# Breaking Barriers and Building Confidence

The Power of Capacity and Skill Development Programme for Women's Empowerment

ISBN: 978-81-950313-8-2

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Malabar Centre for Development Studies-**MCDS**
Publisher: Dr. N Shihabudheen | Dept. of Economics,
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# BREEDING BIOLOGY OF POND HERON IN KERALA, SOUTH INDIA

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## Abstract

Regular intensive investigations to locate nesting colonies were carried out early monsoon of 1999 up to 2002. For detailed study a few breeding colonies were selected. The nesting trees, nest characteristics, eggs characteristics, incubation, hatching and hatchlings were investigated.

Altogether 17 plant species were used for nesting. Nest materials were collected from 24 plant species for building nest. The mean maximum size of the nest material used was 29.05 cm and the mean minimum size was 13.46 cm. The clutch size varied from 2-5 and clutches of three were very common. The maximum and minimum length and breadth of eggs were 48.0 x 32.0 and 33.3 x 24.1 respectively. The weight of eggs varied between 17.8 and 11.2 gm. Both sexes take part in incubation that extended for 18-24 days. Hatching success reached 82%. Their food consisted mainly of fishes and both parents took part in feeding the nestlings.

## Key Words

Indian Pond Heron, *Ardeola grayii*, Nest materials, clutch size, Hatching success

International Journal of Zoology Studies
ISSN: 2455-7269
Impact Factor: RJIF 5.14
www.zoologyjournals.com
Volume 2; Issue 5; September 2017; Page No. 171-174

# Avifauna of Kottuli wetland, Calicut, North Kerala

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**Abstract**
A study on the Diversity of Avifauna in Kottuli Wetland, Kerala was conducted from July 2014 to September 2015. During the study 94 species of Birds were Identified. The available data shows that water birds dominated in the area by population abundance. It is an ideal habitat for foraging and breeding of both terrestrial and water birds of resident species. A good population of migrant species also noticed. The presence of near threatened species Oriental white ibis, darter, painted stork point out by IUCN were also noticed, breeding pair of Black kite and Brahminy kite observed in the study site. The most abundant bird species were Black kites and little cormorants. The most abundant family were Ardeidae (8.5 %), followed by Alcedinidae, Rallidae and Accipitridae (4.25 %) respectively. The most abundant category were common resident type (77.65 %) and the least occurred category were common migrant type (2.12%).

**Keywords:** Kottuli wetland, near threatened, IUCN, green protocol, Calicut

## Introduction
A noticable knowledge about wetlands of kerala given by (Nammassivayan and venugopalan) (1989) [17], another study on birds of kole wetlands in Thrissur conducted by Nameer (1993) [12] shows the importance of wetland conservation. Another study conducted by Biju Kumar (2006) [18], who prepared a check list of avifauna in Bharathapuzha river basin. The present study highligths the Avifaunal records of kottuli wetlands in Kerala.

## Study Area
Kottuli wetland is located in the Calicut District of North Kerala having 150 acres in area shows an 11.27° N/75.79°E. The wetland covers human habitation dominated by coconut plantations the wetland covers number of canals, natural and artificial ponds, marshy areas, paddy fields. The dominant vegitation in this area includes *Anacardium occidentale*, *Casuarina equisetifolia*, *Ficus callosa*, *Ficus hispida*, *Flacourtia indica*, *Mangifera indica*, *Samanea saman*, *Nerium indicum*. The wetland is rich with species abundance of both flora and fauna. It is one among the 27 wetlands of National importance identified under National Wetland Conservation Programme. It is an ideal habitat for fish, Crustaccan and Molluscs. Vertebrates covers, Frogs, Reptiles, birds and and Mammals. Afew species of mangroves identified from the study site.black kites and brahminy kites often used the twigs of tese plants for nest making. The wetland situated in the heart of the city truly it act as the lungs of the city considering the population of the town is 12 lakh (2012) survey. In this context Kottuli wetland demands the conservation as it is the largest "Eco patch" in the city and maintain ecological balance in the city. The wetland is linked to a canal (Canoli Canal) is known to be a man made one during 1848, having 11 Km long. Which connects two rivers Kallai and Korappuzha. This canal is also not from the trouble of pollution. The presence of mangrove species such as *Excoecaria agallocha* (Milky mangroves), *Acanthus ilicifolius*, *Aegiceras cornuculatum* and *avicennia* species were also observed close to the wetland area. Some mangrove associates also noticed in the study site. The present status of the wetland is not satisfactory, it is in the hand of real estate mafia and other costruction contractors. So there is an urgent need to protect the core of the wetland. Mixing of municipal sewage and solid waste with the wetland water is one of the major threatening to the ecosystem. Another Serious issue noticed during the study period is infestation of weeds like Salvinia and Eichhornia species which will leads eutrophication of the wetland. Most of the plant species were destructed during the construction work of Sarovaram Bio-Park is caused to be another problem to roosting and nesting of birds.

## Methodology
The survey was conducted randomly from July 2014 to September 2015. Study conducted with an interval of two days. Counting done especially in the morning and evening hours. Point counts of birds were made from specific areas (Bibby *et al*. 1993)[15]. 8x40 binoculars were used for watching the birds and standard books on Indian birds were used for identification. The observed birds categorized as seven types Common Resident (CR), Local Migrant Common (LM; C) Winter Visitor Common (WV; C), Winter Visitor Un common (WV; UC), Near Threatened Migrant (NT), Common Migrant (CM), Resident Occasional (RO). The percentage of occurrence of each species calculated by using common percentage formula. Observed birds identified by field guides (Ali and Ripley 1984) [10], (Grimmet *et al* 2011) [13], (Neelakantan *et al* 2011)[16]. The check list was prepared using standardized common and scientific names by Manakadan and

Eco. Env. & Cons. 28 (2) : 2022, pp. (1031-1036)
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ISSN 0971-765X

DOI No.: http://doi.org/10.53550/EEC.2022.v28i02.069

# Breeding success of Black kite (*Milvus migrans*) on Mobile Towers of Malappuram and Calicut Districts of Kerala

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(Received 20 February, 2022; Accepted 2 April, 2022)

## ABSTRACT

Adaptive selection and utilization of the nesting and foraging resources utilized by *Milvus migrans* makes them more successful predators. High degree of nest loss due to predation is the major threatening in natural habitat, easiness in nest construction and camouflage from predators leads to a high degree of nest success and fledging success on the mobile tower is observed to be the major factor to such a selection behavior. Survival rate of fledglings on mobile tower in 2013- 74 %, 2014- 81%, 2015- 96 % and in 2016 - 100% with total of 89 % survival for all four years. In natural habitat 2013- 65%, 2014 -63%, 2015-65%, 2016 -55% and the black kites (*Milvus migrans*) conventionally use nesttrees as *Ficus racemifera*, fig species, *Azadirachta indica*, *Tamarindus indica*, *Mangifera indica* etc., while nowadays due to various anthropogenic stress including wetland depletion, drastic urbanization leads to habitat fragmentation and shortage of appropriate nest trees would compel them to select an alternative remedy to tolerate the short comings in the breeding ground. Shrinkage of ideal habitat make their life more competitive in both intraspecifically and interspecifically. As a part of that there would be a strong trend to select mobile towers as nesting habitat among black kites. Test association between nest type and survival has a chi-square value of 19.44 with P value <0.0001. Therefore, there is strong association between survival and nest type (tower/tree) i.e., nests in tower have significantly higher survival rate. The higher survival rate in the tower is mainly due to low predation rate, while it is higher in natural habitat. Black kites considering as potential scavengers and their ecosystem services also considerably high. So, retaining and protection of natural habitat is a strong recommendation initiative to protect these umbrella species insitu.

***Key words :*** *Black kite, Mobile tower, Breeding success, Fledglings*

## Introduction

Avian nest studies shows variations in reproductive success in relation with their choice of substratum. Nesting sites of kites spread over varied habitats like road side, city premises and agriculture areas and wetland associated areas (Donald, 1918). There is a more affinity towards cliffs, tall trees, thick vegetation for nesting kites. preferences are there to select areas with least predation risk and other anthropogenic stresses (Powell, 2009). Raptors are often solitary breeders (Lack, 1968). While colonial nesting behavior also reported among them.

Urbanisation, land leveling and wetland depletion leads to the shrinkage of black kite (*Milvus migrans*) habitat though they mostly depend on thick canopy and tall trees as nest trees (D' Abreu, 1911). A huge pair observed to be preferred unusual