**Attitudes towards predators and conservancies amongst
rural Namibian farmers**

Journal:	<i>Human Dimensions of Wildlife</i>
Manuscript ID:	Draft
Manuscript Type:	Application-Focused Articles Introduce
Keywords:	depredation, human-wildlife conflict, conservancies, community-based natural resource management, livestock husbandry

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Running head: ATTITUDES TOWARDS PREDATORS AND CONSERVANCIES

Abstract

Conservancies provide the opportunity for land-occupiers to manage natural resources in a collaborative, sustainable and profitable manner. Human-wildlife conflict has, however, limited their success due to the financial loss of crops, livestock and game by certain wildlife species. Questionnaires were conducted in five conservancies and four resettled farms in Namibia to determine the attitudes towards predators and conservancy membership. Attitudes were significantly affected by perceived depredation and help sought to reduce predation. Further, attitudes towards predators and conservancies were more positive where individuals perceived they received benefits from them. Improving livestock husbandry practices in conjunction with increasing tangible benefits of predators and conservancies are likely to improve the attitudes of rural communities, leading to an increase in the viability of integrated carnivore conservation and rural development in sub-Saharan Africa.

Keywords: depredation, human-wildlife conflict, conservancies, community-based natural resource management, livestock husbandry

Introduction

Human-wildlife conflict (HWC), where the behavior of a wild animal negatively affects the needs of humans (IUCN, 2004), is one of the greatest threats to large carnivores globally (Treves & Karanth, 2003). Arguably the most significant HWC for carnivores is the real and/or perceived depredation upon valuable livestock and game species, which can result in lethal retaliation. Such action has contributed to many carnivore species being extirpated from substantial parts of their range (Marnewick et al., 2007; Ogada, Woodroffe, Oguge, & Frank, 2003).

Protected areas are often too small to host long-term viable populations of large carnivores (Durant, 2007). Competitively inferior species suffer from intra-guild competition in protected areas, reducing survival rates (Kelly et al., 1998). The conservancies of Namibia have been suggested as a concept to conserve wildlife on unprotected land whilst improving rural livelihoods (Weaver & Skyer, 2003). A conservancy is a demarcated area of land collectively managed by a group of land-occupiers who agree to maintain their shared natural resources in a sustainable and economically beneficial manner (Shaw & Marker, 2010). Although research suggests that attitudes towards wildlife have improved since the development of Namibian conservancies, this appears to only be in relation to game species (Weaver & Skyer, 2003). Further, policies for equitable land redistribution are in place in many southern African countries and yet there are no known published papers to date on the perceived HWC experienced in these resettled communities. This article addresses this gap in knowledge related to the attitudes of Namibian communal conservancy members and resettled farmers towards wild predators and conservancies. Attitudes have been proven, in certain circumstances, to correlate with subsequent behaviors (Glasman & Albarracín, 2006). It is thus important to understand what attitudes are present and what factors influence such attitudes. We assessed associations between socio-

demographic, livestock husbandry practices or amount of HWC experienced in relation to how respondents view predators and conservancies.

Methods

Study area

We conducted surveys at five communal conservancies (Sesfontein, Ehirovipuka, #Khoadi //Hoas, Ozonahi and Nyae Nyae), along with four resettled farm projects (Queen Sofia, Klein Huis, Nissen, Meyerton) that were interested in forming conservancies. Respondents relied predominantly on livestock for their income, with tourism in the conservancy areas being marginally but increasingly financially important (Bandyopadhyay, Shyamsundar, Wang, & Humavindu, 2004). Seventy-six per cent of respondents were from conservancies, with the remainder from resettled farms.

Figure 1 about here

Study Design

Interviewers trained in delivering questionnaires conducted face-to-face surveys with individuals from the study areas. A local translator was present at all interviews who could speak the local dialect (Afrikaans, English, Otjiherero, Oshiwambo, or Nama-Damara). We conducted a pilot survey on a subset of the population to ensure clarity of the questions. Potential respondents gave prior informed consent before the interview commenced. We conducted questionnaires opportunistically at several settlements and villages within each study area, which resulted in an unequal gender balance of respondents, as more males were available for interview than females. Questions were predominantly fixed closed-ended, with a small number of open-ended questions to illicit further information. Questions related to: (a) socio-demographic characteristics of the respondent, (b) presence and usage of a herder or livestock guarding dog, (c) degree of HWC experienced, (d) predator abundance within the area, and (e) views of

predators and conservancies. Human-wildlife conflict questions related to frequency of annual perceived depredation, action taken upon depredation, number of predators removed annually, whether the respondent asked for help in reducing depredation and if so where assistance was sought, and problem scoring of predators on a scale of 1-10 (1 = no problem, 10 = the most problem). Predator sighting frequency was assessed by asking the respondent to rate the sighting frequency of predators on a 5-point scale (1 = absent, 5 = very common). Respondents were asked if they saw any value for having predators in the area, if they received conservancy support, if they thought it was beneficial to be a part of a conservancy, and to elaborate on their reasons using open-ended questions. Responses were then coded after establishing general themes, which were then used for further analysis.

Statistical Analyses

Data were tested for normality and homogenous variances, and where these parameters were not met after data transformations, non-parametric tests were used. The p value was set at .05 for all tests. A total of 147 respondents participated in the survey.

Results

Attitudes Towards Predators

When asked “do you think predators have a value in your area?” 34% agreed, 64% did not, and 2% were ambivalent. The most common response as to why they valued them was because they believed that predators had a place in nature (33%), followed by their value in trophy hunting (23%), having no problem with predators (16%), income (14%), tourism and future generations (12%) and religious reasons (2%). However, when combining all categories involved with obtaining money from predators (e.g., trophy hunting, income and tourism), this equates to 49%. The majority (95%) of respondents who did not think predators had a value said that this was due to depredation, with 5% thinking that this was because they did not know their role in

the ecosystem. Factors associated with believing that predators had a value included respondents who asked for help with depredation and those that received support from their conservancy (Table 1). More female respondents thought predators did not have a value compared with those who did.

Table 1 about here.

Attitudes Towards Conservancies

When asked “is it beneficial to be part of a conservancy?” 79% of respondents agreed and 21% disagreed. The most common reason to believe it was beneficial was due to environmental reasons, such as bringing in wildlife to the area and protecting it for future generations (25%) followed by meat provision (22%), financial (21%) or social benefits (17%) and problem animal control (15%). When grouping all direct personal benefit responses together (provision of meat, problem animal control, social improvements, financial benefits), this was by far the most popular response (75%). The most frequent reason for not thinking the conservancy was beneficial was due to not receiving any form of help from it (54%), followed by lack of problem animal control (23%) and resources offered (13%) or poor management (10%).

All female respondents agreed to conservancies being beneficial, whereas only 71% of males thought so (Table 1). More respondents (both male and female) who did not ask for help with depredation thought that conservancies were beneficial. Those respondents who did not think it was beneficial to be a member of a conservancy had significantly ($p = .046^*$, $W = 584.5$) greater total median perceived annual livestock depredation than those who thought it was beneficial.

Discussion

This research has shown that if predators are perceived to cost the person financially via livestock depredation and if they are not offered support for this (e.g. via problem animal control), they are unlikely to value either predators or conservancies (Gillingham & Lee, 1999;

Romañach, Lindsey, & Woodroffe, 2007). If a person is not negatively affected by predators, they do not need to ask for help with depredation, nor do they have a reason to be against conserving them. This may also be linked to the lack of support from their conservancy that many respondents reported to help towards reducing HWC, most notably on the absence of problem animal control or depredation compensation received. The main reason many respondents did not ask for help in reducing livestock loss to predators was because they did not think any help would be received. This highlights the importance for conservancies to support their members deal with the negative aspects of predator presence (Mulonga & Murphy, 2003). To improve attitudes of resettled farmers towards predators, it might prove useful to employ agricultural extension officers to offer advice to farmers to improve their livestock management, along with providing tangible benefits such as income from sustainable trophy hunting of common predators, which is currently not legal on resettled farms.

Depredation compensation was frequently cited by respondents as a benefit that already was being, or should be, received. However, the effectiveness of offering such compensation has been questioned, as this can lead to a moral hazard whereby farmers are in effect paid not to look after their livestock properly (Naughton-Treves, Grossberg, & Treves, 2003). Some respondents noted that they knew how to reduce depredation but could not afford better livestock husbandry practices. A possible alternative to offering compensation could be to offer subsidised livestock guarding dogs, kraal building materials and herder wages.

Women were more likely to think conservancies were beneficial when compared with men, possibly because of the provision of social care for their children. Conversely, women are more likely to fear predators due to the perceived damage they may cause to human life, which could explain why they may have been less likely to see a value in them in this study (Lagendijk & Gusset, 2008). Large, dangerous mammals such as lions and elephants are present in some of

these study areas and pose a real threat to humans (Mulonga, Suich, & Murphy, 2003). Education may be important to inform women on how to reduce the likelihood of attack (Lagendijk & Gusset, 2008) along with providing wildlife deterrents.

Although previous studies have shown that changes in attitudes can sometimes translate into changes in behavior (Marker, Mills, & Macdonald, 2003), it must be noted that this is not always the case (Wainwright & Wehrmeyer, 1998). It is the eventual behavior of people that will determine the fate of large carnivores globally. We recommend that resettled farmers be granted permission to sell trophy hunting opportunities for common wildlife species. Conservancy and resettled farmers should increase the tangible benefits of predator presence by offering opportunities to benefit financially from predators on their land, such as through additional photo tourism and trophy hunting, which may improve attitudes towards predators by increasing their worth to the community. Further, conservancies should offer additional benefits for membership, including increased wild meat provision. Assistance should be provided to both conservancy and resettled farmers to improve livestock husbandry through either training schemes and/or help in cash or kind for non-lethal predator controls. Widespread agricultural educational schemes might also promote more positive attitudes and behavior towards nature by teaching farmers holistic and sustainable rangeland management techniques to improve production, such as soil conservation and pasture maintenance. These recommendations, in turn, could decrease HWC and promote conservation of threatened large carnivores in poor rural communities across sub-Saharan Africa.

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Table 1. Association between whether respondents thought predators had a value or thought conservancies were beneficial related other test variables. * denotes a significant result.

Comparison variable (categories in parentheses)	Statistical results	
	Do predators have a value	Are conservancies beneficial
Gender (male/female)	$p = .162, \chi^2 = 1.954, df = 1$	-
Number of females agreeing to predator value vs. disagreeing	$p = .004*, \chi^2 = 8.167, df = 1$	-
Number of males agreeing to predator value vs. disagreeing	$p = .07, \chi^2 = 7.348, df = 1$	-
Age (20-49, 50-70+)	$p = .831, \chi^2 = 1.475, df = 4$	$p = .138, \chi^2 = 2.204, df = 1$
Herder present (yes/no)	$p = .288, \chi^2 = 1.127, df = 1$	$p = .125, \chi^2 = 2.339, df = 1$
Livestock guarding dog ever owned (yes/no)	$p = .730, \chi^2 = .119, df = 1$	$p = .093, \chi^2 = 2.925, df = 1$
Livestock guarding dog currently owned (yes/no)	$p = .349, \chi^2 = .878, df = 1$	$p = .881, \chi^2 = .022, df = 1$
Total annual number of predators removed	$p = .9647, W = 5,882.5$	$p = .4287, W = 1,276.5$
Ask for help with livestock depredation (yes/no)	$p = .033*, \chi^2 = 4.570, df = 1$	$p = .050*, \chi^2 = 3.852, df = 1$
Receive conservancy support (yes/no)	$p = .090, \chi^2 = 2.881, df = 1$	$p = .075, \chi^2 = 3.175, df = 1$
Education (no formal education, primary, secondary, tertiary)	$p = .096, R^2 = 72.59\%,$ residual $SD = 8.232, Y = 29.81 + 11.01 X$	-
Total livestock (cattle, goats and sheep) owned	$p = .7512, W = 4,743.5$	$p = .0994, W = 1243.0$
Total problem score for all predators	$p = .4296, W = 6,155.5$	$p = .1069, W = 1,640.5$
Sighting frequency of predators	$p = .1489, W = 5,671.0$	$p = .2281, W = 1,581.0$
Total annual livestock depredation	$p = .8361, W = 4,443.5$	$p = .046*, W = 584.5$
Beneficial to be part of a conservancy (yes/no)	$p = .454, \chi^2 = .561, df = 1$	-

Figure Captions

Figure 1. Map of study areas within Namibia

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