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Painted stork Heronry at Veerapuram Village, Andhra Pradesh India, A case study

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Abstract

Painted stork (Mycteria leucocephala) has been a visitor to Veerapuram Village, Andhra Pradesh for more than a century. This heronry is quite large with more than 1000 birds. We have made survey between 2010 and 2014 on when these birds visit and leave the village, their nesting ecology and foraging areas. It was heartening for us to notice that these visitors did not breed in 2013. This could improve if there is enough food available for birds.

Keywords: Painted stork, Veerapuram Village and nesting ecology.

Introduction

India has been a host to many of the birds migrating during different seasons. It was shown that over hundred species of migratory birds fly to India for breeding and in search of feeding grounds[1]. Painted Stork (*Mycteria leucocephala*) is seen in almost all States of India except Kerala, Bihar, West Bengal, Assam, Jharkhand and North Eastern States[2]. Many wildlife sanctuaries and National Parks established in India has been a good place for the birds temporary stay. In Andhra Pradesh Painted Storks were spotted regularly at Nelapattu Bird Sanctuary, Pulicat lake, Telineelapuram, Kolleru lake, Uppalapadu, Chintapalli, Chinna maduru and Karivirala Villages and Coringa Wild Life Sanctuary.

Studies on Painted Storks have gained importance in the past decade, as its population is declining and also the Storks are not continuous in visiting habitats. They have been categorized in Schedule IV of the Wild life (Protection) Act. 1972 and are listed as a near threatened species[3]. Still there are only three studies which have focused on Painted Storks heronries in India. Sultanpur National Park, Haryana is one where Storks were first observed breeding in 1993[4]. There after it was sporadic from 2000 to 2005 and thereafter visited every year[5]. Delhi Zoo is another place where Painted Storks have been nesting regularly since 1960[6]. Between 1988 and 1992 around 325-550 birds were observed[7]. Fieldwork conducted in Bhitarkanika mangroves (Orissa) by Gopi and Pandav (2007)[8] from August 2004 to December 2006 revealed that Storks make its own colony and were breeding in very low numbers. They made observation on copulation-duration, clutch size, egg morphometry and incubation period of eggs. The only study made at Veerapuram was by Bhat et al., (1990)[9] in 1988 and 1989, which mentions about the number of nests, foraging etc. Hence we made an attempt to study Painted Storks heronry at Veerapuram Village, where birds visit for breeding.

Material and methods

Every year from 2010-11 to 2013-2014, we visited Veerapuram once a week during the time the storks arrive/ depart and once per fortnight during other times. We have noted the exact time of arrival and departure of the storks. The numbers of birds were counted manually by direct observation method by ourselves. Urfi et al.,[10] mentioned that the best time for counting Painted Storks is late in the evening during which time most of the birds stay at the nest and hence we also followed the same. We examined the way storks build the nests and counted them on each tree and have taken their measurements. We made all measurements after the birds have left in August/ September. This was done as a precaution of not causing any disturbance during their stay.

Results and Discussion

Veerapuram Village is situated in the Chilamathur mandal, Ananthapur district in Andhra Pradesh. In this Village the literacy rate is low with a rate of 52% in male and 44% in female (2011 Census) but people have developed passion for these visitors. These birds have been breeding in the Village continuously for about 100 years with intermittent breaks according to information given by Villagers. Some older Villages say that birds were breeding at Venkatapuram Village, a kilometer away from Veerapuram from times immemorial.

During 2010-2011 the total number of birds that reached the Village were 2,798 at different time periods. Storks started to arrive from 1st week of December, 2010 to 3rd week of January, 2011. In 2011-2012 birds started reaching Village from 4th week of December, 2011 till 4th week of February, 2012 and the total number of birds that reached the Village were 1530, arriving at different time periods. In 2013-2014 arrival was from December 1st week, 2013 to 4th week of February, 2014 totaling to 2,560, figure-1.

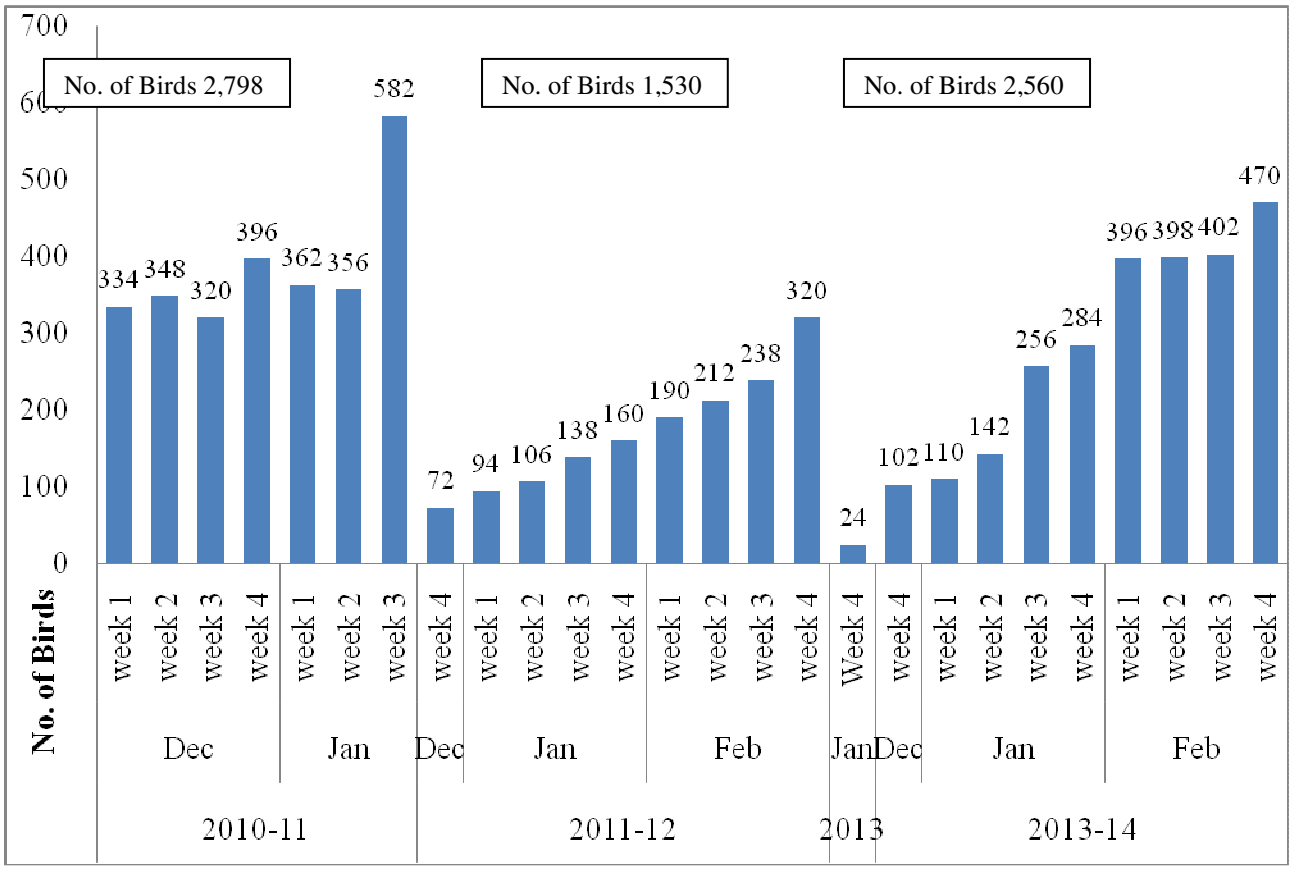

Figure-1
Number of Painted storks arrived in Veerapuram (V) from 2010- 2014 at different time periods

In 2013 about 24 birds came in the first week of January, wandered for few days (5-6) and left. In 1987 also similar situation was observed by Bhat et al., (1990)[9] where 35-40 birds were seen in the nearby Venkatapuram tank but did not nest. Poor feeding conditions resulting from a shift in natural hydrologic cycles might have affected stork nesting. The average rainfall recorded during 2012-2013 was 431 cm in Chilamathur mandal where Veerapuram is located (Mandal Revenue Office, Chilamathur). As rain is the main source for water it can be said that poor rainfall contributed to drying up of these water bodies. Earlier also Storks did not visit the village for breeding between 1984-1987, 1992, 1996, 2003 and 2005. Bhat et al., (1990)[9] made studies of this heronry from 1988-90 in which they mentioned that the number of Storks were 620 and nests were 150 on 9 trees in 1988.

Painted Storks started to leave Veerapuram after the chicks are ready to fly. In 2011, 2012 and 2014 they started to depart from July 1st, continued till September 1st week; July 4th week and continued till Sept 2nd and July 3rd week and continued till August 4th week respectively. This information we are able to give based on the empty nests. We made a rough count of total number of Painted Storks (both adults and chicks) in June and it was found to be 8730 in 2011, 4576 in 2012 and 7943 in 2014. There were 23 birds which were injured in 2011, 14 in 2012 and 8 in 2014 and hence could not leave the Village. They were taken care by caring Villager for some time and then, were sent to Sri Venkateswara Zoological Park, Tirupati.

Painted Storks are known to have a strong fidelity to their breeding sites. In almost all places the birds consistently arrive more or less at a particular time of the year, year after year. However, observation at different places in peninsular India showed a lot of variation in the periodicity of breeding, often independent of monsoon conditions. We are not sure from where the Painted Storks came to the Village for breeding and to where they went along with their young ones. The Villagers says to everyone who visit heronry that the Painted Storks came from Siberia

Veerapuram Village has very good vegetation and as such a green Village. There are different types of trees in Village and hence enough nest building space available for birds. Apart from these there are many small herbs, shrubs and wild grass all over. Dry branches and twigs of plants scattered on the ground along with fresh sticks from the same trees as well as other trees are used for nest building. The nesting material was re-used year after year. We observed that both male and female were involved in nest building. It was shown by Pathak (2011)[11] that Storks took 5-7 days to build a nest. We didn't observe any

preference of plant material in building nests. But it was shown earlier that some birds choose aromatic plant material for constructing nests, which may have insecticidal properties[12-13], carnivore scat, which was shown to repel smaller predators[14] and pieces of snake slough[15]. It was done because these may deter some nest predators[16]. More birds were present at the colony at the beginning of the season than the number of nests.

Painted Storks are colonial tree nesting birds, nesting on different trees with often 70 to100 nests per tree. Several thousand pairs have been known to nest in rookeries. After arrival in the Village, the Storks started to build new nests as well as used the old nests by refurbishing them at different time periods each year. We did not notice any preference for trees by the storks at Veerapuram Village but they preferred trees which are inside the Village where there is human habitation. They seem to be more secure when villagers are round. The nests were built on any available tree which is in the Village, but did not make an attempt to build nest on the trees which are on the outside of the Village. The birds seem to enjoy the fellowship of the villagers. It is worthy to mention that villagers are very friendly to the birds and have made an unwritten law not to do any harm and at the same time protect the Storks from other predators as well as from outsiders.

The number of nest built/ used in 2011, 2012 and 2014 were 1400, 760 and 1280 respectively. Storks first started to repair/build the nests in 1st week of March and continued this activity till 3rd week of March during 2011, from 2nd week of March and continued activity till 4th week of March, 2012 and from 1st week of March and continued activity till 4th week of March, 2014. The trees utilized for nesting are *Ficus religiosa*, *Tamarindus indica, Azadirecta indica*, *Zjzipus jujube*, *Prosophis juliflora*, *Leucaena leucocephala*, *Acasia negev*, *Tectona grandis.* Details of number of nests built on different species of trees are given in figure-2.

Data on measurement has shown that nest size did not defer much during the period of our study i.e. from 2011-2014. Hence we have not given year wise data. The average measurements of nests on different trees are given in table-1. The average Length of ten nests ranged from 18.3 to 21.3, inches, width from 12.8 to 15.4, inches, circumference from 58.8 to 63.3, inches and depth from 3.2 to 4.5, inches. We observed that the colour of the material of the nests have become pale white. Some of the trees on which Painted Storks have been nesting for years also appeared pale white. This could probably be due to the reaction of uric acid in the excretory material of the birds. We have observed that some branches have fallen due to this reaction. For this reason we have advised to grow new trees in the village, so that the nesting space will not be lost.

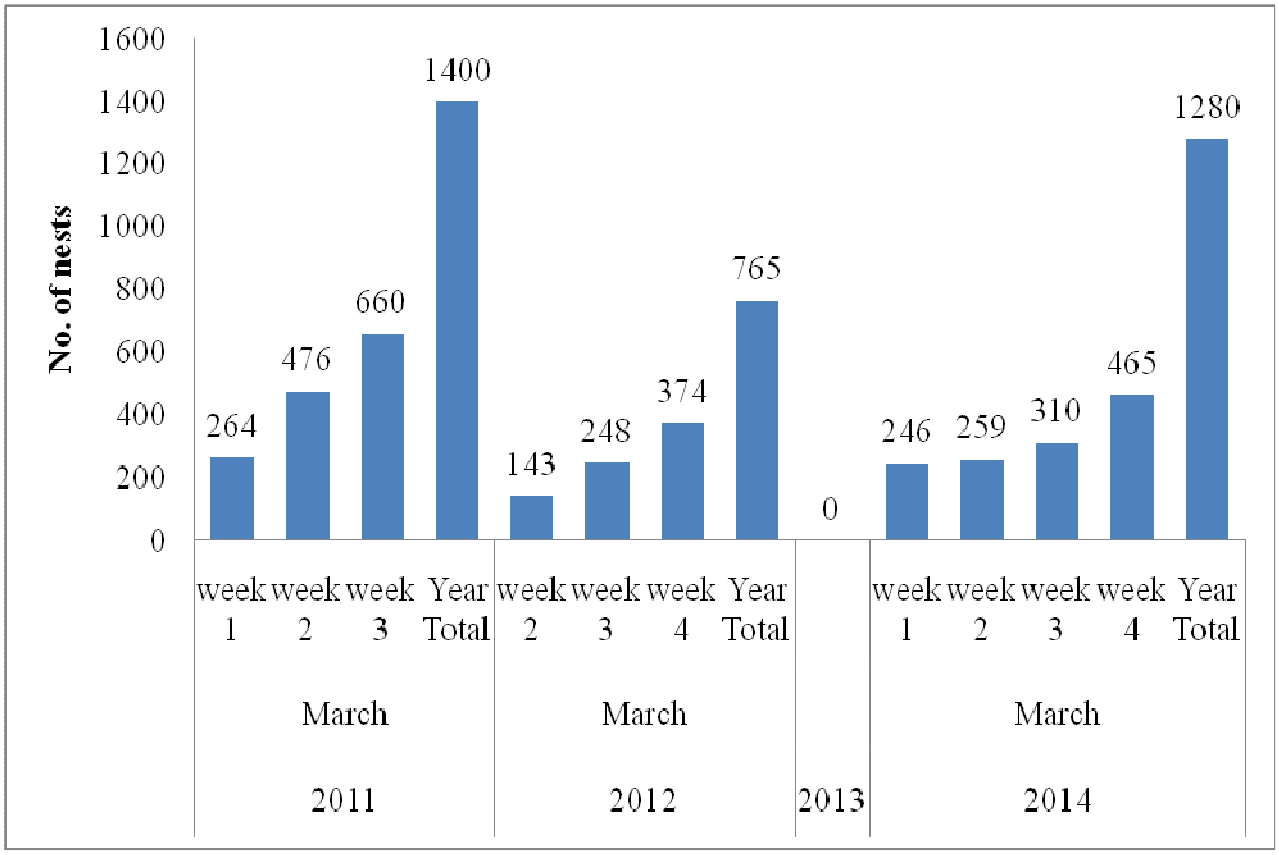

Figure-2
Total number of nests built by Painted Storks at different weeks during 2011–2014

Table-1
Size of nests built by Painted Storks on different species of trees

S. No.	Name of the trees	Measurements Inches.			
		Length	**Width**	**Circumference**	**Depth**
1	*Ficus religiosa*	19.3±1.33	14.4±1.42	60.4±1.07	3.3±0.48
2	*Tamarind indica*	20.5±0.97	15.4±1.34	63.3±2.16	4.5±0.96
3	*Azardiracta indica*	20.8±1.03	15.0±0.81	61.2±0.91	3.6±0.51
4	*Prosopis juliflora*	21.3±0.82	14.5±1.17	58.8±13.3	3.5±0.52
5	*Acacia negev*	19.0±1.41	13.7±1.15	60.6±1.50	3.3±0.48
6	*Zizipus jujube*	18.3±0.94	12.8±1.03	60.9±0.87	4.5±1.08
7	*Tectona grandis*	19.0±1.41	12.9±1.10	59.5±1.64	3.3±0.84
8	*Leucaena leucocephala*	19.2±1.13	13.6±1.14	60.6±1.50	3.2±0.47

Average measurements of ten nests.

We observed Stork flying out from 6AM and started to return from 12 noon onwards in group of 10-22. When we visited neighboring Veerapuram, Lakshmipuram, Amanibyrasagara (Gudibanda), Chilamathur, Hussainpuram, Nelakombu, Yellodu, Yarrabelli, Chamarlapalli, Pathachamarlapalli, Dadireddypalli, Maruvakothapalli, Kothasamallapalli tanks and Parugodu dam, we noticed Storks standing and waiting to catch prey. Fish, purchased from local market were fed to six birds (adult and young ones/ 2-3 months old) for six days and the amount of fish consumed by each bird on an average was 1.20 kgs (Young) and 1.50 kgs (adult) of fish every day.

Conclusion

Painted Stork (*Mycteria leucocephala*) has been a visitor to Veerapuram Village, Andhra Pradesh for more than a century. This heronry is quite large with more than 1000 birds. This could improve if there is enough food available for birds. It was suggested by Pattnaik et al in 2008[17] that protection of the species and conservation of their habitats is the need of the hour by constructing artificial ponds, tanks and planting. We reiterate the need for conservation of foraging grounds and plantation of trees at Veerapuram Village. Present concern is about the climate change affecting monsoon as nesting for breeding of Painted Storks are monsoon dependent. Hence we suggest that top priority for Veerapuram heronry is providing alternate water bodies to grow fish. Human disturbance/hunting/poaching is not a problem in this heronry as the Villagers have better heart than Government Organization/researchers to protect the Painted Storks.

References

1. Agarwal M., Migratory birds in India: *Migratory birds dwindling New Global India* (http://newglobalindian.com/nature), **(2011)**

2. Urfi A.J., The Painted Stork Ecology Conservation 21 Illus., in color., hardcover, XVIII, p166 **(2011)**

3. Birdlife international 2012. Painted storks (*Mycteria leucocephala)*. In: IUCN 2012. *IUCN Red List of threatened Species*. Version 2010.1. <www.iucnredlist.org>. Downloaded on 08 September **(2012)**

4. Poole C., Sultanpur lake revived, *Oriental Bird Club Bull*., **19**, 15 **(1994)**

5. Urfi A.J., Meghana S. and Kalam A., Nesting ecology of the Painted Storks (*Mycteria leucocephala*) at Sultanpur National Park, Haryana, India, *Forktail,* **(23)**, 150–153 **(2007)**

6. Desai J.H., Feeding ecology and nesting of Painted Stork *ibis leucocephalus* at Delhi Zoo, *International Zoo Yearbook*, **(11)**, 208-215 **(1971a)**

7. Urfi A.J., On some new breeding records of water birds from the Delhi region, *J. Bombay Nat. Hist. Soc.*, **(93)**, 94 – 95 **(1996)**

8. Gopi G.V. and Pandav B., Observation on breeding biology of three stork species in Bhitarkanika mangroves, *Indian birds*, 3**(2)**, 45-50 **(2007)**

9. Bhat H.R., Jacob P.G. and Jamgaonkar A.V., Observations on a breeding colony of Painted Storks (*Mycteria Leucocephala)* Pennat in Anantapuram District Andhra Pradesh, *Journal of the Bombay Natural History Society*., 88, **(3)**, 443–445 **(1990)**

10. Urfi A.J., Meghanathan T., Kalam A. and Mahendiran M., Nesting Asian Openbill and other heronry birds at Sulthanpur National Park (IBA) *Mistnet,* **(6)**, 10 -12 **(2005)**

11. Pathak and Chetna P., A Study of Ecology of Piscivorous Birds at Thol Bird Sanctury, Thesis PhD, Saurashtra University, Rajkot, **(2011)**

12. Wimberger P. H., The use of green plant material in bird nests to avoid ectoparasites, *Auk*, **(101)**, 615-616 **(1984)**

13. Clark L., Manson J. and Russel, Use of nest material as insecticidal and anti pathogenic agents by the European Starling, *Oecologia,* 67**(2)**, 169-176 **(1985)**

14. Schuetz and Justin G., Common waxbills use carnivore scat to reduce the risk of nest predation, *Behavioral Ecology*, **16(1)**, 133–137 **(2005)**

15. Strecker John K., On the use, by birds, of snakes' sloughs as nesting material" (PDF), *Auk*, **53(4)**, 501–507 **(1926)**

16. Medlin Elizabeth C. and Thomas S. Risch, An experimental test of snake skin use to deter nest predation, *The Condor*, **108(4)**, 963–965 **(2006)**

17. PattaNaik Narendra Prasad, Murthy S. E.N. and Sudhakar Reddy C., Conservation of Painted Stork habitats in, Andra Pradesh, *Current Science*, **95(8)**, 1001 **(2008)**