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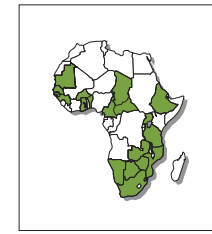
TROPHY HUNTING IN SUB SAHARAN AFRICA: ECONOMIC SCALE AND CONSERVATION SIGNIFICANCE



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Abstract. After a short historical overview this paper shows the current status and characteristics of the trophy hunting industry in sub-Saharan Africa. Trophy hunting is generally self-regulating because low off-take is required to ensure high trophy quality and marketability in future seasons. Trophy hunting creates crucial financial incentives for the development and/or retention of wildlife as a land use over large areas in Africa, including in areas where ecotourism is not viable. Hunting plays an important role in the rehabilitation of degraded wildlife areas by enabling the income generation from wildlife without affecting population growth of trophy species.
Furthermore, hunting operators often conduct anti-poaching to protect the wildlife resource on which they depend. However, there are problems associated with trophy hunting from a conservation perspective. The article describes these problems and outlines several potential solutions aimed at maximizing the conservation value of the industry.

Key words: Saharan Africa, trophy hunting, financial incentives, operators

1. Introduction

Hunting by early European explorers and settlers in Africa was uncontrolled and had devastating impacts on some wildlife species. The blue buck (*Hippotragus leucophaeus*) and quagga (*Equus quagga*) went extinct, for example, and other species such as elephants *(Loxodonta africana)* were greatly reduced in number and distribution. During the late 19th century, there was an increasing realisation of the need to preserve remaining game stocks, and by the early 20th century, hunters played a vital role in the establishment of some of Africa's most famous protected areas. During the early 20th century, the tourist trophy hunting industry started in Kenya, wealthy European and American visitors paying settler farmers to guide them on hunting safaris in the area. Similar tourist hunting industries soon developed elsewhere in Africa.

During the 1980s and 1990s, the potential for tourist hunting to create financial incentives for conservation was increasingly recognized and in several nations there was a gradual alignment of trophy hunting with conservation and development programmes. Well known examples of this include the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) programme in Zimbabwe and the Administrative Management Design program (ADMADE) programme in Zambia. Hunting was also used as the basis for conservation/development programmes in other southern African countries, Tanzania and in parts of Central and West Africa.

Trophy hunting is now a major industry in Africa and generates significant revenues from and for wildlife over vast areas. Hunters and hunting advocates insist that trophy hunting is of major importance for conservation in Africa. However, animal rights groups fundamentally oppose hunting and there is a lack of consensus among conservationists regarding the acceptability and efficacy of hunting as a conservation tool. This uncertainty is partly due to a lack of objective information regarding the economic and conservation impact of hunting. Where hunting is covered in the media, discussion is typically emotive and frequently has an anti-hunting slant. Pro-hunting literature appears to be restricted primarily to hunting publications and effectively involves hunters convincing one another of the importance of their hobby to conservation.

In this chapter, much of which is drawn from a paper by Lindsey, Roulet and Romañach (2007) in the journal Biological Conservation (volume 134), I review available information on the economic and conservation significance of the trophy hunting industry in Africa.

2. Scale of the trophy hunting industry

Trophy hunting occurs in 23 sub Saharan African countries, and generates at least USD 201 million/year from ~18,500 international hunting clients. Approximately 1.4 million km^2 is used for trophy hunting, which is an area 22% larger than, and in addition to the area encompassed by national parks (i.e. protected areas where hunting is not permitted).

2.1 Southern Africa

South Africa has the largest hunting industry. There are also well developed hunting industries in Zimbabwe, Botswana and Namibia, and to a lesser extent Zambia, Mozambique and Swaziland. The southern African hunting industry has grown during recent years due partly to a major increase in game ranching in place of traditional livestock ranching (**Figures 1-2**). Dangerous species such as elephants, buffaloes *Syncerus caffer*, lions *Panthera leo* and leopards *Panthera pardus* can be hunted in all southern African countries (except Swaziland). South Africa, and Namibia are the only countries where both black (*Diceros bicornis*) and white rhinoceroses (*Ceratotherium simum*) can be hunted as trophies by tourists.

2.2 East Africa

Trophy hunting in East Africa is limited primarily to Tanzania, which has a large and growing hunting industry using about a quarter of the land surface (**Figures 1-2**). More buffalo, leopard and lion are hunted in Tanzania than anywhere else, and these species are typically used by operators to attract clients to the country. Trophy hunting was banned in Kenya in 1977 due to overshooting and corruption, costing the country approximately USD 20-40 million/year in lost revenues and contributing to a loss of about 70% of all wildlife since then. During the 1970s, trophy hunting was also conducted on a large scale in Ethiopia, though since then, increasing human populations, political instability and encroachment on wildlife habitat have resulted in a 95% decrease in the area used for trophy hunting. The mountain nyala *Tragelaphus buxtoni* is the species most commonly used by operators to attract visiting hunters to Ethiopia. Trophy hunting was banned in Uganda in 1979, though the Uganda Wildlife Authority operates now successfully pilot schemes for trophy hunting in an attempt to create incentives for wildlife conservation.

Too many elephants in southern Africa – a model of successful conservation, but the world denies Africans wise use of this resource. (Photo: Horst Niesters)

2.3 Central and West Africa

In Central Africa, most trophy hunting is conducted in Chad, Cameroon and Central African Republic (CAR). West Africa is best known among hunters for bird shooting, though some big game hunting occurs, primarily in Benin and Burkina Faso. Little hunting of dangerous species occurs in West Africa; elephant hunting is permitted only in Guinea and leopard hunting is not permitted in the region at all.

Central and West Africa attract fewer hunters than East and southern Africa, and generate lower revenues from hunting. Furthermore, revenues and client numbers appear to be static or declining slightly. The relatively limited scale and poor performance of the trophy hunting industry in Central and West Africa is probably due to higher human population pressures, depletion of wildlife due to the bush-meat trade, lack of private land, difficult habitat for hunting (rain forest), dependency on logging roads for access to forest areas, political instability, poor infrastructure, and in the case of West Africa, smaller areas of remaining wilderness. In addition, Central and West Africa have not capitalized on the large US hunting market, relying primarily on European hunters.

3. Trophy hunting as a conservation tool

There are several characteristics which enable tourist trophy hunting to play a potentially key role in conservation outside of national parks:

3.1 Trophy hunting can be sustainable

Trophy hunting is self-regulating because low off-take is required to ensure high trophy quality and marketability of the area in future seasons. Accordingly, off-takes for many species are well below available quotas. Sustainable hunting is most likely to be achieved where hunting operators are given tenure over hunting areas for multiple seasons. Low off-takes mean that trophy hunting can play a key role in endangered species conservation. On private land in South Africa, for example, trophy hunting has been vital in promoting the recovery of bontebok (*Damaliscus dorcas*), black wildebeest (*Connochaetes gnu*) cape mountain zebra (*Equus zebra*) and white rhino by encouraging reintroductions onto game ranches. Trophy hunting can also play an important role in the rehabilitation of degraded wildlife areas (such as the *Coutada* hunting blocks in Mozambique) by enabling the income generation from wildlife without affecting population growth of trophy species.

3.2 Trophy hunting creates financial incentives for conservation

Trophy hunting has created financial incentives for the development and/or retention of wildlife as a land use across an area of 1.4 million km^2, effectively more than doubling the area of land used for wildlife production. On private land in southern Africa, trophy hunting has been a key stimulant behind the shift to game ranching from livestock ranching and in South Africa, there are now approximately 5,000 game ranches and 4,000 mixed livestock/game ranches incorporating a population of >1.7 million wild animals. On state land, several African countries have allocated large blocks of land for wildlife utilization where trophy hunting is the primary land use in addition to national parks, as game reserves or wildlife/game management areas (e.g. Mozambique ~76,000 km^2; Zambia ~160,000 km^2). On communal land, trophy hunting is a key component of community conservation schemes in several countries, including Botswana, Central African Republic; Namibia, Tanzania, Zambia and Zimbabwe. In Namibia, revenues from trophy hunting have been the primary stimulus for the development of wildlife conservancies on >70,000 km^2 of communally owned land. In CAR, partnerships between hunting operators and communities have provided the only income from wildlife (USD 175,000 during 2003/4) for local people during times of economic crisis.

The African Lion – trophy hunting is an important tool in its conservation. (Photo: Eugène Reiter)

3.3 Trophy hunting generates revenues in areas where alternatives such as ecotourism may not be viable
Trophy hunting is viable in several countries that receive few conventional tourists (e.g. CAR, Chad, and Ethiopia), and in remote parts of countries that are popular among tourists (e.g. northwest South Africa, and southern Tanzania). In Botswana, 74% of the wildlife estate relies on revenues from consumptive wildlife utilization. Hunting is able to generate revenues under a wider range of scenarios than ecotourism, including remote areas lacking infrastructure, attractive scenery, or high densities of viewable wildlife, areas experiencing political instability. Trophy hunting revenues are vital in part because there are not enough tourists to generate income for all protected areas. Even in the most visited countries such as South Africa and Tanzania, tourism revenues are typically sufficient to cover the costs of only some of the parks and certainly not to justify wildlife as a land use outside of protected areas.

3.4 The presence of trophy hunting operators can reduce illegal hunting
Lease agreements in some countries (e.g. Zambia and Tanzania) require assistance with anti-poaching from hunting operators in hunting concessions. Even where anti-poaching is not a legal pre-requisite, operators often conduct anti-poaching to protect the wildlife resource on which they depend. In Savé Valley Conservancy in south eastern Zimbabwe, for example, hunting operators employ approximately 190 anti-poaching game scouts.

3.5 Trophy hunting generates high revenues from low volumes of hunters
Trophy hunting generates considerably more income per client than ecotourism. In Zimbabwe and Tanzania, for example, revenues generated by hunting clients are respectively 30 and 14 times greater than those generated per photographic client. Consequently, hunting revenues can potentially be generated with lower environmental impacts from fossil fuel use and habitat conversion for infrastructure development.

3.6 Relatively low leakage of revenues
Ecotourism packages are often booked through overseas agents, with the effect that a significant proportion of revenues are lost from host countries. By contrast, most hunting operators working in Africa are based in Africa (92.6%) and many are based in the countries in which most hunting is conducted (88%). In Botswana, 75% of trophy hunting revenues remain within country, compared to 27% of tourism revenues. However, in Central and West Africa, most operators are based in Europe and so significant proportions of revenues are leaked overseas.

4. Problems of the hunting industry which limit its conservation role

4.1 Problems with hunting on private land
On fenced game ranches in southern Africa, there are a number of practices which reduce the conservation role of trophy hunting. In Botswana, Namibia, and South Africa, game ranches are required by law to have

perimeter fencing. However, the formation of conservancies whereby fencing surrounding individual properties is removed and replaced by a single fence encompassing multiple properties (a set up that is preferable from a conservation perspective) has been hindered by ranchers wishing to ensure that trophy animals are not lost to their neighbours. Wildlife is often over stocked on fenced game ranches, resulting in ecological degradation; 'non-huntable' predators such as wild dogs *Lycaon pictus* or cheetahs *Acinonyx jubatus* are frequently persecuted to protect trophy prey species; exotic species are often introduced to increase the diversity of trophies (e.g. fallow deer *Dama dama*); closely related species are sometimes hybridized (e.g. black and blue wildebeest *Connochaetes taurinus*) to offer new trophy 'species' and the genetics of some species are manipulated on occasion to produce colour variants such as white springbok (*Antidorcas marsupialis*).

There are also ethical issues associated with trophy hunting on some game ranches which generally have relatively little relevance to conservation *per se*, but negatively impact public perception of trophy hunting as a conservation tool. These activities include shooting from vehicles; shooting female animals or young animals; luring animals from parks; using baits and spotlights; hunting leopards with dogs; put-and-take hunting (the practice of releasing trophies immediately prior to the onset of a hunt); and 'canned hunting' (the practice of shooting animals in small enclosures in which they have no chance of escaping the hunter).

4.2 Problems with trophy hunting on state and communally owned land

Despite some successes, rural communities living in or near wildlife areas rarely benefit adequately from trophy hunting activities. Inequitable distribution of hunting revenues represents the most serious threat to the long term sustainability of the industry. Reasons for this inequity include; inadequate legislation enforcing community involvement, failure of national governments to devolve wildlife ownership to communities, and the lack of skills among communities required for them to run hunting operations or negotiate improved terms with operators.

i. Quota setting, over shooting

Most state wildlife departments lack the resources to census wildlife populations regularly and quotas are often based on guesswork. State wildlife departments also typically lack resources to enforce existing quotas. In Tanzania, for example, the Director of Wildlife recently issued a plea to hunting operators to respect quotas in light of widespread overshooting.

ii. Allocating hunting areas

There are problems associated with the process of leasing hunting concessions in some countries with negative implications for conservation. In Tanzania, for example, allocation of concession areas relies on the discretion of a few individuals, resulting in reduced income for the state, nepotism, abuse of authority and corruption. In most countries, the required contributions of concession area leaseholders to anti-poaching and community development are vague and poorly enforced (e.g. Zambia and Tanzania) and some instances, leases for concession areas are too short, reducing the willingness of operators to invest in anti-poaching, wildlife management or community relations and encouraging unsustainable off-takes (e.g. Cameroon).

iii Corruption

Corruption affects the trophy hunting industry in Africa at multiple levels, from government scouts who overlook the overshooting of quotas, to government ministers favouring certain operators when granting concessions.

iv. Competition with citizen hunting

In some countries, urban citizens are provided with sizeable and poorly supervised hunting quotas at greatly subsidised prices, reducing the number of high value trophies that can be sold to foreign trophy hunters, thus reducing incentives for communities to protect wildlife.

v. CITES restrictions
In some countries, CITES restrictions on trophy exports impose limitations on revenues from trophy hunting and thus incentives for conservation. In West Africa, for example, several species of key importance for marketing hunting are not on quota, which severely limits hunting revenues.

vi. Inadequate regulation of the hunting industry
Regulating hunting operators in vast, remote hunting concessions is difficult, particularly given the lack of resources of most African state wildlife departments and given the failure of several governments to reinvest sufficient hunting earnings into their protected area networks. In most countries, operators are not obliged to belong to professional hunting associations or to comply with their standards, making disciplining errant operators difficult (e.g. Zambia).

5. Potential solutions to problems affecting the trophy hunting industry

Research into the economic and ecological impacts of trophy hunting in each country in which hunting occurs is required to permit improved assessment of the conservation role of hunting, diagnosis of problems and the prescription of site-specific solutions. For West and Central Africa, investigation into how hunting revenues might be increased is required. For countries where trophy hunting presently does not occur, objective in-country assessments of the potential financial and conservation impacts are needed to a scientific basis with which to decide whether to legalise trophy hunting. In the case of Kenya such research results exist, however, the arguments which justify hunting are neglected due to ideological and political considerations.

Some of the problems associated with the trophy hunting industry could be addressed by improved enforcement of existing legislation, for example by forcing hunting operators to belong to state-approved national hunting associations (as has recently been stipulated in South African law) with the power to remove or suspend hunting licenses in the event of non compliance to hunting legislation. New legislation is also required to tackle other problems. For example, ownership of wildlife should be devolved to communities to permit direct receipt of benefits from hunting and thus create clear incentives for sustainable wildlife management. The process of allocating hunting concessions should be made transparent, and based solely on market principles, e.g. auctions, and concession agreements should include clear and enforced minimum contributions to anti-poaching and community development.

Experience shows that it most important to reinvest revenues from hunting into conservation and to share them with the local communities where the hunting occurs. Local people should be involved into the management and wise use of wildlife as much as possible.

Finally, incentives for improved conservation performance by hunting operators should be introduced. Most hunting clients are concerned that their hunt is conducted in a ‘conservation-friendly’ manner and would likely select for certified hunting operators, providing market-based incentives for best practice. Developing means to enable clients to identify conservation friendly operators is thus a crucial step. One possible means of achieving this is through development of the principle of ‘conservation hunting’ through identification of best practices necessary for hunting to contribute effectively to conservation and community development.

National hunting associations could provide some form of recognition for operators adhering to those standards. A related, though more intensive suggestion is the development of a certification system for hunting operators, whereby certification depends on verified adherence to set standards of best practice.

6. Conclusion
Trophy hunting is a major industry in parts of Africa, creating incentives for wildlife conservation over vast areas which otherwise might be used for alternative and less conservation friendly land uses. The

trophy hunting industry is growing and the scope for the industry play a role in conservation should increase accordingly. Presently, however, the conservation role of hunting is limited by a series of problems, several of which are common to multiple countries, and some also affect the ecotourism industry (e.g. corruption, failure to benefit communities adequately). Developing solutions should thus be a key priority for conservationists, and success would confer large-scale benefits for conservation. Those countries in other parts of the world which also want to use their wildlife sustainably by hunting should learn from the positive and negative experiences of Africa.

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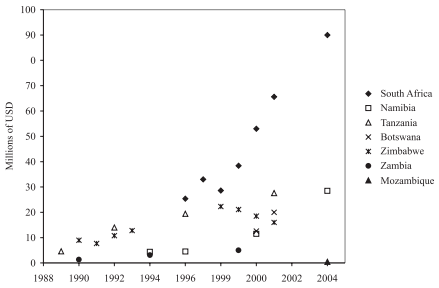

Figure 1. Recent trends in gross annual revenues from trophy hunting in southern and East Africa (Source: Lindsey et al. 2007)

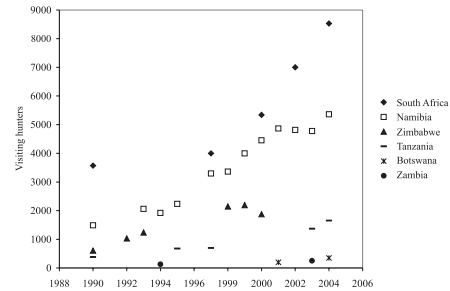

Figure 2. Recent trends in the number of foreign hunters visiting southern and East Africa (Source: Lindsey et al. 2007)