



# Kedarnath Wildlife Sanctuary: Nature-Culture Linkages in a Sacred Landscape in Indian Himalayan Region

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## ■ Abstract

*Kedarnath Wildlife Sanctuary is among the largest protected areas in Western Himalaya. The vast variability in climate, geology, and topography results in a rich biological diversity with varied floral and faunal assemblages. The landscape has many sacred elements, which includes the famous Kedar circuit, comprising of five Shiva temples and many other Hindu shrines. Forest patches, alpine meadows, and trees associated with shrines or local deities are also considered sacred. The landscape has around 172 villages with local communities holding traditional rights of phyto-resource use from the area; 12 villages are located inside the Sanctuary. In recent decades, various natural and anthropogenic challenges have been threatening the nature-culture mix that forms the foundation of sacredness of the landscape. It becomes imperative that policies and action programs to enhance ecological sustainability are appropriated and local cultural beliefs, with embedded conservation ethics, are integrated in the environmental governance and management of the landscape.*

**KEY WORDS:** Conservation challenges, local communities, Mandakini River basin, protected area, Western Himalaya

## ■ 1. Introduction

### 1.1 Overview of the heritage site

The Kedarnath Wildlife Sanctuary (hereafter KWS) is situated in the catchment of the Mandakini and Alaknanda Rivers, and form a large sub-catchment of the River Ganga. It is located between 78°54'E and 79°27'E Longitudes and 30°25'N and 30°45' N Latitudes and has a wide elevational range from 1100 to 7068 m asl. With an area of 975 km<sup>2</sup>, KWS is among the largest protected areas in the Western Himalayas and the state of Uttarakhand [Fig. 1]. The KWS landscape includes an area declared as Sanctuary and areas falling within 5 km of its boundaries (Singh and Gangte 2009). The landscape includes around 172 villages, with local communities holding traditional rights of livestock grazing, lopping, and grass cutting from within the Sanctuary area. The inhabitants of these villages depend largely on the

Sanctuary forests for their day-to-day sustenance. Forests in the region have had a long history of commercial logging, since its pre-independence era when it was part of the British Garhwal.

### 1.2 Brief description of the sacred landscape

The KWS landscape is home to the Kedarnath temple, one of the most revered and holiest Hindu shrines of lord Shiva and part of the Char Dham pilgrimage (which consists of four major Hindu temples) in Uttarakhand. Shiva is among the principal deities in Hinduism and is considered the 'destroyer and transformer'. There are many symbols of the Pandavas, princes and king from the Sanskrit epic, the Mahabharata, scattered in and around the KWS. It is believed that the Pandavas came to the Himalaya in search of lord Shiva, to seek forgiveness for killing their kin in the Kurukshetra war. Shiva did not want to forgive them and, disguising himself

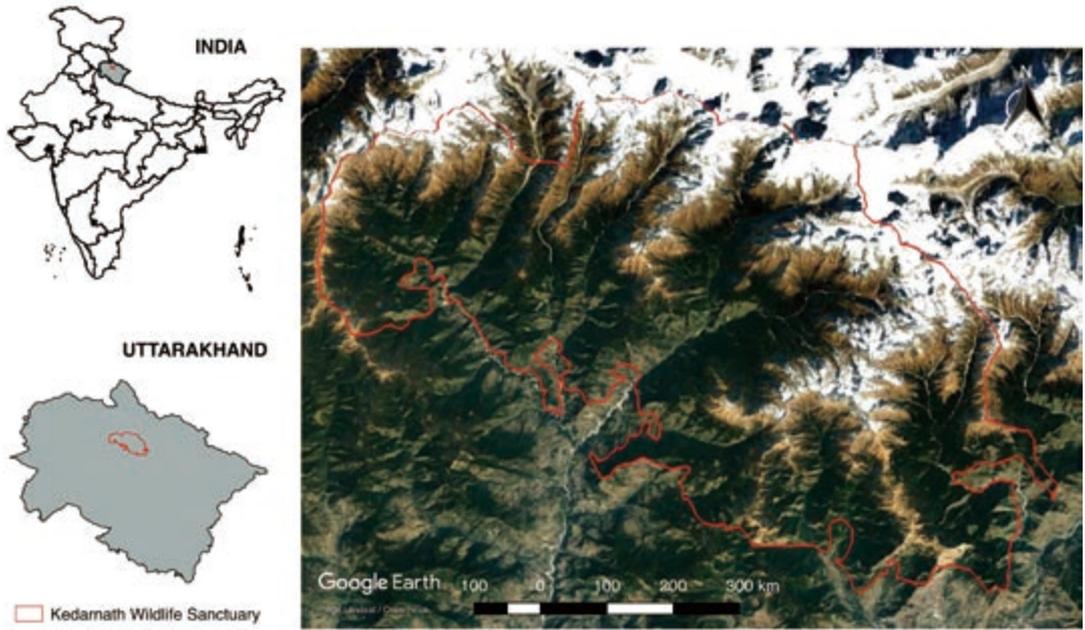


Figure 1: Location of Kedarnath Wildlife Sanctuary in Uttarakhand, India.

as a bull, hid among the cattle and then sank into the ground. However, some of the bull's body parts were still visible above the ground; this is where the Shiva temples, Kedarnath, Madhmaheshwer, Tungnath, Rudranath and Kalpeshwer, were built [Figs 2 & 3]. All the temples, except Kalpeshwer, are situated above 3500 m elevation and are open only

between April and November (from Akshaya Tritriya to Kartik Purnima, Hindu auspicious days) due to extreme weather conditions. The deities are brought to various Shiva temples at lower elevation during winters.

Other temples include Mandani, Kalimath,



Figure 2: Location of prominent Hindu shrines, high elevation lakes and trekking routes within the Kedarnath Wildlife Sanctuary Landscape (Source: Rai et al. 2017).

Triyuginarayan, Anasuya Devi, and many smaller shrines, which all draw thousands of pilgrims from across India. These temples support the local economy greatly, as men from the neighbouring valleys and Nepal work as guides, porters, or run shops and lodges around these temples. Nature and wildlife tourism are also gradually gaining momentum among tourists in the landscape. Famous treks include the Deoriya-Tungnath-Chopta, Madhmaheshwer, Nandi Kund, and Mandani, to name a few.

## ■ 2. Significance of the heritage place

### 2.1 Natural values

KWS is neither a World Heritage site nor on the Tentative List; however, it is recognised as a 'Habitat/Species Management Area' by the IUCN (International Union for Conservation of Nature) and is reputed among the world's richest bio-reserves. The Sanctuary falls under the Himalayan Bio-geographical zone (2) and West Himalayan Biotic province (B) with alpine, temperate coniferous, broadleaf, and subtropical forests as biomes (Rodgers and Panwar 1988). The permanent ice and snow line has been demarcated at or above 5000 m within the Sanctuary. The diverse climate, geology, and topography of the region has resulted in a varied floral assemblage within the Sanctuary. It is estimated that about 44.4–48.8% of the area is forested, 7.7% is alpine meadows and scrub, 42.1% is rocky or under permanent snow, and 1.5% was formerly forested but has since degraded (Prabhakar et al. 2001).

A total of 886 dicotyledons and 253 monocotyledons have been recorded from within the area (Rai et al. 2017). A number of endangered plant species, including *Acer caesium*, *A. oblongum*, *Aconitum ferox*, *Allium stracheyi*, *Coelogyne cristata*, *Dendrobium normale*, *Kobresia duthiei*, *Saussurea roylei*, and *Schizandra grandiflora*, are recorded from the Sanctuary (Singh and Rai 2008). Twenty-eight mammal species have been confirmed; the Himalayan musk deer (*Moschus leucogaster*), an 'endangered' species on the IUCN Red list, is the flagship species of the KWS (Sathyakumar 1994). Other mammals include the common leopard (*Panthera pardus*), Himalayan weasel (*Mustela sibirica*), Himalayan yellow-throated marten (*Martes*

*falvigula*), Asiatic black bear (*Ursus thibetanus*), and Himalayan Pika (*Ochotona roylei*). With a wide elevational gradient and rich habitat-diversity, the KWS also offers a potential for rich avian diversity. According to a partial checklist, the Sanctuary has 244 species of birds, including three 'threatened' species (Lepage 2017).

### 2.2 Cultural values

The forests, alpine meadows, rivers, rocks, and high elevation lakes within the landscape have deep cultural significance [Figs 3 & 4]. A few of the examples include the Mandani valley and alpine meadow, Deoria Lake, Vaitarani River, and Kalishila rock. According to Hindu mythology, the goddess Durga killed the demon Mahishasura, buried him in the earth, and sat on him as a rock in the Mandani meadow. There are a small temple and rock at the same place and the goddess is worshipped as Mandani or Manani Mai. Another legend is that the Pandavas crossed the valley during their ascent to heaven from the Swargarohini peak. In the Rudranath temple complex, there are several sacred water-tanks, or Kund, originating from natural streams and the holy river 'Vaitarani,' the 'river of salvation'. While devotees take a dip in the holy Kund, they perform rituals for their dead kin so that their spirit can cross to the other world in the river. Kalishila, or black-rock, is a holy rock where the goddess Kali was incarnated in order to kill the demon Raktbeej and to rid deities of other demons [Fig. 3d]. Deoria taal is a lake where Hindu deities are believed to have bathed and where the Pandavas were asked questions by a Yakshas. or a nature-spirit, before they could quench their thirst [Fig. 3e].

Plant species, like *Saussurea* spp., *Primula* spp., *Brassica* spp., *Ficus* spp., and *Zanthoxylum armatum* etc., are highly valued and used in various religious ceremonies. *Saussurea obvallata* or Brahma Kamal is one such plant that is highly revered and finds its place in many mythological stories associated with the Hindu Gods. It grows in the high alpine areas in the KWS and the flowers are offered to the Hindu deities, particularly lord Shiva. It is collected by pastoralists, brought to villages at lower elevation and is distributed among devotees as the deities' blessings [Fig. 4]. *Juniper* spp. and *Nardostachys jatamansi* are burnt as incense sticks to offer prayers to deities and

*Zanthoxylum* branches are kept in the house to ward off evil spirits. In villages, one or two trees (*Ficus* spp., *Prunus cerasoides*, *Quercus* spp., etc.), which grow closer to a shrine, are dedicated to Isht devta or local deities, worshipped, and are not lopped [Fig. 3f]. Sometimes families build a small shrine and plant a tree at the edge of their agricultural field as a natural symbol of the harmonious relationship between humans and supernatural entities.

### ■ 3. Current management arrangements

The Sanctuary is currently managed and protected by the Kedarnath Wildlife Forest Division of Forest department, the Government of Uttarakhand, and administered under the Wildlife (Protection) Act, 1972. The inhabitants of the villages situated within KWS, and in the immediate proximity, have traditional grazing and resource extraction rights within the



Figure 3: Sacred elements of the landscape: a) Kedarnath, b) Madhmaheshwer, c) Tungnath d) Kalishilla (a rock worshipped as a Hindu goddess), e) Deoriya lake (a lake where deities are believed to have taken bath) and f) A temple and associated sacred tree within a village .



Figure 4: Snow clad peaks, alpine meadows and a holy shrine: Nature and culture as encountered together in KWS landscape (at Budha Madhmaheshwer).

Sanctuary. Shepherds from these villages take livestock to the alpine meadows every year during summer and monsoon months. Village councils, or panchayat, look after the local rights in these areas as well as manage the community forests within the landscape. The temple committee and village councils maintain the temples, sacred meadows, and tree-stands within the landscape. Many civil society organizations, working towards capacity development, ecological restoration, and women empowerment, work with local communities towards achieving biodiversity conservation and livelihood improvement. Block development offices (an administrative division for planning and development at district sub-division level), departments related to agriculture, horticulture, and animal husbandry are other stakeholders working towards development in the landscape.

### 3.1 Management History

Forests in the region have formed part of the Alaknanda catchment in the British Garhwal since 1815, after the British defeated the Gorkhas. During the first two decades, they classified these forests as class-I and class-II forests. After independence, a 10-year ban (beginning in 1953) on green felling (cutting down green trees) was imposed in the hill region at or above 1000 m elevation which also resulted in the ending of green felling in the landscape as well. Various timber extraction practices, including fuelwood and bamboo harvest, were continued as mentioned in the working plan of the Kedarnath Forest Division; however, the amendment in the Wildlife (Protection) Act, 1972, in 1991, brought all commercial activities in the area to a halt. KWS was created in 1972 under the General Hunting Rules UP for 10 years. With the enactment of the Wildlife (Protection) Act 1972, the Sanctuary came under the responsibility and dual control of the wildlife wing (ensuring protection of wildlife) and territorial staff (silviculture and other forestry activities) (Singh and Gangte 2009).

## ■ 4. Current State of Conservation and Challenges for Continuity

The KWS landscape faces a number of natural and anthropogenic challenges, which includes landslides and flash floods in narrow valleys, forest fires,

increased human population growth, development activities within the Sanctuary and its fringes, increased religious and nature tourist inflow, and the consequent forest resource extraction and infrastructure development in fragile ecosystems, and pressure from unsustainable harvesting of resources, and wildlife conflict and poaching. Studies have shown that these challenges result in forest degradation and changes in the regeneration patterns of native flora, and the impact of disturbances on wildlife and its habitat in the Sanctuary (Manral et al. 2017; Misra et al. 2009; Singh et al. 2010; Thakur et al. 2011). There are also reports of the dispersal of anthropogenic disturbances deeper into the relatively undisturbed forests within the Sanctuary (Singh et al. 2010).

There are 12 villages inside the Sanctuary and about 160 villages within 5 km from the boundary of the Sanctuary, which vary from subtropical to temperate regions. Local communities have very few livelihood options and are highly dependent on the natural resources and marginalized traditional agricultural practices [Fig. 5]. Basic amenities, such as primary education and health services, are not uniformly available in the remote villages. The area has seen frequent natural calamities in recent decades, resulting in the loss of forests, human assets, and lives. Heavy rainfall in June 2013, due to an early onset of monsoon rains, in the Mandakini River catchment resulted in a glacial lake outburst, landslides and flash floods that have claimed the lives of thousands of locals and tourists and resulted in an economic loss in the millions of rupees. All of these challenges have resulted in negative trends in the economic and ecological well-being of the mountain people. Consequently, the region sees a high migration of locals in search of reliable income sources and better prospect for their children.

This out migration of people, particularly youth from villages, impacts local culture hugely. Many traditional art forms (preparing woollen items and containers from hill bamboos, playing traditional music instruments, and folk songs about local deities and kings) are being lost. The ethno-medicinal knowledge, in their traditional health care system, is also being lost gradually. Driven by the socio-cultural change from subsistence to market economy, local communities prefer cash crops over traditional crops,

resulting in the loss of many traditional varieties. This gradual alienation of people from their land and culture may result in the loss of religious customs and cultural norms along with the indigenous knowledge over time.

Like the rest of the Himalaya, KWS is also prone to the projected climate change and consequent changes in vegetation structures and composition. Adhikari et al. (2012) found variations in major plant phenological processes, such as leaf bud break, leaf fall, and flowering in timberline species, in response to inter-annual climate variations. With a host of drivers such as infrastructure development, changing land-use and weak political will towards conservation, the projected climatic variation may bring complex changes in the social-ecological systems of the landscape, threatening its role as a rich repository of both natural and cultural values.

■ 5. Conclusion and recommendations

The KWS landscape is dotted with Hindu shrines, a vast network of pilgrimage routes, sacred alpine meadow and forests and trees, and is an area of rich biodiversity, which make it a region of high cultural, aesthetics, and heritage values. These values symbolize the essence and identity of the local culture and traditions. Local festivals, religious

beliefs, and rituals are associated with various natural elements of the landscape and often have embedded conservation ethics which underpin this relationship. It is important for policymakers and scholars to understand the significance of the landscape, from both cultural and ecological perspectives; the religious values, of both natural and human-built components, within the landscape can act as catalysts for environmental conservation through site-specific strategies. These cultural linkages to the natural systems of the landscape can greatly enhance the positive attitude of local communities and visitors towards conservation.

Despite being both a wildlife protected area and a sacred landscape, KWS faces numerous threats from both exploitative tourism and unregulated resource extraction by the local communities. The natural disasters during the current decade have both exposed and enhanced the environmental, social-economic, and cultural vulnerabilities of the natural and anthropogenic systems of the area. Strict regulations from the managing authorities have only enhanced the conflict between the managing bodies, the religio-cultural groups, and the local communities. Lessons can be learnt from the neighboring Nanda Devi Biosphere Reserve, where science and religion were brought together to restore the sacred forests of Badrinath shrine, and Eco-development committees



Figure 5: Natural resources from forests of Sanctuary form the foundation of local rural economy: d shows pastoralists bringing *Saussurea obvallata* or Brahma Kamal to be distributed among devotees and (f) shows a woman crossing a landslide while carrying grass on her back.

(EDCs), comprised of villagers, were established with active support from the forest department in the Bhyundar valley regarding cleaning, upkeep, and garbage management along the treks to the Valley of Flower and Hemkund Sahib. Similarly, the Kedarnath temple committee, and other religious groups active in the region, could be involved in the conservation efforts by enhancing their role as medium to promote sustainable tourism practices which could involve respecting the natural values, proper waste disposal, and discouraging unessential resource consumption. Local institutions could also be involved in the restoration of the degraded lands through scientifically informed plantation drives.

There is a need to find alternatives to handle the natural resources that support the local communities and the increased tourist inflow. One such approach is to formulate long-term energy strategies by promoting the implementation of renewable-energy technologies. This may include encouraging the use of solar photovoltaic lights, solar cookers, water heaters, and improved cook stoves as well as the continuous need-based upgradation of these products. It is also imperative to increase phyto-biomass production within the human landscape, by planting fast-growing native grasses and multipurpose tree species, which might reduce extraction pressure within forests.

In the pursuit of overall sustainable development and the conservation of nature-cultural linkages in the sacred and biologically rich KWS landscape, appropriate policies and action programs are needed to enhance the ecological sustainability within the region. Suitable spatial planning policies should be made to support the infrastructural development, particularly to support heavy pilgrimage to the Shiva temples in natural calamity prone areas. In the current scenario of continuous environmental degradation, the inclusion of local institutions in environmental governance has the tendency to influence the management and conservation of natural systems. The wide gap in managing the natural and religio-cultural values of the KWS sacred landscape should be minimized by abolishing or minimizing the exclusionist policies while encouraging buy-in of key stakeholders by involving them in the governance and conservation of the landscape and its resources. Further studies are

needed to develop methodologies for incorporating the sacred values of the human-built and natural elements of a landscape, as well as the cultural beliefs of local communities, into conservation approaches which can be tested through establishing demonstration models at a few locations in the landscape.

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