Short Communication

Short Note on the Observation of Leucistic Colour Aberration in Indian Rock Pigeon in Chennai, Tamil Nadu, India

Phillmon Smart Edward[1*], Jeyasubashini Regupathikannan[1] and Arockianathan Samson[2]

[1] Centre for Landscape Ecology, Research & Development Division, Fedstan GMC Register, Chennai, Tamil Nadu, 600040, [2]Bombay Natural History Society, Vulture Programme, Vulture Conservation Breeding Centre, Bhopal - 462044, Madhya Pradesh, India.

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Leucism is a pigment abnormality in birds which causes partial or complete loss of melanin in their feathers. Initially defined as all-white plumage with normal eyes, its use has broadened to include diluted pigments or isolated white feathers (Davis, 2007). Unlike albinism, where the lack of the enzyme tyrosinase leads to complete melanin absence, leucism retains normal eye colouration (Konter, 2015). This observation records a case of partial leucism in the Indian Rock Pigeon (*Columba livia*) on 10 November 2024 in Perungalathur (12.84868° N, 80.06402° E), Chennai, Tamil Nadu (Figure 1).

(Figure 1. Leucistic *C. livia* feeding on grains in Chennai, Tamil Nadu)

The pigeon displayed a white morph plumage, with symmetrical depigmentation patches across its wings, tail and head, yet retained its usual flock behaviour. This phenomenon is categorized by its distinct developmental anomaly affecting the melanoblast migration from the neural crest during early embryonic stages (Oisoe *et al.* 2013). This results in pigment-free feathers and skin, although carotenoids, if present, remain unaffected

*Corresponding author: phillmonsmart@gmail.com

(van Grouw, 2021). The persistence of symmetrical white patches, as noted in this pigeon, aligns with prior findings that leucistic patterns are static and unaffected by age (van Grouw, 2022). Documenting such rare pigmentation anomalies is essential for understanding their genetic underpinnings and ecological implications (Samson *et al*. 2016). In this observation's context, an urban environment like Chennai is known for its highly disturbed habitat due to high anthropogenic activities. This, in turn, may amplify such anomalies due to genetic bottlenecks or environmental stressors. While these leucistic individuals can suffer from increased predation or social exclusion (Reis *et al.* 2019). However, this pigeon's integration from this observation suggests its adaptability hence the social factors might play a less critical role in survival. Additionally, the feather pigmentation in birds is often linked to mate selection (Jawor & Breitwisch, 2003) therefore raising questions on how leucistic birds influence or are influenced by these dynamics in their populations (Roulin, 2004). Here the leucistic plumage in *C. livia* indicates the need for standardizing terminology to accurately describe avian colour aberrations. Moreover, leucism is often confused with conditions like progressive greying or dilution, which have distinct genetic and phenotypic characteristics (van Grouw, 2021). In conclusion, documenting such occurrences can greatly enhance our understanding of the evolution and genetic basis of avian pigment disorders. It also sheds light on their ecological relevance, especially in urban areas where anthropogenic pressures influence wildlife genetics. By enhancing public awareness and encouraging citizen science platforms, more extensive datasets on such anomalies can be collected. These datasets can be studied to support avian biodiversity conservation efforts. This observation also contributes to the understanding of avian colour aberrations and nuances of urban wildlife.

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