

VIBRANT GANGA



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India



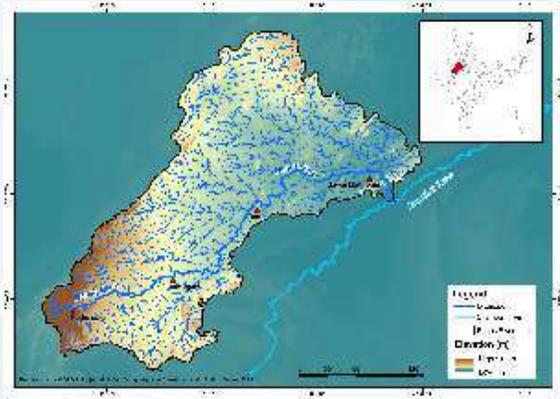
# Banas

## GENERAL INFORMATION

- Banas River, a tributary of the Chambal River, originates at Veron Ka Math in the Khamnor hills (1,000 m asl) of the Aravalli range near Kumbhalgarh Fort (Rajsamand district, Rajasthan), and flows for about 512 km, in a northeastwards direction, through the Rajsamand, Udaipur, Bhilwara, Chittorgarh, Tonk, and Sawai Madhopur districts in Rajasthan.
- It joins the Chambal River near Barwas village in Sawai Madhopur district.
- Banas River basin spans an area of around 53,510 km<sup>2</sup> (Figure 1).
- The basin falls in the Semi-Arid (Gujarat Rajputana – 4B) biogeographic zone.
- The basin experiences sub-humid to semi-arid climate.
- The river exhibits a sinuous to meandering course across alluvial plains and ravine-dominated valleys, with the development of incised channels, badland ravines, and multi-thread braided reaches.
- Major tributaries of the Banas include the Berach, Menali, Kothari, Khari, Dai, Dheel, Sohadara, Morel and Kalisil rivers.

- Population density along the river is 235.93 persons/km<sup>2</sup>.
- Decadal LULC transitions in the Banas basin (2008-09 to 2018-19) recorded an increase in area under kharif crop (6.85%), double/triple crop (6.74%), waterbodies (0.44%), rabi crop (0.34%) and built-up (0.24%); while current fallow (-8.86%), wasteland (-5.71%) and grassland (-0.04%) decreased. No change was detected in plantation, deciduous forest and scrub forest (Figures 2a and 2b).

Figure 1: Map of Banas River basin



## BIODIVERSITY VALUE

- Banas basin is dominated by non-forest areas (94.42%), followed by open forest (3.10%), scrubland (1.82%) and moderately dense forest (0.66%) (Figure 3).
- The basin harbours Tropical Dry Deciduous Forest type characterised by *Anogeissus pendula*, *Butea monosperma*, *Boswellia serrata*, and *Lannea coromandelica*, and dry riverine vegetation represented by *Dalbergia sissoo*, *Syzygium cumini*, *Tamarix dioica*, and *Terminalia arjuna* occurring along the riverbanks and floodplain. Threatened species include the Critically Endangered *Commiphora wightii*, Endangered desert teak (*Tecomella undulata*), and Vulnerable *Dalbergia latifolia*.
- Banas flows through the Ranthambore Tiger Reserve, between the Ranthambore National Park and Kailadevi Wildlife Sanctuary, just before joining Chambal.
- Ranthambore National Park supports 38 mammals, including the Endangered tiger (*Panthera tigris*), dhole (*Cuon alpinus*) and Indian pangolin (*Manis crassicaudata*), and Vulnerable leopard (*Panthera pardus*), sloth bear (*Melursus ursinus*) and sambar (*Rusa unicorn*).
- 38 reptilian species have been documented from the Ranthambore National Park, which includes the Endangered Indian softshell turtle (*Nilssonina gangetica*), Vulnerable mugger (*Crocodylus palustris*) and Indian flapshell turtle (*Lissemys punctata*), and Near Threatened, highly trafficked red sand boa (*Eryx johnii*). Seasonally isolated individuals of the Critically Endangered Gharial (*Gavialis gangeticus*) have been recorded in the river's lower reaches.
- 176 bird species have been recorded from the Bisalpur Dam Reservoir and surrounding areas (Tonk district), including 60 waterbirds (35 migratory, 25 residential), while 315 and 102 bird species have been documented from the Ranthambore National Park (Sawai Madhopur district) and Chawandiya (Bhilwara district), respectively.
- 41 fish species (9 orders and 15 families) have been documented from the river, including the Endangered *Clarias magur*, and Vulnerable *Wallago attu*.

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

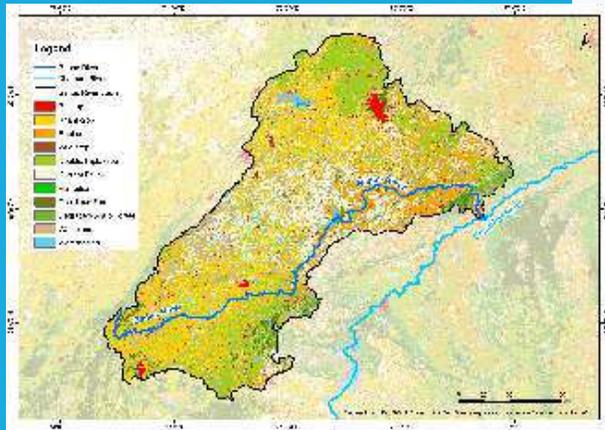


Figure 2b: LULC map of Banas River basin (2018-19)

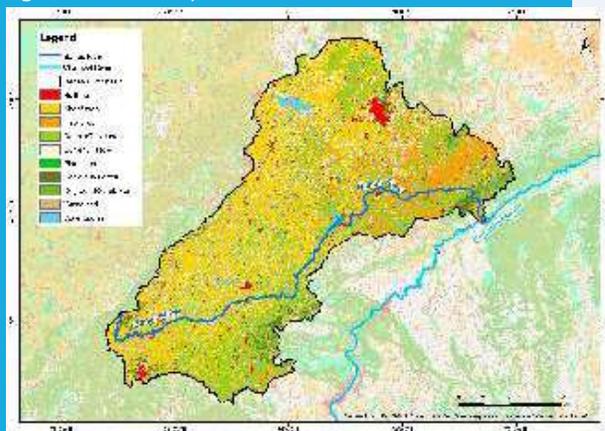
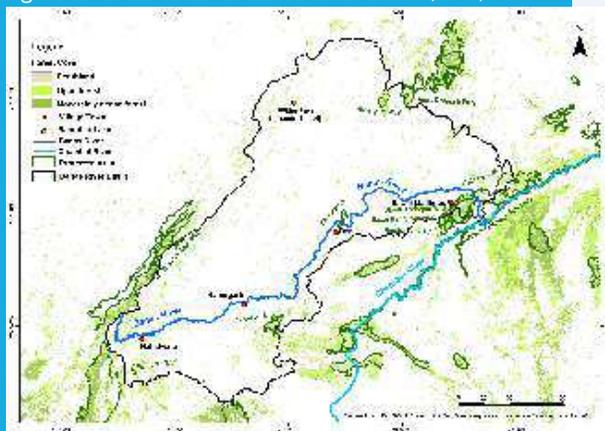


Figure 3: Forest cover of Banas River basin (2019)



## CONSERVATION SIGNIFICANCE

### CRITICALLY ENDANGERED

#### Reptile

Gharial *Gavialis gangeticus* (Gmelin in Linnaeus, 1789)

### ENDANGERED

#### Avifauna

Black-bellied tern *Sterna acuticauda* (Gray, 1832 )

Steppe eagle *Aquila nipalensis* (Hodgson, 1833)

Egyptian vulture *Neophron percnopterus* (Linnaeus, 1758)

#### Reptile

Indian softshell turtle *Nilssonina gangetica* (Cuvier, 1825)

#### Fish

Wagur *Clarias magur* (Hamilton, 1822)

### VULNERABLE

#### Avifauna

Common pochard *Aythya ferina* (Linnaeus, 1758)

River tern *Sterna aurantia* (Gray, 1831)

#### Reptile

Mugger *Crocodylus palustris* (Lesson, 1831)

Indian flapshell turtle *Lissemys punctata* (Lacépède, 1788)

#### Fish

Wallago attu (Bloch and Schneider, 1801)

### KEY PROTECTED AREAS

Ranthambore National Park

Kailadevi Wildlife Sanctuary

Nahargarh Wildlife Sanctuary

Bassi Wildlife Sanctuary

Kumbhalgarh Wildlife Sanctuary

Sajjangarh Wildlife Sanctuary

Bisalpur Conservation Reserve

## DRIVERS OF RIVERSCAPE CHANGE

- Construction of anicuts and dams, and increasing diversion of river water to expanding urban centres such as Jaipur and Udaipur have reduced environmental flows, and impeded groundwater recharge. Dams on the Banas mainstem include Bisalpur, Nandsamand, and Matrikundiya.
- Extensive downstream sand mining threatens riverine biodiversity and disrupts the ecological corridor between Kailadevi Wildlife Sanctuary and Ranthambore National Park.
- Agricultural expansion, deforestation, and riverbank encroachment have reduced recharge capacity, altered runoff regimes, and disrupted natural infiltration processes.
- Effluents from textile processing, marble slurry discharge, untreated sewage, and solid waste dumping have degraded water quality and reduced soil permeability.
- Erratic rainfall and recurrent droughts have adversely affected the river's discharge, sediment dynamics, and ecological resilience.

Tiger (*Panthera tigris*) | ©Aditya Dicky Singh



## INTERESTING FACTS

- Banas (meaning: *Ban Ki Aas*, or 'hope of the forest') River holds religious and mythological significance. Veron Ka Math is believed to be the site where the warrior-sage Parshuram (sixth of the 10 principal incarnations of God Vishnu) trained Bhishma and Karna of the *Mahabharata*, while Matrikundiya (Chittorgarh district) is associated with his penance to absolve the sin of matricide.
- Ahar-Banas Chalcolithic (Copper-Stone Age) culture (c. 3200–1700 BCE), contemporaneous with the Indus Valley Civilisation, was located in southeastern Rajasthan along the Banas and its tributaries. Over 100 sites document the transition from hunting-gathering to agriculture in the Mewar region and indicate interactions with the Oxus Civilisation (Afghanistan and Central Asia), with Harappans acting as intermediaries.
- Mewar and Amber Rajput kingdoms were situated within the Banas basin, which contains monuments reflecting the region's Rajput legacy (8<sup>th</sup>-18<sup>th</sup> centuries), including four of the six 'Hill Forts of Rajasthan' designated as UNESCO World Heritage Sites, namely Chittorgarh, Kumbhalgarh, Sawai Madhopur (Ranthambore Fort), and Jaipur (Amer Fort). Rivers in the basin have been impounded to supply water to the historic capitals of Udaipur and Jaipur, and for famine relief, resulting in the creation of several man-made lakes, including Fateh Sagar, Pichola, and Udaisagar (Ayar River), as well as Man Sagar (Dravyavati River) and Rajsamand (Gomati River).
- Sambhar (Shakambari) Lake, India's largest inland saltwater lake and a designated Ramsar site, is a key wintering site for migratory birds, particularly the greater flamingo (*Phoenicopterus roseus*) and lesser flamingo (*Phoeniconaias minor*), which arrive in thousands.

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