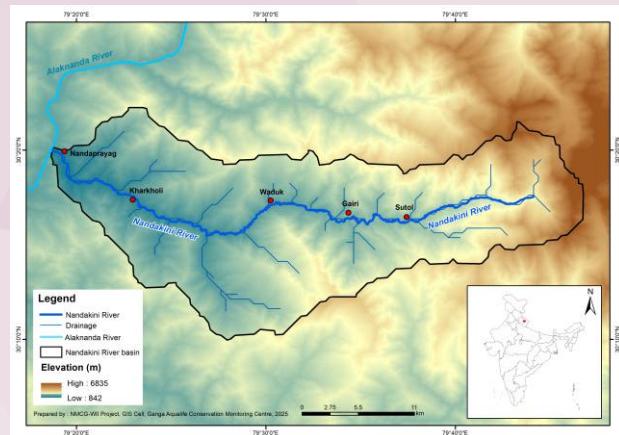


Mandakini

GENERAL INFORMATION

- Nandakini River, a snow-fed tributary of the Alaknanda River, originates from the Nanda Ghunti glacier (6,886 m asl) in Chamoli district, Uttarakhand, in the Garhwal Himalaya.
- It traverses a length of 101 km, and meets the Alaknanda River at Nandprayag, Chamoli district.
- Nandakini River basin spans an area of 540.98 km² (Figure 1).
- The basin lies in the Himalaya (West Himalaya – 2B) biogeographic zone.
- Nandakini basin has a temperate climate and is mostly cold and sub-humid, with frigid winters from December to February and mildly hot conditions from March to May.
- The basin features long ridges, rugged topography, steep slopes and stepped river terraces, with a predominantly dendritic drainage pattern.
- Nandadevi watershed majorly falls in extremely high to moderately active tectonic zone.
- Chuphla Gad is the main tributary of Nandakini River.
- The population density along the river is 48.77 persons/km².
- Decadal LULC transitions in the Nandakini basin (2008-09 to 2018-19) are primarily stable with marginal changes in evergreen forest (-0.02%), deciduous forest (-0.01%), scrub forest (0.02%), grassland (0.99%), wasteland (-2.87%), water bodies (-0.07%), snow cover (1.64%), built-up (0.01%), kharif crop (2.06%), double/triple crop (0.43%), and current fallow (-2.18%) (Figures 2a and 2b).

Figure 1: Map of Nandakini River basin



BIODIVERSITY VALUE

- Nandakini basin is dominated by non-forest areas (44.44%), followed by moderately dense forest (32.56%), open forest (14.62%), very dense forest (8.33%), and scrubland (0.05%) (Figure 3).
- The upper basin is dominated by sub-alpine forests, characterised by Himalayan birch (*Betula utilis*) and rhododendron (*Rhododendron campanulatum*); while the lower basin is represented by Himalayan moist temperate forests, comprising species such as oaks (*Quercus semecarpifolia*, *Quercus floribunda*), deodar (*Cedrus deodara*), and west Himalayan fir (*Abies pindrow*).
- Nandakini River originates in the Nanda Devi Biosphere Reserve (designated by UNESCO under its Man and the Biosphere Programme), and flows for about 2 km within the reserve.
- Nanda Devi National Park and its surrounding areas in the Chamoli district hosts 27 mammalian species (2 orders and 5 families), including the Endangered Himalayan musk deer (*Moschus leucogaster*), Vulnerable snow leopard (*Panthera uncia*) and Asiatic black bear (*Ursus thibetanus*), and Near Threatened Himalayan tahr (*Hemitragus jemlahicus*).
- 154 avifaunal species (9 orders and 29 families) have been documented from the Nanda Devi National Park and its surrounding areas in the Chamoli district, including the Vulnerable cheer pheasant (*Catreus wallichii*) and western tragopan (*Tragopan melanocephalus*). 70 avifaunal species have been recorded from the Nandprayag region, including water-associated birds such as the white-capped water-redstart (*Phoenicurus leucocephalus*) and brown dipper (*Cinclus pallasi*).
- 36 fish species (2 orders and 5 families) have been documented from Nandakini, including the Endangered golden mahseer (*Tor putitora*) and *Glyptothorax madraspatanus*.

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

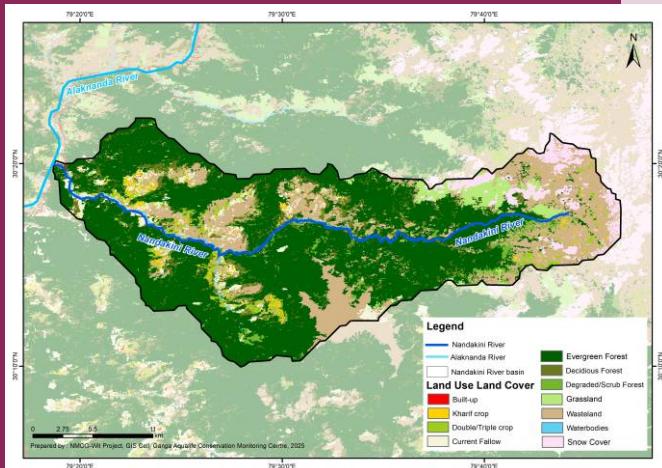


Figure 2b: LULC map of Nandakini River basin (2018-19)

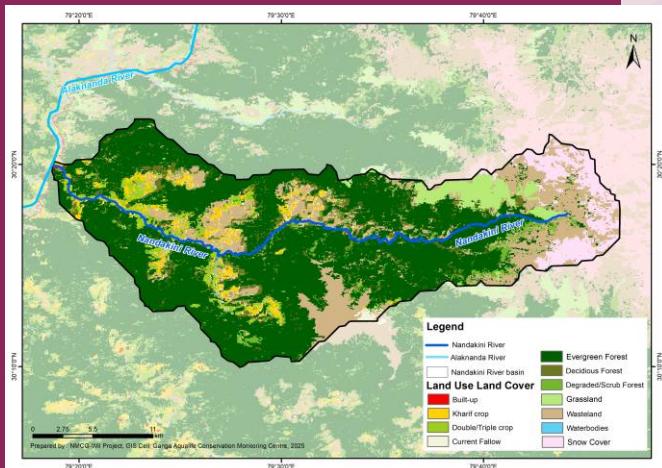
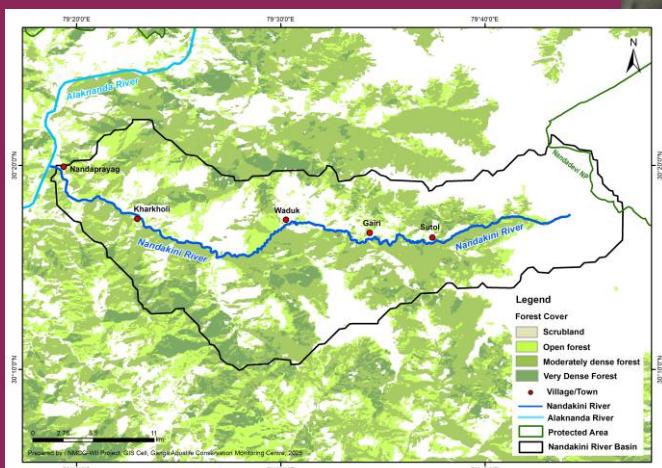


Figure 3: Forest cover of Nandakini River basin (2019)



CONSERVATION SIGNIFICANCE

ENDANGERED

Fish

Golden mahseer *Tor putitora* (Hamilton, 1822)

Glyptothorax madraspatanus (Day, 1873)

VULNERABLE

Fish

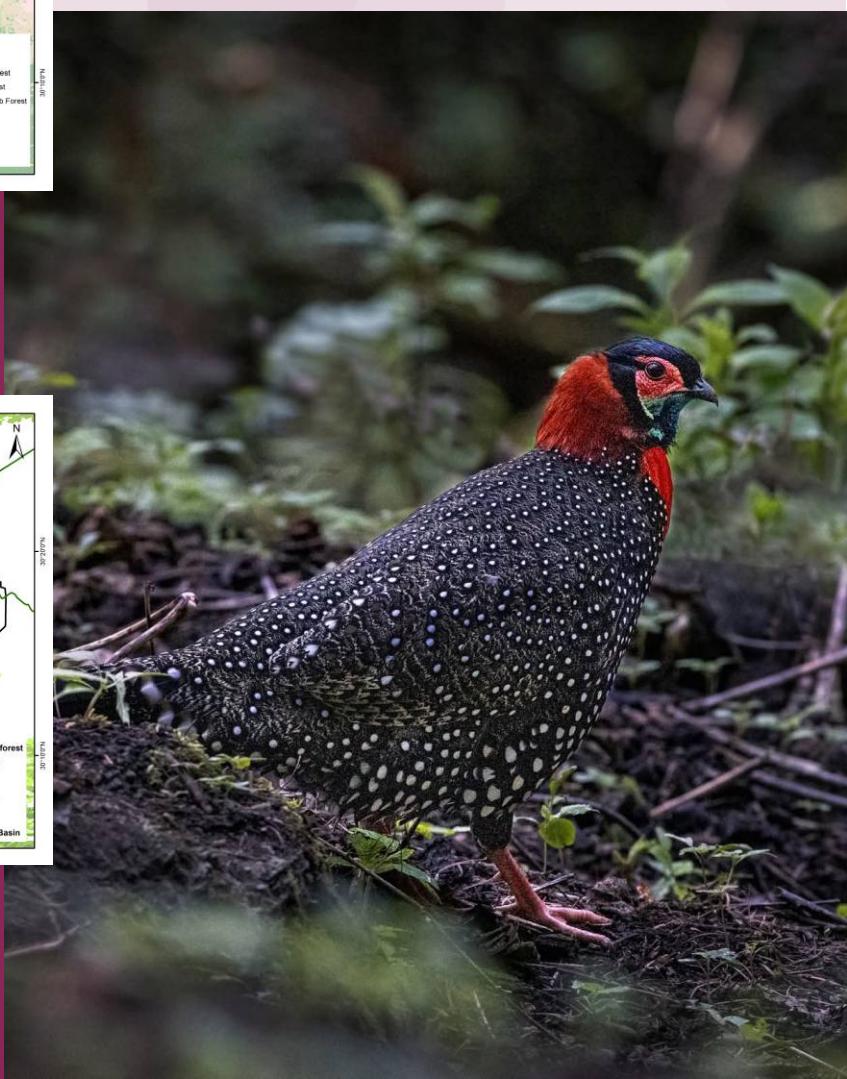
Snowtrout *Schizothorax richardsonii* (Gray, 1832)

Hill trout *Schizothorax plagiostomus* (Heckel, 1838)

KEY PROTECTED AREAS

Nanda Devi National Park

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DRIVERS OF RIVERSCAPE CHANGE

- Anthropogenic activities such as construction-triggered landslides, deforestation, illegal quarrying, mining, dam construction, and road and tunnel development are altering the Nandakini riverscape and disrupting its ecological balance. Two small-scale dams on the river, namely Vanala HEP (15 MW) and Rajwakti HEP (3.6 MW), have contributed to habitat fragmentation.
- Natural factors like floods, waterlogging, landslides, and runoff-induced leaching are accelerating soil erosion and reshaping the valley

INTERESTING FACTS

- Nandprayag, the confluence of Alaknanda and Nandakini, is the second of the five sacred confluences in Hindu mythology along the Alaknanda River, termed as 'Panch Prayag'.
- According to local lore, the town of Nandprayag was originally known as 'Kanvasu', after the Sage Kanwa, who raised Shakuntala, daughter of Sage Vishwamitra and Menaka (an 'apsara' or 'celestial nymph'), and the mother of King Bharat, the legendary emperor of ancient India. It was renamed later as 'Nandprayag', after King Nand, the foster father of Lord Krishna, who performed a 'maha yagna' here. The stone used in the ritual is believed to be the foundation stone of the Nand Temple in the town.
- Nanda Devi Raj Jat Yatra, a major three-week pilgrimage that occurs every 12 years, passes through the Nandakini River valley. It is dedicated to Nanda Devi, the supreme deity of the Garhwal and Kumaon regions in Uttarakhand, who is believed to be an incarnation of Goddess Parvati, the consort of Lord Shiva. The pilgrimage is symbolic of her journey from her maternal home to her husband's place of residence on Mount Kailash. The procession is traditionally led by a sacred four-horned ram, known as *Chausingha Khadu*.
- Nanda Devi Lok Jat (Chhoti Jaat) Yatra, an annual pilgrimage, starts at Kurud village, Chamoli district, along Nandakini River.
- Roopkund Lake, a high-altitude glacial lake colloquially known as the 'Skeleton Lake' due to the presence of ancient skeletal remains from hundreds of individuals belonging to multiple, genetically distinct groups, is located within the Nandakini River basin. It is on the present-day pilgrimage route of the Nanda Devi Raj Jat Yatra, and is also a popular trekking destination.



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