

Co-Existence at the Crossroads: Causes, Impact, and Mitigation Strategies of Human-Wildlife Conflict in Sariska Tiger Reserve

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ABSTRACT

Human–wildlife conflict in Sariska Tiger Reserve is formed by three distinct clusters of factors: genesis, varied impacts, and coping or mitigation strategies. Sariska is a human-dominated tiger ecosystem where villages exist within the reserve, extensive livestock grazing, fodder collection, and associated traffic, religious tourism, and poaching have led to tiger extinction and governance challenges influencing present co-existence. Tiger reintroduction in the region has increased the complexity of interactions between tigers and people as the tiger population recovers within the shared human–wildlife landscape. These factors have been detrimental to conservation and human populations by creating livestock depredation risks, negative attitudes toward forest officials, threats to livelihood, gender discrimination, and covert gender-based violence among several other unaccounted impacts. Evidence shows that long-lasting mitigation strategies require ecological risk reduction coupled with building tolerance, compensation, husbandry, community involvement, and targeted regional interventions in human-dominated tiger landscapes. Therefore, the discussion demonstrates that co-existence is possible in Sariska Tiger Reserve by overcoming the challenges posed to conservation and livelihood at the crossroads of a human-use dominated landscape.

Keywords: Human–Wildlife Conflict, Coexistence, Gendered Impacts, Tiger Reintroduction, Mitigation, Compensation, Conservation Justice.

Introduction

Human–wildlife conflict in Sariska Tiger Reserve is best defined by genesis or causative factors, impacts, and mitigation or coping strategies rather than by direct animal attacks. Sariska is both a conservation and rural landscape, with villages, livestock, pilgrimage routes, roads, and wild tigers interacting in ways that make human–wildlife conflict inevitable (Kumar, 2020; Malviya, 2022).

The reserve also has the added challenge of being a region where tigers went locally extinct and re-established themselves, with conservation and local human livelihoods becoming increasingly difficult to balance due to tiger recovery (Reddy, 2008; Kumar, 2020; Malviya, 2022; Cheng, 2024; Badola, 2021). The human–wildlife conflict thus emerges as a crossroads of conservation and local human livelihoods and has far-reaching ecological and social implications.

History

Sariska Tiger Reserve is located in Alwar district of Rajasthan and is found within the Aravalli hill range. Several studies describe Sariska as a landscape with a plateau and valley topography (Parmar, 2024). A study on human–wildlife conflict describes the reserve as 140 km away from Jaipur with a total forest area of approximately 800 km², while others describe it as having an 881 km²

critical tiger habitat and a 334 km² buffer zone with significant variations in study descriptions (Parmar, 2024; Malviya, 2022). However, survey-based research provides precise coordinates for the reserve, including 27° 5' N to 27° 33' N and 76° 17' E to 76° 34' E, making it easy to identify on a map panel (Malviya, 2022).

Sariska's forests were once the hunting grounds of the Alwar Maharajas before gaining protected area status after independence. Sariska forest was declared a state reserve in 1955 and notified as a wildlife sanctuary in 1958, subsequently gazetted as a tiger reserve in 1978 and a national park in 1982, with settlement proceedings still underway at the time of publication (Torri, 2011; Meena, 2015). The region is infamous for being the site of the first ever recorded tiger extinction in an Indian tiger reserve, with tigers going extinct in 2005 before being reintroduced to the reserve in July 2008 and February 2009 (Reddy, 2008; Kumar, 2020; Malviya, 2022).

Causes

The major cause of human–wildlife conflict in Sariska Tiger Reserve is the interaction between people and animals in the shared environment. Locals rely on the forest for grazing and fodder as their livelihood, creating a continuous risk of human–wildlife conflict (Kumar, 2020; Malviya, 2022). This is one of the factors that make Sariska an example of human–wildlife conflict as it is a region with high levels of interaction between humans and tigers. This has been associated with increased risks of livestock being depredated and the subsequent negative perceptions of wild tigers by locals, who view the animals as threats to their livelihood (Struebig, 2018; Cheng, 2024; Lubis, 2020).

Another cause of conflict in the reserve is the increased space competition within the region, with locals living inside the forest or close to the critical tiger habitat area, making the tiger's survival dependent on the local human population (Kumar, 2020). Recent research on tiger behavior in Sariska shows that the animals have a reduced home range due to high competition, with fatal tiger–tiger conflict being reported (Bhardwaj, 2024).

The genesis of human–wildlife conflict also includes the poor forest governance that has characterized the region and made conservation and human livelihoods incompatible. Sariska has a history of rampant poaching with local communities being involved in the illegal trade through organized hunting and crop protection (Kumar, 2020; Malviya, 2022; Reddy, 2008). Governance issues have also been reported, with the inadequate staffing of frontline staff negatively impacting the control of poaching activities and affecting the security of the tiger population in the region (Kumar, 2020). A third genesis of human–wildlife conflict in Sariska includes the social and political factors influencing the interactions between the local human population and the forest. Studies on the human dimensions of conflict show that the tension is triggered when forest governance is not devolved, benefits from conservation are distributed unequally, and local communities do not participate in decision-making (Kumar, 2020; Rubino, 2021; Meena, 2015). Other researchers argue that human–wildlife conflict is not merely a wildlife issue but is instead a human problem involving human beliefs and behaviors (Stevens, 2024; Padmakumar, 2023). A fourth genesis of conflict is the conservation recovery process, which creates additional human–wildlife interactions with the risk of increasing human impacts on tiger habitats (Cheng, 2024; Malviya, 2022). For example, Sariska's first reintroduced tiger was poisoned after it killed livestock (Malviya, 2022).

Tourism

The role played by tourism in Sariska Tiger Reserve has been described both in terms of the economic benefits derived from it and the human dimensions of conflict. Approximately two-thirds of respondents had positive perceptions of wildlife tourism and conservation, with benefits influencing positive attitudes toward tourism (Sekhar, 2003). The same study shows that tourism is a system controlled by specific agencies rather than a tool for distributing benefits to local communities (Sekhar, 2003). Evidence indicates that wildlife conservation benefits from tourism, although the allocation of these revenues has been questioned because of the lack of equity in distribution and the limited roles played by local communities (Sekhar, 2003; De, 2014).

Tourism is also a contributor to the human dimensions of conflict and has been identified as a pressure on the forest ecosystem alongside other factors like mining and biomass collection (Shahabuddin, 2006; Dular, 2015). Some researchers argue that nature-based tourism, with its associated compensation and participatory governance, can reduce forest pressure and promote conservation (De, 2014; Sekhar, 2003).

Encroachment

Encroachment in Sariska is described in the context of the high number of villages within the reserve, the heavy traffic of pilgrims and road traffic, and the increased grazing and collection of fodder and fuel by locals. These factors have been reported as having increased competition for space within the tiger habitat and contributing to the degradation of the region (Kumar, 2020; Jain, 2016). Several studies describe encroachment as one of the most significant causes of biodiversity loss and habitat degradation in the tiger reserve (Jain, 2016; Shahabuddin, 2006; Dular, 2015).

The impact of encroachment has been exacerbated by governance issues in the region, which have resulted in poor protection and conservation of the forest and increased degradation (Meena, 2015; Kumar, 2020; Torri, 2011). Encroachment has had far-reaching effects, with researchers noting that the core forest area is significantly lower now than in previous years, and the region has more fragmented, patchy, and perforated forest than before due to increased human activity (Jain, 2016).

Villages, grazing, and pilgrimage sites and road networks have been identified as the main contributors to biodiversity loss and forest degradation (Dular, 2015; Shahabuddin, 2006; Jain, 2016). The influence of encroachment on the forest is both ecological and governance-related since corruption and the lack of devolution contribute to the problem (Meena, 2015; Kumar, 2020; Torri, 2011). In addition to ecological impacts, increased human interaction reduces the forest's ability to provide benefits like water and firewood and negatively impacts forest-dependent communities.

Across all causes, Sariska conservation has been characterized by a dilemma in which efforts to promote tiger conservation while minimizing the impact on local residents involve removing people to reduce human–wildlife conflict and the associated costs to humans and conservation.

Impacts

The most direct impacts of human–wildlife conflict in Sariska Tiger Reserve include livestock loss, which causes financial losses to herders, and negative attitudes toward the forest, which has adverse effects on conservation. Human–wildlife conflict in India has been associated with a wide range of economic, social, and psychological effects, including livestock loss, property damage, injuries, reduced support for conservation, and increased human–wildlife interactions (Padmakumar, 2023; Badola, 2021). Ecologically, tiger attacks on livestock are a significant threat to conservation due to the increased competition for prey and the resulting retaliatory killings of the animals (Cheng, 2024; Lubis, 2020). In addition, tigers that resort to eating livestock have fewer survival chances, and the retaliatory killings further threaten tiger conservation (Cheng, 2024; Lubis, 2020).

The financial losses associated with livestock depredation are especially challenging in Sariska because the local communities are dependent on the forest and its resources for their livelihood. The forest provides essential resources, making the communities susceptible to any changes and vulnerable to conservation-related impacts. This characteristic has been identified in several studies on human–wildlife conflict, linking local people's reliance on forest resources to increased human–wildlife conflict (Reddy, 2008; Malviya, 2022; Meena, 2015). In addition, mistrust and lack of cooperation between the local communities and forest officials further exacerbate the effects of conflict and negatively impact conservation since the former are not willing to support the latter (Meena, 2015).

The social impacts of human–wildlife conflict are complex and multifaceted, with the fear of wildlife causing long-term adverse effects, such as negative attitudes toward the animals and decreased conservation support. Sariska's reintroduced tiger program has been associated with an increase in these effects since the locals perceive the animals as foreign, threatening their livelihood and changing the interspecies relationships they once shared with the tigers (Doubleday, 2018). As a result, several respondents associate wildlife with danger and consequently develop negative attitudes toward the animals and conservation (Malviya, 2022).

In addition to the economic, ecological, and psychological impact, human–wildlife conflict causes adverse social impacts to communities. The most significant effect in this category is the gender-based impact, which has been described as a hidden aspect of human–wildlife conflict. Women experience more adverse effects than men and carry the burden of the encounter in various ways, with several studies describing the effects as non-linear (Rubino, 2021; Doubleday, 2021; Doubleday, 2018). For example, the presence of tigers reduces women's autonomy, with their mobility and activities being affected by the fear and the need to avoid areas with the animals. Studies also indicate that women are more likely to be affected by gender-based violence (Doubleday, 2020; Doubleday, 2018). The increased

violence is attributed to human–wildlife conflict-related stress and has adverse social and psychological effects on the communities. Additionally, women's voices are rarely heard or considered, despite the impacts they face, with patriarchal norms dictating that their perspectives are not important. In particular, dowry-related violence occurs more frequently during conflict situations, with families reluctant to adhere to traditional practices but unable to control the expectations of the patriarchal system. Gender discrimination manifests during human–wildlife conflict in other ways, such as through the division of roles or labor between genders. Therefore, the social impacts of conflict in Sariska are significant and long-reaching and have adverse effects on the general well-being and peace of the communities.

In addition to the effects on the local communities, human–wildlife conflict also impacts the sustainability and success of conservation initiatives. Livestock loss and subsequent retaliatory killings threaten tiger conservation and create negative attitudes toward forest departments, reducing the likelihood of communities supporting conservation efforts (Badola, 2021; Cheng, 2024). These impacts decrease the chances of long-term co-existence and contribute to adverse social attitudes and tension between communities and forest officials (Nyhus, 2016).

Coping and Mitigation

Evidence from the research literature shows that individual, institutional, and policy-level interventions can reduce human–wildlife conflict, with the most effective strategies being ecological risk reduction, social tolerance promotion, and the provision of compensation, incentives, and support to affected communities. Ecological risk management strategies include targeted interventions based on models that identify regions where conflict is likely to occur. Socioeconomic approaches, on the other hand, include creating awareness and encouraging tolerance toward wildlife and investing in compensation and incentive systems for locals affected by human–wildlife conflict (Struebig, 2018; Cheng, 2024; Lubis, 2020; Holland, 2018).

Livestock grazing and management are vital in human–wildlife conflict mitigation in Sariska since cattle movement causes the majority of human–wildlife interactions. Similar studies on tiger-human conflict have shown that livestock management strategies, compensation, and incentives are the most effective way of reducing human–wildlife conflict, even though they have not been rigorously evaluated (Holland, 2018). In other regions with tiger conflicts, risk reduction approaches have been implemented by developing tiger-proof corrals and using visual deterrents and lights to prevent wildlife from attacking livestock (Lubis, 2020; Datta, 2024).

Compensation and incentives play a significant role in conflict mitigation, and evidence shows that their effectiveness depends on the design of the compensation mechanisms. Local people generally respond to tigers and compensation policies based on their perceptions of the animals and the financial benefits derived from the compensation packages or the absence thereof (Malviya, 2022). Moreover, general evidence indicates that the current compensation system in India for human–wildlife conflict does not fully offset the losses suffered by communities, which explains the need for alternative approaches to conservation (Badola, 2021). Therefore, although financial incentives may be essential in promoting tolerance of wildlife, they might not be sufficient because of inadequate compensation or perceived unfairness (Cheng, 2024; Malviya, 2022).

Community participation is another crucial element in human–wildlife conflict mitigation. Most studies on human–wildlife conflict agree that conservation initiatives involving local people and addressing their needs are the most effective ones (Meena, 2015; Rubino, 2021). Evidence from Sariska indicates that communities want to benefit directly from their relationship with the forest and are willing to comply with forest department regulations if they perceive these actions as promoting communal benefits. Studies on the broader issue of co-existence also support this viewpoint, suggesting that management strategies should not rely solely on separation to achieve co-existence but acknowledge and build upon the social interactions and relationships that already exist between communities and wildlife (Stevens, 2024).

Relocation, Coexistence, and Policy Tension

There is an ongoing debate concerning the role played by relocation in promoting co-existence in Sariska Tiger Reserve in particular and India in general. Some evidence shows that human–wildlife conflict is inevitable in certain cases, particularly with increasing human activity occurring in areas that have been considered protected forests for extended periods. Sariska Tiger Reserve has been studied extensively, and suggestions for improving conservation while promoting human livelihoods involve

relocating local communities who reside within the critical tiger habitat (Bhardwaj, 2024). This has been recommended, particularly in Sariska, because the tiger numbers have grown, and human activities interfere with the animals' continued existence in the region (Reddy, 2008; Singh, 2023). Other researchers have proposed a similar approach for tiger conservation in general since it allows animals to inhabit forests while limiting the proximity of humans to minimize conflict risks (Cheng, 2024; Badola, 2021). The issue with the proposed solution is that it ignores the social implications of community relocation and its subsequent long-term impact on conservation, which has been widely debated in the research literature.

Sariska has a history of conflict and competing interests between the local residents and other stakeholders, particularly those involved in conservation. These dynamics have occurred repeatedly since the establishment of the reserve, with the initial conflict erupting between local people and the Alwar Maharajas due to the latter's ownership and use of the region as a hunting ground (Torri, 2011; Meena, 2015; Shahabuddin, 2006). During the post-independence period, forest governance was devolved to the local level, and the reserve was managed by various government agencies, resulting in continued tensions between locals and forest officials. Sariska has a complex history of human–wildlife interactions since the establishment of the forest reserve with increasing human activity contributing to tiger extinction and subsequent relocations (Shahabuddin, 2006; Jain, 2016; Reddy, 2008; Kumar, 2020).

After the tiger extinction in the early 2000s, the local communities were relocated from the core area to allow for tiger reintroduction and conservation while addressing the concerns of residents who viewed the animals as a threat to their livelihoods (Shahabuddin, 2006; Jain, 2016). However, this approach has always been controversial since locals are given little or no say in the process. As described in detail in the literature on Sariska, most residents have questioned the relevance of conservation when their needs and wants are not considered by those implementing the initiatives (Meena, 2015; Rubino, 2021; Kumar, 2020). Additionally, the impact of human livelihood activities was taken into account in conservation, with the forest department realizing that the forest resources were not a choice for locals (Reddy, 2008; Jain, 2016). Therefore, although the intent behind the relocation of these communities has been conservation, its effectiveness has been questioned due to several factors, including the disregard for the local community's opinions and the failure to adequately address their needs, as well as the fact that these people continue to live in close proximity to the forest.

Evidence also shows that human–wildlife conflict has far-reaching social and psychological impacts. Locals are reluctant to move away from the forest to settle elsewhere because of their deep-rooted emotional connection to the region (Gurjar, 2013; Kabra, 2022). Moreover, several studies on human–wildlife conflict show that people tend to develop negative attitudes toward wildlife when they perceive the animals as threatening their livelihood, an occurrence that has been documented extensively in Sariska due to the high number of livestock deaths (Torri, 2011; Kumar, 2020). Consequently, the negative attitudes increase the chances of deliberate human interference, reducing the likelihood of achieving the intended co-existence (Kabra, 2022; Singla et al., 2017).

Research on the social aspects of human–wildlife conflict suggests that there is potential for co-existence between local communities and wildlife. In most cases, it is possible to promote co-existence and conservation without the need for removing people. Although conservation requires a minimum level of exclusion as a measure for achieving ecological integrity and reducing human impacts, co-existence is possible in many cases (Stevens, 2024; Cheng, 2024; Nyhus, 2016). As described in detail in several articles reviewing Sariska Tiger Reserve, the local communities and wildlife exist in close proximity to each other, with human–wildlife interactions being inevitable in such a setting. The interactions lead to human–wildlife conflict, which has far-reaching adverse effects on the communities and conservation (Kabra, 2022; Singla et al., 2017). However, human–wildlife conflict can be addressed by designing ecological interventions that reduce the risks and promote tolerance in addition to providing compensation, incentives, and support to locals.

Conclusion

Human–wildlife conflict in the Sariska Tiger Reserve emanates from high human usage of the tiger habitat, past governance failures, reliance on the wildlife resource base, and the paradox of increased tiger numbers causing fear among locals. Its effects are economic, environmental, political, and most significantly, social, with studies indicating that women bear a higher disproportionate burden than humans.

The evidence suggests that the situation may be alleviated by implementing selective ecological risk reduction, improved husbandry and compensation programs, trophic assurance and protection, community co-management approaches, and explicit consideration of women's circumstances in conservation policies. In the Sariska Tiger Reserve, coexistence will be determined not by the choice between two options but rather by designing alternative political and social arrangements that recognize the necessity of continued human–wildlife interactions in a politically and socially conflicted landscape.

References

1. Bhardwaj, G., Singh, H., Kumar, A., Neduncheran, G., Yadav, S., & Sharma, S. K. (2024). Area sharing among tigers in re-introduced population of Sariska Tiger Reserve demonstrating space crunch in human-dominated landscape. *Journal of Wildlife Science*.
2. Cheng, W., Gray, T. N. E., Bao, H., Wen, D., Liang, X., She, W., Zhang, W., Roberts, N., Gu, J., Qi, J., & Jiang, G. (2024). Drivers of human–tiger conflict risk and potential mitigation approaches. *Biological Conservation*, 299, 110800.
3. De, A. (2014). *Community participation and ecotourism in protected areas: Implications for biodiversity conservation in India*. *International Journal of Environmental Studies*.
4. Doubleday, K. (2018). *Human–Tiger (Re)Negotiations*. Master's thesis, University of Oxford.
5. Doubleday, K. (2018). Rewilding expectations: Human–environmental relations in the context of apex predator reintroduction in Rajasthan, India. *Conservation and Society*, 16(3), 275–286.
6. Doubleday, K. (2020). Tigers and “Good Indian Wives”: Feminist political ecology exposing the gender-based violence of human–wildlife conflict in Rajasthan, India. *Geoforum*, 110, 152–164.
7. Doubleday, K., & Rubino, E. C. (2021). Tigers bringing risk and security: Gendered perceptions of tiger reintroduction in Rajasthan, India. *Society & Natural Resources*, 34(11), 1457–1474.
8. Dular, A. K. (2015). *Anthropogenic pressures and habitat degradation in Sariska Tiger Reserve*.
9. Gurjar, R. (2013). *Relocation and rehabilitation of villages from Sariska Tiger Reserve: Issues and challenges*.
10. Kabra, A. (2022). *Conservation-induced displacement and community responses in Indian protected areas*. *Conservation and Society*.
11. Kumar, P., Dobriyal, M., Pandey, A. K., & Rani, M. (2020). *Wildlife management under encroachment area of Sariska Tiger Reserve: Future challenges and opportunities*. *Journal of Critical Reviews*, 7(13), 3293–3298.
12. Lubis, M. I., Pusparini, W., Prabowo, S. A., Martyr, D. J., Tarmizi, Andayani, N., & Linkie, M. (2020). Unraveling the complexity of human–tiger conflicts in the Leuser Ecosystem, Sumatra. *Animal Conservation*, 23(6), 741–749.
13. Meena, M. (2015). *Relocation and livelihood concerns of Sariska Tiger Project, Rajasthan: A pride or plight?* *Indian Journal of Research*, 4(8), 173–176.
14. Nyhus, P. J. (2016). Human–wildlife conflict and coexistence. *Annual Review of Environment and Resources*, 41, 143–171. <https://doi.org/10.1146/annurev-environ-110615-085634>.
15. Padmakumar, V., & Shanthakumar, M. (2023). The impact of human–wildlife conflict on biodiversity conservation in India. *Journal of Wildlife and Biodiversity*.
16. Parmar, S. (2024). *Sariska Tiger Reserve: Landscape, biodiversity and conservation challenges*.
17. Reddy, G. V. (2008). *Lessons from two local extinctions: Sariska and Kailadevi (Ranthambhore) in Rajasthan, India*. In *Making Parks Work: Strategies for Preserving Tropical Nature* (pp. 335–364). Island Press.
18. Rubino, E. C. (n.d.). *A gendered environmental justice perspective of tiger reintroductions to Sariska Tiger Reserve*.
19. Singh, H. (2023). *Relocation and habitat management for tiger conservation in Sariska Tiger Reserve*.
20. Stevens, S. (2024). *Human–wildlife coexistence and conservation justice in protected landscapes*.

