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# Farmers' Perspectives of Conflict at the Wildlife–Agriculture Boundary: Some Lessons Learned from African Subsistence Farmers

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*This article outlines the importance of exploring farmers' perspectives of human–wildlife conflicts because people's perceptions and expectations shape their attitudes and responses to crop raiding by wildlife. A series of factors that influence farmers' perceptions of risk are examined to help explain why perceived risk of crop loss to wildlife is often significantly greater than any actual risk. This is explored in the context of (1) changing tolerance for wildlife activity on farms, (2) the implications of past conservation policy and practice for farmers' understanding of "ownership" of wildlife, and (3) how such issues influence farmers' expectations of who is responsible for protecting crops from wildlife.*

**Keywords** *cultivators, farmers, wildlife, conflict, conservation*

## Introduction

In many countries human–wildlife conflict is a contentious issue among conservation initiatives, authorities, personnel, and local communities. A lack of locally acceptable, effective ways of reducing such conflict has contributed to feelings of alienation and lack of inclusion, especially among rural African populations living adjacent to protected areas (De Boer & Baquete, 1998; Gillingham & Lee, 1999; Infield, 1988; Newmark, Leonard, Sarike, & Gamassa, 1993). In recent years, however, leading conservationists have singled out human–wildlife conflict as a significant threat to the success of African conservation initiatives (Naughton-Treves & Treves, in press), and research is now calling attention to the costs to rural African populations living alongside wildlife (Butynski, 2001; O'Connell-Rodwell, Rodwell, Rival, & Hart, 2000; Studsrod & Wegge, 1995; Woodford, Butynski, & Karesh, 2002).

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An integrated approach to mitigating conflict between cultivators and wildlife (i.e., taking into account local people's needs as well as those of wildlife) (Atteh, 1984; Bell, 1984; Biryahwaho, 2002) recognizes the importance of understanding conflicts from farmers' perspectives, because their beliefs are likely to influence their attitudes and behavior (e.g., tolerance of wildlife) (Hill, 2000). Examining farmers' experience of crop losses due to wildlife within the context of previous conservation policy and practice is likely to provide valuable insights into African farmers' expectations regarding conflict mitigation strategies. This article highlights important socio-ecological factors relevant to understanding African farmers' perspectives of human-wildlife conflict.

## **Understanding the Farmers' Perspectives**

### ***Economic Loss is a Poor Indication of the Impact of Human-Wildlife Conflict to Farmers***

Understanding how wildlife impacts farmers' lives requires an understanding of farmers' perspectives. Crop losses to wildlife are not just an economic drain on farming households. Losses can generate other costs to household members, including (1) an increased need to guard fields,<sup>1</sup> which creates labor bottlenecks in certain seasons, (2) disruption of schooling because children are needed to help guard family fields, (3) increased risk of injury from wildlife, and (4) increased risk of contracting diseases (e.g., malaria) if people are required to guard their fields at night (Hill, 2000; Naughton-Treves, 2001; Tchamba, 1996).

Communities or groups of people cannot necessarily be considered or treated as homogenous units. Individuals may well experience different degrees of vulnerability to particular human-wildlife conflict situations as a result of age, gender, ethnicity, farm location, crop assemblages, cultural rules, and factors pertaining to wildlife. For example, in the Masindi District of Uganda, there is a commonly held belief that women and children are much more susceptible to the negative influence of bush spirits<sup>2</sup> than are men (Hill, 1997). Women and children are encouraged to remain in the village or compound at night. Therefore, without access to adult male labor to stay on the fields after dark women-headed households are seriously disadvantaged. Even if women hire men to guard their fields they have no simple way of overseeing their employees' activities at night (Hill, 1997).

### ***The Distribution of Losses to Farmers is Not Uniform***

Recording absolute crop losses experienced by individual farming households or agricultural communities does not adequately explain how wildlife can impact individuals.<sup>3</sup> For example, crop damage levels recorded at the community level may not exceed levels considered acceptable within highly mechanized farming

systems (10–15%), but farmers view losses to wildlife as a significant problem (Hill, 2002). Even those farmers who do not incur significant or regular losses often complain vociferously about conflict with wildlife (Hill, 1997; Naughton-Treves, 2001; Siex & Struhsaker, 1999; Warren, 2003).

Losses from human–wildlife conflict can be relatively small at the group, village, or district level, although individual farmers can lose a considerable portion of their potential harvest in a season or year. In a one-year study of 40 farms in Uganda, average losses across the farms were approximately 10% of the annual maize crop (Hill, 2000). Average losses among those farmers actually subject to crop damage by wildlife, however, were nearly 27% of their expected annual harvest, and some individuals lost nearly 60% of their annual crop (Hill, 2000).<sup>4</sup> Thus it is important to have some knowledge of what can happen in extreme cases at any site because average figures for crop losses can mask the severity of the problem for individuals.

### ***Farmers' Perceptions of Risk May Not Mirror Actual Conditions***

Within the anthropological literature, an individual's understanding and perceptions of risk are socially and culturally constructed (Caplan, 2000; Douglas, 1992), and influenced by prior experience. The combination of these factors influences the degree to which individual farmers consider themselves to be at risk to crop damage by wildlife. For example, the species and size of animals are important. People's perceptions of risk are influenced by more "visible" species (i.e., size), the degree to which wildlife are considered to be dangerous, whether species are diurnal or nocturnal, and the degree of control an individual feels they have over wildlife activities (Hill, in press; Mishra, 1997; Naughton-Treves, 2001). Additionally, people's perceptions of risk are often strongly influenced by rare and extraordinary or extreme events (i.e., "worst case" scenarios, rather than more frequent, less extreme occurrences) (Naughton-Treves, 2001; Scherer & Cho, 2003; Sunstein, 2003).

People who believe that they have little control over the conflict situation are likely to further inflate perceptions of risk. Where hunting is now controlled or banned (e.g., Nigeria, Uganda, and Kenya), rural farmers believe that one of their most effective or acceptable means of crop protection has been removed (Naughton-Treves & Treves, in press). Farmers in the Masindi District, in Uganda, regard hunting as more effective in protecting crops from wildlife than only guarding (Hill, 2002; Paterson, 1998). Illegal hunting can contribute to a farmer's sense of being in competition with wildlife. Farmers state that they are being forced into illegal activities to protect their livelihoods (C. M. Hill, unpublished data). Irrespective of whether hunting is legal or not, however, farmers who believe that their needs are not met report a reduced tolerance for crop losses due to wildlife.

### ***Farmers' Tolerances for Losses have Many Contingencies***

The extent to which farmers will tolerate crop losses to wildlife is influenced by: (1) their dependence on agriculture for income (Hill, in press; Naughton-Treves, 1999), (2) the size of their land holdings (Goldman, 1996 cited in Naughton-Treves & Treves, in press), (3) the length of residence in an area (Nyerges, 1992), and (4) the presence or absence of effective compensation schemes (Archabald & Naughton-Treves, 2001). The degree to which farmers are prepared to bear wildlife-related losses is further influenced by animals that specifically target cash crops (Blair, Boon, & Noor, 1979). For instance, in the early 1990s farmers at the edge of the Budongo Forest Reserve in Uganda expressed great tolerance toward chimpanzees, which are protected throughout their range. Farmers in this area liked seeing the chimpanzees, stating that they only ate a few maize cobs or fruits so did not threaten people's livelihoods (Hill, 1997). Sugar cane, however, has recently become a prominent cash crop in villages around the Budongo Forest Reserve and in the last 18 months at least one chimpanzee has been killed while crop raiding, something that would have been unheard of 10 years ago (D. Cox, personal communication, May 30, 2003). If crop-raiding species are protected, the species attracts the attention of "outsiders" and official attention focuses on local activities such as poaching or illegal timber extraction, which can further exacerbate human-wildlife conflict (Hill, in press).

People will often tolerate significant levels of crop damage by domestic animals yet are intolerant of comparatively smaller losses from wildlife (Hill, 1998; Naughton-Treves, Treves, Chapman, & Wrangham, 1998). Livestock are a form of savings used to finance funerals, bride prices, and provide households with revenue when crops fail, or sickness and other events occur. When domestic animals damage crops there are culturally mediated compensation schemes in place, whereby the farmer is compensated by the livestock owner (Hill, in press; Naughton-Treves, 1999). The important point is that there is an established, recognized, and acceptable system in place for dealing with crop damage by domestic animals. However, when that system breaks down or people transgress the socially acceptable "rules" of such arrangements, the degree to which people are prepared to accept such losses can decline dramatically. From the farmer's perspective, the Ugandan government behaves like an irresponsible livestock owner where wildlife is concerned. Government laws determine what people can or cannot do with respect to wildlife, and government employees enforce those laws. Yet, the government does not ensure that its wildlife is prevented from entering fields, as is required by a responsible livestock owner. Neither does it provide compensation when crop losses do occur. Thus, Ugandan farmers express their dissatisfaction with this situation by referring to the government as a "bad neighbor" (Hill, in press; Naughton-Treves, 2001).

A recognized and locally appropriate response is needed to mitigate people's perceptions of the situation as a conflict. Where particular stakeholders

do not “play by the rules,” however, conflict can suddenly escalate to a significant issue. This does not mean that farmers are “making a big fuss about not very much.” Rather, their response can appear to be extreme unless one examines the issues from their perspective. An incident, or series of incidents, that might have been judged purely as human–wildlife conflict suddenly must also be understood in terms of human–human conflict. This further emphasizes the importance of not assuming homogeneity among any group of people and their interests, perceptions, attitudes, or resulting responses.

### ***Human–Wildlife Conflict Mitigation Should Begin with Understanding Farmers' Perspectives***

Crop raiding by wildlife is sometimes conceived as part of a wider issue that people are concerned about, such as their loss of “ownership” of wildlife to government (Naughton-Treves, 1999) and/or lack of control over resources or particular aspects of their lives (Hill, 2002). Where conservation policy and practice have prevented or discouraged farmers from taking direct action against all, or certain, crop-raiding species, farmers' may expect government agencies to assume responsibility for providing adequate crop protection against wildlife (Campbell, 2000; Hill, in press; Knight, 2000; Naughton-Treves, 1999). This can encourage people to expect compensation or intervention from external bodies or government agencies. If such expectations are not met, any alternative mitigation strategies may be ignored or discounted by farmers.

Misunderstanding, disagreement, and disappointment can stem from unrealistic expectations associated with the degree to which crop losses from wildlife can realistically be reduced. Understanding people's expectations prior to any intervention may facilitate the development of mitigation procedures that adequately satisfy all stakeholders. Where initial expectations are unrealistic, part of the intervention initiative should focus on ensuring that local people have a realistic vision of what can or cannot be achieved, and what their involvement should be in this ongoing process (Osborn & Hill, in press).

### **Conclusion**

Crop raiding by wildlife has a significant impact on rural people's livelihoods and lives. It is therefore important to examine any human–wildlife conflict issue within the context of people's economic, social, and cultural lives rather than as an isolated phenomenon that has no bearing on people's lives outside of their economic activities. To be effective, mitigation strategies must take into account not only the degree to which wildlife conflicts impact crop yields and household economics but also: (1) how and why people perceive crop losses the way they do, (2) what they expect from any intervention, and (3) who they expect to take responsibility for the issue. If there is a mismatch between

people's expectations and what can, or will be, achieved then, irrespective of the effectiveness of any such intervention regarding reducing actual crop losses, those in conflict with wildlife may regard interventions as an ineffective or an inappropriate response.

## Notes

1. Scaring and chasing mammal pests out of fields is the most common crop protection method used by African subsistence farmers (Osborn & Hill, in press).

2. Bush spirits are spirits associated with areas that are not cultivated, that is, "bush" areas. They have the potential to cause people harm; therefore, those people considered most vulnerable are encouraged to avoid the "bush," particularly after dark when said spirits are thought to be most active.

3. A further issue worthy of note is that of the value of quantifying crop losses. Estimating crop losses or estimating cash equivalents for crop losses can be very difficult, not least because crop damage by wildlife is not the only source of crop loss for many farmers. There is a wide range of factors that need to be taken into account when trying to assess actual losses compared to expected harvests (Hill, Osborn, & Plumtre, 2002). Additionally, where losses are "quantified" this can imply a more "rigorous" and reliable information compared to what is available.

4. These were losses caused by baboons. Other species also caused crop damage but the majority of the damage observed was attributed to baboons.

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