

Nesting behavior of painted-storks in Lucknow district of Uttar Pradesh, India

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ABSTRACT

The Painted stork is a large wading bird in the family Ciconiidae and is listed as Near Threatened. A study was carried out in Lucknow District, Uttar Pradesh, India from July 2013- March 2014. Painted storks show only seasonal short distance movements in search of food and breeding grounds. They are the local migratory bird. Selection of the nest site is often considered as an important factor of reproductive success in many bird species. The aims of the study was to understand the factors affecting selection of nesting habitat and nest tree as well as time management during nest building so as to recommend management of the species for conservation. The role of nest site selection and nest building behavior has been poorly explored in this species. Painted stork prepares their nest in trees or areas that are near the water body. The nest trees selected were on Ashoka (*Saraca longifolia*). The main factor affecting the nest site selection was food availability. Both male and female participated in nest sanitation. The nest building materials consisted of fragments of old branches of trees, some soft green leaves (twigs of *Eucalyptus*) and grasses (*Sacharum* and *Jussiaea*). These branches helped in strengthening. The leaves and grasses helped in softening of the nest. The leaves of *Eucalyptus* have insect repellent properties.

Key words: Nesting Behavior, Nest Sanitation, Painted storks

INTRODUCTION

The Painted stork is a large wading bird in the family Ciconiidae having an IUCN status of as Near Threatened. It is mainly white with black barring on wings and breast and black flight feathers. It has pinkish wash on lower back. These distinctive pink tertial feathers give them their name. The bill is yellow, long, and slightly arched, with bare reddish face and pink legs (Pennant, 1769). Selection of the nest site is often considered as an important determinant of reproductive success in many bird species. The nest site selection is responsible for breeding success of species. The British Ornithologist suggested that the major selective factors favoring colonial nesting in birds are chiefly enhancing avoidance of predators and enhancing more efficient exploitation of food resources (David Lack, 1968). The role of nest site selection and nest building behavior has been poorly explored in this species. They show only seasonal short distance movements in search of food and breeding grounds.

Painted storks build their nest on trees or areas that are near the water body. The nest trees selected were on Ashoka (*Saraca longifolia*). The main factor affecting the nest site selection was food availability. Both male and female participated in nest sanitation behaviour. It has a long breeding season right from mid July to March. The nest building materials consisted of fragments of old branches of trees, some soft green

leaves (twigs of *Eucalyptus*) and grasses (*Sacharum* and *Jussiaea*). These branches helped in strengthening and the leaves and grasses helped in softening of the nest. The leaves of *Eucalyptus* have insect repellent properties. The purpose of the study was to understand the factors affecting nesting habitat and nest tree as well as nest building behavior so as to recommend management of the species for conservation.

MATERIALS AND METHODS

The nest building behavior of the Painted Stork (*Mycteria leucocephala*), was studied in Lucknow districts (near Lucknow Zoo) of Uttar Pradesh, India from mid July 2013- March 2014. The Geographic coordinates of Lucknow is 26.8470⁰ N and 80.9470⁰ E. Lucknow the capital of Uttar Pradesh is situated 123 meter above sea level. In summer temperature ranges from 25-45°C while in winter from 2-20 °C, the average annual rainfall is about 896.2 mm (35.28 inch). Lucknow covers an area of 2528 sq.km.

Surveys were conducted to locate the nesting and breeding sites of Painted storks. Regular monitoring was done to study the nest building behavior. Observational recordings were done using data sheets and 10x50 binoculars while Photographical recordings and video recordings were done with the help of Digital Lumix 21X Zoom Camera, 1000D SLR Canon Camera and 60D SLR Canon Camera.

RESULTS AND DISCUSSION

Painted storks are colonial breeders. Most colonies are located on trees growing on islands, Colonies on large trees in villages and agricultural fields are also known (Urfi, 1993a). The breeding season begins in the mid-July and completes by March. Painted Storks visit Sultanpur to breed between August and January and are typically absent in other months (Urfi, 2007). The breeding colony was near human settlements. The nesting trees were selected irrespective of noise pollution and other anthropogenic disturbances. Painted Storks are known to have a strong loyalty to their breeding sites and preferred trees which are inside the Village where there is human habitation (Chinna Pujari Ramesh and Gundala Harold Philip, 2015). The nest trees selected were Ashoka (*Saraca longifolia*). Most colonies are located on trees at a height but nesting substrates vary considerably, from low level *Acacia* and *Prosopis* trees to large *Ficus* and *Tamarindus* trees. One of the lowest substrates recorded is *Euphorbia* stands at Man Marodi, an offshore island in the Gulf of Kutch (Urfi, 2003a). A Study revealed that trees utilized for nesting are *Ficus religiosa*, *Tamarindus indica*, *Azadirachta indica*, *Zizipus jujube*, *Prosopis juliflora*, *Leucaena leucocephala*, *Acacia negev*, *Tectona grandis* (Chinna Pujari Ramesh and Gundala Harold Philip, 2015).

Both the parents involve in nest construction activities. The nests are large platform of sticks and lined with vegetation mainly *Eucalyptus*. The nests were repaired regularly with fresh twigs of *Eucalyptus*. The leaves of *Eucalyptus* have insect repellent properties. The nests are always guarded by one partner once the site is selected. The green foliage of the nesting trees was destroyed by the faecal matter and turned white. All the trees recovered and turned green once the nests were empty.

Nest construction is a tedious work in Painted stork and bird spent ample of time to pick, pluck and carry the nesting material for nest construction (Fig 1A & 1B). Painted stork spent an average 1 minute 17 sec to 7 minute 52 sec to choose, pluck and carry a leafy stick to the nesting sites for nest building. The observations were made and recorded on 12 August 2013 activities of painted stork. A painted stork flew and sat on eucalyptus tree. Tried to plucks the leafy branches two times and at third time the bird finally choose the correct one and carried it to the nest, Overall 3 minute 11 sec was spent on this one activity.

On 12 August 2013 observation was made for 55 minute and during this period painted stork made 7 attempts to carry the nesting materials. On 3 September 2013 observation was also made for 55 minute and during this period painted stork made 9 attempts to carry the

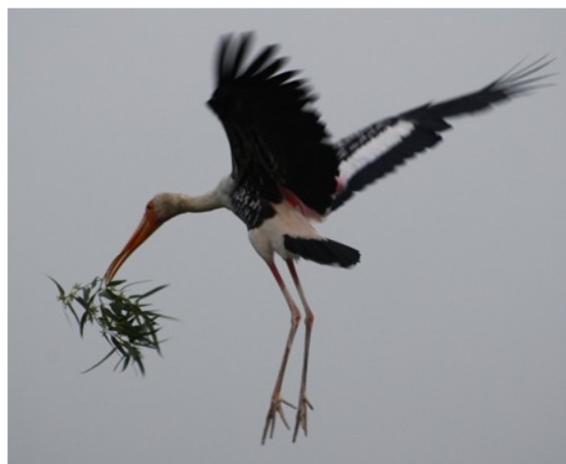


Fig.1A. Collecting and bringing nesting material (*Eucalyptus* twigs) by brooder

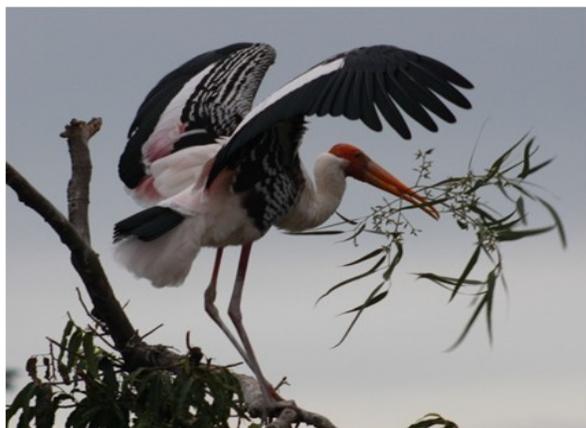


Fig.1B. Nest construction by breeding pairs

Table 1. Time management and time spent on collecting material for nest building by painted stork

Date of Observation	Attempt No.	Time spent to complete one attempt	No. of time leaf-stick plucked and fall down in one attempt
12 August 2013	1	11:10 min-11:11min, 27 sec (1 minute 27 sec)	1 time
	2	11:13min,43sec-11:16min,11 sec (3 minute 54 sec)	2 time
	3	11:17min,02sec-11:18min,57 sec (1 minute 55 sec)	0 time
	4	11:19min,26sec-11:22min (2 minute 34 sec)	3 time
	5	11:23min,02sec-11:28min,07 sec (5 minute 05 sec)	7 time
	6	11:33min,43sec-11:37min,19 sec (4 minute 19 sec)	4 time
	7	11:43min,07sec-11:46min,21 sec (3 minute 14 sec)	5 time
03 September 2013	1	4:21min,03sec-4:24min,17 sec (3 minute 14 sec)	1 time
	2	4:26min,22sec-4:31min,05 sec (4 minute 27 sec)	2 time
	3	4:33min,01sec-4:46min,13 sec (14 minute 12 sec)	11 time
	4	4:47min-4:48min,39 sec (1 minute 39 sec)	1 time
	5	4:50min,07sec-4:55min,03 sec (4 minute 56 sec)	3 time
	6	4:57min,11sec-4:59min,36 sec (2 minute 25 sec)	1 time
	7	5:00min,43sec-5:04min,02 sec (3 minute 45 sec)	4 time
	8	5:07min,11sec-5:10min,03 sec (2 minute 48 sec)	2 time
	9	5:11min,47sec-5:14min,39 sec (3 minute 26 sec)	3 time

nesting materials. On this day painted stork took maximum time of 14 minute and 12 sec to complete one attempt of nest material carrying activities. Time management and time spent in nest collecting material by painted stork are shown in table 1.

CONCLUSION

The monitoring is being continued for further studies. This study may lead to the sketching of well defined conservation strategy. This study recommends protection of the trees selected for nesting. This will enhance the breeding population of the Painted stork.

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