

Reporting of Bar Headed Goose (*Anserindicus*, Latham 1790) from pitlakes of Eastern Coal Fields, India

Santanu Gupta^{1*} and Aparajita Mukherjee²

¹ World Wide Fund for Nature India, 172-B, Lodi Estate, New Delhi 110 003, India

²Salim Ali Centre For Ornithology and Natural History, Anaikatty (Post), Coimbatore 641 108, T.N., India

(Received 4 November, 2023; Accepted 30 December, 2023)

ABSTRACT

Here we report occurrence of the species *Anserindicus* from a freshwater pitlake of Eastern Coal Fields, India. The very first pictures (in recent times) of 62+ individuals are presented with a note on conservation measures of its new habitat and scope of future research on *Anserindicus* in this region of eastern part of India.

Key words : Bar headed goose, Pitlakes, Eastern coal fields

Introduction

Aquatic ecosystems such as lakes, rivers and wetlands are an imperative features of this planet however long-term research have demonstrated continual decline in aquatic species and habitat loss across the world (Gopal *et al.*, 1982; Mitsch and Gosselink 2000; Keddy 2000; Birdlife International, 2001; Delany and Scott 2006; Kirby *et al.*, 2008; DeGroot *et al.*, 2006; Robinson and Hughes 2006; Palit and Mukherjee 2007, 2010; Maltby and Barker 2009; Hassall and Anderson 2015; Devika *et al.*, 2022; MoEF & CC 2018, 2019, 2020, 2023).

Open Cast surface mining process creates a unique aquatic ecosystem – **Pitlakes** which are not only ecologically threatened and critical aquatic landscapes but also a source of potential biological resources for the future (Palit, 2016). Latest inventory of pitlakes (Gupta, 2018) in Eastern Coal Fields region, INDIA documented a total of 62 numbers of

pitlakes which were identified from 11 coal mining areas distributed over West Bengal (48, 77.4%) and Jharkhand 14 (22.6%) of Eastern Coal Field Limited. According to Ali and Ripley (1983), 273 species of birds in India can be considered as waterfowls, the birds that depend on aquatic ecosystems. Water birds of eastern part of India are well documented (Roy *et al.*, 2011; Roy *et al.*, 2012; Mukherjee and Gupta, 2012; Chatterjee *et al.*, 2017) though there is limited research on dry land birds especially from eastern coal fields region and there is scope for future research on exploring occurrences, new sighting records and range extensions in this part of Southern Bengal as reported by Gupta *et al.*, (2013), (2014).

Bar headed goose (*Anserindicus*) is a widespread winter visitor species (Inskipp *et al.*, 2011) in India. As per IUCN (2018) this species is categorized as least concern and is native (extant, breeding) to Afghanistan; Kyrgyzstan; Mongolia; Russian Federa-

(¹Associate Coordinator WETLANDS, ²Former Project Fellow)

tion (Central Asian Russia), Tajikistan and only extant to the following countries : Bhutan; China; India; Kazakhstan; Nepal; Pakistan; Russian Federation (Eastern Asian Russia); Thailand; Uzbekistan; Viet Nam respectively. However it is extant (non breeding) in Bangladesh and Myanmar. This is the only genus of *Anser* which is indigenous to the Indian region. This pale grey bird is easily identified by the black bars on its head. It has yellow legs and black tipped yellow bill. Adult has white head with black banding across crown, and white line down grey neck. However the juvenile has white face and dark grey crown and hind neck. Their plumage is paler steel grey with more uniform pale grey forewing compared with Greylag. *Anser indicus* weigh between 2 and 3 kg (4.5 and 6.5 lbs) with a wingspan between 140 and 160 cm (55 and 62 inch), and are between 68 and 78 cm (27 and 30 inch) in length (Cucinello, 2013).

Habitat of *Anser indicus* chiefly includes freshwater Wetlands (inland), Rocky areas (eg. inland cliffs, mountain peaks), Artificial/Aquatic and Marine areas. Its terrestrial biome includes savanna or grassland. This species breeds on swampy ground by high altitude lakes, winters near large rivers, lakes and reservoirs (Over 8 ha); also coastal islands in the Sunderbans, Bangladesh. *Anser indicus* feeds mainly at night in cultivation or grassland on river bank. This species generally feed on the highland grasses surrounding their lakes and streams where they nest. During other times of the year they can be found eating on agricultural crops such as corn, wheat, barley, and rice. This is a social species migrating in family groups or large colonies and like most geese, bar-headed geese fly in "V"-shaped formations. Notable works on this species include Gole, (1982), Bishop *et al.*, (1997), Bhattacharyya *et al.*, (2008), Wetlands International, 2010; Bird Life International, (2011).

Methodology

At 9.20 hr on 6th March 2019, we visited a freshwater pitlake (PLR029, N23.69518^o, E87.283187^o, Plate 1) locally called "Sarovar Udyan" on Jhanjra – Pandabeswar road for our ongoing pitlake monitoring programme (Postmonsoon season), regular waterbird surveys and bird counts (9.30 am – 10.31 am). The weather was clear and the air temperature was 27.4 °C.

At 9.30 we watched a group of Bar headed geese (*Anser indicus*) with 62+ individuals (Plate 2, 3) in the eastern catchment of the lake. We first examined these birds from a distance of 200 feet. The birds were observed to swim away (north direction) from lake catchment to more central part of the lake due to human presence. We were using Olympus binoculars (10X21 RCII; 8X40DPSII) and photographed a few shots using NIKON D5300. Birds were identified in field following "Pocket Guide to the Birds of the Indian Subcontinent" (Grimmett *et al.*, 2011). Note on habit and habitat were derived from Ali and Ripley, 1982; Kumar *et al.* 2005 and IUCN Redlist (Birdlife International, 2018). We also measured factors of water samples like Water temperature, pH, conductivity, total dissolved solids (TDS) and Salinity on the spot by Eutech PCSTestr 35 Multi parameter and Dissolved Oxygen was measured using Lutron DO 5509 meter. Air temperature was measured using a glass thermometer.

Results and Discussion

Occurrence of Bar headed goose in this pitlake has been observed for the first time by the present authors since two wintering periods of study. This is also informed that the presence of these birds have been observed in this lake since two weeks (<200 individuals). It is clear that this group of *Anser indicus* were utilizing this pitlake as a stopover site during their migration. This species is earlier recorded from the nearby reservoirs (Bakreswar Dam, 23.831477, 87.3923348). The PLR029 or the studied pitlakes is situated in Pandabeswar block of Durgapur subdivision which is also one of the most biologically diverse aquatic ecosystem in this region. This is included for long term monitoring by the



Plate 1 View of Pitlake "Sarovar Udyan" (PLR029) from observation point on 06.03.2019

present authors since 2016. The limnological characteristics measured on the same day includes the following Water temperature 24.3 °C – 24.6 °C, pH- 7.4, Conductivity – 920 µS, TDS – 652 ppm, Salinity – 448 ppm and dissolved oxygen – 9.3 mg/l. As per NLCP (2008), Lake ecosystem should maintain pH between 6.5 to 8.5 and Dissolved Oxygen content 4 mg/l or more for propagation of Wild life and Fisheries. Some of the ecosystem services as provided by this pitlake include fishing activity, water supply, long term research and monitoring etc. Eastern Coal Fields has proper management plan regarding its water resource.



Plate 2. The Bar Headed Goose (*Anserindicus*) observed at pitlake (Sarovar Udyan) on 06.03.2019



Plate 3. The Bar Headed Goose (*Anserindicus*) observed at pitlake (Sarovar Udyan) on 06.03.2019

The positive impact of *Anserindicus* is on Ecotourism. As reported by Bhattacharyya *et al.*, (2008) that these species benefit the society because of ecotourism possibilities in wilderness areas such as “The East Calcutta Wetlands” in West Bengal. Though *Anserindicus* has range in this region this is

the first time record of this species from pitlake ecosystem which urges further research covering the population ecology studies and habitat management of Bar headed goose (*Anserindicus*) in lakes of coal field areas which is in line with India’s National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023) as proposed by MoEF & CC (2018) for conservation of this high altitudinal migratory water bird species in CAF(Central Asian Flyway).

Acknowledgements

This study was supported by INSPIRE Division, Department of Science and Technology, Govt. of India. The financial assistance of DST through the research project (Sanction NO – DST/INSPIRE Faculty Award/ IFA 16 – LSPA45 dated 27.08.2018, SG) is acknowledged. Authors are grateful to Dr Goldin Quadros, Principal Scientist, Wetland Ecology Division, SACON and Dr Amit Dubey, Head, Wetlands, WWF-India for their encouragement. Authors are grateful to Late Professor Ambarish Mukherjee, Department of Botany, Burdwan University for his support, love and motivation.

Conflict of Interest: None

References

- Ali, S. and Ripley, S.D. 1983. *Handbook of the Birds of India and Pakistan* (Compact edition). Oxford University Press and BNHS, Mumbai.
- Ali, S. and Ripley, S.D. 1995. *The Pictorial Guide to the Birds of Indian Sub-continent*. Oxford University Press and BNHS, Mumbai.
- Baskaran, ST (1992). Sighting of Dusky Horned Owl. *Newsletter for Birdwatchers*. 32(9): 10.
- Bhattacharyya, A., Sen, S., Roy, P. and Mazumdar, A. 2008. A Critical Study on Status of East Kolkata Wetlands with Special Emphasis on Water Birds as Bio-Indicator. *Proceedings of Taal 2007: The 12th World Lake Conference*. 12: 1561-1570.
- Bird Life International, 2001. Threatened birds of Asia: the BirdLife International Red Data Book. Cambridge, UK: Bird Life International.
- Bird Life International, 2018. *Anserindicus*. The IUCN Red List of Threatened Species 2018: e.T22679893A131908564. <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22679893A131908564.en>. Downloaded on 25 March 2019.
- Bird Life International, 2011. Species factsheet: *Anserindicus*. <http://www.birdlife.org/datazone/speciesfactsheet.php?id=379>

- Bishop, M.A., Song, Y., Canjue Z. and Gu, B. 1997. Bar-headed Geese wintering in south-central Tibet. *Wildfowl*. 48: 118-126.
- Chatterjee, A., Adhikary, A. and Mukherjee, S.K. 2017. Effects of water bird colonization on limnochemical features of a natural wetland on Buxa Tiger Reserve, India, during wintering period. *Wetlands*. 37: 177-190
- Cucinello, D. 2013. *Anserindicus* (On-line), Animal Diversity Web. Accessed March 25, 2019 at https://animaldiversity.org/accounts/Anser_indicus/
- De Groot, R., Stuij, M., Finlayson, M. and Davidson, N. 2006. Valuing wetlands: guidance for valuing the benefits derived from wetland ecosystem services (No. H039735). International Water Management Institute.
- Delany, S. and Scott, D. 2006. *Waterbird Population Estimates*. Fourth Edition. Wageningen: Wetlands International.
- Devika, M., Julffia, B.A., Swapna, D.R., Mohammed, I.N. and Goldin, Q. 2022. Threatened Birds of Ramsar Sites, India. *SACON EIACP Newsletter – Sarovar Saurabh*. 18(4): 1-5.
- Gole P, 1982. Status of *Anserindicus* in Asia with special reference to India. *Aquila*. 89:141-149.
- Gopal, B., Turner, R.E., Wetzel, R.G. and Whigham, D.F. 1982. *Wetland Ecology and Management*. National Institute of Ecology and International Scientific Publications, Jaipur: 512.
- Grimmett, R., Inskipp, C. and Inskipp, T. 2011. *Birds of the Indian Subcontinent, Helm Field Guides* (Oxford University Press: UK).
- Gupta, S. and Mukherjee, A. 2014. A Reporting on Sand Martin's (*Ripariariparia*) first visit to Durgapur Barrage, West Bengal, India. *Zoosprint*. 30(7): 6-9.
- Gupta, S. 2018. Ecological exploration and Socioeconomic valuation of Pitlakes in Eastern Coalfields, India: Implications for Conservation and Sustainable use. Annual Progress Report. Submitted to INSPIRE Division, Department of Science and Technology, Government of India.
- Gupta, S., Mukherjee, A., Palit, D., Chatterjee, P. and Biswas, I. 2013. A reporting on wire tailed Swallows' (*Hirundosmithii*) winter visit in Durgapur Barrage, West Bengal, India. *Zoosprint*, XXVIII (8): 22-24.
- Hassall, C. and Anderson, S. 2015. Stormwater ponds can contain comparable biodiversity to unmanaged wetlands in urban areas. *Hyd. Bio.* 745, 1, 137-149.
- Keddy, P.A. 2000. *Wetland Ecology: Principles and Conservation*. Cambridge University Press, Cambridge: 614.
- Kirby, J.S., Stattersfield, A.J., Butchart, S.H.M., Evans, M.I., Grimmett, R.F.A., Jones, V.R., O'Sullivan, J., Tucker, G.M. and Newton, I. 2008. Key conservation issues for migratory land- and waterbird species on the world's major flyways. *Bird Conserv. Int.* 18: S49-S73.
- Kumar, J.P. Sati, P.C. Tak and J.R.B. 2005. Alfred, Handbook on Indian Wetland Birds and their conservation: i-xxvi; 1-468 (Published by the Director, Zool. Survey. India).
- Maltby, E. and Barker, T. 2009. *The Wetlands Handbook*, 1st edition. Blackwell Publishing, Oxford.
- Ministry of Environment and Forests. Guidelines for National Lake Conservation Plan. National river Conservation directorate, Ministry of Environment and Forests. Government of India, New Delhi, pp 7-8, 2008.
- Mitsch, W.J. and Gosselink, J.G. 2000. *Wetlands*, 3rd edition. John Wiley, New York.
- MoEF&CC (2020) Guidelines for implementing Wetlands (Conservation and Management Rule 2017)
- MoEF & CC, 2018. India's National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023).
- MoEFCC, 2019. Visionary perspective plan (2020-2030) for conservation of avian diversity, their ecosystems, habitats & landscapes in the country: Second Draft of VPP (14.2019)
- MoEFCC, 2023. India's 75 AmritDharohar: Ramsar Sites of India Factbook (as of February 2023). Ministry of Environment, Forest and Climate Change, Government of India
- Mukherjee, A. and Gupta, S. 2012. Assessment of avifaunal diversity of santragachi wetland, West Bengal, India. *Ecology, Environment and Conservation*. 18(2) : 357- 362.
- Palit, D. and Mukherjee, A. 2007. An inventory of wetlands in Birbhum District West Bengal and their successional characteristics. *Envir and Eco*. 25(1):173-176.
- Palit, D. and Mukherjee, A. 2010. Characterization of Physico-chemical properties of water and soil in Lalbandha fresh water wetland in Birbhum District West Bengal. *Ecol Envir and Cons*. 15(4) : 239-245.
- Palit, D., Roychowdhury, S., Mukherjee, A., Garai, B., Gupta, S., Kar, D. and Kar, P. 2016. Determinants of Pitlake usage in Raniganj Coalfield Region, West Bengal: Implications for Sustainable use. *International Journal of Innovative Research in Engineering & Management*. 3(2): 72- 80.
- Robinson, J.A. and Hughes, B. 2006. International Single Species Action Plan for the Conservation of the Ferruginous Duck *Aythya nyroca*. CMS Technical Series No. 12 & AEW Technical Series No. 7. Bonn, Germany.
- Roy, U.S., Pal, A., Banerjee, P. and Mukhopadhyay, S.K. 2011. Comparison of avifaunal diversity in and around Neora Valley National Park, West Bengal, India. *Journal of Threatened Taxa*. 3(10): 2136-2142.
- Roy, US, Aich, A, Goswami, A.R, Sen, A.K. and Mukhopadhyay, S.K. 2012. Winter Avian Population of River Brahmaputra in Dibrugarh, Assam, India. *ZOO's PRINT*, XXVII (12): 17-19.
- Wetlands International, 2010. Ramsar sites information service. unpaginated. <http://ramsar.wetlands>