep rust coloured under parts. It reaches a maximum length of 18 cm with short stumpy tail and a long straight pointed bill..Small blue kingfisher feeds mainly on small fish, tadpole, aquatic insects etc. They produce sharp chichee-chichee calls.

10. Red-wattled Lapwing (*Vanellus indicus*)

Phylum: Chordata, Class: Aves, Order: Charadriiformes,Family: Charadriidae

Genus; *Vanellus*, Species: *indicus*

The Red Wattled Lapwing (*Vanellus indicus*) is a long-legged wading bird. It is sometimes nicknamed the 'did-you-do-it' bird because its call sounds thus to the human ears. These birds are mostly seen in wetland regions in southern Asia. They are large in size with a length of 35 cm. The wings and back of are light brown. The head, chest and the front part of the neck are black. The upper face, the rest of the neck, flanks, belly are white. Short tail is tipped black. There is a red fleshy wattle in front of each eye. The bill is red and black tipped. The long legs

are yellowish. When they fly, a prominent white V-shaped wing bar appears on the wing.

11. The Indian Cormorant or Indian Shag (*Phalacrocorax fuscicollis*)

Phylum: Chordata, Class: Aves, Order: Suliformes, Family: Phalacrocoracidae,

Genus: *Phalacrocorax*, Species: *fuscicollis*

It is found mainly along the inland waters of the Indian Subcontinent but extending west to Sind and east to Thailand and Cambodia (Verma *et al.*, 2004). It is a gregarious species that can be easily distinguished from the similar sized Little Cormorant by its blue eye, small head with a sloping forehead and a long narrow bill ending in a hooked tip. This medium sized bronze brown cormorant has black on the upper plumage, lacks a crest and has a small and slightly peaked head with a long narrow bill that ends in a hooked tip. The eye is blue and bare yellow facial skin during the non-breeding season. Breeding birds have a short white ear tuft. In some plumages it has a white throat but the white is restricted below the gape unlike in the much larger Great Cormorant.

12. The Purple Heron (*Ardea purpurea*)

Phylum: Chordata, Class: Aves,
Order: Pelecaniformes, Family: Ardeidae,

Genus: *Ardea*, Species: *purpurea*

The Purple Heron (*Ardea purpurea*) is a wading bird in the heron family Ardeidae, breeding in Africa, central and southern Europe, and southern and eastern Asia. The European populations are migratory, wintering in tropical Africa; the more northerly Asian populations also migrate further south within Asia. It is somewhat smaller than the Grey Heron, from which it can be distinguished by its darker reddish-brown plumage, and, in adults, darker grey back. It has a narrower yellow bill, which is brighter in breeding adults. It feeds in shallow water, spearing fish, frogs, insects and small mammals. It has a slow flight, with its neck retracted. The long neck of Purple Heron looks particularly snake-like, with more of an S-shape in flight. The call is a loud croaking “krek”.

13. The Grey Heron (*Ardea cinerea*)

Phylum: Chordata, Class: Aves,
Order: Pelecaniformes, Family: Ardeidae

Genus: *Ardea*, Species: *cinerea*

The Grey Heron (*Ardea cinerea*), is a native throughout temperate Europe and Asia and also parts of Africa. It is resident in the milder south and west, but many birds retreat in winter from the ice in colder regions. It is a large bird, standing up to 100 cm tall and measuring 84–102 cm long with a 155–195 cm wingspan. Its plumage is largely grey above, and off-white below. Adults have a white head and slender crest, while immatures have a dull grey head. It has a powerful, pinkish-yellow bill, which is brighter in breeding adults. It has a slow flight, with its long neck retracted (S-shaped). The call is a loud croaking “fraaank”.

14. The Pheasant-tailed Jacana (*Hydrophasianus chirurgus*)

Phylum: Chordata, Class: Aves,
Order: Charadriiformes, Family: Jacanidae

Genus: *Hydrophasianus*, Species: *chirurgus*

The Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) is capable of swimming, although it usually walks on the vegetation. The females are more colourful than the males and are polyandrous. The Pheasant-tailed Jacana breeds in India, southeast Asia, and Indonesia. It has a pheasant-like tail. Breeding adults are mainly black other than white wings, head, and fore neck (Verma *et al.*, 2004). The hind neck is golden. There is a striking white eyestripe. The legs and toes are grey. Non-breeding adults lack the long tail. The underparts are white except for a brown breast band and neck stripe. The side of the neck is golden. Its food include insects and other invertebrates picked from the floating vegetation or the water’s surface.

DISCUSSION

Wetlands are among the most productive and biologically diverse ecosystems in the world. They are extremely important areas for wildlife protection. Birds are the most important inhabitants of wetland ecosystem. They form feeding, nesting and breeding areas for wildlife and provide stopping place and refuge for waterfowls.

Kerala is well-known for its wetlands. Water birds are important component of most of the wetland ecosystems as they occupy several trophic levels in the food web of wetland. The area selected for the present study Chadayamangalam and Nilamel are blessed with wetlands in the form of large areas of paddy fields, ponds and canals. During my study I could come across 14 species of wetland birds. This shows that these wetland areas are the abode of different species of wetland birds. Conservation of such areas is important in maintaining ecological equilibrium. Of the 1230 bird species found in India, around 23% are totally wetland dependent.

As elsewhere, in India also wetlands are increasingly facing several anthropogenic pressures which are adversely affecting the ecosystem and the structure of bird community (Kler, 200; Reginald *et al.*, 1991; Verma *et al.*, 2008). Conversion of wetlands to croplands, fragmentation of existing water bodies, poaching, excessive aquaculture, boating; pollution from household wastes, domestic and municipal sewage as well as fertilizers, pesticides, detergents and large scale discharge of toxic industrial effluents are the main causes for the present decline in population of water birds in the wetlands (Sengupta *et al.*, 2002). When hydrologic conditions in wetlands change even slightly, the biota may respond with massive changes in species composition and richness and in ecosystem productivity. However, years of uncontrolled encroachment have degraded many wetlands. Wetlands also provide opportunities for recreation, tourism, cultural practices and aesthetic appreciation. Conservation of these habitats are essential for preserving and maintaining the species diversity and ecological equilibrium. For better and effective utilization of the wetlands make local people aware of the role of the wetlands in the welfare of humans. Effective implementation of Wildlife protection Act is essential to prevent hunting of birds and public awareness should be created to protect our invaluable wetland resources.

SUMMARY AND CONCLUSIONS

Wetlands are natural ecosystems which are essential for maintaining ecological equilibrium.

They are useful to man in many ways. However, years of uncontrolled encroachment have degraded many wetlands. In this study I could observe 14 species of wetland birds from paddyfields and adjacent ponds and canals suggesting these areas form an important habitats for a variety of bird species. Our invaluable resource- wetlands are to be protected at any costs. Planned restoration is a useful tool to protect, improve, increase wetlands and return them to their natural state thus ensuring continuing environmental health.

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