

## Article

# Investigating Gaps in Perception of Wildlife between Urban and Rural Inhabitants: Empirical Evidence from Japan

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**Abstract:** A decline in natural resource management by rural communities has significantly contributed to human–wildlife conflicts, especially crop-raiding, in Japan. Collaborative wildlife management between existing rural stakeholders and new urban stakeholders is essential to address this problem. However, differences in the perception regarding wildlife exist between rural populations, which have ample direct experience with wildlife, and urban populations, which lack direct experience with wildlife. Consequently, this gap in perception can potentially lead to conflicts between stakeholders during collaborative wildlife management. In this study, content analysis, which has been extensively employed to analyze qualitative data, was performed to elucidate the differences in perception of wildlife between urban and rural stakeholders. An online survey was conducted in December 2016 to understand the perception of wildlife by stakeholders, in which 1401 responses were received. The results indicate that the urban individuals did not have a comprehensive understanding of wildlife and any positive views were primarily abstract. Conversely, rural individuals had diverse perceptions, both positive and negative. Therefore, a novel perceptual gap-narrowing approach based on staged interactions with the rural environment, is suggested. Introduction to rural issues through field-based experiences to urban stakeholders is likely to narrow the gaps in perception between urban and rural stakeholders, in order to allow for efficient and collaborative wildlife management.

**Keywords:** Perception of wildlife; content analysis; rural and urban residents; human–wildlife conflict; new stakeholder; collaborative wildlife management; natural resource management

## 1. Introduction

### 1.1. Wildlife Management and New Stakeholders

Human–wildlife conflicts are a significant global concern [1,2]. In Japan, human–wildlife conflict primarily occurs in rural areas which overlap with wildlife habitats. Further, rural areas have been characterized by a decline in agriculture, older residents, and de-population. Therefore, the management of natural resources by rural communities has become increasingly difficult. Consequently, the approach of wildlife, as well as wildlife-induced damage, has increased in rural areas [3]. Wildlife management requires the collaborative effort of a diverse range of stakeholders and a sound approach for the inclusion of new stakeholders. Several studies have evaluated the role of new stakeholders under various scenarios, including community-based management in Africa [4] and the United States [5], public relationships in the United States [6–8], and management from a global perspective [9]. Management of crop damage in Japan requires community-based management and calls on rural residents to become the main stakeholders. In addition, urban residents are expected to participate as new stakeholders.

However, discussion about efficient management of collaboration with urban residents has been lacking in Japan.

On the other hand, the younger population has been shown to express increasing interest in rural areas, through activities such as obtaining hunting licenses. Furthermore, the number of older licensees has decreased, while the number of young licensees has been increasing since 2010 in Japan [10]. Moreover, interest in shifting to rural areas or working in primary industries has also been increasing in Japan, which has been supported by Japanese governmental policies [11]. Additionally, urban populations have been receiving increased attention from new stakeholders in natural resource management [12]. Therefore, linking the urban population's interest in rural areas with wildlife management could potentially benefit both rural and urban inhabitants, especially with regards to seeking new stakeholders for rural areas. Furthermore, the involvement of the urban population as new stakeholders could potentially benefit collaborative wildlife management in Japan.

To ensure collaborative wildlife management in rural areas, it is essential to narrow the perception gaps between existing and new stakeholders. Further, determining the underlying causes of human–wildlife conflicts, and ensuring co-existence between humans and wildlife, as well as understanding the role of management, are important in this regard. Urban and rural residents are likely to have conflicting opinions, due to their differences in perception of wildlife. This conflict is likely to become exacerbated when individuals with little relationship to rural areas and a significantly different perception of wildlife become stakeholders in wildlife management. Moreover, differences in stakeholder perceptions could result in policy divergence and, consequently, complicate efforts toward joint wildlife management [13–15]. In this context, human–human conflict is, ironically, a more complicated problem than human–wildlife conflict [1,16–18]. Numerous social capital-related factors, such as communication, trust, and collaboration, have been shown to influence the adoption of scientific knowledge during policy formulation [19]. Therefore, differences in the perception of wildlife between urban and rural populations should be addressed, in order to promote participation of urban inhabitants in collaborative wildlife management.

Previous studies have indicated that increasing the availability of information on both wildlife management and wildlife encounters can affect stakeholder perception [20–23]. However, most such studies utilized case-study methods and did not analyze the stakeholder perception directly. Further, previous research on the perception of wildlife has primarily focused on existing stakeholders while neglecting urban populations which are prospectively, but not currently, involved in wildlife management. Therefore, this study focuses on collaborative wildlife management by quantitatively analyzing the differences in perception of wildlife between rural (existing stakeholders) and urban (new stakeholders) populations.

To classify respondent's residence as rural or urban, Japanese cities are often characterized by several sprawling areas, where rural and urban areas can exist in the same city; thus, it is challenging to classify areas by respondent's address. Therefore, in this study, an index based on the expected probability of encounter with wildlife was developed, in order to distinguish between rural and urban areas. The index of this relationship elucidated the wildlife encounter experiences of individuals in their hometowns. Unlike experiences such as outdoor recreation and wildlife exploration, which are dependent on individual interest, the experience of encountering wildlife is dependent on the residence of urban and rural populations. Rural and urban inhabitants are likely to differ in their perceptions of wildlife, due to different experiences during wildlife encounters. For instance, rural individuals are prone to wildlife-induced damage in their daily lives, while urban individuals often obtain information on wildlife solely from mass media and might not be conscious of wildlife in their daily lives.

This study examines the differences in the perception of wildlife between urban and rural residents, as attributed to their dissimilar experiences during wildlife encounters. Specifically, content analysis is performed to compare perceptions, based on positive and negative views of wildlife. Furthermore, approaches for involving urban populations in collaborative wildlife management are developed, in order to reduce conflict between existing and new stakeholders.

### 1.2. Previous Studies on Wildlife Perceptions

Previous studies on perceptions of wildlife management can be broadly divided into three categories—the perceptions of measures for defending against crop-raiding, conflict, and wildlife—all of which are inter-related. This study focuses on the perceptions of wildlife, which are influenced by the experiences and expectations of urban and rural populations. In general, urban individuals experience significantly low amounts of conflict with wildlife and understanding their perceptions can help elucidate their role in wildlife management.

Previous studies have indicated that knowledge, information, and experience affect perceptions of wildlife as well as stakeholder decision-making. Sakurai et al. [24] suggested that government officials could increase the confidence of residents in their ability to prevent bear-related problems and enhance their tolerance for interactions with bears by providing information on problem prevention and adequate opportunities for residents to voice their concerns. Other researchers noted that perceptions of urban individuals have been affected by cartoons [25] or negative news [23]. Results such as these have demonstrated that perception is affected by personal experience. Several studies have also focused on the differences in perception between urban and rural populations. For instance, Akahoshi [26] reported that urban individuals tended to believe that wildlife must be conserved and that rural individuals who suffered damage from wildlife should have to pay for damage management. Kishioka et al. [27] noted that the distance between a place of residence and a wildlife habitat affected the perception of wildlife, with individuals unfamiliar with wildlife needing detailed explanations of wildlife damage to accept wildlife management. Ambarli [22] conducted a survey to study the impacts of information and experience with wildlife conflict on perceptions of secondary school students in urban and rural areas in Turkey. In general, urban individuals do not have multiple encounters or other direct experience with wildlife and tend to form their perceptions based on information from mass media. On the other hand, rural individuals tend to form judgments based on their own experiences. In this study, survey respondents were divided into two groups based on their experiences during wildlife encounters, in order to subsequently compare the perceptions of urban and rural individuals.

It is essential to focus on specific wildlife species when investigating the perception of wildlife since perception is likely to differ by species [28,29]. Several studies have focused on large carnivores such as big cats [30], wolves [29,31,32], or bears [33], which have come into significant conflict with humans. In this study, four mid-sized to large mammals were selected to understand the perceptions of wildlife management—sika deer (*Cervus nippon*), wild boar (*Sus scrofa*), Japanese macaque (*Macaca fuscata*), and brown and Asian black bears (*Ursus arctos* and *Ursus thibetanus*, respectively)—all of which have come into conflict with humans in Japan. In particular, the perceptions of urban individuals of these animals were more abstract than previously demonstrated.

This study attempts to elucidate the differences in perceptions between urban and rural individuals, based on their information sources and experiences. Therefore, we posit that urban individuals are likely to have a more positive view of wildlife than rural individuals.

### 1.3. Methodologies Utilized in Previous Research

Content analysis of textual data obtained from open-ended questions is a popular method for exploring individual perceptions. Content analysis has been extensively employed to analyze qualitative data, such as text in the fields of social sciences and the humanities [34]. This method is advantageous because researchers can interpret perceptions which are not recognized by the respondents themselves. Recent developments in technology and natural language processing have enabled easier visualization of large amounts of textual data using data mining techniques. In particular, word co-occurrence network analysis has become an increasingly popular technique for studying consumer perception, knowledge, and consciousness [35–38]. This method is also suitable for investigating the perceptions of urban individuals who are considered to be less experienced with wildlife.

Most previous studies on content analysis with respect to wildlife have focused on media such as videos [39], newspapers [40,41], radio, and television [42]. Furthermore, several studies (including the current study) have performed content analysis for questionnaires, interviews, and essay responses. However, previous studies have focused on tourism [43], the perceptions of farmers on wildlife management [44], and the risks of living with wildlife [45–47], but no study has utilized text-based questionnaires to assess individual perceptions of wildlife.

## 2. Materials and Methods

### 2.1. Data

A survey of Japanese Internet users was conducted using an electronic bulletin board system where the researchers could post open-ended questions and optional close-ended questions. Informed consent was obtained from all participants prior to the survey. The participants were first asked to identify all wildlife species (i.e., sika deer, wild boar, Japanese macaque, and brown and Asian black bears) they had encountered at their place of residence in the past few years. Subsequently, they were asked to describe positive and negative views regarding wildlife. It should be noted that the participants were not allowed to read each other's posts before submitting their own.

A total of 1401 responses were collected from 7 to 13 December 2016. The demographic and socioeconomic characteristics of the participants are listed in Table 1. Females comprised nearly 60% of the participants. Further, the ages of the respondents were mostly equally distributed across all age groups, although the proportion of respondents aged above 60 years was relatively small. Geographically, the respondents were distributed throughout the country in proportion to the population size of each region [48].

**Table 1.** Demographic and socioeconomic characteristics of respondents.

Socioeconomic Variable	Frequency	Percentage (%)
Gender		
Male	567	40.5
Female	834	59.5
Age		
below 20	43	3.1
20–29	249	17.8
30–39	323	23.1
40–49	322	23.0
50–59	285	20.3
60–69	157	11.2
70–79	22	1.6
Children		
Yes	764	54.5
No	637	45.5
Marital status		
Married	896	64.0
Unmarried	505	36.0
Occupation		
Full-time worker	669	47.8
Part-time worker	177	12.6
Homemaker	321	22.9
Unemployed/retired	136	9.7
Student	86	6.1
Unanswered	12	0.9

Table 1. Cont.

Socioeconomic Variable	Frequency	Percentage (%)
Region of residence		
Hokkaido	63	4.5
Tohoku	82	5.9
Kanto (Tokyo metropolitan area)	632	45.1
Chubu	165	11.8
Kinki	205	14.6
Chugoku, Shikoku	149	10.6
Kyushu	105	7.5

## 2.2. Methods

The morphological analysis engine of the Japanese-developed text-mining software package KH Coder [49] was used to process and extract words from the textual data obtained from the questionnaires. In the process, “stop words” (such as “the” or “to”), which are commonly used but generally uninteresting, were filtered out. Additionally, words included in the open-ended questions of the questionnaire (such as “image” and “numbers”) were also removed as, even though they appeared frequently in the responses, they were not relevant. Extracted words with same or similar meanings were, then, grouped into representative words: for example, “cute” was selected as the representative word for “cute”, “charming”, and “pretty.” In addition, words with the same meaning but written using different Japanese characters were also merged together. Eventually, representative words (henceforth referred to as words) relating to positive or negative views were sorted in order of frequency.

Subsequently, a co-occurrence network map was generated to examine the frequency of co-occurrence of words in the responses and identify the major themes concerning wildlife. The vertices of the map represented words and the edges of the map connected pairs of words based on their degree of co-occurrence, as measured by the Jaccard coefficient (defined in this study as the number of responses that included a pair of words divided by the number of responses that included either or both words). Further, only a limited number of word pairs that exhibited the highest degree of co-occurrence were used in the analysis to ensure legibility of the map. On the map, the circles were colored by the groups of frequently occurring word. The size of each circle was proportional to the number of occurrences of each word. The line thickness was proportional to degree of co-occurrence of each word pair.

Finally, an index of presence or absence of positive and negative perceptions in the responses was constructed, and a chi-squared test was performed to examine the relationships between this index and other variables, such as gender, age group, and encounter experience.

## 3. Results

### 3.1. Overview of Responses

The statistics for the encounter experiences are listed in Table 2. In total, 866 respondents (61.8%) had not encountered any wildlife, while 38.2% had sighted at least one species of wildlife. To elucidate the differences in perception between rural and urban residents, the views of the “have experience” group were compared to those of the “no experience” group. Nearly 20% of the participants (50% of the “have experience” group) had encountered sika deer and Japanese macaque. Overall, 24% of the participants (more than 60% of the “have experience” group) had encountered only one species, while less than 10% (25% of the “have experience” group) had encountered two species. More than 70% had a positive view of the encounter, while more than 90% expressed negative views (note that some responses included both negative and positive views).

**Table 2.** Encounter experiences.

Variable	Frequency
Encounter experience	
Have experience	38.2
No experience	61.8
Species	
Sika deer	20.4
Japanese macaque	19.1
Wild boar	14.8
Asian black bear/brown bear	3.1
Number of species	
One	24.2
Two	9.6
Three	3.7
Four	0.7

Note: Values indicate percentage.

### 3.2. High-Frequency Words and Co-Occurrence Network Map

The words which were expressed by more than 2% of the respondents were used to identify positive and negative views (Table 3). Nearly half of the responses indicated negative perceptions by words such as “damage”, “crop”, and/or “field”, while over 10% of the responses included the words “attack”, “afraid”, “dangerous”, and “appear/invade.” Similarly, various words were used to describe positive views as well. “Nature” and “cute” were the two most frequently used words (indicated by over 20% of the participants). “Inhabit” was the third most frequent word, which was used by over 10% of the participants. Less than 10% of the participants used any other words on the list. A large number of abstract words and perceptions of wildlife that did not reflect reality (such as “nature”, “rich”, or “character”/“toy”) were used to express positive views. Similarly, negative views were often expressed with words such as “damage” and “rob”.

**Table 3.** Words indicating positive and negative views (above 2%).

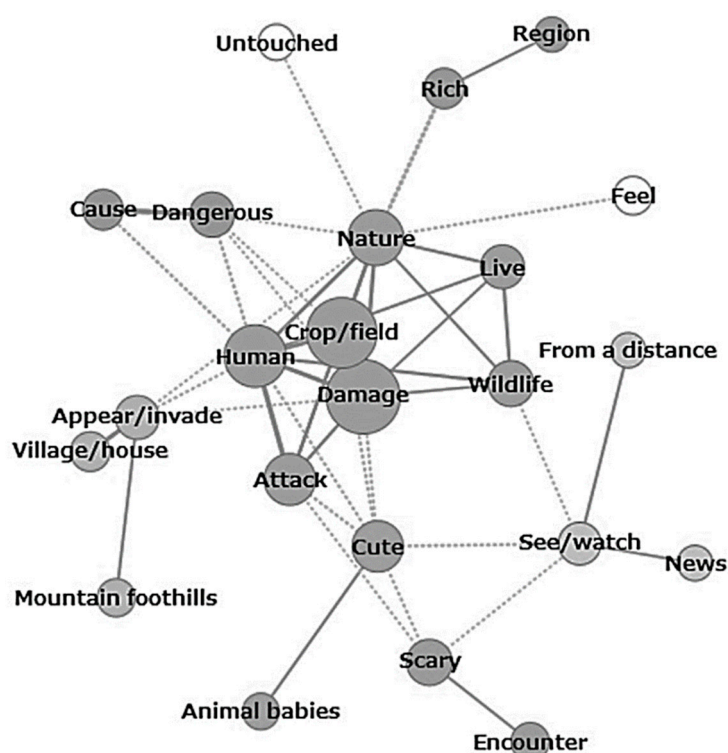
Number	Positive View		Negative View	
	Word	Frequency	Word	Frequency
1	Nature	28.4	Damage	51.8
2	Cute	22.8	Crop/Field	47.2
3	Inhabit	13.5	Attack	23.2
4	Rich	9.3	Afraid	16.3
5	Game meat	7.8	Dangerous	14.9
6	Delicious	6.9	Appearance	13.8
7	Heal	4.2	Ferocious	5.4
8	Character/Toy	4.2	Troublesome	4.2
9	Wild	3.2	Crush	2.7
10	Biodiversity/Ecology	2.7	Rob	2.7
11	Smart	2.1	Ran out	2.6
12	Conservation	2.1	Diseases	2.2
13	Friendly	2.0		

Note: Values indicate percentage.

Figure 1 presents the co-occurrence network map of high-frequency words based on community detection of edge between-ness. Several positive and negative words were used together. “Damage”, “crop”/“field”, “nature”, and “human” were the primary words indicated in the co-occurrence network map, with “damage” and “crop”/“field” representing negative views and “nature” (most commonly used in conjunction with “rich”, “region”, “feel”, and “untouched”) representing positive views.



These terms and groupings suggested that wildlife that caused crop damage lived in a rich natural environment. “Cute” was the second most commonly used word to express positive views and was mentioned in conjunction with “animal babies”, “see/watch”, “news”, and “from a distance”. “Scary” was in close proximity to “cute” and was mentioned along with “encounter”. “Dangerous” was in close proximity to “cause”, while “appear/invoke” was mentioned with “village/house” and “mountain foothills”. These word groupings suggest that close encounters with wildlife were considered dangerous while wildlife observed at a distance was considered cute and non-dangerous.



**Figure 1.** Co-occurrence network map. “Damage”, “crop”/“field”, “nature”, and “human” are the primary words indicated in the co-occurrence network map.

### 3.3. Chi-Squared Test Results

In this study, a chi-squared test was performed to compare the “have experience” and the “no experience” groups. An initial comparison indicated no significant difference in the occurrence of positive and negative views in two groups (Table 4). On the other hand, significant differences were observed between the two groups in words such as “damage”, “crop”/“field”, and “attack” (Table 5). This suggests an overall higher degree of negative prejudice in the “no experience” group than the “have experience” group.

**Table 4.** Experiences and views.

Type	Have Experience	No Experience	DF	Chi-Square
Positive Views	72.3	76.6	1	3.1401
Negative Views	92.0	93.0	1	0.4750

Note: Values indicate percentages.

**Table 5.** Experiences and corresponding words.

Number	Word	Have Experience	No Experience	Sum	DF	Chi-Square
1	Damage	46.2	54.6	51.4	1	9.119 **
2	Crop/Field	42.8	49.9	47.2	1	6.372 *
3	Nature	24.3	31.0	28.4	1	6.863 **
4	Attack	18.3	26.2	23.2	1	11.130 **
5	Cute	24.5	21.6	22.7	1	1.416
6	Wildlife	18.3	17.1	17.6	1	0.265
7	Afraid	18.7	14.8	16.3	1	3.431
8	Dangerous	14.2	15.4	14.9	1	0.261
9	Inhabit	13.3	15.1	14.4	1	0.779
10	Appearance	12.3	14.6	13.7	1	1.189

Note: \*\*  $p < 0.01$ ; \*  $p < 0.05$ . Values indicate percentages.

Finally, relationships between the socioeconomic variables and incidences of positive or negative responses were determined. Female participants ( $N = 555$ ) were found to be more sensitive to negative attributes (Table 6). The results for young (under 40,  $N = 370$ ), middle-aged (under 60,  $N = 386$ ), and elderly (over 60,  $N = 110$ ) participants indicated significant variance in both positive and negative views of the first group, thus suggesting that young participants expressed more interest in wildlife than other age groups (Table 7). No significant differences were observed between the other variables.

**Table 6.** Gender and views.

Type	Male	Female	DF	Chi-square
Positive Views	76.5	76.6	1	0.0003
Negative Views	88.1	95.7	1	17.4565 **

Note: \*\*  $p < 0.01$ . Values indicate percentages.

**Table 7.** Age group and views.

Type	Young	Middle-Aged	Elderly	DF	Chi-Square
Positive Views	77.3	78.8	66.4	2	7.5223 *
Negative Views	95.9	92.7	83.6	2	19.6692 **

Note: \*\*  $p < 0.01$ ; \*  $p < 0.05$ . Values indicate percentages.

## 4. Discussion

### 4.1. Content Analysis of the Perceptions

In this study, approximately 40% of the 1401 respondents had previously encountered wildlife. We posit that urban individuals were more likely to have a positive view of wildlife than rural individuals who frequently came into conflict with wildlife.

The co-occurrence network map indicated that several participants perceived wildlife to damage crops or attack humans and, also, that wildlife, particularly young animals, were cute from a distance but scary when encountered up close. Additionally, the map indicated that wildlife encounters often occurred at the intersection of mountain foothills and villages and that respondents felt a sense of rich, untouched nature when encountering or thinking about wildlife.

A comparison of the groups with regard to wildlife encounter experiences indicated no significant difference in the number of responses, either negative or positive. However, the answers differed across the groups. The “no experience” group was more likely to express negative views of wildlife, such as “crop raiding” or “attacks by wildlife”. Furthermore, the positive views expressed by the “no experience” group tended to reflect nature in an abstract manner. In contrast, the “have experience” group associated concrete perceptions with wildlife. This difference could be attributed to different wildlife encounter experiences. Further, these differences in perception indicate the likelihood of conflict between urban and rural residents during collaborative wildlife management.



These results indicate that the “no experience” group, which was largely comprised of urban individuals, expressed abstract and mainly negative perceptions of wildlife. Further, their positive views were expressed when wildlife was not in their immediate vicinity. The mass media mostly reports human–wildlife conflicts [50]. This study limited the wildlife species to those causing crop damage; therefore, the “no experience” group did not have a realistic perception of wildlife and primarily expressed negative views, which were largely influenced by the news. In contrast, the “have experience” group, which was primarily comprised of rural individuals, reported specific and diverse perceptions of wildlife resulting from their daily lives and expressed both positive and negative views, based on real experiences. Further, they had first-hand information on both crop damage and the cuteness of young animals.

Overall, rural individuals expressed mixed positive and negative views of wildlife, based on their personal experiences, while urban individuals did not express detailed perceptions of wildlife. Contrary to the findings of previous studies, the results of this study demonstrated that information and experience did not influence the perception of wildlife in a positive or negative manner but rather affected the content of perception. Such differences in the content of perception can potentially lead to conflicts between rural and urban individuals engaged in collaborative wildlife management. Further, the results suggest that unsubstantiated, prejudiced, or stereotyped knowledge can influence an individual’s perception of reality. Therefore, it is important to reduce such gaps in perception of wildlife between existing and new stakeholders.

#### *4.2. Involvement of Urban Individuals in Wildlife Management*

The results of this study indicate the possibility of conflict between rural and urban stakeholders during collaborative management due to differences in perception, especially due to the limited understanding of wildlife issues by urban groups.

Previous studies have noted that negative views shared between the victims of crop damage and their neighbors subsequently spread outward [51–53]. Although the residents themselves had diverse perceptions of wildlife, this propagation of a rigid negative opinion influenced the formulation of wildlife management policies. These results indicate that a limited understanding of human–wildlife conflict can lead to conflict between stakeholders; therefore, the involvement of urban stakeholders (who tend to primarily focus on damage by wildlife) in wildlife management could be detrimental, unless a suitable approach is adopted [54,55].

The responses obtained in this study indicated that urban individuals were highly interested in wildlife, due to information obtained from mass media. If the gaps in perception could be narrowed, such individuals could become powerful stakeholders in collaborative wildlife management. Thus, it is necessary to not only ensure that individuals are aware of these perception gaps, but also to establish strategies to narrow them. However, owing to their pre-existing mass media-influenced knowledge of human–wildlife conflict, simply sharing information with urban stakeholders is unlikely to mitigate the problem. Rather, it is essential to dismantle pre-existing biases by fostering a broader interest in rural ecology. For example, opportunities that provide information on wildlife or rural environment are likely to be effective. Moreover, sharing the rural population’s perception of urban inhabitants could mitigate the conflict between stakeholders.

Therefore, we suggest a perceptual gap-narrowing approach based on staged interactions with the rural environment. Communicating about wildlife management or rural areas or creating new income-generating activities related to natural resource management would change their relationship [56,57]. For example, attendance in agri-tourism activities could allow urban stakeholders to experience and obtain diverse information on rural areas and wildlife. This tourism also provides rural stakeholders means of communication with urban individuals and income generation for rural communities. Further, encouraging urban stakeholders to become involved in rural issues which impart a field-based knowledge of wildlife can help to narrow the gaps in perception of wildlife and

result in productive collaborative wildlife management. Additionally, increasing the interest of the young urban population in rural areas should be utilized to ensure collaborative wildlife management.

Finally, previous research has reported that women, older individuals, and individuals with lower education levels tend to have more negative attitudes toward wildlife [16,17,28]. In this study, the comparison of socioeconomic variables for the “no experience” group indicated that women were more sensitive to negative attributes, while younger participants were more interested in wildlife. Therefore, in considering strategies to encourage the involvement of new stakeholders, women’s tendency toward negative views on wildlife (e.g., with respect to danger) could be mitigated through provision of accurate information and conducting discussions on maintaining a desirable relationship with wildlife. As younger individuals appear to be more interested in wildlife, they could potentially provide input and participate in leadership roles for mutually beneficial collaborative wildlife management.

## 5. Conclusions

This study investigated the perceptions of urban individuals who were currently not involved in wildlife management but likely to do so in the future. The differences in the perception of wildlife between rural and urban populations could be attributed to different experiences during wildlife encounters. We hypothesized that the “no experience” group (urban individuals) was likely to have a more positive view of wildlife than the “have experience” group (rural individuals) that likely experienced direct and frequent conflict with wildlife. Although the number of responses, with respect to perception of wildlife differed between rural and urban individuals, content analysis disproved the hypothesis. Overall, rural individuals expressed mixed positive and negative views resulting from personal encounters, while urban individuals did not express detailed perceptions of wildlife. Such differences in perception could potentially lead to conflicts between rural and urban individuals engaged in collaborative wildlife management. Additionally, unsubstantiated, prejudiced, or stereotyped knowledge is likely to expand such gaps. Thus, the differences in perception between the two groups were more complicated than expected, and stakeholders should be conscious of these gaps when working together. To narrow gaps and clear biased perceptions, we suggest a strategy of staged immersion into the rural environment. This would comprise involvement in rural issues to promote field-based education in wildlife management. Further, the interest of the young population in rural areas should be utilized to ensure successful collaborative wildlife management.

This study is the first step toward initiating collaborative wildlife management and further research is essential to establish suitable management strategies. Additionally, this study was limited in its scope, as it was based only on the wildlife encounter experiences of urban and rural populations. Further, the results were obtained through an online survey and it is likely that the respondents were individuals who were already interested in wildlife issues. Moreover, the survey was primarily limited to crop-raiding wildlife species and, thus, the responses could be biased to negative perceptions. To overcome this potential selection bias, future studies should focus on methods to gauge the responses of individuals with no current interest in wildlife who, nevertheless, may become stakeholders in wildlife management.

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