

AVIFAUNA OF MAYANI DAM: AN ENDANGERED WETLAND OF INTERNATIONAL IMPORTANCE

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Abstract:

Birds are ideal bioindicators and useful model for studying variety of environmental problems. Observation of Mayani wetland is helpful in deciding national conservation strategies. BNHS, Mumbai, had organized bird counting program to identification, documentation, protection and management of avifauna and wetland. Avifauna at the site of study is very negligible or almost null. It indicates that the wetland is lost and degraded completely. It can't have the "wetland of International importance under Ramsar convention 7th May 1999". Wetland under study, undergone fast degradation and loss on massive scale due to human activities like cultivation of crops, grazing by cattle, poaching and hunting, adverse climatic changes, pollution, loss of sustainable upland habitat that surrounds wetland, large trees on the wall of pond, and excessive growth of aquatic weeds. Avian biodiversity showed drastic reduction in number of birds at the Mayani Dam. Flamingo didn't visit since 2003. It is reported that flamingos are shifted their stay at nearby wetlands like Yeralawadi and Rajewadi Dams. Water weed like hyacinth make birds feel insecure and they can't mark their predators and poachers from long distance. Hyacinth reduces growth of *Autolisa* which is major food of these birds. Government agencies i.e. Forest department, Ministry of Environment, NGOs, School and college students are organizing awareness program to educate people about importance conservation of wetland.

Key words: Ramsar convention, Avifauna, Conservation.

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Introduction

Mayani Dam: The Mayani Bird Sanctuary (Khatav T; 17° 25' N, 74° 30' E; RS. Koregaon 36 m. NW; p. 4,485) located in the Satara district of Maharashtra state in India. The dam is an area where water from all over the upper region is collected because of the big wall. The Mayani bird sanctuary is established on an old dam supposedly built by British. The dam is used for irrigation by canals in nearby villages. When the water is suffice and remains after supply for farming, it is useful for birds. There are watch towers and other facilities provided and maintained by forest department. Miratory birds like flamingos arrive from saiberia. Nothern shoveller, stork and kingfisher also arrive here. Other resident and migratory bird species in the winter season include: coot, brahminy duck, black ibis, painted stork, common spoonbill, etc. The nests of storks are also observed near the lake. Flamingos are regular winter visitors to the place. The flamingos are observed feeding in shallow water.th mainly feed on small fishes, crabs and insect larvae. Mayani Bird Sanctuary is studied as a typical wetland ecosystem which is rich in flora and fauna. Cactus and medicinal plants grown in the region. The winter season (November to January) is the best time to visit the Mayani sanctuary.



Location: Google.com maps: Mayani Bird Sanctuary (Khatav T; 17° 25' N, 74° 30' E; RS. Koregaon 36 m. NW; p. 4,485) located in the Satara district of Maharashtra state in India.

Importance: Counting of birds and studying elands is very important aspect of conservation and research in ornithology. Birds are ideal bio-indicators and useful models for studying a variety of environmental problems. Present study help to suggest ways and means for protection and management of birds and wetlands .To create awareness in common people about biodiversity of species of birds if any and to declare Mayani dam as “**wetland of International importance**” according to Ramsar convention. Migratory birds arrive from North India, Central Western Europe and Siberia. [To avoid extreme cold][Winter visitors]. Ruddy Shelduks, Painted stork, Black headed Ibis comes from Mongolia, Tibet and Ladak. Gal billed tern, Osprey, Demosal crane, Pintail duck comes from Russia. Local migrants like White Ibis, Purple heron Coot, Dab cheek, Cattle egret, Painted stork comes from Himalaya, Siberian crane from Siberia. Flamingo arrives from Central Western Europe.

Methodology

We have visited Mayani dam regularly at 15 days interval for two years. By using Digital camera and binocular we have observed and photographed Mayani dam and birds during various seasons. Bird counting, identification and wetland degradation was observed and documented during study period.

Observation:(from Oct 2010):

- There is drastic reduction in number and biodiversity of birds at Mayani dam.
- Flamingos did not visit since 2003, due to drought. In last few years it was reported that they have shifted their stay at nearby wetlands like Yerala Wadi or Raje Wadi dams.
- During last few years' migratory birds have not visited Mayani dam or wetlands, because it is full of aquatic weeds like Water hyacinth. Due to enormous growth of aquatic weeds birds feel insecure as they cannot mark their predator from long distance.
- Water hyacinth reduces growth of otolissa a major food of these birds.
- As a result birds might have shifted their stay to nearby wetland in search of food and secure nesting.

Prolonged rainy season: (Oct 2010 to Nov 2010)

- During 2010, prolong rainy season and cold waves also played adverse role for migratory birds. There has been fall in species diversity and abundance. [Almost zero during 10 winter.]
- Humid and cloudy conditions lead to low visibility, affecting the birds and their migration pattern.
- Birds find it difficult to migrate in the rain because it hampers their flight.
- They may get exhausted and die.
- Prolong rain leads to increase water level/reduce shallow water area and light penetration. These adversely affect growth of aquatic vegetation, zoo and phytoplankton. This further affect adversely on aquatic insects, crustaceans, mollusk and fishes. Thus enough food is not available for birds to stay at Mayani wetland and might have migrated to some other place.
- Once the water level rose, birds could not reach into the water for their food.
- Heavy rainfall creates many water bodies which means that migratory birds scatter over them. Therefore one may not see many migrant birds at single location/wetland.

Pollution

- Catchment area of Mayani dam covers vast farm land. Farmers have changed cropping pattern. They are using excess fertilizers and pesticides for greater farm yield.
- This change in crop pattern maybe a cause for shifting migratory birds to some other place.
- Many of these fertilizers and pesticides pollute water and affect adversely the health of the wetland ecosystem.

- Many pesticides are toxic to aquatic animals like fishes, mollusk and insects etc which serve as food for birds.
- Non-biodegradable matter like plastic, thermocol, high-density polyethylene is thrown into water by visitors and local people. It has caused environmental problems.
- The polluted water has affected aquatic animals like fishes, mollusk and insects etc which serve as food for birds. E.g. this has turned away fish eating birds like King Fisher and Egrets over last 5-6 years.

Human disturbance:

- Pouching/sport hunting and behavior of bird watchers etc is also a major cause of concern for reduction in number of migratory birds at Mayani back water.
- Over last 132 years dam is full of silt. Its water storage capacity is markedly reduced by almost 50% to 60%. [no maintenance]
- Back yard is covered by large trees like, Besharam, Ghaneri, Garvel, Bahbul and Karanj [**Pongomia pinnata, Prosopis juliflora, Acacia nilotica, Ipomoea indica, Lantana camera, Cassia tora, Ipomoea palmate, I. alba, I. aquatic, I. coptica**, etc]
- It is full of aquatic weeds like water hyacinth and silly tree.
- All above factors have lead to degradation of wetland ecosystem.
- Thus- A wet November-10, changing crop patterns, Pesticides, Dry or drought of 2011, dry pond and Habitat loss have kept migratory birds away from the wetland at Mayani, Tal-Khatav, Dist-Satara, State- Maharashtra.

Reasons behind reduced bird diversity

There has been a fall in diversity and abundance of birds at Mayani dam. The possible reasons for the fall in bird biodiversity might be as follows-

- Drought before five years might have shifted birds stay elsewhere.
- Enormous growth of Garvel, silly plant, etc [Ipomoea indica][Ipomoea palmate] might decrease visibility for birds to locate their predator and feel insecure.
- Due to enormous growth of Garvel and Silly plant [Aquatic weeds], Light penetration is affected adversely in pond water and pond water might have become more turbid with 100% reduced productivity, contains less oxygen and high concentrations of carbon di oxides and other toxic substances. This has affected food productivity for birds.
- Rising pollution of water by agricultural waste and toxic pesticides has led to fall in the number of birds coming to Mayani dam with each passing year. Polluted water might have adversely affected food production [otolissa the food of bird is not produced and fishes on which birds feed] and even affect bird survival.
- Hunting and Human disturbance also divert birds to other locations.
- Due to drought and complete drainage of water [Water seepage through embankment of pond] during summer of 2012 pond is completely dried. It is completely degraded and become useless ecosystem for birds.
- Delayed Monsoon/no monsoon in June/July 2012 left pond still dry.
- Heavy fire in the nearby forest during summer of 2011 destroyed large trees which in turn destroyed safe nesting places for birds.
- Pond is full of mud/silt, which is boosting growth of aquatic weeds must be removed.
- Embankment of pond is full of large trees and leak. It can hold water for long period.

Effect of wetland loss and degradation on birds

Birds use wetland for food, shelter and breeding. The widespread draining and altering of wetland has affected bird population. Mayani wetland has been drained and altered during last few years due to drought, heavy rain, pollution, change in cropping pattern, forest fire, excessive growth of aquatic weeds and large plants on wall of pond, loss of suitable upland habitats that surrounds wetlands, etc.

- Mayani wetland was a good habitat for migratory birds as it provides enough food and safe breeding grounds for birds. Its degradation or wetland loss leads to scarcity of food and loss of safe breeding and nesting places for birds.
- As wetland is degraded, few migratory birds might have moved to other less suitable habitat, which tends to reduce the rate of reproduction and increase rate of mortality among birds. This further reduced bird population over years

- Nutrients and sediments entering the Mayani wetland from surrounding agriculture and urban land areas increased growth of aquatic weeds like Gravel, silly plant, etc which further decrease invertebrate and vertebrate fauna of water. This has disturbed food chain for wetland dependent bird and affected bird population adversely.
- Pesticides and sediments that move from agricultural areas into wetland are two most pervasive source of degradation.

Above threats, combined with habitat loss have a net negative effect on population of wetland bird. Thus Mayani wetland habitat is substantially degraded and lost during last few years which lead to drastic decrease in the population of birds at Mayani wetland.

Efforts for conservation strategies

- Government agencies i.e. Forest department, Ministry of Environment, NGOs, School and college students are organizing awareness program to educate people about importance conservation of wetland.
- Sufficient funds should be allotted for time bound planning to remove aquatic weeds, mud, water proofing of embankment, fencing and renovation. Strict environmental law enforcement is needed.
- Bird observery must be utilized by bird watchers.
- Forest fire, hunting and poaching must be prevented and guilty must be punished.
- Mass education of Local farmers about migratory birds, wetland, misuse of insecticide and pesticides etc. should be done.
- Government should establish National wild life refuge system like USA to conserve eland and birds.
- Few international treaties “Ramsar convention 7th May 1999” should be followed by central and state government.
- Tax incentives should be available for funding for wetland conservation, restoration and management.

Summery and conclusion

Mayani wetland is important for migratory and water birds. It is lost and degraded completely due to human activities. This region is mainly under drought condition. Some plots have been allotted to local farmers, such as on the lake's Human disturbance also divert birds to other locations. Due to drought and complete drainage of water [Water seepage through embankment of pond] during summer of 2012 pond is completely dried. It is completely degraded and become useless ecosystem for birds. Delayed Monsoon/no monsoon in June/July 2012 left pond still dry. This has been proved by complete shifting of avifauna from Mayani to nearby places. Wetland under investigation has undergone fast degradation. Major effort are needed for saving this beautiful ecosystem of wetland.

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