Colour aberrations in Black-headed Ibis

Black-headed Ibis *Threskiornis melanocephalus* (Latham, 1790) belongs to the family Threskiornithidae and is categorized as 'Near Threatened' under the IUCN Red List (BirdLife International 2024).

It is a large, white-water bird with a prominent bare black head and neck, a long, down-curved black bill and its tail bears grey ornamental feathers, both the male and female Black-headed Ibis (BHI) are similar in size and appearance. Bare patches under the wings turn a brighter red colour during breeding (Ali & Ripley 1987; Hancock et al. 1992; Matheu & del Hoyo 1992).

Black-headed Ibis with a red neck pattern. © Anil Kumar Sharma.

Colour aberrations are common among organisms. These aberrations can be heritable (due to genetic mutation) or non-heritable (due to disease, nutritional deficiency, trauma, and environmental pollution) (van Grouw 2013). The six commonest heritable colour aberrations are, albinism, leucism, brown, dilution, ino, and melanism (Mahabal et al. 2016). Melanism is a condition in which an organism displays a darker morphology overall or in some areas (partial melanism) as a result of more melanin or its asymmetrical distribution (van Grouw 2013).

During the study, we observed the birds from a distance of 50–60 m by hiding ourselves without disturbing them and by following all the guidelines (Barve et al. 2020).

From 2019 till date, AKS has observed the breeding colony of BHI regularly at the Nehru Talai heronry 25.3572 N & 74.6386 E, in Bhilwara, Rajasthan, India. During this period, BHI with two different colour aberrations were

Partially melanistic adult Black-headed Ibis. © Anil Kumar Sharma.

observed. In the first case, at 0832 h on 08 April 2019, the AKS spotted a BHI with a red neck pattern. It was completely white, but has red-coloured spots on its hindneck as well as reddish on its femur and tibiotarsus regions of the legs. He took several photographs of this interesting individual. The red colour was due to the deposition of pigment on the skin.

In the second case, at 0900h on 29 June 2022, AKS saw a partially melanistic adult BHI. It was completely white, but had many blackish spots on the feathers of its back and belly. No other physical or behavioural abnormality in this individual was observed.

A birdwatcher (A. Rajaram pers. comm.) saw red colouring on the hindneck in July 2003 but he did not describe it. This characteristic was observed in other members of the same genus like Malagasy Sacred Ibis *Threskiornis bernieri* and Australian White Ibis *Threskiornis molucca* but not in *T. melanocephalus* (Slater et al. 1986).

A mysterious character was recorded in BHI *Threskiornis melanocephalus* during the breeding season (Senma & Acharya 2009). In India, breeding colonies of BHI have red patches on the hindneck (Kannan et al. 2010).

We checked all the images of Black-headed Ibis, published on the www.eBird.org website. Surprisingly, only 05 images of BHI with red neck patch and many images of abnormal morphology are available on this website without any description. We have already analysed the impact of these abnormal morphologies on their breeding success (Sharma & Tripathi 2023). In this article, we have described the cause of these colour aberrations because no one has described it on this website.

Conclusion

These kinds of colour aberrations are originated due to abnormal embryonic development (mutation).

In birds, a little work has been done, earlier on the impact of such aberrations on breeding success. Further genetic analysis is suggested for “DNA barcoding method” which can detect such genetic changes in Black-headed Ibis.

References

Ali, S. & S.D. Ripley (1987). *Compact Handbook of the Birds of India, Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka.* Oxford University Press, New Delhi, 841pp.

Barve, S., T.R.S. Raman, G. Jathar & A. Datta (2020). When and how to study nesting biology of Indian birds: Research needs, ethical considerations, and best practices. *Indian BIRDS* 16(1): 1–9.

BirdLife International (2024). Species factsheet: Black-headed Ibis *Threskiornis melanocephalus*. https://datazone.birdlife.org/species/factsheet/black-headed-ibis-threskiornis-melanocephalus Downloaded on 23 July 2024.

Hancock, J., J. Kushlan & M.P. Kahl (1992). *Storks, Ibises and Spoonbills of the World.* Academic Press, New York, 385 pp.

Kannan, V., R. Manakadan & B.R. Sykes (2010). Red patch on the hindneck of Black-headed Ibis *Threskiornis melanocephalus* in breeding colonies in India. *BirdingASIA* 14: 99–100.

Mahabal, A., H. van Grouw, R.M. Sharma & S. Thakur (2016). How common is albinism really? Colour aberrations in Indian birds reviewed. *Dutch Birding* 38: 301–309.

Matheu, E. & J. del Hoyo (1992). Family Threskiornithidae (Ibises and spoonbills), pp. 472–506. In: del Hoyo, J., A. Elliot & J. Sargatal (eds.). *Handbook of the Birds of the World-volume* 1. Lynx Edicions, Barcelona.

Senma, R.C. & C.A. Acharya (2009). Mysterious characters were recorded in Black-headed Ibis *Threskiornis melanocephalus* during breeding season. *Journal of the Bombay Natural History Society* 106(2): 206.

Sharma, A.K. & A.K. Tripathi (2023). Impact of Abnormal Morphology of Breeding in Oriental White Ibis, *Threskiornis melanocephalus*. *Flora & Fauna* 29(1): 104–110.

Slater, P., P. Slater & R. Slater (1986). *The Slater Field Guide to Australian Birds*. Lansdowne Publishing, Sydney, 344 pp.

van Grouw, H. (2013). What colour is that bird? The causes and recognition of common colour aberrations in birds. *British Birds* 106(1): 17–29.

Anil Kumar Sharma[1] & Anil Kumar Tripathi[2]

[1] Dr. Bhimrao Ambedkar Government PG College, Nimbahera, Rajasthan 312601, India.
[2] M.L.V. Government College Bhilwara, Rajasthan 311001, India.
Email: [1]anilkumarsharma031995@gmail.com (corresponding author)

Citation: Sharma, A.K. & A.K. Tripathi (2024). Colour aberrations in Black-headed Ibis. Bird-o-soar #244, In: *Zoo's Print* 39(8): 23–25.