



## Some Breeding and Ecological Aspects of Eurasian Spoonbill (*Platalea leucorodia*) in Ahmedabad, Gujarat

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**Abstract:** *Some breeding and ecological aspects of Eurasian Spoonbill (Platalea leucorodia) were studied in Ahmedabad, Gujarat during January 2015 to December 2015. The population of Platalea leucorodia was observed in wetlands of the study area. During study period 10 nests were observed. Breeding period was observed June 2015 to October 2015. The nesting of Eurasian Spoonbill starts from 3rd week of June, which extends up to 2nd week of October. It prefers Goras amlipithocellobium dulce for nesting. They prepare nest with twigs platform, both sexes build the nest. Its clutch size was 3 to 4 eggs. It requires average 7 days for nest building and 6 days for egg laying. The incubation periods were recorded 23 days and nestling period was 47 days. Both sexes incubate and feed the young by regurgitation. About 79 days are required to complete its nesting cycle. Maximum active nests were observed during 4th week of August. Its fledgling period was over at the end of 2nd week of October. Food availability and favourable habitat are main factor for breeding of this species at this site.*

### I. INTRODUCTION

The wetlands of Ahmedabad provide an ideal habitat for the colonial nesting birds. There are dynamic locations where they nest every year. One of the most fascinating aspects in the life of birds is their breeding phase, which is intimately tied to the distribution and abundance of food resources in their environment.

Eurasian Spoonbill (*Platalea leucorodia*) is a wetland bird found in the Ahmedabad region. It is resident and common breeder within the study area. Eurasian Spoonbill is white with spatulate-tipped bill. In flight neck is outstretched and flapping is rather stiff and interspersed with gliding. Adult has black bill with yellow tip, has crest and yellow breast patch when breeding juvenile has pink bill. They feed on Tadpoles, frogs, molluscs, insects vegetable matter etc. Sivasubramaniam (1992) reported the basic data on the breeding biology of the colonial nesting birds of Keoladeo National Park. Dave (2002) reported the breeding biology of the colonial nesting birds at Rajkot in Saurashtra. Acharya (2003) and Vyas (2005) gave some information regarding breeding biology of wetland birds in North Gujarat. The present paper deals with some breeding and ecological aspects of Eurasian Spoonbill (*Platalea leucorodia*).

### II. MATERIAL AND METHODS

Climate of study area is almost dry and in the monsoon season, it is semi-dry to humid type. It is periodic and seasonal. Ahmedabad experiences three distinct seasons namely winter (November to February), summer (March to June) and monsoon (July to October). Months of October and March mark the transition period from monsoon to winter and winter to summer respectively. Regular weekly field visits were made throughout the period. Morning session was of three hours duration (6.00 to 9.00 Am.) and evening session of three hours duration (3.30- 6.30 pm.). Observation of the Eurasian Spoonbill during the breeding season using a photographic camera (Nikon SLR) and a 10X50 Binocular (Olympus). About 240 hours were spent time to time in the study field and a total 10 nests were recorded in breeding season (2015). During the observation the nests and other activities were also counted. Some nests were traced by following the bird while they carrying the food. The nests were checked every day during the egg laying period and four to five day intervals during the incubation and hatching periods. After hatching regular visit to be made for the check the hatched chicks, till they leave the nest.

### III. RESULTS AND DISCUSSION

During the study period of 12 months a total 10 nests were studied. From the distribution of the nests in different months it appears that the breeding season as well as peak periods of breeding of *Platalea leucorodia* at Ahmedabad region is 3rd week of June, which extend up to 2nd week of October (Table 2). Peak nesting week was 4th week of August.

#### Nesting sites and nest:-

The pairs defended their nesting sites even when they were not actually nesting, so that they maintained their claim on the sites throughout the year. However, the condition of the nests changed seasonally depending on the nesting status of the pairs.



In the study area Eurasian Spoonbill preferred nesting plant species like *Gorax amlii*-*Pithocellobium dulce*. Both sexes take part in the nest construction during the breeding season. Dry branches and twigs of plants scattered on the ground were used for nest building. The nesting material was re-used very commonly. The male brings the materials and the female arranges them. The nest is completed within about 7 days. All birds build their nests at different heights of trees. Eurasian Spoonbill generally selects average 18.05 m height, 12.05 m. canopy diameter and 1.87 m. GBH for nest construction.

#### **Egg laying and Clutch size: -**

Egg laying period is the interval between the laying the first egg and laying of last egg within a clutch. It depends upon number of eggs laid by birds. The average egg-laying period was 6 days in *Platalea leucorodia*. The mean egg shape does not differ significantly in different months (Patel 1986). Shape index is dependent on weight. Reddy et al. (1979) observed that there was an adverse relation between decreased shape index and increasing egg weight.

Clutch size is an important parameter, which determines the reproductive rate in the birds. The clutch size means the number of eggs laid in series without any interruption. Normally the upper limit of the clutch size is 3-4 in Eurasian Spoonbill. 10 nests were found with 3-4 clutches. Vijayan (1980) observed that the variation of the clutch size is correlated with the availability of food; the larger clutch is laid when the food for the young is most abundant. According to Lack's hypothesis (Lack 1954) that the clutch is a hereditary characteristic of each species and has evolved through natural selection to correspond with larger number of young for which the parent can, on an average, provide enough food.

#### **Incubation and Nestling Period:-**

Incubation period is the interval between the laying the first egg and hatching of that egg within clutch. Skutch (1945) and Nice (1954) also it is considered and define incubation period from the laying of the last egg of a clutch to the hatching of the last nestling. The nestling period is defined as the interval of time the last chick of the brood remained in the nest. As per my observation the incubation period in *Platalea leucorodia* is 23 days. The young fledge and leave the nest after about 47 days. Ali and Ripley (1971) have also recorded the period of *P. cafer* as approximately 14 days and the nestling period is 12 days.

Patel (1986) observed that the environmental temperature has some effects on the length of incubation period in *C. livia*. The nestling period probably depended upon the number of young in a brood, productivity of the habitat, nest height and age of parents (Dhanda and Dhindsa 1998). The best food source for the parents is one of the reasons for less required period than the other places. Patel (1986) reported that the length of incubation period is dependent upon the ambient air temperature and the nestling period upon the light hours.

#### **Hatching, Fledgling and Breeding Success:-**

The success of hatching is the proportion of eggs in a clutch that produce young ones. The hatching success is seen moderate during study period, because during the hatching period a single adult mostly found in the nest. Some time high wind velocity, heavy rainfall as well as predators were responsible for average hatching success. The success of fledgling depends on nestling deaths and predation. Heavy rainfall with high wind velocity and starvation are responsible for loss of fledgling success. Fledgling is the proportion of the chicks that fledge from a brood. Breeding success is defined as "When one or more young from a clutch of eggs survives to fledging are occurs". The breeding success of *Platalea leucorodia* in Ahmedabad appeared to be exceptionally low during study period of 12 months, of the 31 eggs laid by *Platalea leucorodia* but only 16 nestlings were fledged. However, Ali (1930) was noted that out of six nests of *P. cafer* under his observation none produced a fledgling that flew. It might be depending on place, time; environmental conditions and parents care etc. During the observation period vegetation looking good, but there are some ecological factors that inhibit the breeding success. They are like heavy rainfall, high wind velocity and House crow, Black kite as predators. The breeding performance of *Platalea leucorodia* is poor (Table 4), but the hatching and fledging success is overall moderate. Breeding season is almost seen during 3rd week of June to 2nd week of October. The nest place, nesting materials and availability of food were looking good in the study area, but environmental factors, predation and sometimes dearth of food etc. are responsible for lower breeding success of *Platalea leucorodia*. At present the population of *Platalea leucorodia* is well maintained in the study area because adults are well adapted with respective food and good vegetation. So the population of birds is well maintained in the study area.

Table I: Meteorological data of study area during year 2015

Month	Average Minimum Temp(°c)	Average Maximum Temp(°c)	Monthly Rainfall (mm)	Monthly Relative Humidity (%)	Monthly Photoperiod (hrs: min)
January	8.1	32.3	0.0	52.4	10.54
February	11.2	34.1	0.0	48.7	11.28
March	21.4	39.9	0.0	43.5	12.08
April	25.3	41.1	10.6	42.1	12.46
May	26.2	42.8	0.0	53.3	13.14
June	27.7	38.3	126	64.5	13.36



July	23.2	37.2	334.2	78.9	13.25
August	26.5	33.1	159.9	81.6	12.57
September	23.9	40.5	212.1	73.5	12.16
October	18.6	33.7	84.2	56.8	11.36
November	20.3	34.1	0.0	53.2	11.06
December	9.2	31.2	0.0	54.4	10.49

**Table-II: Breeding season of Eurasian Spoonbill (*Platalea leucorodia*) during year 2015**

No.	Nesting activity	Breeding season
1	Initiation of Nesting week (A)	June 3rd
2	Peak of Nesting week (B)	Aug.4th
3	End of Nesting week (C)	Oct. 2nd
4	No. of weeks of Nesting	16

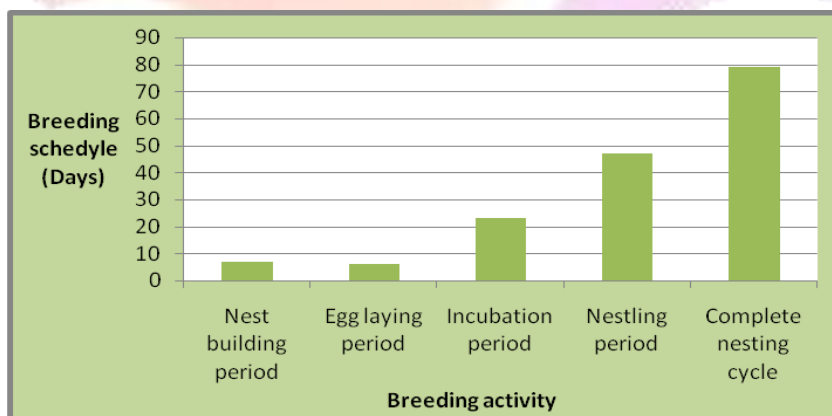
**Table-III: Breeding schedule of Eurasian Spoonbill (*Platalea leucorodia*) during year 2015**

No.	Breeding activity	Breeding schedule (Days)
1	Nest building period	7
2	Egg laying period	6
3	Incubation period	23
4	Nestling period	47
5	Complete nesting cycle	79

**Table- IV: A summary of the breeding performance of Eurasian Spoonbill (*Platalea leucorodia*).**

No	Summary	Year 2015
	Total nests	10
1	Clutches	10
	Clutch size	3-4
2	Total eggs laid	31
3	Hatched	22
4	% of hatched	70.96
6	% of egg loss	29.04
7	Fledged	16
8	% of fledged from hatched	72.72
9	% of fledged from total eggs laid	51.61

**Fig.-I: Breeding schedule of Eurasian Spoonbill (*Platalea leucorodia*) during year 2015**



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