

Hunting for Sustainability in Africa



Hunting is a 'lens' through which we can examine how people interact with biodiversity

Hunting provides a valuable case study in the use of biodiversity because it involves tens of millions of people globally, it is conducted across a wide range of land tenure and use systems, and it is an important source of revenue and protein, particularly in developing countries. Hunting is also embedded in social structures and cultural patterns and plays a key role in conflicts over natural resource management around the world. HUSA is part of an EU-FP7 funded project undertaken by a multidisciplinary consortium of partners with the aim of assessing cultural, institutional, socio-economic and ecological aspects of hunting across a range of contexts in Europe and Africa.

Case studies were carried out in Scotland, Norway/Sweden, Spain, Croatia/Slovenia, Tanzania and Ethiopia. HUSA is the African component of the wider FP7 project.



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Hunting for Sustainability in Africa (HUSA)

is carried out by Frankfurt Zoological Society, the Tanzania Wildlife Research Institute, the Ethiopian Wildlife Conservation Authority and the James Hutton Institute, supported by Imperial College London and the University of Stirling, UK

Hunting in Tanzania

The Tanzanian component of the project focuses on the role and impacts of hunting in the Serengeti ecosystem, which is famous for the largest herds of migratory ungulates in the world. Two million wildebeest, zebra and gazelle migrate annually from the short grass plains of Ngorongoro and Serengeti to the Mara River. These migratory herds, coupled with resident ungulates, support around 10 000 hyenas and lions as well as other mega-fauna, making the Serengeti one of the most important ecosystems for mammals in Africa. Illegal hunting is considered a serious threat to wildlife in the Serengeti ecosystem. Previous studies suggest that poverty and lack of alternative sources of protein are the primary drivers of local bushmeat consumption. However, the cultural, socio-economic and ecological basis and consequences of bushmeat hunting in the Serengeti ecosystem are not completely understood. HUSA provides scientific knowledge on these issues to help mitigate illegal bushmeat hunting and foster sustainable wildlife management in the Serengeti ecosystem.



Hunting in Ethiopia

Ethiopia is a country exceptionally high in globally unique biodiversity, however wildlife populations throughout the country have been reduced to a fraction of what they were due to a number of causes, including hunting. This appears to have several root causes, including cultural traditions, subsistence, buffers during famines and reprisal against government. Several national parks and controlled hunting areas are spread across the country, but the institutional and financial capacity for protected area management is low and benefit sharing mechanisms with communities are lacking. Hunting management is highly focused on revenue derived from concession and trophy fees, particularly those targeting the endangered mountain nyala - the world's rarest mammal still subject to commercial harvest. HUSA examines the multiple drivers and impacts of hunting in both highland and lowland areas.

A Multi-disciplinary Approach

The FP7 consortium brings together a breadth of technical experts to identify the social, economic and ecological facets affecting hunting across a range of contexts nationally, regionally and internationally. Communities are also directly involved through group discussions, in-depth interviews and stakeholder fora.



Research Briefings - Tanzania

The following briefings summarise some of the findings from our research in Tanzania to date. We would like to thank everybody who has supported our work. For updates, comments and questions please contact:

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Who is hunting for bushmeat in Western Serengeti?

Background

- In western Serengeti, Tanzania, objectives of bushmeat hunting seem to have developed from subsistence to commercial purposes. Conservation concerns are thus increasing.
- Despite a multitude of studies, participation in hunting is still poorly understood, not least because of the illegal character of the activity.
- We test here a new way of asking about household participation in hunting: We use data on consumption of home-sourced bushmeat, i.e. bushmeat not bought, but provided by family members.

Research questions

- How many households in western Serengeti are likely to be involved in bushmeat hunting?
- What distinguishes these households from others that are not hunting?

Method

- Combination of household survey and monthly protein consumption recall survey
- Random sample of 200 households in 12 villages in western Serengeti
- Data from 10 months in 2010-2011
- Ethnic groups included: Kurya, Ikoma, Sukuma, Ngoreme, Nata, others (“minorities”)

Key findings

- 18% of households had consumed home-sourced bushmeat at least once in the 10 months studied
- All other factors equal, the following groups were more likely than others to have consumed home-sourced bushmeat:
 - Ethnic minorities (independent of the length of their stay in a village)
 - People living closer to a game reserve or the national park
 - People who perceived themselves as poorer than others
 - Households who generally consumed more bushmeat than others
- The following factors had no effect on the consumption of home-sourced bushmeat:
 - Presence of young men in households
 - Perceptions of law enforcement
- Perceptions of own wealth compared to others was a simple measure that correlated well with education of household head, livestock owned, and other asset-related variables
- Distance to nearest protected area was a more useful variable than distance to national park. Hunters thus benefited from the proximity of *any* protected area. This might be due to spillover of wildlife from strongly protected to unprotected areas

Conclusions

- Home-sourced bushmeat is a potentially useful indicator for hunting activities, as it does not require us to ask direct questions on illegal behaviour
- It is still difficult to explain reasons for participation in bushmeat hunting. However, a small number of households seemed to consume home-sourced bushmeat much more often than others – is there an increasing specialisation?
- If perceptions of law enforcement do not influence participation in hunting, do we need to search for alternative means to decrease bushmeat hunting?

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April 2012







People’s livelihood preferences in western Serengeti: how could bushmeat hunting be addressed?

Background

- Several approaches are currently used in an attempt to reduce bushmeat hunting in western Serengeti: increased law enforcement, microcredit schemes, improved employment opportunities, ...
- But it is unclear if hunters would indeed reduce their activities if they had alternative income or protein sources, or if law enforcement was stricter.
- Under which conditions would people in western Serengeti reduce hunting activities?

Method

- Choice modelling, based on a questionnaire that asked respondents which type of livelihood they would prefer
- Livelihoods were described by means of 6 attributes: number of cows, cash income, access to microcredits, access to a bigger market, time spent hunting, likelihood of being caught by rangers while hunting
- Sample: 200 households in 6 villages

1 (Block 2)	A	B	C
Idadi ya ng'ombe 	30	0	1
Mshahara kwa mwezi 	80,000 TSh	200,000 TSh	200,000 TSh
Huduma za taasisi za kibenki itowayo mikopo midogo 	Ndiyo	Ndiyo	-
Sokoni panafikika 	-	Ndiyo	Ndiyo
Uwezekano wa kukamatwa na askari 	0	1/10	2/10
Muda unaotumika kuwinda kwa mwaka 	Miezi 6	Wiki 1	Miezi 2
Utachagua lipi	[]	[]	[]

Kwa nini?

Key findings

- The model suggests that respondents were indeed trading off hunting time against other benefits: On average, 1 week of hunting with zero risk of being caught was approximately equivalent to...
 - 1.5 additional cows
 - 36,000 TSh additional income per month
 - road access to market
 - the availability of microcredits.
- Respondents reacted only to the difference between zero risk and a positive risk of being caught by rangers, but did not mind how high the risk was once it was positive
- If there was a positive risk to get caught, the average respondent preferred *not* to go hunting
- Poorer people, i.e. people with less cattle, tended to have stronger preferences for hunting, but were more concerned about the risk of being caught by rangers

Conclusions

- Findings are based on hypothetical choices so have to be interpreted with care
- People who were better off were less sensitive to the risk of being caught. This implies that they might feel that they have the financial means to deal with this risk
- However, people who were better off also had a lower preference for hunting, which means that the availability of other sources of income, combined with strict law enforcement, could help to reduce hunting

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Bushmeat consumption: the impact of meat prices

Background

- Previous research suggests that bushmeat consumption in western Serengeti could be reduced if other sources of protein were available at a lower price than bushmeat
- But would people really choose to buy other sources of protein, even if they were cheaper? Or would they still prefer bushmeat?

Method

- Choice modelling, based on a questionnaire that asked respondents how much fish, chicken and bushmeat they would buy, given varying prices
- Prices for 1 piece of dried bushmeat were defined to vary from 500 to 4500 TSh, for 1 piece of quality fish from 1000 to 7000 TSh, for 1 healthy adult chicken from 6000 to 15000 TSh.
- Sample: 200 households in 6 villages



Key findings

- The model suggests that respondents were indeed buying less of a certain product if prices increased
- Reducing chicken and fish prices by 10% led to a decreased demand for bushmeat by 3 and 4%, respectively
- Increases in the price of fish had thus a slightly bigger impact on demand for bushmeat than increases in the price of chicken. However, in any case, increase in the price of any of these protein sources will lead to an increased demand for bushmeat

Conclusions

- A price increase for bushmeat (for example, if there is less supply) will also reduce demand for it. So if hunting can be reduced, demand for bushmeat will also decrease
- Policies that make chicken or fish cheaper might help to decrease demand for bushmeat
- Even if interventions cannot provide access to additional sources of protein, we should ensure that prices for fish, chicken and other meat do not rise further, as this will lead to an increase in demand for bushmeat

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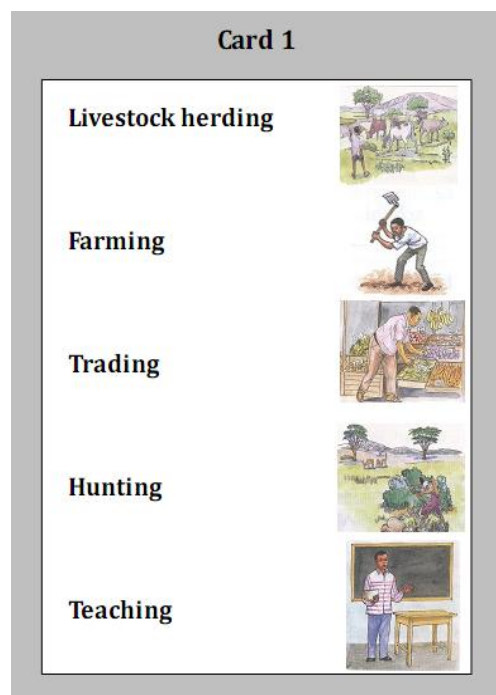
Estimating the prevalence of bushmeat hunting: a new approach

Background

- Illegal behaviours such as bushmeat hunting are difficult to assess because people do usually not report them truthfully
- In previous studies, estimates of household involvement in bushmeat hunting in western Serengeti ranged from 8 to 57%
- Can we find methods that help us to correctly estimate the prevalence of bushmeat hunting in western Serengeti?

Method

- We used a new technique, the so-called ‘unmatched count technique’
- Respondents do not have to say openly if they are hunting, they just state how many activities on a list provided by the interviewer (see figure) they usually carry out. This question is repeated several times with varying lists. The number of hunters can then be computed by the researcher
- Sample: 1192 households in 15 villages



Example of activity list shown to respondents

Key findings

- 20% of the households were estimated to hunt during dry season
- About 17% of the households were estimated to hunt during wet season
- Most of these households hunted (also) for cash.

Conclusions

- The technique seemed to work well – respondents found the questions easy and did not distrust the interviewer
- These estimates coincide with our figures on the prevalence of home-sourced meat (18% of the interviewed households)

The role of women in bushmeat hunting in western Serengeti

Background

- Bushmeat hunting around Serengeti is usually as described as an activity carried out by men, in order to obtain meat and cash
- However, interventions that offer alternative means of cash income or protein have often not yet had the expected success. We set out to explore the reasons for hunting in more depth
- To do so, we conducted exploratory, open-ended group discussions. Here, we focus on our findings from these discussions with regard to the role of women in hunting

Method

- Focus group discussions: In total, 76 participants from 8 villages in Meatu, Bunda and Serengeti districts

Key findings

- Women play an important role in bushmeat hunting
- While they actively hunt only when wildebeest or zebra migrate through village land, women play a strong indirect role by actively encouraging men to go hunting through a variety of mechanisms
- For example, women are widely seen to prefer men who hunt over non-hunting men, both as husbands and casual partners. Men who do not hunt are considered as sluggish and women might threaten to withdraw affection from non-hunting men
- Women encourage men to go hunting because...
 - They prefer bushmeat over vegetables, dried sardines and the low quality fish that can be bought in the village
 - They use the cash obtained to purchase household items, e.g., sugar, kerosene, clothes
 - They prefer not to wait for and rely on harvests from cultivation, as the revenue from crops is uncertain (e.g., due to risk of drought, elephant damage, fluctuations in market prices). By contrast, bushmeat hunting offers instant revenue

*“If a certain man goes hunting but I don’t go, my wife might even start loving that man.”
(Man, age 32)*

*“The time that you spend in hunting is minimal compared to the time that you spend in cultivation. Girls want money chop-chop.”
(Man, age 33)*

Conclusions

- Interventions that aim to address bushmeat hunting should not only focus on men, but also take the role of women into account

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Bushmeat hunting : The role of informal rules and social change

Background

- Illegal hunting is often addressed by increased law enforcement and the creation of monetary or material incentives
- However, not only formal rules such as laws, but also informal rules could help to reduce illegal hunting
- We focus here on such informal institutions, that is, established (but unwritten) norms and rules that guide and constrain human behaviour in the society, such as local customs or taboos
- What is the role of informal institutions in shaping bushmeat hunting in western Serengeti?

Methods

- Focus group discussions with 76 participants from 8 villages in Meatu, Bunda and Serengeti
- Two consecutive workshops with a range of local stakeholders (n=15): elders, community members, the district game officer, representatives of conservation NGOs, the Wildlife Management Area and TANAPA

Key findings

- In the recent past, clan-specific social norms worked as taboos and prohibited the hunting of certain species (e.g., elephant, zebra)
- Like the killing of these taboo animals, also the use of certain techniques (e.g., pitfall traps) was seen to inflict misfortune on the hunter
- However, these rules have been eroding for a number of reasons:
 - People need more cash as they move from a subsistence to a market economy
 - Cultural and ethnic groups are mixing due to local migration, education, increased intermarriage
 - Replacement of traditional religious beliefs with modern religion, e.g., Christianity
 - Traditional authorities, such as elders, are not respected anymore

*“In the past, zebras were not allowed to be hunted even if they came close to the village. Zebras were regarded as god and part of the community”
(Man, age 58)*

Conclusions

- Informal institutions can be powerful tools to constrain bushmeat hunting, but are very vulnerable to social change
- As previously active norms might be impossible (or not desirable) to restore, alternative social norms that fit with a modern society should be considered
- Conservation interventions should pay attention to those areas where hunting is currently limited due to social norms that are still in place – these will likely change in the near future.

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Summary and recommendations

- The research project “Hunting for Sustainability in Africa” investigated cultural, institutional and economic aspects of bushmeat hunting in western Serengeti
- Both qualitative and quantitative methods were used. Among them, we tested 3 questionnaire-based approaches to assess prevalence of and explanatory factors for bushmeat hunting, a behaviour that is usually difficult to research because of its illegal nature. These approaches included:
 - reports of ‘home-sourced bushmeat’ as a proxy for hunting
 - modelling of hypothetical choices with regard to livelihoods and bushmeat consumption
 - the unmatched-count technique
- Choice modelling of livelihood preferences suggested that the potential (dis-)utility people ascribed to hunting and the risk of being arrested depended on factors such as household wealth. Interventions should thus be tailored to respond to the heterogeneity of these preferences
- Our findings highlight that social change around the Serengeti, including the erosion of traditional norms and the increasing demand for cash due to the ongoing integration into the market economy, will likely lead to further increase in bushmeat hunting in the near future
- Women play an important role in encouraging hunting. Interventions should explicitly consider this role and the social norms associated to it
- People’s desire for growth connected to social change implies that monetary and other material incentives alone will not be sufficient to curb hunting, if these are not complemented by social norms that constrain hunting
- Our project did not address bushmeat trade outwith our study area. However, an increasing commercialisation of hunting might imply that more and more bushmeat is sold supra-regionally. The subject of bushmeat trade thus requires more research.



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