

Survey and study of water birds in Hygam and Wular-Wetlands of Jammu and Kashmir (India)

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Abstract

The present paper shows the species diversity and richness of waterbirds in Hygam and Wular wetlands of jammu and kashmir. The study was conducted during December, 2014-February, 2015 winter season. The study sites were stratified visually into distinguishable habitat categories. Sampling for each site was done by direct count. The observations revealed that the wetland(wular) provides habitat for 20 species of waterbirds belonging to 6 orders and 8 families, including 13 species are winter visitor and 7 species are widespread resident (R). The highest density was observed at site III (shahgund) followed by site IV(Zalwan), site I(Ningli) and site II(Watlab). Order Anseriformes has the maximum species diversity followed by Charadriiformes, Coraciiform and so on. In Hygam wetland, 16 Species of water birds belonging to 5 orders, 6 families and 12 genera were recorded during these periods. Species diversity and species richness of the identified waterbirds showed variation between the sites in Hygam wetland also. Here the highest density was observed at site1(Hanjipora-14Species) followed by the site2(Akhoodpora-14Species). Of the total identified birds purplemoorhen were counted highest at site1(100) followed by mallard at site2(90species). The other species observed were Common Teal(80)at site1 and (60) at site2. Northern pintale, Gadwall, Eurasian wigeon, Northern shoveller, Greyleg geese were also observed throughout the wetland. About 54% of the water bird species recorded from Wular and 56% from Hygam were migratory. Based on the observation, few conservation measures were suggested.

KEYWORDS: Wular, wetland, water birds, population, conservation, threats, lake, Kashmir.

INTRODUCTION

Wetlands are defined as lands transitional between terrestrial and aquatic ecosystem where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands provide home for a large diversity of wildlife including birds, mammals, fish, amphibians, insects and plants [1]. Wetlands in India cover an area of 58.2 million hectares [2]. Approximately 23% (310 of 1340) of the bird species found in India [3] are known to be dependent on wetlands [4]. The preparation of a list of species is basic to the study of avifauna of a site, because a list indicates basic species presence [5]. Past studies have documented the birds communities of different wetland habitats in India [6, 7, 8, 9, 10]. Eleven of 21 Important Bird Areas in the Jammu and Kashmir regions of India fulfill Ramsar criteria and four wetlands are designated as Ramsar sites [11]. The Kashmir-Himalayan valley, well known for its diversity of wetlands has also witnessed increased environmental deterioration due to anthropogenic activities. Overexploitation of resources (e.g., harvesting, fishing, and hunting) of several Kashmir wetlands has caused decline or the near disappearance of many plant and animals species [12]. The major threats to wetlands of Jammu and Kashmir include increased siltation, eutrophication due to run-off from catchments, agricultural conversion, receding open water areas as a result of expanding reed beds, construction of canals, weirs, levees and over-grazing [13].

STUDY AREA

Study Area 1 (Hygam Wetland Reserve)

The Hygam Wetland Conservation Reserve or Hygam Rakh as it is locally called is the largest remaining reed bed in the Kashmir valley, being of major ornithological importance. Hygam is named after a village of the similar name. The wetland is 40 km from Srinagar, the state capital and located in district Baramulla (34015'N, 74031'E) of Jammu & Kashmir state on the flood plains of river Jhelum at an altitudinal height of 1580 m asl. It was notified as a game reserve for duck shooting as far back as 1945. Earlier the area was about 14 km² with reed beds of about 4 km² (Holmes & Parr, 1988) but now the total reserve has shrunk to 7.25 km². The wetland is maintained by the Department of Wildlife Protection, Jammu & Kashmir and is the only extensive marsh discernible in association with artificial reservoir of lower Jhelum hydroelectric projects at Gantmulla.



(Hygam Wetland)



(Swans in Hygam Wetland)

STUDY AREA 2

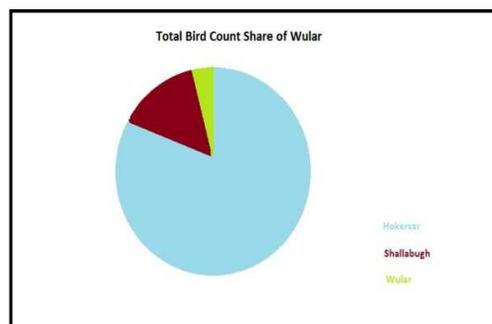
Wular lake



The study was also carried out in Wular Lake (34° 15' & 34° -28' N, 74°34' & 74°45' E), One of the largest fresh water lakes in Asia. The lake is located in Bandipora District in Indian state of J&K, about 40 Km north-west of Srinagar. It's size varies seasonally from 12-100 square miles (30-260 Square kilometers). There is a considerable dispute about the size of this lake. As per the directory of wetlands of India, the area has been shown to be only 189 ha, while the survey of India maps indicate the lake area to be 5,870ha in winter of 1978. According to a study, the area at maximum flood level has decreased from the original 27,300ha to 17,00 ha. The revenue records show that the lake area is 13,00ha (Baba, undated). The lake is fed by river Jhelum. The maximum depth of the lake is 14 meters, the climate is cold and temperate, with temperature remaining below 0°C during winter (December – February) but rising during the rest of the year to 20°C 25°C (May-June). Annual precipitation varies from 900 mm to 1000 mm annually and begins from June –July and continues till the end of August.



(Wular)



MATERIALS AND METHODS

To know the status of waterbirds in Wular and Haigam lake, a study was conducted during winter (Dec, 2014-Feb, 2015) season. Observations were made from 6:00 am to 9:00 am

(when they come out from their resting places) and 6:00 pm to 7:00 pm (when they approach towards their resting place). As in winter the flock is no more than a few hundred birds, all were counted from vantage point through binoculars. Data was collected regarding the composition of flock and population of individual species (species-wise count).

Double counting was avoided by recording the birds that flew into and out of the plots during the census. Counts were not made on days with rain and snowfall and strong wind. Although point count method was adopted in initial stage of the survey, it was later discarded due to its inapplicability in wetland ecosystems. Vantage points were selected based on the best visibility of the site. Care was taken that their fields of vision do not overlap. Each site was assigned a fixed view point. From each fixed point, area was scanned for bird flocks. Counting was done with the aid of a 10 x 80 field binoculars and 29x spotting scope.

RESULTS AND DISCUSSION

The observations revealed that the wetland(wular) provides habitat for 20 species of waterbirds belonging to 6 orders and 8 families, including 13 species are winter visitor and 7 species are widespread resident (R). The highest density was observed at site III (shahgund) followed by site IV(Zalwan), site I(Ningli) and site II(Watlab). Whereas, the species evenness was highest at site II followed by site I, site IV and site III. Order Anseriformes has the maximum species diversity followed by Charadriiformes, Coraciiform and so on. In Hygam wetland, 16 Species of water birds belonging to 5 orders, 6 families and 12 genera were recorded during these periods. Species diversity and species richness of the identified waterbirds showed variation between the sites in Hygam wetland also. Here the highest density was observed at site1(Hanjipora-14Species) followed by the site2(Akhoodpora-14Species). Of the total identified birds purplemoorhen were counted highest at site1(100) followed by mallard at site2(90species). The other species observed were CommonTeal(80)at site1 and (60) at site2. Northern pintale, Gadwall, Eurasian wigeon, Northern shoveller, Greyleg geese were also observed throughout the wetland. About 54% of the water bird species recorded from Wular and 56% from Hygam were migratory.

Birds identified in Wular Lake during the study

| Order | Family | Common/Scientific Name | Status | | |
|--------------|----------|--|------------------|--|--------|
| Anseriformes | Anatidae | Northern Pintail (<i>Anas acuta</i>) | LC(WM) | | |
| | | Northern Shoveler (<i>Anas clypeata</i>) | LC(WM) | | |
| | | Common Teal (<i>Anas crecca</i>) | LC(WM) | | |
| | | Eurasian Wigeon (<i>Anas pnelope</i>) | LC(WM) | | |
| | | Common Mallard (<i>Anas platyrhynchos</i>) | LC(WM) | | |
| | | Gadwall (<i>Anas strepera</i>) | LC(WM) | | |
| | | Greyleg Goose (<i>Anser anser</i>) | LC(WM) | | |
| | | Red Crested Pochard (<i>Netta rufina</i>) (<i>Anas crecca</i>) | LC(WM) | | |
| | | Gruiformes | Rallidae | Common Coot (<i>Fulica atra</i>) | LC(WM) |
| | | | | Indian Moorhen (<i>Gallinula chloropus</i>) | LC(R) |
| | | Charadriiformes | Recurvirostridae | Black-Winged Stilt (<i>Himantopus</i>) | LC(R) |

| | | | |
|------------------|---------------|--|--------|
| | | himantopus) | |
| | Scolopacidae | Common Sandpiper (<i>Actitis hypoleucos</i>) | LC(WM) |
| | | Common Snipe (<i>Gallinago gallinago</i>) | LC(WM) |
| Coraciiformes | Alcedinidae | Common Kingfisher (<i>Alcedo atthis</i>) | LC(R) |
| | | Pied Kingfisher (<i>Ceryle rudis</i>) | LC(R) |
| | | White-Throated Kingfisher (<i>Circus aeruginosus</i>) | LC(R) |
| Podicipediformes | Podicipedidae | Little Grebe (<i>Tachybaptus ruficollis</i>) | LC(WM) |
| Ciconiiformes | Ardeidae | Grey Heron (<i>Ardea cinerea</i>) | LC(WM) |
| | | Indian Pond-Heron (<i>Ardeola grayii</i>) | LC(R) |
| | | Little Egret (<i>Egretta garzetta</i>) | LC(R) |

Characters of Key species found in Wetlands

1) MALLARD

Classification:

Scientific Name: *Anas platyrhynchos*

Phylum: Common Chordata

Class: Aves

Family: *Anatidae*

Genus: *Anas*

Species: *platyrhynchos*



Diagonostic Characters

Mallard is one of the many bird species originally described by carli linnaeus in his book *Systema Nature* and still bears its original binomial name. The mallard is a medium sized water fowl species although is often slightly heavier than most other dabbling ducks. It is 50-65cm long, has a wingspan of 81-98cm and weighs 0.72-1.58kg. The male birds (Drakes) have a glossy green head and are grey on wings and belly, while the females (hens or ducks) have mainly brown plumage. Both Genders have an area of white – bordered black specular

Diet and Behaviour

Mallard eat water plants and small animals and are social animals preferring to congregate in groups or flocks of varying sizes. The species is the ancestor of most breeds of domestic ducks.

2) Common Teal

Classification:

Scientific Name: *Anas crecca*

Phylum: Chordata

Class: Aves

Order: Anseriformes

Family: *Anatidae*

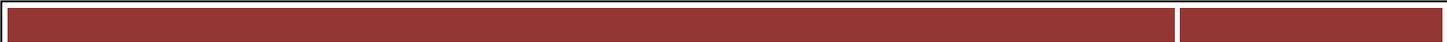
Genus: *Anas*

Species: *crecca*



Diagonostic Characters

The common teal or Eurasian teal is common and wide spread duck which breeds in temperate eurasia and migrates to south in winter. It is the smallest extant dabbling duck at 20-30cm length and with an average weight of 340 grams in drake and 320 grams in hens.



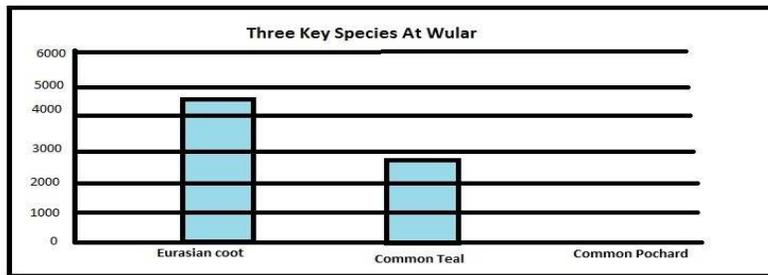
Wings are 17.5-20.4 cm long, yeilding a wing span of 53-59 cm. The bill measures 3.2-4 cm in length and the tarsus 2.8-3.4 cm.

Diet and Behaviour

The teal is a highly gregarious duck outside the breeding season and can form large flocks. It feeds on seeds and aquatic invertibrates.

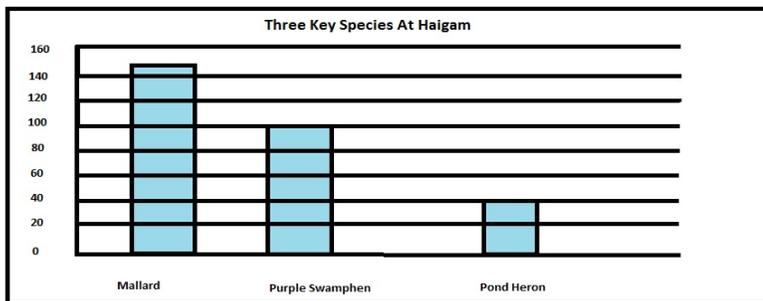
Key species with numbers sighted during study- Site (Wular)

- 1) Eurasian coot 4,800
- 2) Common Teal 2,800
- 3) common pochard 15



Key Species with numbers sighted during Study- Site (Hygam)

- 1) Mallard 150
- 2) Purple swamphen 100
- 3) Pond Heron 40



Conclusion

The occurrence of an average population of 20 waterbird species in wular and 16 in Hygam during the study period is, perhaps, an indication of the fact that in near future the Wular Lake and Hygam wetlands becomes a favorable habitat for waterbirds. In spite of their importance, both ecological and socio-economic, the Wular Lake and Hygam has received little attention. We recommend initiating a detail study on population status of waterbirds with periodic monitoring in Wular Lake and Hygam for their future conservation and management

REFERENCES

1. Buckton, S. (2007). Managing wetlands for sustainable livelihoods at Koshi Tappu. *Danphe* 16,12-13.
2. Prasad, S.N., Ramachandra, T.V., Ahalya, N., Sengupta, T., Kumar,A., Tiwari, A.K., Vijayan, V.S. & Vijayan, L.(2002).
Conservation of wetlands of India- A review. *Tropical Ecology* 43,173-186.
3. Manakadan, R & Pittie, A. (2001). Standardized common and scientific names of the birds of the Indian subcontinent.
Buceros, 6, 1-37.
4. Kumar, A., Sati, J.P., Tak, P.C & Alfred, J.R.B. (2005). Handbook on Indian waterbirds and their conservation. *Zoological Survey of India*, 472.
5. Bibby, C., Jones, M. & Marsden, S. (1998). Expedition Field Techniques: *Bird Surveys*, Expedition Advisory Centre.
Royal Geographical Society, London.
6. Zargar, A. R & Naqash R. Y. (1993). Waterfowl Census Report Dept. of Wildlife Protection, Govt. of Jammu and Kashmir, Srinagar.
7. Imran, D & Mithas, D. (2009). Seasonal Variations of Avifauna of Shallabug Wetland, Kashmir. *Journal of Wetlands Ecology*,2, 20-34.
8. Kumar, P & Gupta, S.K. (2009). Diversity and abundance of wetlands birds around Kurukshetra, India. *Our nature*, 7, 212-217.
9. Tak, P.C., Sati, J.P.& Rizvi, A.N.(2010). Status of waterbirds at Hathnikund Barrage wetland, Yamunanagar District, Haryana, India. *Journal of Threatened Taxa*, 2, 841-844.

10. Acharya, B.K., L. Vijayan & B. Chettri (2010). The bird community of Shingba Rhododendron wildlife Sanctuary, Sikkim, Eastern Himalaya, India. *Journal of Tropical Ecology*, 52, 149-159.
11. Islam, Z.M and Rahmani A. R. (2004). Important Bird Areas in India: Priority sites for conservation. *J.Bom.Nat, His*.
12. Khan, M.A., Shah, M. A., Mir, S.S. & B, Suzana. (2004). The environmental status of a Kashmir Himalayan wetland game reserve: aquatic plant communities and eco- restoration measures. *Research and Management*, 125-132.
13. Bacha, M.S. (2002). Central Assistance for Hokersar Critical Wetland. Final Report Department of Wildlife Protection, Srinagar, Jammu and Kashmir.
14. Grimmet, T., Inskipp & Islam M.Z. (2004). *Birds of Northern India. Christopher Helm A and C Bleak Publishers Ltd.London*.
15. Verner, J. (1985). Assessment of counting techniques. In: Johnson, R. F (Eds) 1985. *Current Ornithology*, 2, 247-302.
16. Bird Life International (2009). In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <<http://www.iucnredlist.org/>>. (09 January 2012).
17. Foziah, A. (2009). Study on waterfowl population and human use of Hokersar and Hygam wetlands of Kashmir valley for conservation planning. Ph.D. Thesis Saurashtra University Rajkot (Gujarat), pp 245.
18. Rana, S.V.S. (2005). Essentials of Ecology and Environmental Science. 2nd edn .Prentice-Hall of India private Ltd., New Delhi.
19. Reyaz, H & Yousuf, A. R. (2005). Ecology of Macrozoobenthic Community in the Wular Lake, Kashmir. *Journal of Research and Development*, 5, 87-92.
20. Bashir, S., Yousuf, A. R & Shah, A. M. (2003). Effect of Bird foraging on dynamics of plant community in Hokersar wetland Kashmir. *Journal of research and development*, 3, 109-115.