Research Article

An Analysis of Communities' Attitudes Toward Wildlife and Implications for Wildlife Sustainability

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Abstract

Negative human–wildlife interactions do not only have adverse effects on rural livelihoods but also lead to negative attitudes toward wildlife conservation. This research uses primary data collected from 221 randomly selected households in the Okavango Delta to analyze their perceptions on poaching and community involvement in anti-poaching activities. The results reveal that the majority of the respondents acknowledge the existence of poaching within their communities. Close to 50% of the respondents noted that they poach for subsistence purposes. There is a generally low participation rate in anti-poaching efforts in the study area. The study concludes that the negative attitudes of communities toward wildlife and wildlife conservation threaten wildlife sustainability in the Okavango Delta. There is a need to strike an intricate balance between wildlife conservation and improving communities' welfare and tolerance to wildlife through designing effective institutions that are aligned to local realities.

Keywords

anti-poaching, community attitudes, community engagement, conservation, institutions, human–wildlife interactions, Okavango Delta, poaching, wildlife

Over the years, there has been increasing concerns over declining wildlife populations, leading to calls for effective responses to ensure wildlife sustainability (Duffy et al., 2019). The calls range from the militarization of conservation (Mogomotsi & Madigele, 2017) to people-centered approaches such as Community-Based Natural Resource Management (CBNRM; Chevallier & Harvey, 2016). The latter approach advocates for comprehensive management of wildlife and other natural resources through participatory, bottom-up approaches that empower local communities to be active participants in natural resources management decision-making. It views communities as invaluable assets fully capable of sustainably managing wildlife and other natural resources from meeting their livelihood needs. However, it has been argued that this approach often fails when conflicts occurring between human activities and biodiversity conservation are poorly managed (Mogomotsi, 2019).

Negative interactions between people and wildlife do not only have adverse effects on rural livelihoods but also lead to negative attitudes toward wildlife conservation and general aversion toward wildlife resources (Nelson et al., 2003). The negative attitude can undermine local, national, regional, and international conservation initiatives. Decker et al. (2001) argue that communities' perceptions and attitudes toward wildlife and its management play a pivotal role in wildlife management decisions. Therefore, it is crucial to recognize and incorporate the importance of such attitudes into wildlife management plans. The recognition of

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human-related factors in wildlife management will not only affect population viability but may also have broader environmental impacts. The recognition of human-related and social factors is also necessary for ensuring that wildlife management policies are both effective and sensitive to local realities (Mir et al., 2015). In that regard, it is important to continuously conduct studies on wildlife management to inform area-specific policies as the attitudes toward wildlife often differ from one setting to the other (Kansky et al., 2014; Mir et al., 2015). The same is true with the factors affecting spatially heterogeneous attitudes, even within the same country (Kansky et al., 2014; Mir et al., 2015). Few studies to understand community perceptions toward conservation are situated in Southern Africa generally (Mutanga et al., 2015) and in Botswana specifically. This is despite the fact that Botswana has one of the largest populations of elephants, cheetahs, and lions in Africa and the world (Purchase et al., 2007; Winterbach et al., 2013), requiring their protection and conservation.

A common thread in developing and applying conservation policies requires gaining the support of local communities and engaging them in collaborative conservation efforts (Sampson et al., 2019). Therefore, wildlife conservation perception studies contribute toward the development of effective wildlife management policies that are sensitive and relevant to local conditions and the degree to which local communities are willing to coexist with wildlife (Megaze et al., 2017). Earlier studies on the subject matter conducted in Botswana showed that rural communities in northern Botswana had negative attitudes toward wildlife due to crop raiding by wild animals, livestock predation, and loss of land to conservation programs (Parry & Campbell, 1992). A species-specific study relating to perceptions toward the conservation of wild dogs in Botswana confirmed negative perspectives among farmers toward wild dogs and their conservation due to the depredation of livestock and stocked game (Fraser-Celin et al., 2017). However, more subsistence farmers than commercial livestock farmers and game farmers held negative perspectives toward wild dogs (Fraser-Celin et al., 2017).

Similar studies conducted elsewhere in the African continent, such as Ethiopia, have shown that agro-pastoral communities often have strong negative attitudes against the conservation of large carnivores which are responsible for livestock depredation resulting in economic loss, which often leads to retaliatory or preventative carnivore killing (Mkonyi et al., 2017). Some case studies have shown that the negative attitudes toward wildlife are mainly attributed to the past (negative) experiences and fear of wild animals by respondents (Bencin et al., 2016). However, it is important to emphasize that the drivers of perceptions or attitudes of local communities toward wildlife are not homogenous (Kansky & Knight, 2014). The environment-specific contexts matter, thus it is not advisable to attempt to make sweeping or general conclusions on the factors influencing the attitudes of people toward wildlife. This further explains why there cannot be one-size-fits-all recommendations in this field of scholarship.

Rural communities in sub-Saharan Africa have a vast indigenous knowledge that has kept their environments pristine and protected for decades (Dlamini & Kaya, 2015). Other than the spiritual attachment to their environment, rural communities were historically dependent on wild flora and fauna for their livelihoods (Sinthumule & Mzamani, 2019). However, the advent of colonialism in the African continent in the 1880s resulted in centralized control over natural resources by colonial powers, which resulted in the taking away of decision-making concerning wildlife from rural communities(Parry & Campbell, 1992). Consequently, rural communities became passive observers of the wildlife resources around them. Even post-independence, the government of Botswana adopted laws that limited wildlife resources utilization and introduced a total ban on hunting at one point (Blackie, 2019). This conservation practice is largely meant to protect the flourishing nature-based tourism in the Okavango Delta to the detriment of local communities. As a result, there is an ongoing conflict between the state and the residents in rural communities were tourism is practiced in Botswana which is attributable to the acrimonious relationship between conservation and livelihoods of communities living adjacent to and within wildlife sanctuaries (Mogomotsi, 2019). There is a paucity of context-specific empirical studies to understand the perceptions of local communities toward wildlife conservation in the internationally recognized Okavango Delta.

To our knowledge, this is the first study to analyze community perceptions of wildlife conservation, using poaching as a proxy, in the Okavango Delta, Botswana. The analysis is important in providing insights on how the perceptions, attitudes, and current practices may influence wildlife sustainability and its supporting institutions. This is crucial for rethinking the design of conservation policies that allow for effective management and planning, sensitive to local realities. Specifically, this study analyzes (a) communities' perceptions on poaching and (b) community involvement in anti-poaching activities.

Methods

Study Area

The Okavango Delta is part of the broader Okavango River basin. The basin comprises the Cuito and Cubango catchment areas located in Angola as well as the Kavango–Okavango catchment area located in

Namibia and Botswana. The Okavango Delta is the largest freshwater inland wetland in Southern Africa. The Delta supports not only livelihoods but also wildlife and overall biodiversity (Mogomotsi et al., 2020a).

The support on livelihoods and biodiversity conservation referred earlier is provided for under relevant laws from one country to another. The same is true for benefits arising from damages caused by wild animals. In the context of Botswana, the main piece of legislation regulating wildlife conservation and protected areas is the Wildlife Conservation and National Parks Act. The Act came into force in 1992 repealing two statutes being the Fauna Conservation Act and the National Parks Act (Jones, 2008). It is this piece of legislation that governs the relationship between human beings and wildlife and the utilization of wildlife resources in the Okavango Delta and other parts of Botswana.

The Okavango Delta is faced with challenges such as the changing and unpredictable biophysical dynamics, coupled with other factors such as conflicts between traditional and contemporary land uses (Mogomotsi et al., 2020b). An amalgamation of all these factors prompts new thinking on conservation approaches within this complex setting. For these reasons, the Okavango Delta was purposively selected as a case study. There are several villages and settlements situated within the vast geographical region of the Okavango Delta. Within the Okavango Delta, villages reflective of human–wildlife conflict were identified from literature sources and through site visits in July 2017. Subsequently, four villages were conveniently sampled. These four villages are Shorobe, Matsaudi, Gumare, and Shakawe (Figure 1).

Sampling, Data Collection, and Data Analysis

The study focused on farming households with the four selected villages. However, at the time of carrying out the study, data on the numbers of farming households in the four villages did not exist. Therefore, this study depended on literature to estimate the number of farming households in each village. In Botswana, it has been estimated that 70% of rural households practice agriculture (Omari, 2010). Furthermore, a study by Madigele (2016) showed that about 70% of households in rural Boteti were involved in arable and pastoral farming. Rural Boteti is adjacent to the Okavango Delta. Using these literature sources, this study's farming households were estimated to be about 2,975 of the total 4,252 households in the four villages as summarized in Table 1.

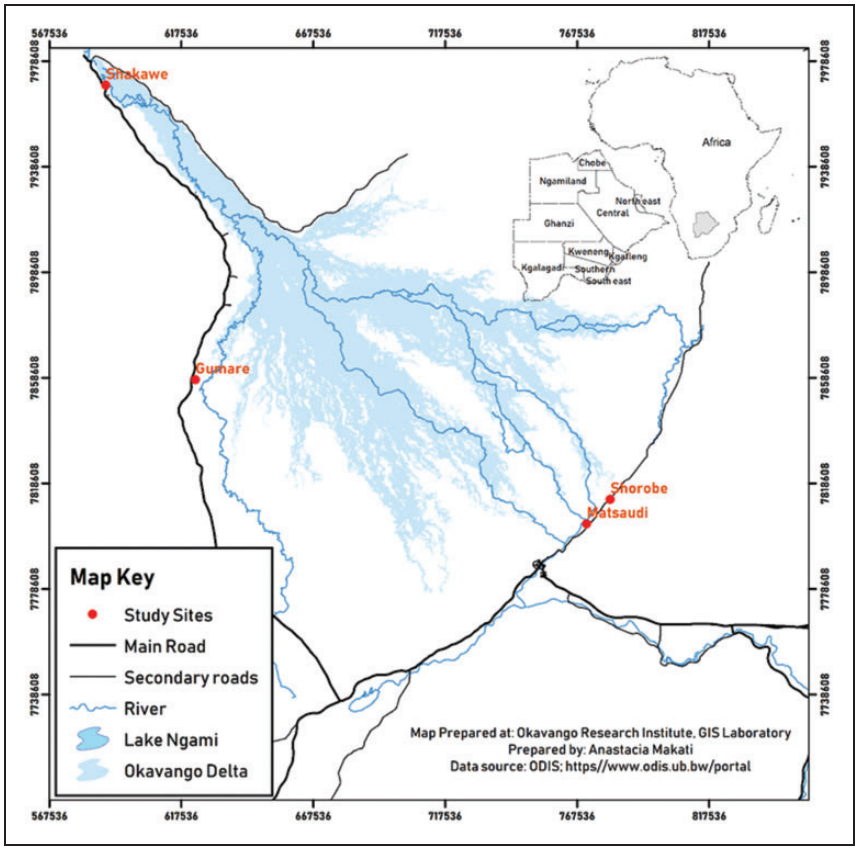

Figure 1. Study Sites (*Source*: Okavango Research Institute GIS Lab, 2020).

Table 1. Household Sampling.

Village	Number of households	Estimated number of farming households	Number of sampled households with response
Matsaudi	98	67	30
Shorobe	234	164	43
Gumare	2,210	1,547	76
Shakawe	1,710	1,197	72
Total	4,252	2,975	221

The total sample size obtained for this study was 228 farming households at 95% confidence level and 5% margin of error, with an estimated response rate of 80%. While the total sample size obtained for this study was 228 households, 230 households were sampled, and only 9 households did not respond. Therefore, a total of 221 randomly selected farming households responded with a rate of 96.1%.

The research generated primary data using semistructured questionnaires for household surveys from the July 31, 2018, to August 14, 2018. It is important to highlight that data were collected during the period when the safari hunting ban was imposed in Botswana. Studies have since established that the hunting ban imposed in 2014 has had significant adverse impacts on communities with valuable hunting rights (Mbaiwa, 2017). Before the hunting ban, the most popular cash-generating activities in community-based organizations were hunting and ecotourism. After the hunting ban, the most popular cash-generating activities are ecotourism and events (Centre for Applied Research, 2016).

The semistructured questionnaire used to collect data in this study contained both open-ended and closed-ended questions. The questions were framed around three subsections. Section A collected the demographic and socioeconomic data of the respondents. Section B contained questions on the current economic benefits of tourism to local subsistence farmers in the rural Okavango Delta. Section C used both open- and closed-ended questions to solicit data on the land-use conflicts and poaching activities in the Okavango Delta. The closed-ended questions included Likert scale questions. The questions were framed using a 5-point Likert scale on the respondents' level of agreement, where $1 = strongly\ agree$, $2 = agree$, $3 = neutral$, $4 = disagree$, and $5 = strongly\ disagree$ (see online Appendix).

The researchers and two trained field assistants conducted face-to-face interviews and physical administration of questionnaires for 2 weeks subsequent to receiving a research permit from the relevant ministry. These methods of data collection are preferred to create an atmosphere of trust and offer clarity through discussions. For respondents with low literacy levels, the questionnaires were translated on a real-time basis. For consistency, the researchers and field assistants agreed on the translations of keywords of the questions to avoid distortions in meanings. The study, however, acknowledges that slight variations in the way in which the interviews are conducted are expected. For example, variations with respect to the ordering of the questions to allow the interview to be adapted to suit the respondent better may have occurred. To reduce interviewer bias and to ensure that the responses were comparable across all the interviews, this study used the criteria for assessing the trustworthiness of naturalistic inquiries proposed by Guba (1981) to minimize bias.

The questionnaire was piloted to better align the questions to the needs of the study. During the piloting of household questionnaires, it was discovered that "hunters" do not readily admit to poaching in the study area. Initially, a large majority (over 90%) denied any occurrences of poaching activities for subsistence purposes within their communities. However, when the question was rephrased to "the killing wild animals for subsistence, commercial or both purposes without a permit," the demeanor of the respondents and their responses changed probably because the criminality undertone or element inherent in poaching was eliminated or at least toned down. For the analysis, the "killing wild animals for subsistence, commercial or both purposes without a permit" is regarded as poaching.

A thematic content analysis approach was used to investigate the qualitative data, thus "identifying, analysing and reporting themes within (the) dataset" in a systematic manner (Braun & Clarke, 2006, p.79). Accordingly, the data were organized, cleaned, coded, and categorized. This study used a concept-driven coding approach to identify patterns and similarities between the various data obtained (Nowell et al., 2017). To improve consistency between researchers, a priori coding framework was created by the research team using the data collection instrument (Blair, 2015). Emergent codes obtained from the households were included in the framework as and when they emerged.

Results

The Hunting Ban and Poaching

The majority (51.6%) of the respondents answered on the affirmative when asked about the existence of poaching within their local communities. One of the respondents in Shorobe noted that:

> Hunting is part of our lives. Our forefathers did it, and there were no concerns about the depletion of wildlife.

> However, when you are ruled by a stubborn government that wants to change traditions in favor of profit, then you become stubborn as well. It is my responsibility as the head of the family to teach my sons how to hunt, with or without a permit.

Generally, the respondents argued that the contemporary institutions that restrict hunting were designed and implemented without prior consultation with hunting communities. Therefore, they perceived the killing of wild animals to be their right flowing from informal institutions such as norms, beliefs, and customary law generally. There seems to be resistance against contemporary institutions that conflict with the common practice, traditions, and beliefs in the study area. This could be in part attributed to the lack of consultation with communities before designing and implementing natural resources use institutions.

Almost 35% of the respondents noted that the poaching activities that take place within their communities are for commercial purposes (Figure 2). The respondents perceived that poaching activities for commercial purposes involve the killing of elephants and rhinos for their ivories and horns. They differentiated between commercial and subsistence poaching using motive, profit opportunities, and method of killing as criteria. According to the respondents, commercial poachers use sophisticated firearms, and they poach in large scales for profit. They claimed that they have seen commercial poachers and have interacted with them within their areas. Two of the respondents admitted having harbored commercial poachers for a fee at some point in time.

About 35% of the respondents remarked that they poach for commercial purposes while half of the respondents noted that they poach for subsistence purposes. By implication, according to the respondents, the majority of poaching activities within communities are not for income. For such respondents, poaching is not the supplementary source of household income. Therefore, the majority of households do not derive economic benefits from poaching in the study area.

Community Involvement in Anti-Poaching Activities

Through household survey questionnaires, the farmers were asked whether their communities are actively engaged in anti-poaching efforts. The majority (70.6%) of the respondents indicated that their communities are not involved in anti-poaching efforts. The respondents noted some reasons why their communities were not involved in anti-poaching efforts. Some respondents (11.6%) cited the existence of anti-poaching legislation and policies as their primary reason for not being actively involved in anti-poaching efforts or activities. One of such respondents alleged that "the government's anti-poaching laws are designed to exclude communities" from being actively engaged in anti-poaching activities. Other respondents (5.35%) claimed that there are hired scouts who are paid to guard against poaching.

A significant proportion (36.6%) of the respondents indicated that their communities are not actively engaged in anti-poaching efforts because of lack of interest as illustrated in Figure 2. A 72-year-old farmer in Shorobe elaborated the "lack of interest" point by stating that:

> We used to be very actively involved in protecting our wildlife. We even alerted the police when we noticed poachers. But ever since the government banned hunting and called our community members "poachers," we have absolutely no interest. The wildlife belongs to tourism businesses, the tourists and the government because they are the only beneficiaries. Let them pay for anti-poaching, not us.

The sentiments aired by the 72-year-old farmer were widely spread, with the majority of respondents arguing that they have been alienated from the wildlife resources. They argue that wildlife resources are protected in favor

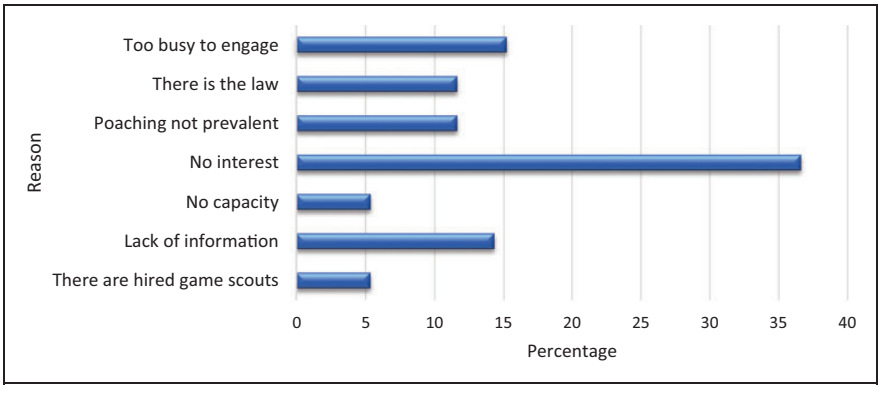

Figure 2. Reasons for Not Being Actively Engaged in Anti-Poaching Efforts.

of the tourism industry while no regard is paid to their livelihoods. Despite the general resistance of communities from being engaged in anti-poaching activities, 29.4% of the respondents indicated their communities are involved in at least three anti-poaching activities. Only 5.4% of the respondents claimed that their communities are involved in anti-poaching efforts through reporting poaching incidents to the police and the Department of Wildlife and National Parks (Table 2).

The majority of the respondents indicated that their communities have cluster volunteers (commonly called "clusters" in the study areas) who patrol using shifts. The volunteers are paid an average of sum BWP500.00 (US$47.50)[1] per month by the government for their services. They generally consider the financial incentive to be low. According to the respondents, the law enforcement agencies in Botswana are constrained in their efforts to combat poaching due to limited resources.

Discussion

This study aimed to analyze communities' perceptions on poaching and community involvement in anti-poaching activities. We found that the general lack of interest by communities to safeguard wildlife by being engaged in anti-poaching arguably reflects the failure of the top-down approach in ensuring integrated management of natural resource management. The absence of community-level institutional arrangements to guide the use of wildlife is an institutional vacuum with negative consequences to the sustainability of wildlife resources. The alienation of communities from wildlife serves as one of the causes of the substantial conservation problems facing the Okavango Delta.

Mogomotsi and Madigele (2017) argue that in northern Botswana, where the Okavango Delta is located, the marginalization of communities and their restricted access to wildlife have led to negative attitudes toward wildlife, tourism, and conservation. That assertion has been validated by the results of this study, with the majority of the respondents holding a view that the government protects wildlife resources to safeguard the tourism industry with no regard to community livelihoods. Therefore, poor management of the relations between human and wildlife inadvertently results in rural communities to believe that the government prioritizes conservation over human welfare which can result in unsustainable use of natural resources (Mogomotsi & Madigele, 2017). Some respondents in the study have admitted to the killing of wild animals which they deem to be their right supported by informal institutions such as customary law, norms, and beliefs. According to Hübschle-Finch (2016), through killing certain wildlife species without a permit, "the poacher is claiming back his right to hunt by poaching in modern-day conservation areas, which were the traditional hunting grounds of his forefathers" (p. 1).

Table 2. Communities' Anti-Poaching Strategies Identified by the Respondents.

Activity	Percentage
Clusters	81.1
Public awareness campaigns	15.5
Reporting	5.4
Total	100

It has established that when communities are excluded from conservation decision-making processes, they are likely to retaliate, through poaching for example, as "they feel that their own needs are being subordinated to those of wildlife" (Madden, 2008, p. 190). Furthermore, Gibson and Marks (1995) argue that:

> conventional wildlife policies exclude rural residents from most legal uses of wildlife. While paying the costs for conservation in the form of damaged crops and even human lives, rural communities receive few legal benefits from wildlife. Consequently, such exclusionary wildlife policies provide few incentives for the sustainable use of wild animals. (p. 941)

The above observation is true in Botswana where policies or laws do not make any explicit provision for the involvement of local communities in the declaration of protected areas and how communities are to benefit from wildlife conservation (Cirelli & Morgera, 2010; Mogomotsi, 2019). The top-down approach in environmental policymaking practiced by Botswana leads to the exclusion of local communities (Mogomotsi et al., 2018). It is undoubtful that such an approach often results in the resistance of policy decisions by local communities as evidenced by illegal hunting engaged by some of the respondents in this study. Ostrom (1990) argues that natural resource users can develop functional self-governing institutional arrangements to solve resource-related problems such as conflicts occurring between human activities and biodiversity conservation with little or no intervention from the government. However, such self-governance of natural resources by communities is not a panacea of all resource management problems (Ostrom, 1990). In that regard, conservation management strategies should endeavor to mediate a balance between stakeholder tolerance and wildlife persistence (Kansky et al., 2016). Therefore, the government can contribute to the promotion of natural use efficiency and equity through integrated natural resource use which promotes a balanced and sustainable use of resources without coercion or undermining the

autonomy of communities and their efforts to manage their natural resources.

The preceding discussion and the general views of the respondents that they are not mainly concerned with material or monetary benefits confirm the findings that communities are not always concerned with tangible costs of conservation (Benjamin-Fink, 2019). Various factors influence the perceptions of communities in the Okavango Delta toward wildlife conservation. It has been argued that conservation outcomes are less likely to be durable when there are unbalanced interests (Redpath et al., 2013) and lack of engagement with communities in determining strategies for dealing with human–wildlife interactions (Manfredo, 2015). It is imperative to balance the need to conserve biodiversity with the socioeconomic interests of local communities in the Okavango Delta. That could be done through the reintroduction of traditional subsistence hunting as a direct intervention to reduce poaching by the Okavango communities.

According to Redpath et al. (2013), better integration of the underpinning social context with the material facts of the efficacy of alternative conflict management approaches could promote effective wildlife management in the long term. The combined application of scientific-based and indigenous knowledge approaches to conservation might go a long way in promoting human–wildlife coexistence and improving the perceptions of local communities toward wildlife conservation in the Okavango Delta. This requires a broader interrogation into the socioeconomic, ecological, and cultural conditions within the affected areas.It has been argued that integrated knowledge from multiple disciplines is necessary to better understand the complex societal and environmental systems (Johansson et al., 2016). For the sustainable management wildlife resources in the relative pristine Okavango Delta, government officials have to actively engage communities to appreciate their frustrations and views. That is essential in coming up with mediated conservation management strategies with legitimacy and better prospects of acceptance. In policy science, legitimacy is deemed to be an essential factor influencing whether the proposed policy will be adopted by the public or not (Jensen, 2003). It is undoubtful that legitimacy is mainly psychological phenomenon dependent on managing opinions and expectations of the public (Mogomotsi et al., 2018). The views and perceptions of the communities in the Okavango Delta need to be better managed by both politicians and public servants to arrive at acceptable wildlife management practices within the purview of the prevailing legislative and policy framework. That is necessary for improving the tolerance levels of communities, which is beneficial to wildlife populations roaming the wilderness and often the villages of the Okavango Delta.

The general lack of involvement in reporting of poaching incidents was noted in some African countries such as Zimbabwe before the introduction of the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). A similar policy framework to CAMPFIRE in the context of Botswana is known as Community-Based Natural Resources Management (CBNRM). The CBNRM policy provides for communal benefits from natural resources and for linking protected areas with neighboring communities (Sebele, 2010). However, its weakness is that it centralizes the control of the natural resources (Mogomotsi, 2019). This has the potential to undermine communities' incentive to conserve wildlife (Pienaar et al., 2013). The communities in the Okavango Delta generally view wild animals as government property with little or no benefit to their livelihoods. When implemented correctly with real benefits to the community, the CBNRM policy has the potential to curb poaching and improve perceptions of local population toward wildlife conservation.

In light of the above, it has been noted that in most cases, communities become actively engaged in protecting wildlife and other natural resources if they have a legal and clear stake in the resources (Gibson & Marks, 1995). Thus, when the ultimate ownership of wildlife shifts from communities to the government, and when the wildlife is perceived to benefit the tourism industry over communities, then the communities' incentive to protect the wildlife becomes limited. The de jure control and management of wildlife by the government in Botswana has led to the disenfranchisement and feeling of natural resources dispossession by communities in this study.

Implications for Conservation

This article concludes that communities generally have negative attitudes against wildlife conservation. The government should, therefore, realize and release the potential and capabilities of local communities in sustainably managing wildlife by promoting community participation in the formulation of wildlife management institutions.

Our findings are particularly timely given the ongoing discussions regarding the government of Botswana's decision to lift the safari hunting ban. The study provides empirical results through a social enquiry. This provides a different angle to the debates that oppose or support the lifting of the hunting ban. It highlights the need for an intricate balance between wildlife conservation and improving communities' welfare and tolerance to wildlife. The institutions governing wildlife conservation are burdened with the task of ensuring that communities derive tangible and intangible benefits from wildlife resources while simultaneously ensuring

the ecological sustainability of such resources. There is a need, therefore, to use a participatory approach in wildlife institutions. This is important in giving communities a sense of ownership toward wildlife resources and shifting their attitudes from negative to positive. This participatory approach toward the management of wildlife resources should be promoted and embedded in government policy to provide an institutional framework to ensure that the local communities are given an opportunity to share the benefits of having wildlife populations in their localities. It is envisaged that the integration and meaningful engagement of local communities will positively affect their attitudes toward wildlife conservation. This approach is intended to complement other existing policy instruments in natural resources management in place.

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Supplemental Material

Supplemental material for this article is available online.

Note

1. BWP 1.00 = USD 0.095 as on July 5, 2019.

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