Report on the first coordinated Asian Waterbird Census at Gaya, Bihar

An important indicator of healthy wetlands is the waterbirds species diversity which indicate its quality and conservation status. Many species are listed threatened due to human-induced threats like habitat destruction, contamination, poaching and trapping activities along with illegal wildlife trade. Species diversity is one of the most intuitive and widely adopted measures of biodiversity (Colwell & Coddington 1994) and one of the effective ways to observe diversity and richness is periodic census.

Every year in Asia, the Asian Waterbird Census (AWC) is carried out by thousands of participants and organizations covering major migratory flyways and stopover sites. In India, Andaman & Nicobar, Andhra Pradesh, Assam, Jharkhand (Prakash et al. 2016), Jammu & Kashmir (Sharma et al. 2022), Odisha, Uttar Pradesh, and some other states conducting AWC regularly and the relative data is available as summary reports

Rare sighting of a flock of Bar-headed Geese in Mohanpur Dam. © Mohammad Danish Masroor.

Rare sighting of Brahminy Shelducks in Barwadih Dam. © Mohammad Danish Masroor.

Rare sighting of Greater Painted-Snipe near Mohanpur Dam. © Mohammad Danish Masroor.

Table 1. List of species recorded during the AWC 2022 (Gaya).

	Family	Common name	Scientific name	Barwadih Dam	Mohanpur Dam	Cobracamp Pond	Kal chakra Pond	Gopi bigha Pond	Bisar Talab	Katari hill Pond	Total
1	Anatidae	Bar-headed Goose	*Anser indicus* (Latham, 1790)	0	6	0	0	0	0	0	6
2		Ruddy Shelduck	*Tadorna ferruginea* (Pallas, 1764)	2	0	0	0	0	0	0	2
3		Common Teal	*Anas crecca* Linnaeus, 1758	0	4	0	0	0	0	0	4
4		Gadwall	*Mareca strepera* (Linnaeus, 1758)	4	24	0	0	0	0	0	28
5		Lesser Whistling- Duck	*Dendrocygana javanica* (Horsfield, 1821)	590	0	511	788	351	293	175	2708
6		Northern Shoveler	*Spatula clypeata* (Linnaeus, 1758)	0	1	2	0	0	0	0	3
7		Indian Spot-billed Duck	*Anas poecilorhyncha* J.R. Forester, 1781	0	6	0	0	0	0	0	6
8	Rallidae	Common Moorhen	*Gallinula chlorophus* (Linnaeus, 1758)	0	0	0	6	3	3	15	27
9		Purple Swamphen	*Porphyrio porphyrio* (Linnaeus, 1758)	1	0	0	0	0	0	0	1
10		White-breasted Waterhen	*Amaurornis phoenicurus* (Pennant, 1769)	0	0	0	5	0	3	4	12
11	Ardeidae	Black-crowned Night Heron	*Nycticorax nycticorax* (Linnaeus, 1758)	0	0	0	0	0	3	0	3
12		Cattle Egret	*Bbabulcus ibis* (Linnaeus, 1758)	15	0	0	0	13	0	11	39
13		Great Egret	*Ardea alba* Linnaeus, 1758	0	13	1	0	0	0	0	14
14		Grey Heron	*Ardea cinerea* Linnaeus, 1758	6	1	0	0	0	0	0	7
15		Indian Pond Heron	*Ardeola grayii* (Sykes, 1832)	0	4	0	0	10	0	5	19
16		Median Egret	*Mesophoyx intermedia* (Wagler, 1829)	0	0	4	5	0	0	0	9

	Family	Common name	Scientific name	Barwadih Dam	Mohanpur Dam	Cobracamp Pond	Kal chakra Pond	Gopi bigha Pond	Bisar Talab	Katari hill Pond	Total
17	Phalacrocoracidae	Great Cormorant	*Phalacrocrax carbo* (Linnaeus, 1766)	2	0	0	0	0	0	0	2
18		Little Cormorant	*Microcarbo niger* (Vieillot, 1817)	34	2	0	0	0	2	0	38
19	Charadriidae	Red-wattled Lapwing	*Vanellus indicus* (Boddaert, 1783)	6	6	0	0	0	0	0	12
20		Yellow-wattled Lapwing	*Vanellus malabaricus* (Boddaert, 1783)	3	0	3	0	0	0	0	6
21	Alcedinidae	Pied Kingfisher	*Ceryle rudis* (Linnaeus, 1758)	1	0	0	0	0	0	0	1
22		White-throated kingfisher	*Halcyon smyrnensis* (Linnaeus, 1758)	2	0	0	0	1	0	1	4
23	Scolopacidae	Green Sandpiper	*Tringa ochropus* Linnaeus, 1758	0	7	0	0	0	0	0	7
24		Common Greenshank	*Tringa nebularia* (Gunnerus, 1767)	3	0	0	0	0	0	0	3
25	Jacanidae	Bronze-winged Jacana	*Metopidius indicus* (Latham, 1790)	0	0	0	6	0	0	14	20
26	Rostratulidae	Greater Painted-Snipe	*Rostratula benghalensis* (Linnaeus, 1758)	0	2	0	0	0	0	0	2
27	Podicipedidae	Little Grebe	*Tachybaptus ruficollis* (Pallas, 1764)	4	8	0	0	0	0	0	12
28	Ciconiidae	Asian Openbill	*Anastomus oscitans* (Boddaert, 1783)	1	0	14	0	0	0	0	15
29	Threskiornithidae	Indian Black Ibis	*Pseudibis papillosa* (Temminck, 1824)	4	5	0	0	0	0	0	9
30	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus* (Linnaeus, 1758)	0	0	9	0	0	0	0	9
Total number of species found				**16**	**14**	**7**	**5**	**5**	**5**	**7**	
Total				**678**	**89**	**544**	**810**	**378**	**304**	**225**	**3028**

Human encroachment on the peripheral land of Barwadih Dam. © Mohammad Danish Masroor.

Bird trap installed on plants near Mohanpur Dam. © Mohammad Danish Masroor.

(Wetlands International South Asia 2022). In the context of Gaya district as well as Magadh division, no methodical and periodical data on migratory birds were collected so far. Census involves firsthand counting of migratory waterbirds which will provide an important outlook on status of birds as well as their habitats, which will in turn be helpful in developing management and conservation strategies. The importance of healthy wetlands may not be understated- it defines a wide range of very important feeding, breeding, foraging and roosting habitats for existing species including migratory waterbird of the regional fauna.

This report includes the data collected from the first ever AWC conducted in Gaya district of Bihar, including the diversity of birds and the present health status of the respective water bodies and wetlands.

Survey sites and methodology

The census was conducted, following AWC guidelines, on 8–10 January 2022. Large and small water bodies were selected including both urban and forest habitats in order to prepare preliminary data record. A total number of seven sites were selected after pilot survey. Among these two water bodies are water covering areas of 10–14 ha, followed by two 3–5 ha, and three of 0.5–1.5 ha. The counting of birds was followed by direct sighting method, point count method and block method and the species were identified with the help of field guides (Kumar 2019; Grimmett et al. 2011). Common and scientific name of the species for preparation of document is followed according to the literature given by Praveen et. al. (2016). Observations were made during daytime of 0700–1600 h.

Results and discussion

During the waterbird census a total of 30 species of wetland birds were recorded belonging to 12 families (Table 1). Out of these 7 species were water birds while 23 species were wetland dependent birds. An estimated number of 3,028 birds were observed during the census covering all seven sites. The maximum number of bird species was recorded at Barwadih Dam (16 species / 678 individuals) followed by Mohanpur Dam (14 / 89), Cobracamp Pond (7 / 544), Katarihill Pond (7 / 225), Kalchakra Pond (5 / 810), Gopi Bigha Pond (5 /378) and Bisar Talab (5 /304). Lesser Whistling Ducks (2,708) were seen in maximum numbers while Pied Kingfisher (1) and Purple Moorhen (1) were observed minimally.

Conclusion and recommendations:

A total of 3,028 birds belonging to 30 species of 12 families of birds were recorded during the survey. The selected water bodies hosted healthy populations of different groups of birds. Across the selected seven habitats, four water bodies were located in urban settlements while two were dams and one was a pond in wild area. The observations revealed that different species of birds preferred different habitats for survival, foraging and breeding. While Lesser Whistling-Duck was common in six selected sites among seven, some small waders were observed in shallow water bodies. Hunting was observed in all the sites. Birds were being trapped by installing trap nets in most of the sites. One such net at Mohanpur dam used for catching birds by the locals. Even the feathers of few birds were found on some places around the dam which also indicating the possibility of bird trapping activities. There are two water exhausting canals were observed by which farmers exhaust water for agricultural activities decreasing the level of water in both dams. The human encroachment observed on the periphery of waterbodies is also altering and degrading the habitat of migratory waterbirds. The population size of birds like Bar-headed Goose, Brahminy Shelduck, Greater Painted-Snipe, and other migratory waders may increase if hunting is controlled and the habitat rejuvenated properly. There is a need for more bird watching activities in the district, as their inputs will help to design the conservation and safeguarding of migratory waterbirds of Gaya.

The following are the recommendations from our observations:

1. Rejuvenation of Barwadih dam and Mohanpur dam is

Glimpses of the census team and forest staff participating in the first AWC bird count of Gaya district. © Mohammad Danish Masroor.

the demand of hour. It should be rejuvenated in the manner in which 10–15 m wide shallow water covering may take place in surrounding for wading birds.

2. Agricultural activities on the land of Barwadih dam which formed due to storage of soil inside the dam boundaries should be banned and human encroachment should be replaced out of the boundary. If not done, these activities may lead to habitat fragmentation and anthropogenic pressure.

3. Aforementioned water exhausting canals should be managed in the way by which water wastage and illegal exhausting may decrease to 50%.

4. Regular patrolling in the migratory season and yearly census counting may be needed to limit poaching and netting activities near Barwadih dam and Mohanpur Dam.

5. Barwadih Dam and Cobra camp pond may be connected to each other to enhance wetland status.

References

Colwell, R.K. & J.A. Coddington (1994). Estimating terrestrial biodiversity through extrapolation. *Philosophical Transactions of the Royal. Society B Biological Sceinces* 345(1311): 101–118.

Grimmett, R., C. Inskipp & T. Inskipp (2011). *Birds of the Indian Subcontinent. 2nd Ed.* Oxford University Press & Christopher Helm, London, 528 pp.

Kumar, R. (2019). Wetlands and Waterbirds in Central Asian Flyway: An overview of status, management and conservation priorities of India. *The Journal of Governance* 18: 97–109.

Praveen, J., R. Jayapal & A. Pittie (2016). A checklist of the birds of India. *Indian BIRDS* 11(5 & 6): 113–172.

Prakash, S., M.D. Dwivedi, M. Raziuddin, K. Paul, K. Marthak, M. Singh & I. Samanta (2016). Report on Asian Water Bird Census (AWC 2016), Jharkhand. *ENVIS-Jharkhand News* 14: 1–11.

Sharma, N., A. Sohil, M.A. Kichloo, M.K Kumar, R. Naqash, I. Dewan, A. Atri & V. Kumar (2022). Asian Waterbird Census in Jammu & Kashmir 2015–21, SpatialAttributes and Trend Analysis. Department of Wildlife Protection, Government of Jammu & Kashmir, 49 pp.

Wetlands International South Asia (2022). *Annual Report 2021–22*, New Delhi, India.

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