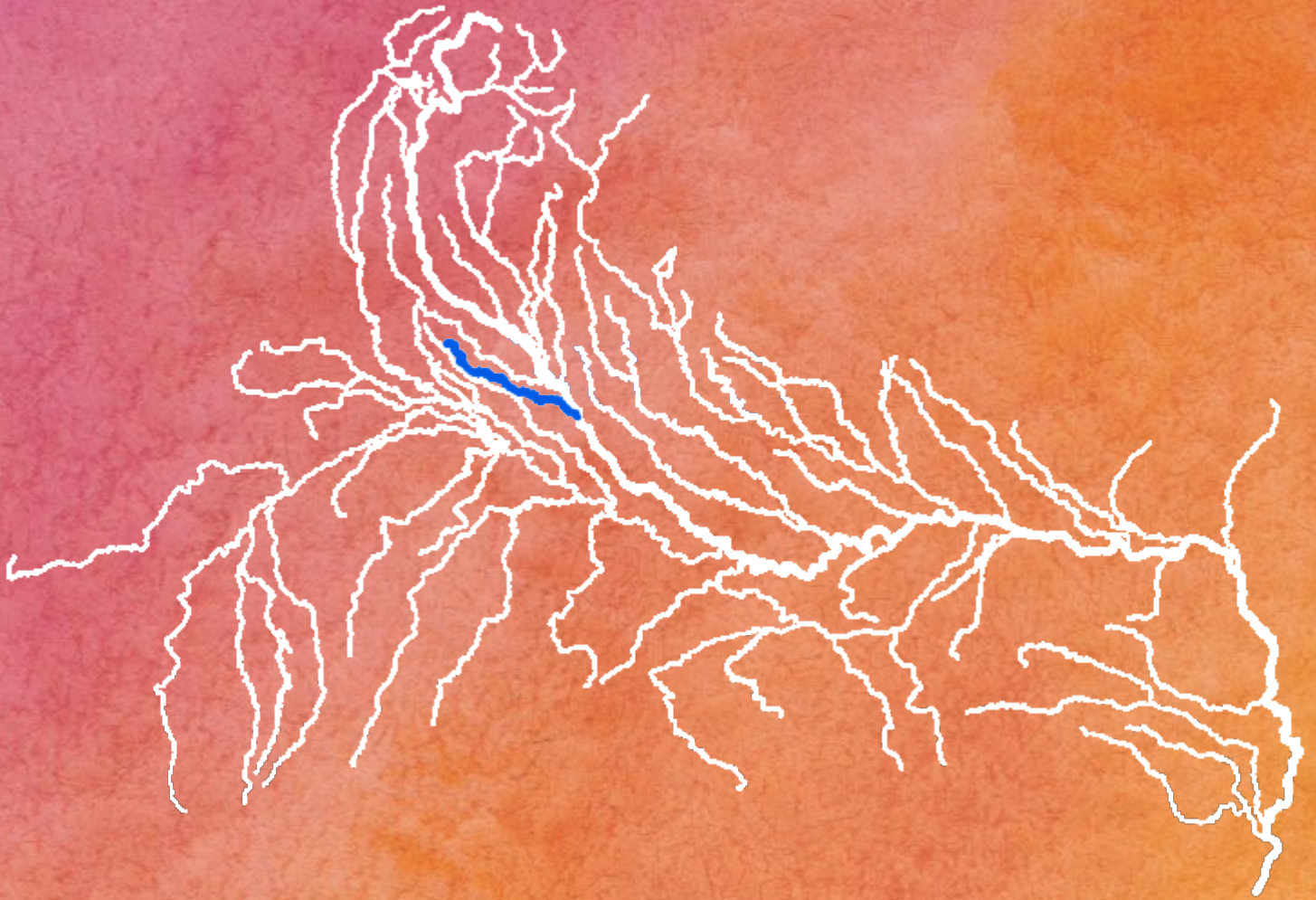


VIBRANT GANGA



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India



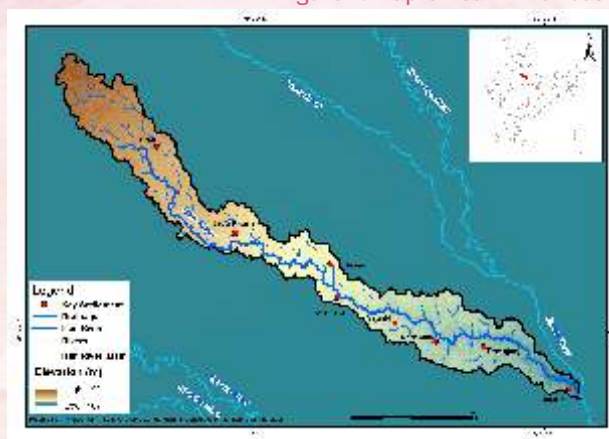
*Isan*

## GENERAL INFORMATION

- Isan (Ishan) River, a tributary of the Ganga River, originates 14 km southwest of the Etah district, Uttar Pradesh.
- The river flows for 290 km and passes through the districts of Etah, Mainpuri, Kannauj, and Kanpur Nagar.
- It meets the Ganga River near Bilhaur in Kanpur Nagar (Uttar Pradesh).
- Isan River basin spans an area of about 2963 km<sup>2</sup> (Figure 1).
- The basin lies in the Gangetic Plain (Upper Gangetic Plains - 7A) biogeographic zone.
- The basin is primarily influenced by a humid subtropical monsoon climate, characterized by hot summers, monsoon-dominated rainfall, and cool winters.
- The population density along the river is 551 persons/km<sup>2</sup>.
- Decadal LULC transitions in the Isan basin (2008–09 to 2018–19) recorded an increase in area under double/triple crop (11.32%), rabi

- crop (8.19%), built-up land (0.90%) and plantations (0.20%), while deciduous forest, deciduous/scrub forest, and grassland exhibited no measurable change. Conversely, notable declines were observed in current fallow (-10.94%), kharif crop (-6.11%), wasteland (-3.36%) and waterbodies (-0.19%), indicating a shift towards intensified agricultural use (Figures 2a and 2b).

Figure 1: Map of Isan River basin



## BIODIVERSITY VALUE

- Isan River basin is dominated by non-forest areas (98.81%), followed by open forest (1.17%) and moderately dense forest (0.01%) (Figure 3).
- Isan River basin is predominantly characterised by Northern Tropical Dry Deciduous Forests and Northern Tropical Thorn Forests, with clear riparian and floodplain modifications along its course. The upper stretch in the Etah–Mainpuri region corresponds to Dry Deciduous Scrub and Thorn Scrub, dominated by *Acacia nilotica*, *Prosopis juliflora*, *Ziziphus nummularia*, *Capparis decidua*, and grassland species such as *Desmostachya bipinnata* and *Cynodon dactylon*. The middle stretch, flowing through Kannauj, transitions into Dry Mixed Deciduous Forest, supporting narrow riparian belts of *Dalbergia sissoo*, *Terminalia arjuna*, *Syzygium cumini*, and *Ficus* spp., interspersed with tall reeds and grasses including *Saccharum spontaneum*, *Phragmites karka*, and *Typha angustifolia*. The lower stretch entering Kanpur Nagar and approaching the Ganga confluence is characterised by alluvial floodplain and riverine forest sub-types, marked by seasonally
- inundated grasslands dominated by *Saccharum spontaneum*, *Desmostachya bipinnata*, *Chrysopogon aciculatus*, and *Cyperus* spp., accompanied by scattered riparian trees such as *Dalbergia sissoo*, *Acacia nilotica*, *Salix tetrasperma*, and *Tamarix dioica*.
- Mammals such as nilgai (*Boselaphus tragocamelus*), jungle cat (*Felis chaus*), golden jackal (*Canis aureus*), and Indian hare (*Lepus nigricollis*) have been recorded from Lakh Bahosi Bird Sanctuary.
- 118 bird species have been reported from Lakh Bahosi Bird Sanctuary, including Endangered Indian skimmer (*Rynchops albicollis*), Pallas's fish-eagle (*Haliaeetus leucoryphus*), Vulnerable sarus crane (*Grus antigone*), common pochard (*Aythya ferina*), grey plover (*Pluvialis squatarola*), curlew sandpiper (*Calidris ferruginea*), greater spotted eagle (*Clanga clanga*), and river tern (*Sterna aurantia*).
- Vulnerable Indian spiny-tailed lizard (*Saara hardwickii*) has been reported from the Kannauj district.

Figure 2a: LULC map of Isan River basin (2008-09)

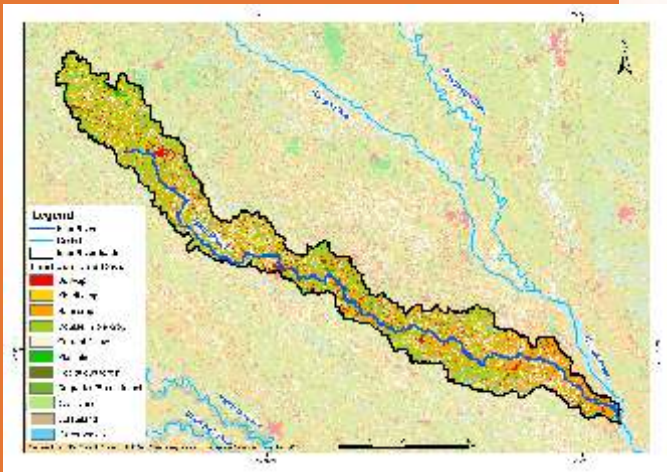


Figure 2b: LULC map of Isan River basin (2018-19)

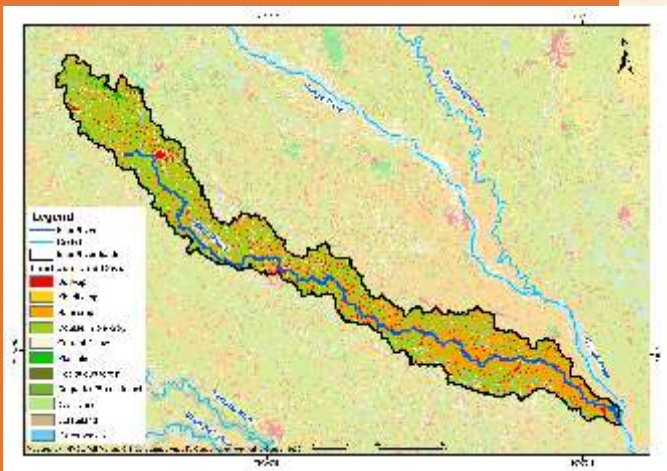
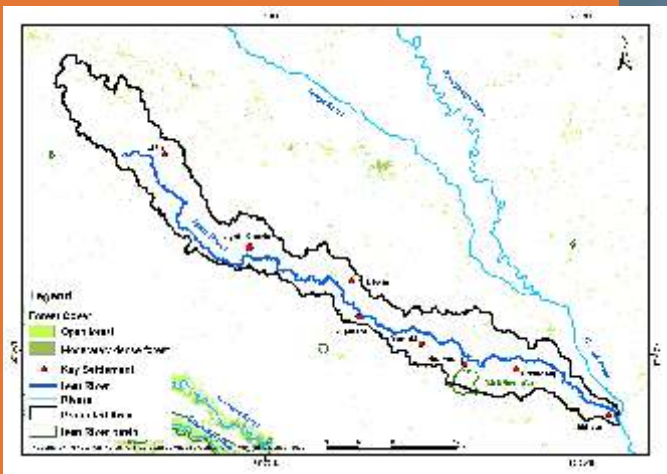


Figure 3: Forest cover of Isan River basin (2019)



## CONSERVATION SIGNIFICANCE

### ENDANGERED

#### Avifauna

Indian skimmer *Rynchops albicollis*  
(Swainson, 1838)

Pallas's fish-eagle *Haliaeetus leucoryphus*  
(Pallas, 1771)

#### Fish

Wagur *Clarias magur* (Hamilton, 1822)

### VULNERABLE

#### Avifauna

Sarus crane *Grus antigone* (Linnaeus, 1758)

Common pochard *Aythya ferina*  
(Linnaeus, 1758)

River tern *Sterna aurantia* (Gray, 1831)

Grey plover *Pluvialis squatarola*  
(Linnaeus, 1758)

Curlew sandpiper *Calidris ferruginea*  
(Pontoppidan, 1763)

#### Reptile

Indian spiny-tailed lizard *Saara hardwickii*  
(Gray, 1827)

### KEY PROTECTED AREAS

Lakh Bahosi Bird Sanctuary

Grey plover (*Pluvialis squatarola*) | ©Bijoy K



## DRIVERS OF RIVERSCAPE CHANGE

- In Etah, Isan River's deterioration is largely driven by unchecked spread of the invasive shrub *Ipomoea carnea* (Behaya). Its dense, fast-growing biomass progressively colonised and engulfed wide sections of the active channel, restricting surface flow, altering sediment dynamics, and suppressing native riparian vegetation.
- Hydrology of the Isan River is severely altered due to near disappearance of its tributary -Kak, disconnection of feeder streams, and siltation.
- Untreated sewage, municipal solid waste, plastic, and construction debris directly enter the river, causing severe water pollution.
- High demand for irrigation water has led to over-extraction, reducing the river's flow, while chemical fertilizer runoff has deteriorated the water quality.
- The clearing of riverbanks for agriculture and construction has reduced natural filtration and increased erosion.

## INTERESTING FACTS

- Kanpur Nagar forms a major cultural-industrial node between the Isan River and the Ganga River, where Jajmau hosts both extensive multi-period archaeological remains and one of India's largest leather-processing tannery clusters; the district additionally contains the historic ghats and sacred landscape of Bithoor, Mughal-era Kos Minars, and the medieval Nimbika Khera Brick Temple.
- Firozabad, historically known as Chandwar Nagar, was renamed in 1566 by Firoz Shah Mansabdar, a commander in the court of Akbar. The city is now internationally recognised as India's 'Glass City' and 'Suhagnagari', manufacturing over 50% of the nation's glass bangles.
- Kannauj, served as the imperial capital of North India during the early medieval period and is widely known for its long-standing perfumery (ittar) tradition and its prominence as a political and cultural centre under the Gurjara-Pratihara dynasty.



National Mission for Clean Ganga,  
Ministry of Jal Shakti,  
Department of Water Resources,  
River Development and Ganga Rejuvenation,  
Major Dhyan Chand Stadium, New Delhi - 110001

### GACMC/NCRR

Ganga Aqualife Conservation  
Monitoring Centre/  
National Centre for River Research  
Wildlife Institute of India, Dehradun  
nmcg@wii.gov.in



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India  
P.O. Box #18, Chandrabani  
Dehradun - 248002, Uttarakhand  
wii@wii.gov.in