

Lek-based polygyny in Black-headed Ibis at Bhilwara, Rajasthan, India

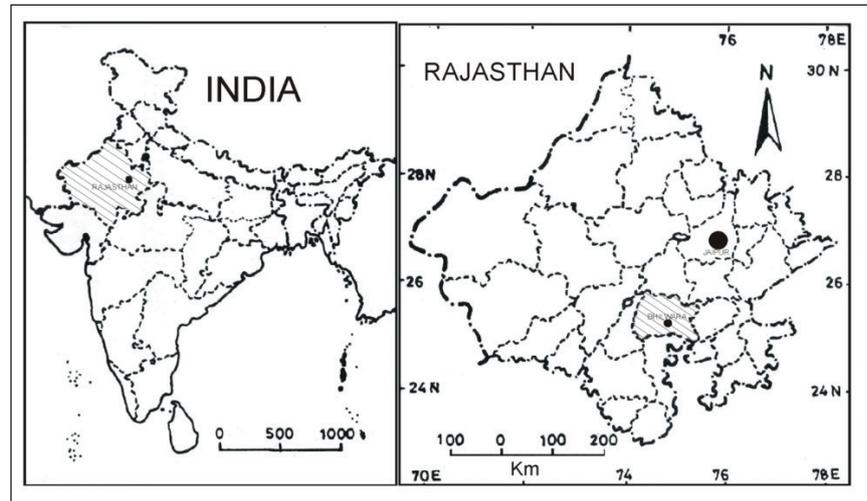
Black-headed Ibis (BHI) is also known as Oriental White Ibis *Threskiornis melanocephalus* (Latham, 1790) belongs to the family *Threskiornithidae*. The species is included in 'Near Threatened' category on the IUCN Red List (BirdLife International 2016).

It is a large, white-water bird with a prominent bare black head and neck, and a long, down-curved black bill. The body of this species is elongated but robust. The tail of the BHI bears grey ornamental feathers. Both male and female BHI are similar in size and appearance. During the breeding season, bare patches under the wings turn a blood-red colour (Ali & Ripley 1987; Hancock et al. 1992; Matheu & del Hoyo 1992).

Diurnal birds are believed to be predominantly monogamous, but alternative mating systems, like polygyny, polyandry, and co-operative breeding have also been recorded (Newton 1979). Polygyny is defined as



Nehru Talai of city Bhilwara. © Anil Kumar Sharma



Bhilwara district of Rajasthan.

several females mating with several males. Lek-based mating is a form of polygyny where the male has no attachment to the females with mates, and similarly mating females lack attachment too (Clutton-Brock 1989).

A total of 35 instances of polygyny observed in the Blue Tit *Cyanistes caeruleus*

(Schlicht & Kempenaers 2021). Similar behaviour was also observed in BHI during the present study.

In this paper, we present four observations (by first author) of lek-based polygyny in this species which was recorded by placing a camera on a tripod at different times of the day in the study area.

Case 1. (21vi2019)



Nests of Female 1 (F1) and Female 2 (F2).



Male 2 (M2) walks toward Female 1 (F1) nest.



Male 2 (M2) mates with the Female 1 (F1).



Male 1 (M1) with Female 1 (F1) and Male 2 (M2) with Female 2 (F2).

Nehru Talai with co-ordinates 25.2126 N & 74.3819 E of Bhilwara district was selected for the study of the breeding biology of BHI. It is an island-like structure with some vegetation of *Vachellia nilotica*, *Prosopis juliflora*, *Ziziphus mauritiana*, and *Salvadora persica* standing on central island which provides an excellent nesting site for BHI including heronries of Cattle

Case 2. (04vii2019)

Egrets, Great Egrets, Eurasian Spoonbills, Oriental Darters, and Night Herons.

We studied the breeding biology of BHI at Nehru Talai in Bhilwara district.

During the breeding season of 2019, we observed four different cases of polygyny at this site. In the first case (On 21 June 2019), BHI starts nest building after



Male 4 (M) mates with Female 3 (F3) when Male 3 (M3) flew away.



In the absence of Male 3 (M3), Male 5 (M5) also comes towards Female 3 (F3).



Male 5 (M5) mates with Female 3 (F3).



Fight between Male 4 (M4) & Female 3 (F3).

Case 3. (12vii2019)



Male 7 (M7) mates with Female 6 (F6) in the presence of Female 7 (F7).



Male 7 (M7) returns towards Female 7 (F7).



Male 7 (M7) with Female 7 (F7).

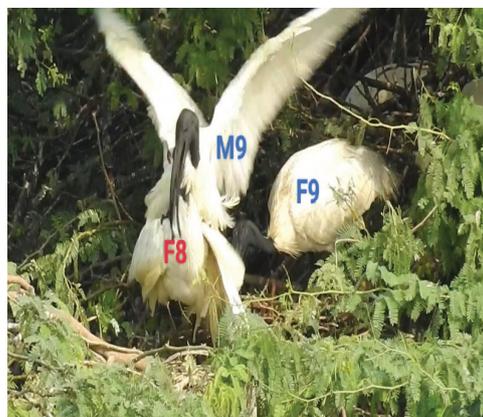
its pairing and site selection. During this, the M2 male of one pair goes towards the F1 female, in the absence of the M1 male and mates with her.

After that, M2 male returns to his site again when the M1 male arrives. In the second case (On 04 July 2019), we had seen that in the absence of M3 male, the M4 & M5 mails of other pairs mate with F3 female, respectively.

In the third case (On 12 July 2019), we had seen that in the absence of an M6 male, the M7 mail of other pair mates with an F6 female. In the fourth case (On 16 July 2019),

we had seen that the M9 mail of a pair, in the absence of the M8 mail of another pair, was returned to its site after mating with the F8 female of that pair.

In BHI, older males forcefully mate with younger females. The polygynous nature of Black-headed Ibis is advantageous for the male because he has a much higher chance of his progeny surviving, which means he is passing on his genes to more individuals. Polygyny is harmful to females. Lower breeding success of polygynous females than other monogynous females because of the increased breeding investment to compensate for polygynous males. The nests of polygynous females were located marginally and away from the nests of monogynous females.



Male 9 (M9) mates with Female 8 (F8).



Male 9 (M9) return toward Female 9 (F9).

References

- Ali, S. & S.D. Ripley (1987).** *Compact handbook of the birds of India and Pakistan*. Oxford University Press, Oxford, 737 pp.
- BirdLife International (2016).** *Threskiornis melanocephalus*. The IUCN Red List of Threatened Species 2016: e.T22697516A93618317. <https://doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22697516A93618317.en>. Accessed on 28.vii.2023.
- Clutton-Brock, T.H. (1989).** Review Lecture: Mammalian mating systems. *Proceedings of the Royal Society B. Biological Sciences* 236(1285): 339–372.
- Hancock, J., J. Kushlan & M.P. Khal (1992).** *Storks, ibises and spoonbills of the world*. Academic Press, New York, 391 pp.
- 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, 696 pp.
- Newton, I. (1979).** *Population Ecology of Raptors*. T & AD Poyser, UK, 399 pp.
- Schlicht, E. & B. Kempenaers (2021).** Origin and outcome of social polygyny in the Blue Tit. *Ardea* 109(1): 91–118.

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Citation: Sharma, A.K. & A.K. Tripathi (2024). Lek-based polygyny in Black-headed Ibis at Bhilwara, Rajasthan, India. *Bird-o-soar* #231, In: *Zoo's Print* 39(3): 27–30.