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Received: 11 January 2023 | Accepted: 21 October 2024

DOI: 10.1002/pan3.10760

PEOPLE AND NATURE | BRITISH ECOLOGICAL SOCIETY

RESEARCH ARTICLE

Care, conflict, and coexistence: Human–wildlife relations in community forests

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Funding information
Mitacs Globalink Research Award, Grant/Award Number: FR41778; University of British Columbia Graduate School, Grant/Award Number: F21-02193

Handling Editor: Patricia Carignano Torres

Abstract

1. Human–wildlife conflict (HWC) presents a persistent challenge for global biodiversity conservation. Yet, focusing on conflict alone may obscure the complex drivers of positive and negative interactions between people and wildlife coinhabiting the same geographies. In India's Uttarakhand Himalayan region, *van panchayat* (VP) community forests support agro-pastoralist livelihoods and forest protection. While the governance and livelihood dimensions of the VP are well documented, their engagement with wildlife is sparsely investigated, despite that community forests are important spaces of human–wildlife interaction in shared landscapes. Enabling community forests to contribute effectively to wildlife management requires understanding what local factors drive stewardship while reducing conflict.
2. Informed by interviews conducted in 2019–2020 and household surveys collected in 2021 in 15 villages in Pithoragarh District, Uttarakhand, we explore the nature of human–wildlife relations in VPs. We report on qualitative and quantitative analyses to consider community forest users' perceptions of living with wildlife—mediated by cultural norms, livelihood demands, and everyday encounters—and investigate beliefs about (1) lethal control as a response to conflict and (2) responsibilities for managing and protecting wildlife.
3. Our findings indicate high prevalence of HWC and associated hardships (mentioned by 71% of survey participants), alongside high expressed ethics of care, tolerance, and responsibility for wild animals (60%). Most participants rejected killing wildlife in circumstances of conflict as acceptable based on moral prohibitions and the availability of alternative options while adopting significant responsibility for their protection. Characterizing community forests as important sites of interaction and coexistence, residents identified community-led forest conservation as a primary strategy for mitigating HWC.
4. These multifaceted human–wildlife relationships, shaped by encounters in a shared landscape, inform communities' decisions and coping strategies for coexisting with their wild neighbours. Approaches to mitigating conflict that prioritize separating people from wildlife and emphasize the state's responsibilities for wildlife

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management may undermine communities' roles as conservation actors. Conversely, legal recognition and support for the role of community forests in wildlife management could enhance the legitimacy and effectiveness of management decisions.

KEYWORDS
biodiversity conservation, community forestry, environmental governance, Himalayas, human–animal studies, human–wildlife conflict, wildlife management

1 | INTRODUCTION

Human–wildlife conflict (HWC) is a key concern for durable conservation efforts (König et al., 2020; Nyhus, 2016; Redpath et al., 2013). Land use changes associated with human population growth near protected areas, climate change-induced range shifts, and the expansion of wildlife ranges due to conservation successes have all contributed to HWC as a rising global challenge (Anand & Radhakrishna, 2017; Manral et al., 2016). Tension in human–wildlife encounters also evinces disagreements among humans, reflecting different stakeholders' values and priorities for landscape uses and management (Redpath et al., 2013). States' displacement of local and Indigenous communities to advance wildlife protection has not only disrupted longstanding relationships between humans and animals in shared landscapes, but also provoked significant human–human conflicts over wildlife in protected areas (e.g., Agrawal & Redford, 2009).

The study of human–wildlife relations globally has been dominated by an emphasis on conflict (Bhatia et al., 2020; König et al., 2020). Yet, scholars increasingly explore positive interactions and people's emotional, spiritual, and cultural attitudes towards wildlife (Oommen, 2021; Pooley et al., 2021). Several authors (e.g., Bhatia et al., 2020; Frank et al., 2019; Nyhus, 2016) have characterized human–wildlife relations on a continuum from positive/coexistence to negative/conflict. However, these leave out situations wherein people tolerate a high degree of conflict but simultaneously strongly value their positive experiences with wildlife. Pooley et al. (2021) argue that coexistence is defined not by the absence of conflict, but by sustained tolerance towards risks and management of these impacts so that they remain tolerable. Levels of tolerance depend not only on the material burden of damages for individuals, but the social norms and belief systems which frame both positive and negative dimensions of human–wildlife relationships (Pooley et al., 2021). Individual encounters and interactions with wildlife can contribute positively to human health and well-being by fostering relationships and practices of care (Haggerty et al., 2018; Singh, 2018). Positive affective experiences with wild animals can also motivate people to protect and politically advocate for wildlife (Singh, 2018).

1.1 | Human–wildlife interaction in India

India is home to the world's largest rural population, with many people dependent on forest-based, agricultural, or pastoral livelihoods. It also ranks among the world's most biodiverse countries, hosting high species richness and large populations of megafauna (Manral et al., 2016). Annual economic losses due to wildlife among agricultural and pastoral communities in India are staggering, and human casualties are even more so (Gulati et al., 2021). Subtler impacts of HWC include compromised psychosocial well-being, economic opportunity costs, and disruption of food security (Barua et al., 2013). In Uttarakhand, HWC has been highlighted as a key threat to rural livelihoods (e.g. Srivastava et al., 2020), and mitigating conflict is a pressing policy concern. Yet, measures to reduce HWC rarely resort to lethal measures given the cultural and legal context of human–wildlife relations in India, where legal orders governing wildlife reflect their uniquely elevated status. Wildlife enjoys constitutional protection, mandating that the state (Article 48A) and common citizens (Article 51A) take measures to safeguard the environment, forests, and wildlife. India is unusual in tasking its citizens with a broad responsibility towards wildlife including 'compassion for living creatures (ibid)'. India's famously active Supreme Court and several state governments, including Uttarakhand, have also formalized the rights of animals, including wildlife (Kavuri, 2020).

However, India's conservation paradigm has been widely critiqued for pitting wildlife against people (Agrawal & Redford, 2009; Gadgil & Guha, 2012; Oommen, 2021; Rai et al., 2019; Saravanan, 2023). Since pre-Independence, the state has established protected areas by displacing local people, particularly forest-dwelling Adivasi Tribal communities (Agrawal & Redford, 2009). Arguably, this exclusionary approach has damaged prospects for sustainable human–wildlife coexistence. Communities frequently frame wildlife as the property of the state and reject the presence of wild animals outside of protected areas (Oommen, 2021). Coexistence between people and certain species (particularly tigers and elephants) is often deemed impossible, justifying the ongoing separation of people from conservation areas (Kothari et al., 2013). Despite considerable advances in recognition of forest rights for local communities over the last century, including most recently the 2006 Forest Rights Act, the Indian state has continued to assert its authority over wildlife management and typically excluded these decisions from the purview of local forest management institutions. Carter Village-scale Biodiversity Management Committees, established under the 2002 Biodiversity Management Act [sec. 41], are a notable exception operating under the India's decentralized [redacted] system. However, while their mandate regards culturally important species [mostly medicinal plants], they have no formal authority for wildlife governance (Oommen, 2021).

Notwithstanding, there has been considerable examination of the cultural underpinnings of tolerance and coexistence with wildlife

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among forest-dwelling and forest-dependent communities in India. This includes studies highlighting reverence towards spiritually significant species (Gadgil & Guha, 2012; Thekaekara et al., 2021), perceptions of kinship, and ecological connectedness, particularly among Adivasi communities (Aiyadurai, 2016; Jolly et al., 2022; Loivaranta, 2020), and ethics of care towards animals both wild and domestic (Govindrajan, 2018). These works do not overlook conflict but suggest that it is only one facet of human–wildlife relations in India.

1.2 | Wildlife in community forests

Important as these findings are, scholarship has neglected the status of wildlife management and HWC within India's *community-managed forests* (exceptions noted above) (Smith et al., 2019; Thapa et al., 2018). Community forests account for 13% of the world's forest cover and serve diverse purposes for human communities, from sustenance to cultural values (Oldekop et al., 2019). They also comprise key wildlife habitats, fostering connectivity and providing refugia. In India, the predominant focus of community forest-related literature has been on social movements (Agrawal, 2005; Guha, 2000) and commons governance (Smith et al., 2019; Thapa et al., 2018). Other regions have seen slightly more focus on governing wildlife as a common good, particularly by managing hunting (e.g. Nielsen & Treue, 2012; Smith et al., 2019). Outside of hunting, however, remarkably few of these studies examine community forest institutions as key to wildlife conservation despite their globally important role in stewarding wildlife habitat.

Observing that community forest institutions play an important but under-examined role in wildlife conservation, this study examines the complexities of human–wildlife relationships in northern India's *van panchayat* (VP) system (described more fully below). We explored whether people see sharing the landscape with wildlife as generally negative or positive (or both) and consider their reasons. In reference to impacts on conservation, we investigated two further questions: (1) the reasons why it is or is not acceptable to kill wild animals to address conflict; and (2) which forest actor people regard as primarily responsible for wild animal populations, what type of responsibility they hold, and why. Grounded in local perspectives, we seek to advance understanding of factors that support positive encounters and foster ethics of responsibility towards wildlife, while reducing conflict. By identifying enabling conditions for coexistence, these insights may support community forest institutions in maintaining durable, tolerant relationships with wild animals in shared landscapes.

2 | METHODS

2.1 | Case study

Pithoragarh District, Uttarakhand, is a hotspot of Himalayan biodiversity, situated along India's mountainous international border. Bordering Tibet, Johar Valley ranges from a subtropical riparian ecosystem at around 1000 m, rising through temperate, broad leaved deciduous forest, subalpine coniferous, mixed-oak, and rhododendron forests, and high alpine meadows beneath 6000 m peaks. The southwest edge of the valley lies within the Nanda Devi National Park and Biosphere Reserve buffer zone, while the 600 km^2 Askot Musk Deer Sanctuary includes its northeast slope. The region hosts notable biodiversity, including several IUCN Red Listed species such as the Snow Leopard (*Panthera uncia*), Asiatic Black Bear (*Ursus thibetanus*), and White-bellied musk deer (*Moschus leucogaster*), and more common wildlife including Common Leopards (*Panthera pardus*), Rhesus Macaques (*Macaca mulatta*), Hanuman Langur (*Semnopithecus entellus*), and wild pigs (*Sus scrofa*) (Appendix S1). Bird species diversity is exceptionally rich, with over 300 species recorded in this valley, many in VP forests (Rautela, personal communication; see "Data Sources" list for further references).

About 50,000 people live in Johar Valley's 80 villages. Most rely predominantly on agricultural and pastoralist livelihoods and identify as Hindu, although the Bhotiya Tribal community retains some non-Hindu animistic traditions. These villages fall broadly into four social-geographic categories: market villages (those directly associated with the market centre of Munsiari, in which agricultural livelihoods are in the minority), market-adjacent villages (communities nearby the town centre, with mixed agricultural and market-based livelihoods), rural villages (villages that require several hours' walk to reach the town centre and which are highly reliant on agriculture and/or livestock), and higher-altitude alpine villages (distant from the road network and market, with livelihoods based on pastoralism and collection of medicinal plants) (see Appendix S5 for details). Approximately 60%–70% of the region falls under community management in the form of VP forests, which vary in size, microclimates, and species composition. Local communities rely heavily on community forests to provide fuelwood, grass and grazing land, leaf litter, and medicinal plants (Stevens & Krishnamurthy, 2022). Beyond direct forest use, the valley's residents depend on healthy forests to mitigate natural disasters and provide fresh water and clean air.

The political salience of VPs is also central to this region's history. VPs were established in 1931 following local resistance to the authority of the colonial state, institutionalizing a co-management arrangement in which the government continued to own the land but granted management rights to elected village forest councils (Agrawal, 2005; Ballabh et al., 2002; Negi et al., 2012). Along with village level *Mahila Mangal Dal* (women's associations), VPs in nearby valleys served as important organizing sites for Chipko (*Chipko andolan*) activism during the 1960s–1980s: the nonviolent, predominantly women-led movement which mobilized forest-dependent communities to protect their forests from state-sanctioned commercial logging (Guha, 2000). The role of cultural and spiritual norms in local efforts to safeguard forests in the Uttarakhand hill regions have been the subject of considerable inquiry; but again: human–wildlife relations, and more specifically the role of the VP in wildlife management, are under-investigated.

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2.2 | Data collection and analysis

This study draws on semi-structured interviews from November 2019 to January 2020 (Stevens & Krishnamurthy, 2022; Stevens & Satterfield, 2024), and a household survey among local residents (September 2021 to December 2021). Research activities were guided by a local civil society organization focused on environmental protection and rural livelihoods, Himal Prakriti. Research questions and design involved regular iteration to ensure relevance to local priorities. The first phase of research included 31 semi-structured interviews and forest walks with 41 local resource managers, including formally elected VP council members (66%), Elders (24%), and other community leaders, in addition to participation in forest management activities. Participants for this exploratory research phase were selected following a purposive sampling strategy, aiming to capture a breadth of perspectives (not intended as a representative sample for quantitative analysis) among local forest management leaders and experts across 10 villages with distinct demographic and geographic profiles; these villages were selected with input from the community partner. We ensured that at the sample included at least two members (of nine) from the VP council of each of the villages in the study group. The semi-structured interview questionnaire (Appendix S2) broadly focused on questions related to forest management, and included a specific line of questioning related to wildlife; the exploratory interview approach deliberately enabled participants to guide the flow of conversation. Interviews were conducted to the point of theoretical saturation, such that later interviews revealed few novel themes upon preliminary coding while in the field (Small, 2009). Following translation (from Hindi to English) and transcription, we conducted open thematic analysis of these interview transcripts in NVivo, revealing themes related to forest governance, environmental change, and human-environment (including human–wildlife) relationships in community forests.

The household survey was designed in reference to initial findings and developed as a viable alternative given safety concerns given Covid-19 (see Appendix S3 for safety protocols). Questions opened with demographic and livelihood information, followed by items capturing forest uses and values, stewardship activities, and perceptions of environmental governance. Part 3, and the purpose of this paper, focused on perceptions of wild animals, relationships with wildlife, and wildlife management (Appendix S4). All questions were closed ended, some with follow up opportunities for open-ended explanations. Statements used with Likert-scales were derived verbatim from first-phase study interviews.

After pilot testing, we conducted 14–20 in-person household surveys per village in 15 villages (Appendix S5) for a total of 256 completed surveys. Villages were sampled purposively to reflect common social-demographic patterns within the broader region. To do this, we selected from within a network of connected villages a group of market (four), market-adjacent (four), rural (five), and alpine (two) villages which share many adjacent forest/village boundaries and economic networks, and represent a breadth of geographical features (e.g., distance to markets) and household characteristics (e.g., predominant caste). Our sample included the villages visited during the initial study phase (to provide as much context as possible for interpretation using our existing qualitative data) plus several nearby communities (Table S5.1). Before conducting surveys, the field team met with the head of each village's forest council (*sarpanch*), who distributed survey information among constituents. Co-author S.R. conducted surveys orally (in Hindi and Kumaoni), with support from local field assistants. Both interview and survey participants provided their prior, informed consent to participate in the research verbally rather than in written form, which our research collaborators determined to be the most appropriate approach given local norms and the fact that many participants were not comfortable with written communication. Open-ended responses were audio-recorded, transcribed, and translated into English. Field team memos noted additional observations which were not audio-recorded. The data presented here were collected under conditions of confidentiality and are not archived publicly. These research protocols were approved by the University of British Columbia's Behavioural Research Ethics Board (Ethics ID# H19-02964).

We determined that GIS-based survey sampling common in similar fieldwork would exclude those in temporary dwellings, particularly transhumant herders. Instead, participating households were identified using a randomized sampling method (McDowell et al., 2014), based on a sampling interval determined by dividing the number of households in the village by the desired number of surveys plus an estimated non-response variable (see details of sampling protocol in Appendix S3). Data collection started at a randomly selected initial household, with direction and movement from this point also randomized (ibid). The sample included a diversity of household incomes, ages (18–102), genders (50% female, 50% male), and livelihood strategies (including 93% agricultural and 68% pastoral), and comprised mostly VP rightsholders (82%) and some non-rightsholders (18%) (Appendix S6).

We cleaned and analysed all survey data using R (Computing R Core Team, 2020). We compared demographic data to details provided by the *sarpanch* and semi-structured interview participants (Table S5.1), to determine if our sample was adequately representative *within* each village. We plotted the frequency of responses and compared results by individual—gender, age, level of education, and caste (While households in the region are most commonly comprised of individuals of the same caste, we treated this as an individual rather than household characteristic due to the presence of some mixed-caste households)—and household characteristics—village cluster, household economic security, VP rights-holding status, and primary livelihood source. To facilitate more robust analysis with the small sample size, we condensed some responses into binary categories (e.g., strongly agree and somewhat agree both re-coded to agree).

Applying a mixed analysis approach to characterize how local people frame their relationships with wildlife, we then conducted thorough qualitative thematic coding to organize responses for each open-ended question into discrete categories. We also combined each participant's open-ended responses and the memo notes provided by the field team, then coded these to describe participants' overall attitudes towards wildlife, identifying and categorizing key themes. In

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addition to reporting qualitative findings, we treated these as additional discrete explanatory variables and conducted summary statistical analyses, as with closed-choice questions. See Appendix S7 for an explanation of coding criteria for each of the re-coded variables.

We next explored how these perceptions, along with individual and household characteristics, related to attitudes and behaviours affecting wildlife, namely (1) a willingness to kill wildlife in situations of conflict and (2) beliefs about which actors are responsible for wild animals. We used an open thematic coding approach to report on participants' open-ended explanations for these responses. To statistically explore variation across groups, we cross-tabulated these outcome variables by several explanatory variables (individual and household characteristics listed above, and perception variables including re-coded responses pertaining to level of conflict, participation in VP activities, and overall affect), and tested the significance of variation in responses using Pearson's Chi-square tests of independence, with a confidence interval of 95% at $p < 0.10$. We selected the non-parametric Chi-square test because it does not require outcome variables to be normally distributed, as was the case for some questions, and the data otherwise met the test's assumptions (McHugh, 2013). Note that this approach does not statistically capture the confounding effects of multiple independent variables, given the limitations of the non-random village sampling of our study design. To interpret our results, we therefore draw on the qualitative analyses to derive reasonable explanations for the observed variation among groups that may account for these effects.

3 | RESULTS

3.1 | Perceptions of wildlife

For households in the Johar Valley, sharing the landscape with wildlife is a challenging fact of life impacting human livelihoods and well-being. Most survey participants (72%) referenced hardships associated with the presence of wild animals, primarily agricultural losses (57% of those who discussed conflict, 41% of total), less often physical risk to life or limb (16% of total) and predation on livestock (7%) (Figure 1). A quarter reported intolerably high levels of HWC, while 34% reported a moderate level of damage and 21% characterized conflict as low or readily manageable. Species at the forefront of people's concerns and perceptions regarding encounters and conflict were bears (65%), as well as wild pigs (39%), leopards (32%), and monkeys (Hanuman langur, 29% and Rhesus macaques, 20%) (Appendix S1). However, more than half (53%) of those who talked about HWC also added that troublesome wildlife should and/or could be tolerated due to religious and spiritual norms, and due to empathy towards animals who also need to eat to survive.

Overall, participants across all age groups, levels of education, genders, castes, and livelihood strategies were more likely to express positive (60%) than negative (24%) affect towards wild animals. Positive themes about wildlife included beliefs that the health of forest ecosystems, people, and wildlife are interdependent (34%), care and empathy towards wild animals (24%), convictions that wildlife should be protected (17%), and benefits from the presence of wild animals (9%). Men were significantly more likely to emphasize connections between forest health and wildlife (43%) than women (24%; $p < 0.001$) and highlighted the need for wildlife protection (22% of men; 13% of women; $p = 0.053$) (Table S8.1). University-educated participants were most likely to describe wildlife as ecologically important to forest health (55%; $p = 0.001$), and indicate a need for wildlife protection (29%; $p = 0.015$).

Participants often described empathizing with wild animals as fellow sentient beings who experienced feelings akin to humans, who 'also have emotions, hearts, and families (female, 20s, Quiri)', who 'also need love and care like human beings (male, 50s, Paton)'. Many expressed that all living beings share a right to sustenance and autonomy. These sentiments frequently accompanied tolerance towards wild animals even in contexts of conflict. Participants often

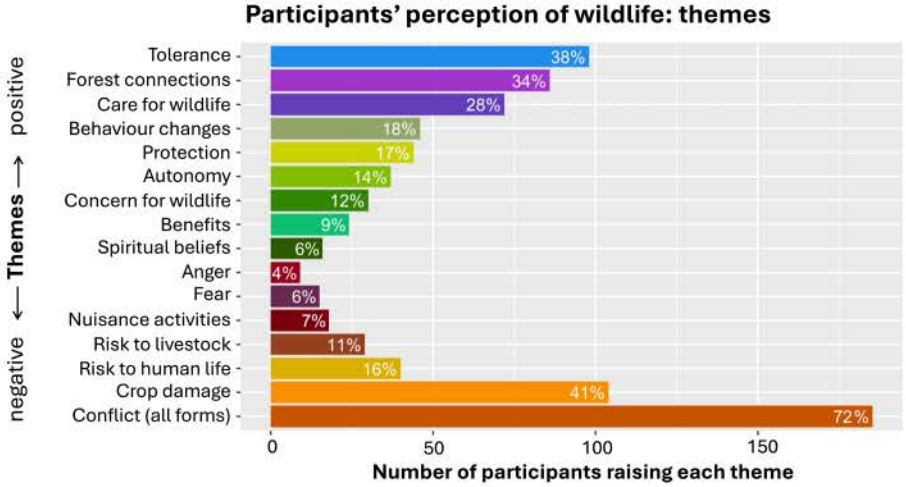


FIGURE 1 Themes raised by participants when discussing wildlife across open-ended survey questions about wild animals (prompts in Tables S4.1 and S7.1 for coding). Positive themes are grouped at the top of the figure, with negative themes below; these were open-coded from participant responses to wildlife-related survey questions.

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described troublesome wildlife empathically—as acting upon reasonable needs and intentions. 'We feel very angry. They are living beings just like we are, but we still feel pain when they tear open sacks full of wheat and beans, and just eat them all up [...] Still, if there are more forests and more wild animals in that forest, there will be more value there and the forest will be healthier (female, 50s, Sai)'. Despite considerable hardship, a sense of compassion towards wild animals and appreciation of their ecological importance was remarkably persistent.

For many participants, the presence of wildlife defined a forest. According to a father (50s) in Polu, 'If there are no wild animals, then we cannot call it a forest. The forest belongs to them, not to us'. Thirty-four percent expressed that wild animals are necessary members of forest ecosystems: 'The animals also take care of the forest, so because of them the forest remains protected (male, 60s, Sarmoli)'. Participants frequently invoked the concept of 'balance', to explain that wildlife sustains healthy forests and vice versa, healthy forests sustain people, and people hold responsibilities towards the forest and its wild inhabitants.

Humans and wildlife were often described as part of a human–animal (social) contract with mutual obligations, wherein animals mauling people or destroying crops might be seen as a legitimate response to human transgressions. As a university-educated man (40s) from Harkot village explained, 'Some animals are like friends. If we go every day on the same path, then they become our friends. If we do something wrong, then of course they will also do something wrong in return'. Just as people consciously accommodate their wild neighbours, some believed wild animals to be equally capable of expressing deliberately tolerant, respectful behaviour towards humans. For example, a former forest council member from Harkot village, in a semi-structured interview, recounted meeting a leopard in the forest:

> It was evening time and was getting sort of dark, so we were going with a torch. We encountered a leopard … and we pointed the torch into his eyes. We looked at him, and he looked back at us. So we thought to ourselves, okay he is an animal of our forest, he might even be a god for us … so we said *namaskar* [hello] and he said *namaskar* and we each took our separate paths.
>
> (male, 40s)

Encounters of this kind were often understood to be unsettling, but nonetheless mutually respectful when both wildlife and humans adhered to acceptable forms of behaviour.

Many also acknowledged the possibility of harmful encounters with wildlife when entering the forest, and 72% of participants agreed that 'more wildlife in the forest meant that people were less safe' (Table S8.2). These concerns were significantly more prevalent among women than men (78% vs. 67%, $p = 0.058$), and among residents of alpine (91%) and rural (88%) villages than those in market and market-adjacent villages, closely reflecting the demographics most likely to spend large amounts of time in the forest ($p < 0.001$). University-educated participants were least likely to agree with the statement (47%; $p < 0.001$). Broadly, participants expressed more tolerance towards personal safety risks than agricultural damages. 'The bears and the leopards cause damage, and if we go alone they might attack us. But if they aren't in the forest then how can we call it a forest (male, 40s, Harkot)?' Despite the risk of dangerous encounters, only half of the participants agreed with the statement that life would be better with fewer animals in the forest (Table S8.3).

Boundaries separating humans and wildlife were described as blurred and often shifting (Figure 2). VP forests (situated as they are between more remote reserve forests and human settlements) were common sites of encounter. Regular interactions with wildlife in VPs provide residents of the valley with knowledge of and connectedness to wild animals: 'If there is a stone or a leaf, or a wild animal, we know everything about them: where they sit, how they behave, we know them (male, 60s, Sarmoli)'. For some, this sense of familiarity and shared experience fostered a clear ethic of coexistence: 'This entire forest belongs to us. Our ancestors saved this forest, so this is our heritage. […] All of us villagers are the *chowkidar* [forest guards] here […]. This forest also belongs to the wildlife, they are happy here, and they have trust in the villagers (male, 80s, Paton)'.

Negative encounters with conflict species focused most often on agricultural losses. Some participants indicated that as fewer people cultivate crops in the valley, wildlife pressure on farms that remain increases, in turn contributing to a trend away from agricultural livelihoods. This is particularly the case with animals like monkeys, wild boars, and bears, which participants described as becoming increasingly habituated to human food sources. Participants frequently attributed this trend to widespread disruption of forest ecosystems. According to some, wild animals' presence in VP forests and fields has increased as they seek refuge from deforestation elsewhere, particularly in state-managed Reserve Forests. Habitat loss is seen as a key driver of conflict, as a young woman from Paton argued: 'The damage they cause is also created by our own mistakes. If we cut the forest down, then they will come (female, 20s, Paton)'. Many participants described well-managed VP forests as refugia for wild animals, important for preventing conflict while suggesting that poorly managed forests can exacerbate the conditions that create conflict.

3.2 | Acceptability of killing wildlife

Forty percent of participants agreed that killing wildlife was acceptable under some circumstances, while 60% of participants disagreed. Participant groups facing less day-to-day conflict were more likely to *disagree* with killing wildlife under any circumstances, including individuals with a university education (75%; $p = 0.086$), non-VP rights-holder households, and households with better economic security (Table 1). Indeed, the strongest predictor of responses was village cluster, with market village households (typically less dependent on agriculture) most likely to find killing wildlife unacceptable (73%,

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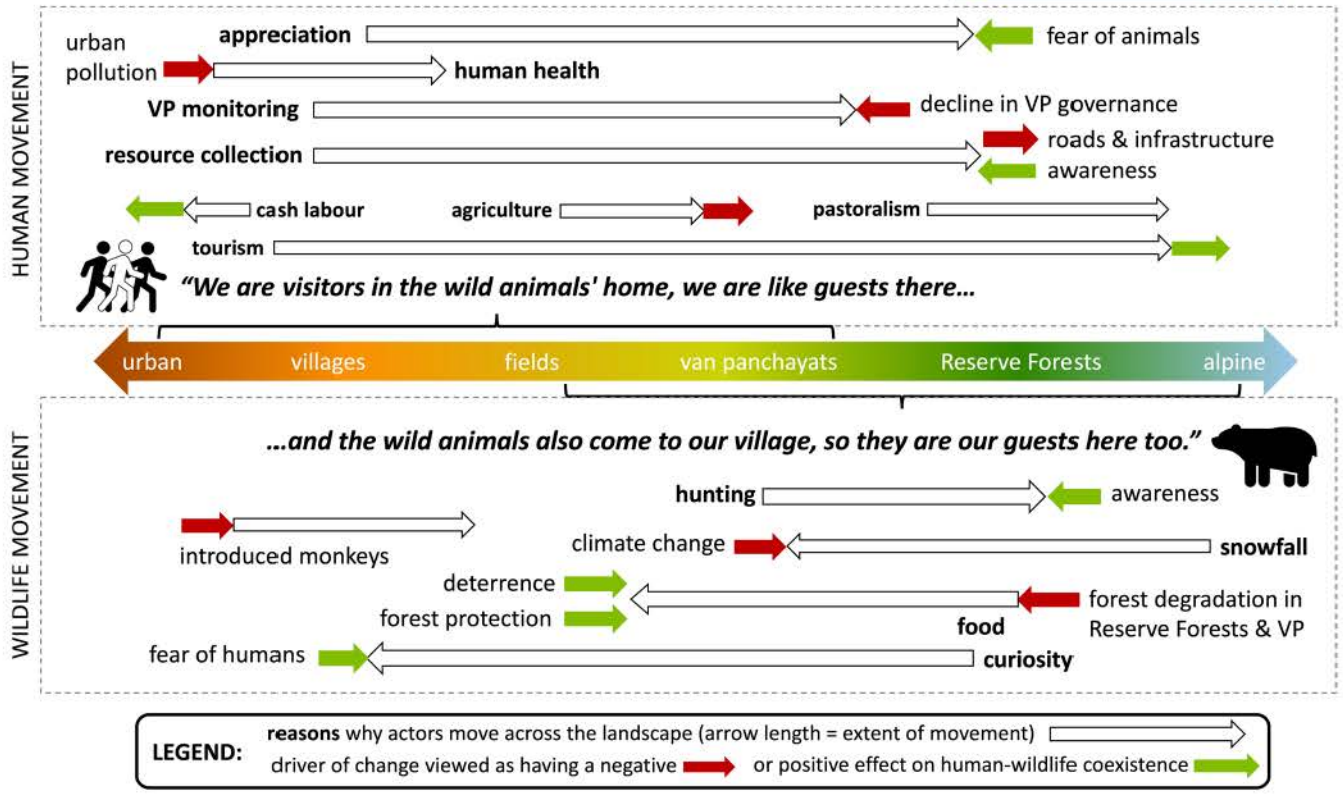


FIGURE 2 Diagram summarizing changing coexistence. The top section explains why people move in and out of the forest or alpine region, the bottom section provides explanations for animal movement. Bold text indicates reasons provided; black-outlined arrows show direction and spaces travelled. Coloured arrows indicate drivers of changing movement: Red for negative effect on coexistence, green for positive, uncertain in grey. For example, a need for food drives wild animals out of Reserve Forests towards van panchayats (VPs) and fields. Forest degradation can exacerbate this issue, pushing wildlife further into human spaces in search of food, while communities' efforts to deter wildlife from fields and to conserve healthy forests may help to move wildlife back to the VP and Reserve Forests, reducing conflict.

$p=0.002$) and rural villages most likely to agree that it could be acceptable (55%). Households dependent on agricultural and pastoral livelihoods were significantly more likely to agree with killing wildlife causing damage than those with primarily non-farming incomes (42% agriculture, 48% livestock and agriculture, 39% only pastoral, and 19% non-farming; $p=0.008$). Women represented a notable exception to this pattern in being significantly more likely to *disagree* with killing wildlife than men (67%; $p=0.020$), even though they undertake a disproportionate amount of forest and agricultural labour.

Among those who felt that killing wild animals was *unacceptable* even in circumstances of conflict, reasons included the availability of non-lethal conflict mitigation strategies (35%) and that killing wildlife is inherently immoral (35%) (Figure 3a). Many specifically argued against killing fellow living beings (18%) due to cultural or social norms (17%), and spiritual prohibitions (10%). Spiritual prohibitions seemed to protect monkeys, particularly: "So many monkeys come here, but people don't kill them. People would poison them, but I think because of that belief in the gods they don't kill them (female, 70s, Malla Ghorpatta)." Considering these pressures, most opted to chase away troublesome wildlife rather than resort to lethal measures. Some who might have agreed in principle would not kill wildlife because such activities were illegal (16%) or not possible due to lack of resources (7%). Others expressed that it was worth the risk of legal retribution to protect their crops or livestock, particularly given unreliable compensation for losses.

Among those who felt it was sometimes *acceptable* to kill wildlife (Figure 3b), most described this as a justified response to crop damage (39%) or food insecurity more generally (16%). An elderly woman from Suring expressed particular frustration about a lifetime of conflict with wildlife: 'These monkeys and langur are spoiling our lives, and causing harm for our livelihoods. That's why people are doing day labour, because these animals are the scourge of our lives. We should kill them. I am not scared of anyone. If I had a gun then I would kill all of them, even if I go to prison later. [...] These animals don't leave anything for the people'. Most expressions of such behaviour, which Bhatia et al. (2020) describe as 'manifested intolerance', or negative perspectives actualized in behaviour antagonistic to wildlife (such as retaliatory killing), targeted a select group of species which habitually damage agricultural fields, particularly monkey and wild pigs.

Rhesus macacques and Hanuman langur monkeys, although spiritually revered, were also the most notable conflict species. Macacques in particular were frequently described as transgressing appropriate norms of behaviour. Speculating about the origin of these badly behaved monkeys, several participants suggested that urban monkeys had been trucked from cities into the mountains and released into the

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TABLE 1 Acceptability of killing wildlife, by participant group.

	Agree or disagree: It is sometimes acceptable to kill wildlife if they are causing harm		
	Agree	**Disagree**	***p***
Individual characteristics			
Gender			**0.020**
Women	42 (33%)	85 (67%)	
Men	61 (47%)	68 (53%)	
Age			0.335
18–29	12 (29%)	30 (71%)	
30–44	31 (38%)	50 (62%)	
45–59	33 (44%)	42 (56%)	
60+	25 (44%)	31 (55%)	
Education			**0.086**
Informal	23 (46%)	27 (54%)	
Primary	19 (41%)	27 (59%)	
Secondary	47 (45%)	58 (55%)	
University	14 (26%)	41 (75%)	
Caste			0.887
Scheduled Tribe	58 (40%)	86 (60%)	
Scheduled Caste	25 (44%)	32 (56%)	
General Caste	20 (43%)	27 (57%)	
Household characteristics			
Village (cluster)			**0.002**
Market	23 (27%)	63 (73%)	
Market-adjacent	20 (39%)	31 (61%)	
Rural	47 (55%)	38 (45%)	
Alpine	13 (38%)	21 (62%)	
Economic security			**0.093**
Better	58 (36%)	102 (64%)	
Worse	45 (47%)	51 (53%)	
Rights-holding status in van panchayat			**0.041**
Rightsholder	91 (43%)	120 (57%)	
Non-rightsholder	12 (27%)	33 (73%)	
Primary livelihood source (high importance)			**0.008**
Agriculture	31 (42%)	43 (58%)	
Agriculture and livestock	54 (48%)	58 (52%)	
Livestock	9 (39%)	14 (61%)	
Non-farming livelihood	9 (19%)	38 (81%)	
Migrant livestock herding			0.729
Migratory	42 (44%)	53 (56%)	
Non-migratory	37 (47%)	42 (53%)	
Perceptions of wildlife			
Overall affect			0.302
Positive	69 (46%)	82 (54%)	
Neutral	21 (51%)	20 (49%)	
Negative	36 (57%)	27 (43%)	

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TABLE 1 (Continued)

	Agree or disagree: It is sometimes acceptable to kill wildlife if they are causing harm		
	Agree	Disagree	*p*
Level of perceived conflict			0.152
High/medium	70 (46%)	83 (54%)	
Low/none	56 (55%)	46 (45%)	
Type of responsibility			**0.022**
Conservation	63 (44%)	80 (56%)	
Uncertain	35 (66%)	18 (34%)	
Control	28 (48%)	31 (53%)	

Bold values indicate significant results from the Chi-square test.

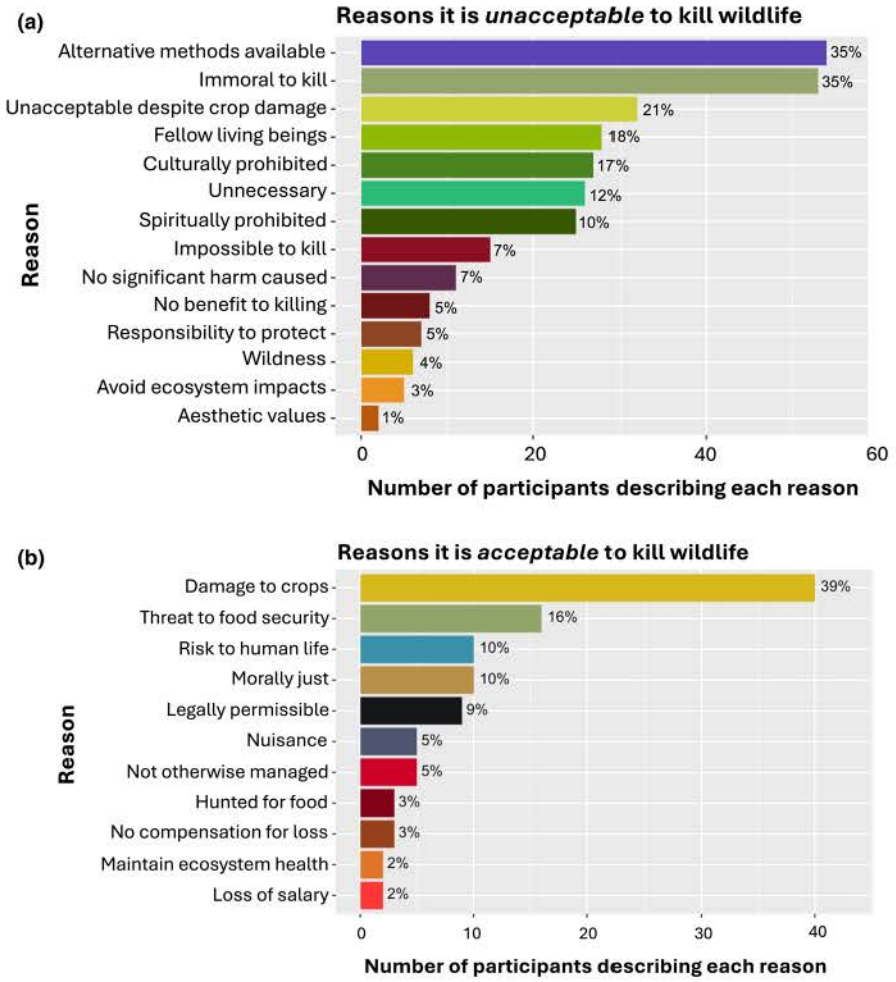


FIGURE 3 Reasons why it is considered (a) unacceptable or (b) acceptable to kill wildlife causing a threat to people or their livelihoods. Participants responded to the question: 'Is it sometimes acceptable to kill wildlife if they are causing harm? Why or why not?' Open-ended responses were then coded for participants' justifications and/or circumstances (Table S7.3). Many participants offered multiple reasons; percentages at the end of each bar denote the total proportion of participants who identified that reason.

village-adjacent forests: 'They are bringing them in from the plains by truck and introducing them here. You know very well how the monkeys are in the plains, they kick all the people out. These kinds of monkeys are being introduced here. […]. If we chase away the monkeys who live here, they run away. But these monkeys just open their mouths to attack us (male, 60s, Quiri)'. Participants in our study and others (Govindrajan, 2018) have blamed government actors for attempting to solve the 'monkey problem' by relocating urban monkeys to rural areas. Some participants felt this strategy was deliberate, intended to depopulate mountain regions by making agricultural production untenable.

The survey question on the acceptability of killing wildlife focused on situations of conflict without directly addressing hunting. However, participants did raise concerns about illicit hunting, including that this activity provoked conflict between animals and humans: 'Animal populations are decreasing because of poaching. If we don't attack animals, then they won't attack us either. Animals feel insecure about people because they carry weapons. If we don't interfere in the forest, if we only collect limited resources, then they will not come to attack us in the village (male, 19, Shankudhura)'. For most, killing wildlife was described as both legally prohibited and strongly in breach of cultural

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and spiritual norms. Only 5% of participants mentioned hunting of wild animals for food as positive or permissible, and interview participants described hunting as infrequent and not widely practiced.

A willingness to kill wild animals was not always linked to hostility or intolerance towards wildlife, but an emphasis on maintaining balance among species. As a man from Harkot (40s) explained, referring to Rhesus macaques, 'wild animals are very important for the life system. But if there are more animals, then that could be a problem for us, it should be kept in balance. So, sometimes it is better to kill them. This is a lesson from the ancestors' times, they kept the balanced numbers, so that why the damage was less before. Now there is no one to control them, so their population is increasing'. In addition to situations where people are directly threatened by wildlife, participants' emphasis on ecological balance may explain why many participants with an overall positive affect towards wildlife (46%) still found it acceptable under some circumstances to use lethal measures to keep wildlife populations in check.

3.3 | Responsibility for wildlife

We were interested in understanding not only whether participants tolerate the presence of wildlife, but also which actors they identify as responsible for wildlife. We categorized participants' interpretations of 'taking care' of wildlife into perceived responsibilities for *conservation*, to respect or protect wild animals (56%), responsibilities to effectively *control* and manage the impacts of wildlife-related damages (23%), or *uncertain* (Figure 4). Survey participants most frequently assigned responsibility to the Forest Department (31%), followed by everyone (25%), VPs (14%), all members of the village (11%), and more rarely conservation NGOs (2%) (Table S8.4). Participants justified their responses with diverse reasons, from legal and customary obligations to moral values (Appendix S9).

Over a third of participants indicated that everyone (25%), or all members of the village (11%), bore responsibility for wildlife, 81% and 69% of whom (respectively) focused on commitments to protect wildlife from harm ($p < 0.001$): 'The forests, the animals, the birds, they all belong to everyone. Not directly but indirectly, they are in our life somewhere, so that's why it's everyone's responsibility to protect them (male, 30s, Shankudhura)'. Among those who felt that forest conservation obligations belonged to villagers, 33% specified that they had a duty to protect wildlife, and 28% mentioned obligations to prevent poaching. Some (17%) indicated that villagers would benefit from protecting wildlife habitat by limiting resource use. Women were significantly more likely than men to agree that if people leave enough resources in the forest for wildlife, wildlife will stay away from villages (67% women vs. 54% men, $p = 0.038$; Table S8.5). Among participants who assigned responsibility to the VP forest council (14%), most emphasized the importance of healthy VP forests for keeping wildlife away from villages (67% focusing on conservation; $p < 0.001$).

Those focused on Forest Department obligations (31% overall) were significantly more likely to emphasize control-related responsibilities (47%, $p < 0.001$), with most citing the state's legal obligations to manage wildlife populations to protect people and their livelihoods. Ten percent stated that wild animals belong to the government, and 25% suggested that the Forest Department was responsible because wildlife predominantly inhabits Reserve Forests. Eighty-five percent mentioned the state's institutional duties to conserve wildlife and prevent damages, although 28% of participants also noted that the Forest Department did not effectively fulfill these mandates. Households which did not hold rights in VPs were significantly more likely to assign responsibility to the Forest Department (42% vs. 29% of rights-holding households; $p = 0.036$).

Participants' responses revealed mistrust of government actors, and 55% of participants agreed that 'the government values the lives of wild animals over the lives of people' (Table S8.6). Agreement with this statement was significantly higher among households highly dependent on agriculture (63% vs. 44% of livestock-dependent households and 38% of non-farming households, $p = 0.020$), and lower

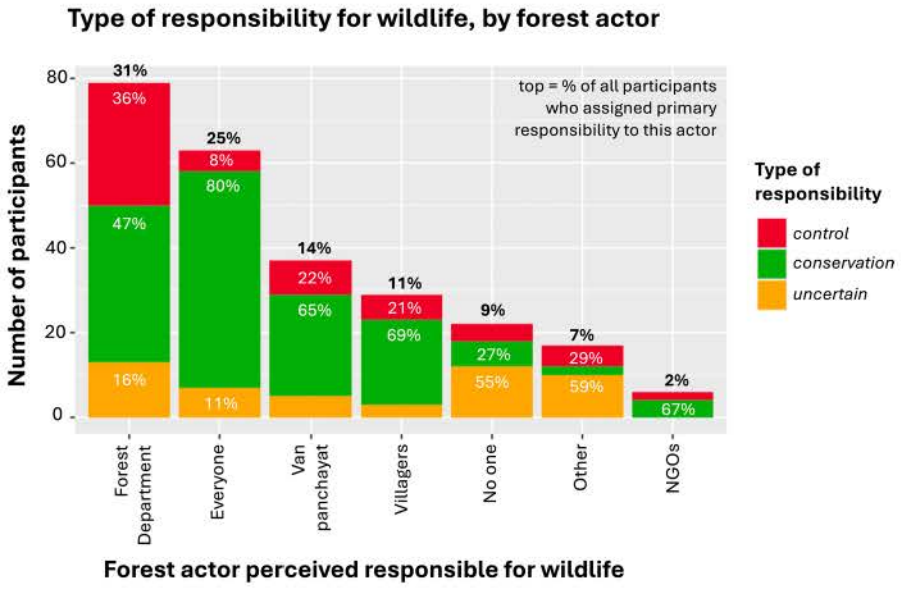


FIGURE 4 Type of responsibility for wildlife by forest actor. 'Control' responsibilities refer to actors' obligations to control wildlife or prevent them from causing damage to humans. 'Conservation' responsibilities refer to actions or values associated with caring for protecting conserving and improving the well-being of wild animals. Responses coded as 'uncertain' did not clearly explain whether participants understood 'taking care' of wildlife as an obligation to control them or conserve/protect them. Percentages on the top of each bar indicate the total proportion of participants who assigned primary responsibility to each forest actor.

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income households (66%, $p=0.013$). Residents under 30 (36%, $p=0.030$) and university graduates (33%, $p<0.001$) were significantly likelier to disagree. Variation by village cluster was also evident, with those living alpine (74%, $p=0.009$) or rural (64%) villages more likely to agree than those in market-adjacent (49%) or market villages (45%). Participants who agreed that the government values wildlife over people were also significantly more likely (65% vs. 49%; $p=0.013$) to regard killing wildlife as an acceptable strategy for managing conflict.

Participants proposed a variety of potential measures for mitigating the effects of HWC, such as more efficient compensation processes, Forest Department-sponsored salaries for *chowkidar* (guards), and relocation or deterrence of problem wildlife. More tolerant participants proposed (1) adapting to the impacts of wild animals' presence through livelihood diversification (e.g., wage labour or converting from edible crops to plantation timber); and/or (2) reducing crop and livestock depredation by protecting healthy forest ecosystems. Many participants, such as a young man from Jainti, insisted that they and their communities, as well as the Forest Department, held moral obligations to balance the needs of wildlife and humans in the landscape:

> We can't just say to the Forest Department you go and protect them, it's also people's responsibility to limit their use of resources, so that the animals will not move down into the villages. Because they can only stay in the forest if there is a forest to stay in. Forest conservation should be mandatory for each and every villager. [...] The government should take care of both animals and human beings equally because both play an important role in the ecosystem.

Such responses highlighted the responsibility of forest-dependent human communities to manage resources responsibly and protect wildlife habitat, underscoring a common forest stewardship ethic which valued wildlife as rightful cohabitants and saw forest protection as a key HWC-mitigation strategy.

4 | DISCUSSION

Concerns about escalating HWC have prompted considerable research on drivers of conflict alongside conflict mitigation strategies (e.g. Oommen, 2021; Pooley et al., 2021). Yet, there is comparatively little research on positive contributions of wildlife presence to human well-being and the cultural underpinnings of care and tolerance towards wildlife among rural communities (notable exceptions within India include Dhee et al., 2019; Jolly et al., 2022; Thekaekara et al., 2021; Venkataraman et al., 2021). Given the consequences of HWC for both humans and wildlife, our work suggests that studying conflict without adequately considering these positive dimensions of human–wildlife relations limits possibilities for: (1) understanding how encounters and experiences permeate people's attitudes towards wildlife, including how these vary among groups; (2) situating retaliatory killing of wildlife appropriately as an extreme example of intolerance; (3) developing HWC-mitigation strategies that build and support communities' capacity for coexistence through institutions like the VP, rather than eliminating the human–wildlife interface.

4.1 | Framing conflict and coexistence

Recent contributions on HWC have characterized conflict and coexistence as occupying opposing ends of a spectrum (e.g. Bhatia et al., 2020; Frank et al., 2019; Nyhus, 2016). Alongside scholars like Pooley et al. (2021), our results challenge this theoretical framing by suggesting that many people experiencing conflict *also* value wildlife for the benefits they bring to the forests and people. These range from enjoyment and spiritual reverence to appreciation for positive contributions of wildlife to human health and balanced forest ecosystems. Studies in other regions of India have described cultural norms about wildlife that promote ethics of care and tolerance, informed by Adivasi and other forest-dependent Peoples' worldviews acknowledging humans as part of interconnected forest ecosystems (Aiyadurai, 2016; Jolly et al., 2022; Thekaekara et al., 2021). The views of participants in our study reflected broader cultural and spiritual narratives of wild animals in affirming that wild animals have an inherent right to exist on the landscape, and that people and animals both hold responsibilities for maintaining a peaceful, shared society. This may well contribute to the remarkable survival of wildlife in the region alongside human use and presence. Considering the widespread defaunation of forests in many parts of the world (Benítez-López et al., 2019), this persistence despite high levels of conflict is notable.

Recognizing the contribution of positive perceptions of wildlife to coexistence suggests a need to rethink HWC-mitigation approaches that focus only on reducing interactions. Our results indicate that ethics of care can be informed by encounters that occur during routine resource gathering and stewardship activities. Thus, although strategies which separate wildlife and people can effectively address direct sources of conflict, they may also inadvertently undermine coexistence in the long term by reducing the practices and familiarity that build tolerance. Coexistence can usefully be framed instead as a state of human–wildlife interaction which *may include* interaction and some degree of conflict, but where tools and recourse for people to protect their safety and livelihoods are available. In addition to better-explaining contexts where positive attitudes and conflict co-occur, this conceptualization more closely reflects the worldviews of many forest-dependent communities who share space and relationships with wildlife, in India and more broadly (Jolly et al., 2022; Pooley et al., 2021; Snodgrass & Tiedje, 2008).

4.2 | Willingness to kill as a measure of tolerance

Participants' perceptions of the acceptability of killing wildlife in conflict situations were also instructive. We did find, as have other

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studies, that women are significantly more likely to see wildlife in forests as rendering people unsafe (e.g. see also Bhatia et al., 2020; Ogra, 2008). And yet, women in this study were significantly *less* likely to be willing to kill wildlife than men. This may reflect the amount of time spent in forest spaces across routines that are primarily the responsibility of women such as food, firewood, and medicinal resource collection. They may thus be more likely to encounter wildlife *both* in circumstances of conflict and in situations which reinforce ethics of care (see also Ogra, 2008 on this point).

Our results also showed that attitudes about killing wildlife differ significantly across villages, including proximate villages. Differences may be driven by variations in patterns of behaviour among wild animals habituated to certain food sources and interactions. For example, participants in our study reported few attacks by leopards in Johar Valley, yet human–leopard conflict is prevalent elsewhere in Pithoragarh and in the neighbouring Garwhal region, where attacks have prompted considerable fear and retaliatory killings (Srivastava et al., 2020). Scholars have argued for the need to examine factors driving conflicts between leopards and elephants, among others, including the role of animals' learned individual or group behaviours (Carter & Linnell, 2016; Dhee et al., 2019; Thekaekara et al., 2021). The agency of wildlife has garnered considerable attention in academic literature, explicitly affirming the worldviews of Adivasi and other Indigenous Peoples who emphasize the role of animals and other non-human beings in co-creating human–animal relationships (Jolly et al., 2022; Nadasdy, 2007). These insights underscore that human–wildlife relations are inherently specific, not only to the place but to the individuals, institutions, and animals whose specific encounters shape people's perceptions, and make it difficult to extrapolate across broad geographic areas or stakeholder groups.

While most participants suggested that killing wildlife was unacceptable, importantly, people's behaviour may not match their stated beliefs. Our results likely underreport the extent of retaliatory killing and hunting of wildlife, given its illegality and strong social and religious taboos against killing wild animals. As Govindrajan (2018) and Kinkaid (2019) have reported, the current political climate in Uttarakhand may affect participants' willingness to resort to lethal control measures or engage in hunting, as social censure against killing wildlife has been heightened by emboldened Hindu nationalism and the passage of several laws raising scrutiny and increasing punishments for the slaughter of animals, including a state supreme court ruling on the rights of animals (2018). These social pressures may reduce the incidence of wildlife killings. They may also contribute to empathetic perceptions of animals and support for the rights of wildlife to share their space. Yet, there is also potential for increased frustration when no other recourse to mitigate damages exists, as evidenced by the desperation in some participants' responses. Most people do not have access to weaponry, which may reduce the likelihood of retaliatory killings in such cases. Beyond social pressure and legal consequences, low levels of hunting may be partially explained by reportedly scarce ungulate populations.

From a conservation standpoint, HWC literature and conservation policy has been disproportionately concerned with retaliatory killing of wildlife in situations of conflict. For some species (e.g., snow leopards, see Bhatia et al., 2017), these behaviours indeed have considerable negative consequences for conservation outcomes. However, while retaliatory killings may represent the most obvious and well-reported symptom of conflict, they likely affect wildlife less than other human activities driving habitat loss, landscape fragmentation, and climate change. Participants in this study spoke explicitly to the idea that the *absence* of directly negative interactions does not mean human behaviours lack consequences for wild animals. The reverse is also true. In some cases, apparent tolerance for wild animals' presence may simply be people's way of coping with a situation thought to be irremediable. Thus, while willingness to kill wildlife can shed light on underlying attitudes and tolerance under extreme conditions, it may be an insufficient metric for understanding coexistence.

4.3 | Responsibility for wildlife and the role of community forest institutions

High levels of forest dependence and strong forest activism, supported by the institution of the VP, have contributed to a widely held forest stewardship ethic in Uttarakhand (Agrawal, 2005). This history is well documented, as are the changes in forest governance in response to evolving gender norms, rural outmigration of youth, and market forces (Ballabh et al., 2002; Negi et al., 2012; Stevens & Satterfield, 2024). However, forest activists' successes in protecting forest habitat and advancing recognition of rural forest rights in Uttarakhand have not included rights to wildlife management decisions. Formal institutional responsibility for managing wildlife has remained firmly in state hands despite constitutional measures to democratize responsibility for wildlife protection (Kavuri, 2020). This has pitted wildlife advocates and forest-dependent communities against each other in the policy space and effectively decoupled the politics of care for forests from the politics of care for wildlife.

As Redpath et al. (2013) have theorized, HWCs often reflect human–human ones; tensions between the state and local communities are a prime example. We documented a tendency among rural households to reject responsibility for wildlife and assign blame to the Forest Department in situations of conflict, meaning that the involvement of the state was most often sought when 'its' wildlife began to cause trouble. These perceptions have a long history: Since at least the advent of late 18th century, laws asserting colonial authority over wild animals, communities at odds with the state have interpreted wildlife as symbols of government intrusion, sometimes resulting in retaliatory killing motivated by perceptions of mismanagement and prioritization of wildlife over human well-being (Saberwal, 2000; Saravanan, 2023; Thaker & Parikh, 2021).

Our results highlighted monkeys as the 'poster child' for anger over government mismanagement. Participants expressed frustration with overt actions such as alleged relocation of plains monkeys into mountain spaces as well as broader failures to protect agrarian communities from their appetites. Given existing perceptions of neglect and alienation from Indian society among mountain

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communities like those in Johar Valley, conflicts with monkeys bolster a conviction that the state values wildlife (and urban humans' well-being) over rural people. Our findings suggest that members of more marginalized groups are understandably more likely to feel victimized by state wildlife policy. We argue that by asserting itself as the owner of wild animals, the state may have compromised management efforts by (1) excluding communities from undertaking activities potentially impactful wildlife managers; and (2) reinforcing the notion that the wildlife inflicting damage is not communities' responsibility, exacerbating attitudes of mistrust and frustration about government priorities which may be taken out on wildlife.

These tensions notwithstanding, our results suggest that communities considered themselves impactful conservation actors, taking on responsibilities for wildlife protection despite lacking legal management authority. This sense of responsibility was evident across all demographic groups, even those most exposed to conflict and mistrusting of government authorities (e.g., rural and alpine communities, less educated individuals, and women), suggesting a prevalent ethic of tolerance towards wildlife on its own terms. Many participants in this study argued that both local and state failures in forest management have exacerbated HWC. Accordingly, many participants emphasized forest stewardship and limiting resource use as important tools to prevent wildlife from being forced into situations of conflict, while also seeking practical support in deterring wildlife from agricultural fields using non-lethal methods. Building on the concept developed by Bhatia et al. (2020), we could consider these management strategies as a form of manifested *tolerance*, or actions deliberately taken to support positive human–wildlife relations and shared use of the landscape. Because local environmental management practices have only rarely been explored as drivers of conflict or coexistence, our results offer an important contribution in this space by documenting that local people are clearly aware of the indirect effects of human actions on wildlife well-being, *and* consider effective local forest stewardship as an important way to mitigate HWC and foster positive human–wildlife relationships.

In landscapes with long histories of human–wildlife coexistence, local environmental governance institutions like VPs may thus be situated in key roles as conservation actors. They already protect habitat, monitor resource use and activities, and mediate human–wildlife relationships within common sites of encounter, yet they lack legal authority to manage wildlife. Building wildlife management capacity in these institutions could potentially enable them to play a central role in (1) mitigating conflict using locally relevant strategies; (2) fostering already-prevalent conservation ethics; and (3) alleviating frustrations associated with state-directed management. Examples like Namibia's community conservancy programs have seen considerable success (Powell et al., 2017; Scanlon & Kull, 2009); yet, with some exceptions (e.g., Shrestha et al., 2014), these types of models appear rarely applied to wildlife management within existing community forest institutions.

Scholars and many community forest managers wonder whether VPs will endure in the long term, observing waning community involvement in VPs due to widespread youth outmigration and changing livelihoods (Ballabh et al., 2002; Negi et al., 2012; Stevens & Satterfield, 2024). Changing governance of VPs may have significant implications for future human–wildlife relations. Stories of direct encounters related during this study were often infused with empathy, suggesting that frequent interactions with species considered nuisances—though fraught with conflict—may foster care towards these and other wild neighbours. While changes in livelihoods could ameliorate conflict directly by reducing the agriculture–wildlife interface, they may also restrict opportunities for experiences in community forests which support caring and tolerant attitudes towards wildlife. Thus, the persistence and function of community forest institutions like VPs hold important implications for the future of wild animal species in shared landscapes.

4.4 | Limitations and areas for future study

While these results may be considered indicative of perceptions across the 15 villages we surveyed, which in turn share characteristics common to the broader region, our study design was not intended to represent all residents in the valley or region. Because our aim was to characterize perceptions of wildlife among a diverse but relatively cohesive regional network, we decided to sample villages *purposively* rather than randomly, limiting the feasibility of more robust statistical approaches. Further, given the small populations in many of these villages, the sample sizes in each village were too small to support reliable inferential analysis. We suspect that the issues and attitudes described by people we surveyed likely resonate in other high mountain villages in Uttarakhand, but they may vary even in closely adjacent areas, for example regarding leopards, as previously discussed. We were also not able to put forward the kinds of causal explanations more robust analysis with a much larger sample might enable.

Additionally, while the fieldwork team recorded the age, gender, and other characteristics of the individual whose perspective each survey most represented, multiple individuals were present in some cases, sometimes with important power imbalances (e.g., a 20-year-old female primary respondent whose father was present). These dynamics limit our ability to make robust inferences based on variation in participants' responses on demographic bases and contributed to our determination not to conduct a multivariate analysis. A larger, randomly sampled survey exploring human–wildlife in the region would therefore enrich this area of research.

Moreover, household surveys have inherently limited power to reflect questions of meaning and relationships. This is of concern especially given the limited amount of time to build trust among participants and researchers, who may be perceived as aligned with wildlife interests (e.g., government and/or conservation institutions). Further in-depth qualitative research into people's affective experiences with wild animals and the cultural underpinnings of these attitudes, such as the work carried out by Jolly et al. (2022), would support a deeper understanding of these relationships in specific contexts, and better attend to the complexities of sensitive political topics like retaliatory killings. Multispecies ethnographic approaches

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like those used by Govindrajan (2018) offer notable richness in terms of explaining the complex drivers of attitudes towards wildlife. Contextualized with in-depth interviews with forest managers, our household survey approach aimed to offer a broad perspective on diverse households' views on wildlife, but in doing so likely misses some important nuance.

Given the dearth of published research on wildlife populations in the region, and surprisingly little investigation of the ecological role of community forests in supporting wildlife, this is a key area for future research. Connectivity analyses accounting for anthropogenic factors affecting wildlife movement, including jurisdictional and spatial patterns of tolerance (Ghoddousi et al., 2021), could advance the understanding of VP contributions to wildlife-compatible landscapes, as could larger *n* studies on affective attitudes towards wild animals. Many community members feel poor forest stewardship is a key driver of HWC, which suggests an important area for future research overall.

5 | CONCLUSIONS

Ethics of care and coexistence persist among residents of rural, forest-dependent mountain communities despite the pressing challenges of HWC. Moreover, VP community forests in Johar Valley play an important role in protecting wildlife and maintaining tolerant relationships between humans and wild animals. According to local people, promoting effective conservation of nearby forests is a key strategy to mitigate conflict. Currently, VP councils lack authority to manage wildlife, or even participate in decisions about wildlife management. We argue that this exclusion compromises local communities' existing efforts to both protect wildlife and mitigate their damages, causing undue hardship and resentment of management approaches where people see wildlife as the property and responsibility of the Forest Department.

While retributive killing does pose a serious issue in some contexts, it is not among the most significant threats to the persistence of wild creatures. A sizeable proportion of the world's forests are community-governed; their positive contributions towards wildlife conservation and the roles of local governing institutions in managing wildlife merit further investigation. Wildlife protection has been largely described as an incidental benefit of commons governance, yet our results speak to communities' *deliberate* consideration of wildlife outcomes and well-being when making forest management choices. Re-framing (both conceptually and legally) the roles of local forest institutions to accommodate these perspectives could help to ameliorate somewhat the still acrid relationships between forest-dependent Peoples and conservation organizations/advocates, particularly in India, and empower local communities to care for wildlife and manage challenging human–wildlife interactions more effectively.

AUTHOR CONTRIBUTIONS

Madison Stevens conceived and designed the study, with support from Terre Satterfield. Data collection was performed by Madison Stevens and Shalini Rawat, while analysis was performed by Madison Stevens, with Shalini Rawat's assistance. The first draft of the manuscript was written by Madison Stevens and all authors worked on edits to later versions of the manuscript, and read and approved the final manuscript.

ACKNOWLEDGEMENTS

We are grateful to M. Virdi, R. Krishnamurthy, N. Srivastava, S. C. Joshi, and L. Bisht for fieldwork assistance and support, and to J. Bulkan, D. R. Boyd, S. Nawaz, and E. Gavenus for their constructive feedback during manuscript preparation and revisions. We also acknowledge funding provided by the Mitacs Globalink Research Award (FR41778) and the Public Scholars Initiative (F21-02193) at the University of British Columbia.

CONFLICT OF INTEREST STATEMENT

The authors declare no competing interest in the conduct of this research.

DATA AVAILABILITY STATEMENT

Data cannot be made publicly available to protect the anonymity of participants, a condition stipulated in the research ethics approval. Explanation of coding criteria and examples of responses are provided in Appendix S7.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Appendix S1. List of species mentioned by participants.

Appendix S2. Semi-structured interview questionnaire.

Appendix S3. Survey workplan.

Appendix S4. Survey questionnaire (wildlife questions).

Appendix S5. Details of villages surveyed.

Appendix S6. Demographic results of the household survey.

Appendix S7. Codes and coding criteria for re-coded dependent variables (from open-ended responses).

Appendix S8. Crosstabulations of survey responses.

Appendix S9. Results—reasons for actors' responsibilities for wildlife.

How to cite this article: Stevens, M., Rawat, S., & Satterfield, T. (2025). Care, conflict, and coexistence: Human–wildlife relations in community forests. *People and Nature*, *7*, 231–246. https://doi.org/10.1002/pan3.10760

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