

**A NEW REPORT ON THE AGGREGATION CUM FORAGING SITE OF PAINTED STORK
(MYCTERIA LEUCOCEPHALA) AND SPOT BILLED PELICAN (PELICANUS PHILIPPENSIS) IN MADURAI,
TAMIL NADU, INDIA**

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ABSTRACT

For the conservation of birds, especially birds like migratory waders, documentation and protection of foraging sites cum aggregation sites along with breeding sites are crucial. These birds also use many sites of urban wetlands and shallow water too as foraging sites at extreme conditions. The present work is to report a new foraging cum aggregation site of a near threatened species such as Painted Stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) in Madurai, Tamilnadu. Painted Stork was recorded more (74±33.01) when compared to Spot billed Pelican (49±26.32). Maximum of 120 individuals, a minimum of 35 individuals of Painted Stork was recorded per day. A detailed community level study on migratory waders at these sites is crucial for the conservation of these birds.

Keywords: *Mycteria leucocephala*, *Pelicanus philippensis*, Foraging site, Aggregation site.

1. INTRODUCTION

Wetlands are the most valuable ecosystems in the world and are useful for improving water quality and storing flood waters and releasing it slowly as they travel down-stream. A very few natural and artificial wetlands in India have been systematically surveyed to understand their importance for birds (Abhisheka, 2013). India being a megadiversity centre, harbours 1,200 species of birds, which amounts to 13 percent of the bird species of the world 9,600 species. (Nazeema and Nirmala, 2015). Wetlands harbour large number of threatened species of birds in addition to a variety of wildlife. "Waterbirds" refers to the bird species that entirely depend on wetlands for a variety of activities such as foraging, nesting, loafing, and moulting (Rajpar and Zakaria, 2009). Aquatic birds are excellent bioindicators of wetland ecosystems, because they quickly respond to any changes in vegetation composition and water level fluctuation as compared to other animals (Siriwardena *et al.*, 1998; Krebs *et al.*, 1999).

Painted stork (*Mycteria leucocephala*) is a large size wading bird of the stork family. It is found in the wetlands of the plains of tropical Asia, South of the Himalayas in the Indian subcontinent and extending into south east Asia (Hancock *et al.*, 1992). The IUCN Red list status report states that Painted Storks is a near threatened species. Due to loss of natural habitats, the numbers of these storks are declining in recent years (Yee *et al.*, 2013).

The Spot billed Pelican or Grey Pelican (*Pelecanus philippensis*) is a member of the pelican family. It breeds in southern Asia from, southern Pakistan across India east to Indonesia. This species is most threatened species of the world. The population of Spot Pilled Pelican is estimated about 2,500–5,000 individuals in southern Asia (BirdLife International 2001; Wetlands International 2002). Tamil Nadu has been a traditional home of Spot-Pilled Pelican for centuries in Koonthakulam which appears to have been in existence from well over a century (Grubh, 2004; Rhenius, 1907).

In Southern India, Spot billed Pelican and Painted Stork population have been declined in the recent past years, because of the climate change, destruction of natural habitats urbanization, lack of adequate water in their feeding grounds, and many of the wetlands disappeared or modified to fast growing city. The cutting trees for commercial use of woods, sewage water runoff and urbanization activities causes many species of birds including waders to inhabit in the urban areas and constrain them to breed there. In Tamil Nadu, majority of the wetlands were dried during 2012 due to the reason of poor monsoon rain or failure of monsoon in some areas.

For the conservation of birds, documentation and protection of foraging sites along with breeding sites are crucial for the conservation. However, the foraging areas of Spot billed Pelican and Painted Stork are yet to be explored in many parts of southern India. These birds use many sites of urban

wetlands and shallow water too as foraging sites. The present work is to report a new foraging cum aggregation site of these birds at Madurai, Tamil Nadu. The shallow water body situated near kilathikulam wetland that attracts the near threatened species of Painted Stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) population. The analysis of water quality parameters of this wetland is another objective of this study.

2. MATERIALS AND METHODS

2.1. Study area

A large congregation of Painted Stork and Spot billed Pelican was observed in the second week of May 2013 at the study site (Plate 1). Hence we made an attempt to count and monitor of these birds. This study was carried out in Madurai south taluk region of Lyonpapakudi village. It is very close to Airport- Mattuthavani ring road highways (NH 45B) (Fig. 1). The study area is a shallow revenue land contains housing plots. This area is known as Theiva nagar (9.853800°N, 78.115443°E) and very close to kilathikulam wetland. The water of the study area is overflowed from the Thavarantental pond, which received water from vellakkal sewage treatment plant.

A total count method was used to count the birds. This method was used by walking around the wetlands or from specific vantage points to count the birds (Vijayan, 1991). The census was conducted between 0700 hours and 1000 hours.

The census was carried out in May, 2013. Birds were identified with the help of field guides and standard reference books (Ali and Ripley, 1983; Grimmet *et al.*, 2000). The scientific name of the birds was given as in Grimmet *et al.*, 2000.

The study period is the hottest season of the Tamilnadu. The major precipitation of the study area is northeast monsoon which usually brings rain during October-December.

3. RESULTS AND DISCUSSION

We counted the birds for five days and a total of 369 Painted Stork (74 ± 33.01) (*Mycteria leucocephala*) and 245 Spot billed Pelican (49 ± 26.32) (*Pelicanus philippensis*) were recorded. We have also observed that the number of birds increased in the study period and reached the maximum of 120 per day on 26th May 2013 (Table1). Painted stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) were

present in more population at the study site than compared to nearby wetlands of Madurai (plate 1).

Our study report's the new foraging cum aggregation site for Painted stork and Spot billed pelicans at Madurai. More over the study site is a shallow revenue land and most of the area contains housing plots. The present study also concluded that water level in a wetland is a major factor for the selection as aggregation cum foraging site by the birds. The water level could be the major cause for the present observation. Because the water level of the nearby wetlands were very low and mostly absent (Thangalakshimi *et al.*, 2013). The study area received water from Thavarantental pond, which receives the treated effluent from vellakkal sewage treatment plant of Madurai Corporation. So abiotic and biotic factors such as temperature, rainfall, plants, fishes, frogs, small snakes and optimum quality water influenced in determining diversity, abundance of birds in the study area. The results of this study indicated that water level during drought period is a major factor along with the quality. In addition, it also effects on the dynamics of aquatic vegetation composition such as, emergent, submerged, and grasses in this wetland.

Table 1. Number of Painted Stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) recorded from the study area.

| Days | Spot Pilled | |
|----------|--|---|
| | Painted Stork (<i>Mycteria leucocephala</i>) | Pelican (<i>Pelicanus philippensis</i>) |
| 14.05.13 | 50 | 75 |
| 18.05.13 | 35 | 25 |
| 21.05.13 | 79 | 20 |
| 23.05.13 | 85 | 50 |
| 26.05.13 | 120 | 75 |

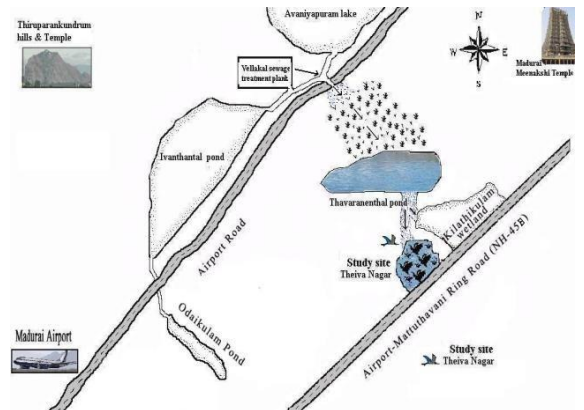


Fig. 1. Map showing the study area.

Map is not to the scale.



Plate 1. Painted Stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) at the study site.

The analysis of water quality parameters and other habitat qualities of these areas are crucial for the assessment of the habitat. The inventory and mapping of foraging or aggregation sites during summer and drought year, like the present one, are essential for the conservation of Painted stork and Spot billed pelicans of India.

4. CONCLUSION

The present study has reported a new aggregation cum foraging site of Painted Stork (*Mycteria leucocephala*) and Spot billed Pelican (*Pelicanus philippensis*) at Madurai. During extreme conditions like drought, birds especially waders are forced to visit new available foraging sites, also select urban wetlands with meager disturbance too. The results of the present study has led to the conclusion that a detailed study on birds of these sites with community perspective will shed light on status of bird diversity and impacts of unsustainable anthropogenic practices on birds. Hence inventory, documentation and protection of foraging sites cum aggregation sites similar to the site reported in the present study are crucial for the conservation of birds.

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