



## Research Article

# Female Perception Towards Illegal Wildlife Trade in District Bannu, Khyber Pakhtunkhwa, Pakistan

Noor Eman Zafar<sup>1\*</sup>, Ayaz Ahmad<sup>2</sup> and Neelam Elahi<sup>3</sup>

<sup>1</sup>Pakistan Forest Institute, Peshawar, Khyber Pakhtunkhwa, Pakistan; <sup>2</sup>Wildlife Biologist, Pakistan Forest Institute, Peshawar, Khyber Pakhtunkhwa, Pakistan; <sup>3</sup>Pakistan Forest Institute, Peshawar, Khyber Pakhtunkhwa, Pakistan.

**Abstract** | The illegal wildlife trade (IWT) is a significant environmental problem that threatens biodiversity globally. This study examines women's awareness, attitudes, and opinions of IWT in Pakistan's District Bannu. Information was gathered from 52 respondents using structured questionnaires. The results showed a moderate level of awareness but limited legal expertise. Chi-square analysis revealed a significant relationship between legal understanding and willingness to report ( $\chi^2 = 9.84$ ,  $p < 0.05$ ) and between perceived seriousness and support for wildlife protection ( $\chi^2 = 11.32$ ,  $p < 0.05$ ). However, there was no significant correlation between awareness and education level ( $\chi^2 = 7.21$ ,  $p > 0.05$ ). The research highlights the importance of initiatives for women's empowerment and awareness.

**Received** | March 28, 2026; **Accepted** | June 16, 2026; **Published** | June 28, 2026

**\*Correspondence** | Noor Eman Zafar, Pakistan Forest Institute, Peshawar, Khyber Pakhtunkhwa, Pakistan; **Email:** emanzafareman@gmail.com

**Citation** | Zafar, N.E., A. Ahmad and N. Elahi. 2026. Female perception towards illegal wildlife trade in District Bannu, Khyber Pakhtunkhwa, Pakistan. *Pakistan Journal of Forestry*, 76(1): 27-34.

**DOI** | <https://dx.doi.org/10.17582/journal.pjf/2026/76.1.27.34>

**Keywords** | Illegal wildlife trade (IWT), Women's perceptions and awareness, Gender and conservation, Community-based conservation, Wildlife protection laws, Indian pangolin, Migratory cranes, Biodiversity loss



**Copyright:** 2026 by the authors. Licensee ResearchersLinks Ltd, England, UK.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## Introduction

The illegal wildlife trade (IWT) is one of the world's most pressing environmental problems. Haq *et al.* (2023) define it as the illegal seizing, selling, buying, transporting, importing, exporting, or use of wild plants and animals, including their products and body parts. Many organizations define it in a similar way. The Convention on International Commerce in Endangered Species of Wild Fauna and Flora defines illicit wildlife trading as any commerce that contravenes national laws or international agreements governing the use of wild species (Garrison, 1994).

The unlawful trade and exploitation of protected plants and animals that jeopardize livelihoods and biodiversity is how the United Nations Office on Drugs and Crime defines it. Ecosystems and species are seriously threatened by illegal wildlife trafficking, according to conservation groups like the World Wide Fund for Nature (WWF) and the International Union for Conservation of Nature (IUCN). Furthermore, poaching and the smuggling of endangered species are considered forms of organized environmental crime by INTERPOL.

The illegal wildlife trade is a global industry worth

billions of dollars. It is projected to be worth between €8 and €20 billion a year (Duffy, 2016). According to Tow *et al.* (2021), the estimated value of illegal wildlife entering the United States alone in 2013 was between USD 3.2 and USD 4.3 billion. Furthermore, there is a substantial legal wildlife trade with an estimated annual value of USD 249 billion (Hinsley *et al.*, 2016). Wildlife products that are traded include live animals, birds, timber, skins, meat, traditional cures, and trophies (Wyler and Sheikh, 2008). Globally, about 24% of land vertebrates are traded (Scheffers *et al.*, 2019). Despite the fact that many plant and insect species are traded, they receive less attention in research and policy (Fukushima *et al.*, 2020). Overexploitation for economic gain is one of the main causes of species extinction (Maxwell *et al.*, 2016).

The illegal wildlife trade poses a greater threat to Asia (Jiao and Lee, 2022). Pakistan faces significant difficulties as well. Provincial wildlife regulations include the Sindh Wildlife Protection Act (2020) and the Punjab Wildlife Act (1974), (Haq *et al.*, 2023). However, control is challenging due to intricate trade networks and lax enforcement (Felbab-Brown, 2021). The illegal wildlife trade is a major problem in Khyber Pakhtunkhwa (KP), especially in District Bannu. Poaching and trading of the endangered Indian pangolin are widespread (Waseem *et al.*, 2020). The province's high fatality rate is primarily caused by illegal commerce (Ahmad and Li, 2024). During the summer, poachers frequently use techniques like Bird trading is also common in Bannu Division.

Eurasian and Demoiselle cranes are among the migratory cranes that are hunted throughout their migration season (Ali and Khan, 2007; Hussain and Khan, 2021). Every year, about 8,000 Demoiselle cranes and 4,000 Eurasian cranes visit Lakki Marwat and Bannu (Ali and Khan, 2007). Many birds are collected alive, but some are killed. Appropriate scientific methods are often missing, despite efforts to nurture and maintain caught birds (Perveen and Khan, 2010). Studies show that 14 bird species were sold in Bannu and Dera Ismail Khan, mostly illegally. Bank myna (*Acridotheres ginginianus*) (0.3%), White-eared bulbul (*Pycnonotus leucotis*) (0.1%), Red-vented bulbul (*Pycnonotus cafer*) (1.9%), Common crane *Grus grus* (1.4%), House sparrow (*Passer domesticus*) (1.2%), Demoiselle crane (*Grus virgo*) (0.6%), Alexanderine parakeet (*Psittacula eupatria*) (0.02%) Hussain and

Khan (2021). Other bird and animal species, such as the Common Quail, See-see Partridge, and Black Partridge, are frequently traded for food, pets, or combat, according to the study (Zaman *et al.*, 2016).

Many experts believe that law enforcement cannot stop illegal wildlife trafficking on its own. Community involvement is essential. Biggs *et al.* (2017) state that a "theory of change" approach suggests four main actions: increasing incentives for protecting wildlife, strengthening punishments for illegal behavior, reducing expenses related to wildlife, and providing alternative livelihoods. Community-based approaches have reduced poaching (Skinner *et al.*, 2020).

However, there are still gaps in awareness, education, and enforcement (Fukushima *et al.*, 2021). Gender is an important but understudied facet of illegal wildlife trafficking. According to research, age, gender, and educational attainment all have an impact on people's perceptions and understanding of wildlife (Bitanyi *et al.*, 2012). Gore and Kahler (2012) claim that women often view animal threats differently than males do, placing more emphasis on safety and hidden social costs. Some women participate in the wildlife trade because of poverty or the need to support their families (Agu *et al.*, 2021; Badiora and Oresanwo, 2024). But women also make valuable contributions as academics, leaders, and environmentalists (Graham, 2022). However, women's distinct roles and views in the wildlife trade, especially in South Asia, are poorly understood (Andrew and Agu, 2022; Davis, 2022).

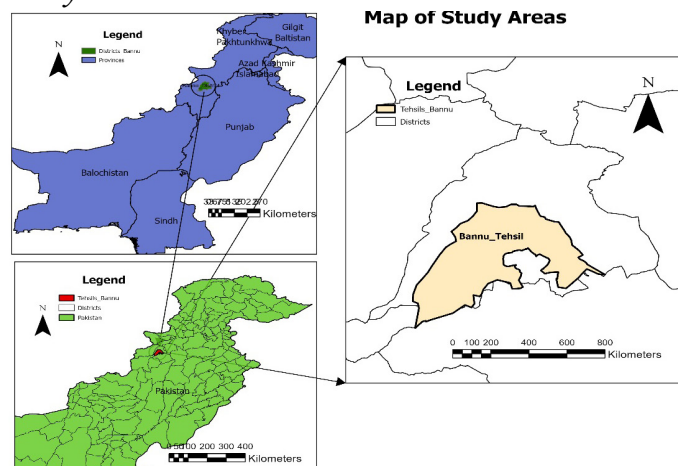
The use of natural resources, household decision-making, and communal life all depend heavily on women (Espinosa, 2010; Almuna *et al.*, 2022). Their knowledge and experience could influence conservation outcomes (Doubleday and Rubino, 2022). Therefore, it is necessary to comprehend how women see the illegal wildlife trade in order to develop fair and effective conservation policies. The primary focus of this study is women's perceptions of illegal wildlife trafficking in District Bannu. By examining their awareness, attitudes, and perspectives, the study aims to advance more sustainable and inclusive methods of animal conservation.

## Materials and Methods

In 2025, the study was conducted in the District of Bannu in Khyber Pakhtunkhwa (KP), Pakistan (Figure

1). It has been discovered that the illicit wildlife trafficking is concentrated in the region, particularly with regard to bird species and the endangered Indian pangolin. In this area, migratory birds like the Demoiselle crane are also frequently hunted and exchanged. The study focused on rural areas where wildlife use and trade have been documented.

### Study area



**Figure 1:** Map of Bannu.

### Research design

The quantitative research design of this study was based on direct interviews and a standardized questionnaire. Evaluating women's attitudes, knowledge, and views of illegal wildlife trafficking in the study region was the goal. The study employed primary data from field observations, field excursions, and in-person interviews with local women.

### Sampling procedure

A multi-stage random sampling technique was used to select the respondents. Tehsil Bannu was chosen in the first round out of the six tehsils in District Bannu. Sokari and Mandan, two of Tehsil Bannu's 49 union councils, were selected for the second round. The third round of the study included five villages: Mandan, Sokari Zabta Khan, Sokari Kareem Khan, Hussan Khel, and Sokari Jabar. In the last round, adult female respondents from each hamlet were chosen for interviews. Ten women were selected from each village. Despite the intended sample size of 50 respondents, data was successfully collected from 52 women.

Since women's impressions were the main focus of the study, only adult female volunteers were recruited. The sampling process was designed to lessen bias and improve the reliability of the results.

### Tools of data collection

The objectives of the study guided the creation of a well-structured questionnaire. To provide better comprehension and straightforward communication during the interviews, all questions were carefully translated into Pushto, the local language, even though the questionnaire was written in English. This approach helped obtain precise and intelligible responses from the participants. The interview schedule served as the main tool for data collection. Data was obtained by: \*Direct, face to face interviews

Each respondent was personally interviewed at her home. Before the interview started, a thorough discussion of the study's objectives was held. Each participant verbally agreed. Respondents were assured that the information would only be used for academic study and that their answers would remain confidential and anonymous. The responses were carefully recorded in compliance with the survey's questions.

### Interview procedure and ethical considerations

Extra attention was taken throughout the interview procedure to ensure respondents' comfort and accuracy. Interviews were conducted during the respondents' leisure time so as not to interfere with their daily family responsibilities. A laid-back and friendly environment was created to encourage honest and open discussion.

Respondents were assured that no personal information will ever be disclosed. Their opinions were not contested or criticized. No summaries or modifications were performed, each response was recorded exactly as given by the respondents. Both significant and irrelevant points of view were discreetly heard in order to promote mutual respect and confidence. Even if they weren't addressed in the questionnaire, significant opinions that respondents stated were also noted.

### Data analysis

The collected data was organized and put together for analysis. The 52 respondents' answers were categorized and compiled in order to assess trends in women's knowledge, attitudes, and opinions on the illegal wildlife trafficking in District Bannu. The findings were then assessed in the context of the study's goals to gain a better understanding of women's roles and viewpoints about animal conservation and illegal trade activities in the area (Table 1).

**Table 1:** Combined socio-demographic characteristics, awareness, and perceptions of respondents (n = 52).

| Category                       | Variable                      | Response                      | No. of respondents | Percentage (%) |
|--------------------------------|-------------------------------|-------------------------------|--------------------|----------------|
| Occupation                     | Status                        | Housewife                     | 17                 | 32.69          |
|                                |                               | Student                       | 18                 | 34.61          |
|                                |                               | Government employee           | 15                 | 28.84          |
|                                |                               | Private sector employee       | 2                  | 3.84           |
| Education Level                |                               | No formal education           | 13                 | 25.00          |
|                                |                               | Primary                       | 3                  | 5.76           |
|                                |                               | Secondary                     | 0                  | 0.00           |
|                                |                               | Higher education              | 26                 | 50.00          |
|                                |                               | Graduate or above             | 10                 | 19.23          |
| Awareness of IWT species       | Knowledge of targeted animals | Yes                           | 35                 | 67.30          |
|                                |                               | No                            | 17                 | 32.69          |
| Perceived impacts of IWT       | Type of impact                | Loss of biodiversity          | 30                 | 58.00          |
|                                |                               | Economic impact               | 5                  | 10.00          |
|                                |                               | Environmental degradation     | 9                  | 17.00          |
|                                |                               | Other                         | 8                  | 15.00          |
| Encounter with IWT             | Experience                    | Yes                           | 27                 | 51.92          |
|                                |                               | No                            | 14                 | 26.92          |
|                                |                               | Prefer not to answer          | 11                 | 21.15          |
| Measures to reduce IWT         | Suggested actions             | Strengthening law enforcement | 21                 | 40.38          |
|                                |                               | Increasing public awareness   | 10                 | 19.23          |
|                                |                               | Alternative livelihoods       | 17                 | 32.69          |
|                                |                               | Community engagement          | 3                  | 5.76           |
|                                |                               | Other                         | 1                  | 1.92           |
| Support for awareness programs | Opinion                       | Yes                           | 25                 | 48.07          |
|                                |                               | No                            | 10                 | 19.23          |
|                                |                               | Don't Know                    | 17                 | 32.69          |

## Results

### Occupation of the respondents

The survey had 52 female responders in total. According to the occupational profile, the majority of respondents were housewives (32.69%) and students (34.61%). Just 3.84% of the sample were employed in the private sector, compared to 28.84% who

worked for the government. Self-employment was not mentioned by any of the respondents. According to this distribution, the majority of participants were either involved in home duties or education.

The degree of education of the responders 50% of respondents had higher education, and 19.23% of respondents had a master degree or above. Conversely, 25% had no formal education and 5.76% had just completed primary school. None of the interviewees mentioned attending secondary school.

### Age of the respondents

38% of respondents were in the 18–25 age range, followed by those in the 36–45 age range (32%) and the 26–35 age range (30%). Only 4% of respondents were over 46.

### Awareness and information about illegal wildlife trade

When asked where they learned about the illegal wildlife trade (IWT), 38.46% of respondents cited social media as their primary source. 23.07% claimed to have learnt in school or college, while 25% claimed to have learned via news and television. Just 13.46% of respondents said they got their knowledge from friends or relatives.

In terms of legal awareness, 42% of respondents claimed they were somewhat aware of the rules protecting wildlife in Pakistan and Khyber Pakhtunkhwa, compared to 58% who said they were clueless. Cranes, deer, and falcons are among the creatures affected by the illegal wildlife trade (IWT), according to 67.30% of respondents. However, 32.69% of respondents claimed to be ignorant of the species in question.

### Perceived impacts of illegal wildlife trade

The majority of respondents (60%) said that biodiversity loss is a result of the illegal wildlife trade. An additional 18% mentioned environmental degradation as a major impact, while 10% mentioned economic effects including less job opportunities. Additionally, 16% of respondents mentioned cultural change and the decline of traditional wildlife values.

### Women's experiences and actions

More over half of respondents (51.92%) had direct or indirect encounters with illegal wildlife trading, compared to 26.92% who indicated they had no such experiences. Additionally, 21.15% of respondents

indicated that they would prefer not to answer the question. In response to illegal wildlife trading operations, 19.23% of respondents claimed they reported incidents to authorities, while 46.15% stated they ignored them. 9.61% mentioned doing something else, and another 25% discussed these events with friends or relatives.

Women might contribute to the fight against the illegal wildlife trade by raising awareness among families and communities, according to 36% of respondents, and by reporting unlawful behavior, according to another 36%. While 18% of respondents concentrated on influencing household decisions, 10% reported participating in conservation initiatives.

#### *Measures to reduce illegal wildlife trade*

Respondents suggested a variety of tactics to stop the illicit wildlife trafficking. According to 40.38% of respondents, strengthening law enforcement is the most important course of action. While 19.23% emphasized increasing public knowledge, 32.69% suggested alternative livelihoods. A lesser majority (5.76%) recommended enhancing community contact.

There was also strong support for conservation awareness campaigns. The use of awareness-raising initiatives in community and educational settings was endorsed by a sizable portion of respondents. Furthermore, while 17.30% disagreed and 21.15% were unclear, 61.53% of respondents thought that women's economic empowerment may help reduce the illegal wildlife trade.

## Discussion

#### *Awareness of illegal wildlife trade and threatened species*

According to the study's findings, women in District Bannu know very little about the illegal wildlife trade (IWT) and how it affects biodiversity and the ecology. The majority of respondents recognized that one of the primary consequences of the illegal wildlife trade is the loss of biodiversity and were aware of the wildlife species that are regularly targeted. These findings are consistent with previous studies conducted in Pakistan, which discovered that illicit hunting and trade activities are increasingly putting migrating birds, falcons, and Indian pangolins in danger (Waseem et al., 2020; Hussain and Khan, 2021). The findings show that women in the research area are somewhat aware of environmental issues

related to animals, despite having little access to formal conservation activities.

#### *Legal awareness and sources of information*

Despite their reasonable understanding of the challenges associated with wildlife trading, respondents' legal knowledge of wildlife protection rules was rather lacking. More than half of the participants were unaware that Khyber Pakhtunkhwa and Pakistan had laws protecting wildlife. Similar findings from earlier research highlight how a lack of legal knowledge prevents people from reporting illegal wildlife operations and discourages community involvement in conservation efforts (Rosen and Smith, 2010). The study also revealed that social media was the primary source of information for many respondents, indicating the growing influence of digital platforms on environmental awareness. However, if rural populations rely too much on unauthorized or online sources, they may have limited access to reliable legal and conservation-related information.

#### *Sociocultural constraints on women's participation*

The study's findings also highlight the ways in which societal factors influence women's involvement in the battle against illegal wildlife trafficking. A significant percentage of respondents opted to ignore or avoid direct interaction with such circumstances, despite the fact that many believed that women might make a difference by reporting criminal activities and raising awareness. This hesitation may be caused by social barriers, conflict fear, restricted mobility, and a lack of trust in authority. Similar results have been found in studies examining women's participation in conservation efforts, demonstrating that traditional gender roles and a lack of decision-making authority hindered women's active participation in environmental preservation initiatives (Espinosa, 2010; Almuna et al., 2022).

#### *Support for enforcement and alternative livelihoods*

Respondents strongly supported strengthening law enforcement and promoting alternative economic options in order to lessen illegal wildlife trafficking. These findings suggest that women are aware of the financial and institutional components of wildlife crime. Previous studies have shown that the illegal wildlife trade in developing countries is significantly influenced by poverty, unemployment, and inadequate enforcement (Maxwell et al., 2016). Support for alternative livelihoods further reflects the idea that

economic stability might reduce dependency on illegal wildlife resource exploitation.

### Role of women in wildlife conservation

The findings demonstrate that women in District Bannu are keen to participate in conservation-related activities and support awareness initiatives. Many respondents agreed that women's economic empowerment may help reduce the illegal wildlife trafficking. This strengthens the body of evidence demonstrating how gender-inclusive conservation strategies can improve environmental outcomes and increase community engagement. Women's ability to contribute significantly to animal conservation efforts may be enhanced by providing them with possibilities for education, legal knowledge, and income-generating activities.

Table 2 presents the findings of the Chi-square test of independence, which was carried out using the Statistical Package for Social Sciences (SPSS) software (version 22) to examine the correlation between specific variables related to the illegal wildlife trafficking. The analysis revealed a substantial relationship between awareness and willingness to report illegal wildlife trading, as well as between support for wildlife conservation and the perceived gravity of the issue. However, neither the respondents' behaviors nor their interactions with the illegal wildlife trade were shown to be correlated with awareness or education level. These findings suggest that conservation-related actions are more influenced by perception and awareness than by sociodemographic traits like education.

**Table 2:** Chi-square test of independence.

| Variables compared                 | $\chi^2$ value | p value | Significance    | Interpretation                                       |
|------------------------------------|----------------|---------|-----------------|------------------------------------------------------|
| Education vs Awareness             | 7.21           | > 0.05  | Not significant | Education does not significantly influence awareness |
| Awareness vs Willingness to Report | 9.84           | < 0.05  | Significant     | Awareness influences reporting behavior              |
| Perceived Seriousness vs Support   | 11.32          | < 0.05  | Significant     | Seriousness increases support for protection         |
| Encounter vs Action Taken          | 8.67           | > 0.05  | Not significant | Encounter does not affect action taken               |

**Note:** The  $p$ -value indicates the statistical significance level, whereas  $\chi^2$  represents the Chi-square test statistic. If the  $p$ -value is less than 0.05, the result is considered statistically significant; if it is greater than 0.05, it is considered non-significant.

## Conclusion and Recommendations

This study shows that women in District Bannu are somewhat aware of the negative effects of the illegal wildlife trade on biodiversity, the environment, and society. However, many respondents are reluctant to report criminal activities and are ignorant of the laws protecting animals due to social and cultural barriers. Social media is important for spreading information, but more comprehensive community-based awareness campaigns are needed. The findings also indicate that women are keen to support conservation efforts and take a more active role in the battle against illegal wildlife trafficking. Despite these important results, the study has certain drawbacks. The study's relatively small sample size consisted of 52 respondents who were selected from just five villages in a single tehsil in District Bannu. Because of this, the findings cannot be extended to all women in District Bannu or to the total population of Khyber Pakhtunkhwa. Furthermore, the district's limited geographic coverage may not adequately represent the range of women's viewpoints and experiences, despite the use of a multi-stage random sampling approach.

Community-based awareness campaigns should be expanded in order to raise women's awareness of wildlife conservation and the illegal wildlife trade. Women's legal knowledge of wildlife conservation laws should also be raised through educational campaigns, workshops, and community outreach programs. Establishing secure and private reporting channels, utilizing social media and local media platforms effectively, bolstering law enforcement measures, supporting women's economic empowerment, and promoting alternative livelihood opportunities are all critical to reducing social barriers and promoting women's active participation in wildlife conservation efforts.

Future studies should employ larger sample numbers and wider geographic coverage encompassing multiple tehsils and districts in order to get more representative and broadly applicable data about women's perspectives of the illegal wildlife trade in Khyber Pakhtunkhwa.

## Acknowledgement

The authors sincerely thank the WWF Peshawar Office for its support and cooperation during this

research. WWF-Pakistan is a leading conservation organization working to protect biodiversity, combat illegal wildlife trade, and promote sustainable natural resource management. We also express our sincere gratitude to all the respondents for their valuable participation and contributions to this study.

## Novelty Statement

This study is one of the first to examine women's perceptions from a gender perspective about the illegal wildlife trade in District Bannu, Khyber Pakhtunkhwa. The study highlights women's economic empowerment as a crucial community-based tactic to halt the illegal wildlife trade and notes a significant gap between women's legal knowledge and environmental conscience.

## Author's Contribution

**Noor Eman Zafar:** Main frame, data collection, data analysis, review.

**Neelam Elahi:** Proof reading.

**Ayaz Ahmad:** Final review of the manuscript.

### *Generative AI and AI-assisted technology statement*

The authors declare that no Generative AI was used in the creation of this manuscript.

### *Conflict of interest*

The authors have declared no conflict of interest.

## References

- Agu, N., Gore, M.L. and Kahler, J.S., 2021. Women's roles in wildlife trafficking networks and implications for conservation interventions. *Glob. Ecol. Conserv.*, 28: e01623.
- Ahmad, S. and Li, C., 2024. Illegal trade and mortality patterns of the Indian pangolin (*Manis crassicaudata*) in Khyber Pakhtunkhwa, Pakistan. *J. Wildl. Crime Stud.*, 12(1): 45–59.
- Ali, Z. and Khan, A.A., 2007. Migration, hunting, and conservation status of cranes in Lakki Marwat and Bannu districts of Pakistan. *Pak. J. Zool.*, 39(4): 247–253.
- Almuna, A., Pavez, E. and Estévez, R.A., 2022. Women promoting human–wildlife coexistence in rural landscapes: Gender perspectives in conservation. *Hum. Dimen. Wildl.*, 27(5): 456–470.
- Andrew, M. and Agu, N., 2022. Gendered dimensions of wildlife trafficking: Gaps and future research directions in Southeast Asia. *Conserv. Soc.*, 20(3): 211–220.
- Badiora, A.I. and Oresanwo, A., 2024. Gender, poverty, and women's participation in bushmeat hunting and timber trade in Nigeria. *Environ. Dev.*, 49: 100945.
- Biggs, D., Cooney, R., Roe, D., Dublin, H., Allan, J., Challender, D. and Skinner, D., 2017. Developing a theory of change for a community-based response to illegal wildlife trade. *Conserv. Biol.*, 31(1): 5–12. <https://doi.org/10.1111/cobi.12796>
- Bitanyi, S., Nesje, M., Kusiluka, L. and Keyyu, J., 2012. Awareness and perceptions of illegal hunting among local communities in western Serengeti, Tanzania. *Trop. Conserv. Sci.*, 5(2): 208–224. <https://doi.org/10.1177/194008291200500209>
- Davis, E.O., 2022. Women in wildlife trafficking: Expanding the research agenda. *Crime, Law and Social Change*, 78(4): 421–435.
- Doubleday, N. and Rubino, E.C., 2022. Gender equity and environmental governance: Implications for wildlife conservation policy. *Environ. Policy Governance*, 32(2): 145–156.
- Duffy, R., 2016. War by conservation: The fight against wildlife crime. *Geoforum*, 69: 238–248. <https://doi.org/10.1016/j.geoforum.2015.09.014>
- Espinosa, M.C., 2010. Gender and wildlife management in the Peruvian Amazon: The role of women in resource use decisions. *Hum. Ecol.*, 38(5): 639–648.
- Felbab-Brown, V., 2021. The complexity of wildlife trafficking networks and enforcement challenges. *Brookings Institution Report*, Washington, DC.
- Fukushima, C.S., Tricorache, P., Toomes, A., Stringham, O.C., Rivera-Téllez, E., Ripple, W.J., Peters, G., Orenstein, R.I., Morcatty, T.Q., Longhorn, S.J., Lee, C., Kumschick, S., Freitas, M.A., Duffy, R.V., Davies, A., Cheung, H., Cheyne, S.M., Bouhuys, J., Barreiros, J.P., Amponsah-Mensah, K. and Cardoso, P., 2021. Addressing knowledge gaps and enforcement challenges in illegal wildlife trade. *Conserv. Lett.*, 14(3): e12768.
- Fukushima, C.S., Mammola, S. and Cardoso, P., 2020. Global wildlife trade permeates the tree of life. *Biol. Conserv.*, 247: 108503. <https://doi.org/10.1016/j.biocon.2020.108503>

- [org/10.1016/j.biocon.2020.108503](https://doi.org/10.1016/j.biocon.2020.108503)
- Garrison, J.L., 1994. International wildlife trade regulation and the Convention on international trade in endangered species (CITES). *Virginia Environ. Law J.*, 13: 693–722.
- Gore, M.L. and Kahler, J.S., 2012. Gendered risk perceptions associated with human–wildlife conflict. *Soc. Natl. Resour.*, 25(7): 654–668. <https://doi.org/10.1371/journal.pone.0032901>
- Graham, J., 2022. Women as leaders and rangers in wildlife conservation. *Oryx*, 56(3): 345–347.
- Haq, F., Ahmad, M. and Rahman, S., 2023. Wildlife governance and legal frameworks in Pakistan: Provincial perspectives. *Pak. J. Environ. Law*, 15(2): 78–92.
- Hinsley, A., Veríssimo, D. and Roberts, D.L., 2016. The economic value of legal wildlife trade and its implications for conservation. *Conserv. Biol.*, 30(3): 466–474.
- Hussain, S. and Khan, A., 2021. Illegal bird trade in Bannu and Dera Ismail Khan divisions of Khyber Pakhtunkhwa, Pakistan. *J. Threat. Taxa*, 13(4): 18023–18031.
- Jiao, X. and Lee, T.M., 2022. Wildlife trafficking in Asia: Patterns, drivers, and policy responses. *Biol. Conserv.*, 268: 109502.
- Maxwell, S.L., Fuller, R.A., Brooks, T.M. and Watson, J.E.M., 2016. Biodiversity: The ravages of guns, nets, and bulldozers. *Nature*, 536: 143–145. <https://doi.org/10.1038/536143a>
- Perveen, F. and Khan, A.A., 2010. Captive management and breeding success of migratory cranes in northern Pakistan. *Pak. J. Zool.*, 42(3): 327–334.
- Rosen, G.E. and Smith, K.F., 2010. Summarizing the evidence on the international trade in illegal wildlife. *EcoHealth*, 7(1): 24–32. <https://doi.org/10.1007/s10393-010-0317-y>
- Scheffers, B.R., Oliveira, B.F., Lamb, I. and Edwards, D.P., 2019. Global wildlife trade across the tree of life. *Science*, 366(6461): 71–76. <https://doi.org/10.1126/science.aav5327>
- Skinner, D., Biggs, D. and Cooney, R., 2020. Community-based approaches to tackling illegal wildlife trade: Lessons from the FLoD initiative. *Conserv. Sci. Pract.*, 2(4): e166. <https://doi.org/10.3389/fcosc.2021.765725>
- Tow, L., Roe, D. and Challender, D., 2021. Estimating the economic scale of illegal wildlife imports into the United States. *Glob. Crime*, 22(3): 215–232.
- Waseem, M., Raza, A., Aisha, H., Awan, M. N., Ahmad, T., Nazir, R., and Mahmood, T. (2020). Scale of illegal killing and trade associated with Indian pangolin (*Manis crassicaudata*) in Pakistan. *Pakistan Journal of Zoology*, 52(1), 69–77. <https://doi.org/10.17582/journal.pjz/2020.52.1.69.77>
- Wyler, L.S. and Sheikh, P.A., 2008. International illegal trade in wildlife: Threats and U.S. policy. Congressional Research Service Report, Washington, DC.
- Zaman, Q., Ali, Z. and Bibi, F., 2016. Wildlife trade and conservation challenges in Kohat District, Khyber Pakhtunkhwa, Pakistan. *J. Biodiv. Environ. Sci.*, 9(2): 140–149.