

ABNORMAL PLUMAGE COLOURATION IN SPOT-BILLED PELICANS *PELECANUS PHILIPPENSIS* AT PULICAT LAKE, ANDHRA PRADESH, INDIA

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Received 30 July 2020, accepted 12 February 2021

ABSTRACT

KANNAN, V. 2021. Abnormal plumage colouration in Spot-billed Pelicans *Pelecanus philippensis* at Pulicat Lake, Andhra Pradesh, India. *Marine Ornithology* 49: 211–214.

Plumage colour variation is rarely observed in the Pelecaniformes and had not been previously recorded for the Spot-billed Pelican *Pelecanus philippensis*. Observed at Pulicat Lake, Andhra Pradesh, India, I describe strikingly coloured Spot-billed Pelicans having dark brown plumage, pink coloration on the bill, and black feet, but having normal eye colour.

Key words: plumage, colour variation, *Pelecanus philippensis*, Pulicat Lake, Andhra Pradesh, India

INTRODUCTION

Colouration in animals is of high evolutionary significance (e.g., Lyon & Montgomerie 1985, Booth 1990) and is the result of altered pigments or refractive structures (Yusti-Muñoz & Velandia-Perilla 2013). The key pigments in birds are melanins, with pheomelanin and eumelanin being the most prominent (Rodríguez-Pinilla & Gómez-Martínez 2011). Variations in avian plumage colour may be due to sex, age, diet, disease, temperature, humidity, solar bleaching, and abrasion, as well as other factors that can influence plumage colour within hereditary limits, such as food quality (e.g., Brush 1978, Andersson *et al.* 1998). The complete absence of pigments is defined as albinism (van Grouw 2005), but abnormal colouration is relatively rare in wild birds. However, albinism has been reported in several bird families at different frequencies, including in the family Pelecanidae (Shields 2002, Peterson 2008, Torres & Franke 2008, Tanglely 2009).

The family Pelecanidae contains only one genus, *Pelecanus*, which includes eight species (Kennedy *et al.* 2013, Sen Nag 2019). The Spot-billed Pelican *Pelecanus philippensis* occurs in Southeast Asia and is mainly localized to southern and northeastern India, Sri Lanka, Cambodia, Sumatra, Thailand, and the Philippines (for a review of the historical distribution this species, see Kannan & Pandiyan (2013)). Currently, the Spot-billed Pelican is considered “Near-Threatened” (BirdLife International 2019), and owing to its population decline and reduced distributional range, the Species Survival Commission (SSC) and the Pelican Specialist Group have urged for increased study of the species in India (Crivelli & Anderson 1996, BirdLife International 2003, Crosby & Chan 2006).

Herein, I report the occurrence of Spot-billed Pelicans with aberrant plumage, observed on two occasions in India.

METHODS

Study area

Pulicat Lake (13°33'N, 080°10'17"E) is the second largest brackish water lake after Chilika (Orissa) in India. It is 60 km long, ranging 0.2–17.5 km wide and covering 720 km² (Fig. 1). It is one of the most important refuges for waterbirds in southern India and was declared an Important Bird Area (IBA) by BirdLife International and the Bombay Natural History Society (Islam & Rahmani 2004). It has also been proposed as a Ramsar Wetland of International Importance by Wetlands International.

Observations

On 05 December 2005, two unusual, brightly coloured pelicans were sighted at Pulicat Lake, although they were not seen on subsequent days. During regular field visits, I observed two individuals differing from the other Spot-billed Pelicans, feeding and resting away from pelicans with normal colouring (Fig. 2). Photographs were shared among other active birders to learn of any similar observations. The two birds were also reported in the same month (December 2005) by personnel of the Forest Department at the Nelapattu Bird Sanctuary, a breeding site 25 km from Pulicat Lake (13°50'N, 079°59'E). The birds showed no breeding activity.

Plumage in adult Spot-billed Pelicans tends to be white, often with grey or pink tinges, and frequently with black or blackish flight feathers. By the onset of the breeding season, bare parts, especially the facial skin and pouch, turn to colours that are much more vivid. The pink tinges come from a uropygial gland secretion, which the bird spreads over its plumage while preening; the intensity of this pink tinge varies among birds across geographical regions

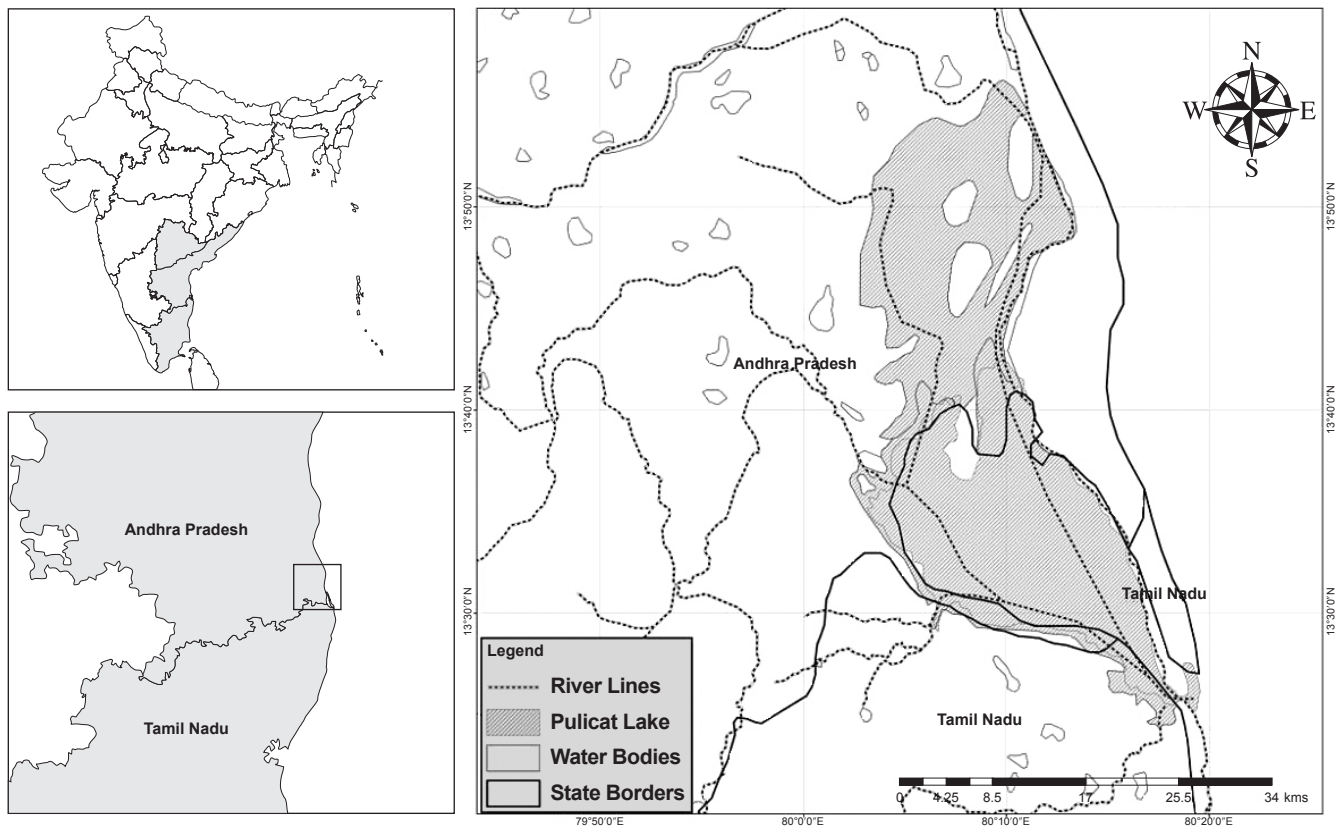


Fig. 1. Map of the study area at Pulicat Lake, Andhra Pradesh, India (right panel). The top left panel shows a map of India, with the southern provinces of Andhra Pradesh and Tamil Nadu shaded in gray; the bottom left panel shows the geographic location of the study area (square box) relative to the two states.

depending on their diet. Young birds tend to be drabber than adults, with various mottled combinations of brown and grey bare parts. The birds that I observed were essentially entirely brown, similar to the Brown Pelican *P. occidentalis* of the Americas. Eye colour, which was pinkish red, was consistent with the expectation for Spot-billed Pelicans.

DISCUSSION

There are three species of pelicans in India: the Great White Pelican *P. onocrotalus*, the Pink-backed Pelican *P. rufescens*, and the Spot-billed Pelican. The plumage characteristics of the Spot-billed Pelican, as noted above, is described as greyish tinged white plumage with a paler, duller coloured bill (Rasmussen & Anderton 2005, Jeyarajasingam 2012).

One pelican species of somewhat similar colour to the Spot-billed Pelican is the Dalmatian Pelican *P. crispus*, which has an overall colouration that is silvery white (rather than pure white) and has wings that appear solid grey when in flight. Adults acquire drabber plumage (dingy brownish-grey cream) in winter and have been mistaken for Great White Pelicans (del Hoyo *et al.* 1992). During the breeding season, male Great White Pelicans (also known as Rosy Pelicans) have pinkish skin, and females have orange skin on their faces (McLachlan & Liversidge 1978, del Hoyo *et al.* 1992); in both sexes, their covert feathers are white, in contrast to their secondary feathers, which are solid

black (Sinclair *et al.* 2005). In addition, three changes occur to the plumage of Great White Pelicans towards the onset of breeding (Brown & Urban 2008, Jeyarajasingam 2012): body plumage becomes tinged pink, a yellow shaggy crest develops on the nape, and dark feathers lead to diamond-edged wings (Harrison 2011). In Pink-backed Pelicans, the plumage is grey and white with a pinkish hue on the back (not as deep pink as flamingos, e.g., American Flamingo *Pheonicopterus ruber*). Juveniles have a brownish grey, dark brown tail and darker grey secondary feathers (Beaman & Madge 2010).

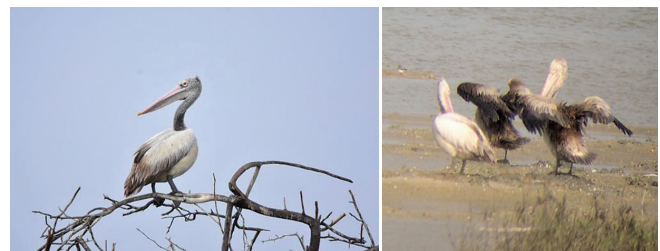


Fig. 2. Plumage of Spot-billed Pelicans *Pelecanus philippensis* showing normal and aberrant plumage at Pulicat Lake, Andhra Pradesh, India on 05 December 2005; (left) normal adult (photo: K.V.R.K. Thirunaranan); (right) pelicans with normal colouration alongside colour-aberrant individuals (photo: VK).

The aberrant plumage colour variation that I observed in the two pelicans at Pulicat Lake was not a seasonal plumage, which occurs in pelican species that do not occur in India. For example, during courtship, Australian Pelican *P. conspicilatus* adults have primarily white plumage, whereas juveniles appear primarily brown (Christie 2003). The American White Pelican *P. erythrorhynchos* is entirely snowy white except for black primary and secondary remiges, with ornamental breast feathers that have a yellowish hue after breeding; after moulting, the upper head often has a grey hue due to the growth of blackish feathers in its wispy white crest (Knopf & Evans 2004). Immature Brown Pelicans *P. occidentalis* (< three years of age) are brown like adults but have white bellies (Turner 2017).

It is not clear what factors might be responsible for the aberrant Spot-billed Pelicans reported here, or why there were two together—were they siblings, or possibly nest mates? In the future, the birding community should be more vigilant in looking for additional individuals with similar colouring.

ACKNOWLEDGMENTS

I thank the Ministry of Environment, Forest & Climate Change, Government of India for funding the waterbirds project from 2004–2007, and the Andhra Pradesh Forest Department and Pulicat-Nelapattu Forest Department staff for the study permission and co-operation during the study. I give my sincere thanks to Dr. R. Manakadan (Deputy Director, BNHS & Former Principal Investigator of the Waterbirds Project), Dr. P.A. Azeez (Former Director, Sàlim Ali Centre for Ornithology and Natural History (SACON)), Dr. Alain J. Crivelli, Dr. Giorgos Catsadorakis (Chairman, Pelican Specialist Group (Old World)/Wetlands International–International Union for Conservation of Nature Species Survival Commission (WI-IUCN SSC)), and Deepan Chakravarthy for commenting and helping me in map preparation. I want to thank Dr. R. Nagarajan (Principal, AVC College (Autonomous)/Head of Postgraduate & Research Department of Zoology & Wildlife Biology) for his magnanimous support during the course of the study. I appreciate the photographic contributions from S. Jayasankar (Karnataka), Karthick Sharma (Andhra Pradesh), K.V.R.K. Thirunaranan (Tamil Nadu), and Basil Peter (Kerala). Last but not least, I thank my field assistant, E. Munikrishna, for his assistance during field activities. Anonymous reviewers and the editor provided helpful comments to improve this paper.

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