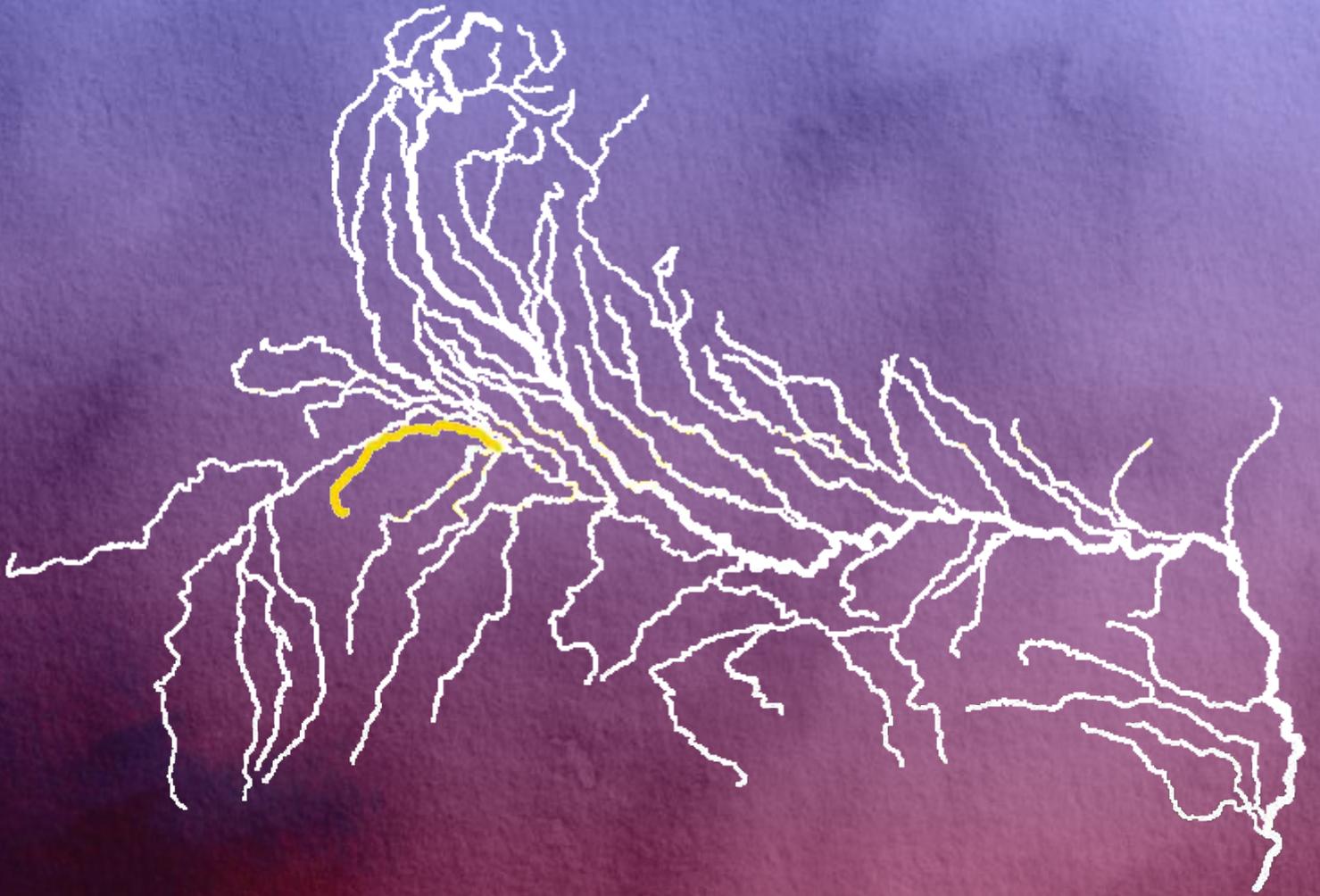


VIBRANT GANGA



भारतीय वन्यजीव संस्थान
Wildlife Institute of India



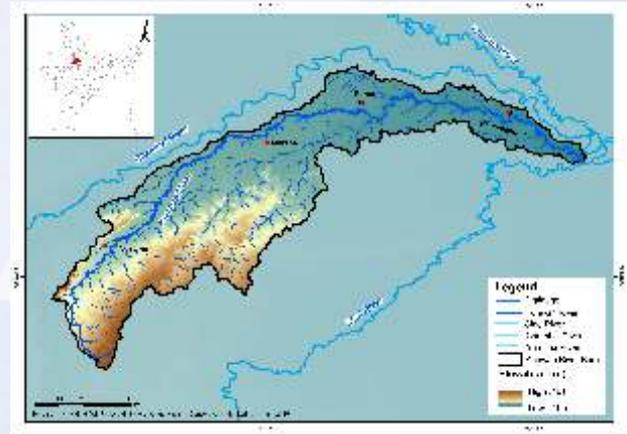
Kunwari

GENERAL INFORMATION

- Kunwari (Kwari) River, a seasonal river and a tributary of Sind River, originates from the hills of Shivpuri district of Madhya Pradesh. It flows for about 428 km through Shivpuri, Sheopur, Morena, Bhind in Madhya Pradesh and Etawah in Uttar Pradesh.
- It meets the Sind River at Chamrahi Ter (Etawah district, Uttar Pradesh).
- Kunwari River basin spans an area of about 6,821 km² (Figure 1).
- The basin lies within the Semi-Arid (Gujarat Rajputana – 4B) biogeographic zones.
- The basin is characterised by a subtropical monsoon climate with three distinct seasons, viz. hot summers, monsoon with low rainfall, and mild winters.
- Kunwari River flows northeastward through the Vindhyan Hills and exhibits a dendritic to sub-dendritic drainage pattern, shaping the badland topography of the Morena plains.
- Asan, Saun and Gurha Nala are the major tributaries of Kunwari.
- The population density along the river is 366 persons/km².

- Decadal LULC transitions in the Kunwari River basin (2008–09 to 2018–19) indicate a marked shift towards agricultural intensification, with a 12.81% increase in double/triple cropped area and a 0.74% rise in kharif crops. Built-up area and deciduous/scrub forest showed marginal increases of 0.02% and 0.06%, respectively. In contrast, rabi crops declined by 7.73%, along with reductions in current fallow land (2.75%), wasteland (2.95%), waterbodies (0.14%), and deciduous forest (0.06%), reflecting reduced uncultivated land within the basin (Figures 2a and 2b).

Figure 1: Map of Kunwari River basin



BIODIVERSITY VALUE

- This basin is dominated by non-forest areas (73.80%), while forests cover 26.20% of the basin, comprising open forest (17.21%), moderately dense forest (4.76%), scrub forest (4.22%), and very dense forest (0.01%) (Figure 3).
- The basin comprises Southern Tropical Dry Deciduous Forests and Northern Tropical Thorn Forests. The upper stretch hosts dry deciduous communities dominated by *Tectona grandis*, *Anogeissus latifolia*, *Boswellia serrata*, *Butea monosperma*, *Madhuca longifolia*, and *Lannea coromandelica*. Toward the Ranthambhore landscape, the vegetation transitions into *Anogeissus pendula* dominated forests, with ravine zones supporting thorn vegetation including *Prosopis*-*Acacia* shrublands, *Euphorbia* scrub, and riparian belts of *Tamarix dioica*, *Dalbergia sissoo*, *Ficus* spp., and *Saccharum* spp. The middle stretch features *Terminalia arjuna*, *Syzygium cumini*, and *Dalbergia sissoo*, while the lower stretch consists of open, grass-dominated floodplains with *Saccharum spontaneum*, *Chrysopogon fulvus*, and *Heteropogon contortus*.
- Within the basin, 18 mammal species were recorded from Ghatigaon Huknai Wildlife Sanctuary, including Vulnerable four-horned antelope (*Tetracerus quadricornis*) and sambar (*Rusa unicolor*).
- In the basin, 136 avifauna has been recorded from Ghatigaon Huknai Wildlife Sanctuary. The sanctuary was established to protect Critically Endangered Great Indian Bustard (*Ardeotis nigripes*).
- 46 fish species were recorded from the River in the late 1980s; since then, only two fish have been reported, namely *Raiamas bola* (1989) and *Channa striata* (2022).

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

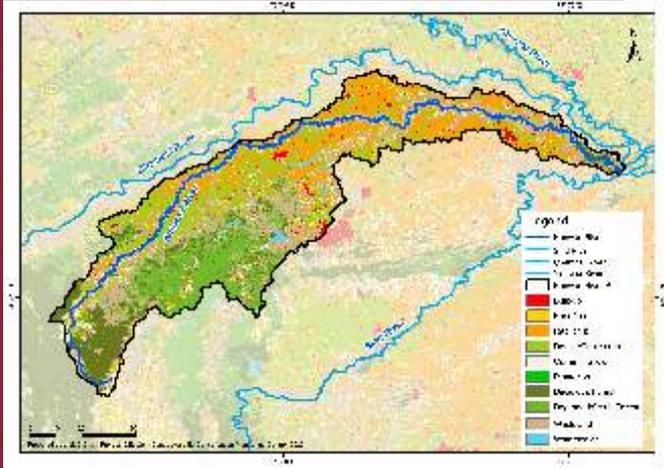


Figure 2b: LULC map of Kunwari River basin (2018-19)

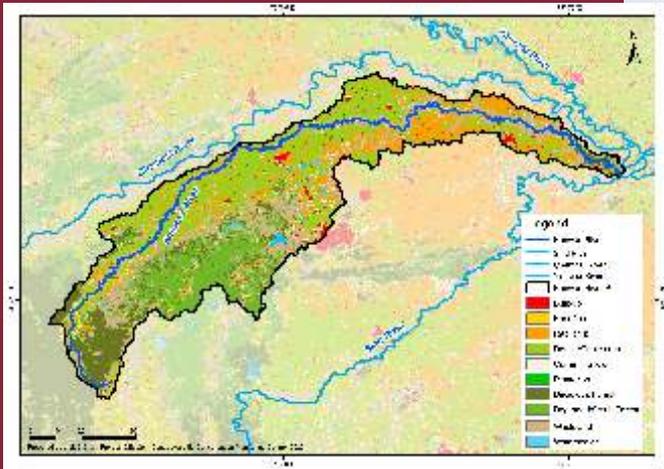
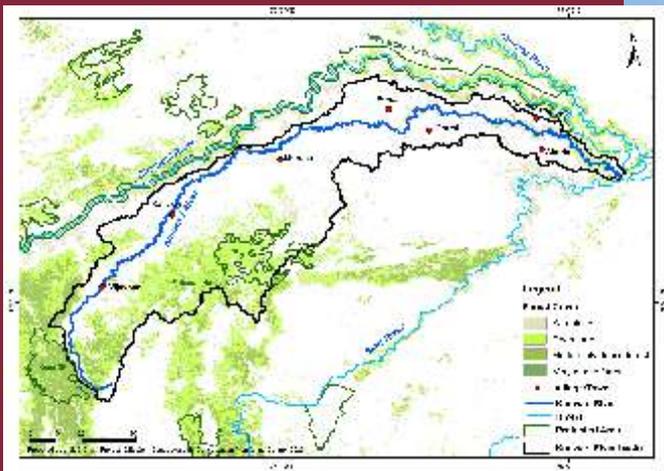


Figure 3: Forest cover of Kunwari River basin (2019)



CONSERVATION SIGNIFICANCE

CRITICALLY ENDANGERED

Avifauna

Great Indian bustard *Ardeotis nigriceps* (Vigors, 1831)

White-rumped vulture *Gyps bengalensis* (Gmelin, 1788)

ENDANGERED

Avifauna

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

VULNERABLE

Mammal

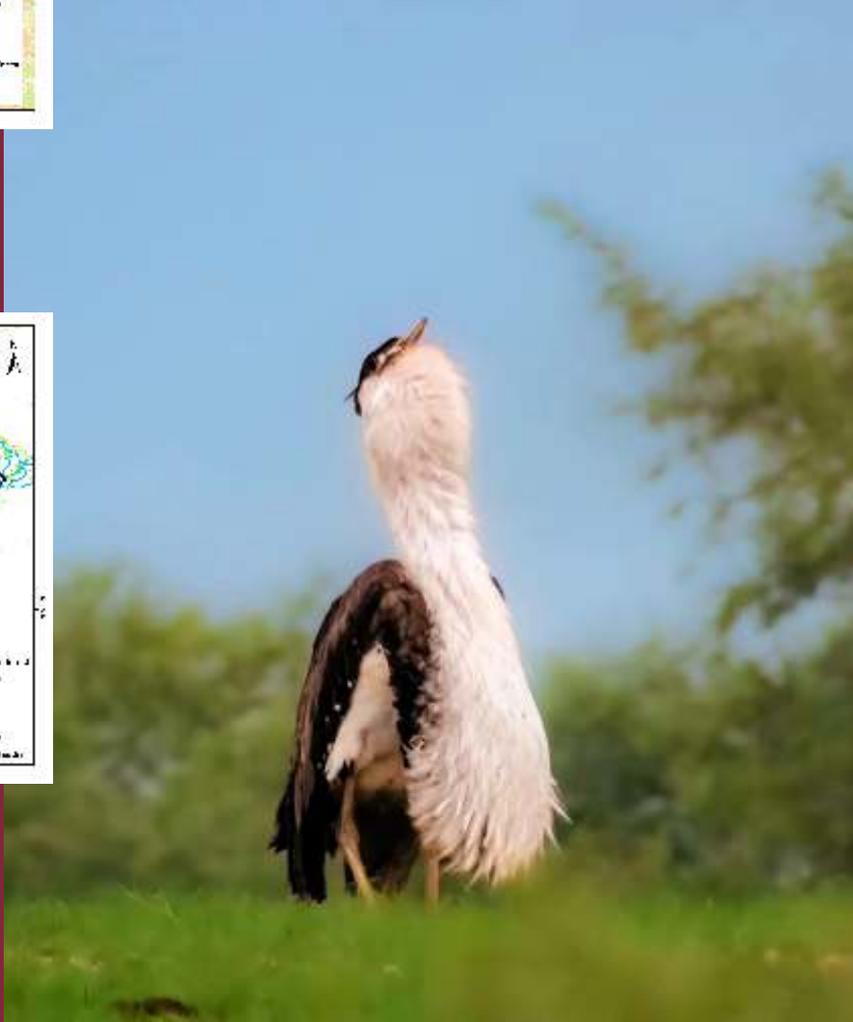
Four-horned antelope *Tetracerus quadricornis* (de Blainville, 1816)

Sambar *Rusa unicolor* (Kerr, 1792)

KEY PROTECTED AREAS

Ghatigaon Huknai Wildlife Sanctuary

Great Indian bustard (*Ardeotis nigriceps*) | ©Sanjeet Mangat



DRIVERS OF RIVERSCAPE CHANGE

- Reduced seasonal streamflow (up to 25% in spring), coupled with monsoonal rainfall variability and high evaporation, has altered channel stability, river morphology, and the water balance in the Kunwari River basin.
- Gully expansion doubled between 2005 and 2013, accelerating soil erosion and sediment yield, particularly in rugged and dissected terrain with elevations ranging from 100 to 467 m, thereby affecting channel stability and downstream river processes.
- Industrial pollution in the Kunwari River has led to significant ecological degradation due to untreated effluent discharge. A mass fish kill reported in November 2023 near Dimani village (Morena district) indicates oxygen depletion and toxic impacts, highlighting regulatory gaps and ongoing threats to aquatic biodiversity.
- Despite high natural sand replenishment during the monsoon due to sandstone and conglomerate geology, unscientific sand mining, particularly in the Bhind and Morena districts of the Sind-Kunwari catchment, has led to riverbed degradation, increased bank erosion, and disturbance to aquatic habitats.
- Expansion of irrigated agriculture and conversion of natural vegetation to cropland have increased water abstraction and surface runoff, reduced groundwater recharge and dry-season flows, and enhanced sediment inputs, collectively altering river hydrology and channel processes.

INTERESTING FACTS

- Kunwari River is revered locally as Maa Kunwari and worshipped by riparian communities, particularly near Sindos village (Etawah district). The river bridge area hosts a Hanuman temple and an annual religious fair, reflecting the river's enduring cultural and social importance.
- Kunwari River is one of the five rivers forming the sacred Pachnada confluence in Uttar Pradesh, where it meets the Sind river near the Etawah–Jalaun border. The site holds religious and ecological importance and hosts the Pachnada Mela during Kartika Purnima.
- Noorabad Bridge, built in the 17th century on the Kunwari River in Morena district, Madhya Pradesh, is a Mughal-era structure built by Motimad Khan during Emperor Aurangzeb's reign. Located on the historic Agra–Mumbai route, it showcases advanced medieval engineering with seven pointed arches, domed chhatris, and minarets, and is protected by the Madhya Pradesh Archaeological Department.



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