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SHORT COMMUNICATION

VAGRANCY RECORDS OF THE GREAT WHITE PELICAN *PELECANUS ONOCROTALUS* LINNAEUS, 1758 (AVES, PELECANIFORMES, PELECANIDAE) IN SOUTHERN INDIA

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ABSTRACT

Vagrancy is a less contrived part in the context of bird migration; thus, observing the vagrancy pattern of immigrants helps to discover changes in distribution, range shifting, and range expansion of the bird species. It is critical to look after the determinants and patterns of vagrancy for effective conservation measures for all migratory bird species, including threatened pelican species, since their inland migration routes are understudied in India. Great White Pelican *Pelecanus onocrotalus* Linnaeus, 1758 (Pelecaniformes, Pelecanidae) is one of the winter visitors to India, but its wintering range in India is not addressed adequately. This communication provides documentation of the sighting of a Great White Pelican at Nelapattu Bird Sanctuary, one of the Important Bird Areas in Andhra Pradesh, India, and briefly highlights the less-noticed vagrancy phenomenon of this species in the states of southern India.

Keywords: Great White Pelican, Inland migration, Range expansion, Vagrancy, Wintering.

INTRODUCTION

Vagrant birds are individuals of migratory bird species that are observed outside their wintering grounds and distribution range in unusual areas (Elisa *et al.*, 2015). Surprisingly, it is a common phenomenon in many bird species, often occurring in spatiotemporally predictable patterns. Vagrancy can occur through inter and intra-competition among species and the expansion of their home range, generally as a consequence of changes in resources due to environmental changes (Woehler, 1992; Milius, 2000; Rey *et al.*, 2007).

The Great White Pelican is one of the eight species of pelicans found globally. A long-distance migrant, categorized under the Least Concern (LC) in the global red list by the

IUCN, was safeguarded under Schedule II of the Wildlife Protection Act in India and recorded a declining trend in the population (SoIB, 2023). According to published records, two distinct populations of *P. onocrotalus* usually perform their wintering in Africa, Eastern Europe, and Asia. The European-Asian population of *P. onocrotalus* is truly migratory which has not been adequately studied (Crivelli *et al.*, 1991). In India, it was recorded in large numbers from the Central West to the North Eastern region (Punjab to Assam) and was recorded breeding in Gujarat (Ali and Ripley, 1987). A few individuals of *P. onocrotalus* have been sighted in some parts of Andhra Pradesh (Taher and Mani, 2008; Sheeba and Vijayan, 2009), Karnataka (Gopalakrishna and Pushpalatha, 2003), Kerala (Jacob *et al.*, 1995), and Tamil Nadu (Thirunaranan *et al.*, 2017).

The forefront reasons for vagrancy in migratory birds are assumed to be wind drift and imperfection in internal compass mechanisms that can cause them to deviate from their usual wintering routes (Thorup *et al.*, 2012; Lees and Gilroy, 2021). However, the drivers of vagrancy and the significance of this phenomenon have not been soundly documented. Thus, this work attempts to fill the gap by focusing on the Great White Pelican.

Sighting of Great White Pelican *P. Onocrotalus* at Nelapattu Bird Sanctuary, India

We observed an individual of Great White Pelican perched on a dead log in the middle of a large congregation of Spot-billed Pelican *Pelecanus philippensis* and Asian Openbills *Anastomus oscitans.* The sighting occurred on 27th of December 2022, around 12:50 pm, at Nelapattu Bird Sanctuary, Andhra Pradesh, India. It has been observed with a breeding crest plumage and a knob or swell on its forehead, which indicates the onset of breeding (Pl.1). The observation was performed using a binocular Nikon Monarch M7 (8x42) and photographed using a mobile phone camera through a binocular eyepiece. We observed and photographed the perching and preening activity of the Great White Pelican (Pl.1). The sighted bird is whitish and larger in size in contrast to the Spot-billed Pelican, with the yellowish-orange gular pouch and pinkish orbital skin extending towards the bill. During flight, black primaries and secondary underwing coverts were also observed. All these distinct features of the Great White Pelican made it easy to identify while sighting and were also confirmed with the help of a standard field guide (Grimmett *et al*., 1998).

During the verbal interaction, sanctuary representatives enunciated that the Great White Pelican is one of the winged visitors to Nelapattu Bird Sanctuary but were not certain about the individual counts and duration of stay in the sanctuary. In addition, there are a handful of sighting records of *P. onocrotalus* reported from Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Therefore, we extracted the sighting records of *P. onocrotalus* between January 2000 and January 2023, with a special focus on states of southern India, from one of the common semi-structured citizen science data platforms for birds named ebird, holding metadata of the public recording species observation, information of location, observer effort, and species lists. We preferred to use ebird records since citizen science data platforms such as iNaturalist and ebird are progressively contributing to basic and applied ecological research (Johnston *et al*., 2019). In total, 21 records were found, including the present record from three states of Southern India, namely Andhra Pradesh, Karnataka, and Tamil Nadu (Tab. 1,

Map 1). There is no recent report of *P. onocrotalus* from Kerala in ebird domain. Nevertheless, scientific reports have been published on the sighting of *P. onocrotalus* in Kerala (Nair, 1993; Jacob *et al*., 1995). The reason for no recent sighting records in Kerala could be that less attention is paid to this species, the number of individuals involved in this phenomenon is quite small, and sightings are also very opportunistic. There is a possibility that this species restricts movement within Andhra Pradesh, Karnataka, and Tamil Nadu since most of the vagrancy records were found to be in the lowland regions of Andhra Pradesh and Tamil Nadu.

Plate (1): Photographic record of *P. onocrotalus* sighted in Nelapattu Bird Sanctuary, Andhra Pradesh taken on 27th December 2022; (A) Preening activity, (B) Visible breeding crest plumage and swelling on the forehead, (C) Perching of the Great White Pelican at the center of the mass bird's congregation.

Sighting records of *P. Onocrotalus* in the Southern states of India

Obtained sighting records of the Great White Pelican in Southern India were not huge in terms of the number of records and individual counts. 13 sighting records of *P. onocrotalus* were found in Andhra Pradesh, followed by six in Tamil Nadu and two in Karnataka.

Maximum number of sightings recorded in Andhra Pradesh (n = 11) during December and January, followed by February and November (n = 2). In Tamil Nadu, five sightings were recorded during December and January, one in July, and two sighting records in Karnataka during January and July between 2000 and 2023 (Tab. 1). Since most of the sighting records of this species fall between December and February months in a year, there could be a pattern in the movement that needs to be explored further. A total of three individuals were recorded in one event of sighting in Andhra Pradesh, which was the highest count compared to the rest. Similar to this study, records of a single individual per sighting were published by Taher and Mani (2008), Sheeba and Vijayan (2009) and Thirunaranan *et al.* (2017). In southern India, this was a less noticeable phenomenon since the wintering distribution is usually restricted from the Central West to North-Eastern India. However, few wintering records and unclear nesting records of *P. onocrotalus* with juveniles in the Kutch region were reported by Ali (1960) and Tiwari *et al.* (2003).

In the present Anthropocene era, threats to the avian community are high. Hence, conserving any bird species requires well-organized baseline data regarding migration patterns, breeding, habitat health, and many other factors in their ecology. In addition, Pelicans are one of the most threatened species of world waterbirds due to a broad spectrum of threats such as loss of quality foraging and breeding habitats, several harmful pollutants, and infestation of endoparasites (Kannan and Manakadan, 2005; Kumar *et al.*, 2019; Jayakumar *et al.*, 2020). A little has been documented about the vagrancy pattern of migratory bird species with the help of traditional and forthright monitoring methods such as observation of migratory birds at stop-over sites, observation of visible migration in progress, capture and banding of migrant birds, and using growing satellite tagging methods, which brought up some meaningful outcomes about migrant and vagrant birds (Sidney, 1996). In contrast to the traditional assumptions, vagrancy could also be influenced by man-made pressures such as urban sprawl and wetland degradation, as they are sensitive to habitat change (Gilroy *et al.*, 2016). There are a few doubts about pelican migratory patterns that are still unanswered, which raises gaps in scientific information on the migration dynamics of pelican species in India and elsewhere. Therefore, enabling proper monitoring exercises using modern techniques to gain more information may help explore and conserve the bird species, especially the threatened ones, and their ecology in the years to come.

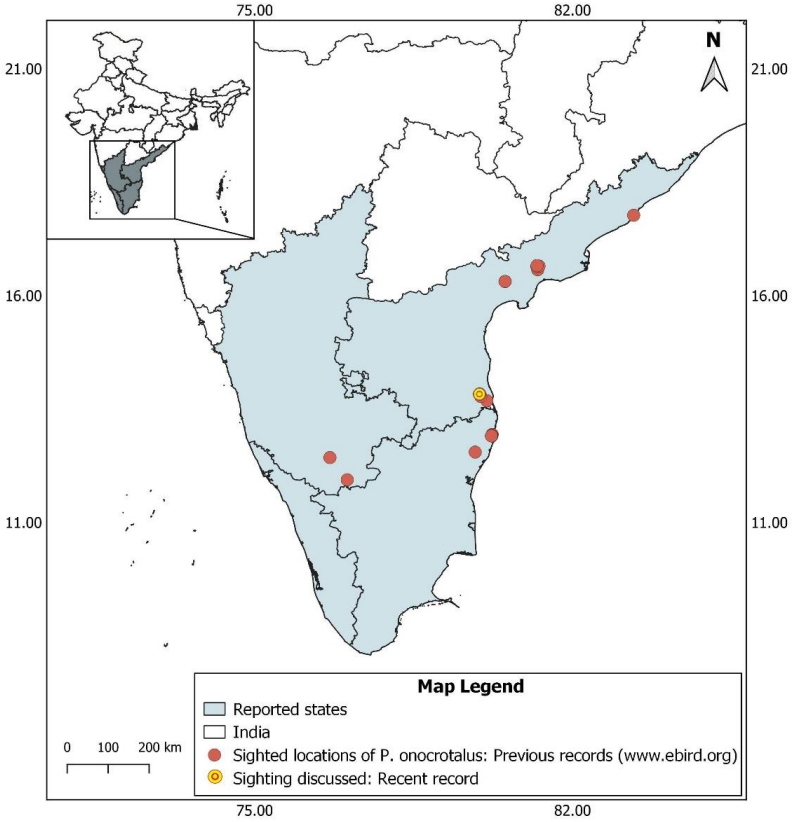
CONCLUSIONS

Indeed, there is a need to monitor birds to produce documentation of their movements and habitat quality, which will significantly help to conserve threatened bird species against intense environmental changes in the present and future. This communication aimed to document a sighting record from the Nelapatu Bird Sanctuary and compile other sighting records of *P. onocrotalus* in southern India using ebird platform. The driving factors of vagrancy movements and inland migration routes are largely unknown. Therefore, monitoring and often documenting the spatiotemporal patterns of this vagrancy movement in birds, including all Pelican species, will contribute to a better understanding of this phenomenon for building effective conservation strategies.

Table (1): eBird records of Great White Pelican from Southern India (2000-2023).

S.No.	Observers	Count	Place	M/Y	Latitude	Longitude	Altitude (m.)
1	Gnanaskandan Kesavabharathi	1	Vedanthangal Bird Sanctuary, Tamil Nadu	JAN /2009	12.545767	79.855542	47
2	Sandip Das	3	Indira Gandhi Zoological Park, Andhra Pradesh	NOV /2012	17.767348	83.344611	53
3	Amarendra Konda	1	Uppalapadu Bird Sanctuary, Andhra Pradesh	DEC /2014	16.307207	80.51337	34
4	Ramana Kumar Kandula	1	Uppalapadu Bird Sanctuary, Andhra Pradesh	JAN /2014	16.307207	80.51337	34
5	The Nature Trust	1	Pallikaranai marsh lands, Tamil Nadu	DEC /2014	12.935358	80.22867	14
6	The Nature Trust	1	CAPML Center, Chennai, Tamil Nadu	DEC /2014	12.91493	80.22125	14
7	The Nature Trust	1	Karapakkam, Chennai, Tamil Nadu	JUL /2015	12.903757	80.212646	13
8	The Nature Trust	1	Nelapattu Wildlife Sanctuary, Andhra Pradesh	DEC /2015	13.825847	79.948892	59
9	The Nature Trust	1	Ayyapalem, Andhra Pradesh	JAN /2016	13.824401	79.950004	61
10	Pavithra Sankaran	1	Nagavalli Kere, Karnataka	FEB /2016	11.934834	77.037785	706
11	Kadambari Devarajan	1	Kolleru Bird Sanctuary, Andhra Pradesh	JAN /2017	16.567002	81.231659	33
12	Kuldeep Deshpande	1	Kolleru Birds Sanctuary, Andhra Pradesh	JAN /2017	16.645929	81.260376	30
13	Sankara Narayanan	1	Nelapattu Wildlife Sanctuary, Andhra Pradesh	DEC /2017	13.819578	79.955149	59
14	Dipu Karuthedathu	1	Perumbakkam Marshlands, Tamil Nadu	DEC /2017	12.900543	80.218391	11
15	Suryakanta Acharya	1	Kolleru Birds Sanctuary, Andhra Pradesh	JAN /2018	16.65934	81.2167	37
16	Ganeshwar S V	1	Perumbakkam Marshlands, Tamil Nadu	JAN /2018	12.900543	80.218391	11
17	Arjun Dev	1	Pulicat Lake (Andhra Pradesh part)	JAN /2018	13.678024	80.111275	18
18	Stephan Lorenz	1	Ranganathittu Bird Sanctuary, Karnataka	JAN /2018	12.424956	76.657029	724
19	Srikanth Bhamidipati	1	Kolleru Birds Sanctuary, Andhra Pradesh	FEB /2021	16.636893	81.214012	41
20	Sharma Kamalanathan *	1	Nelapattu Wildlife Sanctuary, Andhra Pradesh	DEC /2022	13.828064	79.95377	55
21	Siribabu Gera	1	Nelapattu Wildlife Sanctuary, Andhra Pradesh	JAN /2023	13.772822	79.97656	45
	Total	23					
* Sighting described in this communication			**Source**: https://ebird.org/ (Accessed on 15 Apr 2023)				

Vagrancy records of the great



Map (1): Recorded sightings of *P. onocrotalus* in Southern India.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest with this manuscript to declare. The photographs used in this manuscript were captured by Sharma Kamalanathan, ensuring there are no copyright issues.

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سجلات التشرد للبجع الأبيض الكبير *Pelecanus onocrotalus* Linnaeus (Aves, Pelecanidae, Pelecaniformes) في جنوب الهند

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الخلاصة

تُعدّ الهجرة العارضة (التشرد) للطيور عنصرًا أقل تنظيماً في سياق هجرة الطيور، مما يجعل دراسة أنماط هذه الظاهرة في الطيور المهاجرة وسيلة فعالة لفهم التغيرات في توزيعها، وتحولات نطاقها الجغرافي، وتوسع انتشارها. ويُعتبر استكشاف محددات وأنماط الهجرة العارضة أمرًا بالغ الأهمية لوضع استراتيجيات فعالة لحماية جميع أنواع الطيور المهاجرة، بما في ذلك الأنواع المهددة من البجع، نظرًا لقلة الدراسات المتعلقة بمسارات هجرتها الداخلية في الهند. يُعد البجع الأبيض *الكبير* (L., 1758) *Pelecanus onocrotalus* المنتمي إلى رتبة البجعيات (Pelecaniformes) وعائلة البجع (Pelecanidae) ، أحد الزوار الشتويين للهند، غير أن نطاقه الشتوي داخل البلاد لم يتم بحثه بصورة وافية. تستعرض هذه الورقة توثيقًا لرصد البجع الأبيض الكبير في محمية نيلاباتو للطيور، والتي تُعد إحدى المناطق ذات الأهمية الخاصة للطيور في ولاية أندرا براديش بالهند، مع تسليط الضوء بشكل موجز على الظاهرة العارضة لهذا النوع في ولايات جنوب الهند.