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Hunter-Gatherers, Farmers, and Environmental Degradation in Botswana

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Abstract

Many governments and conservation organisations have argued that hunter-gatherers, farmers and pastoralists are responsible, in considerable part, for environmental degradation and biodiversity losses in southern Africa. Particular attention has been paid to alleged wildlife losses, especially elephants in Botswana. This article considers some of the issues surrounding hunting bans and protected areas with a view to conserving elephants. In Botswana, local people were removed from protected areas after being blamed for declines in wildlife numbers. Utilising government and other scientific wildlife data, the hunting ban cannot be shown to have had any significant impact on the conservation of elephants and other game species. Local people argue that many of their activities are sustainable, maintaining that they are generally not responsible for biodiversity losses and environmental degradation. Population growth, the expansion of agricultural, livestock and mining activities, the construction of veterinary cordon fences and increases in water point distribution have led to localised environmental degradation. The ‘great elephant debate’ became an important political issue during the run-up to the Botswana elections of October 2019. Local communities sought to ensure that they would be able to obtain benefits from wildlife tourism which had been denied them during the hunting ban.

Keywords: Botswana, Environment, Hunter-Gatherers, Wildlife, Poaching

INTRODUCTION

A major debate exists in both wildlife conservation and anthropological literature relating to the degree to which indigenous land users, hunter gatherers, pastoralists and farmers, may or may not be responsible for environmental degradation and natural resource losses (see, for example, Redford 1991; Alcorn 1993, 1994, 2010; Redford and Stearman 1993; Redford and Robinson 1985; Krech 1999; Smith and Wishnie 2000; Hames 2007; Johannes 2019). Some

analysts argue that indigenous people such as the San are ‘conservationists par excellence’ (Campbell 1977). Durning (1992:6) referred to indigenous peoples as ‘guardians of the land’ and as ‘native stewards’ which is also a position that many, if not all, indigenous people maintain (see, for example, Tauli-Corpuz 2008; Westra 2008).

Some wildlife biologists argue vehemently that indigenous people are involved in overhunting, poaching and non-sustainable economic activities (see, for example, Owens and Owens 1981, 1984; Spinage 1991, 1998). The solution, they suggest, is to impose severe restrictions on the activities of indigenous and other people and to remove them from lands that have been set aside for protection as parks, game reserves and national monuments. Indigenous people and their supporters, on the other hand, argue that these kinds of policies are indicative of Coercive Conservation – conservation strategies that involve coercive techniques such as forced resettlement, anti-poaching and ‘shoot-to-kill’ policies (see, for example, Mogomotsi and Madigele 2017; Sapignoli 2018).

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In the past, some of these policies have involved arrests, detentions, torture and exorbitant fines for allegedly violating wildlife conservation laws. Sometimes this approach is described as ‘green militarisation’ (Duffy 2010; Duffy et al 2016, 2019; Hoon 2013).

From the perspective of some conservationists and wildlife biologists, indigenous people today are using ‘non-traditional’ technology for resource acquisition, including axes, metal knives, guns and domestic animals such as horses and donkeys in their pursuit of wild plants and animals. Spinage (1998) for example, argues that an increase in the populations of indigenous peoples, along with their usage of non-traditional technologies, justifies their removal from protected areas. He suggested that “there is no room for the noble savage” (Spinage 1998:266) and he goes on to say “non-technological man, living at relatively low densities, living in harmony, sustainably, with the environment” would not have to be expelled from protected areas (Spinage 1998:266). Spinage suggests that “Conservationists have, since the London Convention for the Protection of African Flora and Fauna in 1933, been cognisant of human needs” (Spinage 1998:267). He raises questions about the sustainability of indigenous resource management systems, and suggests that it is anthropologists (including one of the authors of this article) who wish for “the retention of the noble savage identity” (Spinage 1998:268).

There is a significant debate in anthropology and conservation revolving around ‘people and parks’ (Paige, Igoe and Brockington 2006). Witter and Satterfield (2018) have discussed what they see as ‘the ebb and flow of indigenous rights recognitions in conservation policy’. In Africa, only one country recognises the concept of ‘indigenous people’ (the Central African Republic). The Republic of Botswana, for its part, does not recognise specific groups of people as indigenous, arguing instead that all people in the country who are citizens are indigenous and that all citizens regardless of their ethnic backgrounds have the same rights to land and resources in the country (Tsogwane 2017; Ludick 2018). Botswana (Figure 1) is a useful country to examine for several reasons: the government banned hunting in 2014; it has a very large population of elephants, estimated to be between 130,000 and 230,000; it has a sizable population of people who claim to be indigenous or ‘First Peoples’; and it is one of the leading countries in Africa calling for the opening up of elephant ivory sales, something it did along with other Southern African countries at the 18th meeting of the Conference of Parties (COP) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) meetings held in Geneva, Switzerland from August 17-29, 2019.

Wildlife conservation issues in Botswana were much in the news as this article was drafted, particularly after a Botswana-based conservation organisation, Elephants Without Borders (EWB) published new aerial survey data, some of which was interpreted in early September 2018 by international media outlets as describing an ‘elephant poaching frenzy’ (Elephants Without Borders 2018). Arguing that some 87 elephants had been poached on the outskirts of a wildlife reserve

(the Okavango Delta World Heritage Site), EWB implied, but did not say explicitly initially, that elephant poaching was on the increase. Public reaction to the announcement was quick, but soon doubts about the media-driven claims began to be heard (see De Greef 2018; Lang 2018). A meeting was held in Kasane, Botswana on September 19, 2018 to discuss the issue. EWB responded by posting a statement on its website, saying that they were not in a position to reveal the data that they had collected (Elephants Without Borders 2018). As doubts about the veracity of the claims of numerous poaching-related deaths of elephants continued to mount the Government of Botswana called for an investigation.

ELEPHANTS AND WILDLIFE NUMBERS AND THE HUNTING BAN IN BOTSWANA

Former Botswana President Ian Khama’s commitment to wildlife is incontestable and in recognition of this he is a board member of Conservation International. But it is legitimate to ask whether his flagship policy of banning hunting achieved its aim. This is especially pertinent following the barrage of criticism from certain international conservation NGOs and media outlets of the decision to reintroduce hunting. His environmental legacy can be summarised fairly simply as:

- The rolling back of community management rights over wildlife for both flora and fauna;
- The banning of hunting everywhere except on privately-owned game ranches.

The first of these policy changes was promoted as being necessary on the grounds that communities were in some cases mismanaging the funds that they were earning from their natural resource-based enterprises, and the second on the grounds that the wildlife resource was being over-exploited.

There were undeniable problems in the management of community trusts. None of these, however, were solved by simply removing management rights from local communities. The most significant result of this action was to remove any rewards earned from the risks borne by communities living close to wildlife.

The ban on hunting and the reduction of community rights produced four significant changes in Botswana:

1. The management of safari concessions lost two elements: Community partnership and the extensive control and management of land in hunting concessions. Due to the different management requirements of hunting and photographic safaris this later opened up those areas that were previously patrolled to the potential for an expansion of illegal activity.
2. Privately-owned game ranches benefitted enormously, putting the exploitation of commercial hunting into the hands of Botswana’s elites, some of whom, in the Ghanzi District, are reported to resort to illegally dropping fences to bring in trophy wildlife species for hunting from the Central Kalahari Game Reserve (CKGR).
3. Poor inhabitants of Botswana, both San (Bushmen) and

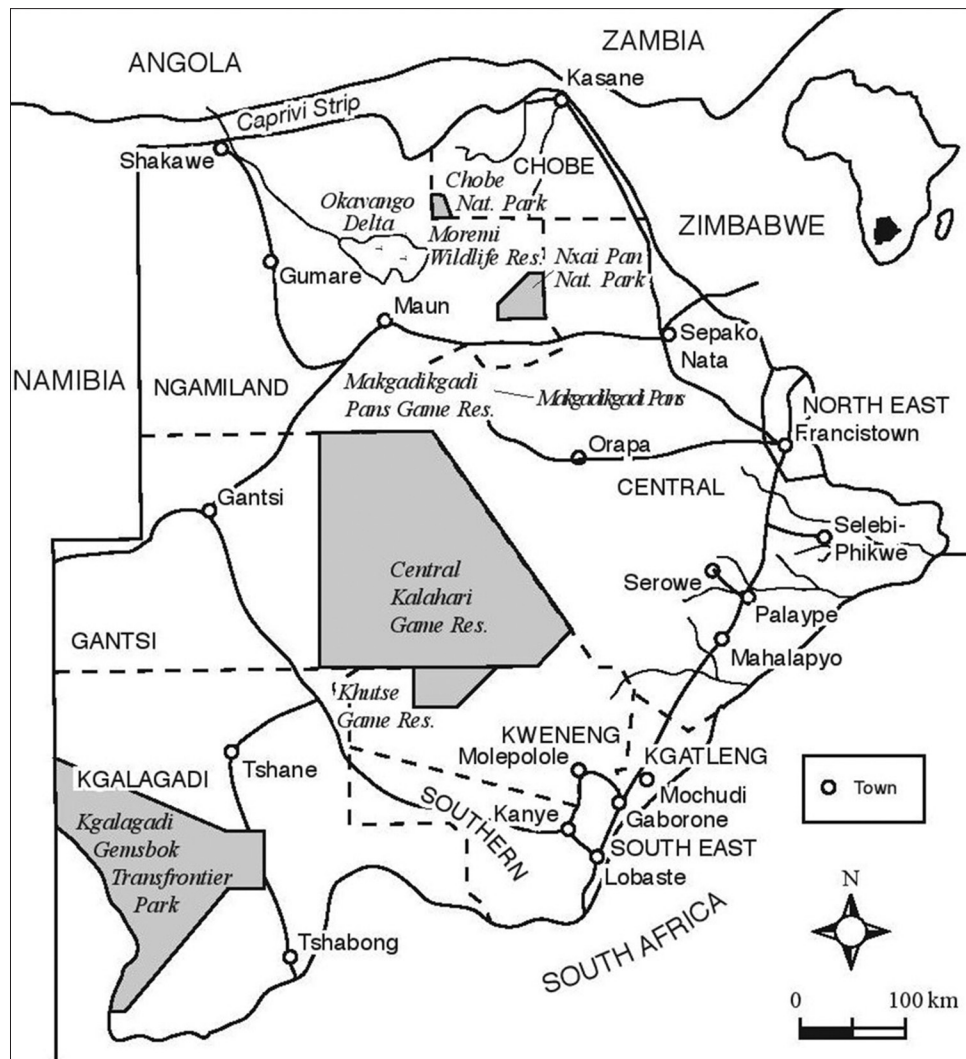


Figure 1
The districts and principal towns of Botswana

others, lost an important access to meat through the withdrawal of the Special Game License system.

4. Anti-poaching became more aggressive and military interventions expanded at the very time local people's incentives to support conservation had been greatly reduced, thus increasing the likelihood of conflict between local people and anti-poaching forces.

Did the hunting ban help Botswana's wildlife?

Government of Botswana census data show that elephant numbers rose from 60,902 based on the 1989-91 aggregated census data to 109,471 in 2003 and 207,545 in 2012, dropping dramatically to 130,450 two years later. EWB (Elephants without Borders), Chase et al (2018), state that there was no statistical change in elephant numbers from 2014 to 2018 and that they have been stable during that period. As Chase et al state, "When we restricted the 2018 data to only areas surveyed in the 2014 aerial survey of

northern Botswana, we found that estimated numbers of elephants had increased slightly and non-significantly since 2014, from $122,634 \pm \text{SD of } 5,101$ in 2014 to $122,831 \pm 4,769$ on this survey ($Z = 0.03$, $P = 0.98$). By stratum, changes in elephant population sizes between 2014 and 2018 were highly variable, with substantial movements of elephants likely occurring between strata." It should be noted that these last two surveys concentrated on northern Botswana and were not national surveys, thus potentially mitigating the size of any purported decline.

These data allow for both hunting and anti-hunting proponents to present their cases. Those in favor of hunting can point to an increasing elephant population based on a start point of 1989-91 (Table 1) whilst those in favor of a ban can use the high point of 2012 to point to a rapid decline in numbers. However, the hunting ban took effect in 2014, two years after the high point was reached, rendering it suspect to claim that the hunting ban in and of itself contributed to the conservation of elephant numbers.

It is hard to draw specific conclusions from the wildlife

data available from government sources. Both the emblematic species, elephant and buffalo, exhibit healthy population levels as do the majority of the plains game (Table 1). Although the 2018 EWB survey shows a significant drop in elephant numbers they are still over double the 1989-91 levels. The surprising data here are for Springbok. No explanation is offered for the apparent decline in their numbers. It is possible that they were affected by drought and by fences that disrupted their migratory patterns.

Wildlife data are hard to gather and not all surveys cover the same territory, especially those of EWB whose surveys focus on the elephant’s range, which they show to be expanding. A certain level of variation in numbers has therefore to be considered normal.

One of the more interesting observations from the Botswana Government’s data from their 2004 survey compares data from 1994 to 2003 and disaggregates the data to distinguish between populations within and outside of parks (Table 2).

It is important to note, based on the Botswana Government’s wildlife figures, that the protected area system does not appear, at first sight, to be offering significantly improved levels of conservation protection when compared to the data for wildlife in areas outside of game reserves and national parks, in land shared with hunter-gatherers, farmers, pastoralists and villagers. This is certainly an area requiring greater analysis.

One of the elements of the EWB report that was most commented on was the data on elephant poaching which some described as ‘a poaching frenzy’. The EWB report was careful to classify the carcasses found and did so as follows (Table 3):

We cannot judge whether these figures amount to a ‘poaching

frenzy’. They certainly do not account for the difference in elephant numbers between 2012 and 2014-18.

There is no question, based on reports of human-wildlife conflict in various parts of Botswana, that the range of Botswana elephants has increased, with elephants now being found regularly in the Central Kalahari Game Reserve, the Makgadikgadi Pans, the Ghanzi Farms, in Kweneng District, and even close to Gaborone in southeastern Botswana.

Local communities complained about elephants getting into their gardens and destroying their homes and water points in the Central Kalahari and in eastern and southeastern Botswana in April 2019 (Hitchcock and Kelly, field data, 2019; Chaboo et al 2019). The reasons for their expansion beyond their traditional ranges in recent years are not known but it may be due to efforts on the part of elephants to find new sources of food and water.

Lifting the hunting ban

By lifting the ban on hunting on May 23, 2019 (see Ministry of Environment, Natural Resources, Conservation and Tourism 2019) enormous controversy was generated, with numerous comments from Botswana citizens, conservation organisations, the media and others. The fact that there was no significant population increase of elephants under the hunting ban reduces the arguments in favour of the ban, especially when poaching numbers are claimed to have increased so much during that period. This is probably due to the vastly different ways in which hunting and photographic concessions are managed in southern Africa. It should also be noted that some parts of Botswana have seen continued safari hunting, notably in freehold land such as the Ghanzi Farms and (illegally) in areas designated as commercial ranches in western Ngamiland under the North West District Management Plan.

It appears that there was definitely an increase in poaching in some parts of Botswana, including the Okavango World Heritage Site and its buffer zone areas (Rogan et al 2017; Chase et al 2018; Schlossberg, Chase, and Sutcliffe 2019). The degree to which this poaching is due to the actions of local community members as opposed to internationally supported criminal gangs is open to question.

Deforestation and environmental degradation are certainly occurring in many parts of Botswana, including the Okavango Delta and Chobe National Park. Human-wildlife conflicts are on the increase in northern Botswana and the Zambezi Region of Namibia (Chase and Griffin 2009; Chase et al 2016). Some of these conflicts are due to human population expansion in these areas. A contributing factor is the erection of veterinary cordon fences in Botswana and more broadly in the Kavango-Zambezi Transfrontier Conservation Area (KAZA).

The Okavango Basin is the fourth largest international river basin in southern Africa and the Okavango River is the largest river in the region that does not empty out into an ocean. The Okavango Delta became the world’s 1000th World Heritage Site (WHS) in 2014. The Okavango Delta of northwestern Botswana is a large inland delta or alluvial fan that consists of

Table 1
Botswana selected wildlife data for 1989-2012

Species	1989-91	1996	2003	2012
Elephant	60,902	100,538	109,471	207,545
Buffalo	41,382	93,766	33,305	61,105
Hartebeest	36,431	31,942	49,978	62,569
Gemsbok	91,710	135,047	101,522	133,249
Impala	60,747	59,627	67,040	114,900
Springbok	126,468	73,833	35,811	35,688

From Central Statistics Office (2004). *Wildlife Statistics 2004*

Table 2
Botswana selected wildlife data for 1994-2003, within and outside national parks

Species	Unprotected		Protected	
	1994	2003	1994	2003
Elephant	60,098	72,808	19,207	36,663
Buffalo	17,533	28,935	11,504	4,370
Hartebeest	27,722	35,419	24,068	14,559
Gemsbok	57,245	40,983	81,093	60,539
Impala	40,665	56,101	21,414	10,939
Springbok	82,061	28,262	25,040	7,549

From Department of Wildlife and National Parks (2003)

Table 3
EWB classification of elephant carcasses and numbers found in 2018

Classification	Definition	Numbers
1	Fresh (Still has flesh, giving the body a rounded appearance. Vultures probably present and ground still moist from body fluids. Likely to have died <1 month ago)	44
2	Recent (Rot patch and skin still present. Skeleton not scattered. Likely to have died <1 year ago).	216
3	Old (Clean bones, skin usually absent, vegetation regrown in rot patch. Likely to have died >1 year ago).	744
4	Very old (Bones scattered and turning grey. (Likely to have died up to 10 years ago).	2,354

about 6,000 km² of permanent swamp and an additional 7,000 to 12,000 km² of seasonally inundated swampland. Sometimes referred to as ‘the jewel of the Kalahari’ (Ross 1987) and as a ‘global tourism hotspot’ (Rogan et al 2017), the Okavango is a vast flood plain and rolling savanna and wetland ecosystem that supports a rich variety of plant and animal life. Not only does it contain over 1,100 different species of plants and 65-70 species of fish, but it also supports a wide variety of large and small faunal species, some of which, including the sitatunga (*Tragelaphus speki*), are very rare (Botswana Society 1976). Sitatunga is not one of the wildlife species most affected by poaching in the period between 1994 and 2003 (Central Statistics Office 2004, Table 1.1).

There are sizable numbers of people in the Okavango Delta and the areas surrounding it, many of them agropastoralists who also engage in foraging, food production and small-scale entrepreneurial activities (Botswana Society 1976; Chase 2007, 2013; Botswana National Census data 2011; Mbaiwa 2018; Eisenhart et al 2019). Some of the Bugakhwe and //Anikhwe San, who together number some 7,000 in northwestern Botswana, were resettled outside of Moremi Game Reserve in the 1970s (Alec Campbell personal communication 1980; Bolaane 2013). There were also displacements as a result of the establishment of private safari camps in and around the delta in the past two decades.

According to some of the residents of the Okavango World Heritage Site, they were told in 2018 and 2019 by the Tawana Land Board and the North West District Council that they have to move outside of the boundaries of the core area of the Okavango World Heritage Site, which they are reluctant to do. The arguments made by the Tawana Land Board and the North West District Council were that local people were overutilising the resources, including wild plants, fish, and wild animals, which they said they were exploiting illegally and, in some cases, selling in local and international markets. Local people in the Okavango contested the idea that they are degrading the resource base, saying that the number of tourism camps and tourists are having much greater impacts than they do.

SUBSISTENCE AND COMMERCIAL HUNTING ISSUES

From 1979-2004, Botswana was the only nation-state in Africa (of 54 nation-states) that had a national-level subsistence hunting law. This was made possible through state legislation covering the granting of Special Game Licenses (SGLs) to people who depended to a significant degree on hunting

and gathering for a substantial part of their livelihoods. The purposes of the Special Game License were several-fold. First, it was aimed at legitimising hunting activity by the poorest members of the population, those people who depended heavily on natural resources (i.e. wild foods) for a living. Second, it was seen as a means of assuring a measure of food security for the rural poor. Third, it was aimed at promoting more equitable access to wildlife resources (Hitchcock 1996; Hitchcock and Masilo 1995). The Special Game Licenses were done away with in Ngamiland (North West District) in 1996, ostensibly because some people were viewed as using them inappropriately (that is, non-subsistence hunters, including safari companies and some of their clients, were hunting on these licenses) (Director, Department of Wildlife and National Parks, personal communication, 1996).

The Botswana Government banned hunting in the country as a whole in January 2014 and more recently banned fishing in the Okavango and Lake Ngami (Republic of Botswana 2014; Keakabetse 2016). Debates about the impacts of the no-hunting and anti-poaching policies in Botswana intensified in 2018 and 2019 (Mbaiwa 2018; Elephants Without Borders 2019 a, b). In May 2018, President Mokgweetsi E.K. Masisi sent the Botswana Defense Force (BDF) and the Directorate of Intelligence and Security Service (DISS) to confiscate military equipment that was stored at the rural home of the former president of Botswana, Ian Khama. Subsequently the BDF and DISS seized what it described as illegal ivory and diamonds that were stored at a DISS facility at Ngwasha, north of Nata, in July 2018. These events exacerbated the tensions between the then president and the previous president when the former’s head of DISS, Isaac Kgosi, was subsequently arrested, which fueled suspicion that the DISS had been involved in corrupt activities (see Office of the President 2018; Selatlhwa 2018; Sunday Standard Reporter 2018a, b).

When Tshekedi Khama, then the Minister for Environment, Natural Resources, Conservation and Tourism, was removed by President Masisi on December 14, 2018, there was no immediate change in policy regarding the alleged shoot-to-kill policies or the hunting ban until May 22, 2019. During 2018-2019 there were pronouncements about the desirability of a public debate around the pros and cons of lifting the hunting ban. Although there were some reports of individuals being shot or arrested for contravening wildlife conservation laws in 2018 and 2019, few, if any, of them apparently were members of Botswana indigenous minorities. San and other community members continued to complain about the lack of compensation payment by the Department of Wildlife

and National Parks (DWNP) for losses of livestock and crops to wild animals (Department of Wildlife and National Parks, 2012).

Livelihoods were affected not only by wild animals but also by a drought which was declared by the Government of Botswana on May 21, 2019 for the period July 1, 2019 to June 30, 2020. People in the Central Kalahari and the Okavango were complaining of hunger and thirst in 2019, and they were also pointing out that their food gardens were being raided by elephants and their livestock destroyed by lions, leopards, hyenas and wild dogs. Some people intensified their efforts to forage for wild plant foods. Undoubtedly, some Okavango residents exploited wildlife resources, most of them smaller species. There were also those who expanded their fishing activities. The degree to which Okavango residents participated in poaching activities is unknown, but it is very likely to be a small percentage of the total population.

A major remaining question relates to the causes of elephant mortality (Roever, van Aarde and Chase 2013). It is difficult to say whether the large number of carcasses identified in the Elephants Without Borders 2018 survey were mostly due to causes such as drought, disease and age, or if the majority were due to poaching, as some have claimed. Schlossberg, Chase, and Sutcliffe (2019) discuss evidence of what they see as a growing elephant poaching problem in northern Botswana. In 2019 Schlossberg, Chase, and Sutcliffe (2019:1-7) suggested that 156 elephants had been poached for ivory based on assessments of damages to elephant skulls. They concluded that a total of 385 elephants had been poached in Botswana in 2017-2018, and that there were five hotspots where poaching had occurred and where elephants had declined in northern Botswana.

Both EWB and the DWNP did ground surveys to determine the numbers of elephants that had been poached, based on evidence such as bullets, dismemberment of dead elephants using chain saws, axes and other implements, skull damage, and removals of the tusks, skin, tails, feet, and other high-value body parts. Government personnel maintained that the numbers of elephants that had been poached were much smaller than the estimates by some biological researchers, including those working with Elephants Without Borders. The degree to which elephants found in the aerial surveys died directly as a result of poaching therefore remains open to question.

THE CENTRAL KALAHARI GAME RESERVE

The issue of non-sustainable wildlife use also arose in the Central Kalahari Game Reserve (CKGR). Using the argument of non-traditionalism (i.e., not pursuing “traditional lifestyles” of mobile foraging), some ecologists such as Owens and Owens (1981:28, 1984) argue that people who were no longer ‘traditional, that is, full-time mobile hunter-gatherers’, should be removed from the CKGR, the second largest protected area in Africa. At 52,800 km² (20,400 mi²), the CKGR is second to the Selous Game Reserve in Tanzania, which covers 54,600 km² (21,100 mi²), and makes up approximately 10% of the

total area of Botswana. The CKGR issue has been a contentious one since the 1960s. Following a government-appointed commission of inquiry in 1985 (see Government of Botswana 1985), investigations were carried out by government research teams (see, for example, Toteng 1991) and by non-government organisations, including the Kalahari Conservation Society (KCS) which undertook surveys in the Central Kalahari in the 1980s and 1990s (see, for example, Kalahari Conservation Society 1988).

The CKGR in Botswana was created in 1961 on the recommendation of anthropologist George Silberbauer, the Bushman Survey Officer of the Bechuanaland Protectorate. The reserve creation was aimed at protecting the habitats and resources for the local indigenous people and wildlife. The protected area was also designed to ensure the survival of resident peoples who depended on wildlife for part of their subsistence (Silberbauer 1965, 1981a, b, 2012; Kiema 2010; Sapijnoli 2018). The idea originally was that the area should be a ‘people’s reserve,’ but pressures from nearby Ghanzi farmers, many of them Europeans, and the government, then the Bechuanaland Protectorate Administration, stopped any hope of such a reserve. The government feared the creation of what might be termed ‘indigenous reservations’ along the lines of those in North America, which the administration considered problematic (George Winstanley, personal communication to George Silberbauer, 1960). Eventually, the Central Kalahari was designated as a game reserve and became part of Bechuanaland’s national park and reserve system in 1961.

In the 1980s, ecologists, wildlife officials and government officers claimed that there had been a reduction in the number of wild animals in the Central Kalahari Reserve, and they argued that the hunting activities of local people were responsible for this decline. The Kalahari Conservation Society’s planning document (Kalahari Conservation Society 1988:35, Table 3), for example, estimated that hartebeest declined 86.1% and wildebeest 99% between March, 1979 and March, 1987. Aerial census data on the Central Kalahari was not produced by either the Kalahari Conservation Society or the DWNP specifically on the Central Kalahari, so it was difficult to assess the conclusions that had been reached about wildlife declines. These opinions continue to influence Botswana government policy long after they lost credibility among scientists and non-government organisations.

Whereas it was maintained that the losses of wildlife were due primarily to the hunting activities of local people, the data suggest otherwise. According to the DWNPs’ Research Division (personal communication, 1995), between 1987 and the early 1990s, the biomass in the Central Kalahari increased substantially. The only large mammals that showed any evidence of having declined were giraffes and these animals were not being hunted by residents because they were off-limits, according to Botswana faunal conservation legislation (Republic of Botswana 1992). Some antelope species, including hartebeest, wildebeest and gemsbok, increased significantly and according to the DWNPs’ aerial census data, overall biomass in the reserve more than doubled between

1986 and 1996 (Department of Wildlife and National Parks, personal communication, 1998).

One of the arguments about the roles of people in the CKGR and their impacts revolved around hunting practices and the sustainability of the hunting activities of people residing in the reserve. Data collected by Tanaka (1980) in the Central Kalahari in 1968-69 indicated that a total of 5,600 kg of meat was obtained by a group of 50 people, or about 112 kg per person and 0.3 kg per person per day (Tanaka 1980:66-69, Tables 10 and 11) (see also Tanaka 2014:20-28). According to George Silberbauer (1981a, b), based on data obtained in the late 1950s and early 1960s, a band of 80 G/wi (G/ui) hunter-gatherers in the central Kalahari killed 14 species of mammals not including rodents, with the prey items ranging from springhare to giraffe. The total amount of meat obtained in a one-year period, including the meat of the mammals, birds, tortoises, reptiles and invertebrates, was 8,630 kg and the meat available per person was 108 grams (Silberbauer 1981b: 483-487 and Table 12.3). The animals taken over the year varied considerably on a month to month basis, from a low of 128 kg in October (at the end of the dry season) to a high of 1,388 kg in January (at the height of the wet season). The amounts of meat available in the early summer period (September to November) fell below the minimum adult daily requirement (MDR) of protein (Silberbauer 1981b:487, Figure 12.2).

Between the late 1960s and the 1980s, significant changes occurred in the subsistence hunting system in the Central Kalahari. One part of this change relates to the expansion of the number of horses in the reserve. By the early 1980s, there was a total of 20 horses and 70 donkeys being kept by the people of !Xade, then the main settlement in the reserve (Osaki 1984:52). As Osaki (1984) demonstrated, equestrian hunting was very effective. In a five-month period in 1982-83, a total of 91 large animals were obtained by hunters from !Xade (Osaki 1984:52-54, Table 1). The estimated total amount of meat obtained in that period was 23,700 kilograms. Of that amount, 22,800 kilograms of meat was obtained with the aid of horses. The balance was gotten either with bows and arrows or with spears and dogs (Osaki 1984:53). The area over which hunters ranged in search of game increased to 5,000 km² and the numbers of group expedition hunts in which people attempted to obtain several large animals at a time increased significantly (Osaki 1984:53-56). Long-distance hunting was also facilitated by using donkeys to transport meat back to camp.

The changes in hunting methods and the increased effectiveness of hunting from horseback in the central Kalahari contributed to the growing perception among ecologists, environmental NGOs (e.g. the Kalahari Conservation Society) and the DWNP in Botswana that efforts were needed to stop hunting on the part of the residents of the reserve. One way to do this was to remove the residents of the Central Kalahari to locations outside of the reserve and to engage in wildlife conservation activities in which people were not allowed to hunt at all. Another way was to cease giving out Special Game Licenses, which was done in 2001. It should be noted, however, that the Botswana Government gave out some new

SGLs in New !Xade in early 2004, just in time for a visit by journalists and international civil society organisations and government officials in March, 2004. As some people noted, they were happy to have the licenses, but this did not mean that they would not be arrested for hunting in the CKGR. In fact, there were a number of arrests of people for hunting in the CKGR in 2004, right around the beginning of the CKGR legal case between the government and the residents of the reserve (High Court of Botswana 2004-2006; see also Zips-Mairitsch 2013; Sapignoli 2018).

For a while in the CKGR the numbers of wild animals appeared to have declined, but the numbers have increased in recent years (Statistics Botswana 2014; Research Division, Department of Wildlife and National Parks, 2018 data). The full range of plains game and predators can be found in the Central Kalahari (Thomas and Shaw 2010). The primary factors involved in the decline in wildlife numbers were not so much a product of subsistence hunting but rather drought, habitat change due to the expansion of boreholes and domestic animals, cordon fences and climate change (Campbell 1981; Campbell and Child 1971; Williamson and Williamson 1981, 1984). In the Central Kalahari, the presence of large numbers of tourists, mineral prospecting crews and, up until the early part of the new millennium, government officials, some of whom were hunting illegally in the reserve, contributed to changes in the fauna, flora and habitats of the reserve (Hitchcock 1988; see also Ikeya 2016, 2018).

As has been noted, some environmentalists and government officials recommended that the people living in the CKGR area should be removed because:

- (1) they were 'no longer traditional',
- (2) they were having negative impacts on the wildlife population in the area,
- (3) they were living in stationary villages which contained high densities of people and
- (4) people were keeping livestock, with the exception of cattle, in the game reserve (Owens and Owens 1981; Clive Spinage, personal communication, 1995).

Eventually, in 1997, the Government of Botswana expelled the G/ui, G//ana and Tsila San and the Bakgalagadi from the Central Kalahari Reserve (Sapignoli 2018). This involuntary relocation caused enormous consternation among the peoples who were resettled and concerns were raised by Botswana residents, the international media and indigenous peoples organisations which led eventually to the filing of several legal cases in the High Court of Botswana, some of which were successful, allowing at least some of the former residents of the reserve to return to the CKGR in 2007 (Sapignoli 2018).

Reflecting on the injustice of the Government of Botswana's actions, one G//ana leader remarked: "Why is it that rich tourists can have access to the land and resources that we managed for so long?" Others felt that they were being "evicted for conservation" and because "they were poor and powerless" (Hitchcock and Babchuk 2007:6).

There were approximately 370 people in five communities in the Central Kalahari in April 2019: Metsiamonong, Mothomelo, Gope, Molapo and Gugamma (field data, Hitchcock and Kelly, April 2019). These communities have been supplied with food, water and other goods by the Ghanzi, Kweneng and Central District Councils since 2015. It was still difficult, however, for people who had lived in the CKGR in the past to obtain permits to enter the reserve if they were not on the official applicants list in the 2006 court case.

The major concerns that CKGR community members raised in 2019 revolved around the lack of implementation of the High Court judgment of 2006 and the fact that they had insufficient water (Moeti 2019). The water issues arose as a result of the Attorney General's Decision on 14 December 2006 to disallow services in the Central Kalahari (Molokomme 2006). Subsequently, the people of the Central Kalahari took the government of Botswana to the High Court seeking the right to water in the Mosetlhyane case (Sapignoli 2018:290-293). Although the case was rejected at first by the High Court, it was won on appeal in the Botswana Court of Appeals where it was reaffirmed that the people of the Central Kalahari had the right to water (Botswana Court of Appeal 2011).

At least some members of the Central Kalahari communities remained in serious difficulty due to a lack of water because the Government had yet to develop new boreholes and other water points to supply people in the reserve. The water trucked in by the district councils, while appreciated by the people of the Central Kalahari, was insufficient to supply all of their needs. It should also be pointed out that none of the communities in the Central Kalahari received any benefits from the tourism revenues that went to the DWNP and tourism companies operating in the reserve.

Two other factors affecting livelihoods and well-being in the Central Kalahari were drought and fire (Workman 2009; Chaboo et al 2019). Rainfall in Botswana is highly variable both in space and time (Thomas and Shaw 2010; World Bank 2010). Local people in the Central Kalahari employ adaptive strategies to deal with short-term and long-term drought, including diversifying their livelihood strategies, moving to places that have food and water, and relying on the state for food, water, and cash. The latter strategy has not been as effective in the recent past as it once was, because commodity deliveries and labour-based cash-for-work programs have been cut back. Deliveries of commodities to settlements on the peripheries of the reserve were spotty, and this was even more true inside of the reserve in 2019.

The issue of fire was a contentious one in the Central Kalahari. Local people utilised fire in the past to burn off areas to make them more attractive to wild animals and to encourage the growth of valuable wild plants. They also burned off areas near their villages to prevent large-scale fires from wiping out their homes and assets. Small-scale fires, including the burning of old huts, were set to get rid of pests. Government officials have sought to curtail fire-setting, and people have been arrested on suspicion of setting fires. People in the Central Kalahari and the Okavango Delta have recommended to the

Department of Wildlife and National Parks that they pursue a more balanced fire management policy in the Central Kalahari and the Okavango.

DISCUSSION

Several observations can be made about both the situations of indigenous people and their environmental impacts in Botswana. First, there is no question that people are having a variety of impacts on the environment and its fauna and flora in both qualitative and quantitative terms. According to both Botswana Government and the UN Food and Agriculture Organization (FAO) statistics covering land use and agricultural inputs, between 2002 and 2009 the growth in arable land was 6.8%. Permanent crops increased by 8.33% and forest decreased by 0.98% (www.Botswana.opendataforAfrica.org, accessed 22nd, October 2019). Some of these impacts are due to human population growth, which was approximately 1.55% (based on 2017 Botswana data). The numbers and sizes of fields are increasing in some areas, while fragmentation of fields is occurring in other localities. In recent years, land board allocations appear to be increasingly granted to better-off farmers rather than to economically poor ones (see Isaacs and Manatsa 2016), something that has been seen particularly in Ngamiland, where the illegal sale of tribal (communal) land has also been noted.

When the hunting ban was imposed and anti-poaching operations increased, benefits from wildlife accruing to communities declined or, in many cases, stopped completely (Mbaiwa 2018; Blackie 2019). Thus, communities were increasingly bearing the brunt of militarised anti-poaching operations without having any of the benefits that they previously received from wildlife under the country's community-based Natural Resource Management Program (NRMP).

It is important to note that, based on wildlife census data obtained between 1989 and 2014, wildlife was in general doing better in community areas outside of protected areas than they were inside of protected areas (Table 2 *supra* and Statistics Botswana 2014).

One cannot tell yet whether the 2014 Botswana hunting ban has had a positive or negative effect on a relatively healthy wildlife population that has also clearly been subject to considerable variation. The range of elephants in Botswana has expanded into the CKGR and other parts of the country, leading to destruction of water points, crop gardens, homes and fields. DWNP compensation for losses from elephant and lion damage (see DWNP 2013) are either being cut back or have not been paid at all in the past several years. It appears that not only are communities bearing the costs of human-wildlife conflict, they are also feeling the pressure of government anti-poaching operations which are sometimes having negative human rights impacts, leading to a loss of public support for government policies and programs. Many community members wanted to see the hunting ban lifted, something that was achieved on the 23rd of May, 2019 (de Greef and Specia 2019; Martin 2019;

Ministry of Environment, Natural Resources, Conservation and Tourism 2019).

Anti-poaching operations treat a member of a criminal gang in the same way as a poor and hungry subsistence hunter – both get the same punishment for having theoretically committed the same crime. This raises important ethical and legal issues. Local communities are concerned about the deployment of airplanes, helicopters, and unmanned aerial vehicles (UAVs) (see Sandbook 2015) which they say are more likely to result in inaccurate identification of people who are then accused of contravening wildlife laws, when in fact all they are doing is moving from one area to another with domestic animals, traveling from village to village, or going from one field to another to engage in their daily activities.

Because of the events in the past two decades in Botswana, indigenous and other people have begun to question the data which governments and conservation organisations claim that they have, saying, in effect, “Show us the information” something that conservation organisations and their supporters have been reluctant, unwilling, or unable to do. This raises the important scientific and ethical issues of environmental scientists providing hard evidence for their claims. It is not surprising, therefore, that indigenous people in Botswana are pushing for greater transparency and accountability from some non-government organisations and researchers, as well as seeking environmental justice from other NGOS and the Government of Botswana.

CONCLUSIONS

Based on available wildlife census data, there was no compelling reason for the Government of Botswana to have maintained the hunting ban that was established, as a temporary measure, in 2014. Having removed the ban in May 2019 the Government needs to reconsider the balance between anti-poaching operations, whether militarised or not, and the role of community-based natural resource management activities, that in the past provided significant subsistence and income support to poor rural communities across the more marginal agricultural areas of the country.

Creating a framework under which the risk taken by those living closely with wildlife is adequately compensated will go a considerable way towards reducing subsistence poaching and improving support for conservation policies.

At the Convention on International Trade in Endangered Species of Fauna and Flora meetings in August, 2019, Botswana called for more legal sales of ivory to fund conservation and community development. This proposal was defeated soundly with 101 votes against, 23 in favor, and 18 abstentions. The announcement of the lifting of the hunting ban on May 23, 2019 led to a worldwide outcry about the Botswana government’s decision. Some animal rights and conservation organisations called for a tourism ban in order to punish Botswana for its decision on the re-opening of hunting. Organisations such as Safari Club International expressed support for the position taken by Botswana. Local people in

Botswana pointed to the Botswana government’s information that 17 people were killed by elephants in Botswana between August 2018 and August 2019 as evidence of the need to do away with the hunting ban.

The hunting ban was a major source of debate during the run-up to the Botswana national elections in October 2019. The successful election campaign of President Mokgweetsi Masisi of the Botswana Democratic Party (BDP) on October 23, 2019 included the removal of the 2014 ban on hunting. According to Botswana government statements about the opening up of hunting, some 400 elephant licenses will be issued, along with licenses for over a dozen other species. Botswana will therefore rejoin the 22 other nation-states in Africa that allow trophy hunting (Lindsey, Roulet, and Romañach 2007). Judging from Botswana government public statements, none of the hunting licenses will be issued to local people who are defined as ‘subsistence hunters.’

The argument that the government is making is that the opening of commercial hunting will reduce human-wildlife conflict. It has also announced plans to establish an elephant-proof fence extending from the border to Namibia across the northern part of the Central Kalahari continuing to the border of South Africa (Kitso Mokaila, Minister of Environment, Natural Resources Conservation and Tourism announcement, September, 2019). What has yet to be decided upon is the degree to which local communities will be able to get benefits from trophy hunting that they had received prior to the imposition of the hunting ban in 2014.

We find no data to counter claims that the environment is being degraded in some places in Botswana. From forest cover, to expanding agricultural land and a growing human population and footprint, the evidence is clear. But what is far less clear is how and why the blame for this has come to be laid disproportionately at the door of Botswana’s poorest and most vulnerable rural communities. There is no question that some rural communities, including indigenous ones, are engaging in conservation efforts aimed at promoting sustainable livelihoods.

Growing human populations, healthy wildlife populations, and climate change-induced variability driving yet further variability in rainfall patterns are inevitably going to increase environmental stress. As it has not been shown by government data that wildlife declines, where noted, are significantly caused by human activity, it would seem prudent to try to correlate wildlife survey data with both rainfall and fire data in order to draw preliminary conclusions as to the scale and scope of environmentally-induced wildlife population stress.

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Note on Statistical Sources

All wildlife data quoted as being from the Government of Botswana has been sourced from the extensive publications of the Government's Environmental Statistics Unit. Email: info@statsbots.org.bw

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