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First Record of Leucism in Painted Stork (*Mycteria leucocephala*) from Bharuch District, Gujarat, India

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Abstract
Leucism is a genetic condition characterized by a partial loss of pigmentation, resulting in white, pale, or patchy coloration in animals. Unlike albinism, it does not affect the eyes, which retain their normal color. This paper reports the first confirmed sighting of a leucistic Painted Stork (*Mycteria leucocephala*) from Bharuch district, Gujarat, India. The observation was made on 29 January 2024 at Bambakhana circle near old market, Bharuch, Gujarat. Detailed morphological descriptions and behavioral notes of the leucistic individual are provided, along with photographs. This record is significant as it contributes to the limited documentation of color aberrations in this near-threatened species within the Indian subcontinent and highlights the importance of continued long-term monitoring of migratory and resident bird populations in the region.

Keywords: Leucism, painted stork, bharuch, gujarat, first record, color aberration

Introduction

The Painted Stork *(Mycteria leucocephala*) is a large wading bird belonging to the family Ciconiidae, widely distributed across the Indian Subcontinent and Southeast Asia (Ali, S., & Ripley, S. D., 1987) [1]. It is a colonial nester, typically found in shallow wetlands, marshes, and agricultural fields (Urfi, A. J.,2003) [9]. The species is currently listed as "Near Threatened" by the IUCN due to threats such as habitat loss, hunting, and agricultural pollution. The typical adult plumage is predominantly white with a distinctive pinkish wash on the lower back and black-and-white flight feathers.

Color aberrations in birds are rare but have been documented in various species. These conditions can be genetic, such as albinism and leucism, or environmental, resulting from diet or other factors. Leucism is a condition caused by a defect in pigment cells (melanocytes), leading to a uniform or patchy reduction in melanin production (Jambu *et al*., 2021) [2]. Unlike albinism, which involves the complete absence of melanin and results in red or pink eyes, leucistic birds have normal eye and bill coloration, as the cells responsible for these pigments are not affected (Subramanya, S,1996) [7].

While there are numerous studies on the breeding biology and population status of the Painted Stork in India, records of leucistic individuals are sparse. This paper aims to document the first sighting of a leucistic Painted Stork in Bharuch, Gujarat, a region known for its rich avian diversity. This observation provides a valuable record for the ornithological community and adds to the growing body of knowledge on avian color aberrations in India.

Materials and Methods

1. Study Site

The observation was made at Bambakhana circle near old market Bharuch district, Gujarat, India (GPS: 21.6895383, 72.9711575). The study site is characterized by urban gardening approx. 2 km radius centered on Bambakhana circle, Bharuch. In this area we found mostly local or native old trees. This habitat is suitable for nesting colony of painted stork (Figure: 1). The survey, conducted on January 29, 2024, in Bambakhana, Bharuch, identified a significant heronry of the Near Threatened Painted Stork (*Mycteria leucocephala*).

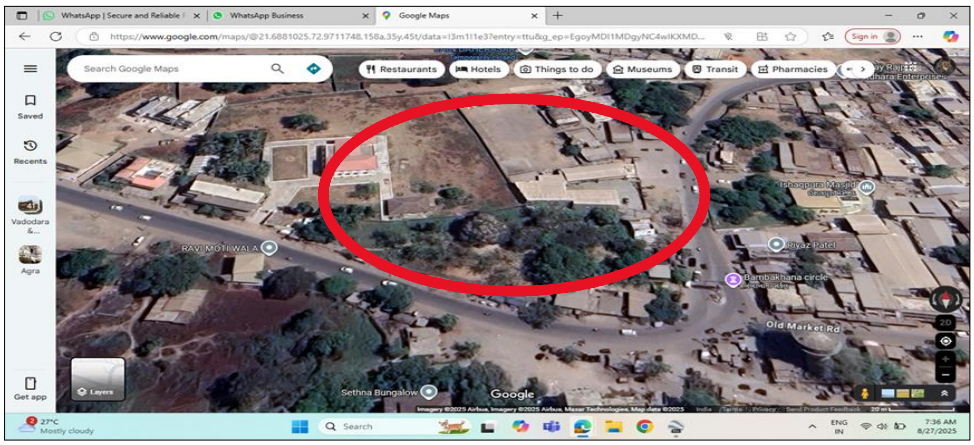

Fig: 1 Location of our study site. (Bambakhana circle)

2. Observation Details

The leucistic Painted Stork was first sighted on 29, January 2024 at morning 10.00 by the authors. The bird was observed and photographed from a distance of approximately 75 meters using a Camera (Nikon D500) with a Tamron 150-600 zoom lens. The weather conditions were clear and cold. (winter season). Evry year more than 500 individuals create a big nesting colony of painted stork population.

3. Identification of Leucism

The bird was identified as a leucistic individual based on the following characteristics (plate:1):

- Absence of black barring on the wings and breast, and black flight feathers.
- Lack of the typical pink wash on the lower back.
- Predominantly white plumage.
- Normal coloration of the eyes, bill, and legs, which were not pink or red.

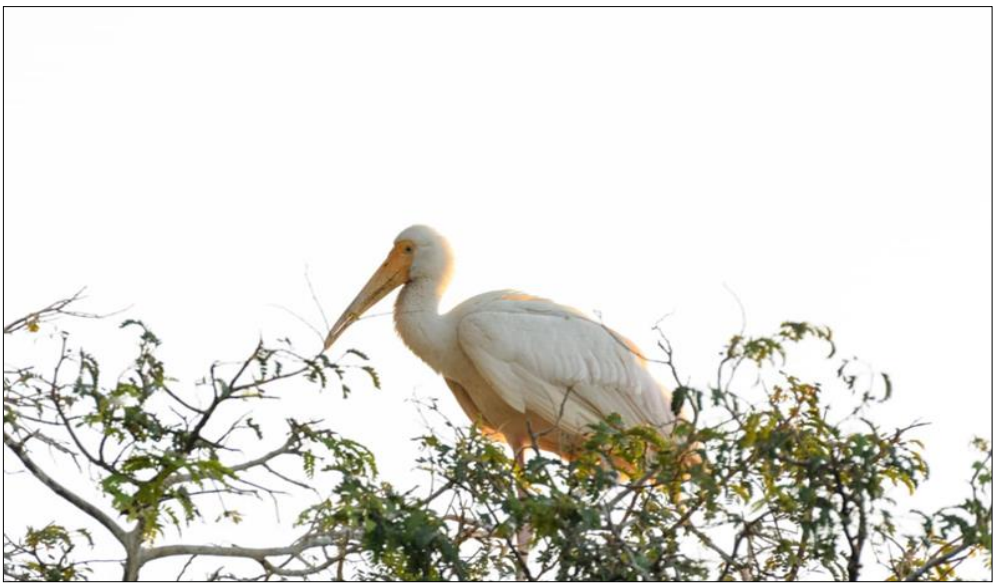

Plate: 1 Leucistic painted stork at nesting colony.

Results and Discussion

1. Overall breeding colony

1.1 Population Size and Structure

A total of 512 individual Painted Storks were directly counted across six compounds. The population structure was heavily skewed towards immature birds (Figure. 2).

The demographic breakdown is as follows:

- Juveniles: 424 (82.8% of the total population)
- Adults: 62 (12.1% of the total population)
- Nestlings: 26 (5.1% of the total population)

The combined count of non-adult birds (juveniles and nestlings) was 450 individuals.

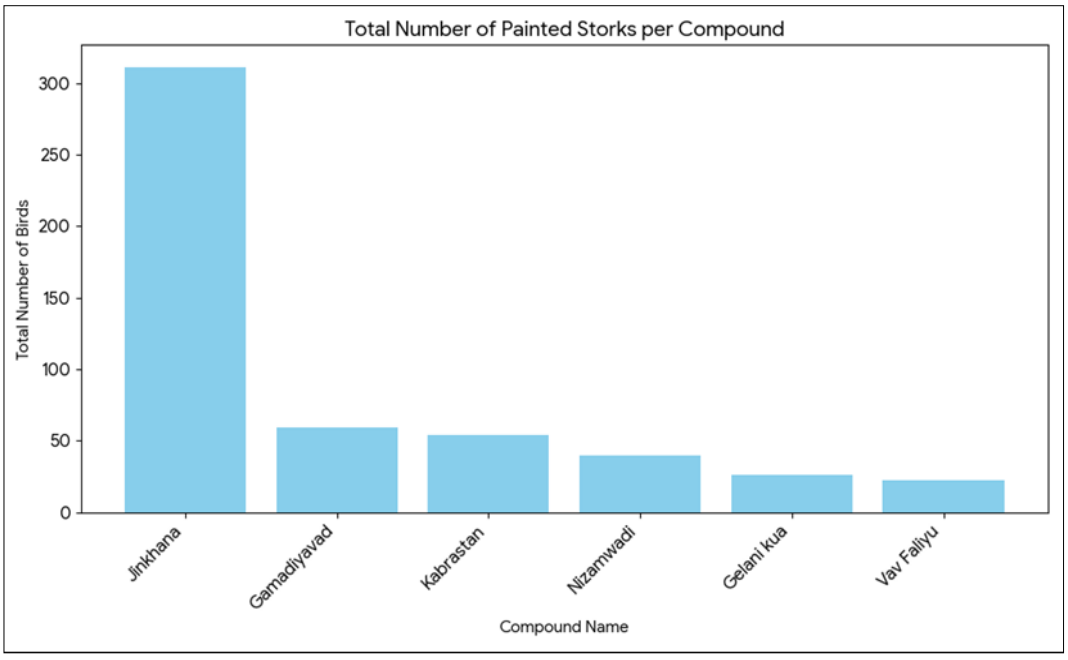

Fig 2: Total number of birds with compound name.

1.2 Spatial Distribution and Habitat Preference

The population was distributed across six distinct compounds, with a clear concentration in specific areas. The Jinkhana compound was the primary nesting site, housing 311 birds (60.7% of the total population).

A strong preference for non-resident compounds was observed. These areas supported a total of 391 birds, compared to 121 birds in resident compounds (Figure.3).

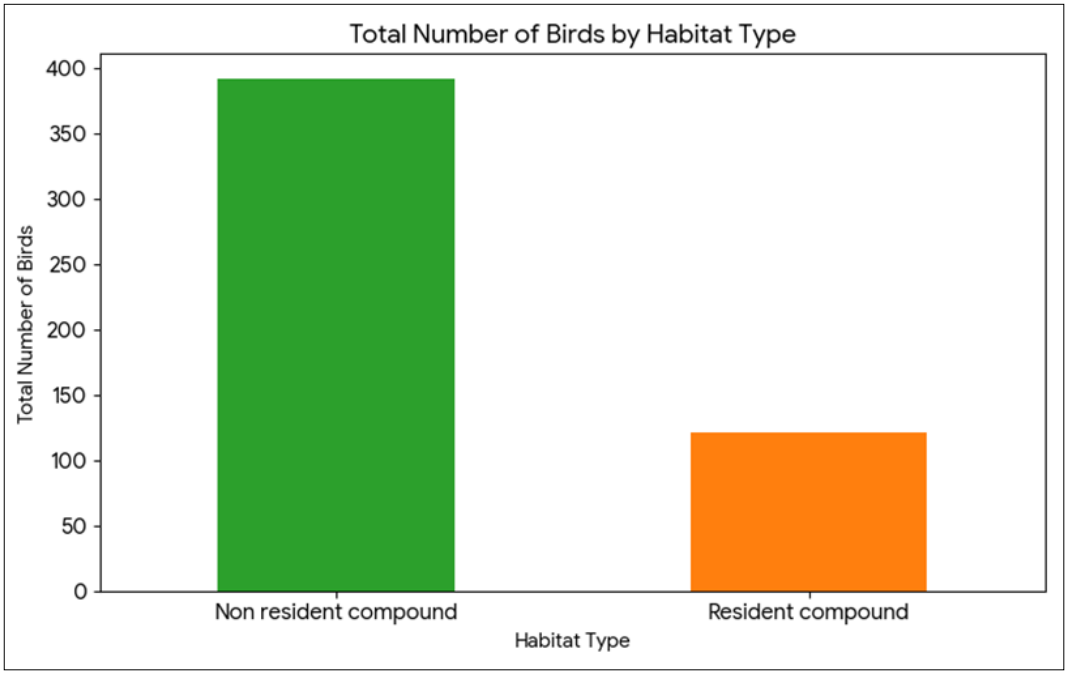

Fig 3: Total number of birds by habitat type.

1.3 Nesting Site Characteristics

Nesting was observed predominantly on Tamarind trees (*Tamarindus indica*), with one nest also found on a Neem tree (*Azadirachta indica*). A Peepal tree (*Ficus religiosa*) was noted as a resting site for juveniles. All trees used by the storks were between 20-50 feet in height. Nestlings were consistently located in the lower canopy of the trees, at a height of approximately 30 feet or less.

1.4 Sighting of the Leucistic Painted Stork

A single leucistic Painted Stork was sighted in a nest with other individuals and available of breeding pair near the nest. It was observed in the company of several normally plumaged individuals. The leucistic bird was an sub-adult, identifiable by its size and mature features.

1.5 Morphological Description

The observed individual exhibited an almost entirely white plumage, with the exception of eyes Color. The bill and legs appeared normal, retaining their characteristic yellowish-orange and reddish-pink hues, respectively. The eyes were dark and normal in appearance, confirming the condition as leucism rather than albinism.

1.6 Behavioral Observations

The leucistic Painted Stork was observed to be resting in a nest. This is a sub adult individual. Its behavior did not appear to be different from that of the other storks in the flock. It was not harassed or ostracized by the other birds, suggesting it was well-integrated into the social structure of the colony. (Plate: 2)

Plate: 2 Leucistic juvenile with adult and sub- adult at nesting site.

Discussion

1. **Overall breeding colony**
2. This survey provides critical data on the population and nesting ecology of Painted Storks in the Bambakhana area, highlighting significant conservation challenges.

2.1 Population Dynamics and Survey Limitations

The observed population structure, with a low count of 62 adults compared to 450 juveniles and nestlings, is notable. The report suggests this discrepancy is a result of the survey timing (07:00hrs to 08:30hrs). It is hypothesized that the majority of adult birds had already departed the heronry to forage before dawn.

Based on an assumption of three young per nest, the report estimates that the actual adult population required to support the 450 young birds would be approximately 300 individuals. This would place the estimated total population size at around 750 birds, significantly higher than the observed count. This suggests that single, diurnal surveys may underestimate the true adult population size in active heronries.

2.2 Leucistic Painted stork

This record is of considerable scientific importance as it is the first documented case of leucism in *Mycteria leucocephala* from Bharuch district and contributes to the limited records of this condition in the species across India. Previous records of color aberrations in Painted Storks are few and far between. This sighting underscores the need for continuous and systematic monitoring of bird populations to document such rare occurrences, which can provide valuable insights into genetic variations within a species.

Conservation Implications and Threats

The concentration of a Near Threatened species in this urban-adjacent heronry presents both an opportunity for conservation and significant challenges. Two primary threats were identified:

Human-Wildlife Conflict: The nesting colony's characteristics—including noise and a foul smell from excreta and dropped fish—have led to conflict with residents, who have expressed a desire to cut down the nesting trees. This presents a direct and immediate threat to the heronry's existence.

Anthropogenic Hazards: The survey highlights a critical seasonal threat: the kite-flying festival of Uttarayana. The fledgling period of the juveniles coincides with this festival, making them highly vulnerable to injury from kite strings[20]. It is reported that around 90% of Painted Storks rescued during this period are juveniles with kite string injuries.

Conclusion and Recommendations

The Bambakhana heronry is a vital breeding site for Painted Storks. However, its long-term viability is threatened by human-wildlife conflict and seasonal dangers. The survey data underscores the need for proactive conservation management.

1. **Further action should include**

- **Community Engagement:** Initiating dialogue with local residents to mitigate conflict and find solutions that protect both the heronry and address community concerns.

- **Seasonal Awareness Programs:** Conducting targeted campaigns before and during the Uttarayana festival to reduce the risk of kite string injuries to fledglings.

- **Comprehensive Monitoring:** As recommended, continued monitoring is essential. Future surveys should include pre-dawn observations to establish a more accurate adult population count and better understand the colony's dynamics.

The first record of a leucistic Painted Stork in Bharuch, Gujarat, provides a significant contribution to the ornithological records of the region. The observation confirms the presence of this genetic condition in the wild population of *Mycteria leucocephala* in India. Further research is warranted to understand the frequency of such genetic anomalies and their potential impact on the survival and fitness of affected individuals in the wild. This sighting also highlights the importance of the study site as a vital habitat for a diverse range of bird species.

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