

UTTAR PRADESH



IN-UP

Photo: Asad R. Rahmani

Vast multitude of waterbirds winter in the wetlands of the Gangetic Plains. Many of these wetlands, such as the above, are protected by villagers.

Uttar Pradesh (23° 52' - 30° 24' North and 77° 5' - 84° 38' East) has a very ancient and interesting history. Many of the great sages of Vedic times including Bharadwaja, Yajnavalkya, Vasishta, Viswamitra and Valmiki have lived in Uttar Pradesh. Many sacred books were also composed here. *Varsha Purna*, for example, is associated with Mathura. Two great epics of India, the *Ramayana* and the *Mahabharata*, have references to places in Uttar Pradesh. The *Mahabharata* tells the story of the royal family at Hastinapur (an IBA site).

Uttar Pradesh is bounded by Uttaranchal and Nepal on the north, by Madhya Pradesh and Chhattisgarh on the south, Rajasthan, Haryana and Delhi on the west, and Bihar and Jharkhand on the east. It has a geographical area of 24,092,800 ha, about 7.3% of the land area of the country (Ministry of Environment and Forests 2001). Despite its bifurcation in November 2000 into Uttaranchal and Uttar Pradesh, it is still one of the largest and most densely populated states in India. It has been divided into 70 administrative districts.

Uttar Pradesh comprises three physiographic regions namely, the submontane region lying between the Himalayas and the plains, the vast alluvial Gangetic plains and the southern hills and plateau. All the rivers except the Gomati and the Chambal emerge from the Himalayas. The State is fed by five major rivers, the Ganga, the Yamuna, the Ramganga, the Gomati and the Ghaghra which drain into the Bay of Bengal. More than one-fourth of Uttar Pradesh lies within the Gangetic plains consisting of alluvial deposits brought down from the Himalayas by the Ganga, Yamuna and their tributaries. The southern hills form part of the Vindhya range whose elevation rarely exceeds 300 m.

Uttar Pradesh is one of the poorest states in India. It has low income and low productivity levels, low degree of urbanization, widespread illiteracy, high birth and death rates, and low levels of investment. It is one of the most populous State, supporting 16.2% of India's population. The total population is 166.05 million (2001 census) of which 79.2% is rural and 20.8% urban. The population density is 689 persons per sq. km.

Uttar Pradesh is the largest producer of foodgrains and oilseeds in the country. The State leads in the production of wheat, maize, barley, grain, sugarcane and potatoes. It has world famous cities and sites such as Agra (Taj Mahal, Sikandara, Agra Fort, Fatehpur Sikri), Varanasi and Mathura (Hindu pilgrimage centers), and Allahabad (where the Ganga and Yamuna rivers meet). The Dudwa National Park is a famous IBA site in the State.

The State has a diverse range of habitats for birds and other biodiversity which include forest areas in the sub-Himalayan *terai* and also the Dry Deciduous Forests of the Bundelkhand regions bordering Madhya Pradesh and Chhattisgarh. According to the Forest Survey of India report of 2001, the recorded forest area in the State is 16,826,000 ha, about 2.2% of India's forest and 7% of the State's geographical area.

The State has a tropical climate with a wide temperature fluctuation from 2 °C to 48 °C. There are three main seasons: summer from March to mid-June; the rainy season from mid-June to September; and, winter from October to February. There is a great variation in rainfall. The *bhabhar* area has an average rainfall from 1300 to 1900 mm, whereas in the *terai* it varies from 1200 to 2500 mm. In the Gangetic plains the rainfall varies from 600 to 1200 mm.

Vegetation

By legal status, Reserved Forest constitutes 65.9%, Protected Forest 14.4% and Unclassed Forest 19.7% (Ministry of Environment and Forests 2001). There are three forest types, namely Tropical Moist Deciduous, Tropical Dry Deciduous and Tropical Thorn. Sal is an important forest formation of the State. Forests are distributed largely in the northern and partly in the southern parts of the State. The central part is devoid of forest vegetation as it is mainly under agriculture. A forest cover increase was recorded by the Forest Survey of India report of 1999, in the districts of Hardoi, Kheri, Saharanpur, because plantation was under taken 4-5 years earlier and also due to effective protection measures. A decrease in forest cover was observed in the districts of Banda, Jhansi, Mirzapur, and Sonbhadra which was largely on account of biotic pressures.

Uttar Pradesh has been categorized into three major eco-zones on the basis of forest and vegetation types. These three zones are: the *Terai* region; the Gangetic plains (West and East Uttar Pradesh); the Bundelkhand of Uttar Pradesh including the Vindhya ranges.

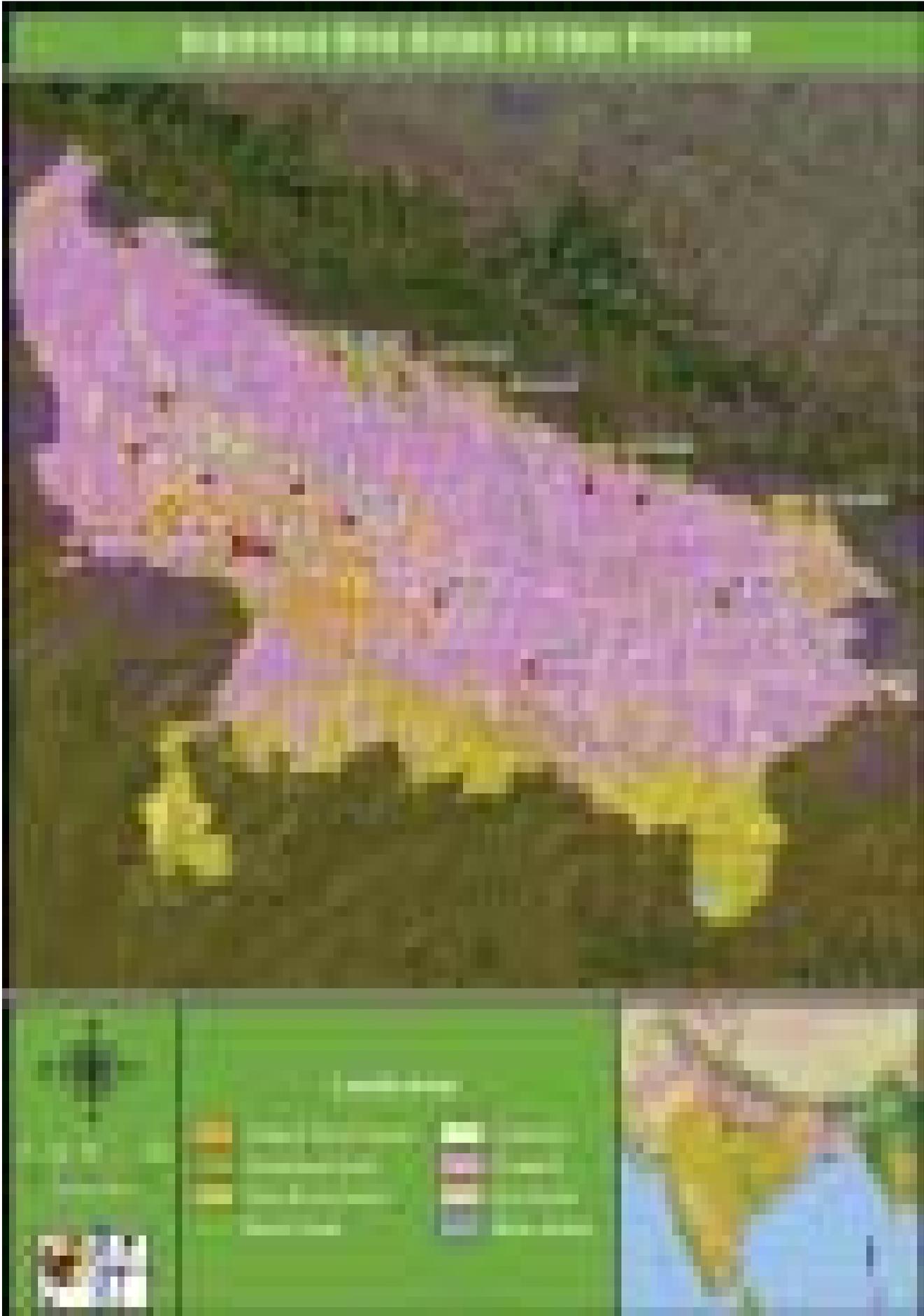
The *terai* region of Uttar Pradesh is a very important ecosystem for many threatened species of tall wet grasslands and swamps (Rahmani 1987, 1988, 1992, 1996, Javed 1996) and is the topmost priority for conservation (Rahmani and Islam 2000). It supports many threatened bird species such as the Swamp Francolin *Francoelinus gularis* (Javed *et al.* 1999, Iqbal *et al.* 2003) and Bengal Florican *Houbaropsis bengalensis* (Rahmani *et al.* 1991). Earlier, the *terai* was continuous, but now it occurs in pockets in protected areas of India and Nepal such as the Royal Chitwan National Park (NP), Royal Bardia NP, Royal Parsa Wildlife Reserve and Royal Sukhlaphanta Wildlife Reserve in Nepal, and Katerniaghat Wildlife Sanctuary (WLS), Kishanpur WLS, and Dudwa NP in Uttar Pradesh and Valmiki WLS in Bihar.

Number of IBAs and IBA criteria

A1= Threatened species; A2 = Restricted Range species; A3= Biome species; A4=Congregatory species

IBAs of Uttar Pradesh

IBA site codes	IBA site names	IBA criteria
IN-UP-01	Bakhira Wildlife Sanctuary	A1, A4iii
IN-UP-02	Dudwa National Park	A1, A3
IN-UP-03	Hastinapur Wildlife Sanctuary	A1
IN-UP-04	Katerniaghat Wildlife Sanctuary and Girijapur Barrage	A1
IN-UP-05	Kishanpur Wildlife Sanctuary	A1
IN-UP-06	Kudaiyya Marshland	A1, A4iii
IN-UP-07	Kurra Jheel	A1, A4iii
IN-UP-08	Lagga-Bagga Reserve Forest	A1
IN-UP-09	Lakh-Bahosi Bird Sanctuary	A1, A4iii
IN-UP-10	Narora	A1, A4iii
IN-UP-11	National Chambal Wildlife Sanctuary	A1, A4iii
IN-UP-12	Nawabganj Bird Sanctuary	A1, A4iii
IN-UP-13	Parvati Aranga Wildlife Sanctuary	A1, A4iii
IN-UP-14	Patna Bird Sanctuary	A1, A4i, A4iii
IN-UP-15	Pyagpur (Baghetal) Jheel	A1, A4iii
IN-UP-16	Saman Bird Sanctuary	A1, A4i, A4iii
IN-UP-17	Samaspur Bird Sanctuary	A1, A4i, A4iii
IN-UP-18	Sandi Wildlife Sanctuary	A1, A4i, A4iii
IN-UP-19	Sarsai Nawar Lake	A1, A4i, A4iii
IN-UP-20	Sauj Lake	A1, A4i, A4iii
IN-UP-21	Sheikha Jheel	A1, A4i, A4iii
IN-UP-22	Sohangibarwa Wildlife Sanctuary	A1
IN-UP-23	Soheldev Wildlife Sanctuary	A1
IN-UP-24	Sur Sarovar Bird Sanctuary	A1, A4iii
IN-UP-25	Surha Taal Wildlife Sanctuary	A1, A4i, A4iii



AVIFAUNA

The bird life of Uttar Pradesh is rich and varied. More than 500 species are found (A. R. Rahmani unpublished), including some extremely rare ones. Among the Critically Endangered species, Oriental White-backed Vulture *Gyps bengalensis*, Long-billed Vulture *G. indicus* and Slender-billed Vulture *G. tenuirostris* are found in this State. BirdLife International (2001) has listed ten Endangered species, of which, the Bengal Florican has been definitely recorded in four IBAs, the White-headed Duck *Oxyura leucocephala* and Lesser Florican *Sypheotides indica* are occasionally seen, and the Greater Adjutant *Leptoptilos dubius* has not been recorded recently (Rahmani *et al.* 1990). In this State, on record are 20 of the 57 Vulnerable species listed for India by BirdLife International (2001). For six species, the IBAs and protected areas of Uttar Pradesh are extremely important. (A brief description is given later). BirdLife International (2001) has listed 52 Near Threatened bird species of India, 14 of which occur in Uttar Pradesh. For two species, the Black-necked Stork and Rufous-rumped Grassbird *Graminicola bengalensis* (earlier known as Large Grass Warbler), the wetlands and tall grasslands of Uttar Pradesh are very important for survival. Earlier, Rahmani (1989), and recently Gopi Sunder and Kaur (2001) have shown that the wetlands of Uttar Pradesh are the major strongholds of the Black-necked Stork. It is found in 14 IBAs of Uttar Pradesh.

A species that needs special attention is the Hodgson's Bushchat *Saxicola insignis*. It is also known as the White-throated Bushchat or Hodgson's Stonechat. It has a much localized breeding range in the mountains of Mongolia where it is difficult to study. Its winter range is the northern Gangetic plains and the duars of northern India and the *terai* of Nepal. From the comparatively little information available it is probably the scarcest species in its genus (Urquhart 2002). In northern India, it has been reported from Ambala in the west to northern Bengal in the east (Ali and Ripley 1987). It is found in heavy grassland, reeds and tamarisks along river beds and cane fields. Earlier it was recorded in Kanpur, Gonda, Faizabad, Basti, and Gorakhpur (BirdLife International 2001, Urquhart 2002) but there is a recent record only from Corbett (Bose *et al.* 1989). Javed and Rahmani (1998) did not record it in Dudwa. However, looking at the paucity of reliable birdwatchers in Uttar Pradesh, development of tall grasslands and marshes on seepages of the vast canal systems of the State, and extant tall grasslands along major rivers, this species is likely to be present in many areas.

THREATENED BIRDS FOR WHICH UTTAR PRADESH IS IMPORTANT

Slender-billed Vulture *Gyps tenuirostris* Critically Endangered

This newly recognized species is classified as Critically Endangered because it has suffered an extremely rapid population decline, particularly across the Indian subcontinent (BirdLife International 2001). This Vulture is found to the north of, and including, the Gangetic plain, in the west to at least Himachal Pradesh and Haryana and other parts (Islam and Rahmani 2002). It has been reported from many places, but is confirmed only from Dudwa National Park.

White-headed Duck *Oxyura leucocephala* Endangered

Mid-winter counts indicate that the population of this species has undergone a very rapid decline of *c.* 60% in the last 10 years, which qualifies it as Endangered (BirdLife International 2001). There is one record of this bird in Amakhera in Aligarh district (Islam and Rahmani 2002).

Bengal Florican *Houbaropsis bengalensis* Endangered

This bustard has a very small, rapidly declining population largely as the result of the widespread loss of its grassland habitat. It therefore qualifies as Endangered (BirdLife International 2001). This bustard has been recorded in the *terai* grasslands of the Katerniaghat Wildlife Sanctuary, Kishanpur Wildlife Sanctuary, Dudwa National Park, and Lagga-Bagga Reserve Forest (Rahmani 2001).

Pallas's Fish-Eagle *Haliaeetus leucorhynchus* Vulnerable

This species is inferred to have a small, declining population as a result of widespread loss, degradation and disturbance of wetlands and breeding sites throughout its range. It qualifies as Vulnerable (BirdLife International 2001). In India it is a widespread breeding species on lakes, and on large rivers in the north and northeast of the country. In Uttar Pradesh, it has definitely been reported in the Chambal Wildlife Sanctuary, Katerniaghat Wildlife Sanctuary and Tumeria Barrage.

Swamp Francolin *Francolinus gularis* Vulnerable

This species is classified as Vulnerable because it has undergone a rapid population decline which is projected to continue, concurrent with the rapid decline in the extent and quality of its specialized habitat. Trapping of this bird is also a threat (BirdLife International 2001). Among the four members of the genus *Francolinus* in India, this species has the most restricted range, being confined to the tall, wet grasslands of the *terai* in Uttar Pradesh, Bihar, West Bengal, Assam, Meghalaya and Arunachal Pradesh (Javed *et al.* 1999, Javed 2000). From Uttar Pradesh, it is reported in Hastinapur Wildlife Sanctuary, Dudwa National Park, Kishanpur Wildlife Sanctuary, Suhelwa Wildlife Sanctuary, Sohagibarwa Wildlife Sanctuary, Katerniaghat Wildlife Sanctuary, Pilibhet Reserve Forest and Lagga-Bagga Reserve Forest and many grasslands outside protected areas.

Sarus Crane *Grus antigone* Vulnerable

This crane has suffered a rapid population decline, which is projected to continue, as a result of widespread reductions in the extent and quality of its wetland habitats, exploitation, and the effects of pollutants. It therefore qualifies as Vulnerable (BirdLife International 2001). In Uttar Pradesh, it is reported from Kishanpur Wildlife Sanctuary, Hastinapur Wildlife Sanctuary, Lakhbhoshi Bird Sanctuary, Patna Bird Sanctuary, Nawabganj Bird Sanctuary, Samastipur Bird Sanctuary, Sheikha Jheel, Tikra Jheel and many other wetlands. The main strongholds in Uttar Pradesh are in Aligarh, Etah, Mainpuri and Etawah districts where probably 20% of the world's Sarus population is found.



Photo: Perwez Iqbal

Important Bird Areas in India - Uttar Pradesh

Bristled Grass-Warbler *Chaetomis striatus* **Vulnerable**

This grassland specialist has a small, rapidly declining population owing to loss and degradation of its grassland habitat, primarily through drainage and conversion to agriculture (BirdLife International 2001). This vulnerable species is endemic to the Indian subcontinent. In Uttar Pradesh it has been recorded in the Dudwa National Park and Okhla Wildlife Sanctuary (Islam and Rahmani 2002). (Major part of Okhla Bird Sanctuary is in Uttar Pradesh, but part of it lies in Delhi).

Finn's Weaver *Ploceus megarhynchus* **Vulnerable**

Finn's or Yellow Weaver has a small, rapidly declining, severely fragmented population as a result of the loss and degradation of the *terai* grassland, principally through conversion to agriculture and overgrazing, which places this bird into the Vulnerable category (BirdLife International 2001). In Uttar Pradesh, has been reported from the Hastinapur Wildlife Sanctuary (doubtful record) and unprotected areas of northern Uttar Pradesh (R. Bhargava, *pers. comm.* 2003).

List of threatened birds with IBA site codes

Critically Endangered		
Oriental White-backed Vulture	<i>Gyps bengalensis</i>	IN-UP-02, 10, 14
Long-billed Vulture	<i>Gyps indicus</i>	IN-UP-02, 10, 14
Slender-billed Vulture	<i>Gyps tenuirostris</i>	IN-UP-02
Endangered		
Bengal Florican	<i>Houbaropsis bengalensis</i>	IN-UP-02, 04, 05, 08
Lesser Florican	<i>Sypheotides indica</i>	IN-UP-02
Vulnerable		
Spot-billed Pelican	<i>Pelecanus philippensis</i>	IN-UP-02, 04 (?)
Lesser Adjutant	<i>Leptoptilos javanicus</i>	IN-UP-02, 04, 05, 24
Marbled Teal	<i>Marmaronetta angustirostris</i>	IN-UP-02
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>	IN-UP-02, 04, 09, 10, 11, 17
Greater Spotted Eagle	<i>Aquila clanga</i>	IN-UP-02, 03, 04, 07, 09, 10, 11, 12, 14, 16, 17, 21, 24
Swamp Francolin	<i>Francolinus gularis</i>	IN-UP-02, 03, 04, 05, 08, 22, 23
Sarus Crane	<i>Grus antigone</i>	IN-UP-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25
Sociable Lapwing	<i>Vanellus gregarius</i>	IN-UP-07
Wood Snipe	<i>Gallinago nemoricola</i>	IN-UP-02
Indian Skimmer	<i>Rynchops albicollis</i>	IN-UP-11
Hodgson's Prinia	<i>Prinia cinereocapilla</i>	IN-UP-02
Finn's Weaver	<i>Ploceus megarhynchus</i>	IN-UP-03 (?), 07 (?)
Near Threatened		
Darter	<i>Anhinga melanogaster</i>	IN-UP-09, 10, 12, 14, 17, 21, 24
Painted Stork	<i>Mycteria leucocephala</i>	IN-UP-06, 09, 10, 12, 14, 15, 17, 19, 20, 21, 24
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	IN-UP-06, 09, 10, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24
Oriental White Ibis	<i>Threskiornis melanocephalus</i>	IN-UP-09, 10, 12, 14, 17, 21, 24
Lesser Flamingo	<i>Phoenicopterus minor</i>	IN-UP-14
Ferruginous Pochard	<i>Aythya nyroca</i>	IN-UP-09, 10
Red-headed Vulture	<i>Sarcogyps calvus</i>	IN-UP-09
Black-bellied Tern	<i>Sterna acuticauda</i>	IN-UP-09, 10, 14

Biome

Uttar Pradesh has only one biome, i.e. Biome-12 (Indo-Gangetic Plains) (BirdLife International, undated). This biome contains 13 species, four of which are globally threatened. They are Swamp Francolin, Bengal Florican, Bristled Grass-Warbler and Finn's Weaver. Most of the species of this biome depend on the tall wet grasslands and marshes of the *terai* region which is under tremendous human pressure. The White-tailed Stonechat *Saxicola leucura* is still common in the *terai* as it is able to live in the slightly grazed grasslands and crop fields (young sugarcane). Striated Babbler *Turdoides earlei*, Rufous-rumped Grass Warbler *Graminicola bengalensis* and Black-breasted Weaver *Ploceus benghalensis* are fairly common in suitable habitat.

THREATS AND CONSERVATION ISSUES

Uttar Pradesh is famous for its flood-plain wetlands – results of copious rainfall in the Gangetic Plain and also in the Himalayas from where most of the rivers originates. Large areas are annually flooded, and when the flood recedes, it leaves low-lying areas under water. These wetlands are extremely productive in terms of vegetation biomass and avian diversity (Howes 1995). Some of the most important wetland IBAs are found in this regions with significant populations of waterfowl. Patna *jheel* in Etah, Lakh-Bahosi in Farrukhabad, Saman in Mainpuri, and Nawabganj in Unnao are some of the more spectacular wetlands for migratory waterfowl in winter.

The marshes and wetlands of the Gangetic drainage system show a long history of stability in geological sense, thus many marsh-

dependent species are found such as Striated Marsh Warbler or Grassbird *Megalurus palustris*, Bristled Grassbird *Chaetornis striatus*, Rufous-rumped Grassbird *Graminicola bengalensis*, Yellow-bellied Prinia *Prinia flaviventris*, Swamp Francolin *Francolinus gularis*, Bengal Florican *Houbaropsis bengalensis* and various ducks. Unfortunately, one of the species, the Pinkheaded Duck *Rhodonessa caryophyllacea*, has become extinct, not due to any geological upheaval but due to human-related activities.

Uttar Pradesh is one of the most densely populated states in India with very little forest cover left. Whatever is left, is found in the north and south. The Gangetic plains have practically no forest cover left. However, this region is extremely important for the vast multitude of waterfowl that descends in the flood-plain wetlands. Of the 25 IBAs of Uttar Pradesh, 18 qualify A4iii criteria (site known to hold, on regular basis more than 20,000 waterfowl each year). There are many more wetlands, which if properly protected, would easily qualify this criteria. Most of these wetlands are under tremendous pressures from fishing, overgrazing, cultivation, drainage and pollution. Sometimes ill-conceived government plans are the major threats to these wetlands, as is the case with the extremely important Sarus habitat in the Mainpuri-Etawah region.

Sodic areas in Uttar Pradesh have long been known to be responsible for low productive land. In order to render these vast areas cultivable, the World Bank conceived a project in 1995. The project was implemented by providing gypsum at a subsidy to farmers applying large amounts of the chemical to flooded farm-lands, and flushing the excess water from the fields prior to the planting of the crop. The agency responsible for administering the project was the Uttar Pradesh Bhumi Sudhar Nigam (UPBSN). To facilitate the flushing, the project relied on the existing drainage systems, and with the assistance and expertise of the State Irrigation Department, hoped to carry out the entire exercise by revitalizing it. This it intended to do by desilting existing drains, providing better outflow in certain areas with culverts and flushing the water into rivers through a network of drains that passed through many natural wetlands in the project areas. Because the drains were in a state of disuse and had not been repaired for over two decades, their capacity to efficiently drain off water after the rains diminished perceptibly. Existing wetlands probably increased in size. Also, due to poor run-off, many temporary waterlogged areas had formed, and over time, had become healthy wetlands.

With the revitalizing of the system, the drainage in canals and water-holding in the natural wetlands underwent a sudden change. Many areas that had become permanent roosts and nesting sites for many waterbirds suddenly emptied out, and existing wetlands faced changes in their water regimes affecting at least the birds that were resident and required wetlands for their survival. One bird that was definitely affected in terms of reduction of roosting areas and nesting sites was the Sarus crane; at least in Etawah and Mainpuri districts. While the project helped many farmers who were previously unable to carry out any farming, the project also affected the natural system of wetlands and marshlands, the repercussions and effects of which, are not likely to be healthy for the whole system.

The forests and grasslands of the *terai* region are the most important biodiversity hotspots of this State. The protected areas of the *terai* (Dudwa, Kishanpur, Katerniaghat, and reserve forests) remain strong and vital reservoirs of *terai* biodiversity, and are important social and economic assets (Kumar *et al.* 2002). Despite intense human pressure, the persistence of most species indicates that management has been adequate. However the effect of the annual burning and spread of invasive species such as *Tiliacora acuminata* are not fully known. Changes in river hydrology, associated siltation, and excessive ground water exploitation are causing changes in forest and grassland composition and structure (Kumar *et al.* 2002). Encroachment of forestland is still a major issue and vital corridors are still being lost (e.g. Dudwa and Katerniaghat, and Dudwa and Kishanpur). Livestock grazing is a major problem, especially in sanctuaries.

Annual burning practised in the *terai* as a management tool has unknown impacts on the highly endangered Bengal Florican. Similarly, illegal burning in the forests in the Budelkhand region (e.g. Banda, Hamirpur, Jhansi) in summer, by graziers and forest dwellers has a negative impact on ground-nesting birds. This burning coincides with the breeding season of pheasants, francolins, lapwings, larks and warblers.

Another major problem, not necessarily confined to Uttar Pradesh, is the spread of the pernicious weed, Water Hyacinth *Eichornea crassipes*. It has invaded almost all the wetlands. There does not appear to be any solution to control it. Earlier, most of the villages used to have wetlands nearby, mainly accessed for drinking, bathing and/or irrigation. These small or medium-sized wetlands used to serve as wintering grounds for migratory birds and breeding grounds for resident species such as Little Grebe *Tachybaptus ruficollis*, jacanas, waterhens, egrets and storks. Now, these wetlands are either drained, polluted or covered with thick mats of Water Hyacinth. The only beneficiary of the spread of the Water Hyacinth appears to be the Purple Moorhen or Swamphen *Porphyrio porphyrio* that still manages to breed in the thick floating mats.

Threats to IBAs

A=Agriculture intensification/expansion; B=Dams/Dykes; C=Disturbance to Birds; D=Firewood Collection;
E=Industrialisation/Urbanisation; F=Unsustainable exploitation; G=Others; H=Natural Events

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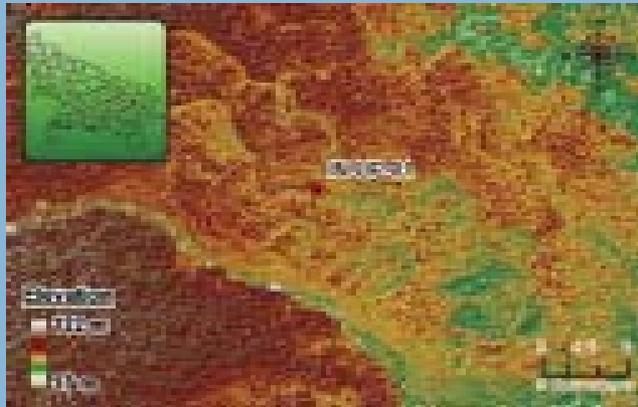
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Water Hyacinth has covered many wetlands. There does not appear to be any solution to control this pernicious weed other than physical removal.



Photo: Asad R. Rahmani

BAKHIRA WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-01
State	: Uttar Pradesh
District	: Sant Kabir Nagar
Coordinates	: 26° 34' 60" N, 83° 00' 00" E
Ownership	: State
Area	: 2,894 ha
Altitude	: Not available
Rainfall	: 800-1,000 mm
Temperature	: 4 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in May 1990

GENERAL DESCRIPTION

Bakhira Bird Sanctuary came into existence in 1990. This sanctuary is situated in Sant Kabir Nagar district, recently carved out of district Basti. It consists of Bakhira Tal extending over *Gram Samaj* land, agricultural land and reserve forest land. The total area of the Sanctuary is 2894 ha, of which 1819 ha is *Gram Samaj* land, 1059 ha is agricultural land and 15 ha is Reserve Forest area. The *Gram Samaj* land forms the core zone of the Sanctuary, which contains the main water body. It is one of the important wetlands of eastern Uttar Pradesh and provides wintering and staging grounds for a large number of migratory birds and a breeding ground for resident birds, such as Purple Moorhen or Swamphen *Porphyrio porphyrio*.

AVIFAUNA

Between 40,000 to 80,000 waterbirds visit this wetland during winter, the prominent species being Red-crested Pochard *Netta rufina*, Northern Pintail *Anas acuta* and Northern Shoveller *Anas clypeata*. The population of Sarus *Grus antigone* is not yet estimated, but the area is known to be a congregation site (100-150 Sarus, Gopi Sundar *pers. comm.* 2003). This site qualifies A1 and A4iii criteria. Detailed research on avifauna has not been conducted, so we do not have a complete bird checklist. Once we have results from a good study, the A1 list is likely to increase.

According to Tripathy (2002), 23 species of waterfowl are found in this wetland, including more than 5,000 Purple Moorhens. This is a common and widespread species, but there are not many sites in India where such a large breeding population of this bird is found.

Vulnerable	
Sarus Crane	<i>Grus antigone</i>

OTHER KEY FAUNA

As the Sanctuary is surrounded by human habitation, there is no

large wild mammal in the area. Smaller mammals seen are Golden Jackal *Canis aureus*, Jungle Cat *Felis chaus* and Small Indian Mongoose *Herpestes javanicus*. Not much is known about the reptiles, amphibians and fish of this Sanctuary.

LAND USE

- ☐ Agriculture
- ☐ Nature conservation
- ☐ Tourism

THREATS AND CONSERVATION ISSUES

- ☐ Drainage
- ☐ Grazing
- ☐ Poaching
- ☐ Illegal fishing
- ☐ Use of pesticides in surrounding fields

At least 24 villages surround the Sanctuary, hence, pressure on the area is extremely heavy. Grazing by livestock and use of lake water for irrigation pose some management problems.

Encroachment by agricultural landowners in the Sanctuary has not been brought under control by the Forest Department. Illegal fishing and shooting of birds also takes place.

Fishing is very intensive in Bakhira, at least 6,000 boats operate but disturbance to other aquatic fauna including birds and over-exploitation of fish are restricted due to the continuous vigilance by the Forest Department (Tripathy 2002). The fishing method is very traditional and includes hunting of fish with pointed sticks.

KEY CONTRIBUTORS

Sarat Chandra Tripathy, V. P. Singh and K. S. Gopi Sundar

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DUDHWA NATIONAL PARK



IBA Site Code	: IN-UP-02
State	: Uttar Pradesh
District	: Lakhimpur-Kheri
Coordinates	: 28° 29' 27" N, 80° 42' 08" E
Ownership	: State
Area	: 49,000 ha
Altitude	: 150-184 m
Rainfall	: 1,750 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic plain
Habitats	: Moist Deciduous, Dry Deciduous Forest, Tropical Grassland

IBA CRITERIA: A1 (Threatened Species), A3 (Biome-12: Indo-Gangetic Plains)
PROTECTION STATUS: National Park, established in February 1977

GENERAL DESCRIPTION

With the aim of protecting the relict population of Swamp deer *Cervus duvauceli duvauceli*, 212 sq. km of Lakhimpur-Kheri forests was declared as Dudhwa Sanctuary. In 1977, the area was declared as a National Park with a core zone of 490 sq. km and a buffer zone of 124 sq. km. In 1987, the Park was brought under 'Project Tiger' with the addition of 201 sq. km of Kishanpur Wildlife Sanctuary. In the early half of 2000, Katarniaghat Wildlife Sanctuary (400 sq. km) was included in Dudhwa National Park. Dudhwa and Kishanpur are not contiguous, and the river Sharda forms a natural barrier. The buffer zone in Dudhwa National Park (DNP) is located to the north of the core zone and still includes *Tharu* tribal villages. Most of the requirements of the *Tharus* are met by the buffer zone. About 30,000 people continue to live in an area approximately 5 sq. km in and around the Park. They are partly dependent on forest for thatching, fodder and fuel wood, and create an important management issue. The Suheli barrage adjoining Bilrayan range of the Park holds a good population of migratory waterbirds in winter. This is partly owned by the Forest Department and partly by the Irrigation Department.

Dudhwa NP falls under *Terai-Bhabar* biogeographic subdivision of the Upper Gangetic Plains (7A) according to the biogeographic classification of Rodgers and Panwar (1988).

Bankay Taal in Dudhwa attracts thousands of waterfowl, and a small population of Swamp Deer.



Photo: Aesad R. Rahmani

AVIFAUNA

The Dudhwa National Park is rich in avifauna. About 330 species of birds were recorded during three years of intensive studies at this site (Javed and Rahmani, 1998). The site falls in Biome-12, but species of biomes 5, 7, 8 and 11 are also reported from the site. BirdLife International (undated) has identified 13 species of Biome-12 (Indo-Gangetic Plains), of which six have been seen in Dudhwa grasslands, which again proves the importance of this Park for the protection of grassland birds and other animals.

Of the 330 species, 112 (34%) are resident breeding birds, including important ones such as the Vulnerable Bengal Florican *Houbaropsis bengalensis* and Swamp Francolin *Francolinus gularis*. Another 31 (9%) are resident, but breeding in Dudhwa has not been confirmed. Winter migrants constitute at least 90 (26%) of the total species. The majority of these are waterfowl and there are also several species of leaf warblers *Phylloscopus* (Javed and Rahmani 1998).

Among the habitat types, wetlands/marshland have the highest number of species (105). These two habitats also account for the highest number of threatened species (15 or 16% of the birds recorded in Dudhwa). The Sal forest has 53 bird species, and does not include any globally threatened species; however, the Pompadour Green Pigeon *Treron pompadora* was seen, and constituted the first record from Uttar Pradesh.

Of the 330 bird species recorded in Dudhwa (Javed and Rahmani 1998), 22 (7%) are globally threatened or Near Threatened. Dudhwa has significant populations of only two species: the Bengal Florican and the Swamp Francolin. The Lesser Florican *Sypheotides indica* is infrequently seen. The Critically Endangered Oriental White-backed Vulture *Gyps bengalensis* used to breed in and around the Park in large number but its population has crashed since the mid 1990s. The Lesser Adjutant *Leptoptilos javanicus* is another species which regularly breeds in the Park in small numbers, probably not more than 10 pairs. Pallas's Fish-Eagle *Haliaeetus leucorhynchus* is regularly seen in the Park, but no nest has been found. There is an old record of Wood Snipe *Gallinago nemoricola* from the district (BirdLife International 2001).

The Spot-billed Pelican *Pelecanus philippensis* and Marbled Duck *Marmaronetta angustirostris* occur in Dudhwa in small numbers.

At least four pairs of Near Threatened Black-necked Stork *Ephippiorhynchus asiaticus* are found in the Park, and a few sub-adults are also seen in and just outside the Park.

The Bengal Florican is one of the flagship species of Dudhwa. Fortunately, since 1985 when long-term monitoring was started, its population has not decreased. Most of the territories located in the late 1980s are still occupied. Assuming that the sex ratio is equal, about 60 adult birds are found in Dudhwa (Rahmani 2001).

Based on biological, socio-economic, cultural and social values, administrative importance, geographical and habitat representations, Rahmani and Islam (2000) have prioritised the grasslands of Dudhwa as Priority No. 1. According to Rahmani (1996), about 70 bird species are found in these flood plain grasslands, of which 22 species or subspecies are exclusively found here. Birds of the *terai* region show high dependency on the grasslands to complete their life cycle: 46 out of 70 species use these grasslands for foraging and breeding, while 23 use them for foraging only. Ten species are threatened with extinction mainly due to the destruction of these grasslands.

Critically Endangered	
Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>
Slender-billed Vulture	<i>Gyps tenuirostris</i>
Endangered	
Bengal Florican	<i>Houbaropsis bengalensis</i>
Lesser Florican	<i>Sypheotides indica</i>
Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Lesser Adjutant	<i>Leptoptilos javanicus</i>
Marbled Teal	<i>Marmaronetta angustirostris</i>
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Swamp Francolin	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>
Wood Snipe	<i>Gallinago nemoricola</i>
Hodgson's Prinia	<i>Prinia cinereocapilla</i>
Biome-12: Indo-Gangetic Plains	
Swamp Francolin	<i>Francolinus gularis</i>
Bengal Florican	<i>Houbaropsis bengalensis</i>
White-tailed Stonechat	<i>Saxicola leucura</i>
Striated Babbler	<i>Turdoides earlei</i>
Rufous-rumped Grass-Warbler	<i>Graminicola bengalensis</i>
Black-breasted Weaver	<i>Ploceus bengalensis</i>

OTHER KEY FAUNA

Dudhwa National Park is extremely rich in fauna. Thirty-one species of large mammals have been reported from the Park, including Tiger *Panthera tigris* and five species of deer (Swamp Deer *Cervus duvauceli*, Sambar *C. unicolor*, Chital *Axis axis*, Hog Deer *Axis porcinus* and Barking Deer *Muntiacus muntjak*). The *terai* grasslands have some of the most endangered species of India such as Swamp Deer, Hispid Hare *Caprolagus hispidus* and Indian One-horned Rhinoceros *Rhinoceros unicornis*. Other important mammals include Asian Elephant *Elephas maximus*, Sloth Bear *Melursus ursinus*, Ratel *Mellivora capensis*, Civet *Viverra zibetha*, Golden Jackal *Canis aureus*, Fishing Cat *Prionailurus viverrinus*, Jungle Cat *Felis chaus* and Leopard *Panthera pardus*. Crocodile *Crocodylus palustris*, Common Otter *Lutra lutra* and Monitor Lizard *Varanus bengalensis* can be observed near the river banks.

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation

THREATS AND CONSERVATION ISSUES

- ☐ Poaching
- ☐ Grazing
- ☐ Forest fire
- ☐ Fuel wood collection

Before the declaration of this area as a National Park, there used to be large human settlements inside the forest, mostly in the grassland area. These settlements, known as *ghauri*, were used for grazing cattle. Extensive grazing by cattle and harvesting of grasses maintained these grasslands. Areas around these settlements were maintained as sward, and provided wild ungulates with soft, palatable and nutritive grasses. After the declaration of this area as a National Park, grazing and other human activities were checked. This, together with annual burning at the beginning of the dry season has led to changes in the structure and composition of these grasslands and a marked reduction in ungulate population. Annual burning is practiced to check the growth of herbs and woody species. Burning has two effects in the Park. In some situations, it is a useful exercise, whereas in other cases it is detrimental, as it alters the habitat to the extent that it becomes less attractive to many endangered species. In order to strike a balance, a proper regime is essential, so that certain areas are burnt and certain areas left unburnt. This mosaic of burnt and unburnt, tall and short grass patches will provide the optimal habitat for most of the key grassland animal and bird species.

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Asad R. Rahmani and Salim Javed

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Railway lines, constructed during the British time to exploit the forest of Dudhwa, divide this famous Park.



Photo: Asad R. Rahmani

HASTINAPUR WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-03
State	: Uttar Pradesh
Districts	: Bijnor
Coordinates	: 29° 32' 28" N, 78° 08' 47" E
Ownership	: State
Area	: 2,07,300 ha
Altitude	: 100-120 m
Rainfall	: >1,000 mm
Temperature	: 0 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Tropical Dry Deciduous Forest, Tropical Secondary Scrub, Tropical Grassland, Wetland

IBA CRITERIA: A1 (Threatened Species)
PROTECTION STATUS: Wildlife Sanctuary, established in July 1986

GENERAL DESCRIPTION

Hastinapur Wildlife Sanctuary lies along the banks of the Ganga in Western Uttar Pradesh. The Sanctuary was established mainly to accord protection to Swamp Deer *Cervus duvauceli duvauceli*, the state animal of Uttar Pradesh, and to conserve the fast vanishing, unique biome, locally known as *Gangetic Khadar*. It is unique in that it contains a variety of landforms and habitat types such as wetland, marshes, dry sand beds and gently sloping ravines known as *Khola*. Till a few decades ago (before 1980s), the *Gangetic Khadar* had extensive tracts of tall wet and dry grass, and *Khola* had luxuriant forests. However, today (2000s) much of the natural vegetation has been lost due to industries, human settlements and cultivation. Thus, the so-called Sanctuary is a highly disturbed protected area. Poaching is rampant and man-animal conflicts abound. A large number of wild animals from the Sanctuary get electrocuted by the live electric wire fences that farmers have erected around their fields to save their crops. As a result, once abundant populations of mammalian species such as the Swamp Deer and Hog Deer *Axis porcinus* have become severely fragmented and several other species such as the Grey Wolf *Canis lupus*, Hyena *Hyaena hyaena* and Leopard *Panthera pardus* have disappeared altogether, at least from the limits of the Sanctuary. In spite of all this, the remaining grassland patches still hold a variety of flora, avifauna and populations of Swamp Deer and Hog Deer.

The vegetation of the Sanctuary can be classified into tall wet grasslands, dry short grasslands, scrub and plantations (Nawab 2000).

AVIFAUNA

Nearly 180 bird species have been reported from the site (Nawab 2000). Large congregations of water birds can be seen during winter. The Asian Openbill *Anastomus oscitans* has established several colonies. The Sarus Crane *Grus antigone* can be seen regularly throughout the Sanctuary and breed here (A. Khan *pers. comm.* 2002). The Indian Skimmer *Rynchops albicollis* is seen in winter.

Rai (1979) reported 28 individuals of globally threatened Yellow Weaver or Finn's Baya *Ploceus megarhynchus* from this site in June 1979 but none were located in July 1998 (Bhargava 2000) or subsequently (R. Bhargava *pers. comm.* 2002). Similarly, there

are unconfirmed reports of Swamp Francolin *Francolinus gularis* (Salim Javed *pers. comm.* 2001). The habitat is still suitable for both these species. Information on the threatened species from this site is still lacking, detailed surveys are required to determine the status of various bird species.

Vulnerable	
Greater Spotted Eagle	<i>Aquila clanga</i>
Swamp Francolin (?)	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>
Finn's Weaver (?)	<i>Ploceus megarhynchus</i>

OTHER KEY FAUNA

The mammalian fauna of the Sanctuary includes the famous Swamp Deer, for which it was established. Its habitat is shared by Hog Deer. In the drier parts of the Sanctuary, and in agricultural areas, Nilgai or Bluebul *Boselaphus tragocamelus* is present, sometimes in large herds. Along with the Wild Boar *Sus scrofa*, it is the main agricultural pest. Blackbuck *Antelope cervicapra*, an antelope of dry grasslands, is found in some places. Golden Jackal *Canis aureus*, Jungle Cat *Felis chaus*, and Fishing Cat *Prionailurus viverrinus* are also reported, but being nocturnal they are rarely



Photo: M. Zafar-ul-Iskan

Bar-headed Geese congregate in large numbers in this IBA.

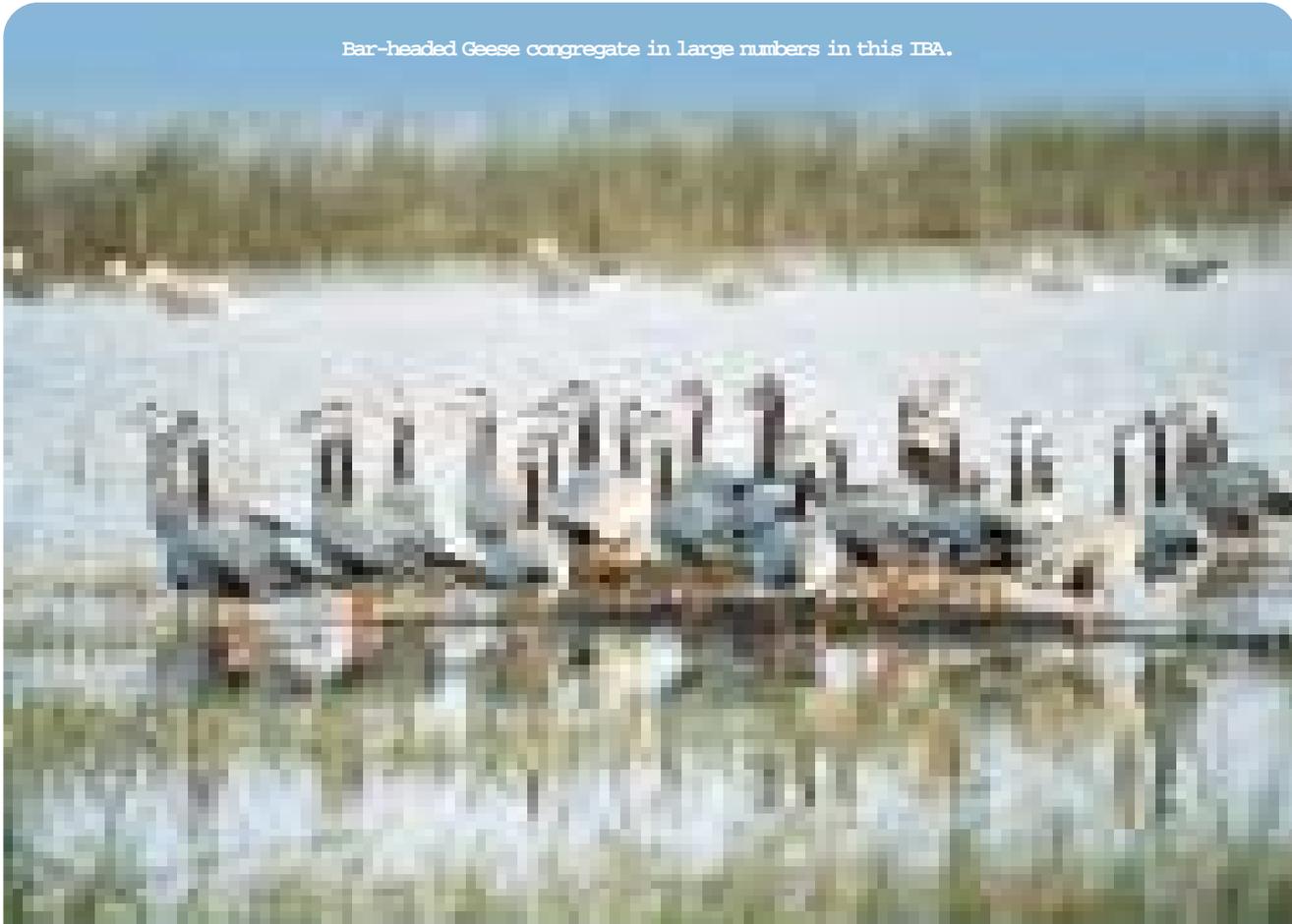


Photo: IBON Library

seen. The River Ganga, around which this Sanctuary has been established, still harbours the highly endangered Gangetic Dolphin *Platanista gangetica*.

LAND USE

- q Nature conservation and research
- q Agriculture

THREATS AND CONSERVATION ISSUES

- q Disturbance to birds
- q Intensive cultivation
- q Grass extraction
- q Habitat alteration
- q Poaching
- q Grazing

The Sanctuary is subjected to great human disturbance and pressures, mainly due to large-scale commercial exploitation of grasses (*Phragmites*), grazing and illegal cultivation (Khan 1995, 1996). Many swamps have been drained and converted into crop fields, or are in the process. Heavy grazing on islands during summer is a threat to island breeders. Electrocuting of wild animals on fences put up for the protection of crops is common

at several places. Inter- and intra-departmental conflicts seriously hamper the implementation of conservation laws by the field staff. Poaching of migratory birds, Hog Deer and Swamp Deer is common.

KEY CONTRIBUTOR

Afifullah Khan

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KATERNIAGHAT WILDLIFE SANCTUARY AND GIRIJAPURI RESERVOIR



IBA Site Code	: IN-UP-04
State	: Uttar Pradesh
District	: Bahraich
Coordinates	: 28° 14' 40" N, 81° 11' 29" E
Ownership	: State
Area	: 40,069 ha
Altitude	: 170 - 190 m
Rainfall	: 1,000 - 1,600 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Tropical Moist Deciduous, Riverine Vegetation, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species)
PROTECTION STATUS: Wildlife Sanctuary, established in May 1976

GENERAL DESCRIPTION

Katerniaghat Wildlife Sanctuary is situated in northeastern Uttar Pradesh, bordering the international boundary with Nepal, in the Bahraich Division, and covers an area of about 40,069 ha. It supports diverse vegetation and this accounts for the high faunal diversity. It is the only protected area in Uttar Pradesh with a population of wild, free ranging rhinos *Rhinoceros unicornis* (while in the nearby Dudhwa NP, also an IBA, they have been reintroduced). The Wildlife Sanctuary is a part of the *terai* landscape and has a weak link with Dudhwa National Park on the western side, Bardia National Park (Nepal) on the northern side and Chakia forest Range of Bahraich Forest Division to the east. Given the highly threatened status of the *terai* ecosystem, it is very important that top priority is given to strengthening these corridors. The Sanctuary has contiguous reserved forest areas on the southern side. According to the Management Plan, the entire Sanctuary has been termed as the core area. However, the thoroughfare provided by the road and the railway line that pass through the heart of the Sanctuary is leading to high level of disturbance. The Girijapuri reservoir holds considerable numbers of wintering waterfowl.

Girwa River runs through the reserve. The vegetation of Katerniaghat is very similar to Dudhwa National Park, although much fragmented. It has moist Bhabar and dry plain forest of *Shorea robusta*, eastern seasonal swamp forest, low alluvial savanna woodland, aegle forest and Khair-Sissoo forest. *Syzygium* and *Trewia nudiflora* dominate the riparian forest. There are extensive areas under seasonal floods, dominated by tall wet grasslands of *Phragmites karka* and *Arundo donax*. Such areas remain under water for 3-5 months. The upland grasslands, which do not get flooded, are dominated by *Saccharum munja*, *Imperata cylindrica* and *Desmostachya bipinnata*.

Nearly 30 years ago, most of the dry grasslands were planted with *Tectona grandis*, *Dalbergia sissoo*, *Bombax ceiba* and *Eucalyptus* by the Forest Department. These plantations are now ripe for harvesting of timber, and restoration of natural grasslands.

AVIFAUNA

More than 280 species are reported from the Sanctuary (Rahmani 1995 Unpubl.). The Girijapuri reservoir with its large waterspread attracts thousands of waterfowl, the number would easily exceed

20,000. Perhaps the best-known wintering population of Great Crested Grebe *Podiceps cristatus* in Uttar Pradesh occurs in Girijapuri reservoir. Between 80-120 could be seen in the reservoir itself. Other prominent waterfowl in the reservoir include Brahminy Duck *Tadorna ferruginea*, Red-crested Pochard *Rhodonessa rufina* and Lesser Whistling Duck *Dendrocygna javanica*. In 2000-2001, Critically Endangered Oriental White-backed Vulture *Gyps benghalensis* was found nesting along the Girwa river, mainly on *Terminalia tomentosa* and *Bombax malabarica* trees, but subsequently, many nests had dead birds, victims of diclofenac, a veterinary drug.

The grasslands of Katerniaghat WLS had Bengal floricans till 1970s (Arjan Singh *pers. comm.* 2000) but none were seen by Rahmani *et al.* (1991) during surveys between 1985 and 1991, or subsequently. However, in March 2001, B. C. Choudhury (*pers. comm.* 2002) of the Wildlife Institute of India saw two male floricans. Later, in May, during another survey, no Bengal Florican could be located (Rahmani 2001). Nevertheless, Katerniaghat remains a potential habitat for this highly endangered species.

A nest of Pallas's Fish-Eagle *Haliaeetus leucoryphus* near Girija Barrage is under use for the last 15 years (A. R. Rahmani *pers. obs.* 2002). Islands in the Girwa river are important nesting grounds for River Tern *Sterna aurantia* and Small Pratincole *Glareola lactea*.

BirdLife International (undated) has identified 13 species of Biome-12 (Indo-Gangetic Plains), of which five have been seen in Katerniaghat till now. The grasslands of Katerniaghat have been given Priority I for conservation (Rahmani and Islam 2000).

Endangered	
Bengal Florican	<i>Houbaropsis bengalensis</i>
Vulnerable	
Spot-billed Pelican (?)	<i>Pelecanus philippensis</i>
Lesser Adjutant	<i>Leptoptilos javanicus</i>
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Swamp Francolin	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>

OTHER KEY FAUNA

Katerniaghat WLS was established to protect and rehabilitate the Gharial *Gavialis gangeticus* and Marsh Crocodile *Crocodylus palustris*. For more than 25 years, it had a crocodile breeding centre, which has been dismantled now due to successful rehabilitation of crocodiles (D. Basu *pers. comm.* 2002). Katerniaghat has been listed as a Priority I grassland considering the conservation requirements of the following endangered species: Tiger *Panthera tigris*, Leopard *P. pardus*, Sloth bear *Melursus ursinus*, Swamp Deer *Cervus duvauceli duvauceli*, and Hog deer *Cervus porcinus*, Swamp francolin and other grassland birds (Rahmani and Islam 2000). The One-horned Rhinoceros has dispersed from the Royal Bardia National Park of Nepal to Katerniaghat.



Excellent Sal forest is found in Katerniaghat.

Photo: Salim Javed

LAND USE

- ☐ Nature conservation and research
- ☐ Forestry
- ☐ Human habitation

THREATS AND CONSERVATION ISSUES

- ☐ Human settlements
- ☐ Poaching
- ☐ Forest fire
- ☐ Afforestation
- ☐ Livestock grazing (almost 40,000 cattle)

There are around 100 villages dependent on the resources of the Sanctuary, particularly for grazing, with almost 40,000 cattle grazing within the Sanctuary. Rahmani and Islam (2000) have mentioned that grazing, forest fires and afforestation are the primary threats to these Priority I *terai* grasslands. Poaching of wild animals, particularly from the Nepal side, requires strategic planning to deal with the problem.

About 3,000 ha area is under the Seed Farm of the State Agriculture Department. There is a plan to hand over this important land, right in the middle of the Sanctuary, to the Forest Department. Once under the control of the Sanctuary officials, it could be developed as grassland for the Bengal Florican.

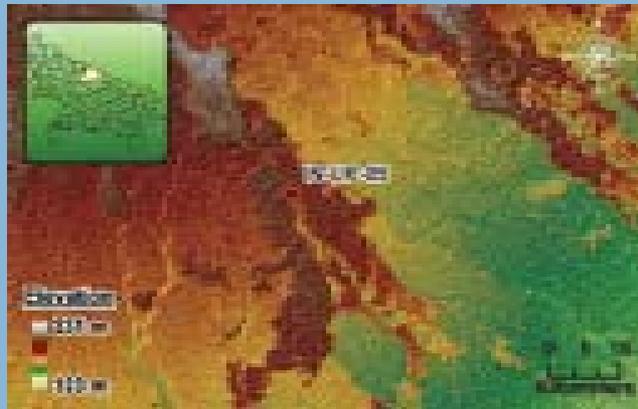
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KISHANPUR WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-05
State	: Uttar Pradesh
District	: Lakhimpur Kheri
Coordinates	: 28° 23' 47" N, 80° 21' 52" E
Ownership	: State
Area	: 22,700 ha
Altitude	: 200 m
Rainfall	: 1,750 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic plain
Habitats	: Tropical Moist Deciduous, Tropical Grassland, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species)
PROTECTION STATUS: Wildlife Sanctuary, established in October 1972

GENERAL DESCRIPTION

Kishanpur Wildlife Sanctuary (WLS) was declared on 1 January 1973, and in 1988 it came under Project Tiger. The Sanctuary has four ranges - Bhira, Kishanpur, Mailanai and Pawayari. Along with Dudhwa and Katerniaghat (both IBAs), Kishanpur has one of the most important *terai* grasslands left in northern India. Before the Tiger *Panthera tigris* was declared a protected species, Kishanpur had some of the most coveted tiger shooting blocks in India. As the forest was managed for timber logging, plantation and shooting, Kishanpur has a good road network. Most of the grasslands have been planted over by the Forest Department with *Shorea robusta*, *Tectona grandis*, *Syzygium cumini*, *Madhuca indica*, *Bombax ceiba*, *Acacia catechu* and *Eucalyptus*. However, some low-lying grasslands (e.g. Jhadi taal) are still left, which are extremely important for the highly endangered Swamp Deer *Cervus duvauceli* and Bengal Florican *Houbaropsis bengalensis*.

The open grasslands are called locally *Chander* or *phanta*. Most of them are present in the depressions representing the dry beds of old rivers (probably the Sharda). The orientation of these grasslands is the same as the slopes of the tract i.e., northwest to southeast and to the south. Based on cultural and social values, administrative importance, geographical and habitat representations, Rahmani and Islam (2000) have prioritised the grasslands of Kishanpur as Priority No. 1.

AVIFAUNA

More than 250 species of birds are found in Kishanpur WLS (Rahmani *unpubl.* 2002), including the highly Endangered Bengal Florican (Rahmani 1996, 2001). Jhadi taal is an important site for wintering waterfowl, including the Vulnerable Lesser Adjutant *Leptoptilos javanicus* and Sarus crane *Grus antigone* and the Near Threatened Black-necked Stork *Ephippiorhynchus asiaticus*. On every visit in the 1990s, a pair with 2-3 juveniles was seen in Jhadi taal (A. R. Rahmani, unpublished). It attracts up to 5,000 waterfowl, including flocks of 300-500 Lesser Whistling Duck *Dendrocygna javanicus*, Greylag goose *Anser anser*, and assorted ducks. During monsoon, the whole Jhadi taal is under water, but the water recedes by October. From March onwards, two territorial male Bengal Floricans are seen. Two or three males are sometimes seen in Burgad Chowki grasslands (Rahmani, 1996, 2001). There could be more Bengal Floricans in this IBA. A more detailed survey of all the grasslands is required.

The Endangered Bengal Florican *Houbaropsis bengalensis* is found in the grasslands of this IBA.



Photo: J. C. Eames/BirdLife International

Endangered	
Bengal Florican	<i>Houbaropsis bengalensis</i>
Vulnerable	
Lesser Adjutant	<i>Leptoptilos javanicus</i>
Swamp Francolin	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>

OTHER KEY FAUNA

Perhaps the largest single population of Swamp Deer in Uttar Pradesh is found in Jhadi taal. They total about 400 individuals. Smaller scattered groups are also found in other grasslands but their number would not exceed 50-60. Other species found are Hog Deer *Axis porcinus*, Cheetal *Axis axis*, Sambar *Cervus unicolor* and Wild Boar *Sus scrofa*. No information is available on the reptiles, amphibians and fish.

The grasslands of Kishanpur WLS are important for the protection of the Endangered Bengal Florican and other grassland-dependent species.

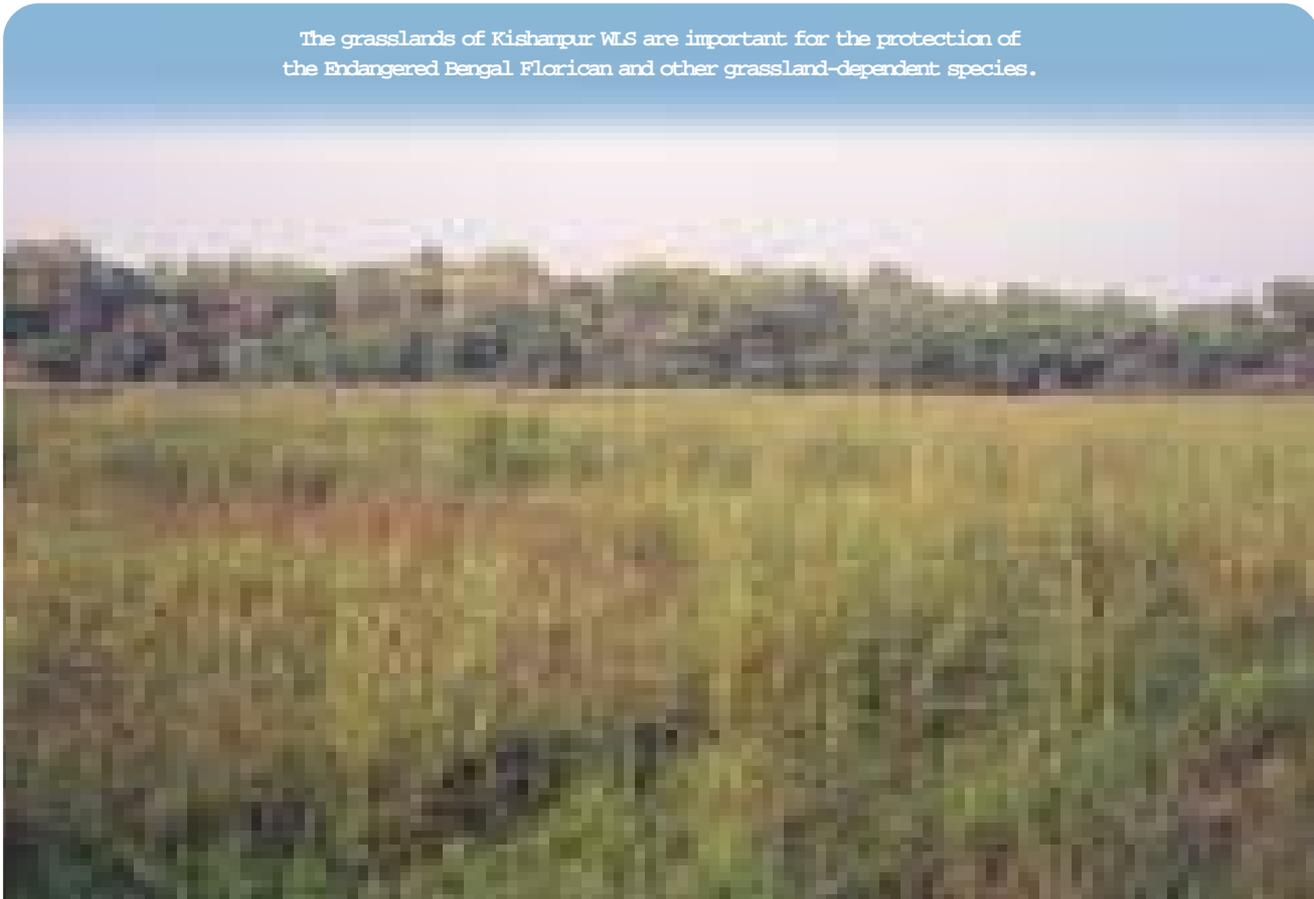


Photo: Asad R. Rahmani

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation

THREATS AND CONSERVATION ISSUES

- ☐ Firewood collection
- ☐ Livestock grazing
- ☐ NTFP collection
- ☐ Poaching

As Kishanpur WLS is has numerous roads and canals, and is located near a growing town called Mailani, biotic disturbance is great. Earlier, poaching was a big problem but since its inclusion in the Tiger Reserve, patrolling has increased so the situation is not so bad anymore. However, cattle grazing in some parts is still a problem, especially in the grasslands of Burgad Chowki, where the Bengal Florican is found.

During summer, controlling forest fires becomes the major activity of the forest staff. These fires are generally lit by casually thrown

cigarettes or deliberately lit by villagers. The Forest Department also burns the grasslands for management purposes. Impact of long-term, repeated burning needs to be studied.

KEY CONTRIBUTORS

Asad R. Rahmani, Salim Javed and V. P. Singh

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KUDAIYYA MARSHLAND



IBA Site Code	: IN-UP-06
State	: Uttar Pradesh
District	: Mainpuri
Coordinates	: 6° 59' 36" N, 78° 59' 25" E
Ownership	: State, Village, Private
Area	: 300 ha
Altitude	: Not available
Rainfall	: 880 mm
Temperature	: 1 °C to 50 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Seasonal Marsh, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

This waterbody is situated along the Karhal-Kishni highway in Mainpuri district, about 8 km from Karhal town. It is also approachable from Saiphai town to its west, via a smaller road. The marsh is situated just beside the village Kudaiyya and is formed by the flooding of a natural depression in the landscape. The most prominent feature of the marsh is the abundant growth of *Typha* that is clearly distinguishable even from a distance. Less than half of the water surface is open, but much of these areas are hidden from view by tall reeds. The wetland's appearance changes dramatically in the monsoon, as it is filled with pink lotus flowers, which bloom in profusion. The principal source of water to the marsh is rain. However, it is connected to a tributary of the right-wing Ganga canal, and frequently gets water through this source throughout the year. Even when completely full during the monsoon, water depth in the wetland does not exceed 1.5 m in the deepest parts. For the most part, it is less than 0.5 m, and the marsh dries up in the peak summer month of June, before it is filled up by the rain water again in July.

The marsh is overgrown with lilies, lotus, many sedges, grasses and aquatic plants, all of which give the impression that the water is clogged with vegetation.

The single reason why this site is important is its function as a stop-over point for thousands of ducks, waders, and pelicans, both at the beginning and the end of the winter. Over 45 species use the lake for 2-3 days before moving on. During rest of the winter, a few hundred ducks stay back. The marsh is also the roosting area of a resident flock of over 200 Sarus Crane *Grus antigone*. In summer, this marsh is the only source of water for the farmers of the surrounding paddy fields till the monsoon arrives.

During the monsoon and immediately afterwards, the lake supports impressive congregations of the Lesser Whistling Duck *Dendrocygna javanicus*, Purple Moorhen or Swampfen *Porphyrio porphyrio*, and Pheasant-tailed jacana *Hydrophasianus chirurgus*.

AVIFAUNA

Birds are clearly the most important and conspicuous taxa to justify the conservation of this wetland. Between late October and early November, many flocks of wintering waterbirds stop over at this site before continuing their southbound journey. Counts of ducks during 2000 and 2001 ranged from 45,000 - 65,000. The principal

duck species were Northern Pintail *Anas acuta*, Common teal *Anas crecca*, Wigeon *Anas penelope*, some Coot *Fulica atra* and Red-crested Pochard *Netta rufina*. The most common wader species that uses this wetland as a stopover site is the Black-tailed Godwit *Limosa limosa*; one flock in the year 2000 numbered 4,000 (Gopi Sunder *pers. comm.* 2003). The largest flock of the Great White Pelican *Pelecanus onocrotalus* counted in this marsh numbered 300 individuals in the winter of 2001. Over 150 species of birds have been sighted in and along the wetland, and include bitterns, crakes, moorhens, lapwings, spoonbills, and wagtails (Gopi Sunder *pers. comm.* 2003).

Apart from the congregation of 200 Sarus Cranes (Gopi Sunder 2001) the wetland is also home to a minimum of eight breeding pairs of this species, most of which were able to raise at least one chick a year between 1999-2002; a minimum of 13 young Sarus dispersed from these territories in this period (Gopi Sunder *pers. comm.* 2003). Colour-banding of Sarus Crane chicks living in the area indicated that the territory sizes of these pairs were much smaller than the average for the region, indicating better territory quality for these cranes.

One breeding pair of Black-necked Storks *Ephippiorhynchus asiaticus* uses this marsh as part of its territory, and has been seen to breed successfully in 1999 and 2001. The largest count of the Lesser Whistling teal in the wetland was 15,000 in October 2000.

Around 200 Sarus Cranes *Grus antigone* congregate in this IBA.



Photo: Tim Loebe/BirdLife International

Pheasant-tailed Jacana *Hydrophasianus chirurgus* is regularly seen in this IBA.



Photo: Yogendra Shah

Vulnerable

Sarus Crane *Grus antigone*

Near Threatened

Painted Stork *Mycteria leucocephala*
Black-necked Stork *Ephippiorhynchus asiaticus*

OTHER KEY FAUNA

Other fauna that inhabit the wetland include a very healthy population of the Soft-shelled Turtle *Lissemys punctata* and a few Pond Terrapins *Geoclemys hamiltonii*. Signs of Common Otter *Lutra lutra* can be frequently obtained around the wetland, but they are decidedly rare. A thriving population of Jungle Cat *Felis chaus* lives among the reeds the year round.

LAND USE

- q Agriculture
- q Irrigation

THREATS AND CONSERVATION ISSUES

- q Poaching
- q Cultivation of water chestnut
- q Removal of water for cultivation (irregular irrigation practices)
- q Agricultural expansion on the banks of the lake
- q Conversion of public, common lands to private lands
- q Eutrophication

Waterfowl are hunted regularly during the winter but not for commercial purposes. With increased awareness among the villagers in recent years, this practice is severely discouraged. The marsh is hedged by crop fields on all sides, and agricultural expansion is the most serious threat to the waterbody. The *panchayat* (village council) has most of the power to regulate human activities in the area, and so far, has succeeded in maintaining the area as common grazing grounds for cattle, and for collection of lotus.

Increased inflow of water due to unplanned work by the State Irrigation Department and other departments has been responsible for aggravating public opinion against maintenance of the wetland, and pressure to completely drain the wetland is growing increasingly.

However, the biggest and long-term threat is the wetlands drainage project funded by the World Bank. Construction of a culvert at Kudaiyya has resulted in the decline of the resident Sarus population from over 200 to just 22 (Gopi Sunder 2001).

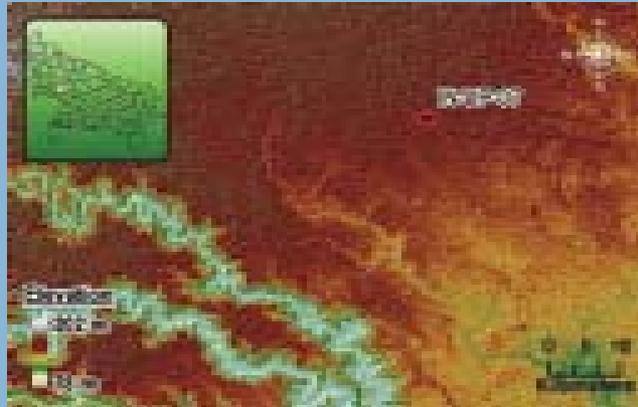
KEY CONTRIBUTOR

K. S. Gopi Sunder

KEY REFERENCE

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KURRA JHEEL



IBA Site Code	: IN-UP-07
State	: Uttar Pradesh
Districts	: Etawah, Mainpuri
Coordinates	: 27° 01' 00" N, 79° 05' 60" E
Ownership	: Private
Area	: 200 ha
Altitude	: Not available
Rainfall	: 880 mm (average)
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

Kurra Jheel is near Hajipura village in Kurra post, Mainpuri district. There are several small, medium and large wetlands, interspersed with agricultural fields, providing ideal Sarus Crane *Grus antigone* habitat. At least 400 Sarus with 17-25 breeding pairs are found in the summer (April-May). Sarsai Nawar, Kudaiyya wetland, Amberpur marshlands and the Saman Katra area are under threat of being drained for agriculture under a development plan of the Agriculture Ministry (K. S. Gopi Sunder *pers. comm.* 2003).

AVIFAUNA

The wetland attracts large numbers of migratory birds in winter, besides the resident bird fauna. The site is particularly important for its large Sarus Crane population (K. S. Gopi Sunder *pers. comm.* 2003).

The site is also known for large congregations of water birds in winter, numbering more than 20,000. Besides Sarus Cranes, other

threatened birds recorded from this site are the Sociable Lapwing *Vanellus gregarius* and Greater Spotted Eagle *Aquila clanga*. Yellow Weaver *Ploceus megarhynchus* may be present, but needs to be confirmed.

Vulnerable	
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>
Sociable Lapwing	<i>Vanellus gregarius</i>
Finn's Weaver (?)	<i>Ploceus megarhynchus</i>

OTHER KEY FAUNA

The site has been selected on the basis of a large number of waterfowl and congregation of Sarus cranes, however, it is not particularly important for other terrestrial fauna.

LAND USE

- ☐ Agriculture
- ☐ Fisheries
- ☐ Water management

THREATS AND CONSERVATION ISSUES

- ☐ Poaching
- ☐ Drainage of water

Since it is a non-protected site, owned by local people and partly under the revenue department, the wetland is locally protected but there are reports of bird poaching. The wetland is being used for agriculture after drainage of water. Local people also catch fish from the wetland. The fauna and flora and the conservation issues affecting this potential site need to be documented.

KEY CONTRIBUTOR

K. S. Gopi Sunder

KEY REFERENCE

None

Sociable Lapwing *Vanellus gregarius* has been sighted near Kurra Jheel.



Photo: Tim Loesby/BirdLife International

LAGGA-BAGGA RESERVE FOREST



IBA Site Code	: IN-UP-08
State	: Uttar Pradesh
District	: Pilibhit
Coordinates	: 28° 37' 00" N, 79° 47' 60" E
Ownership	: State
Area	: 1,160 ha
Altitude	: Not available
Rainfall	: 1,750 mm
Temperature	: 4 °C to 45 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Tropical Grassland, Tropical Dry Deciduous and Tropical Moist Deciduous Forest

IBA CRITERIA: A1 (Threatened Species)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

Lagga-Bagga is located on the Indo-Nepal border, adjoining the famous Sukla Phanta Wildlife Sanctuary of Nepal on the northeast side. To the south and southeast, Sharda river flows in a loop around it. The forest and grasslands of Lagga-Bagga form a continuous stretch with Sukla Phanta, except for a small trench demarcating the international border. Sukla Phanta has a good population of Bengal Florican *Houbaropsis bengalensis* (Inskipp and Inskipp 1985). It also holds very good populations of Swamp Deer *Cervus duvauceli*, Hog Deer *Axis porcinus*, Spotted Deer *Axis axis* and Tiger *Panthera tigris*. There is regular movement of large mammals between Lagga-Bagga and Sukla-Phanta (Rahmani *et al.* 1987, Rahmani 1989).

Rahmani and Islam (2000) analysed Indian grasslands and prioritized them on the basis of biological, socio-economic, cultural and social values, administrative importance, geographical and habitat representations. The grasslands of Lagga-Bagga were given Priority No. II. Priority No. I grasslands belong to Dudhwa, Katarniaghat and Kishanpur (all IBAs). Like in Dudhwa, the grassland of Lagga-Bagga is dominated by *Saccharum*, *Themeda* and *Apluda mutica*.

AVIFAUNA

Being a sort of corridor between Sukla Phanta and North Pilibhit forests, Lagga-Bagga, although it is only 11 sq km, is extremely important. It has three main grasslands or *Chanders* which harbour Swamp Francolin *Francolinus gularis*. Between 1985 and 1991, three surveys were conducted to search the Bengal Florican (Rahmani *et al.* 1987,) but none could be located. However, in April 2002, Prakash Rao (*pers. comm.* 2002) saw an adult male, thus proving a long-held view that Lagga-Bagga is a potential habitat for this endangered species. More regular and detailed surveys are required to find out whether the florican permanently occupies this site.

Endangered	
Bengal Florican	<i>Houbaropsis bengalensis</i>
Vulnerable	
Swamp Francolin	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>

OTHER KEY FAUNA

Important large mammals include Swamp Deer *Cervus duvauceli*, Hog Deer *Axis porcinus*, Spotted Deer or Cheetal *Axis axis* and Tiger *Panthera tigris*. Pellets similar to those of Hispid Hare *Caprolagus hispidus* were seen during 1991 (A. R. Rahmani, unpublished).

LAND USE

- ☐ Forestry

THREATS AND CONSERVATION ISSUES

- ☐ Grazing
- ☐ Firewood collection
- ☐ Poaching across Nepal border
- ☐ Forest fire

As Lagga-Bagga remains flooded for many months, permanent agriculture is not possible, but the threat of encroachment, backed by political support, is always present. The State Forest Department had planted exotic trees in all the grasslands, but fortunately many have died out (due to flooding). There is a proposal to declare North Pilibhit Reserve Forest as a protected area (A. J. T. Johnsingh, *pers. comm.* 2003). Lagga-Bagga, as a corridor, would play a crucial role in the movement of animals between North Pilibhit and Sukla Phanta of Nepal.

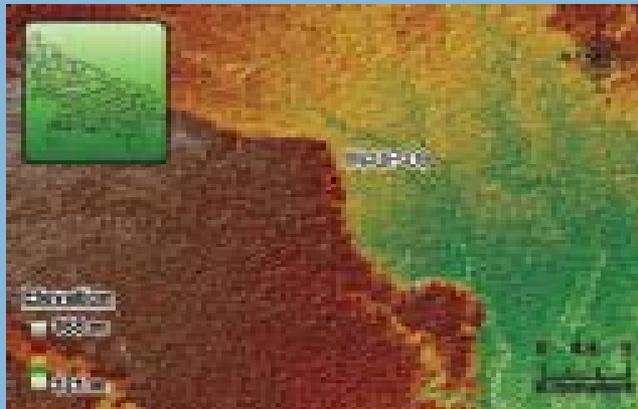
KEY CONTRIBUTOR

Asad R. Rahmani

KEY REFERENCES

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LAKH BAHOSI WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-09
State	: Uttar Pradesh
District	: Farrukhabad
Coordinates	: 27° 30' 00" N, 79° 30' 00" E
Ownership	: State
Area	: 8,024 ha
Altitude	: Not available
Rainfall	: c. 900 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in March 1988

GENERAL DESCRIPTION

Lakh Bahosi Wildlife Sanctuary is about 38 km from the historic city of Kannauj. The Sanctuary is formed of two oxbow *jheels* near the village Bahosi. Both the *jheels*, Lakh and Bahosi, are located near the Lower Ganga Canal, so the overflow and seepage of water accumulates in the *jheels*, resulting in about 600 ha of shallow wetlands perfectly suitable for waterbirds. By winter, the waterspread is reduced by evaporation and drainage. Nonetheless, at least 400 ha in the deeper parts still retain enough water to attract at least 50,000 waterfowl (Rahmani and Arora 1992). Apart from these two *jheels*, there are numerous wetlands beside the canal in an area of about 8,000 ha. To protect them, the Uttar Pradesh government declared a sanctuary of 8,023 ha, including forest land, village land, agricultural fields, and revenue lands. A major part of the Sanctuary (5,300 ha) is private land.

The area has been identified as an Important Bird Area due to the presence of globally threatened species such as the Greater Spotted Eagle *Aquila clanga*, Sarus Crane *Grus antigone*, and congregations of about 50,000 waterbirds.

AVIFAUNA

More than 240 species of birds are reported from the Lakh Bahosi Sanctuary (Chaturvedi 1990-1999). Besides, there are records of Sarus crane, of which the number is not estimated.

Besides the large congregations of waterfowl, some easily exceeding their 1% biogeographic threshold, this IBA also has three globally threatened and seven Near Threatened species. However, species-wise census data are not available.

A pair of Black-necked Stork *Ephippiorhynchus asiaticus* is regularly seen in Bahosi, and probably breeds in the area. More than 400 Bar-headed Goose *Anser indicus* were seen a decade ago (Rahmani and Arora, 1992). Their number is reported to have gone up, thanks to good protection.

Vulnerable	
Pallas's Fish-Eagle	<i>Haliaeetus leucogaster</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>

Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>
Ferruginous Pochard	<i>Aythya nyroca</i>
Red-headed Vulture	<i>Sarcogyps calvus</i>
Black-bellied Tern	<i>Sterna acuticauda</i>

OTHER KEY FAUNA

Lakh Bahosi was established for the protection of waterfowl. There are not many mammals of conservation interest. Among the large mammals, only Bluebul *Boselaphus tragocamelus* is found in abundance and is an important crop pest. Jungle Cat *Felis chaus*, Golden Jackal *Canis aureus*, and Black-naped Hare *Lepus nigricollis* and other mammals have also been recorded.

LAND USE

- ☐ Nature conservation and research
- ☐ Water management
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Grazing
- ☐ Fisheries
- ☐ Grass collection

Management of this protected area is difficult, since a major portion of the area belongs to private landowners. Illegal hunting and bird trapping has been reported occasionally. While the Lakh *jheel* is nearly free of weeds, Bahosi is heavily infested with *Ipomoea*.

KEY CONTRIBUTOR

R. N. Chaturvedi

KEY REFERENCES

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- Rahmani, A. R. and Arora, V. M. (1992) Wetlands of Uttar Pradesh – Part 2. *Newsletter for Birdwatchers*, 32 (5 & 6): 5-6.

NARORA



IBA Site Code	: IN-UP-10
State	: Uttar Pradesh
District	: Bulandshahr
Coordinates	: 28° 14' 15" N, 78° 24' 18" E
Ownership	: Irrigation Department and District administration
Area	: 12,700 ha
Altitude	: Not available
Rainfall	: 1,100 mm
Temperature	: 1 °C to 45 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Riverine Vegetation, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii (≥20,000 waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

Narora, on the River Ganga, between Karnabas and Ramghat, includes the total catchment area of Narora Barrage or the Lower Ganga Barrage, and the marshes and wetlands situated along the river banks. The site also includes the areas adjoining the Ganga 1000 to 2000 m from each bank. The total area of this IBA site is c. 12,700 ha. This site is named after a small town of the same name.

The total catchment area of Narora barrage is 3251 ha, and its total length is 922 m. The main purpose of the barrage is to supply water to Narora Atomic Power Station for cooling and to Lower Ganga Canal and Parallel Lower Ganga Canal for irrigation.

The reservoir attracts thousands of waterbirds, and there are many lakes and jheels in its vicinity, where resident waterfowl are found. During winter and summer, when the water level is low, a large number of islands appear in the reservoir and all along the Ganga. These islands and sand bars provide safe resting places for ducks, geese, cranes and other birds. Terns, lapwings and Indian Skimmer *Rynchops albicollis* breed on these islands during summer (Rahmani 1981).

AVIFAUNA

Rahmani (1981) identified 120 species of birds in and around Narora reservoir alone, but recently S. Behera (*pers. comm.* 2003) has listed 133 species in a much larger area. Globally threatened

species found in Narora are listed in the table. Several pairs of Sarus *Grus antigone* breed in the area. During winter, thousands of waterfowl, especially diving ducks are seen in the main reservoir. Flocks of several thousand Common Pochard *Aythya ferina*, Red-crested Pochard *Rhodonessa rufina*, Tufted Pochard *Aythya fuligula* and White-eyed Pochard or Ferruginous Duck *Aythya nyroca* are not uncommon. Sometimes, pure flocks of 2-3 thousand Red-crested Pochard are found. There are not many sites in India where such flocks are seen now.

Up to seven Pallas's Fish-Eagle *Haliaeetus leucoryphus* were counted in 1980 (Rahmani 1981) but their present status is not known. Similarly, several pairs or individuals of Black-necked Stork *Ephippiorhynchus asiaticus* were seen in the *jheels* and shallow areas of the reservoir but now this bird has become uncommon. Small temporary islands and sand bars, formed due to decrease in water level, could provide ideal habitats for summer breeding species such as the Indian Skimmer, River Tern *Sterna aurantia*, Black-bellied Tern *S. acuticauda*, Spur-winged Plover or River Lapwing *Vanellus duvaucelii* and pratincoles *Glareola* spp., but no research has been conducted on this aspect.

The Narora reservoir, adjoining *jheels* and a stretch of the Ganga from Narora barrage to Karnabas could easily hold more than 20,000 waterfowl in winter, thus qualifying for A4iii criteria. There are very few riverine protected areas in India. On this account also, Narora is significant.

The Vulnerable Pallas's Fish-Eagle *Haliaeetus leucoryphus* is reported from Narora.



Photo: Satpal Gandhi

Critically Endangered

Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>

Vulnerable

Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>

Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>
Ferruginous Pochard	<i>Aythya nyroca</i>
Black-bellied Tern	<i>Sterna acuticauda</i>



OTHER KEY FAUNA

Narora reservoir and a stretch of about 60 km on the River Ganga is extremely important for the protection of the Gangetic Dolphin *Platanista gangetica*, 11 species of freshwater turtles and for Mugger *Crocodylus palustris* and Gharial *Gavialis gangeticus*. The Smooth Indian Otter *Lutra perspicillata*, Fishing Cat *Prionailurus viverrina*, and Hog Deer *Cervus porcinus* are other important mammals. There are unconfirmed reports of a small population of Swamp Deer *Cervus duvauceli* surviving on some grass covered islands.

LAND USE

- q Farming
- q Tourism and recreation

THREATS AND CONSERVATION ISSUES

- q Uncontrolled Fishing
- q Poaching
- q Agricultural activity on islands
- q Pesticides from farmlands
- q Industrial pollution

Till the mid 1970s, Narora reservoir and adjoining jheels were ideal hunting grounds for poachers, who would use the Irrigation Department motor boats to reach the birds. However, due to protests by conservationists, poaching by influential people was stopped.

The Nature Conservation Society of Aligarh suggested to the government that Narora reservoir from the Barrage to Rajghat, a stretch of about 7 km, be declared as a bird sanctuary (Rahmani 1981) but sadly, this has not been done. Recently, WWF-India has revived and modified this proposal to declare the stretch between Karnabas and Ramghat as a Dolphin Sanctuary (S. Behera *pers. comm.* 2003).

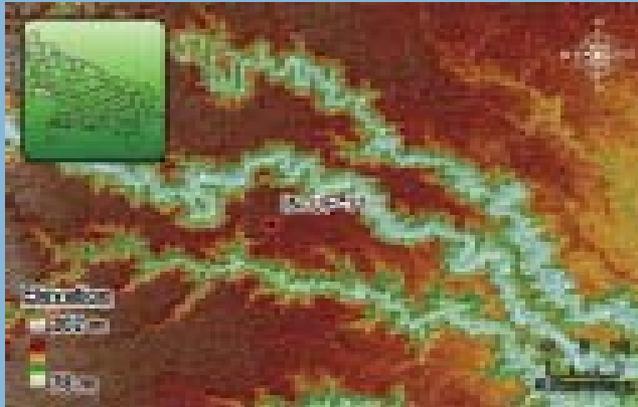
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NATIONAL CHAMBAL WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-11
State	: Uttar Pradesh
District	: Agra, Etawah
Coordinates	: 26° 48' 41" N, 78° 40' 55" E
Ownership	: State
Area	: 63,500 ha
Altitude	: Not available
Rainfall	: 880 mm
Temperature	: 1 °C to 48 °C
Biogeographic Zone	: Semi-Arid
Habitats	: Riverine Vegetation, Wetland

IBA CRITERIA: A1 (Threatened Species), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in 1979

GENERAL DESCRIPTION

The Chambal Wildlife Sanctuary lies in the three states, Rajasthan, Madhya Pradesh and Uttar Pradesh, stretching from Kota in Rajasthan to the confluence of Chambal river with the Yamuna in Uttar Pradesh, extending 600 km and encompassing a total area of 63,500 ha (Scott 1989). The Chambal is a perennial river originating in the Vindhya Range in Madhya Pradesh. Within the Sanctuary, the river flows through areas of deeply eroded alluvium, rapids over rock beds, sand banks and gravel bars along with steep banks and bends. Numerous temporary watercourses provide a variety of habitats (Scott 1989).

In Uttar Pradesh, the Sanctuary lies in Agra and Etawah districts, with an area of 63500 ha. Out of this, 23500 ha is forest land and the rest belongs to Gram Samaj (village council), Revenue and private land holders. The Chambal Sanctuary was mainly created to provide protection to the endangered Gharial *Gavialis gangeticus* and the Gangetic Dolphin *Platanista gangetica*. The Chambal River forms the core of the sanctuary, and the sandy beach and forested areas along the banks to a distance of one km form the buffer zone. In Uttar Pradesh, it covers 180 km stretch of Chambal river.

AVIFAUNA

The area is of importance for both resident and migratory waterfowl, especially Common Teal *Anas crecca*, Northern Pintail *A. acuta*, Bar-headed Goose *Anser indicus*, Brahminy Shelduck *Tadorna ferruginea*, Red-crested Pochard *Rhodonessa rufina*, and Indian Skimmer *Rynchops albicollis*. Small numbers of Black-necked Stork *Ephippiorhynchus asiaticus*, Common Crane *Grus grus*, Sarus Crane *G. antigone*, and Black-bellied Tern *Sterna acuticauda* are also found along the river (Scott 1989). National Chambal Sanctuary is one of the most important bird areas in India, being the breeding site of the Indian Skimmer. This wetland has been listed as a Priority V (high priority) wetland, i.e., a wetland with high ecological and socio-economic potential but poor data availability (Samant 2000).

Vulnerable	
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>
Indian Skimmer	<i>Rynchops albicollis</i>

OTHER KEY FAUNA

This Sanctuary was established to rehabilitate the Gharial. Good protection during the last 30 years has also benefited the Smooth Indian Otter *Lutra perspicillata*, the Marsh Crocodile *Crocodylus palustris* and the Gangetic Dolphin *Platanista gangetica*. Terrestrial mammals seen are the Nilgai *Boselaphus tragocamelus*, Wild Boar *Sus scrofa*, Porcupine *Hystrix indica*, Black-naped Hare *Lepus nigricollis*, Indian fox *Vulpes bengalensis* and Golden Jackal *Canis aureus*. The Indian Wolf *Canis lupus* is reported from the surrounding areas. There are reports of Chinkara *Gazella bennettii* also from some drier areas. As fishing is totally prohibited (to safeguard the food of Gharial, Marsh Crocodile, Otter and Dolphin), the fish fauna has improved.

Chambal is also famous for several species of turtles such as *Lissemys punctata*, *Chitra indica*, *Kachuga kachuga*, *K. dhongoka*, *K. tentoria*, *Trionyx gangeticus* and *Hardella thurjii*.

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation
- ☐ Reserve forest
- ☐ Agriculture



Rose-ringed Parakeet *Pistaccula krameri* is commonly seen in this IBA.

Photo: M. Zaifur-ul-Islam

The well-known breeding area of the Indian Skimmer is under severe threat in this IBA, mainly due to the extraction of water during summer months, cultivation on small exposed islands and general human disturbance.



Photo: Hira Buryabi

THREATS AND CONSERVATION ISSUES

- q Irrigation
- q Sand mining
- q Drainage
- q Firewood collection
- q Poaching
- q Erosion
- q Dogs (for breeding birds)
- q Fishing

The major problem of this riverine sanctuary is illegal mining of sand. Although the Forest Department is trying to promote tourism, the industry has not picked up because of security concerns, as this area used to be a notorious hideout of bandits. Patrolling the long river stretch by boat poses security problems to Forest Department staff due to threat from illegal hunters. The Irrigation Department's water upliftment project has built a huge pump in the Sanctuary at Pinahat, which reduces water level during the summer, joining nesting islands to the bank. This adversely affects the breeding of the Indian Skimmer; very few birds have been able to breed between 2001-03. The degree of illegal fishing varies, depending on the interest of the concerned forest official. However,

the biggest conservation issue for bird life is cultivation of Watermelon *Citrullus lanatus*, Muskmelon *Cucumis melo*, Cucumber *C. sativus* and other summer vegetables, which disturbs the nesting islands of Indian Skimmer, River Tern, Black-bellied Tern and other summer breeders. Due to decrease of water in the river, most of these sandy islands become easily accessible to foxes, dogs and cats, which sometimes destroy whole nesting colonies. The increasing demand of nearby towns to draw water for drinking and irrigation is a long term threat. There is a proposal to draw water through pumps to provide potable water to Dholpur, Bharatpur and 990 villages. This would further deplete the water of Chambal when it is most required.

KEY CONTRIBUTORS

K. S. Gopi Sunder, Asad R. Rahmani, R. K Sharma and R. G. Rao

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NAWABGANJ WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-12
State	: Uttar Pradesh
District	: Unnao
Coordinates	: 26° 34' 60" N, 80° 40' 00" E
Ownership	: State
Area	: 225 ha
Altitude	: 110 m
Rainfall	: <1,000 mm
Temperature	: 1 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in 1990

GENERAL DESCRIPTION

The Nawabganj Priyadarshini Bird Sanctuary is located on the Kanpur-Lucknow highway, 45 km east of Lucknow, near the village Nawabganj in Hasanganj *tehsil* of Unnao district. The sanctuary has an interesting history. Till 1974, it was an open, shallow wetland, which attracted thousands of waterfowl and many hunters and trappers. These waterfowl used to be supplied to the bird markets of Lucknow, Kanpur, Nawabganj, Unnao and other nearby towns. In 1972, the Indian government enacted the Wildlife (Protection) Act, 1972, which totally prohibited shooting and trapping of wildfowl. In 1974, the Forest Department declared Nawabganj as a sanctuary and took over the land. To make it “more attractive to birds”, they planted thousands of trees and built mounds as in the Keoladeo National Park at Bharatpur (Rajasthan). For the first few years, the wildfowl population increased dramatically, and storks, cormorants, egrets, and darters started breeding on the trees growing on mounds. This further encouraged the Forest Department to go on a plantation binge. A 5 km road was constructed circling the Sanctuary, motels and hotels came up and tourism was encouraged. Livestock grazing was totally stopped to prevent “trampling of nests”. There were plans to maintain the water level throughout the year. Large-scale plantation and the ban on grazing resulted in accumulation of biomass, which decreased the depth of the wetland. Slowly this open sheet of water became choked with vegetation. Gone were the skeins of Barheaded Geese *Anser indicus* and Greylag Geese *A. anser* and huge flocks of Northern Pintail *Anas acuta*, Garganey *A. querquedula*, Northern Shoveller *A. clypeata*, and Gadwall *A. strepera*. The wetland that was maintained by grazing and occasional drying is now a small puddle, totally choked with Water Hyacinth and other vegetation. The Forest Department regularly attempts to clear the vegetation, but unless the earlier water regime is restored, it will be difficult to bring back the glory of this important waterfowl refuge, a victim of poor management.

The *jheel* is fed by monsoon run-off and has an average depth of 1.0-1.5 m at maximum water levels. The water level fluctuates considerably, and much of the lake dries out by early summer.

AVIFAUNA

This lake is important for resident and migratory waterfowl. More than 200 species have been identified (Rahmani, 1992). Large

waterbirds started nesting here in 1980 and there is now a mixed heronry of Darter *Anhinga melanogaster*, Black-crowned Night Heron *Nycticorax nycticorax*, many species of egrets and cormorants, and Eurasian Spoonbill *Platalea leucorodia*. Other resident species include Purple Moorhen or Swampen *Porphyrio porphyrio*, Pheasant-tailed Jacana *Hydrophasianus chirurgus* and Bronze-winged Jacana *Metopidius indicus*. The lake is important for Anatidae and Coot *Fulica atra*. Nawabganj also has a number of raptors such as Pallas’s Fish-Eagle *Haliaeetus leucoryphus*, Greater Spotted Eagle *Aquila clanga*, and Western Marsh Harrier *Circus aeruginosus*.

The Sanctuary was known for its great congregations of water birds during the winter months. With good management, the bird number could be restored, therefore it has been designated as an IBA.

Two to three pairs of Sarus *Grus antigone* breed in the Sanctuary. During Sarus count in 1999 (Choudhury *et al.* 1999), a pair with a juvenile was seen inside the Sanctuary, and two pairs and one juvenile were seen in the surrounding fields. A pair of Black-necked Stork *Ephippiorhynchus asiaticus* is also seen, sometimes with juveniles, but its nest has not been discovered. Other Near Threatened species are listed in the table.

Vulnerable	
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

OTHER KEY FAUNA

With protection and afforestation, Jungle Cat *Felis chaus* and Golden Jackal *Canis aureus* have appeared, along with the Bluebul *Boselaphus tragocamelus*. Spotted Deer *Axis axis* has been introduced to enhance the tourism value of the Sanctuary.

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation

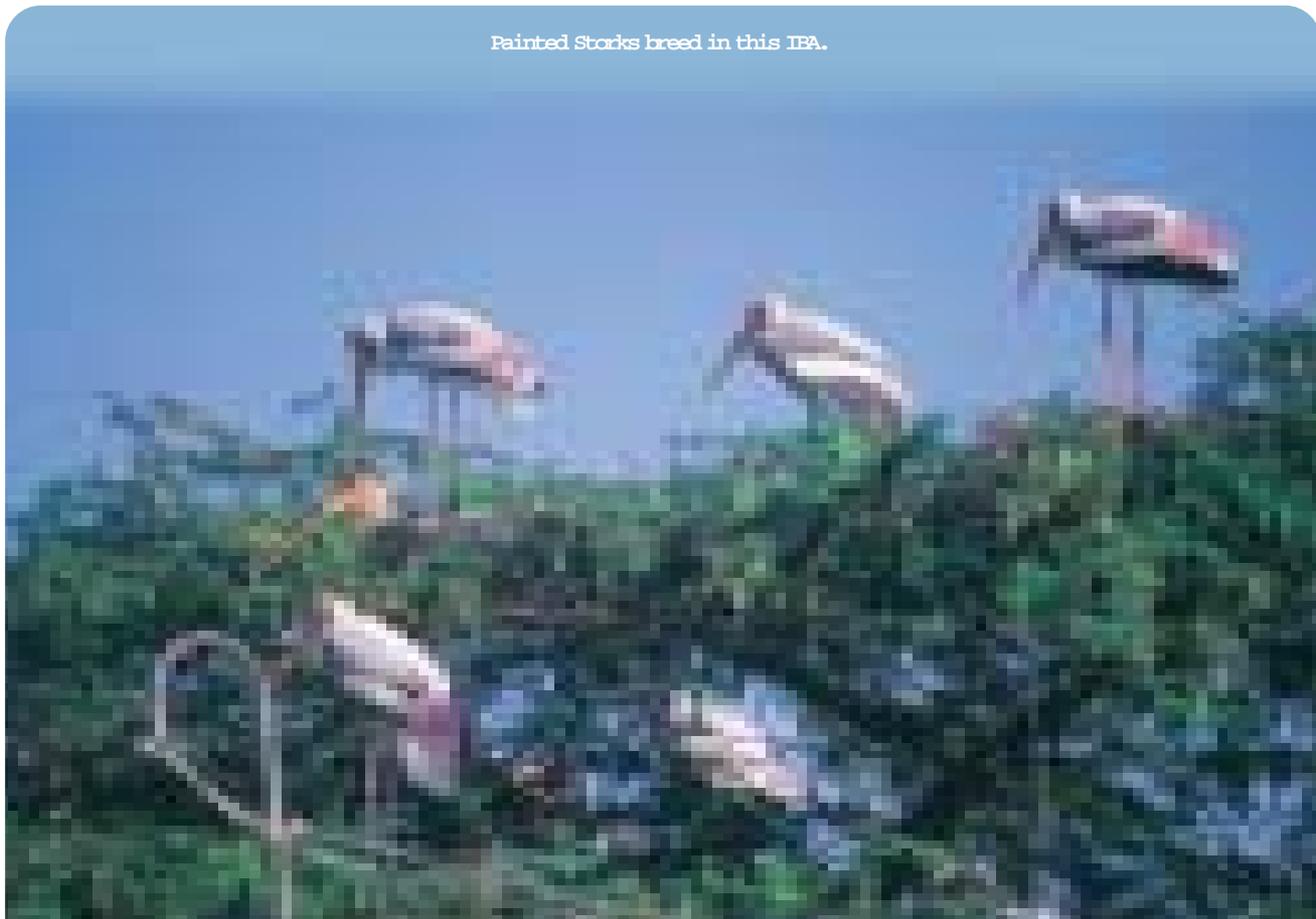


Photo: Asad R. Rahmani

THREATS AND CONSERVATION ISSUES

- q Introduction of unsuitable plant species
- q Disturbance to birds
- q Infestations by weeds
- q Siltation
- q Pollution from pesticides
- q Lotus harvesting

This wetland has been listed by Samant (2000) as a priority (high priority) wetland, that is wetlands with high ecological and socio-economic potential, but with poor data availability.

Illegal trade in turtle and some bird species like parakeets and munias has been reported. These find their way to the Unnao bird market.

Pollution from adjoining industries drains into the lake due to its topographical disadvantage. The lake is also heavily infested with weeds such as *Eichornia crassipes* choking the waterways, resulting in decrease in dissolved oxygen levels, crucial for the survival of aquatic plant and animal life.

In the last five years (1993-1998) 23 illegal cases of hunting have been reported and only seven led to prosecution.

It is important to restore Nawabganj WLS to its former habitat status i.e. open sheet of water, through the removal of excessive trees from the surrounding areas, allowing summer grazing of livestock, perhaps on rotational basis, and regular removal of Water Hyacinth.

KEY CONTRIBUTOR

Asad R. Rahmani

KEY REFERENCES

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- Rahmani, A. R. (1992) Wetlands of Uttar Pradesh - Part III. *Newsletter for Birdwatchers*, 32(1): 3-5.
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PARVATI ARANGA WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-13
State	: Uttar Pradesh
District	: Gonda
Coordinates	: 27° 25' 00" N, 82° 19' 00" E
Ownership	: State
Area	: 1,084 ha
Altitude	: Not available
Rainfall	: Not available
Temperature	: 4 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4iii (> 20,000 waterfowl)
PROTECTION STATUS: Wildlife Sanctuary, established in May 1990

GENERAL DESCRIPTION

Parvati and Aranga are two connected waterbodies comprising an area of 1,084 ha. They are rainfed lakes in a deep natural depression in the Gangetic plains of the *terai* region. The Parvati Aranga Sanctuary was established in 1997. However, core and buffer zones have not yet been demarcated. Although no village is located in the immediate vicinity of the Sanctuary, agricultural fields have reached the edge of the wetland. According to the Forest Department, many agricultural fields have encroached on forest land. For proper management, settlement of rights and demarcation of the true boundaries of the Sanctuary are required. It is also essential to involve local people in the management of the wetland, so that both people and birds benefit.

The Sanctuary lacks an interpretation centre and there are no publicity pamphlets on this important wetland. No visitor record is kept. The staff is not trained in bird watching.

AVIFAUNA

Parvati Aranga Sanctuary is well known for large numbers of waterbirds during winter. When the rainfall is good and waterspread is normal, more than 20,000 waterbirds congregate in this IBA site. The population of Sarus crane *Grus antigone* is more than 200. Choudhury *et al.* (1999) have counted 112 Sarus, including

31 juveniles. They consider Parvati Aranga as an important site for Sarus conservation in India.

Congregatory birds in the sanctuary include many species of ducks and waders. There has been no recent survey except for one trip by the IBA Officer in November 2001, when there were not many birds (Islam, 2001). However, Forest officials informed that more than 20,000 waterbirds come in winter. Therefore, this wetland has been declared as an IBA.

Vulnerable

Sarus Crane	<i>Grus antigone</i>
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OTHER KEY FAUNA

Not available

LAND USE

- ☐ Water management
- ☐ Nature conservation
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Disturbance to birds from fishing
- ☐ Drainage
- ☐ Pesticides

Till 1996, the Fisheries Department used to auction the fish in the area, which has now stopped. Fishing, however, continues illegally. Birds are trapped with nets, but not to any significant extent.

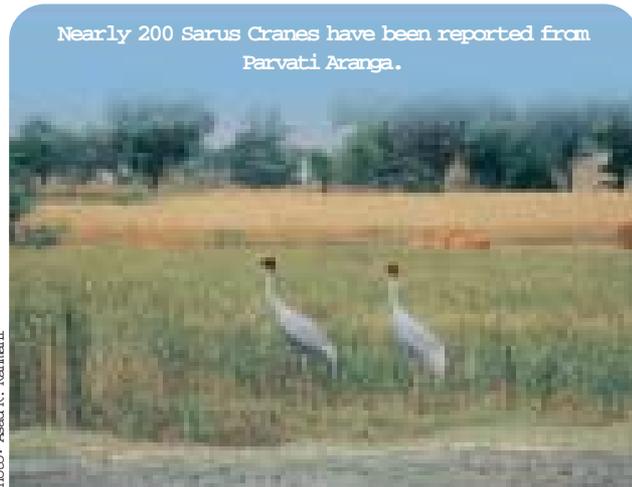
The Sanctuary has no weeds, but on the banks some wild *Cannabis* has made an appearance. This needs to be removed to maintain the wetland. The pesticide used in the surrounding fields runs off into the lakes, but its impact on birds has not been assessed.

KEY CONTRIBUTORS

V. P. Singh and K. S. Gopi Sunder

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- Islam, M. Z. (2001) *IBAs of Uttar Pradesh. Survey report*. Bombay Natural History Society.



Nearly 200 Sarus Cranes have been reported from Parvati Aranga.

Photo: Asad R., Rahmani

PATNA BIRD SANCTUARY



IBA Site Code	: IN-UP-14
State	: Uttar Pradesh
District	: Etah
Coordinates	: 27° 34' 60" N, 78° 45' 00" E
Ownership	: State
Area	: 109 ha
Altitude	: Not available
Rainfall	: c. 800 – 1,000 mm
Temperature	: 4 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)

PROTECTION STATUS: Bird Sanctuary, established in September 1990

GENERAL DESCRIPTION

Patna Bird Sanctuary (WLS) is about 6 km from Jalesar town in Etah district on the Jalesar-Sikandrarao road. An area of 108 ha was declared as a Wildlife Sanctuary in 1991 under the Wildlife (Protection) Act 1972 (Rahmani and Daniel 1997). It is a typical rainfed wetland of the Gangetic plains, being a natural, freshwater, shallow depression. The shallow parts of the Sanctuary dry up during summer, leaving some puddles in the deeper zones.

Patna WLS is a classic example of how, within a few years of protection, a long-neglected wetland can become one of the finest wetland habitats of the country.

Date palm *Phoenix silvestris* in the central part of the Sanctuary is one of the most conspicuous features of this IBA. Aquatic vegetation consists of *Hydrilla verticillata*, *Ceratophyllum demersum*, *Vallisneria spiralis*, *Potamogeton crispus*, and *Najas* sp., while surface vegetation consists of *Salvinia*, *Azolla*, and *Eichhornia crassipes*. On the fringes of the wetlands, *Ipomea carnea* grows in excess and needs control. *Ipomea aquatica* is also spreading, but it may not be as dangerous as *I. carnea*. While *Nymphoides cristata* and *N. indica* occur naturally, Singhara *Trapa natans* is cultivated in a small part of the wetland.

AVIFAUNA

About 180 species of birds have been reported from the Sanctuary (Rahmani and Daniel, 1997, Ahmad and Javed 2000). Of the 42 species of Family Anatidae from the Indian subcontinent (Ali and Ripley 1987), 18 species have been reported from the Sanctuary. Among these, Comb Duck *Sarkidiornis melanotos*, Cotton Teal or Cotton Pygmy-Goose *Nettapus coromandelianus*, Lesser Whistling Duck *Dendrocygna javanica* and Spot-billed Duck *Anas poecilorhyncha* are the resident species.

During the peak of winter in December and January, 60-70,000 waterfowl are found in the Patna wetland. Rosy Pelican *Pelecanus onocrotalus*, Lesser Flamingo *Phoenicopterus minor*, Greater Flamingo *P. roseus*, White or Black-headed Ibis *Threskiornis melanocephalus*, Glossy Ibis *Plegadis falcinellus*, Curlew *Numenius arquata*, Eurasian Spoonbill *Platalea leucorodia*, Osprey *Pandion haliaetus*, Mallard *Anas*

platyrhynchos, Bar-headed Goose *Anser indicus* and Darter *Anhinga melanogaster* are some of the main attractions of this IBA.

Anatidae is the most abundant among all the families recorded. Northern Pintail *Anas acuta* is most numerous, with about 52,000 individuals during the peak time in one monitoring (Ahmad and Javed 2000). This was followed by Common Pochard *Aythya ferina* 12,000; Gadwal *Anas strepera* 5,500; Northern Shoveller *A. clypeata* 4,200; and Garganey *A. querquedula* 1,700. Most of these figures are above 1% biogeographical population threshold of these species (Wetlands International, 2002).

Among the Phalacrocoracidae, Little Cormorant *Phalacrocorax niger* is abundant, with about 500 individuals, followed by Large Cormorant *P. carbo*, and Darter. Coot *Fulica atra* is also abundant, with about 6,300 birds at one census (Ahmad and Javed 2000). During summer, when most of the smaller wetlands become completely dry, a large number of Sarus cranes *Grus antigone*, sometimes numbering between 200 to 300, congregate in Patna *jheel*, where some water is left in deeper parts, which serve as an important refuge for this species during the hot, dry summer.

The Bar-headed Goose is a prominent bird of Patna Jheel.

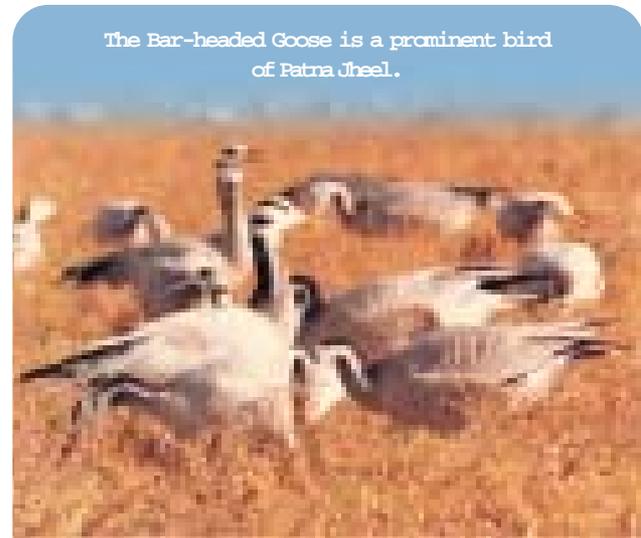


Photo: Asad R. Rahmani

Richness and diversity of waterbirds are highest at the end of April. This is because, migratory birds converge at Patna WLS from other areas before the spring migration. It appears that Patna WLS is not only an important refuge but also a stopover site for winter migrants returning to their breeding quarters from peninsular and central India. Waders and other marsh species are far more abundant at the end of April. This is probably due to the development of more shallow areas as the water recedes during the late winter (Ahmed and Javed 2000).

Critically Endangered	
Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>
Vulnerable	
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>
Lesser Flamingo	<i>Phoenicopterus minor</i>
Black-bellied Tern	<i>Sterna acuticauda</i>

OTHER KEY FAUNA

Since the establishment of Patna Bird Sanctuary, and posting of forest officials, all the wildlife of the area has benefited from protection. Sighting of Golden Jackal *Canis aureus* and Nilgai *Boselaphus tragocamelus* is now quite common. Monitor Lizard *Varanus bengalensis* has also benefited and good numbers are seen on the terrestrial part of the Sanctuary.

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation

THREATS AND CONSERVATION ISSUES

- ☐ Plantation
- ☐ Tourists and boating
- ☐ Invasive species (*Eichhornia crassipes*)
- ☐ Cultivation of Water Chestnut *Trapa natans*

One of the greatest threats was plantation of exotic trees “for beautification and to provide food to birds”. This threat has been reduced due to timely intervention (Rahmani and Daniel 1997).

Patna WLS is considered a sacred place due to the presence of a temple, so villagers do not allow hunting, resulting in unusual tameness of birds. Since the establishment of the Sanctuary, and some restriction on the activities of villagers, such as grass cutting and cultivation of Water Chestnut, the villagers have become somewhat indifferent to the Sanctuary. However, this could be minimized if the benefit of wildlife tourism goes directly to the villagers. This IBA is only 80 km from Agra, a major tourist centre of India, and would attract thousands of tourists every year. Local youths could be trained to act as guides, much like in Keoladeo National Park (an IBA) at Bharatpur, Rajasthan.

KEY CONTRIBUTORS

Asad R. Rahmani, Salim Javed, Sangeeta and Ashfaq Ahmed

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Around 1,00,000 waterbirds are seen in Patna Jheel during winter months.



Photo: M. Zaifur-ul-Islam

PYAGPUR AND SITADWAR JHEELS



IBA Site Code	: IN-UP-15
State	: Uttar Pradesh
District	: Bahraich
Coordinates	: 27° 31' 00" N, 81° 54' 00" E
Ownership	: Revenue and private land
Area	: 2,950 ha
Altitude	: 125 m
Rainfall	: >1,000 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamps

IBA CRITERIA: A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

Pyagpur Jheel (2,800 ha) is a shallow, freshwater lake with associated marshes on the plains between the Rapti and Ghagra rivers. It is an excellent permanent jheel of 1-3 m depth, and supports very important fishery. It has a tropical monsoon climate typical of the Gangetic Plains. It is state owned, and the surrounding area is privately owned agricultural land.

Sitadwar (150 ha) is a similar shallow freshwater lake with associated marshes, situated some 20 km away on the plains between the Rapti and Ghagra rivers. It is a site of religious pilgrimage and festivals. Sitadwar Jheel is somewhat shallow, prone to drying out in summer. It is state owned, while the surrounding area is privately owned agricultural land (Islam 2001).

Sitadwar has the usual complement of aquatic vegetation, some floating and emergent plants such as *Ipomea carnea*. Pyagpur jheel bears similar submerged, floating and emergent plants of a typical jheel of the Gangetic plains. It also suffers from infestation of Water Hyacinth *Eichhornia crassipes* and *Ipomea carnea*.

AVIFAUNA

The site is important for migratory and resident waterfowl. Congregations of 100-150 Sarus Crane *Grus antigone* are found in certain months (K. S. Gopi Sunder, pers. comm. 2003).

The Siberian Crane *Grus leucogeranus* was reported from Pyagpur jheel nearly 100 years ago (Ali and Ripley 1987). Despite the tremendous disturbance due to fishing activities, and some bird trapping, this jheel still supports thousands of waterfowl in winter. With better protection and restriction of fishing in some months, Pyagpur jheel could support 4-5 times more birds than it does today.

In a short survey in 1986, Asad Rahmani and Carl D'Silva recorded the following species: Great White Pelican *Pelecanus onocrotalus*, Demoiselle Crane *Grus virgo*, Grey Heron *Ardea cinerea*, Eurasian Spoonbill *Platalea leucorodia*, Lesser Whistling Duck *Dendrocygna javanica*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, Northern Shoveller *Anas clypeata*, Northern Pintail *Anas acuta*, Black-necked Stork *Ephippiorhynchus asiaticus*, Painted Stork *Mycteria leucocephala*, and Asian Openbill *Anastomus oscitans* (Scott 1989). Detailed investigation of avifauna is urgently required for this important waterfowl refuge.

Sitadwar was also surveyed in 1986, by Rahmani and D'Silva, who recorded Great White Pelican *Pelecanus onocrotalus*, Grey

Heron *Ardea cinerea*, Eurasian Spoonbill *Platalea leucorodia*, Lesser Whistling Duck *Dendrocygna javanica*, Demoiselle Crane *Grus virgo*, Pheasant-tailed Jacana *Hydrophasianus chirurgus* and Sarus Crane *Grus antigone* (Scott 1989).

Vulnerable	
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>

OTHER KEY FAUNA

No terrestrial mammal of any conservation significance occurs in Pyagpur or Sitadwar wetlands. If fishery is controlled, these wetlands could become good habitats for the Smooth Indian Otter *Lutra perspicillata*.

LAND USE

- ☐ Agriculture
- ☐ Fisheries

THREATS AND CONSERVATION ISSUES

- ☐ Fisheries
- ☐ Disturbance to birds
- ☐ Poaching
- ☐ Weed infestation

Fishing and waterfowl hunting occurs in Pyagpur jheel, but the major threat is gradual encroachment for agricultural purposes. Intensive fishing causes excessive disturbance to the avifauna. Virtually the whole of Pyagpur is covered with *Eichhornia crassipes*.

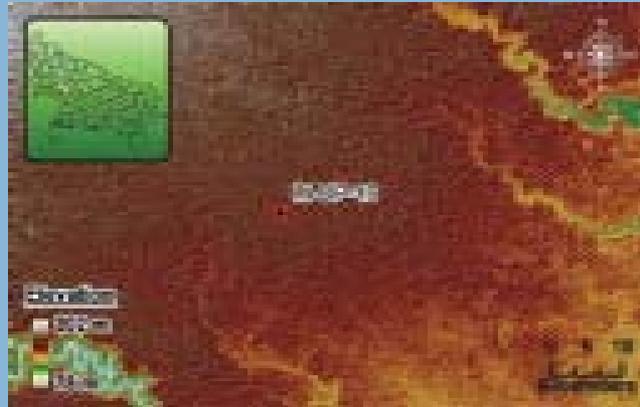
KEY CONTRIBUTORS

V. P. Singh, K. S. Gopi Sunder and Asad R. Rahmani

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SAMAN BIRD SANCTUARY



IBA Site Code	: N-UP-16
State	: Uttar Pradesh
District	: Mainpuri
Coordinates	: 27° 04' 60" N, 79° 00' 00"E
Ownership	: State, Private
Area	: 525 ha
Altitude	: Not available
Rainfall	: 880 mm
Temperature	: 1 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)

PROTECTION STATUS: Bird Sanctuary, established in May 1990

GENERAL DESCRIPTION

Saman Bird Sanctuary is located near village Saman in Karhal *tehsil* of Mainpuri district. It was declared as a bird sanctuary in 1990 by a gazette notification. The sanctuary is a natural rainfed oxbow lake of approximately 525 ha, that dries up in summer. The wetland attracts large numbers of migratory birds in winter, while resident bird fauna are seen all the year round. The site is important for large wintering waterfowl congregations. There are eight villages inside the Sanctuary and several along the periphery. *Nelumbo* is found on the entire waterbody, along with a highly diverse group of hydrophytic vegetation which includes *Cyperus*, *Phragmites* and *Typha*. There has been no study of the flora in this Sanctuary.

About 100 years ago, Saman jheel, along with Lakh-Bahosi (an IBA) in nearby Farrukhabad district, and other jheels formed an important habitat for the Siberian Crane *Grus leucogeranus*. The great ornithologist A. O. Hume saw Siberian Cranes in many jheels in Etawah and Mainpuri districts between 1858 and 1867. Saman could have been one of the important sites, although Hume did not mention it by name. The name 'Tuman' *jheels* (26°46' N and 79°02' E) is referred by Wilkinshaw, where W. E. Brooks shot three Siberian Cranes in February 1871. It appears that Tuman is none other than Saman jheel (Rahmani and Arora, 1992).

AVIFAUNA

Saman jheel is famous for congregation of waterbirds during winter. Three to five breeding pairs of Sarus crane *Grus antigone* are resident in the Sanctuary. In January 2001, waterfowl census revealed more than 1500 Common Teal *Anas crecca*, 6,000 to 10,000 Northern Pintail *Anas acuta*, 30,000 Lesser Whistling Duck *Dendrocygna javanica*, and 200 Great White Pelican *Pelecanus onocrotalus* (V. P. Singh, *pers. comm.* 2003). Many of these species occur in far greater numbers than their 1% biogeographic population threshold determined by Wetlands International (2002), so the site fits A4i criteria also.

A heronry on a large *Ficus* tree has around 150 nests of Black-crowned Night Heron *Nycticorax nycticorax*, with several nests of egrets *Egretta* spp. and Indian Pond Heron *Ardeola grayii*. A breeding pair of Black-necked Stork *Ephippiorhynchus asiaticus* and one or two Greater Spotted Eagle *Aquila clanga* are regularly found in the Sanctuary.

Vulnerable

Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>

Near Threatened

Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
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OTHER KEY FAUNA

Being a wetland and entirely surrounded by anthropogenically modified countryside, there are no large mammals of conservation concern in the area.

LAND USE

- Forest Department
- Private lands and Village *Panchayat*

THREATS AND CONSERVATION ISSUES

- *Eichhornia* infestation
- Illegal bird trapping
- Agriculture and use of pesticides
- Private field within the Sanctuary

The spread of *Prosopis chilensis* around the waterbody is posing a serious problem. Increase in alkalinity of the land and increase in sodic areas are urgent concerns. Grazing and agriculture is intensifying and the number of cattle and pigs in the Sanctuary is very high at any time of the year. Many villages are located inside the Sanctuary and often become islands after the rains. Construction of roads and bunds to connect these villages is changing the hydrology of the wetland, and these villages need to be relocated to conserve the area efficiently as a Sanctuary. Rights of the local residents need to be settled on priority basis to safeguard this Sanctuary from further damage.

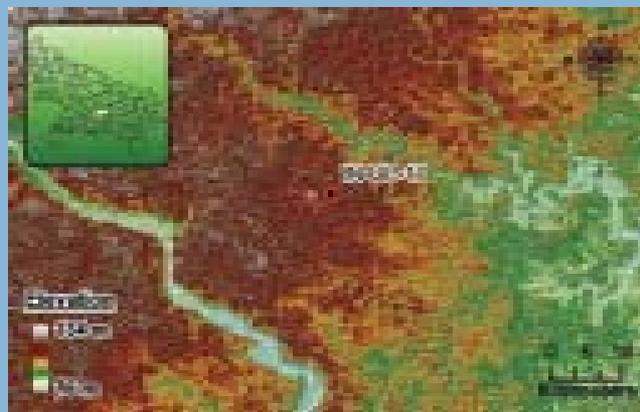
KEY CONTRIBUTORS

Asad R. Rahmani and K. S. Gopi Sunder

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SAMASPUR BIRD SANCTUARY



IBA Site Code	: IN-UP-17
State	: Uttar Pradesh
District	: Rae Bareilly
Coordinates	: 26° 00' 00" N, 81° 25' 00"E
Ownership	: State
Area	: 799 ha
Altitude	: Not available
Rainfall	: 850 mm
Temperature	: 4 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)

PROTECTION STATUS: Wildlife Sanctuary, established in August 1987

GENERAL DESCRIPTION

Samaspur Wildlife Sanctuary, with an area of about 800 ha of perennial wetland, is located in the Salon *tehsil* of Rae Bareilly district. Salon wetland was renamed as Samaspur Bird Sanctuary in 1987. The lake is 'S' shaped, and comprises six small connected lakes namely Samaspur, Mamani, Mamani Gram Samaj, Gorwa Hasanpur, Hakganj and Rohania lakes. The seventh lake, Bissaiya is close by but not connected with the main waterbody. It also forms a part of the Sanctuary.

Samaspur wetlands are perennial and receive water from rain (average 850 mm per annum) and from the terminal end of irrigation canals (Rahmani 1992). As they are depressions, water

from surrounding areas is drained into these *jheels*. Of the 800 ha declared as Samarspur Bird Sanctuary, only about 207 ha is under water, the remaining area is dryland where the Forest Department has done some plantations. It also includes 271 ha of private land which has crop fields and orchards. These crops fields, orchards, wastelands (locally called *usar*) and pastures, along with *jheels*, create a mosaic of habitats that results in high bird species diversity. In one day of birdwatching in December 1987, 112 species were identified (Rahmani 1992).

AVIFAUNA

This IBA plays hosts to more than 110 bird species. Among those recorded were 14 species of ducks, 13 species of waders, four

More than 20,000 waterbirds congregate during winter months in this IBA.



Photo: Asad R. Rahmani

species of storks and 10 species of raptors. Ducks and waders were seen in thousands. About 80,000 waterfowl were estimated during a visit in 1987 (Rahmani 1992). Many of these species occur in much higher numbers than their 1% biogeographic population threshold, recently calculated by the Wetlands International (2002) on the basis of total biogeographic populations of waterbirds.

A pair each of Black-necked Stork *Ephippiorhynchus asiaticus* and Pallas's Fish-Eagle *Haliaeetus leucoryphus* regularly breeds in this Sanctuary (Rahmani 1992).

Despite Samaspur jheels being such an important bird refuge of northern India, detailed work has not been conducted on the bird life of this site.

Vulnerable	
Pallas's Fish-Eagle	<i>Haliaeetus leucoryphus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

OTHER KEY FAUNA

More than 10 fish species of economic importance are reported from this Sanctuary (Rahmani 1992). As agricultural fields and villages surround the area, no large wild mammal presently of conservation concern is found here.

LAND USE

- ☐ Nature conservation and research
- ☐ Agricultural practices

THREATS AND CONSERVATION ISSUES

- ☐ Fishing
- ☐ Drainage
- ☐ Livestock grazing
- ☐ Siltation
- ☐ Pesticides

Due to agriculture in the adjacent areas, water run-off from the fields enters the lakes and results in eutrophication. Another problem is the spread of *Eichhornia crassipes*, which is fast invading the waterbody, restricting the free movement of waterfowl.

Between 1993-98, 31 cases of illegal hunting were reported from the area. The real figure could be much higher.

Non-linkage of Bissaiya Lake with other wetlands is one of the hurdles in implementing management options, since the continuity of the site disrupted.

Illegal fishing by the people of surrounding villages has also been reported. Livestock grazing in the surrounding land causes soil erosion, which enhances siltation of the lake (source: Uttar Pradesh Forest Department).

KEY CONTRIBUTOR

Asad R. Rahmani

KEY REFERENCES

Rahmani, A. R. (1992) The Wetlands of Uttar Pradesh – Part III. *Newsletter for Birdwatchers* 32 (1): 3-5.
 Wetlands International (2002) *Waterbird Population Estimates – Third Edition*. Wetlands International Global Series No. 12. Wageningen, The Netherlands.

Black-necked Stork *Ephippiorhynchus asiaticus* breeds in this IBA.

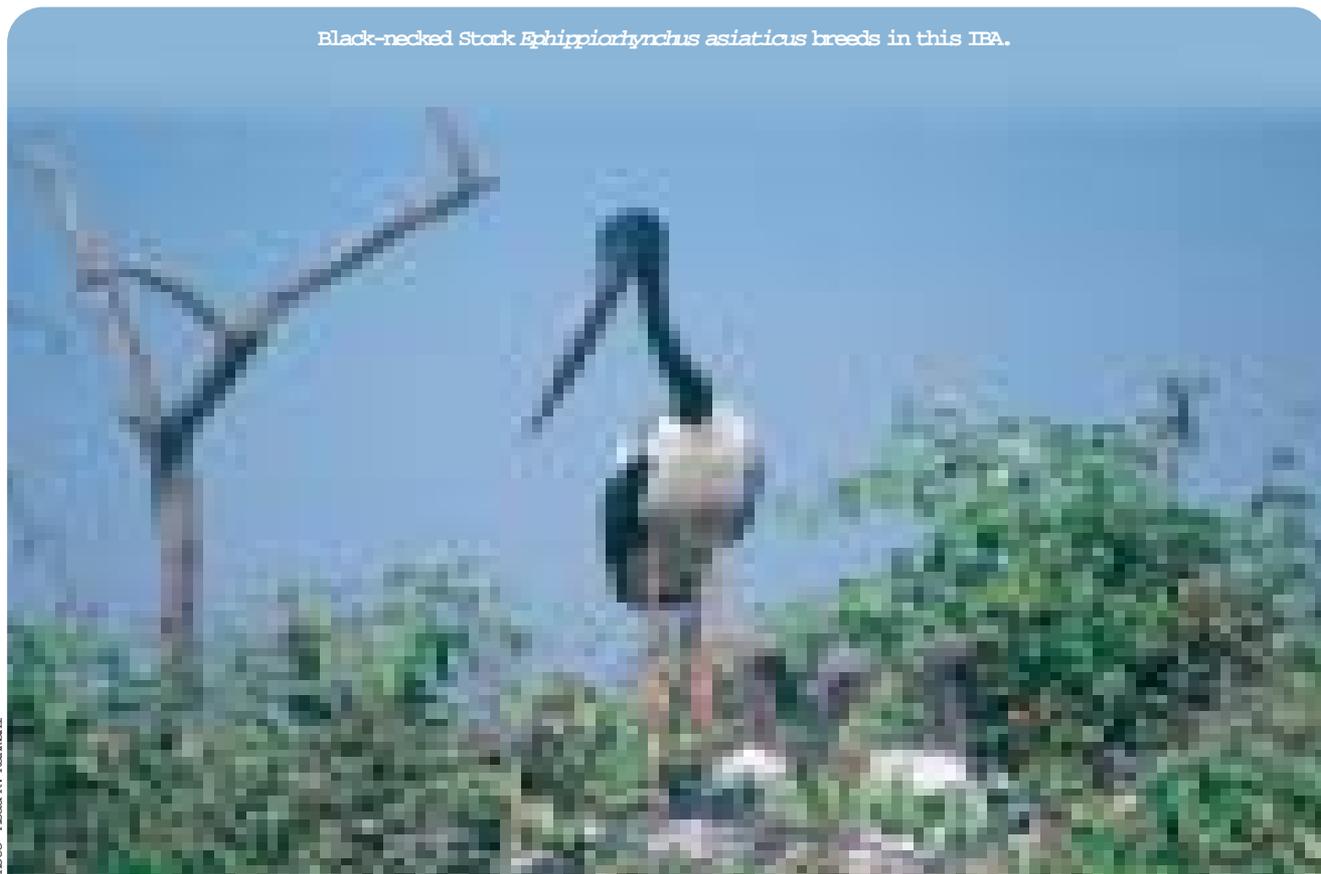


Photo: Asad R. Rahmani

SANDI WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-18
State	: Uttar Pradesh
District	: Hardoi
Coordinates	: 27° 15' 00" N, 79° 55' 00" E
Ownership	: State
Area	: 309 ha
Altitude	: Not available
Rainfall	: Not available
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Bird Sanctuary, established in May 1990

GENERAL DESCRIPTION

Sandi was declared as a Bird Sanctuary in 1990, with the sole purpose to restore this important waterfowl habitat. The Sanctuary is located in Bilgram *tehsil* of Hardoi district. The Sanctuary is formed of both private land and *Gram Samaj* (revenue) land. It was listed as an IBA on account of the presence of the globally threatened Sarus Crane *Grus antigone*.

As far as we know, no scientific study on the flora of Sandi Wildlife Sanctuary has been conducted. Like all other tropical seasonal wetlands of the Gangetic plains, the aquatic plant life is very rich in submerged, floating and emergent vegetation. Thick stands of *Typha* on the fringes provide good breeding habitat for resident waterbirds.

AVIFAUNA

This IBA is home to a resident flock of around 200 Sarus Crane (Gopi Sundar *pers. comm.* 2003). It receives thousands of waterfowl in winter, primarily Brahminy Duck *Tadorna ferruginea*, Red-crested Pochard *Rhodonessa rufina*, Northern Pintail *Anas acuta*, Northern Shoveller *A. clypeata* and Cotton Teal or Pygmy-goose *Nettapus coromandelianus*. Other resident water birds include Bronze-winged Jacana *Metopidius indicus*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, Asian Openbill *Anastomus oscitans*, Painted Stork *Mycteria leucocephala* and Black-necked Stork *Ephippiorhynchus asiaticus*. Except for the records by amateur birdwatchers and Forest officials, no long-term study has been done here.

This Sanctuary has been designated as an IBA on the basis of the presence of up to 200 Sarus in summer, globally threatened species (BirdLife International 2001). As very large numbers of waterfowl are seen, the site would also qualify A4i criteria (presence of $\geq 1\%$ biogeographic population).

Vulnerable	
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>

OTHER KEY FAUNA

This wetland is entirely surrounded by man-modified habitat (agriculture), so most wild large mammals have already disappeared. Except for Nilgai *Boselaphus tragocamelus*, which is a crop pest, there is no large ungulate in the area.

LAND USE

- ☐ Nature conservation and research
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Poaching
- ☐ Grazing
- ☐ Fishing
- ☐ Encroachment

Extensive use of water for irrigation, encroachment and agriculture may result in the conversion of the *jheel* area into agricultural land in the coming years. Villagers regularly collect vegetation from the wetlands, and also graze their cattle. On a small scale, these activities are not detrimental to the maintenance of the tropical wetland, but they have to be regulated for the long-term survival of this IBA.

A good management plan, in collaboration with the local people, should be developed so villagers get direct benefits in the form of grass and water, while waterfowl are not disturbed. Once the villagers see the benefits of conserving this waterbody, poaching will also be controlled.

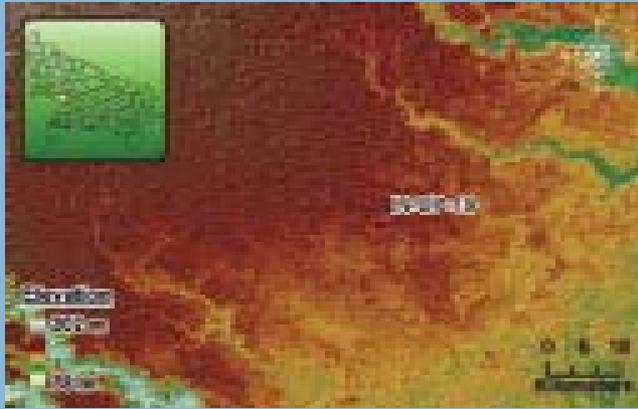
KEY CONTRIBUTORS

V. P. Singh and K. S. Gopi Sundar

KEY REFERENCE

BirdLife International (2001) *Threatened Birds of Asia: The BirdLife International Red Data Book*. BirdLife International, Cambridge, U.K.

SARSAI NAWAR LAKE



IBA Site Code	: IN-UP-19
State	: Uttar Pradesh
District	: Etawah
Coordinates	: 26° 58' 19" N, 79° 15' 17" E
Ownership	: Village, Private
Area	: c. 690ha
Altitude	: Not available
Rainfall	: 880 mm
Temperature	: 1 °C to 48 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i (≥ 1% biogeographic population), A4iii (≥ 20,000 waterbirds)
STATUS: Not officially protected

GENERAL DESCRIPTION

Sarsai Nawar is a natural depression which fills up during the monsoon. A very old Shiva temple adjoins the lake and is visited by thousands of pilgrims each year, particularly during Shivaratri festival in the first week of March. The importance of the lake lies in the fact that it is the roosting area of the largest flock of Sarus Crane *Grus antigone* in the region, consisting of nearly 400 individuals. The name of the lake is derived from the Sarus (*Sarsai* from Sarus, and *Nawar* meaning shallow wetland; Wetland for the Sarus). In addition, a vast number of waders, ducks and geese visit the lake in winter. Three resident species of storks, namely the Painted *Mycteria leucocephala*, Woolly-necked or White-necked *Ciconia episcopus* and Black-necked *Ephippiorhynchus asiaticus* feed in the lake throughout the year.

The wetland is unusual in that the principal vegetation is *Cyperus rotundus* and there is no emergent vegetation. Other vegetation includes several species of grasses and water lilies.

AVIFAUNA

The site has been selected as an IBA on the basis of congregations of Sarus and waterfowl. In addition, eight breeding pairs of Sarus have made parts of this lake their territory. Between 1999-2002, these pairs raised 23 young, making this the most productive wetland known for Sarus Cranes (K. S. Gopi Sundar *pers. comm.* 2003). Two pairs of Black-necked Stork have adopted portions of the lake as part of their territory and raise young nearly every year. The wetland and surrounding trees used to have a resident population of over 150 Oriental White-backed Vultures *Gyps bengalensis* until 2000, when a drastic population decline was noted.

Each year, a minimum of 6,000 ducks and geese, and 12,000 waders winter in the lake, the principal species being the Wigeon *Anas penelope*, Greylag Goose *Anser anser*, Northern Pintail *Anas acuta*, and Common Greenshank *Tringa nebularia*. Small numbers (<10) of the Eurasian Crane *Grus grus* winter in the lake for a month or so each year.

Vulnerable

Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>

OTHER KEY FAUNA

The lake has a good population of the Flap-shell Turtle *Lissemys punctata*, and many families of the Common Mongoose *Herpestes javanicus* live immediately around the lake.

LAND USE

- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Cultivation of Water Chestnut
- ☐ Irrigation
- ☐ Agricultural expansion on the banks of the lake

This IBA site is under severe threat due to human pressure. Water from the lake is routinely pumped out to neighbouring crop fields. This renders the waterbody dry for 3-4 months of the year. Immediately after the monsoon, while breeding of most of the resident waterbirds is in progress, cultivation of Water Chestnut *Trapa natans* in most of the lake results in the deterioration of bird habitats. Due to intensification of this activity, though illegal since 2000, very little area remains available to wintering waterbirds. In 2001, counts of ducks were below 500 and waders barely exceeded a thousand individuals. Of the eight nests of Sarus Crane known in the lake, three failed in 2001 due to disturbance caused by people cultivating water chestnut. Large quantities of pesticides are also used. This important Sarus crane nesting area needs immediate protection.

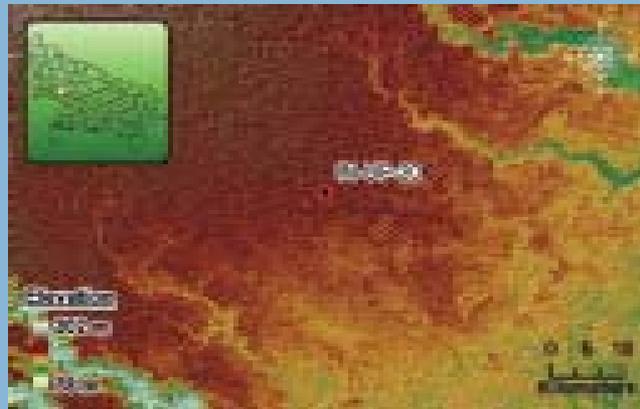
KEY CONTRIBUTOR

K. S. Gopi Sundar

KEY REFERENCE

None

SAUJ LAKE



IBA Site Code	: IN-UP-20
State	: Uttar Pradesh
District	: Mainpuri
Coordinates	: 26° 01' 00" N, 79° 55' 17" E
Ownership	: Village Administration (<i>Panchayat</i>)
Area	: 400 ha
Altitude	: 140 m
Rainfall	: 880 mm
Temperature	: 1 °C to 50 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

The Sauj Lake lies beside the Karhal-Kishni main road, close to the town of Saman, just before the Saman Bird Sanctuary. The lake is a shallow depression in the landscape. A culvert on the road near Sauj village is an ideal high point from which one can view the entire lake. A canal on the northern side of the lake brings in agricultural runoff, and another to the south takes away excess water to the Saman Bird Sanctuary. Agriculture is restricted to two sides of the lake, the third side is bordered by the village, and the fourth is a flooded grassy meadow providing habitat for a range of water birds throughout the year. This lake has been under observation for over a century now, though not on a regular basis. References to it can be found in Sauey *et al* (1987), and it has been detailed by Scott (1990) as an important wetland area, and also briefly mentioned by Rahmani (1989), giving the number of Black-necked Storks *Ephippiorhynchus asiaticus* sighted. The green-brown colour on the surface of the lake changes when light pink lotuses bloom immediately after the monsoon.

The water of the lake is almost completely covered by lotus *Nelumbo*, and bordered with *Saccharum* on one side, and with a few scattered clumps of *Ipomoea carnea*.

AVIFAUNA

Sauj is one of the excellent waterbodies of western Uttar Pradesh, where more than 20,000 waterbirds are regularly seen. A very large flock of 2,500 Great White Pelicans *Pelecanus onocrotalus* was counted between December 1999 and February 2000 on this relatively small lake (K.S. Gopi Sundar *pers. comm.* 2003). According to Wetlands International (2002), 1% non-breeding South Asian population threshold of this species is only 230. Therefore, sighting of such large numbers of Great White Pelicans in such a small waterbody is of great significance.

The largest flock of Sarus Crane *Grus antigone* seen between 1999-2002 numbered 210 birds, and flocks exceeding 150 individuals are common throughout the year in summer and in winter.

At least three breeding, territorial pairs of Sarus have made the lake their permanent home, and chicks are seen regularly (K.S. Gopi Sundar *pers. comm.* 2003).

Two pairs of Black-necked Stork can be commonly seen foraging regularly in the lake. Flocks of Painted Stork *Mycteria*

leucocephala number over 100 individuals, as do Asian Openbill *Anastomus oscitans* and Black-headed or White Ibis *Threskiornis melanocephalus*.

Vulnerable	
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>

OTHER KEY FAUNA

Owing to the proximity of the village, fields and a main road, wild mammals are rare to find in and around the lake. Flap-shell Turtle *Lissemys punctata* is very common in the lake, and many individuals can be seen crossing the road in the monsoon.

LAND USE

- ☐ Nature Conservation
- ☐ Agriculture

THREATS AND CONSERVATION ISSUES

- ☐ Cultivation
- ☐ Agricultural expansion on the banks



Painted Stork *Mycteria leucocephala* is commonly seen in this IBA.

Photo: Asad R. Rahmani

Though Sauj village is on the banks of the lake, there is presently very little pollution by sewage in the lake. However, there is the risk of eutrophication due to increased agricultural activity around the lake, and overuse by villagers for grazing pigs and livestock. Hunting is very rare and was observed only once between December 1999 and June 2002.



Photo: Asad R. Rahmani

Water chestnut is not cultivated, and this is probably the most important reason for the good condition of the waterbody. There is very little pressure on the lake presently and little reason for concern. However, the situation needs to be maintained for the lake to be of continued use to cranes and other waterfowl.

KEY CONTRIBUTOR

K. S. Gopi Sundar

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Wetlands International (2002) *Waterbird Population Estimates – Third Edition*. Wetlands International Global Series No. 12. Wageningen, The Netherlands.

SHEIKHA JHEEL



IBA Site Code	: IN-UP-21
State	: Uttar Pradesh
District	: Aligarh
Coordinates	: 27° 49' 00" N, 78° 10' 00" E
Ownership	: Gram Panchayat , Revenue Department
Area	: 250 ha
Altitude	: Not available
Rainfall	: <1,000 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Not officially protected

GENERAL DESCRIPTION

In Aligarh district, there are a number of wetlands such as Sheikha jheel, Rati-ka-Nagla, Ash Dump Yard and Aama Khera which are good for waterfowl. However, Sheikha jheel has the greatest potential to be developed as a bird sanctuary.

This jheel is located 17 km from Aligarh on the Aligarh-Jalali road near Sheikha and Bhawan-Khera. Jalali village is about 3 km away, while Sheikha village is less than 1 km. The *jheel* was divided into three parts, when the Lower Ganga Canal was constructed.

Sheikha jheel is a typical monsoonal wetland of the Gangetic plains. It gets most of its water from rainfall, but seepage of water from the adjoining canal has made it perennial. Before the canal was constructed, this *jheel* probably dried up during summer like other similar wetlands.

Sheikha jheel is surrounded on three sides by natural vegetation. The submerged vegetation consists of *Hydrilla verticillata*, *Ceratophyllum demersum*, *Vallisneria spiralis*, *Potamogeton crispus* and *Najas*. Free-floating vegetation consists of *Salvinia* and *Azolla*, and in some places, *Eichhornia crassipes*. Rooted-floating vegetation includes *Nymphoides cristata* and *Nymphoides indica*.

A large congregation of waterbirds is seen during winter months in this IBA.



Photo: Asad R. Rahmani

AVIFAUNA

About 166 species of birds are reported from Sheikha and its environs (Rahmani and Sharma, 1997). This wetland harbours more than 10,000 birds during the winter months.

While $\geq 20,000$ waterbirds may not be found in Sheikha jheel at a time, more than 20,000 water birds use this wetland throughout the year, because large migratory flocks of waders are seen in March-April. Thus, the site would qualify for A4ii criteria. Many waders and ducks are also present in thousands, easily exceeding 1% biogeographic population threshold, recently updated by Wetlands International (2002).

About 100-200 Sarus Cranes *Grus antigone* congregate in this small wetland, mostly in the dry months. According to Wetlands International (2002), 1% threshold of Sarus is 90. Choudhury *et al.* (1999) have also found Sheikha jheel and the surrounding areas extremely important for the conservation of Sarus crane. During their surveys, they found 30 adults and 10 juveniles.

Sighting of Near Threatened Black-necked Stork *Ephippiorhynchus asiaticus*, sometimes with juveniles, is not uncommon in Sheikha *jheel*. Nests of Grey Heron *Ardea purpurea*, Little Cormorant *Phalacrocorax niger*, Little Egret *Egretta garzetta*, Cattle Egret *Bubulcus ibis* and other species are found on the large *Ficus* and *Dalbergia* trees.

A pilot bird ringing project was initiated in 1988 and several birds with Russian rings were recaptured (S.H.A. Yahya *pers. comm.* 2001)

Vulnerable

Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>

Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

OTHER KEY FAUNA

As Sheikha jheel is surrounded by agricultural fields and villages, no large wild mammal of conservation concern is found in the area. Only Bluebull or Nilgai *Boselaphus tragocamelus*, which is

Awareness programme was organized by the IBCN for bird conservation in Sheikha Jheel.



Photo: IBCN

considered sacred by many people, is found. Occasionally, Blackbuck *Antelope cervicapra* is seen in the drier area on the other side of Aligarh-Jalali road.

LAND USE

- q Agriculture

THREATS OF CONSERVATION ISSUES

- q Groundwater abstraction
- q Siltation
- q Eutrophication

Till the mid 1970s, Sheikha jheel was the main shooting ground of local hunters, but due to an intensive campaign by the Nature Conservation Society of Aligarh, hunting was controlled. The Uttar Pradesh Forest Department placed a guard for some years, which greatly helped in preventing poaching. At the same time, villagers were also convinced of the importance of this *jheel* and now they help to prevent poaching. Being so close to a large university and town, Sheikha *jheel* could easily become a good place for bird watching and environmental education. A proper management plan

needs to be developed and implemented, so that the *jheel* can attract more visitors and more birds.

During the last 30 years of monitoring, there has been no major change in the waterspread, but there is some cultivation around the *jheel*. Constant vigil is necessary to see that it does not spread closer to the *jheel*.

KEY CONTRIBUTORS

Asad R. Rahmani, Salim Javed, S. H. A. Yahya and K. S. Gopi Sundar

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SOHAGIBARWA WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-22
State	: Uttar Pradesh
District	: Maharajganj
Coordinates	: 27° 17' 39" N, 83° 43' 40" E
Ownership	: State
Area	: 42,820 ha
Altitude	: 95 - 103 m
Rainfall	: >1,500 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Tropical Moist Deciduous Forest, Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species)
PROTECTION STATUS: Wildlife Sanctuary, established in June 1987

GENERAL DESCRIPTION

Sohagibarwa Wildlife Sanctuary lies in Maharajganj and Deoria districts of Uttar Pradesh. The total area of the Sanctuary is 42,820 ha. This area has been listed as a Priority III grassland (Matholia, Nichlaul) considering the conservation requirements of the typical fauna of the *terai* region (Rahmani and Islam 2000). The Sanctuary is divided into 7 zones for conservation and management of the wild flora and fauna. These are: core zone (7098.5 ha), administrative zone (29.07 ha), buffer zone (33518 ha), multiple use zone, tourism zone (9362.9 ha), education and awareness zone and research zone.

The importance of this Sanctuary is enhanced by the presence of a waterbody called Singhrana Taal, in Chowk Range, which attracts hundreds of waterfowl (Rahmani 1988).

AVIFAUNA

No detailed study has been conducted on the bird life of this interesting Sanctuary, except for surveys by Rahmani *et al.* (1990) in search of the Bengal Florican *Houbaropsis bengalensis*, and later by Javed in search of Swamp Francolin *Francolinus gularis*.

Although, the Bengal Florican was not sighted, some grassland in Compartment No. 16 of Nagwa and Compartment No. 31 of

Sunari blocks are still good florican habitat. These adjoining blocks constitute about 260 hectares. Though half of the grassland has already been planted by the Forest Department, the remaining area has perfect grass cover for florican. Sohagibarwa is connected with Valmikinagar Tiger Reserve (an IBA) in Bihar, and Royal Chitwan National Park in Nepal (where the Bengal Florican is still found: BirdLife International, 2001). So there is still a chance that if the grassland habitat is protected, this endangered florican could reappear in Sohagibarwa. For this reason, the sanctuary has been designated as an IBA.

Another reason for designating it as an IBA is the presence of Sarus Crane *Grus antigone*. Rahmani (1988) counted 45-50 Sarus in May 1988 in Singhrana Taal. The crane may have congregated in this wetland, located deep inside the forest, because most of the smaller wetlands had dried up due to summer heat. A pair of Black-necked Stork *Ephippiorhynchus asiaticus* was also seen, along with a juvenile. During winter, Singhrana Taal attracts hundreds of ducks and geese.

Vulnerable	
Swamp Francolin	<i>Francolinus gularis</i>
Sarus Crane	<i>Grus antigone</i>
Near Threatened	
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>

OTHER KEY FAUNA

Sohagibarwa was declared a wildlife sanctuary to protect the large mammalian fauna of the *terai* and *bhabhar* forest types of Uttar Pradesh, such as Tiger *Panthera tigris* and Leopard *Panthera pardus*, and their prey, Chital *Axis axis*, Sambar *Cervus unicolor*, Hog Deer *Axis porcinus*, and Barking Deer *Muntiacus muntjak*. Despite fragmentation and encroachment of forest corridors, Sohagibarwa WLS is tenuously connected with the much larger Valmiki Tiger Reserve in Bihar, and the Royal Chitwan National Park in Nepal, so, there could be some movement of animals.

LAND USE

- ☐ Nature conservation and research
- ☐ Forestry



Photo: M. Zafar-ul-Islam

The grassland of Schagibarwa is a potential habitat of the Endangered Bengal Florican. However, the grassland is under tremendous biotic pressures.

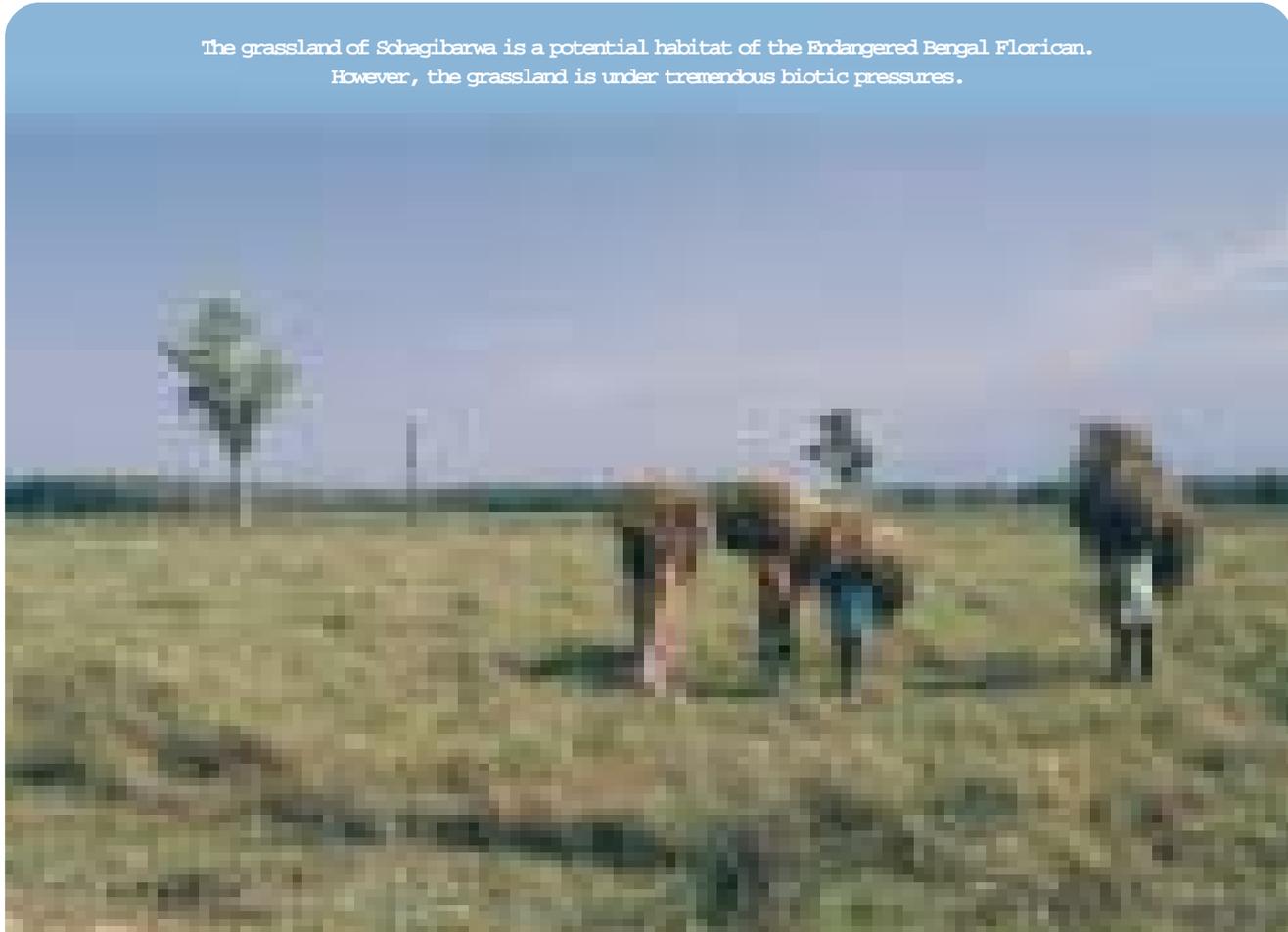


Photo: Asad R. Rahmani

THREATS AND CONSERVATION ISSUES

- q Plantation of grasslands
- q Grazing
- q Poaching
- q Spread of Water Hyacinth in wetlands
- q Control on illegal fishing in wetlands

The major issues for management of the Sanctuary is long term conservation of the Tiger, which is the flagship species of the area. There is acute shortage of staff especially at the field level due to a ban on recruitment at the level of foresters and forest guards. Man-animal conflict is another management challenge, as poisoning of carcasses leading to death of large cats is a major threat.

Habitat improvement is an urgent need especially to conserve Singhrana Taal, which is the major water body of the Sanctuary. Immediate attention should be given to control Water Hyacinth in Singhrana Taal and other waterbodies. Chandamani Taal is also an important wetland and is a good Swamp Francolin habitat.

Major management concerns of the area include illicit felling, grazing and increasing pressure from the *taungya* cultivators

living in the area. Grazing and afforestation are the primary threats to these Priority III grasslands. Therefore, programmes for fodder management and stopping of all afforestation are important grassland management strategies (Rahmani and Islam 2000).

KEY CONTRIBUTORS

Asad R. Rahmani and Zafar-ul Islam

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SOHELDEV WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-23
State	: Uttar Pradesh
District	: Balrampur
Coordinates	: 27° 44' 18" N, 82° 09' 25" E
Ownership	: State
Area	: 45,247 ha
Altitude	: 120 - 202 m
Rainfall	: 1,300 mm
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Tropical Moist Deciduous Forest

IBA CRITERIA: A1 (Threatened Species), Data Deficient
PROTECTION STATUS: Wildlife Sanctuary, established in November 1988

GENERAL DESCRIPTION

The Soheldev Wildlife Sanctuary lies in the Tulsipur *tehsil* of Balrampur district and Bhinga *tehsil* of Saravasti district along the Indo-Nepal border. The Sanctuary is approximately 120 km long and 6-8 km broad.

Forest areas which constitute the Soheldev Wildlife Division were brought under Government control in 1967. Prior to 1952, only Tulsipur reserve forest of Gonda district and Soheldev reserve forest of Bahraich district were under Government control and the remaining forests were under the control of Balrampur Estate.

Soheldev Wildlife Sanctuary was named after Raja Sohel Dev, the local King. The total area of the Sanctuary is 45,200 ha and buffer zone is 22,000 ha.

This site has been selected as an IBA on the basis of A1 (Swamp Francolin) and A3 (Biome restricted species) criteria.

Soheldev Wildlife Sanctuary falls in the *Bhabhar* area (lower foothills of the Himalaya). It is Sal *Shorea robusta* dominated forest, with *Acacia catechu*, *Syzygium cumini*, *Terminalia tomentosa* and grasses of the genera *Vetiveria*, *Themeda*, *Arundo donax*, *Imperata* and *Saccharum. Calamus* thickets are found along the river banks. *Tectona grandis* was planted by the Forest Department but since the Sanctuary was declared, planting has been stopped.

AVIFAUNA

Owing to great vegetation diversity, the area is a mosaic of diverse habitats, as a result of which faunal diversity is also high. About 40 species of mammals are found in the Sanctuary, but data on birds is lacking. There are a number of water reservoirs within the Sanctuary area, which harbour many waterbirds but a checklist is not available. This area has been listed as a Priority 3 grassland (Katkunya beat), considering the conservation requirements of the Swamp Francolin *Francolinus gularis* (Rahmani and Islam, 2000).

As the site has great potential to host threatened and biome species, it is designated as a Data Deficient site.

Vulnerable

Swamp Francolin	<i>Francolinus gularis</i>
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OTHER KEY FAUNA

Besides Tiger *Panthera tigris*, Spotted deer *Axis axis*, Sambar *Cervus unicolor*, Barking deer *Muntiacus muntjak* Hog deer *Axis porcinus* and Bluebul *Boselaphus tragocamelus* are found in the Sanctuary.

LAND USE

- ☐ Nature conservation and research
- ☐ Tourism and recreation
- ☐ Water management

THREATS AND CONSERVATION ISSUES

- ☐ Afforestation
- ☐ Livestock grazing
- ☐ NTFP collection
- ☐ Forest fire
- ☐ Firewood collection

Grazing and NTFP (Non timber forest produce) collection within the Wildlife Sanctuary are the major conservation issues. Agriculture around the Sanctuary is intensifying. Grassland and forest fire also sometimes has a direct impact on wildlife of the sanctuary (Singh 2002).

KEY CONTRIBUTOR

V. P. Singh

KEY REFERENCES

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- Rahmani, A. R. and Islam, Z. A. (1997) Prioritization of the Indian Grasslands for Conservation of Biodiversity. In: Setting Biodiversity Priorities for India (eds. Singh, S., Sastry, A. R. K., Mehta, R. and Uppal, V.) WWF-India, New Delhi. Pp. 169-175.

SUR SAROVAR WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-24
State	: Uttar Pradesh
District	: Agra
Coordinates	: 27° 00' 00" N, 77° 45' 00" E
Ownership	: State
Area	: 403 ha
Altitude	: Not available
Rainfall	: >600 mm
Temperature	: 2 °C to 48 °C
Biogeographic Zone	: Semi-Arid
Habitats	: Freshwater Reservoir

IBA CRITERIA: A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in March 1991

GENERAL DESCRIPTION

Sur Sarovar, more popularly known as Keetham Lake, was declared as a bird sanctuary in 1991, with an area of approximately 400 ha. It is about 17 km from Agra. The lake is owned by the Irrigation Department. Earlier, drinking water was supplied to Agra from Keetham Lake, but now it is piped to the Mathura Refinery, about 24 km away. The river Jamuna flows about 500 m to the northeast.

Keetham Lake was named Sur Sarovar Bird Sanctuary, after the great blind poet Surdas, who lived nearby nearly 500 years ago. The waterbody covers 300 ha and the surrounding buffer zone 400 ha. We have considered the whole waterbody and some surrounding areas as an IBA.

Water Hyacinth *Eichhornia crassipes* covers much of the open waterbody. Many grasses and *Ipomoea* species cover the banks. Large trees are found on the islands in the lake, which support the heronry. The surrounding area is overgrown with *Prosopis chilensis*.

AVIFAUNA

Sur Sarovar Sanctuary supports more than 30,000 waterbirds and a large heronry of Grey Heron *Ardea cinerea*, egrets *Egretta* spp. and cormorants *Phalacrocorax* spp., but infestation of Water Hyacinth in the lake and the drainage system has badly affected the foraging grounds of these birds.

During a brief survey of the site in January 1991, 52 species were seen in this Sanctuary (Rahmani and Arora 1991). Most of the common waterfowl of north India are found in this Sanctuary, namely Northern Pintail *Anas acuta*, Wigeon *A. penelope*, Northern Shoveler *A. clypeata*, Gadwal *A. strepera*, Spotbilled Duck *A. poecilorhyncha* and Comb Duck *Sarkidiornis melanotos*. Four species of storks are found here: Painted *Mycteria leucocephala*, Openbill *Anastomus oscitans*, Black-necked *Ephippiorhynchus asiaticus* and Lesser Adjutant *Leptoptilos javanicus*. Eurasian Spoonbill *Platalea leucorodia*, White Ibis *Threskiornis melanocephala*, four species of egrets, two species of herons, and three species of cormorants can easily be seen from the road around the reservoir. According to forest officials, pelicans (possibly Great White Pelican *Pelecanus onocrotalus*) are also seen sometimes. Earlier, fishermen used to chase them away, but since the declaration of the sanctuary, the birds are left undisturbed.

Earlier, very few 'heronry' species used to breed in Sur Sarovar, but in 1990, large numbers of egrets, cormorants, herons, Eurasian Spoonbills and White Ibis started nesting on the *Prosopis* trees present on the islands and flooded areas. There could have been more than 2,000 nests. Since then, regular breeding is seen but the number of nests fluctuates, depending upon the water conditions and food availability in the area.

The globally threatened Sarus Crane *Grus antigone* is also seen, but it is not known whether it breeds in the Sanctuary or not. A few Greater Spotted Eagles *Aquila clanga* are seen frequently.

Vulnerable

Lesser Adjutant	<i>Leptoptilos javanicus</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Sarus Crane	<i>Grus antigone</i>

Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

OTHER KEY FAUNA

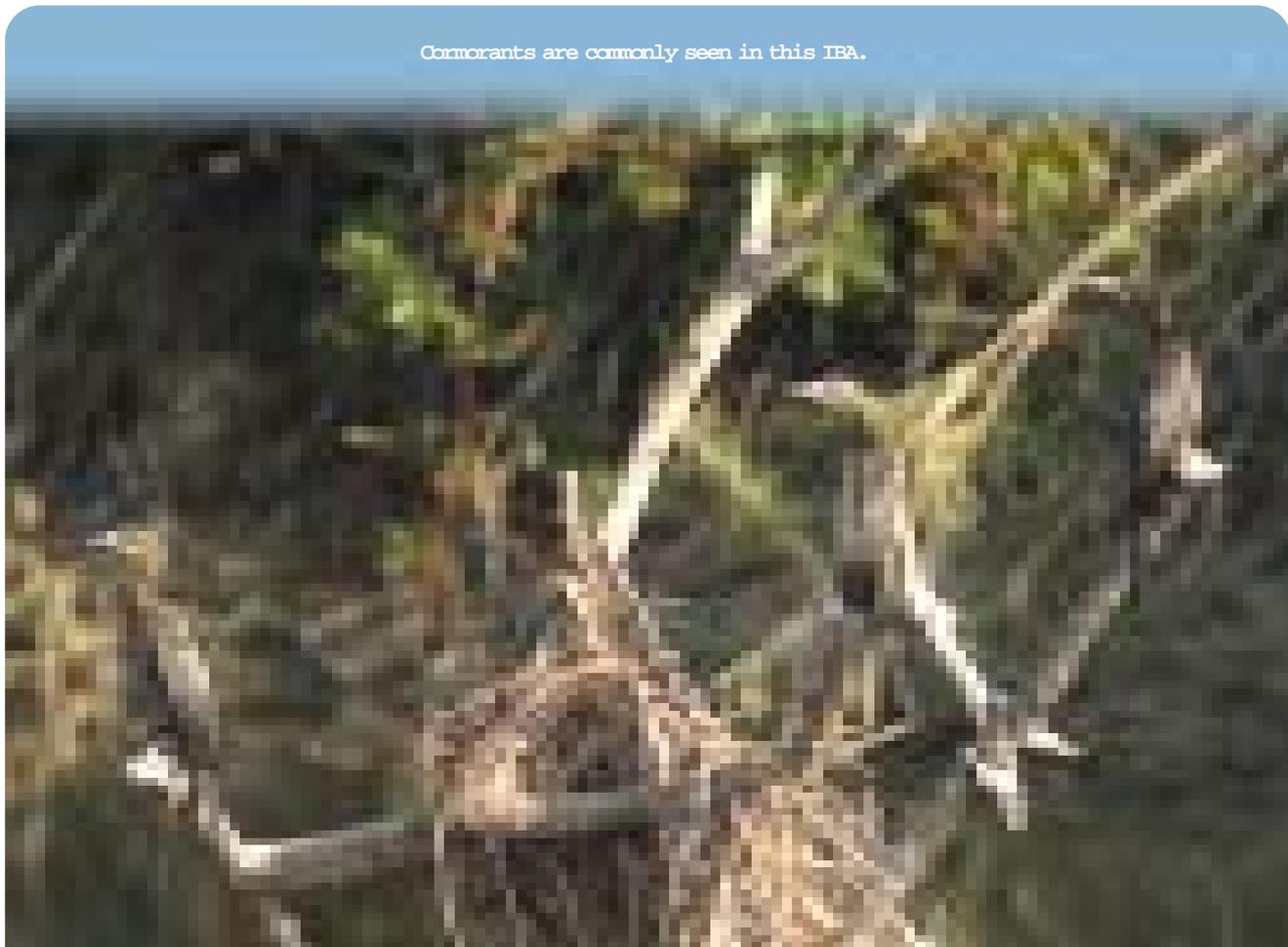
Golden Jackal *Canis aureus*, Jungle Cat *Felis chaus* and Nilgai *Boselaphus tragocamelus* are found in the surrounding forests. Hyena *Hyaena hyaena* is also reported, but rarely seen. There is no mammal or reptile species of high conservation concern in the area.

LAND USE

- ☐ Tourism and recreation
- ☐ Water management

THREATS AND CONSERVATION ISSUES

- ☐ Drainage
- ☐ Grazing
- ☐ Firewood collection
- ☐ Siltation
- ☐ Eutrophication
- ☐ Infestation by Water Hyacinth, *Ipomea*



The population of migratory birds during the peak of winter needs to be estimated, and their population monitored at regular intervals to record fluctuation in species composition.

Grazing pressure from livestock from the six surrounding villages should be regulated.

Nearly 70% to 80% of the waterbody is covered with weeds, particularly Water Hyacinth, despite constant dredging. The Irrigation Department owns the land, so coordination is required, particularly to maintain adequate water levels for optimum removal of Water Hyacinth. A drain from the Agra canal comes down to Sur Sarovar from Okhla, carrying Water Hyacinth along with it. This means that re-establishment of the weed is certain even after

it is removed from this waterbody. A chain link gate to prevent Water Hyacinth entering the lake has been broken. In December 2000, 20-25% of the lake was cleared of Hyacinth, manually through people's participation. But this problem needs constant attention if this important wetland IBA is to be saved.

KEY CONTRIBUTORS

Asad R. Rahmani and K. S. Gopi Sundar

KEY REFERENCE

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SURHA TAAL WILDLIFE SANCTUARY



IBA Site Code	: IN-UP-25
State	: Uttar Pradesh
District	: Ballia
Coordinates	: 25° 45' 00" N, 84° 19' 60" E
Ownership	: State
Area	: 3,432 ha
Altitude	: Not available
Rainfall	: Not available
Temperature	: 4 °C to 40 °C
Biogeographic Zone	: Gangetic Plain
Habitats	: Freshwater Swamp

IBA CRITERIA: A1 (Threatened Species), A4i ($\geq 1\%$ biogeographic population), A4iii ($\geq 20,000$ waterbirds)
PROTECTION STATUS: Wildlife Sanctuary, established in March 1991

GENERAL DESCRIPTION

Surha Taal Wildlife Sanctuary is a natural rainfed lake, located north of Ballia town near village Rajpur in Ballia district. It has an area of 1,528 ha. Surha Taal is surrounded by agricultural fields. *Eichhornia crassipes* is the dominant weed, within and along the margins of the lake. An excellent water body serving as host to several migratory and resident bird fauna, this wetland has been listed as a high priority wetland of Level V, that is wetlands with high ecological and socio-economic potential but with poor data availability, in a prioritization of biological conservation sites in Indian wetlands (Samant 2000). Fishing is very common. Local farmers use the lake water for irrigation. Wetland vegetation is used as fodder for the domestic livestock and as domestic fuel.

AVIFAUNA

This Sanctuary is famous for its congregation of waterbirds during winter. Anatidae is the most numerous among all the families recorded, followed by Phalacrocoracidae, Jacanidae, and Ardeidae. According to the Forest Department, the number reaches 50,000

waterfowl during the migratory season (winter). Sarus crane *Grus antigone* is usually seen breeding in this Sanctuary. A complete checklist of birds is not available.

Vulnerable

Sarus Crane	<i>Grus antigone</i>
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OTHER KEY FAUNA

Not much information is available on other fauna. This wetland is supposed to be very important for its fish resources.

LAND USE

- ☐ Fishing
- ☐ Agriculture
- ☐ Nature conservation

THREATS AND CONSERVATION ISSUES

- ☐ Uncontrolled fishing
- ☐ Draining of water for irrigation
- ☐ Weed infestation
- ☐ Unsustainable exploitation

Like all other such wetlands located in areas of high human population density, Surha Taal is also under tremendous biotic pressures such as fishing, weed removal and drainage for cultivation.

KEY CONTRIBUTORS

K. S. Gopi Sundar and V. P. Singh

KEY REFERENCE

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Sarus Cranes breed in this IBA.



Photo: Divyesh Bhatnagar