

Informing decisions on trophy hunting

A Briefing Paper for European Union Decision-makers regarding potential plans for restriction of imports of hunting trophies

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SUMMARY

Trophy hunting is currently the subject of intense debate, with moves at various levels to end or restrict it, including through bans on carriage or import of trophies. In the European Parliament, a group of Members have called for signing of a Written Declaration calling: “to examine the possibility of restricting all import of trophies into the EU, to ensure proper implementation of the rules by Member States, and to persuade countries that are issuing permits to trophy hunters without due consideration for the impacts of trophy hunting on conservation and animal welfare to discontinue this practice”.

This paper seeks to inform discussions on this Declaration and other relevant discussions in the European Union on restriction of imports of hunting trophies.

Trophy hunting is hunting of animals with specific desired characteristics (such as large antlers), and overlaps with widely practiced hunting for meat. It is clear that there have been, and continue to be, cases of poorly conducted and poorly regulated hunting both beyond and within the European Union. While “Cecil the Lion” is perhaps the most highly publicised

controversial case, there are examples of weak governance, corruption, lack of transparency, excessive quotas, illegal hunting, poor monitoring and other problems in a number of countries. This poor practice requires urgent action and reform.

However, legal, well regulated trophy hunting programmes can – and do – play an important role in delivering benefits for both wildlife conservation and for the livelihoods and wellbeing of indigenous and local communities living with wildlife.

RECOMMENDATIONS

To avoid significant negative impacts on species populations, habitat conservation, poaching levels, and the rights and livelihoods of indigenous and local communities, IUCN calls on the European Parliament, Council and Commission to ensure that any decisions that could restrict or end trophy hunting programmes:

- i. are based on careful and sound analysis and understanding of the particular role that trophy hunting programmes are playing in relation to conservation efforts at all levels in source countries, including their contribution to livelihoods in specific affected communities;
- ii. are based on meaningful and equitable consultation with affected range state governments and indigenous peoples and local communities and do not undermine local approaches to conservation;
- iii. are taken only after exploration of other options to engage with relevant countries to change poor practice and promote improved standards of governance and management of hunting;
- iv. are taken only after identification and implementation of feasible, fully funded and sustainable alternatives to hunting that respect indigenous and local community rights and livelihoods and deliver equal or greater incentives for conservation over the long term.

SUMMARY *continued*

Habitat loss and degradation is the primary driver of declines in populations of terrestrial species. Demographic change and corresponding demands for land for development are increasing in biodiversity-rich parts of the globe, exacerbating this pressure on wildlife and making the need for viable conservation incentives more urgent.

Well managed trophy hunting, which takes place in many parts of the world, can and does generate critically needed incentives and revenue for government, private and community landowners to maintain and restore wildlife as a land use and to carry out conservation actions (including anti-poaching interventions). It can return much needed income, jobs, and other important economic and social benefits to indigenous and local communities in places where

these benefits are often scarce. In many parts of the world indigenous and local communities have chosen to use trophy hunting as a strategy for conservation of their wildlife and to improve sustainable livelihoods.

Time-limited, targeted conditional moratoria – particularly if accompanied by support for on-the ground management reform – may be useful tools in driving improvements in hunting practice. Such moratoria could focus on particular countries or species. But blanket bans or restrictions affect both good and bad hunting practices. They are a blunt instrument that risks undermining important benefits for both conservation and local livelihoods, thus exacerbating rather than addressing the prevailing major threats of habitat loss and poaching.

Rather than bans on trophy hunting, poor practices (within the EU or in other countries) could be improved by sustained engagement with and support for responsible national agencies to improve governance frameworks and on-the-ground management.

Or, if decisions to ban or restrict trophy hunting are taken, there is a need to identify and implement in advance viable alternative long-term sources of livelihood support and conservation incentives.

In many parts of the world indigenous and local communities have chosen to use trophy hunting as a strategy for conservation of their wildlife and to improve sustainable livelihoods

While tourism can be a one viable alternative in a limited number of cases, it requires access, infrastructure, guaranteed wildlife viewing opportunities and political stability – all conditions that are missing in many of the places where trophy hunting is working. But tourism and hunting can be complementary land uses in many areas, with both activities – when regulated by effective protocols – contributing to making wildlife a viable land use.

IUCN stands ready to assist European decision-makers in better understanding the role of trophy hunting in conservation and livelihoods and is actively pursuing a major research exercise to enable this.

BACKGROUND**What is at stake?**

Trophy hunting is currently the subject of intense debate and polarised positions, with controversy and deep concern over the practice of trophy hunting, its ethical basis, and its impacts. It is clear that there have been, and continue to be, cases of poorly conducted and poorly regulated hunting, with Cecil the Lion perhaps the most highly publicised example of this.

Intense scrutiny of hunting due to these bad examples has been associated with many confusions (and sometimes misinformation) about the nature of hunting, including:

- trophy hunting is the same as “canned” hunting;
- trophy hunting is illegal;
- trophy hunting is driving declines of iconic species, particularly large African mammals like elephant, rhino and lion;
- trophy hunting could readily be replaced by photographic tourism.

None of these statements is correct.

Concerns over hunting, sometimes driven by these confusions, have sparked calls at various levels directed at ending or limiting trophy hunting, typically by restricting the national level licensing of hunting or the transport or import of hunting trophies.

In the European Union (EU), a group of Members of the European Parliament (MEPs) have called for the signing of a Declaration to ban import of trophies into the EU (European Parliament 2016). This paper seeks to inform discussions on this Declaration.

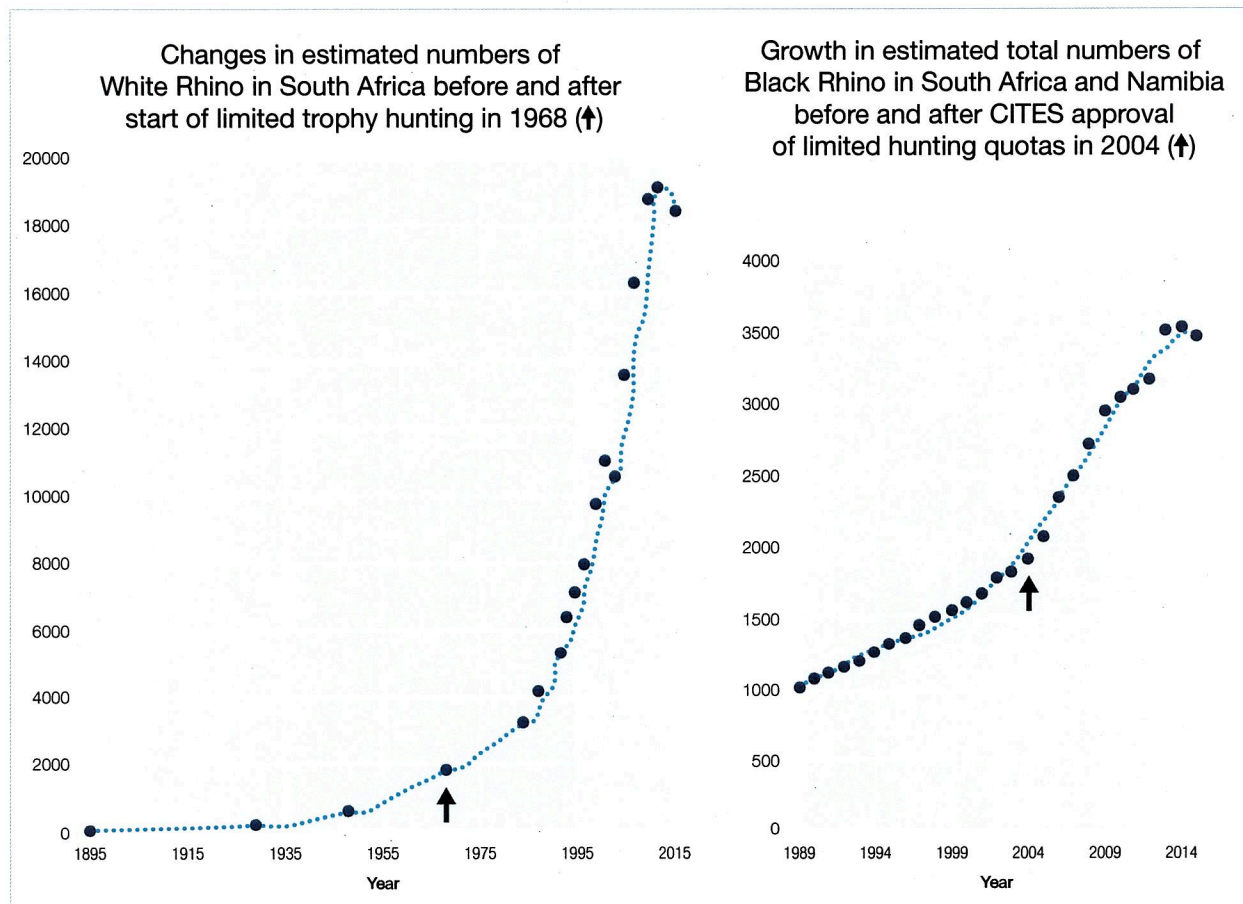


Figure 1 Trophy hunting programmes have contributed to the recovery of African White and Black Rhinos (see Annex 1: Case Study 1).

What is trophy hunting?

Trophy hunting generally involves the payment of a fee by a foreign or local hunter for a hunting experience, usually guided, for one or more individuals of a particular species with specific desired characteristics (such as large size or antlers). The trophy is usually retained by the hunter and taken home. Meat of hunted animals is usually used for food by local communities or the hunter. It may be a distinct activity or overlap with recreational or meat hunting. Many deer hunters, for example, may desire a trophy but also hunt for food or for the experience.

It takes place in most countries of Europe, the USA, Canada, Mexico, several countries in East, Central and South Asia, around half of the 54 countries in Africa (Booth and Chardonnet, 2015), several countries in Central and South America, and in Australia and New Zealand.

A wide variety of species are hunted, from abundant to threatened. Most are native, some are introduced. Hunting of introduced species is not further discussed here, as it constitutes a small proportion of hunting and raises quite different conservation issues.

Is trophy hunting “canned hunting”?

There is a tendency for the media and decision-makers to conflate canned hunting (hunting of animals in confined enclosures where they are unable to escape) with trophy hunting. Canned hunting represents a very small proportion of hunting, raises very different issues from trophy hunting of free-ranging animals, and is condemned by existing IUCN policy (IUCN Recommendation 3.093, “Application of the IUCN Sustainable Use Policy to sustainable consumptive use of wildlife and recreational hunting in southern Africa”, 2004). It is not discussed further in this document.

Is it legal? And who decides?

Trophy hunting is often incorrectly conflated with the poaching for the organised international illegal wildlife trade (IWT) that is currently devastating many species including African elephant and African rhinos.

However, trophy hunting typically takes place as a legal, regulated activity under programmes implemented by government wildlife agencies, protected area managers, indigenous and local community bodies, private landowners, or conservation/development organisations. In a number of cases revenues from hunting are in fact funding law enforcement or providing community benefits that counter incentives to engage in IWT (see Case Studies 1,4,8,9; Figure 2).

In some contexts, all decisions on hunting quotas, species, and areas are made by government wildlife agencies. However, under many trophy hunting governance systems local landowners or community organizations participate alongside governments in deciding these questions and sometimes are the key decisionmakers (see Case Studies 2,4-7,10; Figure 2).

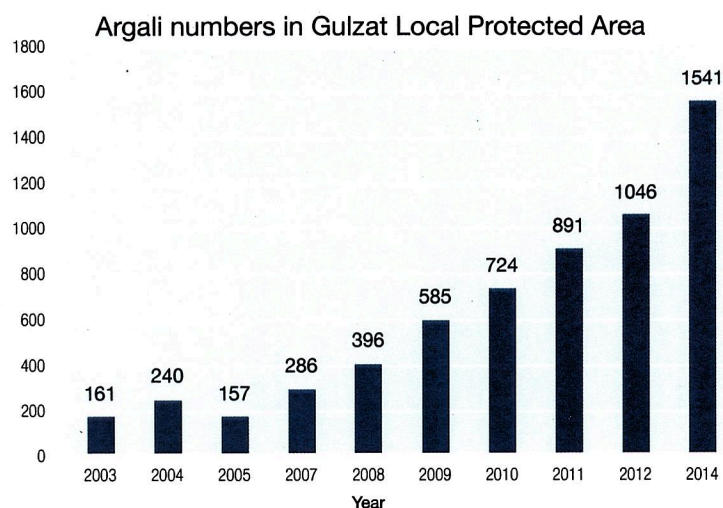


Figure 2 Local communities have developed a conservation approach for Argali in Mongolia using legal, regulated trophy hunting to pay guards and incentivise protection from poaching. Graph shows growth in population of Argali in Gulzat Local Protected Area. Trophy hunting was introduced in 2010 (see Annex 1; Case Study 2). Source: WWF Mongolia, unpublished data.

This is not to say that there is not a level of illegal practice taking place (both within and beyond the EU), as in most industries. There are regulatory weaknesses and illegal activities taking place in some countries, sometimes very serious. These include hunting in excess of quotas, in the wrong areas, taking of non-permitted species, and for African rhinos, problems with “pseudohunting” and sale of hunting trophies into black markets in consumer states.

Where does the money go?

Prices paid for hunts vary enormously, from hundreds to hundreds of thousands of (US) dollars, and globally involve a substantial revenue flow from developed to developing countries.

In developing countries, landowners/managers will often negotiate with “hunting operators” to decide who will get the hunting right or “concession” on their land, and on what terms. The operator, in turn, secures contracts with clients overseas and runs the hunting trips. The price paid by the hunter will generally include three things:

- the operator’s costs (where applicable);
- payment to the local entity (community, private or state land owner/manager) with which the operator has the contract; and
- “official” government payments of various types which typically help finance wildlife management and conservation activities.

In developing countries generally 50-90% of the net revenues (excluding operator costs) are allocated to the local entity, with the remainder to the government authority. The local community benefit can be as high as 100% (Case Study 5). Meat from the hunts is also often contributed or sold to local community members and can be highly locally valued (Naidoo et al., 2016). In most of Europe and North America, a share of hunters’ fees usually goes to governmental wildlife authorities to finance wildlife management and conservation activities.

How can trophy hunting be good for conservation?

Trophy hunting takes place in a great variety of governance, management, and ecological contexts, so its impacts on conservation vary enormously, from negative to neutral to positive. In many contexts good evidence is lacking or scanty, so it is currently impossible to evaluate precisely how widespread each outcome is.

Negative conservation impacts of poorly managed hunting can include overharvesting, artificial selection for rare or exaggerated features, genetic or phenotypic impacts due to hunting (such as reduced horn size), introduction of species or subspecies beyond their natural range (including into other countries), and predator removal.

However, it is clear that with effective governance and management trophy hunting can and does have positive impacts (see Annex 1 for examples). Habitat loss and degradation, driven primarily by expansion of human economic activities, is the most important threat to terrestrial wildlife populations (Mace et al., 2005), along with other threats such as poaching for bushmeat and illegal wildlife trade and competition with livestock. Demographic change (population expansion) and demands for food, income and land for development are increasing in many biodiversity-rich parts of the globe, exacerbating these pressures on wildlife and making the need for viable conservation incentives more urgent.

In contrast, hunting can be a positive driver for conservation because it increases the value of wildlife and the habitats it depends on, providing critical benefit flows that can motivate and enable sustainable management approaches. Trophy hunting programmes can:

1. **generate incentives for landowners (government, private individuals or communities) to conserve or restore wildlife** on their land. Benefits to landowners from hunting can make wildlife an attractive land use option, encouraging them to maintain or restore wildlife habitat and populations, remove livestock, invest in monitoring and management, and carry out anti-poaching activities (see Case Studies 1,3-7 for examples). For example, policies enabling landowners to benefit

from sustainable use of wildlife have led to the total or partial conversion of large areas of land from livestock and cropping back to wildlife in South Africa, Zimbabwe, Namibia, Pakistan, the United States and Mexico (see Case Studies 1, 3-6). Without such benefits, the future of these lands and the wildlife that inhabit them is highly uncertain.

2. **generate revenue for wildlife management and conservation, including anti-poaching activities**, for government, private and communal landholders (see Case Studies 1-7, 9 for examples). Government agencies in most regions depend at least in part on revenues from hunting to manage wildlife and protected areas. For example, state wildlife agencies in the USA are funded primarily by hunters (both trophy and broader recreational hunting) through various direct and indirect mechanisms including the sale/auction of trophy hunt permits (Heffelfinger, Geist and Wishart, 2013; Mahoney, 2013). The extent of the world's gazetted protected areas, many of which fall in IUCN categories IV and VI and include hunting areas, could significantly decline as these areas become inoperable. Private land-owners in South Africa and Zimbabwe and communal landowners in Namibia also use trophy-hunting revenues to pay guards and rangers, buy equipment, and otherwise manage and protect wildlife (Case Studies 1,4,5). Revenues from trophy hunting operations in Mongolia, Tajikistan and Pakistan are used to pay local guards to stop poaching and to improve habitat for game animals (Case Studies 2,6,7). Trophy hunting operators and the patrols they directly organize, finance and deploy can reduce poaching (Case Studies 4,6,9; Lindsey et al., 2007).
3. **increase tolerance for living with wildlife, reducing the effects of human-wildlife conflicts and reducing illegal killing**. Where wildlife imposes serious costs on local people, such as loss of crops and livestock or human injury and death, and there are no legal means for people to benefit from it, retaliatory killing and local poaching are common. This is particularly important in Africa where elephants and other species destroy crops and large cats kill humans and livestock (see Case Studies 4,5).

With effective governance and management trophy hunting can and does have positive impacts

Is trophy hunting driving declines of large African mammals?

Concern is frequently expressed that trophy hunting is driving declines of iconic African large mammals such as elephants, rhinos and lions. While there is evidence for a small number of populations that unsustainable trophy hunting has contributed to local declines (e.g. Loveridge et al., 2007, Packer et al., 2009, 2011), it is not a significant threat to any of these species and is typically a negligible or minor threat to African wildlife populations (Lindsey, 2015).

The primary causes of population declines of the large mammals subject to trophy hunting, such as the African Elephant,

African Buffalo, White Rhino, Black Rhino, African Wild Dog and Hartmann's Mountain Zebra are habitat loss and degradation, competition with livestock, illegal or uncontrolled poaching for meat and trade in animal products (ivory, horn, etc.), and retribution killing for human-wildlife conflict (Schipper et al., 2008). For Lions specifically, the most important causes of population declines are indiscriminate killing in defense of human life and livestock, habitat loss, and prey base depletion (usually from poaching) (Bauer et al., 2015).

For all of these species, as the case studies note, well-managed trophy hunting can indeed promote population recovery, protection, and maintenance of habitat (see Figure 3).

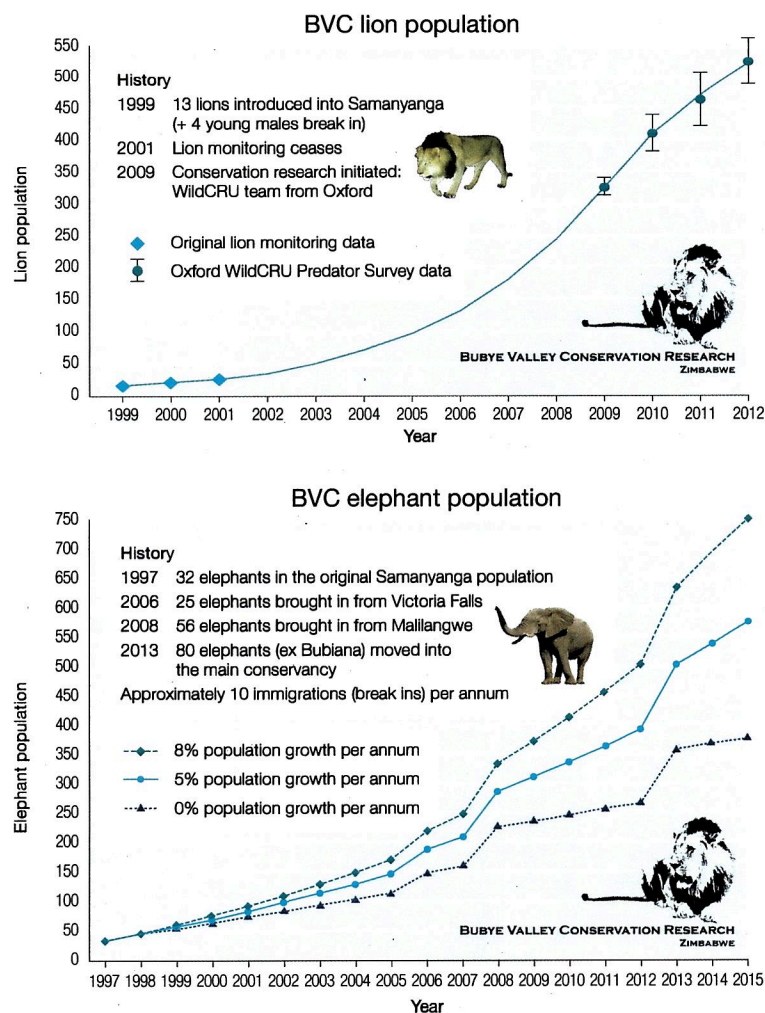


Figure 3 Bulye Valley Conservancy, a private conservancy in Zimbabwe on land previously used for farming, is dependent on limited trophy hunting to fund wildlife protection and conservation (see Annex 1; Case Study 4). Lion and African Elephant populations have grown steadily.

How does trophy hunting affect indigenous and local community rights and livelihoods?

This varies enormously across different contexts and different regions, and there are cases in which trophy hunting takes place without meaningful community participation in decision-making around wildlife management, without adequate respect for community rights and consent, and with insufficient or poorly functioning benefit-sharing mechanisms.

However, it is likewise clear that there are a significant number of trophy hunting programmes where indigenous or local communities have freely chosen to use trophy hunting as a tool to provide the incentives and revenue to help them conserve and manage their wildlife and/or improve their livelihoods (Case Studies 2,3,5–7,10). In many further cases communities have less decisionmaking power over trophy hunting, but nonetheless gain a share of hunting revenue (see Lindsey et al., 2013). Communities benefit from trophy hunting through hunting concession payments or other hunter investments, which typically support improved community services like water infrastructure, schools and health clinics; gaining jobs as guides, game guards, wildlife managers and other hunting-related employment; and gaining access to meat. These are typically poor rural communities with very few alternative sources of income and sometimes no other legal source of meat.

How would broad import restrictions, such as those raised by the Written Declaration on Trophy Hunting, affect conservation and livelihoods?

Trophy import restrictions by key importing entities such as the EU can make trophy hunting programmes economically unviable at local level, particularly where the restrictions affect “high value” iconic species (Case Study 5; Figure 4). Removing the incentives and revenue provided by hunting would be likely to cause serious declines of populations of a number of threatened or iconic species. For example, the recovery of some populations of African Elephant, Black Rhino, White Rhino, Hartmann’s Mountain Zebra, Cheetah and Lion in Africa, of Markhor, Argali and Urial in Asia, and of Bighorn Sheep in North America could be stopped and reversed (Case Studies 1-8). Importantly, populations of threatened species that are not hunted could also be negatively impacted, including e.g. Snow Leopard and African Wild Dog (Case Study 8).

To avoid serious conservation impacts, any restrictions which would have this effect should be preceded by establishment of fully funded, feasible, long-term alternatives that generate conservation incentives and finance conservation actions.

Making the option of trophy hunting unviable through import restrictions would lead to some indigenous and local communities losing cash income from

hunting concessions on their land, reduced access to meat, and loss of employment. For example, the indigenous Khwe San and the Mbukushu (around 5000 people) in Bwatwata National Park are some of Namibia’s poorest people, but have earned around N\$2.4 million (ca US\$155,000) per year in hunting payments in recent years (R. Diggle, In litt.). Stopping trophy hunting would be an enormous setback, in terms not only of income but also meat – living in a National Park they cannot graze livestock or grow commercial crops. Likewise, if trophy hunting became unviable the thousands of rural Zimbabwean households that directly benefit from CAMPFIRE would lose approx. US\$1.7 per annum (already reduced from US\$2.2 million by US elephant trophy import bans) (C. Jonga (CAMPFIRE Association), In litt.). These are very substantial amounts in countries where the average income for rural residents is a few dollars a day or less.

Even more fundamentally, perhaps, unilateral trophy restrictions by importing states in these cases will take decision-making power away from already-marginalized rural communities as to how they can manage their land and wildlife in ways that respect their right to self-determination and that best meet their livelihood aspirations.

If and where import restrictions are pursued and where such owner/user rights and benefits exist, respect for equity, community rights and sustainable livelihoods require that they are based on consultation with such communities and establishment of feasible, sustainable, freely chosen alternative livelihood opportunities.

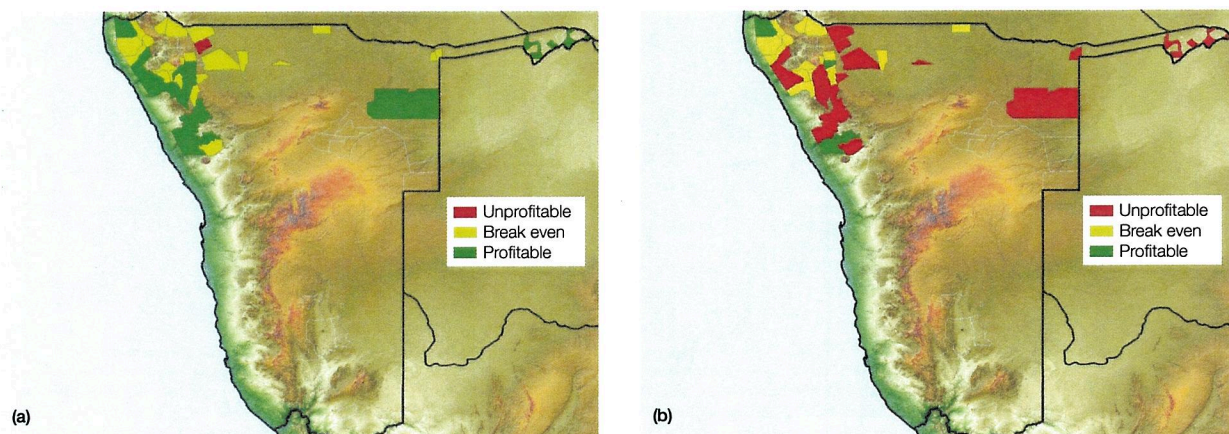
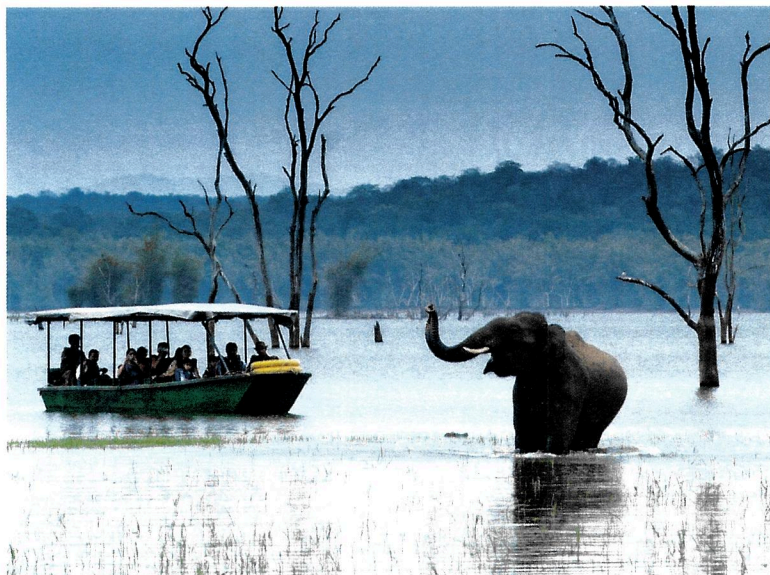


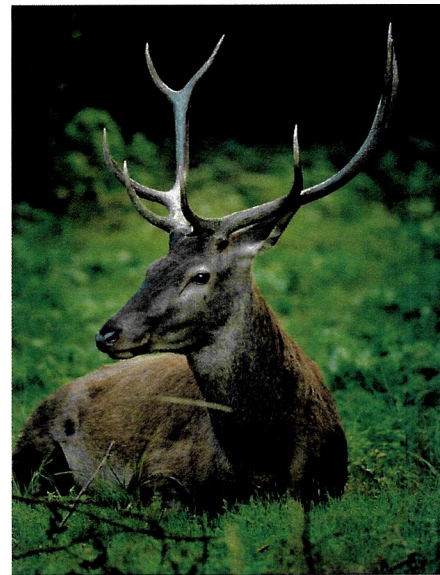
Figure 4 Trophy hunting provides critical revenue underpinning the success of the Namibian communal conservancy programme. Maps illustrate the economic viability of community conservancies in Namibia under (a) the status quo; and (b) a simulated trophy hunting ban (from Naidoo et al., 2016); see Annex 1; Case Study 5.



Images courtesy of Wildscreen Exchange, www.wildscreenexchange.org

Can't trophy hunting be replaced by photographic tourism?

Trophy hunting is not the only means to make wildlife valuable to people and to return local benefits. Photographic tourism can be a very valuable option in many places and has generated enormous benefits for conservation. However, it is viable over only a very limited percentage of the wildlife area currently managed for trophy hunting: it requires political stability, proximity to good transport links, minimal disease risks, high density wildlife populations to guarantee viewing, scenic landscapes, high capital investment, infrastructure (hotels, food and water supply, waste management), and local skills and capacity. Tourism and hunting are frequently highly complementary land uses when separated by time or space. Where tourism is feasible in areas currently used for hunting, it is typically already being employed alongside hunting (Case Studies 1,4,5). Like trophy hunting, if not carefully implemented it can have serious environmental impacts and can return a very low level of benefit to local communities, with most value captured offshore or by in-country elites (Sandbrook and Adams, 2012).



Are there other alternatives?

Effective alternative approaches to trophy hunting need to provide tangible and effective conservation incentives: they need to make wildlife valuable to people over the long term and should preferably empower local communities to exercise rights and responsibilities over wildlife conservation and management. For example, various forms of Payment for Ecological Services (PES schemes) offer considerable potential where they can effectively mobilise investments or voluntary contributions from governments, philanthropists and the private sector, and effectively motivate species and habitat conservation. The land leasing scheme carried out by Cottar's Safari Service with Maasai communities in Olderkesi, Kenya offers an example (IUCN SULI et al., 2015, p15), albeit limited by the difficulty of mobilising stable funding. The REDD+ approach (a form of PES scheme established through an intergovernmental process) can provide incentives and revenue flows to local communities in some areas, although with many caveats. All these options are challenging, with a critical challenge ensuring that revenue flows will be sustainable over the long term and not contingent on highly changeable donor priorities.

How could trophy hunting practices be improved?

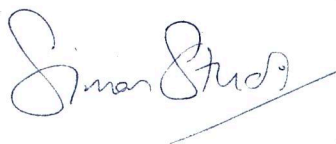
Broad-scale restrictions and bans are not the only solution for addressing poor trophy hunting practice, outside or within the EU. Import restrictions are often attractive interventions as they are easy to implement and can be carried out at low cost to decision-making bodies. However, conservation success is rarely achieved by single decisions in distant capitals, but typically requires long term, sustained multi-stakeholder engagement in-country and on the ground. Trophy hunting is no exception.

As an alternative to blanket bans or other broad unilateral restrictions that would curtail trophy hunting programmes, EU decisionmakers may want to give more consideration to whether specific trophy hunting programmes both within the EU and beyond are meeting requirements for best practice, as elaborated in the IUCN SSC *Guiding Principles for Trophy Hunting as a Tool for Conservation Incentives* (IUCN SSC, 2012) and other publications including the *European Charter on Hunting and Biodiversity* adopted under the Bern Convention on the Conservation of European Wildlife and Natural Habitats (Brainerd, 2007). Where there are problems in governance and management of trophy hunting, as there are in many places, it will be most effective to actively engage with relevant countries to improve quality of governance

and management, including increasing transparency in funding flows, community benefits, allocation of concessions and quota setting; strengthening of rights and responsibilities of indigenous peoples and local communities; and improving monitoring of populations and of hunts. There are important roles for many hunting stakeholders in improving standards, including importing countries, donors, national regulators and managers, community organisations, researchers, conservation organisations, and the hunting industry and hunter associations in reaching these standards.

Are there cases where trophy import bans might provide benefits?

Conditional, time-limited, targeted import moratoria aimed at addressing identified problems could help improve trophy hunting practice in certain instances. However, bans are unlikely to improve conservation outcomes unless there is a clear expectation that improved standards will lead to the ban being lifted, and the country has the capacity as well as the political will to address the problem. It is therefore critical to the impact of targeted moratoria that – at least in developing countries – they are accompanied by funding and technical support for on-the-ground management improvements, and the status of the initial problem is reviewed after a specified period.



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Annex

Case studies of trophy hunting having positive conservation and livelihood benefits

Case Study 1

Rhinos in South Africa and Namibia

Since trophy hunting programmes were introduced for these species, White Rhino increased in South Africa from 1,800 (in 1968) to around 18,400; and Black Rhino increased in South Africa and Namibia from around 2,520 (in 2004) to around 3,500 (see Figure 1). By end 2015, these two countries conserved 90% of Africa's rhinos, yet only 0.34% and 0.05% of their white and black rhino populations were hunted. Not only has rhino hunting clearly been sustainable, it has played an integral part in the recovery of these species through providing incentives for private and communal landholders to maintain the species on their land, generating income for conservation and protection, and/or helping manage populations to increase population recovery.

Limited sport hunting of rhinos along with live sales and tourism has provided the economic incentives to encourage over 300 South African private land owners to collectively build their herd to ~6140 white rhinos and 630 black rhinos on 49 private/communal land holdings – very important populations of these iconic species. This has added over 2,000 km² of conservation land – equivalent of another Kruger National Park! However, increasing security costs and risks due to escalating poaching and declining economic incentives have resulted in a worrying trend of private rhino owners and managers divesting their rhino, threatening future expansion of range and numbers. Import restrictions that threaten the viability of hunting would likely further reduce incentives and exacerbate this trend.

Many private reserves rely heavily on trophy hunting and that of white rhinos to cover operational expenses. For example, a South African reserve, known to the IUCN African Rhino Specialist Group, with identity concealed here for rhino security reasons, manages an increasing population of 195 white rhinos and many other species.

Their conservation efforts are self-funded. Analysis of eight years' data revealed that only ~18% of the total reserve's operational expenditure was generated from tourism, while trophy hunting generated the bulk of income needed to fund operational expenditure (63%). Over the last eight years, only seven (or <1% of the population annually) white rhino have been hunted on the reserve, generating (inflation adjusted) US\$617,000; with live sales of another 47 white rhino over the period bringing in an additional US\$973,000. The reserve allocates all of the proceeds from rhino hunting towards rhino protection and conservation management costs. Average white rhino hunting revenue in the reserve over the last eight years translated to US\$400 for each living white rhino in the reserve today/year; equivalent to 29%–33% of estimated current rhino protection and law enforcement costs/rhino/year in Kruger National Park and on Private Land of US\$1,210–US\$1,360/rhino/year, respectively. The Reserve Manager indicates that “the income from hunting in general and from the live sales of rhino, has sustained the management of the Reserve for decades” noting the recent ban on the import of lion trophies into the US has already had a negative impact on income to fund conservation with the cancellation of some hunts.

Rhino hunting has not been without its problems, with some ‘pseudo-hunters’ using the legal sport hunting route to access rhino horn for illegal sale in South East Asia. Increased regulation has seen the record high 231 rhino hunting applications in South Africa in 2011 plummet to normal levels of 62 white rhino and one black rhino hunted in 2015. In Namibia a further 3 white rhino and 1 black rhino were hunted in 2015. These numbers represent only 0.35% of the white and black rhinos conserved by these two countries, respectively, yet will have generated turnover close to US\$4 million.

Case Study 2

Argali in Mongolia

As part of a plan to create community-based wildlife hunting management based on Altai Argali in the Gulzat Local Protected Area of northwest Mongolia, the Uvs Aimag Citizen's Meeting imposed a 4-year ban on Argali hunting to enable restoration of the population. Largely unmanaged, open-access hunting and increased competition for forage from goats were likely chief causes of the population decline.

With local herders now protecting the population, it grew from roughly 200 in the years immediately preceding the ban to an estimated 724 in 2010. After the ban was lifted in 2010, 12 Argali were harvested over the next 4 years generating around \$123,000 at the local level. Meanwhile, the Argali population doubled again to more than 1,500 (WWF Mongolia, unpublished data) (Figure 2).

Case Study 3

Bighorn Sheep in North America

EuroAmerican settlement with the corresponding surge in livestock numbers and uncontrolled hunting led to a rapid decline in Bighorn Sheep in North America, from roughly 1 million in 1800 to fewer than 25,000 by 1950. Since then, based primarily on more than US\$100 million contributed by trophy hunting groups through fees and donations, hundreds of thousands of hectares have been set aside for Bighorn Sheep and other wildlife and the bighorn population has more than tripled from its historic low to roughly 80,000 today (Damm and Franco, 2014; Hurley et al., 2015).

Restoration in Canada and the U.S. was largely based on hunters working with state/provincial wildlife agencies to support research, habitat acquisition and management. For example, in the state of Wyoming, auctions of Bighorn Sheep hunting tags yield approximately \$350,000 annually, of which 70% goes to conserving Bighorn Sheep and 10% to other wildlife. These revenues and funds from Bighorn Sheep organizations were used to cover approximately one-third of the total cost of more than US\$2 million paid to domestic sheep producers to voluntarily remove their sheep from 187,590 ha of public grazing lands. Other hunting, fishing, and wildlife groups covered the other two-thirds of the total cost because removing domestic sheep grazing from these areas benefitted a diversity of wildlife (K. Hurley (Wild Sheep Foundation), pers. comm.).

Indigenous-managed trophy hunting has driven recoveries in Mexico. In 1975, 20 Bighorn Sheep were reintroduced to Tiburon Island in the Sea of Cortez, an island owned and managed by Seri Indians. The original cause of the species' extinction on the island is unknown. The bighorn population quickly grew to around 500, probably the carrying capacity for the island. In 1995, a coalition of institutions initiated a programme to fund Bighorn Sheep research and conservation while providing needed income for the Seri through international auctioning of exclusive hunting permits on the island. Initially, permits often garnered 6-figure (US dollars) auction bids. From 1998 – 2007, the Seri Indians earned US\$3.2 million from Bighorn Sheep hunting permits and sale of young for translocation, funds that were reinvested in Seri community projects, management of the Bighorn Sheep population, and maintenance of the island in an undisturbed state. Funding from trophy hunting for the island's conservation continues, with the Seri selling recent permits for US\$80,000-90,000 each. The island has also been an important source population for reestablishing other Bighorn Sheep populations in the Sonoran Desert and elsewhere on the mainland. Because of the substantial revenues from trophy hunting of Bighorn Sheep and Mule Deer, many ranchers in the Sonoran Desert have greatly reduced or eliminated livestock to focus on wildlife (Valdez et al., 2006; Lee, 2008; Wilder et al., 2014; Hurley et al. 2015).

Case Study 4

Private wildlife lands in Zimbabwe

In Zimbabwe, the devolution of wildlife use rights to landholders in 1975 resulted in a transition from game ranching being a hobby practiced by a few dozen ranchers to some 1,000 landowners and 27,000 km² conserving wildlife by 2,000, with trophy hunting a primary driver of this change (Child, 2009; Lindsey et al., 2009). Although these numbers have declined significantly under the land reform programme, and despite the current challenging economic conditions in the country, some private conservancies continue to play a crucial role in conservation. The following all rely on trophy hunting as the primary source of revenue and they would all be unviable without it; photographic tourism has been tried and has not been a viable alternative.

The Savé Valley Conservancy (SVC), covering 344,000 ha, was created in the 1990s by livestock ranchers who agreed that wildlife management could be a better use of the land than livestock. Cattle ranching operations had eliminated all elephants, rhinos, buffalo and lions, among other species, in the area. Today, SVC has around 1,500 African Elephants, 117 Black Rhinos and 43 White Rhinos, 280 Lions and several packs of the Endangered African Wild Dog. Hunting on the Sango Ranch, SVC's largest property, yields around US\$600,000 annually and employs 120 permanent workers who represent more than 1,000 family members (Lindsey et al., 2008; W. Pabst and D. Goosen, pers. comm.; SVC, n.d.; Sango Wildlife; n.d.).

The 323,000-ha Buby Valley Conservancy (BVC) was converted from a cattle ranch 20 years ago and now has roughly 500 Lions, 700 African Elephants, 5,000 African Buffalo, 79 White Rhinos and, at 202, the third largest Black Rhino population in Africa (see Figure 3). Trophy fees in 2015 generated US\$1,380,605. BVC employs approximately 400 people and invests US\$200,000 annually in community development projects (BVC, n.d.; B. Leatham, pers. comm.).

The Cawston Game Ranch in Zimbabwe, at 12,600 ha, is much smaller than SVC and Buby, and thus is more limited in terms of game species it can harbor. When the ranch was purchased a few native game species existed but Common Wildebeest, Plains Zebra, Giraffe, Tsessebe, Common Impala, Bushbuck, Red Hartebeest, Gemsbuck and Waterbuck had to be reintroduced. Approximately 4,500 game animals now inhabit the ranch. Large predators are limited to Leopards, Brown Hyenas and an occasional Cheetah. Hunting contributes 68% of gross revenues, derived almost wholly from plains game, particularly Sable and Tsessebe. The ranch employs 41 people and its value to local communities is estimated at US\$60,000/yr (V. Booth, unpublished data).



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Case Study 5

Communal conservancies in Namibia

In the early 1990s, many residents of Namibian communal lands viewed wildlife as a detriment to their livelihoods because animals destroyed crops and water installations and killed or injured livestock and people. Today, 82 communal conservancies covering 162,033 sq km and home to more than 184,000 people are engaged in community-based conservation, including indigenous and tribal communities.

Trophy hunting has underpinned Namibia's successes in community-based natural resource management. Recent analysis indicates that if revenues from trophy hunting were lost, **most** conservancies would be unable to cover their operating costs – they would become unviable, and both wildlife populations and local benefits would decline dramatically (Naidoo et al., 2016; see Figure 4). Overall, conservancies generate around half their benefits (including cash income to individuals or the community, meat, and social benefits like schools and health clinics) from photographic tourism and half from hunting. Note much of this is reinvested into managing and protecting wildlife. Around half the conservancies gain their benefits **solely** from hunting, with most of the rest deriving part of their income from hunting alongside tourism. Only 12% specialise in tourism (Naidoo et al., 2016). Revenues from trophy hunting of 29 wildlife species

on conservancies totaled US\$1,671,379 in 2013. Five CITES-listed species—Elephant, Common Hippopotamus, Hartmann's Mountain Zebra, Lion and Leopard—accounted for 63% of this total. For example, every time an elephant is harvested a community directly receives approximately US\$20,000 in payment, plus approximately 3,000 kg of meat.

Wildlife populations have shown dramatic increases since the beginning of the communal conservancy programme in Namibia. On communal lands in northeast Namibia, from 1994-2011, the Sable population increased from 724 to 1,474 and the common impala from 439 to 9,374. In the conservancy region of northwest Namibia, from the early 1980s to 2011, the threatened Hartmann's Mountain Zebra population increased from less than 1,000 to an estimated 27,000, and the number of Black Rhino more than tripled, making it the largest free-roaming population in Africa (conservancies are unfenced). The growth of communal conservancies and protection offered by national parks has enabled elephants to increase their population from around 7,500 in 1995 to more than 20,000 today. The Kunene Conservancy's Lion population grew from roughly 25 lions in 1995 to 150 today, and Namibia now has a large free-roaming Lion population outside of national parks (NACSO, 2015; C. Weaver (WWF Namibia), pers. comm.).



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Case Study 6

Markhor and Urial in Pakistan

The Torghar Conservation Project in Pakistan was initiated by local Pathan tribal leaders in the mid-1980s concerned that uncontrolled illegal hunting for food had greatly reduced populations of both the Suleiman (straight-horned) Markhor (< 100 animals) and the Afghan Urial (around 200). After unsuccessfully petitioning the government to protect the populations, the local leaders developed the Torghar Conservation Project based on a simple concept: local Pathan tribesmen would give up hunting in exchange for being hired as game guards to prevent poaching, and the project would be financed by revenues derived from a limited trophy hunt of Markhor and Urial by foreign hunters. The area covers about 1,000 sq km inhabited by about 4,000 tribal people. Between 1986 and 2012, hunting of these two species generated US\$486,400 for the provincial government and US\$2,712,800 for the local community, the latter covering salaries of more than 80 game guards,

funding various community projects including schools and healthcare facilities, and supporting actions to reduce grazing competition with livestock. Illegal hunting declined dramatically: as of 2012 the Markhor population had grown to an estimated 3,500, while a 2005 survey of Urial estimated 2,541 (Johnson, 1997; Woodford et al., 2004; Frisina and Tareen, 2009; Mallon, 2013).

Similar examples exist elsewhere in Pakistan. Community-based conservancies using trophy hunting in the regions Khyber-Pakhtunkhwa and Gilgit-Baltistan have led to the recovery and substantial increase of Markhor populations. These developments have contributed to the recent improvement of the conservation status of Markhor in the IUCN Red List, and it is no longer listed as threatened. Stable and increasing populations are limited to areas with sustainable hunting and protected areas (Michel and Rosen Michel, 2015).

Case Study 7

Markhor in Tajikistan

In the mid-90s fewer than 350 Tajik Markhor inhabited southern Tajikistan. Around 2004, several traditional local hunters, concerned that the Markhor population would go extinct due to widespread poaching, established small enterprises dedicated to Markhor conservation and future sustainable use. Trophy hunts yield ca. US\$100,000 per Markhor. Today, based on revenues from trophy hunting, four community-based conservancies

(run by three family enterprises and one community-based NGO) successfully lead the recovery of the Markhor, with local people employed as guards and various community development projects funded. A range-wide survey conducted in 2014 recorded 1,300 Markhor (Alidodov et al., 2014). This success is spawning the creation of more conservancies based on trophy hunting in the region (Michel and Rosen, in press; S. Michel, pers. comm.).

Case Study 8

Benefits to non-target threatened species

Revenues from trophy hunting are also important for conserving threatened species that are not hunted. Populations of Black Rhino and White Rhino and of the African Wild Dog on the Savé and Bulyebe Conservancies in Zimbabwe are not hunted, but proceeds from trophy hunting support their conservation. In the Pamirs in Tajikistan, trophy hunting concessions for Argali and ibex are showing higher densities of the threatened Snow Leopard than nearby areas without trophy hunting,

likely due to higher prey densities and reduced poaching (Kachel, 2014). Likewise, high densities of Snow Leopard have been recorded in one Markhor conservancy (Rosen 2014). The threatened Grizzly Bear population of the Yellowstone National Park region in the United States has benefitted from the retirement of areas of land from livestock grazing—and thus reduced bear-livestock conflicts—partially paid for by Bighorn Sheep hunting revenues (K. Hurley (Wild Sheep Foundation), pers. comm.).

Case Study 9

Revenues for government wildlife agencies, including for anti-poaching

Even where there are clear and serious failures in hunting management, hunting may generate an important actual or potential revenue stream for conservation in the face of increasing threats of poaching and habitat loss. In Tanzania, for example, many commentators have highlighted serious weaknesses in hunting governance requiring deep reforms, including corruption in the distribution of revenues and other practices, unsustainable quotas, and poor law enforcement (Nelson, Lindsey and Balme, 2013). While this is not a “good practice” example, it clearly illustrates some of the complexity of the conservation costs and benefits of hunting in specific circumstances.

Financial Year (July/June)	Tourist Hunting	Photographic Tourism
2009/2010*	18,444,881.00	2,706,603.00
2010/2011*	23,536,347.00	2,863,287.24
2011/2012*	15,062,217.75	2,080,978.00
2012/2013*	15,917,430.93	3,904,808.35
2013/2014**	16,723,425.00	5,016,703.03
2014/2015**	16,277,373.00	4,736,187.00
2015/2016 (until January 2016)**	11,215,723.47	3,041,225.00

Table 1 Revenue from trophy hunting and photographic tourism accrued to the Wildlife Division in Tanzania from lands under its jurisdiction (in US\$).

Source: *MNRT 2013; **figures provided by Tanzania Wildlife Division.

Tanzania has approximately 305,000 km² set aside as wildlife land managed as hunting blocks (including Game Reserves, Wildlife Management Areas, and other reserve types). Due to the fact that some hunting blocks are vacant, the area currently leased for hunting is estimated at 210,000 km² (V. Booth and M. Pani, *In litt.*, based on analysis of official records provided by Tanzania Wildlife Division).

Hunting generates the bulk of the income raised in direct revenues by Tanzania's Wildlife Division from these lands, via a variety of fees (set out in the *Wildlife Conservation (Tourist Hunting) Regulations 2015*) (see Table 1). Revenue from hunting constituted approximately 16,277,373.00

USD in 2014/2015 (US\$80/km² in the leased area). While most of these revenues are returned to central Treasury, 25% is directed into the Tanzania Wildlife Protection Fund (TWPF, 2016), established by statute to carry out wildlife protection and conservation activities including anti-poaching. According to the official TWPF website, these hunting revenues generate around three-quarters of its funding for these activities (TWPF, 2016).

If these revenues were not replaced by alternative means, expenditures on anti-poaching and other critical management activities would presumably sharply decrease.

Selous Game Reserve illustrates a special case. It has, over the last decade, suffered devastating levels of organised commercial elephant poaching for the illegal ivory trade, associated with serious allegations of official corruption and complicity and suggestions from some quarters of involvement of elements of the hunting industry. However, the Selous retention scheme (recently re-established) provides for the re-investment of 50% of revenues raised from hunting in the Reserve into conservation and anti-poaching activities to protect the Reserve's wildlife. Benson Kibonde, chief warden in Tanzania's Selous Game Reserve during 1994–2008 and 2012–2015, and responsible for leading two major anti-poaching initiatives, recently expressed serious concerns about the impacts of import bans on hunted ivory trophies on field level anti-poaching activities. He saw these as problematic not only because of heavy practical involvement of hunting companies in anti-poaching activities, but because “85% of the Selous retention scheme funds come from hunting. If any amount of the hunting revenue is compromised, the registered success in anti-poaching efforts could be seriously jeopardized” (Kibonde, 2015; p. 45).

Note that the revenues raised for conservation from hunting can be likewise important in developed countries (see Case Study 3). For instance, they form the bulk of wildlife management agencies' budgets in the USA and Canada (Heffelfinger et al., 2013; Mahoney, 2013).

Case Study 10

Polar Bears in Canada

Several hundred Polar Bears are harvested annually in northern Canada, the large majority for subsistence and the remainder for trophy hunts (with meat used for subsistence). The largest harvest of Polar Bears occurs in the territory of Nunavut, which harbors 50–60% of the world's population. At least nine Nunavut indigenous communities offer Polar Bear trophy hunts. Inuit have constitutionally protected rights under land claim agreements to co-manage wildlife. Most communities number a few hundred inhabitants. Income levels are generally low and unemployment rates very high. The Polar Bear harvest is based on quotas that are updated annually through a co-management system that integrates the best available scientific and traditional ecological knowledge. Community members decide how to allocate the quota between subsistence hunts and trophy hunts, with all meat from either used locally (Freeman and Wenzel, 2006; Shadbolt et al., 2012).

Communities work with hunting outfitters to attract hunters, usually from Canada or the United States. All trophy hunters are accompanied at all times by Inuit guides, with all transport and hunting conducted in the traditional method with a dogsled. Depending on the length of the hunt and other factors, hunting clients pay around US\$20,000 – \$50,000 to the outfitters, of which roughly half, US\$10,000–\$25,000, enters the northern communities. Almost all of the fees paid by the trophy hunter go to the Inuit outfitter, guide and assistants for

their services and to maintain equipment used for both trophy and subsistence hunting. In accordance with the clan-sharing culture of Inuit society, community members recognize that these same people are the best providers of fresh food. In the community of Clyde River on Baffin Island, for example, each trophy-hunting guide harvested an average of ten times more food that was shared with community members than was harvested by hunters who were not guides (Foote and Wenzel, 2009; Shadbolt et al., 2012).

Inuit communities in Nunavut are already feeling the livelihood impacts of import bans, which nonetheless have had no effect on harvest levels. Approximately 400–500 Polar Bears were harvested annually in Nunavut during 2000–2012. In 2008, the United States listed the Polar Bear as endangered and banned the import of Polar Bear trophies. Before 2008, the U.S. accounted for the large majority of trophy hunters; after 2008 they accounted for none to a few annually. The U.S. ban had no obvious effect on the total harvested, but the proportion of the total taken by trophy hunters dropped from an average of 91 from 2003/4–2007/8 to 35 from 2008/9–2010/11, and the subsistence harvest increased accordingly (Shadbolt et al., 2012; Weber et al., 2015). Using a conservative value of \$15,000 per trophy-hunted bear, this represents a reduction of at least \$840,000 annually from trophy hunting for these Nunavut communities (excluding gratuities).



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