VIBRANT GANGA

नमामि गंगे

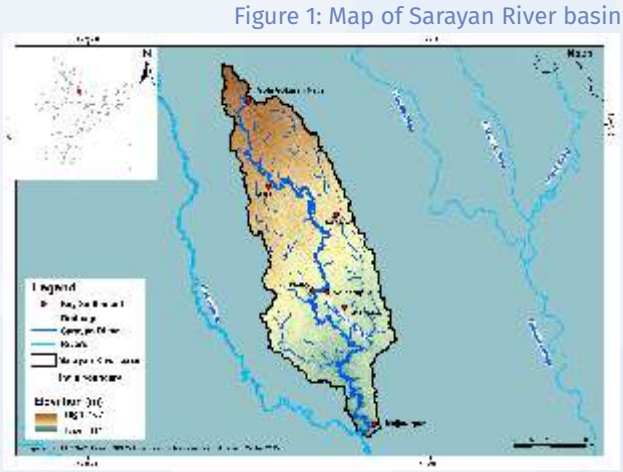
भारतीय वन्यजीव संस्थान
Wildlife Institute of India

Sarayan

GENERAL INFORMATION

- Sarayan River, a groundwater-fed tributary of the Gomti River, originates near the Gola Gokaran Nath town (Lakhimpur Kheri district, Uttar Pradesh) and flows for 280 km through Lakhimpur Kheri and Sitapur districts in Uttar Pradesh.
- It meets the Gomti River in Bhatpur village, Sitapur district.
- Sarayan River basin spans an area of 2,535 km² (Figure 1).
- The basin falls in the Gangetic Plain (Upper Gangetic Plains – 7A) biogeographic zone.
- Sarayan basin experiences subtropical monsoon climate, marked by hot summer, an intense monsoon, and cool to mild winter.
- Sarayan river displays a meandering channel pattern typical of rivers flowing through low-gradient alluvial plains, with a dendritic drainage pattern.
- Gond, Jamwari, Pirai and Behta are the major tributaries of the Sarayan.
- The population density along the river is 633.63 persons/km^2.
- Decadal LULC transitions in the Sarayan basin (2008–09 and 2018–19) recorded an increase in area under double/triple crop (7.91%), built-up area (0.5%) and water bodies (0.2%), and decrease in current fallow land (-4.69%), rabi crop (-3.12%), wasteland (-0.76%) and deciduous forest (-0.04%), indicating agricultural intensification and moderate urban expansion. Plantation and scrub forest remain unchanged (Figures 2a and 2b).

Figure 1: Map of Sarayan River basin



BIODIVERSITY VALUE

- Sarayan basin is dominated by non-forest areas (95.34%), followed by open forest (3.82%), moderately dense forest (0.47%), scrubland (0.23%) and very dense forest (0.14%) (Figure 3).
- The basin is primarily characterised by West Gangetic moist mixed deciduous forest in the upper reaches, dominated by *Dalbergia sissoo*, *Acacia nilotica*, *Syzygium cumini*, *Madhuca longifolia*, *Azadirachta indica*, and *Ficus* spp., transitioning downstream to riparian fringing forests with *Terminalia arjuna*, *Dalbergia sissoo*, *Syzygium cumini*, and *Barringtonia acutangula*, and further to edaphic alluvial grassland–swamp vegetation in the lower floodplains dominated by *Saccharum spontaneum*, *Chrysopogon aciculatus*, *Echinochloa crus-galli*, and *Cyperus* spp., interspersed with riverine trees such as *Acacia nilotica*, *Salix tetrasperma*, and *Tamarix dioica*.
- 14 wetland and wetland dependent birds have been recorded from Sitapur district, including the Vulnerable sarus crane (*Grus antigone*), and black-necked stork (*Ephippiorhynchus asiaticus*), lesser whistling-duck (*Dendrocygna javanica*), oriental darter (*Anhinga melanogaster*) and painted stork (*Mycteria leucocephala*). The Endangered Egyptian vulture (*Neophron percnopterus*), sarus crane, and a dark morph of eastern cattle-egret (*Ardea coromanda*) have been documented in Lakhimpur Kheri district.
- 4 bat species have been recorded in Lakhimpur Kheri district, namely the Near Threatened Indian flying fox (*Pteropus medius*), and greater false vampire (*Lyroderma lyra*), little Indian bat (*Pipistrellus coromandra*), Kelaart's pipistrelle (*Pipistrellus ceylonicus*).
- 28 fish species (6 orders and 12 families) have been recorded from the Sarayan River, including the Endangered wagur (*Clarias magur*) and Vulnerable *Wallago attu*.

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

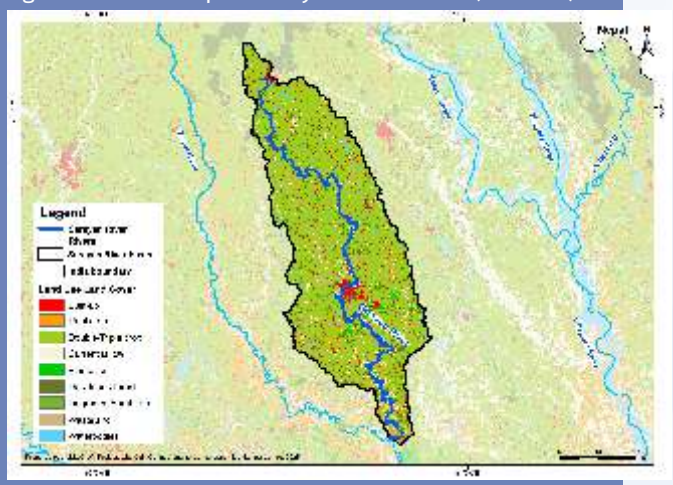


Figure 2b: LULC map of Sarayan River basin (2018-19)

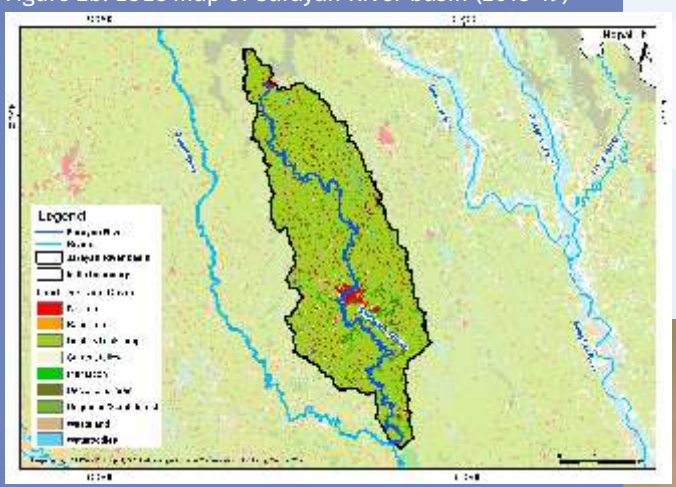
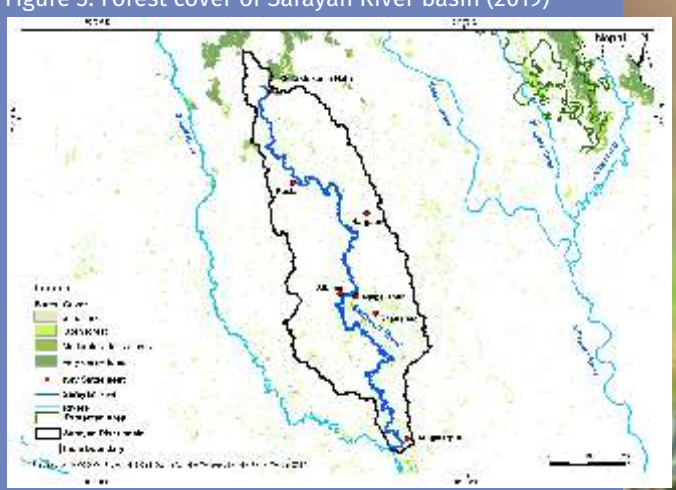


Figure 3: Forest cover of Sarayan River basin (2019)



CONSERVATION SIGNIFICANCE

ENDANGERED

Avifauna

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

Fish

Wagur *Clarias magur* (Hamilton, 1822)

VULNERABLE

Avifauna

Sarus crane *Grus antigone* (Linnaeus, 1758)

Fish

Wallago attu (Bloch and Schneider, 1801)

lesser whistling-duck (*Dendrocygna javanica*) | ©*Vishal Shah*

DRIVERS OF RIVERSCAPE CHANGE

- Intensive double and triple cropping systems, coupled with very limited forest cover has altered natural runoff patterns, increased sediment inflow, reduced riparian buffering capacity, and contributed to overall modification of the riverscape.
- Illegal land encroachment along the Sarayan floodplain has restricted the natural drainage of rainwater and surface runoff into the river channel, disrupted floodplain connectivity, and adversely affected the river's hydrological and ecological functioning.
- Unregulated sand mining along the Sarayan have contributed to riverbed degradation, channel incision, and disruption of natural sediment transport processes.
- High discharge and overbank flooding during the monsoon season accelerate bank erosion, promote meander migration and channel widening, and have led to the formation of cut-off meanders and oxbow lakes.
- Agricultural runoff is a key source of water pollution in the Sarayan River, while Sitapur and Gola Gokaran Nath, the two major urban centres along the river, contribute untreated sewage, industrial effluents, and solid waste that further adversely impact water quality.

INTERESTING FACTS

- Gola Gokaran Nath (Lakhimpur Kheri district) is a prominent Shaivite pilgrimage site associated with Ravana from the ancient Indian epic Ramayana. According to local belief, Ravana was granted a Shivalinga by Lord Shiva after intense penance, on the condition that it should not be placed on the ground during its journey to Lanka. During the journey, Ravana is believed to have entrusted the lingam to a local shepherd while attending to nature's call; unable to bear its weight, the shepherd placed it on the ground, where it became permanently fixed. The temple marks this site and is believed to derive its name from a cow-ear (*gau-karna*) shaped thumb impression said to have been left by Ravana in anger.
- Manduk Mandir (Oel town, Lakhimpur Kheri district), is a distinctive 19th century Shiva temple built by Raja Bakhat Singh, and noted for its unique frog-inspired architecture based on the *Manduk* Tantra, a branch of Tantric tradition that associates frogs with prosperity, luck and fertility. According to local belief, it was established after the king was blessed with prosperity by a frog. The temple features a frog sculpture at the entrance and a Shiva shrine set on a frog atop a crocodile, with walls adorned with carvings of Tantric deities.
- Sarayan River served as key geographical marker and administrative boundary in the Gomti-Ghaghra doab region, lending its name to the Sarayan zamindari that emerged following the division of a Janwar Rajput estate in the late medieval period (c. 15th–16th century).
- Following the annexation of Oudh in 1856, Sitapur emerged as a key administrative and military centre with civil lines and cantonments near the Sarayan River, which formed part of its governance landscape; the 1857 uprising disrupted these arrangements, highlighting the river's proximity to major colonial establishments.

©GACMC/NCRR, WII, Dehradun

नमामि गंगे

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