



Conserving nature, honoring tradition: Insights from Johar Valley, Uttarakhand

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ARTICLE INFO	ABSTRACT
Received : 27 December 2024 Revised : 04 April 2025 Accepted : 25 April 2025 Available online: 08 May 2025 Key Words: Himalayas Sacred landscapes Sacred forests Spiritual Taboos Traditional knowledge Van Panchayats	In the Johar Valley, Uttarakhand, India, this study explores the complex interrelationships between biodiversity protection and cultural legacy. Recognized for its abundant biodiversity and native cultural customs, the valley offers a singular case study to comprehend the role traditional knowledge systems play in sustainable environmental management. Insights into the deeply ingrained ecological knowledge woven into the cultural fabric of Johar Valley are obtained by participant observation, interviews, and community involvement. To evaluate the present condition of biodiversity and ecological resources, ecological surveys and mapping methods are also used. The results of this research provide useful information for plans for biodiversity management and sustainable development, in addition to adding to the body of knowledge on the relationships between culture and conservation. The study emphasizes a comprehensive strategy that honors both the environment and cultural heritage by highlighting the significance of identifying and incorporating old knowledge systems into modern conservation efforts. The ultimate goal of this endeavor is to provide information for behaviors and policies that support the peaceful coexistence of people and the environment in the Johar Valley and elsewhere.

Introduction

Every cultural group has a shared religion, set of moral principles, set of beliefs, and relationship to the land they live on. Interestingly, these indigenous communities live in locations that are largely home to biodiversity-rich zones, which contain over 80% of all Earth's biodiversity (Sobrevila, 2008). Over 20% of the world's population resides in biodiversity hotspots, which cover more than 12% of the planet's area (Cincotta, 2000). Recent years have seen a growing acceptance in the international conservation discourse of the need to combine traditional knowledge with scientific methods to address current environmental issues (Reid *et al.*, 2006, and Maffi, 2005), especially pertinent in areas with a diverse population, such as the Johar Valley. In Uttarakhand's Johar Valley, numerous interdisciplinary researches have investigated the association between traditional culture and the preservation of biodiversity.

The Himalayan hills provide a stunning backdrop for the valley, whose varied ecosystems and native populations have coexisted for generations to create a dynamic interaction based on mutual reliance and care of the environment. The aforementioned change is indicative of a wider acknowledgment of the complex interrelationships among culture, ecology, and conservation (ICIMOD, 2021). By examining how traditional cultural practices contribute to biodiversity conservation and sustainable resource management in the area, the research initiative "Conserving Nature, Honoring Tradition: Insights from Johar Valley, Uttarakhand" aims to add to this expanding body of literature. To understand the intricacies of traditional ecological knowledge systems and their current relevance in conservation contexts, this study draws on ideas from ethnographic studies (Bernard, 2018, and Creswell, 2016) as well as ecological assessments. This research aims to chronicle and ex-

amine a range of traditional behaviors that are common in the Johar Valley using a multidisciplinary lens that includes ecology, conservation science, and cultural anthropology. These methods, which have historically preserved biodiversity while bolstering cultural identity and resilience, may include agroforestry techniques, managing sacred trees, community-based conservation projects, and customary governance structures.

Material and methods

Study area

In the Pithoragarh District of Uttarakhand, India's Johar Valley served as the study's location. This valley of high mountains is distinguished by sharp elevation changes: the glacier-fed Gori Ganga River falls below 1,000 meters close to Munsyari township (Figure 1), and a group of five peaks rising to 6,300 meters (Panchachuli) divides the watersheds of the Darmaganga and the Gori (Stevens and Satterfield,

2024; Rawat, 2016). With a distinctive style of life and a wealth of cultural traditions, the Bhotiya community in Munsyari is a dynamic tribal community. They maintain traditional customs while adjusting to the new social and economic conditions, despite the difficulties presented by modernity (Meenakshi and Dhasmana, 2014; Singh *et al.*, 2020).

Data Collection

The ethnographic fieldwork that was done in 15 villages within Johar Valley communities served as the basis for this study. Through a series of open-ended interviews, we were able to engage 150 participants based on a random household survey: ten participants from each village and one participant from each household, including males and females above 18, on various elements of managing forests and natural resources and preserving them (Kar *et al.*, 2025). Purposive sampling acquired an assortment of perspectives from individuals with an understanding of forests (Small 2009 and Kumar 2022), including



Figure 1: Showing view of Munsyari town, Johar Valley

elderly people, women who rely on forests to sustain their livelihood, and the Sarpanch of Forest Councils (Van Panchayats).

There were 92 women and 58 men, ages 22 to 84, who were participants. They represented a variety of castes, socioeconomic classes, and sources of income. While we took thorough notes during the remaining interviews, the majority were audio recorded. Because the interview procedure was loosely planned, new areas of interest were revealed with each encounter. We added forest excursions and trips to holy sites to the open-ended interview data to get to know a few distinct settlements. The way people saw natural resources was influenced by their worldviews. The following sets of questions were included in an interview script:

1.Oral History

Document intergenerational perspectives on social norms, shifts in the environment, and indigenous

forest governance, such as Van Panchayats, by capturing the lived experiences and narratives within regional communities.

2. Utilization of natural resources

Investigate how subsistence, employment, and traditions are influenced by and dependent on natural resources such as rivers, woods, and plants for medicinal purposes.

3.Community and sacred sites

Investigate whether woods, rivers, and lands—all deemed sacred natural sites—support religious beliefs, unique cultural identities, and informal conservation efforts.

4.Broad concerns: interactions and World views

Determine the numerous ways by which local norms, actions, and ideologies communicate with external factors (such as government regulations, the tourism industry, and nonprofit organizations) that influence the community's resilience and versatility.

5. Natural resource utilization: Diversity

Emphasize the range of resources that communities employ, such as fuelwood, herbs, wild edibles, and fodder, as well as the ecological knowledge that underpins their sustainable management.

6. Limitations and boundaries on resource use

Discuss the structural and standard constraints (including communal agreements and seasonal regulations) that regulate accessibility and assure sustainable and equitable utilization of resources.

7. Natural sacred sites: Practical value

Highlight the ecological and spiritual roles that sacred sites play, such as preserving biodiversity, safeguarding water supplies, and ensuring cultural continuity.

Data analysis

Data collected throughout extensive, comprehensive interviews has been transformed and represented as storylines or fragmented qualitative documents with the objective to accurately convey the perspectives and actual experiences of local respondents. The underlying concepts of ecological safeguarding and the management of natural resources in the study area consisted of effective demonstrations by these testimonies, particularly in reference to forests and sacred water sources. Primarily depending on rigorous word counts or frequency analysis, the study provided local phrases, contextual significance, and cultural value embedded in language prominence. A special emphasis was placed on the nuances of language, such as analogies, symbolic allusions, and

culturally grounded ideas, acknowledging that the meaning of words was closely linked to how they were used in particular ecological and spiritual contexts. As a result, the analysis redirected focus from positive or negative word associations to emerging patterns and a deeper comprehension of the interactions between the environment and the community.

Results and Discussion

Indigenous beliefs related to taboos

According to the notion of sacred landscapes, the rule or restriction is known as a taboo. It is expected of the current members of these societies to strictly adhere to the ancestral ethical rules (Negi, 2010). Although there have been endeavors by the native people to depart from the traditions that this religious system established, Table 1 illustrates the codes of ethics that were nevertheless followed based on interviews conducted within the community. It was thought that certain villages were unlucky since they displayed overt symptoms of incurring retribution. Still others appeared to disapprove of the multi-deity system and would be openly labeled as followers of this conventional belief system. Based on the findings, it appeared that maintaining the institutions had positive effects that may have masked belief system discrepancies. Consequently, people sought to keep their social ties to their society intact even if they did not follow the rites or engage in worship for these beliefs because of respect for the animistic worldview.

Table 1: Codes of ethics: Taboo system impacting automatic conservation in the Valley without any advanced or strategic planning

S.No	Taboo	Rationale	Punishment
1	In Van Panchayats, which are devoted to deity, cutting raw wood	Kotgari and Bharari Devi, the deity, are honored by these raw trees (Green Forest).	It will result in mishaps of some kind.
2.	Before Nanda Ashtami, Brahmkamal (Saussurea obvallata) flowers are plough.	On the occasion of Nanda Asthami, these flowers are dedicated to Nanda Devi. These fully matured flowers cannot be plucked by anyone before Nanda Asthami.	Deity will curse
3.	Cutting down the bil plant in Malla Johar (Juniperus indica and Juniperus communis).	Following the Nanda Asthami festival, these juniper plants are also plucked in.	deity will punish those who violate permission by sending them bad luck.
4.	Women are not allowed to enter Thamri kund, and people are not allowed to contact the water with their hands.	Sacred deities and Fairies are the focuses of the Thamri Kund.	It will cause disasters in the neighboring villages.
5.	entering women who are menstruating is forbidden In the vicinity of Mt. Nanda Devi East Base camp and its environs	The entire mountain known as Nanda Devi is devoted to the goddess Nanda Devi of Garhwal and Kumaun.	There is going to be a massive natural disaster.
6.	Cutting Trees, Polluting Masser Kund/Maharishi Kund	The Masser Kund is local deity (Masser devta) of the Barniya Village, once in a year Masser festival and worship is performed.	Cursed to be without descendants

The section taboo, which forbids lower caste members and pregnant and menstruating women from entering these hallowed forests and locations, is the most obvious taboo (Negi, 2010). The restriction established, even though it is only in place for a few days, is important in restricting the amount collected because women perform the majority of the duties associated with gathering forest resources alone. Regarding the restrictions placed on the lower castes, these community members primarily gain from having access to natural resources, which makes them more likely to inflict harm because the resources do not belong to them. This makes the restrictions seem more troublesome. But there are indications from these restrictions that this taboo may be loosening now. Regions where the sacred forest is the sole source of water and livelihood are subject to a more stringent taboo system.

Environmental conservation and natural resource management (NRM) factors

The study gathered data on the variables affecting the NRM and environmental conservation of indigenous people. These factors are explained and discussed in the next three subsections.

Traditional beliefs

Our research showed that indigenous people's beliefs, such as the notion that deity worship was primarily motivated by the ethical considerations of resource management and environmental conservation, were associated with communal non-resource management. Because they thought the local deity possessed the natural resources, people in the culture were influenced by this mechanism. The sole means of obtaining natural resources was to extract them from areas outside of customary and cultural boundaries or from locations unrelated to religious sites or hallowed spirits (Butzier *et al.*, 2014). Any action that was forbidden was considered taboo according to this spiritual code. Taboos are a component of the local resource management system that is based on the deity, which is the belief that governs conduct and the principles for managing the natural resource system of the indigenous people (Negi, 2010). Since the holy being was thought to be a force greater than humanity, many acts were forbidden either to keep people under control or out of dread of punishment. This belief system is widespread throughout the Kumaon region and some parts of the Garhwal region. Indigenous belief systems upheld that if community members conformed to all ancient customs and taboos with the greatest diligence and authenticity, the ancestral spirits would guarantee rain, plenty, and good fortune.

Two categories apply to the restrictions associated with using the Sacred Landscapes. The first category relates to the preservation and management of natural resources. Examples of this include prohibiting hunting, land invasion, and damage to natural resources in the Munsiyari region. The second group

focuses on community morals, like the proscription against criticizing gods and other sacred entities, and on demolishing, polluting, or harming the protector's territory, an offense that was seen to be a punishment from the gods and may be justified by the strength of holiness or powers outside of humankind. As soon as the people realized they had acted improperly, they were required to offer prayers to the deity, plant ten additional trees, and donate their whole family to any sacred place management efforts in Shram Daan (volunteering for sacred sites). The connection between social norms, taboos, and ecological behavior suggests that indigenous beliefs influence the community to value the right to use the resources found on sacred lands, as well as to support the preservation of those resources and enough revenue generated from these locations.

Property rights to the sacred lands

Indigenous culture, ideology, and way of life are tightly tied to the community's social structure, and this is where the rights of these people arise. According to the economic, political, social, and environmental circumstances of the community, the indigenous people of Johar Valley also established their rights to access and utilize the natural resources situated there. For most of the village's history, the tribal people's dominion over the natural resources was reinforced by their belief in and other tales surrounding the sacred being of the ancestors. Such property rights are deeply ingrained in the history of the indigenous inhabitants of the Johar Valley. Due to the deity's authority over their land management and protection, indigenous people have banded together and gained the ability to possess, access, and utilize the natural riches found in their landscapes.

Benefits from the forests, sacred lakes, and meadows

The community uses the Himalayan landscapes, which are made up of agricultural land, glaciers, meadows, forests, and water bodies, for social gatherings and to produce livelihood for the entire community. In addition to offering food and herbs, these sacred lands are a wellspring of biodiversity. This kind of resource has some value for the native population and other communities, not just in the Johar Valley area but also in the Bhabar and Terai regions. An illustration of the advantages brought about by forests, meadows, and water bodies is shown in Figure 2. Most respondents said that they benefited from these settings in terms of water use (89%), livestock rearing (91%), and agriculture (94%). Further, large areas used the land for living and collecting non-timber forest products (83%), taking in the clean air and beauty of nature (67%), using other forest resources (52%), collecting medicinal plants (39%), pastoralism (35%), and ecotourism (23%). These results demonstrate the landscape's varied and multi-purpose role in sustaining cultural and subsistence livelihoods.

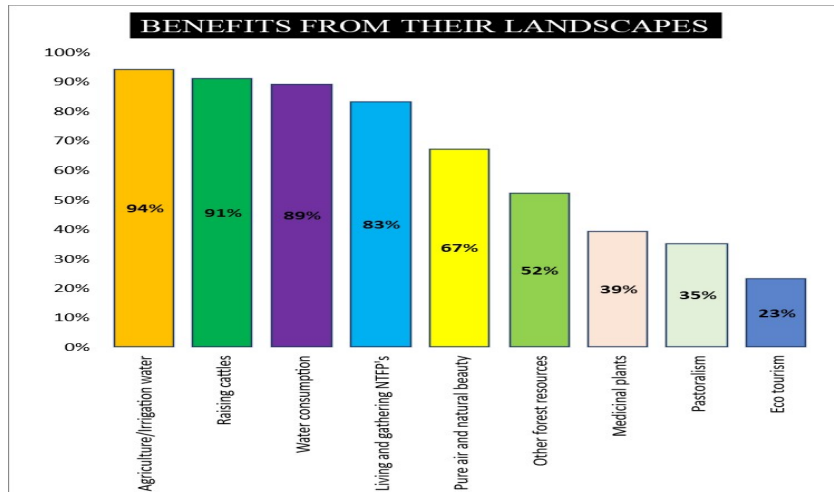


Figure 2 : Benefits from the Sacred Himalayan Landscapes Supporting communities Livelihood

A region where meadows and woodlands yield non-timber forest products, like spices, herbs, and medicinal plants, that contribute to the community's economic growth and the beauty of the Johar Valley. These water bodies supply the pure water needed for irrigation and drinking. The two sacred water bodies, Thamri Kund and Masser Kund (Figure 3), are considered to be spiritually conservative and sacred since they provide water to nearby village communities such as Sarmoli, Shankudhura, Jainti, and Boonga. An annual celebration and festival are held for these hallowed pools, thanks to the cooperation of the nearby community and the non-profit organization Himal Prakriti. A fair is also held to raise awareness of sustainable conservation and the local way of life through the organization of a food festival, plantations, cultural events, and a 10-kilometer marathon to promote conservation awareness.

Religious-based conservation model

As one moves farther away from the terai (plains), the pahad (mountains) grow more imposing. The roads are tiny and dangerous. The Greater Himalaya's glaciated summits rise improbably and dizzyingly high. Locals call the area Dev Bhoomi, or "Land of the Gods," and they are proud to uphold Pahadi customs and culture (Bergmann *et al.*, 2008). On the hillsides, little mandirs (temples) decorated with vibrant fabrics and devoted to regional deities (Figure 4A) are commonplace and have a significant impact on day-to-day activities. The amount of vegetation in this valley is declining due to either environmental or human disturbances, and by the conclusion of the 20th century, tree species had completely disappeared from most of its portions (Shah *et al.*, 2009; Singh and Mishra, 2005). In spite of adversely impacting



Figure 3 : A,B- sacred water bodies, (A) Thamri Kund and (B) Masser Kund, Munsyari

the Badrinath shrine's psychological appeal and aesthetic value, the demise of tree species has culminated in catastrophic events like flooding, extreme soil erosion, and ecological degradation.

As all social groups have historically been the guardians of these resources and currently reside in isolated, wilderness locations, conservation ultimately rests with them. It is particularly with the indigenous tribes. Natural resource and environmental conservation may benefit from acknowledging and respecting their knowledge and belief systems.

Van panchayat co-management model

To maintain the distinctive qualities and biodiversity of the Kailash Sacred Landscape region in the Indian Himalayan Region (IHR), the Van Panchayat (community forest) co-management system is essential. The effective protection of these regions, which benefits local ecosystems as well as global biodiversity, is achieved through community involvement and cooperative management. With its foundations in the Indian administrative system, the Van Panchayat model gives mountain villages the ability to manage their forests responsibly and with the help of their people, thereby improving the health of the environment and the welfare of their people.

In the Johar Valley, community forests are crucial for sustaining livelihoods and building resilience against changes in the environment, society, and governance. 15% of the Johar Valley's wooded area is made up of 1,621 Van Panchayats (Azad, 2021). A system of community governance known as Van Panchayats promotes ecological and human well-being as well as sustainable livelihoods in mountain villages. To preserve the ecosystem, biodiversity, and environment while also assisting Johar Valley people in adapting to change, a Van Panchayat committee is being established to enforce rules within the Van Panchayat Forest. However, it is very difficult to follow rules and regulations by the community, and they disobey the rules and regulations enforced by the Van Panchayat committee. To get rid of these, the indigenous community worships their Van Panchayat forest once a year and creates a spiritual connection with their forests and deity by draping colorful cloths and hanging bells (Figure 4A). This makes the forest appear to be dedicated to some deity, which makes the villagers afraid to cut down raw wood or trees or disobey the rules.

Dedicated Van Panchayat to Deity

The following, with some slight variations, are some of the distinguishing qualities of the landscape's holy forests: With 1,621 Van Panchayats in the Johar Valley, the majority are Panchayat or civil soyam woods (Azad, 2021). These Van Panchayats are either dominated by bil (*Juniperus communis*, *Juniperus indica*), which are considered sacred species, or by banj (*Quercus leucotrichophora* or *Quercus semecarpifolia*), raga (*Cupressus torulosa*), deodar (*Cedrus deodara*), bhoj patra (*Betula utilis*), or

ratpa (*Rhododendron campanulatum*). According to Van Panchayat laws and regulations, which are governed by the Panch and Sarpanch, lopping and felling trees is strictly forbidden; however, the use of restricted resources, such as gathering deadwood, twigs, and fodder grass, may be permitted. Additionally, one section of the Van Panchayat is left open for one month specifically for composting and collecting deadwood, twigs, and leaf litter, which are used for cattle bedding (Patel). Rarely, at particular festivals honoring the forest deity and marriage in the villager's household, the only uses of resources are those intended by the forest deity. Dedication of Van Panchayat's forest land to a particular deity is a very new phenomenon that usually stems from the desire to maintain or strengthen the existing taboo system that controls the use of resources rather than allow it to deteriorate too quickly.

The most revered deity in almost every village is still the much-feared goddess Kotgyari, Bharadi, or Nanda Devi (Figure 4B). The duration of the dedications ranges from a minimum of 10 to 20 years. Once a large area of a Van Panchayat is dedicated to a deity, no one is allowed to enter until the tenure of dedication, so the forest begins to become more rejuvenated and healthier without the need for additional efforts, conservation policies, or regulations (Pande *et al.*, 2022). During the years that one patch is dedicated, another patch is still accessible to the community, but only for the collection of dry deadwood and dry shed leaves; it only opens once a year for a month to gather grass and dry leaves for the winter season. Local communities use it as a good example of an indigenous conservation practice to prevent overuse of community woods and help them recover to the point where sustainable methods of fodder extraction can be used. Because of the innate fear of the ruling deity's wrath, strict adherence to the rules surrounding the designated forests is maintained. Usually, the community commits just a small portion of the forest instead of the entire one. Generally "defined to the deity" at the time of the dedication, the affidavit is a legal document that lists the specific standards that control the extent of use and usage that are permitted in the holy area. The community chooses to open up the forest during times of extreme need, permitting the restricted collection of garbage and even fodder. The people didn't dare go into these forests for fear of upsetting the local deity, and they didn't break the rules when it came to taking deadwood, fodder grasses, or any other produce out of the forest other than on special occasions like annual festivals.

In a similar vein, those who moved from Talla Johar to Malla Johar only gathered bil (*Juniperus communis*, *Juniperus indica*) during October and November when they returned to Talla Johar, allowing the plant to fully mature. The bil plant is used to create a nice fragrance after being sun dried and burned;



Figure 4 : (A) Vibrant draped cloth fabrics and devoted to regional deities (B) warning Sign board mentioning the dedication of van panchayats to local deity (Kotgyari devi), and punishing for degrading forest area

it also brings good fortune, so people collected these to keep for their homes and to make incense sticks using the combination of bil and Jatamasi (*Nardostachys grandiflora*).

Controlling the commencement or duration of harvests

There are many restrictions in small-scale societies that control when and who is allowed to harvest resources. In the villages of Martoli, Milam, Laspa, and Burfu in the Malla Johar region, there is a custom known as nanda astami. It is observed in honor of the local goddess Nanda Devi (Upadhyay, 2016), who is the highest peak in the western Himalaya, and is linked to the gathering of the sacred flower, Brahmkamal (*Saussurea obvallata*), as well as the locally named Syapla and Byantimala, which are wild fruits that are harvested in late August and are traditionally offered to Nanda Devi first. The festival's celebration highlights the important part of the conservation principles ingrained in the community's traditional values. On the designated day, only two individuals known as Fulari, who bring Brahmakamal among the hundreds of Joharis who congregate in the Johar Valley village of Martoli, are assigned to gather the Brahmakamal from Salang Gwar, with some also traveling to the revered alpine pasture of the Namik glaciers, where the species is abundant. When these two people arrive at the meadow, they offer the appropriate prayers to the local deity after taking a ceremonial bath, go barefoot in white and

yellow clothing, and carry the fruits and vegetables that are in season to appease the goddess. This is when the collection process starts. The offering is limited to mature and completely expanded Brahmakamal (Figure 5), and after offering Brahmakamal to Nanda Devi, the dedicated flowers are distributed as a prashaad (holy flowers) among the community, which the community keeps in their houses for good luck. In traditional societies, Nanda Astami embodies the essence of conservation. Since it is observed only after the species has flowered and released its seeds, gathering it causes the least amount of harm to regeneration. Limiting the number of harvesters is a useful strategy for limiting the amount of land that can be harvested in this manner.

Wildlife conservation in terms of religious beliefs

Hinduism associates many animal species with gods. With snakes coiling around his neck and tiger skin covering him, Lord Shiva is a being of boundless characteristics (Kala, 2017). People revere him because of his affiliation with bulls. It's believed that an eagle may transport Lord Vishnu, a bull to Shiva, and a lion to Durga (Kala, 2017). There are certain days, like Nagpanchami, when snakes, particularly cobras, are venerated. The elephant is linked to Lord Ganesha, the monkey to Lord Hanuman, the swan to Brahma, the peacock to Saraswati, and the cow to the Hindu deity (Kala,



Figure 5 : Selected People (Fulari) bringing the fully matured Brahmakamal flowers (*Saussurea obvallata*) for the Nanda Asthami festival and for distribution to devotees.

2017). A person's unique behavior makes them sacred; as a result, they are revered and are not hunted (Aiyadurai, 2018). This is a novel tactic that could be very helpful in preserving animals. The social and religious values of traditional societies, which were once strong enough to force people to obey environmental regulations, help them maintain a deep connection to nature and a wealth of ecological knowledge and biodiversity (Kohn, 2013, and Bernard, 2018). By limiting human access to specific locations or species through a range of customs, behaviors, and beliefs, clans, totems, and taboos, for instance, significantly contributed to the conservation of biodiversity. According to Saj *et al.* (2006), taboos also frequently safeguard sacred groves, which safeguards flora. In addition, forest loss is less significant in areas that are revered, and hunting taboos promote natural wildlife populations. Because the Himalayan musk deer (*Moschus chrysogaster*) and wild ox (yak) are revered as symbols (animals of the sacred Himalayas), people who live in the Johar Valley, particularly the tribal community of Patho village, take great care not to kill them. Yak hair from the tail is used in religious rites in the Garhwal and Kumaon Himalayas. In these ceremonies, the hair of the yak's tail is revered because it is thought to keep off evil energy. The yak's origins can be traced back to the sacred regions of the high Himalayas, which are thought to be the dwelling places of the gods.

The way that each person felt about animals varied greatly, depending on factors such as customs and religious beliefs, management practices, needs for subsistence, and daily interactions. The decisions and coping mechanisms that mountain people use to cohabit with their wild neighbor are shaped by these experiences, which are also essential to comprehending their function as conservation actors. Work in

this field increasingly examines people's emotional, spiritual, and cultural attitudes toward animals as well as these beneficial encounters (Oommen, 2021; Pooley *et al.*, 2021). In the hill regions of Uttarakhand, there has also been research on how cultural and spiritual norms support animal coexistence (Anthwal *et al.*, 2010). Since they are believed to be incarnations of Hanuman, the messenger of the Hindu god Ram, several monkey species, such as the rhesus macaque and the Hanuman langur, enjoy protection and devotion from a spiritual perspective.

Residents in the Munsyari area regularly encounter wildlife species, which seriously harm crops. 78% of respondents cited spiritual or religious factors as a justification for protecting wildlife, indicating that spiritual beliefs are a significant factor in forming conservation attitudes among these groups (Figure 6). The view that killing animals is socially and culturally wrong (48%), a sense of connection to forests (52%), and concern for wildlife (66%) are other significant perceptions. Tolerance (46%), spiritual prohibitions (37%), concern for the welfare of animals (35%), the immorality of harming wildlife (31%), the necessity of preservation (28%), moral principles (21%), and aesthetic appreciation (11%) are additional motivators.

The valley's dynamic control over scarce supplies in precarious environmental issues is illustrated by its strategies, which include seasonal migration, rotational grazing, and the use of organic fertilizers. Practices that limit the abuse of resources and minimize habitat deterioration include constrained wood and grass harvesting processes, which are subject to seasonal limitations and community regulation. In line with sustainable agricultural practices, the use of organic compost and natural pest management in agriculture improves soil fertility and reduces reliance on chemical inputs. In spite of protecting the

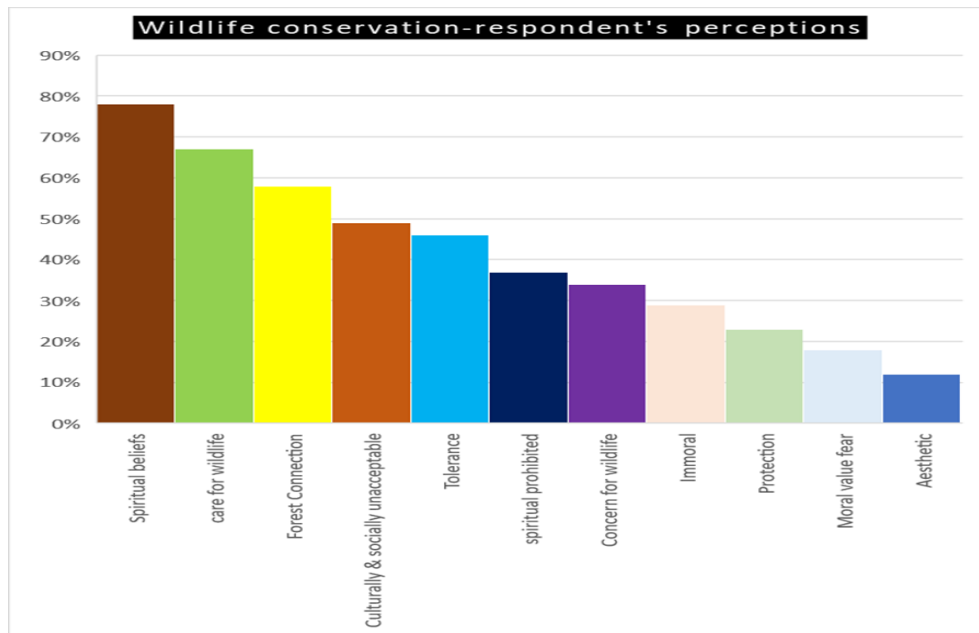


Figure 6 : Respondent's perception on wildlife conservation

region's biodiversity, these strategies have improved its adaptability to environmental disturbances.

Considering such benefits, the Johar Valley tends to wrestle with rising challenges. The equilibrium that is natural to the geographical region is in jeopardy, driven by climate change, which is causing erratic weather patterns and the disappearance of glaciers. Medieval farming techniques have also been upset by the introduction of unwanted species and conflicts between humans and wildlife, such as monkeys damaging crops. The enduring nature of prehistoric practices has been further stressed by socioeconomic changes, such as migration for better economic opportunities. In tandem, these elements undermine cultural heritage and biodiversity, calling for swift intervention.

Hence, utilizing indigenous knowledge and belief systems is essential to the success of participatory ecosystem management and best practices for the preservation of biodiversity (Jeffery, 2005; Shepherd, 2004). Temporal taboos, as established by Colding and Folke (2001), control access to natural resources on a weekly, monthly, or even seasonal basis. Taboos are frequently applied to certain sets of resources that are especially susceptible to over-exploitation. Social taboos are an excellent illustration of an informal institution (North, 1994) that is founded on cultural norms and is not subject to governmental regulation in terms of its enforcement or propagation (Posner and Rasmusen, 1999; Singh, 2006). It is imperative to acknowledge the spiritual dimension of nature protection, which is often overlooked in the pursuit of achieving human well-being and a high standard of living.

Conclusion

This study illustrates the intricate connection that exists between the conservation of biodiversity in the Johar Valley of Uttarakhand and traditional cultural pursuits. The findings of 150 participant interviews and ethnographic fieldwork conducted in 15 villages highlight how indigenous understanding systems rooted in taboos, spiritual beliefs, and traditional government are still essential for ecological durability and environmental resource management. The outcomes show that beliefs related to wildlife, religious taboos, and sacred landscapes endorse conservation principles that limit overuse and encourage restoration. Sustainable local governance models are formed by community-based organizations like Van Panchayats, seasonal customs, and the devotion of forests to deities. Spiritual motivations accounted for 78% of the reasons for protecting animals, combined with strong cultural values related to moral responsibility, forest identity, and environmental preservation.

In a time of social transition and climate uncertainty, these ancient systems provide frameworks that are both sustainable and culturally rooted, which enhance contemporary conservation tactics. For participatory ecosystem management and the long-term preservation of the Himalayan landscapes' rich biodiversity, it is imperative to acknowledge and incorporate these indigenous methods.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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