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– S. B. Pradhan & G. A. Jathar

Satish Pradhan, Pune, Maharashtra, India.

E-mail: pradhansatish63@gmail.com [SBP]

Girish Jathar, Bombay Natural History Society, Mumbai, Maharashtra, India.

E-mail: g.jathar@bnhs.org [GAJ]

Indian Skimmer *Rynchops albicollis* and other riverine birds on the islands near Turtle Wildlife Sanctuary, Uttar Pradesh

In riverine ecosystems, specialist riverine birds are declining, and freshwater turtles are highly endangered; their survival impaired by anthropogenic pressures such as pollution, flow regulation, and disturbance of nesting sites (Dudgeon 2002). The Turtle Wild Life Sanctuary (25.271–25.321°N, 83.017°–83.034°E) in Varanasi, Uttar Pradesh (*Hereinafter*, TWLS) was notified in 1989,

where a seven kilometer stretch of the Ganga was designated as a Protected Area to protect 14 extant species of freshwater turtles. Surveys in unexplored river stretches are still unearthing new breeding populations of many species. This note reports the presence of some riverine birds, and their nesting islands, from a poorly documented stretch of the Ganga River in Uttar Pradesh.

Three observers, used a motor boat (travelling at c.10 km/h) to conduct visual surveys for freshwater turtles and riverine birds, travelling upstream of the TWLS along a 30 km stretch of the Ganga River from Assi Ghat, Varanasi (25.288°N, 83.007°E) till Chunar (25.131°N, 82.879°E), and downstream of the TWLS along a 15 km stretch from Raj Ghat, Varanasi (25.323°N, 83.031°E) till Gokulpur (25.330°N, 83.154°E), over a three-day period from 18–20 March 2018. The river meanders greatly in this segment, forming an extensive floodplain with several sandbars and mid-river sand islands. During the survey periods from 0800 h to 1500 h, the atmospheric temperature was recorded by a thermohygrometer and varied between 36°C and 43°C.

A flock of 13 Indian Skimmers *Rynchops albicollis* was observed in March; they were displaying gregarious flocking behaviour, indulging in open-wing displays, and occasionally skimming the water near a broad sand island upstream of the TWLS [72]. This island is nearly 170 km from the newly located nesting grounds of the skimmer in the Ganga River, upstream of Allahabad, near the Ganga–Yamuna confluence (Sharma 2017). Though once widespread, very few breeding sites are currently known for this species from India (Sundar 2004; Dilawar & Sharma 2016; BirdLife International 2017; Rajguru 2017; Sharma 2017). Seven pairs of Little Terns *Sternula albifrons*, and five pairs of Indian Skimmers were observed nesting on the island on 07 May 2018. Subsequently, two pairs of Indian Skimmers were seen with two chicks each [73], active near the edge of the sand island on 26 June 2018. The authors ensured the safety of the birds on the island by following standard methods for studying the breeding biology of avian species. We approached the island once, to help understand additional aspects of the skimmer's breeding, and the nests and chicks were not disturbed during the course of photography. Three nests held clutches three to five eggs that were dark brownish cream, and had dark chocolate brown blotches, as observed by Rajguru (2017) in mature eggs. The cryptic chicks were found hiding in shallow scrapes, at the edges of the water, making detection difficult, thus protecting themselves from predators [74]. The pairs of Indian Skimmers



72. Indian Skimmer on the sand island upstream of the Turtle Wildlife Sanctuary, Uttar Pradesh.

took turns to guard the chick, and to soak their bellies, and sit on the chicks to cool them during extreme heat periods, a behaviour previously reported only during the incubation phase. The chicks called constantly, and begged for food when a parent was nearby. The island was near (<200m) a ghat near Narayanpur village. The birds were not unduly bothered with the eight to ten villagers bathing on the river bank, neither were they perturbed by human presence [75].



73. A pair of Indian Skimmers with two chicks near the sand island edge.



74. Camouflage of Indian Skimmer chick in a shallow scrape in the sand to avoid detection.



75. Flock of Indian Skimmers, Little Terns and River Lapwings undisturbed by human presence.

Apart from the skimmers, we also encountered other resident riverine species including River Lapwings *Vanellus duvaucelii*, River Terns *Sterna aurantia*, and Small Pratincoles *Glareola lactea*. River Lapwings were observed frequently near the river bank edges, either solitary or in small flocks of three to five. On 18 March 2018 we counted 243 River Lapwings, at a rate of ≈ 6 birds per km. River Lapwings are known to flock with clumped distribution patterns and prefer to inhabit the banks of River Ganga, which is their primary habitats during the breeding season (Mishra *et al.* 2018).

The presence of these riverine sand-nesting avifaunal species is a valuable indicator of the ecological health of the Ganga River upstream of the TWLS, with large sandy banks, mid-river islands, shallow channels, and a low human presence. The islands are upstream from the now functional Varanasi multi-modal terminal at the border of the TWLS. Expansions for the National Waterway No. 1 from Haldia (West Bengal) to Allahabad (Uttar Pradesh), will involve dredging these river stretches to make the river channel at least 45 m wide for cargo vessels. Fuel and chemical discharge from motor boats and large vessels will disturb other aquatic fauna and raise water pollution concerns. This, in addition to current threats of day and night fishing, and river bed farming, observed in the surveyed stretch, does not bode well for the wintering riverine birds and their nesting habitats.

Acknowledgements

We thank the Wildlife Institute of India (WII) and National Mission for Clean Ganga (NMCG) for funding, the Uttar Pradesh Forest Department for permissions, and the Director, Dean, Dr. S. A. Hussain of WII for their support.

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– Anuja Mital, Sabiha Khan & R. Suresh Kumar

Anuja Mital, Wildlife Institute of India, Chandrabani, Dehradun, 248001, Uttarakhand, India. E-mail: anujamital@gmail.com
 Sabiha Khan, 1733, Rod Garan, Lal Kuan, Delhi, 110006, New Delhi, India.
 E-mail: sabiha.infinity@gmail.com

R. Suresh Kumar, Wildlife Institute of India, Chandrabani, Dehradun, 248001, Uttarakhand, India. E-mail: suresh@wii.gov.in