



Chapter 7

The Costs of Living with Wildlife

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Introduction

The preceding chapter focused on the benefits that come from the utilisation of wildlife at both household level and through the activities of the conservancies. It also discussed issues of governance in relation to CGGs and wildlife use. The discussion here turns to examine the costs associated with living in close proximity to wildlife. These costs include both direct costs and indirect costs. Direct costs include: stock losses, damage to crops and water points, and threats or even loss of human life. Other direct costs relate to the expenditures for managing deterrent measures. Indirect costs include: the opportunity costs of time and labour lost, and the fear that may come from living in proximity to dangerous wildlife (see Sutton 2001 for a description of broader costs both direct, indirect and ecological). These costs contribute to household livelihood vulnerability. Farmers can lose their entire annual crops to a herd of elephants (Child 1995). This chapter of the report analyses the cost of living with wildlife focusing on the issue of HWC. The discussion describes the nature of this conflict (species and type of damage) and the impact on people's livelihoods. It then documents current attempts to mitigate this conflict by MET and the conservancy programme including discussion of current legislation and policy; conservancy zonation; the pilot compensation scheme; electric fencing; protecting water

points from elephant damage; and providing additional water points for elephants. Some conclusions and recommendations are made to reduce further the negative livelihood impact of HWC.

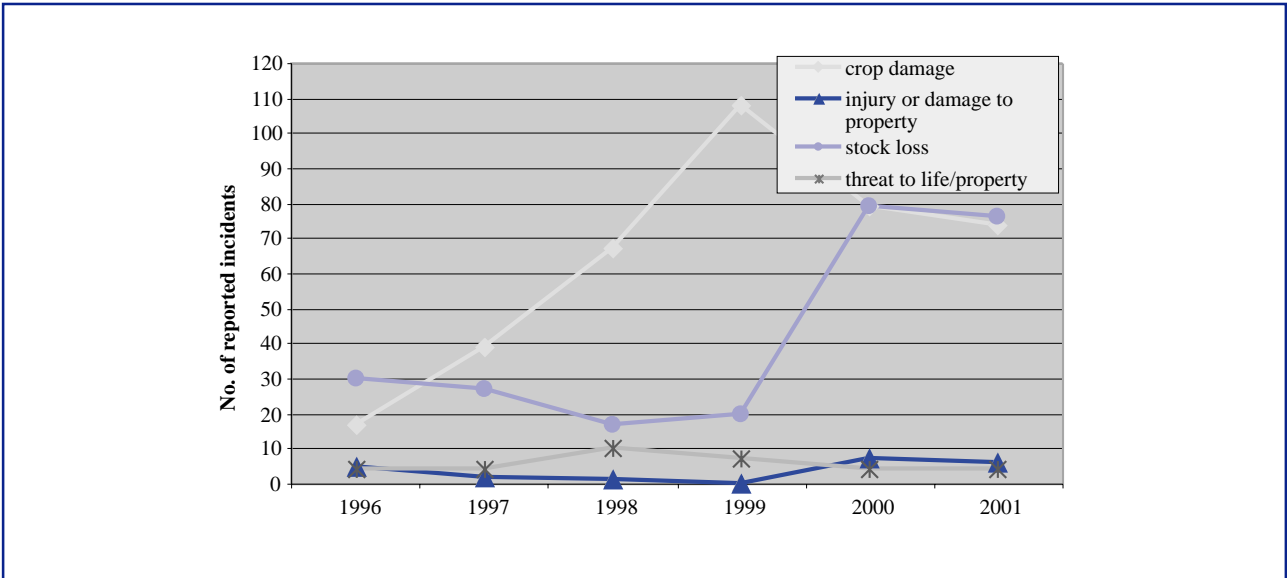
HWC is by no means a new phenomenon. Since before Independence continuous efforts have been made to address the problem. People are increasingly regarding the problem of HWC as the responsibility of the conservancies. While this remains a perception, the risks to the conservancy programme and the continued threat that wildlife poses to livelihoods stand to undermine the status and legitimacy of the conservancies. To this extent addressing HWC, and therefore addressing livelihood vulnerability, remains a high priority for conservancies, the Government and CBNRM support organisations.

What Species and What Damage?

Kunene MET 'problem animal' data was not available for analysis so the information presented below largely relates to Caprivi. With regard to the information recorded by the MET in Caprivi, several different categories of HWC can be identified – damage to crops and/or gardens; death of stock; damage to property and injury (both to humans and stock); and threats to and the loss of human life.



Figure 32: The number of each type of HWC incident, by year, 1996-2001¹

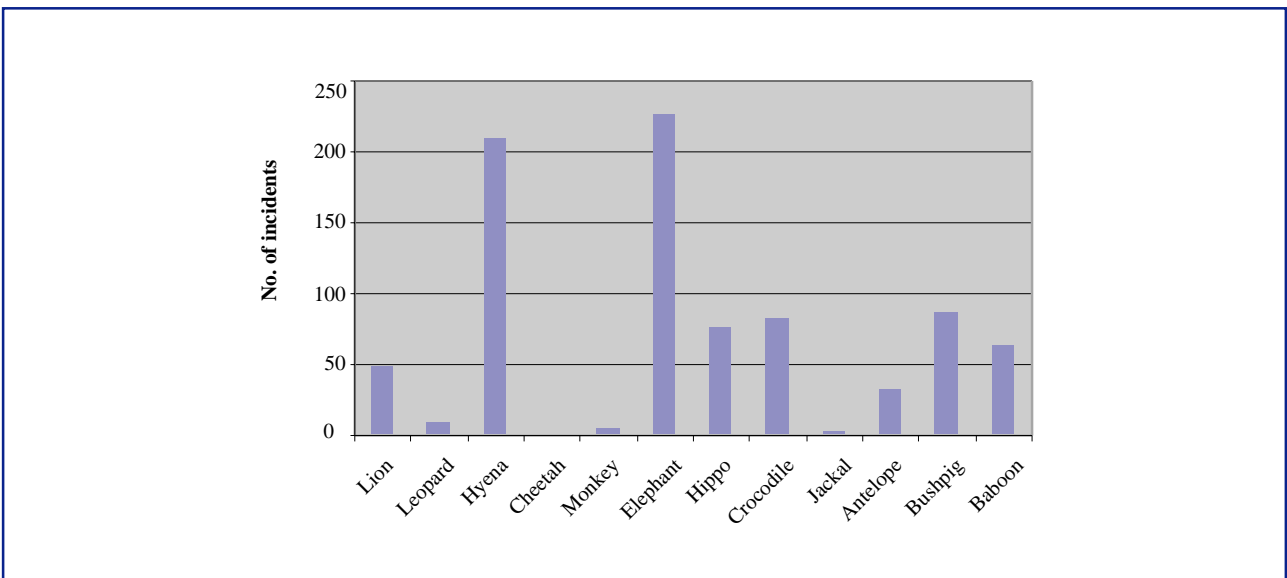


Species causing damage

Twelve wildlife species were identified as causing damage in Caprivi (see Figure 33) and 14 in Kunene. The main difference is that black-backed jackal are the main livestock predator in Kunene (but not in Caprivi), and damage to water points is a more common complaint in Kunene compared

to Caprivi. As Figure 33 shows, in 2001 in Caprivi, elephant was the most common species reported to MET as causing damage, followed by hyena. It is widely known that elephants cause the most damage both in Caprivi, and in the southern African region as a whole (see for example O’Connell (1995); Mendelsohn and Roberts (1997); Hoare (1999).

Figure 33: Number of HWC incidents by species – MET records Caprivi, 2001



¹ Loss of human life has been excluded.



Damage to crops and gardens

Between 1996 and 2001, 384 incidents of damage to crops by wildlife were reported to the MET in Caprivi, with an estimated 764 ha damaged in these incidents. Elephants were responsible for approximately 75% of the reported incidents of crop damage and 86% of the damage inflicted to fields. On average, each time an incident involving elephants was reported, the damage covered just over two hectares of fields. Other sources (for example, Suich 2003) report that elephants cause the damage to crops in 47% of cases, but that a wide range of other species were also reported as being responsible for damage. These include warthog (19%), monkeys (9%), porcupine (6%), springhare (5%), antelopes (4%), baboon (4%), hippo (3%), and birds (1%). Forty-nine per cent of households reported damage to their maize crop by wild animals. This compares with 23% reporting damage from livestock, and 11% reporting damage from pests.

In Kunene elephants cause damage to household gardens and to water point installations. Suich (2003) reporting on the findings of the WILD/EEU household survey provides evidence that the species causing damage to gardens were elephants (81% of cases), monkeys (10%), warthog (7%) and birds (3%). Eighty-two per cent of respondents reported damage from wildlife to their garden crops. This compares with only 30% reporting damage due to domestic stock, and 24% reporting any damage by other pests.

Livestock predation

Regarding MET data in Caprivi, between 1996 and 2001, 246 predator incidents were reported, resulting in the death of 658 large stock unit equivalents (LSU).² Between 1996 and 1999, the number of incidents per year was relatively low, but rose dramatically in 2000 and 2001³.

Lions were responsible for 64% of the reported incidents involving stock deaths – and 60% of the LSU loss⁴. Crocodiles were the next most problematic, accounting for 20% of reports and 30% of stock losses. From the data, it appears that hyena have become significant predators only recently. They account for 11% of the reports and 6% of LSU losses, although no incident was reported to MET prior to 1998. On average, more than two LSUs are lost per incident⁵. Given the relatively small average livestock holdings in Caprivi, the livelihood effects of such losses can be considerable.

Farmers in Kunene consider the black-backed jackal as the greatest and most constant threat to livestock. Jackals primarily kill small stock, but also occasionally newborn calves in the field (Arnold 2001). Higher risk households are those with less labour for closer herding. Other predators are not as widespread as jackal in Kunene or hyena in Caprivi as they are area specific. For example, lion are a persistent predator in Kwandu Conservancy in Caprivi and in Sesfontein and Ehirovipuka in Kunene. Crocodiles are a considerable threat to livestock in Caprivi around Impalila and Kasika, and in Kunene in Marienfluss Conservancy (Arnold 2001). Crocodile problems are compounded by the fact that rivers (Kunene, Zambezi, Chobe) are major water sources for watering livestock.

Table 25 below shows the estimated value of stock losses caused by predators in the Caprivi Region. Livestock were valued at the average price for slaughter cattle in communal areas each year. As can be seen in this table, in recent years the value of stock damage has been significant, but perhaps more importantly in terms of impacts on livelihoods, the cost per incident is also very high.

Table 25: Estimated total value of stock losses in Caprivi 1996-2001

Year	Incidents	LSU killed	Total cost per year (N\$)	Average LSU/ incident	Cost/incident (N\$)
1996	27	103	126,690	3.8	4,674
1997	27	58	72,384	2.2	2,746
1998	17	44	47,916	2.6	2,831
1999	19	72	68,688	3.8	3,625
2000	78	185	247,345	2.4	3,209
2001	75	196	261,072	2.6	3,463
Totals	243	658	824,095	17.4	20,548

² Large stock unit equivalents (LSU) are a measure of livestock or wildlife density based on biomass. It is used in this context due to the difficulty with obtaining accurate historical price information for different types of stock – so each stock is converted, using average body mass, to the equivalent of an average ‘cow’. LSU conversions used were: breeding cows =1.00; heifers=0.7; bulls=1.33; calves=0.31; oxen=1.25; goats/sheep=0.14 (Barnes n.d.).

³ This is likely to be due to better reporting by MET.

⁴ Stock losses to lions show a seasonal pattern, with a higher incidence in summer when wild prey is dispersed over a larger area and more difficult to find. As lions have difficulty finding wild prey, so they turn to livestock (Garth Owen-Smith, pers. comm.).

⁵ Each incident refers to the single event reported on an individual MET pro forma record sheet completed by investigating MET field staff.



Community Rangers indicate that during the rainy season livestock predation incidents increase. One explanation for this relates to the seasonal movement of people and cattle during the rainy season. Many households move between the flood plain areas and forests to cultivate crops and graze stock. During the rains people are resident in the forest areas, which provide good cover for predators. In contrast, in Kunene the high point of livestock predation is during the peak of the dry season, between July and August (Arnold 2001). This is due to the fact that during this time livestock has to travel long distances away from people's homesteads for grazing. That the stock may not be kraaled at night, and not under observation by people around the homesteads, makes them more vulnerable to predators. There is also a period of intense predation during the birthing season, from roughly March to May (Arnold 2001).

Table 26: Stock predation for three-month period preceding the 2002 survey⁶

Stock type	Caprivi	Kunene
Cattle	18%	8%
Sheep	0	7%
Goats	21%	17%
Poultry	30%	15%
Donkeys	0	1%
Horses	0	2%

Source: Stuij 2002: 7

Table 26 provides data on stock predation expressed as a percentage of households owning various types of stock. It appears stock predation of cattle, goats and poultry is relatively more common in Caprivi, though the actual number of stock lost are not significantly different. (Given the higher stock ownership and larger herd sizes in Kunene, this does not imply that stock losses to predators are less important in Kunene than Caprivi.)

Table 27: Priority ranking of species for HWC: problem frequency and scale of damage⁷

Species	Problem Frequency	Scale of damage
Jackal	37	36
Elephant	28	31
Leopard	27	34
Hyena	26	27
Cheetah	24	19
Lion	14	14

Source: Vaughan *et al.* 2003c

Addressing the impact of HWC on livestock is not simply a wildlife management issue. Effective use of kraals, the use of shepherd dogs and vigilance by farmers are also part of the solution. A number of initiatives to provide CCGs with training have been completed through the joint efforts of MET and NGOs (for example the Cheetah Conservation Foundation (CCF)). Improving livestock management would go a long way to minimising the problem of predation. An issue that needs to be addressed further is the lack of understanding by some farmers in Kunene of the dangers of using poisons to deal with jackals (Vaughan *et al.* 2003).

HWC and Impact on Livelihoods

Chapter 5 identified livestock keeping, cropping and gardens as primary livelihood activities. Crops and gardens are especially important for poor households, female-headed households and those households without access to livestock. Gardens can be entirely destroyed by elephants prior to the harvest. To assess the extent to which HWC impacts on livelihoods in respect to crop production and livestock losses requires that they are compared with other losses. These would include the value of crops lost to livestock as well as other pests. A study carried out in Caprivi by Sutton (2001) found that livestock, for example, caused approximately 30% less damage to crops in terms of the financial costs incurred at household level than all wildlife. Data from the WILD/EEU survey indicates that wildlife damaged maize in 63% of cases, this compares with damage to maize caused by livestock in 37% of cases and by pests in 5% of cases. Evans also discussed the issue of livestock damage to crops, and concluded that "livestock damage tends to be settled between farmers and although it may be more widespread than was depicted by household interviews, farmers do not perceive it as a major problem" (Evans 2003). Losses to wildlife appear then to be more significant than losses to other pests.

When wildlife is responsible for losses this means that households will lose access to a valuable food source, and potential incomes from sales, but also that they lose their labour investment and any money invested in seed. The types of damage caused and the diversity of HWC impacts affecting livelihoods were recorded at a workshop held with regional MET and CCGs in Kunene. Table 28 presents a summary of this information.

⁶ The survey was conducted in June and July 2002.

⁷ The data in this table is derived from a workshop with CCGs in Kunene (see Vaughan *et al.* 2003c for further details). The problem frequency and scale of damage were calculated by participants giving scores on a scale of 1-5 and then adding these together.