



Community-focused snow leopard tourism can have social and conservation benefits

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Abstract

Tourism is a major global industry, increasingly focused on nature-based destinations. While ecotourism can harm ecosystems and Indigenous communities, it can also offer conservation and livelihood benefits. This study investigates the impacts of snow leopard (*Panthera uncia*) tourism on Indigenous people in the Trans-Himalaya, Northern India. Using participant observation and semi-structured interviews in Kibber Village, Spiti Valley, we examined changing community attitudes and broader socio-ecological effects. Results show both positive and negative outcomes. Perceptions of snow leopards shifted from hostility to respect and even 'love'. Tourism brought income and cultural recognition but also challenges, including waste from day visitors and homestays, and occasional cultural insensitivity among tourists. We recommend structured visitor briefings and stronger waste management measures. Overall, snow leopard tourism, when led by Indigenous communities, can promote coexistence, cultural preservation, and sustainable conservation.

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Introduction

Tourism is one of the largest industries in the world, with the global tourism market size being estimated to be over US\$ 11 trillion in 2023 (accounting for 11% of the global Gross Domestic Product) (Zion Market Research, 2024). In India, the world's most populous country, in 2022 alone, the contribution of the travel and tourism sector to the country's economy was recorded to be US\$ 199.6 billion, with a projected increase of 7.1% in the industry per annum (Press Information Bureau [PIB], 2024). In 2024, India was ranked 39th globally in the Travel and Tourism Development Index (TTDI). Specifically, there has been a growing trend of a type of tourism that involves visiting areas with natural environments and sites for nature conservation, known as ecotourism. Ecotourism is defined as responsible travel to natural areas that conserves the environment, sustains the well-being of local people, and involves interpretation and education, incorporating key principles such as sustainability, conservation, ethical responsibility, and equitable benefit-sharing (Donohoe & Needham, 2006).

The origins of this sector of tourism are said to date back to 1872, with the establishment of the Yellowstone National Park in the US (albeit founded on forceful eviction of Indigenous people), subsequently followed by a handful of natural areas elsewhere being set aside for conservation and human recreation (Anandaraj, 2015). The concept was popularised later on, during the 1970s and 80s with the environmental movement gaining popularity (Ramirez & Santana, 2019). In more recent times, popular tourist destinations include safari tours of national parks in central and Southern African countries including Botswana, where the tourism industry pre-COVID 19 pandemic contributed to 14% of

the country's GDP (Ernest, 2024). Wildlife is also proven to have benefited from tourism, with areas used for High Paying Low Volume tourism having significantly higher mean wildlife biomass and wildlife diversity than areas that were avoided (Winterbach, Whitesell & Somers, 2015). Hence, the economic incentive provided by the tourism market could potentially support biodiversity conservation whilst also benefiting the local people living in biodiversity-rich areas through providing jobs and other income opportunities.

Many Indigenous and local communities share space with wildlife. There can be a range of interactions, but sharing space especially with large carnivores can be challenging. These challenges can include economic losses due to livestock depredation or in some instances loss of lives, and fear for their safety. This can also have negative consequences for the carnivore as there could be decreased tolerance, and in some instances retaliatory killing (Bano et al., 2021), something which is particularly relevant regarding the subject matter in this paper. Especially in these cases, tourism can play a positive role as large charismatic carnivores attract tourists, helping change local perceptions as the increase in tourism could support local livelihoods (Lindsey et al., 2007).

This paper aims to understand the impacts of tourism on local communities sharing space with a large carnivore. This study was conducted in Spiti Valley, Himachal Pradesh, northern India, where Indigenous communities share space with the snow leopard *Panthera uncia*. Records of negative interactions such as livestock depredation by snow leopards and in some cases retaliatory killing have been previously reported in the region (e.g. Mishra 1997). However, over the recent past (~10 years), this has become a

hotspot for snow leopard tourism. Along with the popularity of seeing wild snow leopards, the opening of the area in 1994 to tourists (entry used to be restricted for foreign tourists due to the close proximity of the area to the Indo-Chinese border), has led to a surge in tourism.

While the region is mainly visited by tourists in summer, the developing wildlife tourism centered around sighting snow leopards mainly occurs in winter, when the chances of seeing snow leopards are higher. With this background, the main research objectives were to understand:

1. The economic importance of winter (snow leopard) tourism to the local people
2. The societal implications
3. The impacts of tourism on the environment and its wildlife
4. The impacts of tourism on the local people's perception of wildlife

We focused our study on a village known as Kibber, which is generally regarded to be the place where snow leopard tourism originated in Spiti Valley, though it has now also expanded to cover other villages such as Chicham and Langza.

Study Area

Kibber is a village in Spiti Valley (32.331667°N 78.008889°E), in Himachal Pradesh in Northern India. It is situated at c.4270 m elevation, surrounded by mountains on the banks of the Spiti river, as depicted in Fig 2. Temperatures in winter range between -30° Celsius to 3° Celsius, and between 1° Celsius and 28° Celsius in summer. It lies within a mountainous cold desert. The village is built on a primarily agrarian economy and was initially established as a trading post between the Spiti area and Tibet. The crops that are grown include primarily green peas and barley, and the livestock reared include sheep, goat,

donkeys, horses, cows and yak (Singh, 2020). The Indigenous people have lived in close proximity with mountain dwelling wildlife, including snow leopards- shown in Figure 1, wolves (*Canis lupus*), and their prey species such as blue sheep (*Pseudois nayaur*) and ibex (*Capra ibex*). Approximately 80 households and 400 people live here. The Indigenous Spitian people practice Tibetan Buddhism. It is also important to note that the local community are greatly involved in the snow leopard tourism industry of Kibber, as well as the conservation process, being responsible for providing accommodation and guides for tourists as well as having a say in tourism related activity planning and execution whilst being involved in wildlife monitoring (Jeware, 2025).

Methods

Semi structured interviews were used to collect primary data. Across 8 households (10% of total households in the village), several individuals (8 men, 4 women) involved in different tourism related sectors such as homestay owners, guides, tour assistants, drivers and handicrafts saleswomen were interviewed. The interviews included a set of fixed questions (see Table 1), with additional questions that were specific to different professions. These same questions were also discussed with a group of 8 key informants, all men, directly involved in the tourism industry in Kibber. Additionally, information regarding the size of tourist groups and their nationalities was acquired from a sample of 35 records from registers of 2 homestays for the years 2023 and 2024. The homestay owners are required to maintain these registers for foreign (and not Indian) tourists. Permission to interview local residents was first taken from the village head, and the respondents were always given the option



Fig 1. Photo of a snow leopard close to Kibber.
Photo: Aparajita Datta

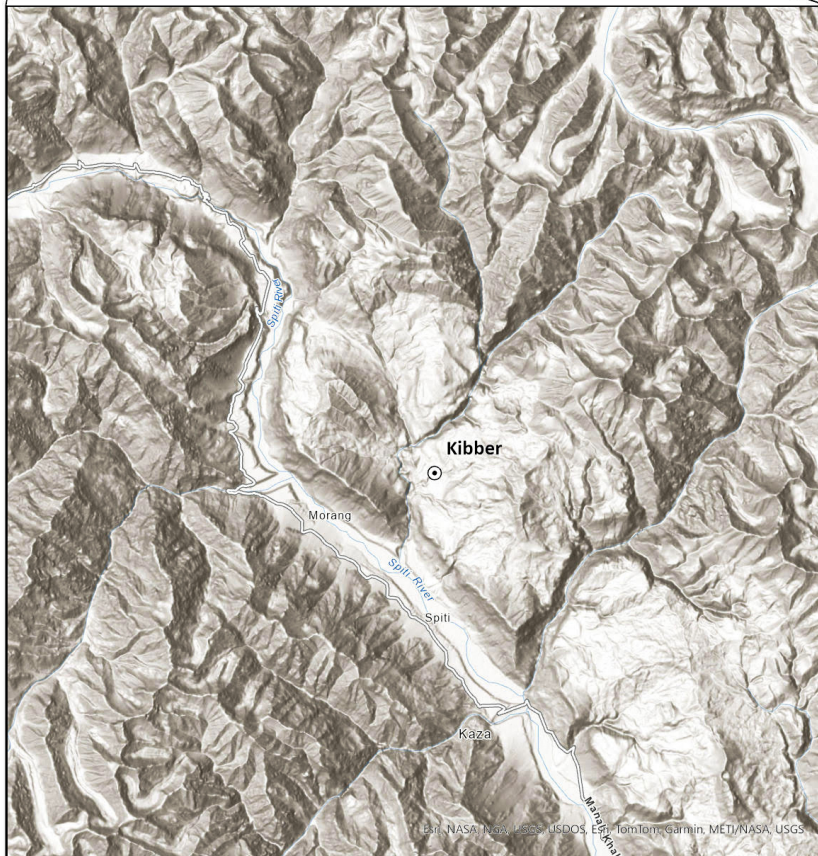
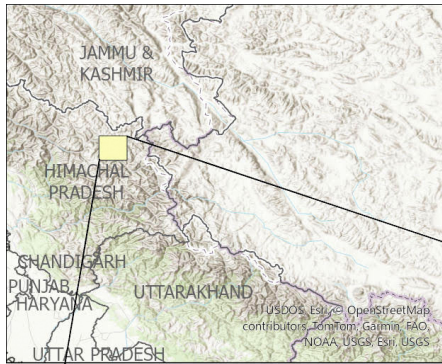


Fig 2. Map depicting Kibber's location
and topography of the area

Table 1. *Questionnaire used to understand the nature and impact of snow leopard-focused Tourism in Kibber village of Spiti Valley, Himachal Pradesh, Indian Trans-Himalaya.*

How do you feel about tourism?
Has tourism impacted your life, if so how?
Are tourists respectful towards you/local people in general?
Are they respectful of and/or interested in your culture and traditions?
Do the majority of tourists maintain cleanliness- do they litter?
Do they complain about facilities (food, toilets etc)?
Has tourism affected your relationship with other villagers?
What can be done to improve tourist behaviour?
Has tourism impacted the environment, if so how?
How has tourism affected Snow Leopards?
How do you feel about Snow Leopards in the local area?

to refuse the interview or not answer a question if they chose to. This study was conducted over the last 2 weeks of December, 2024, during the winter season.

For data analysis, yes/no questions were tallied and converted into percentages. Open-ended responses were categorized by recurring themes (e.g., mentions of increased revenue) and similarly quantified. Notes were taken during all interviews to record participants' answers.

Results

Key informant discussions: Our key informant discussions revealed that most winter tourists visit Kibber with photography equipment. The informants also stated that attitudes towards snow leopards and wildlife in general, had shifted from dislike to 'love'. Additionally, tourists were said to be respectful of local cultures, with one-in-ten visitors thought to be disrespectful to the local people by acting superior. Tourists were

also said to have high, unrealistic expectations of seeing snow leopards. While tourists who stayed in the village were reported to not engage in littering, people on day visits were said to litter, as well as engage in offroad driving, damaging pastures and crops. Our key informants also reported that waste production of homestays had increased during winter. Interestingly, they mentioned that tourism was beneficial to women, as men were helping out more with work at home, while the women were producing handicrafts to sell to tourists. This was said to have strengthened marital bonds.

The different streams of revenue related to snow leopard tourism in the village were reported to include homestays (including accommodation and food), handicraft sales, scanning for wildlife and assisting visitors to go see species, tour assistance and driving.

Interviews: All of our interviewed respondents (n=12, 100%) shared an overall positive

view on snow leopard tourism, with little to no discrepancy between the responses of men and women for the same questions. Seventy-five percent expressed the view that there was much more work in winter, which was in contrast to the past when winters were largely devoted to festivity, leisure, weddings, prayer and pilgrimage, before snow leopard tourism developed in the area. All the respondents (100%) shared the view that tourists were generally respectful towards the local people. However, a few respondents stated that some tourists could be disrespectful, but stated that it was only about 1 in 50 people who were disrespectful. A particular respondent who works as a tour assistant stated that such people would talk down to them and act “superior”. Many respondents also highlighted that a large proportion of visitors (around 40%) were photographers who were mainly interested in seeing snow leopards. Sixty percent agreed that tourists generally maintained cleanliness. Several respondents stated that while groups staying in the village for wildlife tourism did not litter, while those who came to Kibber only for day visits did. Additionally, they stated that there was a massive increase in waste production from homestays during winter. There were no significant complaints about facilities such as the food provided by homestays or toilets that were reported. Although not always mentioned directly, the spread of homestays (13 active in total), the involvement of around 30 women in handicraft sales, and the presence of 25 scanners indicated that tourism has shaped new forms of collaboration and income-sharing among villagers. 2 of the respondents implied that improvements in waste management and discouraging littering by day visitors could help improve tourist behaviour further. In terms

of environmental impact, the main concern raised was the increase in waste, but no major additional environmental harm was reported in the household interviews. Tourism has also had a strong effect on the way locals view snow leopards, since wildlife tourism centered around the species provides direct economic benefits. All respondents (100%) reported a positive outlook towards snow leopards being present in the area.

Out of the 5 homestay owners interviewed, the reported average revenue per tourist per night was around 2500 Indian rupees (c. USD 28). On average, 30–40 people visited each homestay per season, with 100% visiting in groups of 2 to 10. Seventy percent of the visitors came from within India, however there were still a significant number of foreign tourists (30%). Out of the sample of 4 women interviewed who were involved in handicrafts production and sales, the average income from selling items such as gloves, socks, hats, and carpets during the winter was around INR 9000 s (c. USD 102 USD), going as high as 20000 (c. USD 228). There are 25 active scanners (local people with knowledge about snow leopard behaviour and the local area, tasked with spotting snow leopards and relaying the information and location to homestays) in the village. The interviewed scanners reported their average daily rate was INR 1500–2000 (c. USD 17 to 23) per day, paid by homestays, not accounting for tips from tourists. The tips were reported to range from INR 5000–8000 (c. USD 57 to 91) at the end of a typical week-long stay. Tour assistants who were responsible for carrying any luggage or equipment such as cameras earned similar amounts. Drivers typically earned INR 5000–6000 (c. USD 57 to 68) per day and typically spent 10 days with a tourist group, including the journey from the city of Chandigarh which is about

430 km away from Kibber. The pie chart below depicts the percentages of foreign visitors coming from different countries in one of the homestays, with the highest percentage being France at 23%, followed closely by Singapore and Thailand.

Discussion

All respondents expressed a positive view of snow leopard tourism, indicating its potential to support both conservation and local livelihoods. This presumably was due to increased winter income, especially for residents with limited agricultural land, as noted by a homestay owner. In the past in Kibber, snow leopards and wolves were regarded as pests and persecuted for livestock predation (Mishra, 2001). Tourism appears to have played a major role in transforming these attitudes, not only through economic incentives but also through local participation in ecotourism, similar to findings from Ladakh (Vannelli et al., 2019).

There were no major discrepancies between the key informant discussions and interview data, apart from additional insights on strengthened marital relationships and women's improved winter wellbeing. The positive shift in attitudes toward snow leopards is likely linked to the work of conservation organisations such as the Nature Conservation Foundation and the Snow Leopard Trust, which has improved the habitat quality and enhanced awareness of the species' ecological and cultural value (Mishra et al., 2003; Mishra, 2001). The fact that most tourists visited primarily to see snow leopards likely reinforced these changing perceptions.

Respondents reported that most tourists behaved respectfully toward local people, though a few instances of inappropriate conduct were noted, an expected outcome in any large industry. They also indicated that tourists generally maintained cleanliness by not littering, attributed

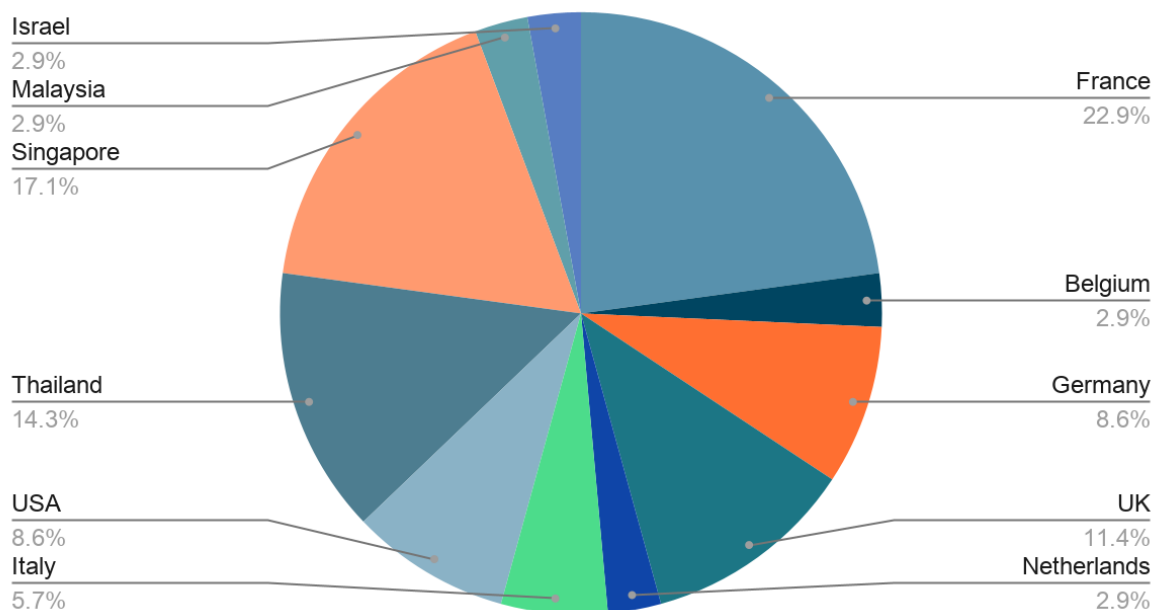


Fig 3. Pie chart showing the percentages of foreign visitors to one of the homestays in Kibber



Fig 4. Photo of tourists with camera equipment near Chicham bridge, close to Kibber

to strict fines for littering in the village. However, littering and off-road driving by day visitors remained concerns. These issues could be addressed through tighter regulation, awareness programs, and penalties for violations.

Key informants highlighted that most tourists often held unrealistic expectations for snow leopard sightings. Addressing this through better visitor education, emphasizing other local biodiversity and cultural experiences, could promote a more fulfilling and responsible form of tourism. It would also reduce any potential unethical practices such as baiting, which contradicts conservation guidelines (GSLEP, 2020). This is speculative however, as the occurrence of such practices in the area were not assessed in this study. Implementing mandatory visitor briefings, delivered in person or in written form, could enhance awareness and compliance

with local protocols.

Tourism can provide significant conservation and livelihood benefits when Indigenous communities are active stakeholders. However, if profit-driven and poorly managed, it risks harming local people and environments (Bunten, 2020). The findings from Kibber suggest that when local communities lead and benefit from tourism, it can foster coexistence between humans and snow leopards, support cultural preservation, and promote sustainable conservation outcomes. Tourism can act as a medium for conservation whilst directly benefiting local populations, if done right. For this to happen however, close collaboration with Indigenous people in an area to enable them to coexist with the wildlife is necessary, especially when the animals are potentially dangerous or can cause harm to livestock, such as in the case of the

snow leopard. Moreover, waste management may be improved through imposition of tighter regulations, meaningful penalties for littering, and sustained community-led awareness programmes for tourists. This would ensure that tourism development does not undermine the very ecosystems it seeks to preserve and celebrate. Finally, securing the rights of Indigenous people to conduct such responsible nature tourism can enable the industry to remain sustainable.

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