First Record of Leucistic Jungle Babbler (*Turdoides striata*) from Lucknow, Uttar Pradesh

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Abstract - Leucism is a genetic trait caused by a lack of melanin pigment in an animal's skin, feathers, or fur. Unlike albinism, which is defined by a total lack of melanin synthesis, leucism is characterised by a partial loss of pigmentation. The definitions of leucism and various aspects of albinism are exceedingly vague. This very first documented report of a leucistic Jungle Babbler (*Turdoides striata*) in Northern India was made in Lucknow, Uttar Pradesh. More study is needed to look at the additional places of occurrence of these leucistic individuals, as well as the genetic basis of leucism in Jungle Babblers.

Keywords: leucism, melanin, Jungle Babbler, Lucknow.

Riassunto - Primo record di garrulo della giungla leucistico (*Turdoides striata*) di Lucknow, Uttar Pradesh.

Il leucismo è un tratto genetico causato dalla mancanza di pigmento melaninico nella pelle, nelle piume o nella pelliccia di un animale. A differenza dell'albinismo, che è definito da una totale mancanza di sintesi di melanina, il leucismo è caratterizzato da una perdita parziale della pigmentazione. Le definizioni di leucismo e dei vari aspetti dell'albinismo sono estremamente vaghe. La prima segnalazione documentata di un garrulo della giungla (*Turdoides striata*) leucistico nell'India settentrionale è stata fatta a Lucknow, nell'Uttar Pradesh. Sono necessari ulteriori studi per esaminare altri luoghi di presenza di questi individui leucistici, nonché le basi genetiche del leucismo nel garrulo della giungla.

Parole chiave: leucismo, melanina, garrulo della giungla, Lucknow.

Colours in birds are produced by a number of pigmentary and structural systems. Melanin pigmentation has been the focus of the majority of research on colour genetics in birds and other vertebrates (Price-Waldman & Stoddard, 2021). Many scientific publications have been published during the nineteenth century on the subjects of plumage colouring, aberration, and/or genetics. To identify and describe the pigment abnormalities, a variety of nomenclature is employed in all of these articles (van Grouw *et al*., 2016). Melanines and carotenoids are the most important pigments that determine plumage colours in birds (van Grouw, 2006). Leucism is a genetic condition resulting from the reduction or absence of melanin pigment in an animal's skin, feathers, or fur. Unlike albinism, which is characterized by a complete absence of melanin production, leucism involves a partial loss of pigmentation. Leucistic individuals exhibit pale or white colouration in various parts of their bodies, including feathers. While leucism is a relatively rare occurrence in the animal kingdom, it has been documented in a wide range of species, including birds. Leucism is a neural crest condition that causes a lack of melanin in all or sections of the plumage and skin (van Grouw, 2021). Leucism is defined as a partial or complete absence of eumelanin and phaeomelanin in the feathers as a result of a genetic abnormality of pigment deposition in the feathers. It is most likely the most common inheritable colour aberration in birds, and it is commonly referred to as albinism or 'partial albinism' (van Grouw, 2006).

Some researchers (Cortés-Avizanda *et al*., 2010, Dudgeon, 1904; Gurusami, 1992; Inglis, 1903; Javed, 1992; Mahabal, 1991; Prasad, 2000; Pande *et al*., 2005; Pawashe *et al*., 2006; and Sathiyaselvam, 2003) have documented albinism in birds. The definitions of leucism and other phases of albinism in the ornithological literature are highly ambiguous. Ornithologists continue to struggle with identifying and labelling these colour anomalies. This is likely due in large part to the fact that depending on the normal pigmentation, the appearance of comparable heritable aberrations (mutations) can vary greatly between species, as well as between sexes and ages of the same species (van Grouw, 2021).

There have been no published instances of leucism in Jungle Babblers from Northern India; therefore, this report might be the first photographic record of a leucistic Jungle Babbler from Uttar Pradesh. On 30 May 2023, a leucistic Jungle Babbler (*Turdoides striata*) was observed in Lucknow, Uttar Pradesh, marking the first documented record of this phenomenon in the area (Fig 1).

The individual was observed in a group of non-leucistic Jungle Babblers during a routine bird-watching activity conducted by me (Ankit Sinha) and Preeti Gupta.

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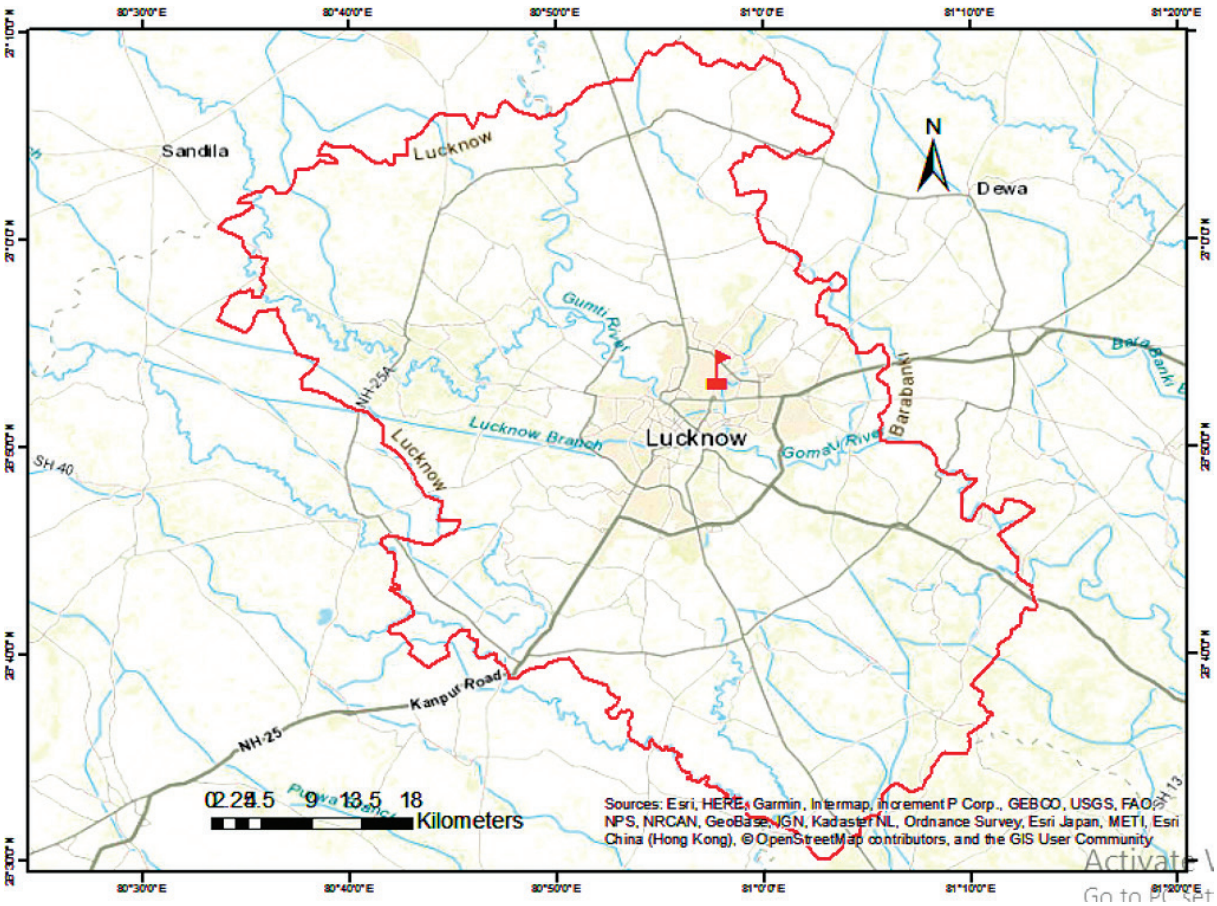

Fig. 1 - Location of Leucistic Jungle Babbler sighting in Lucknow, Uttar Pradesh. / Posizione dell'avvistamento di garrulo della giungla leucistici a Lucknow, Uttar Pradesh.

We observed that a flock of jungle babblers were feeding and dust bathing, but there was one individual whose appearance was strikingly different from other birds in the flock (Fig. 2).

The leucistic bird exhibited a distinctive white plumage, with patches of pale cream colouration on its wings and tail. Its eyes were dark, contrasting with the overall pale appearance of its feathers.

The occurrence of leucism in Jungle Babblers is a unique and intriguing observation. Although uncommon, a few reports of full or partial leucism in Jungle Babblers from Gujarat (Newnham 1886), Maharashtra (Janakiraman & Prasad, 1961; Pande *et al*., 2003; Saini & Kasambe, 2007) and Madhya Pradesh (Gupte, 1969) are recorded in India. Jungle Babblers are small, highly social passerine birds found in the Indian subcontinent. They are distinguished by their distinctive brown plumage and gregarious attitude since they are frequently spotted foraging and travelling in groups. The leucistic individual looked to be well integrated within its community, and engaged in regular actions alongside non-leucistic individuals.

The incidence of leucism in bird populations is uncommon, and the precise causes are unknown. It is usually thought to be a hereditary disorder caused by a mutation that affects the generation or distribution of melanin. The enzyme tyrosinase is generally present in leucistic birds, and melanin generation in basic colour cells and transition into colour cells is normal. However, melanin deposition in feather cells does not occur due to a hereditary pigment transfer disruption disease. As a result, colourless (white) feathers appear at random throughout the plumage (van Grouw, 2006, Koparde *et al*., 2014). Leucistic individuals frequently encounter survival issues because their changed colouration makes them more visible to predators or makes it difficult for them to attract partners. However, the leucistic Jungle Babbler looked to be adjusting well within its social group, indicating that it may have developed means to compensate for any drawbacks related to its colouration.

Documenting instances of leucism in different species and geographic locations is crucial for understanding the prevalence and impact of this condition. The Lucknow observation expands the knowledge of leucism in Jungle Babblers, adding to the small number of documented cases in this species. Additionally, it contributes to the overall understanding of avian genetics and colouration patterns.

The first recorded instance of a leucistic Jungle Babbler in Lucknow, Uttar Pradesh, provides a valuable addition to the existing scientific literature on avian leucism. This observation emphasizes the importance of documenting and studying such occurrences to better understand the prevalence, causes, and impacts of leucism in different

Fig. 2 - Leucistic Jungle Babbler with a normal individual from the flock. / Garrulo della giungla leucistico con un individuo normale dello stormo.

species. Further research is necessary to investigate the other areas of occurrence of this leucistic individual and most importantly the genetic basis of leucism in Jungle Babblers and to assess the longterm survival and reproductive success of leucistic individuals within their populations.

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