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The baby and the bathwater: trophy hunting, conservation and rural livelihoods

*R. Cooney, C. Freese, H. Dublin, D. Roe, D. Mallon, M. Knight, R. Emslie, M. Pani,
V. Booth, S. Mahoney and C. Buyanaa*

There is substantial evidence that the controversial practice of trophy hunting can produce positive outcomes for wildlife conservation and local people.

Rosie Cooney is Chair of the International Union for Conservation of Nature (IUCN) Commission on Environmental, Economic and Social Policy (CEESP)/Species Survival Commission (SSC) Sustainable Use and Livelihoods Specialist Group and Visiting Fellow at the University of New South Wales, Australia.

Curtis Freese, Marco Pani and **Vernon Booth** are independent consultants and members of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

Holly Dublin is Chair of the IUCN SSC African Elephant Specialist Group, Senior Advisor at the IUCN East and Southern Africa Regional Office, and a member of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

Dilys Roe is Principal Researcher and Team Leader (Biodiversity) at the International

Institute for Environment and Development and a member of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

David Mallon is Co-chair of the IUCN SSC Antelope Specialist Group and a member of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

Michael Knight is Co-chair of the IUCN SSC African Rhino Specialist Group and a member of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

Richard Emslie is Scientific Officer with the IUCN SSC African Rhino Specialist Group. **Shane Mahoney** is Chief Executive Officer at Conservation Visions and Deputy Chair for North America of the IUCN CEESP/SSC Sustainable Use and Livelihoods Specialist Group.

Chimeddorj Buyanaa is Conservation Director at the WWF Mongolia Programme Office.

Trophy hunting is the subject of intense debate and polarized positions, with controversy and deep concern over some hunting practices and their ethical basis and impacts. The controversy has sparked moves at various levels to end or restrict trophy hunting, including through bans on the carriage or import of hunting trophies. In March 2016, for example, a group of members of the European Parliament called (unsuccessfully) for the signing of a Written Declaration calling for examination of the possibility of restricting all imports of hunting trophies into the European Union.

Above: Elephants bathe in the Chobe River, Botswana

Although there is a pressing need for the reform of hunting governance and practice in many countries, calls for blanket restrictions on trophy hunting assume that it is uniformly detrimental to conservation; such calls are frequently made based on poor information and inaccurate assumptions. Here we explain how trophy hunting, if well managed, can play a positive role in supporting conservation as well as local community rights and livelihoods, and we provide examples from various parts of the world. We highlight the likely impact of blanket bans on trophy hunting and argue for a more nuanced approach to much-needed reform.

WHAT IS TROPHY HUNTING?

Here we define trophy hunting as hunting carried out on a recreational basis (i.e. not “subsistence” hunting carried out as part of basic livelihood strategies) targeting animals with specific desired characteristics (such as large size or antlers). Trophy hunting generally involves the payment of a fee by a foreign or local hunter for an (often guided) experience for one or more individuals in hunting a particular species with desired characteristics. The hunter generally retains the antlers, horn, tusks, head, teeth or other body parts of the animal as a memento or “trophy”, and the local community or the hunter usually uses the meat for food. Trophy hunting takes place in most countries of Europe, the United States of America, Canada, Mexico, several countries in East, Central and South Asia, around half the 54 countries in Africa (Booth and Chardonnet, 2015), several countries in Central and South America, and Australia and New Zealand.

We note, however, that the term “trophy hunting” can be misleading. Hunting takes many forms, and hunters have diverse motivations. Gaining trophies may be a minor or incidental motivation for some hunters, who may also be motivated by, for example, the prospect of obtaining food; managing a population in order to conserve other species of plants or animals

or to enable forest regeneration; being in nature; continuing a culturally important or traditional set of practices; and interacting with family and friends. In many contexts, trophy hunting overlaps substantially with hunting for food. Many deer hunters, for example, may hunt animals with larger antlers if encountered, but will hunt others (for meat) should the desired animal not be found.

A wide variety of species is subject to trophy hunting, from common to threatened. Most are native, but some (e.g. deer in Australia and New Zealand) are introduced. The hunting of introduced species constitutes a small proportion of hunting and raises different conservation issues to those associated with the hunting of native species; it is not discussed further in this article.

Although there is a tendency for the media and decision-makers to conflate “canned” hunting (hunting of usually captive-bred animals in enclosures from which they are unable to escape, or of recently released animals unfamiliar with the area) with legitimate trophy hunting, canned hunting is a limited practice (primarily involving lions in South Africa) and is condemned by major professional hunting organizations. It raises different issues to those associated with the hunting of free-ranging animals and is not discussed further in this article.

Trophy hunting is also frequently (and incorrectly) conflated with poaching for the organized international illegal wildlife trade that is devastating many species, including the African elephant (*Loxodonta africana*) and African rhinos (black – *Diceros bicornis* – and white – *Ceratotherium simum*). Trophy hunting typically takes place as a legal, regulated activity under programmes implemented by government wildlife agencies, protected-area managers, indigenous or local community bodies, private landowners or conservation or development organizations, whereas poaching for the illegal wildlife trade is – by definition – illegal and unmanaged. Poaching for the illegal wildlife

trade is generally far more damaging in both scale and demographic impact, with breeding females and calves often killed. In Africa, for example, 1 342 African rhinos (including both species) were reported poached in 2015 – almost 20 times more than the 69 that were hunted legally that year (Emslie *et al.*, 2016). All revenue from poaching for the illegal wildlife trade flows to criminals; on the other hand, revenues from legal hunting are used in a number of cases to fund law enforcement or provide community benefits that counter the incentives to engage in illegal wildlife trade (see, for example, case studies 1, 2 and 4 later in this article).

In some contexts, all decisions on hunting quotas, species and areas are made by government wildlife agencies (for example in the United States of America – case study 3). In many trophy-hunting governance systems, however, local landowners and community organizations participate alongside governments in deciding these questions and sometimes are the key decision-makers, at least for some species (e.g. in Namibian communal conservancies – see case study 5).

This is not to say that no illegal practices take place – as, to a certain extent, they do in most sectors. Widespread anecdotal reports indicate that regulatory weaknesses and illegal activities exist in the trophy-hunting sector in some countries, sometimes at a very serious scale and sometimes involving official corruption. Such activities include hunting in excess of quotas or in the wrong areas, the taking of non-permitted species, and “pseudo hunting” (case study 1).

The prices paid for trophy hunts vary enormously, from the equivalent of hundreds to hundreds of thousands of United States dollars; at a global scale, such hunts involve a substantial revenue flow from developed to developing countries (e.g. Booth, 2009; Saayman, van der Merwe and Rossouw, 2011). In developing countries, landowners and land managers often negotiate with hunting operators (or “concessionaires”) to decide who will get the

hunting right or concession on their land, and on what terms. Terms may include (and, in some countries, *must* include, if on state land) obligations to carry out anti-poaching and community development activities. The operator, in turn, secures contracts with foreign clients and runs the hunting trips. The fees paid by hunters generally include three things:

1. the operator's costs (where applicable);
2. payments to the local entity (e.g. community, private or state landowner or land manager) with which the operator has the contract; and
3. official government payments of various types (e.g. permits and fees), which typically help finance wildlife management and conservation activities.

In developing countries, generally 50–90 percent of the net revenues (excluding operator costs) are allocated to local entities, with the remainder going to government authorities. The local community benefit can be as high as 100 percent and as low as nearly zero. Meat from hunts is often donated or sold to local community members and can be highly valued locally (Naidoo *et al.*, 2016). In most countries in Europe and North America, a share of hunters' fees usually goes to governmental wildlife authorities to help finance wildlife management and conservation activities.

WHAT IMPACTS DOES TROPHY HUNTING HAVE ON CONSERVATION?

Trophy hunting takes place in a wide range of governance, management and ecological contexts and, accordingly, its impacts on conservation vary enormously, from negative through neutral to positive. Good evidence on the impacts is lacking or scarce in many contexts, making it impossible to fully evaluate the overall effect of trophy hunting.

Negative conservation impacts of poorly managed trophy hunting may include over-harvesting; artificial selection for rare or exaggerated features (e.g. abnormal colour morphs); genetic or phenotypic impacts

(such as reduced horn size); the introduction of species or subspecies beyond their natural ranges (including into other countries); and predator removal.

It is clear, however, that, given effective governance and management, trophy hunting can and does have positive impacts (as shown in the six case studies in this article). Habitat loss, fragmentation and degradation, driven primarily by the 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. Demands for food, income and land for development are rising in many biodiversity-rich parts of the world, exacerbating threats to wildlife and increasing the urgency of finding viable conservation incentives.

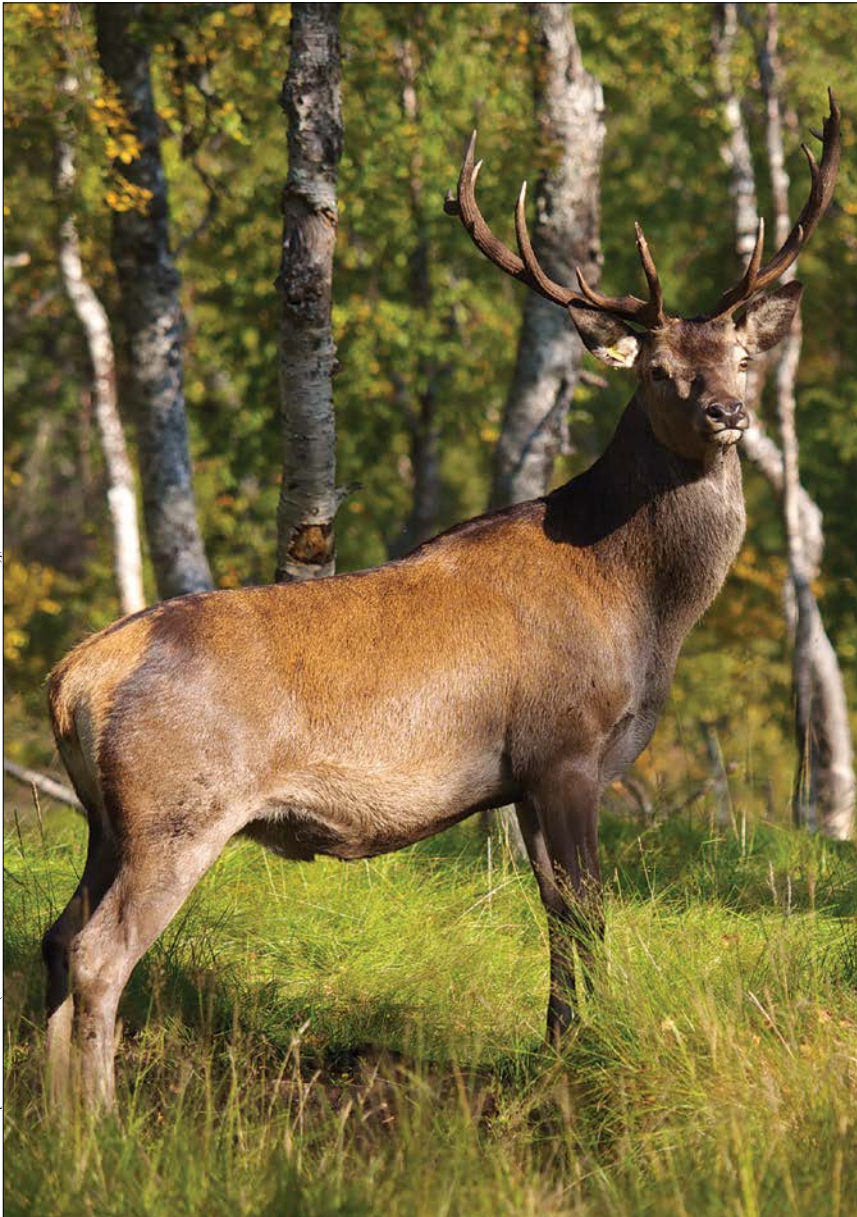
Well-managed trophy hunting can be a positive driver of conservation because it increases the value of wildlife and the habitats it depends on, providing crucial benefits that can motivate and enable sustainable management approaches. Trophy-hunting programmes can have the following positive impacts:

- **Generate incentives for landowners (e.g. government, private individuals and communities) to conserve or restore wildlife on their land.** Benefits to landowners from hunting can make wildlife an attractive land-use option, encouraging landowners to maintain or restore wildlife habitat and populations, remove livestock, invest in monitoring and management, and carry out anti-poaching activities. Policies enabling landowners to benefit from sustainable wildlife use have led to the total or partial conversion of large areas of land from livestock and cropping back to wildlife in, for example, Mexico, Namibia, Pakistan, South Africa, the United States of America and Zimbabwe (case studies 1 and 3–6). This benefit applies to state protected areas as well as to private lands. In

sub-Saharan Africa, lands set aside for wildlife in hunting concessions cover as much land (or more) as national parks (Lindsey, Roulet and Romañach, 2007) and are often part of national protected-area systems (usually in IUCN categories IV and VI).¹ Given the intense and escalating pressures on land in developing countries, particularly to produce food, the future of these lands and the wildlife that inhabit them would be highly uncertain without the benefits flowing from wildlife management.

- **Generate revenue for wildlife management and conservation, including anti-poaching activities, for governmental, private and communal landholders** (see case studies 1–6). In most regions, government agencies depend at least in part on revenues from hunting to manage wildlife and protected areas. State wildlife agencies in the United States of America, for example, are funded primarily by hunters (both trophy and broader recreational hunting) through various direct and indirect mechanisms, including the sale of trophy-hunting permits (Heffelfinger, Geist and Wishart, 2013; Mahoney, 2013). The extent of the world's gazetted protected areas, many of which are in IUCN categories IV and VI and include hunting areas, could decline significantly if hunting areas were to become inoperable. Private landowners 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

¹ The aim of IUCN Protected Area Category IV areas ("habitat/species management areas") is to protect particular species or habitats, and management reflects this priority. The aim of IUCN Protected Area Category VI areas ("protected areas with sustainable use of natural resources") is to conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems (IUCN, 2017).



Hunting for food and trophies overlaps for species such as red deer (*Cervus elaphus*)

The incentives and revenues from trophy-hunting programmes are not just important for the conservation of hunted species: site protection exercises a “biodiversity umbrella” effect and may help conserve non-hunted species, too. Populations of African rhinos and the African wild dog (*Lycaon pictus*) in the Savé and Bubyé conservancies in Zimbabwe are not hunted, but proceeds from trophy hunting support their conservation (case study 4). In the Pamirs in Tajikistan, trophy-hunting concessions for argali (*Ovis ammon*) and ibex (*Capra ibex*) (wild sheep and goats) are showing higher densities of the threatened snow leopard (*Panthera uncia*) than nearby areas without trophy hunting, likely due to higher prey densities and reduced poaching (Kachel, 2014). High densities of snow leopard have also been recorded in a markhor (*Capra falconeri*) conservancy (Rosen, 2014). In the United States of America, the threatened grizzly bear (*Ursus arctos*) population in the Yellowstone National Park region has benefited from the retirement of areas of land from livestock grazing and thus reduced bear–livestock conflicts, paid for partly by revenues from trophy hunting for bighorn sheep (*Ovis canadensis*) (K. Hurley, personal communication, 25 February 2016).

Concern is frequently expressed that trophy hunting is driving declines of iconic African large mammals such as the elephant, rhino and lion (*Panthera leo*). Although there is evidence in a small number of cases – particularly concerning the lion – that unsustainable trophy hunting has contributed to declines (e.g. Loveridge *et al.*, 2007; Packer *et al.*, 2011), it is not considered a primary threat to any of these species and is typically a negligible or minor threat to African wildlife populations (Lindsey, 2015). The primary causes of current and past population declines

wildlife (case studies 1 and 5). Revenues from trophy-hunting operations in Mongolia, Pakistan and Tajikistan are used to pay local guards to stop poaching and to improve habitat for game animals (case studies 2 and 6). Trophy-hunting operators and the patrols they directly organize, finance and deploy can reduce poaching (Lindsey, Roulet and Romañach, 2007).

- **Increase tolerance of wildlife and thereby reduce illegal**

wildlife killings and human–wildlife conflicts. Retaliatory killings and local poaching are common when wildlife imposes serious costs on local people – such as the loss of crops and livestock and human injury or death – and there are no legal means for people to benefit from it. This is a particularly important factor in Africa, where elephants and other species destroy crops and where large cats kill humans and livestock.

of the large mammals subject to trophy hunting – such as the African elephant, African buffalo, white rhino, black rhino, zebra (*Equus zebra* and *E. quagga*), argali, ibex, bighorn sheep and various deer and bear species – are habitat loss and degradation, competition with livestock, illegal or uncontrolled poaching for meat and trade in animal products (e.g. ivory and horn), and retribution killings in human–wildlife conflicts (Schipper *et al.*, 2008; Ripple *et al.*, 2015). For lions, the most important causes of population declines are indiscriminate killing in defence of human life and livestock, habitat loss, and prey-base depletion (usually from poaching) (Bauer *et al.*, 2015). For many of these species, as noted in the case studies, well-managed trophy hunting can promote population recovery and protection and help in maintaining habitats.

TROPHY HUNTING AND INDIGENOUS AND LOCAL COMMUNITY RIGHTS AND LIVELIHOODS

The contributions of trophy hunting to the livelihoods of indigenous peoples and local communities vary enormously by context

Lions: trophy hunting is not considered a primary threat to their conservation and can generate benefits

and region. In many cases, 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, with most value captured by hunting operators or government agencies. In a significant number of trophy-hunting programmes, however, it is clear that indigenous peoples and local communities have freely chosen to use trophy hunting as a way of generating incentives and revenues for conserving and managing their wildlife and improving their livelihoods (case studies 2, 3, 5 and 6). In many other cases, communities have less decision-making power over trophy hunting but nevertheless gain a share of hunting revenues (see Lindsey *et al.*, 2013). Communities can benefit from trophy hunting through hunting-concession payments or other hunter investments, which typically provide improved community services such as water infrastructure; schools and health clinics; jobs as guides, game guards, wildlife managers and other hunting-related employment; and greater access to game meat. Typically, indigenous and local communities in and around hunting areas are very poor, with few sources of income and sometimes no other legal source of meat.

TROPHY HUNTING IN ACTION: CASE STUDIES OF POSITIVE IMPACTS

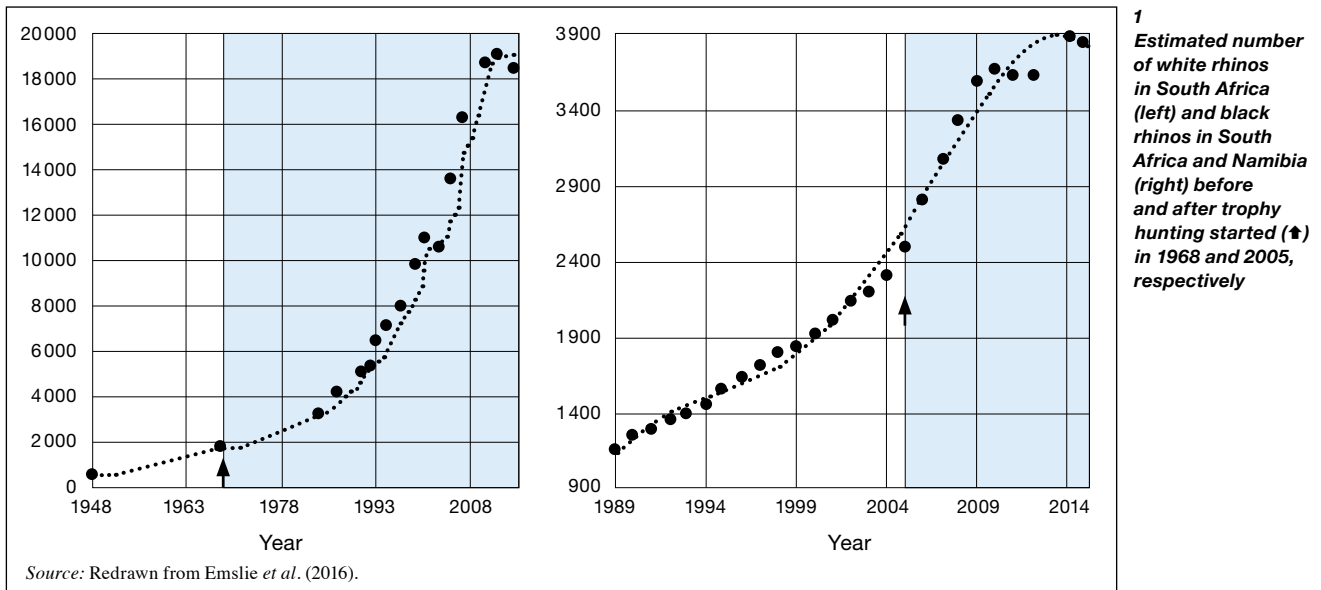
In the intense ongoing debate over trophy hunting, broad statements are often made suggesting that all trophy hunting threatens conservation or is driving declines in species. For this reason, and because many of these examples are not widely known, we set out here a number of case studies where trophy hunting is generating positive benefits for conservation and community rights and livelihoods. Although examples of poor approaches to trophy hunting also exist and deserve similar scrutiny, these typically involve illegal or non-transparent behaviour, making verifiable information difficult to obtain.

Case study 1. Rhinos in Namibia and South Africa

The history of rhino hunting in Namibia and South Africa demonstrates clearly its sustainability in terms of population numbers. Since trophy-hunting programmes were introduced for white rhino in South Africa, numbers have increased from around 1 800 individuals in 1968 to just over 18 400 today (Emslie *et al.*, 2016; Figure 1), with many more individuals also reintroduced to other countries in the species' natural range. Since the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)



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approved limited hunting quotas for black rhino in late 2004, the number of individuals in Namibia and South Africa has increased by 67 percent, from about 2 300 in 2004 to about 3 900 today (Figure 1). As of the end of 2015, Namibia and South Africa hosted 90 percent of Africa's total black and white rhino population.

Hunting has played an integral role in the recovery of the white rhino by providing incentives for private and communal landowners to maintain the species on their lands; generating income for conservation and protection; and helping manage and promote the recovery of populations.

In South Africa, the limited trophy hunting of rhinos, combined with live sales and tourism, has provided an economic incentive to encourage more than 300 private landowners to build their collective herd to about 6 140 white rhinos and 630 black rhinos on 49 private or communal landholdings, representing around 1.7 million hectares of conservation land – equivalent to almost another Kruger National Park (Balfour, Knight and Jones, 2016; Emslie *et al.*, 2016). The contribution of trophy hunting to increasing the range and numbers of these iconic species, therefore, is significant (and increasing).

Many private reserves rely heavily on trophy hunting and the sale of white rhinos

(to other reserves) to cover operating costs. For example, one self-funded South African reserve manages an increasing population of 195 white rhinos and many other species.² An analysis of eight years of data showed that only about 18 percent of that reserve's total operating costs was generated from tourism, with trophy hunting generating the bulk (63 percent) of income needed to fund operations. The reserve allocates all the proceeds from rhino hunting to rhino protection and conservation management. The reserve manager has noted that a recent ban on lion-trophy imports by the United States of America has already caused the cancellation of some hunts, with a negative impact on income for conservation (M. Knight, R. Emslie and K. Adcock, personal communication, 18 March 2016).

Increasing security costs and risks due to escalating poaching and declining economic incentives have resulted in a worrying trend, in which some private landowners and managers are no longer keeping rhinos; if this trend continues, it could threaten the expansion of the species' ranges and numbers. Import

² The identity of this reserve is known to the IUCN SSC African Rhino Specialist Group (a highly credible and trusted authority), but we do not reveal it here for rhino security reasons.

restrictions that threaten the viability of hunting would likely further reduce incentives and exacerbate the trend.

Hunting may also directly contribute to population growth by removing males that might (for example) kill or compete with calves and females. The hunting of small numbers of specific individual "surplus" male black rhinos is approved in South Africa only if criteria set out in the country's black rhino biodiversity management plan are met to ensure that hunting furthers demographic and genetic conservation. Generating revenue for conservation is a bonus rather than the main driver of this hunting.

In recent years, "pseudo hunters" have used legal trophy hunting to access rhino horn for illegal sale in Southeast Asia, driving a spike in the number of individuals hunted to a high of 173 in 2011. The introduction of control measures in South Africa in 2012, however, has brought the number of white rhinos hunted back down to previous levels (Emslie *et al.*, 2016).

Case study 2. Argali in Mongolia

Trophy hunting became legal in Mongolia in 1967, with argali, particularly the Altai argali (*Ovis ammon ammon*), the country's most highly valued trophy animal. An inadequate management framework,

however, led to largely unmanaged, open-access hunting. Argali populations declined significantly, possibly with additional pressure arising from competition with a rapidly growing domestic goat population (Page, 2015; Wingard and Zahler, 2006).

WWF Mongolia initiated a community-based wildlife management project in the Uvs administrative region in northwest Mongolia in 2007. The objective was to replace uncontrolled open-access use with community wildlife management by seven local groups, with revenues to be generated by trophy hunting, mainly of the Altai argali. The 12.7 million-hectare Gulzat Local Protected Area was established and an initial ban on hunting was put in place to enable population restoration. With protection from local herders, the population grew from about 200 in the years immediately preceding the ban to more than 1 500 in 2014 (Figure 2). This growth continued as managed hunting was initiated. Twelve Altai argali were harvested in the four years following the lifting of the ban, generating around US\$123 400 in income at the local level (C. Buyanaa, personal communication, 2 March 2016).

Hunting is managed by the Gulzat Initiative, a non-governmental organization formed entirely of local community members, with guidance from experts in wildlife management, including certain hunting companies. Trilateral contracts between hunting companies, the Gulzat Initiative and the district governor enhance transparency and accountability (C. Buyanaa, personal communication, 28 January 2016).

Recent legal developments in Mongolia have established a sound basis for community-based wildlife management, informed by experiences from communal conservancies in Namibia (see case study 5).

Case study 3. Bighorn sheep in North America

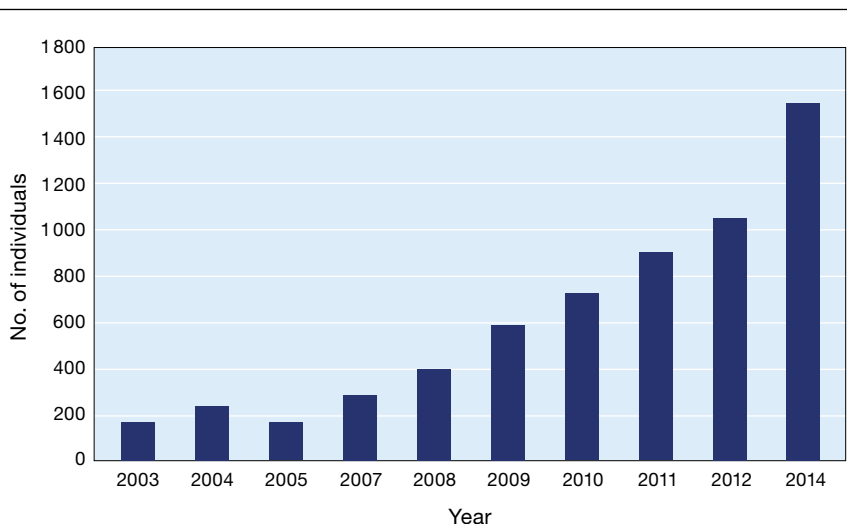
Euro-American settlement and the corresponding surge in livestock numbers and uncontrolled hunting led to a rapid decline in bighorn sheep in North America, from roughly 1 million individuals in 1800 to fewer than 25 000 in 1950. Since then, based primarily on more than US\$100 million contributed by 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 (Hurley, Brewer and Thornton, 2015).

Restoration of the bighorn sheep population in Canada and the United States of America was brought about largely by hunters working with provincial and state wildlife agencies to support research, habitat acquisition and management. In the American state of Wyoming, for example, auctions of bighorn sheep hunting tags yield approximately US\$350 000 annually, of which 70 percent goes to conserving bighorn sheep and 10 percent goes to the conservation of other wildlife. These funds were used to cover approximately one-third of the more than US\$2 million paid to producers of domestic sheep to voluntarily remove sheep from 187 590 hectares of public grazing lands (with the other two-thirds of the cost met from fees paid by other hunting, fishing and wildlife groups; K. Hurley, personal communication, 23 February 2016).

Indigenous-managed trophy hunting has also driven recoveries of bighorn sheep in Mexico. In 1975, 20 individuals were reintroduced to Tiburon Island in the Sea of Cortez, an island owned and managed by Seri Indians. The original cause of the extinction of the species on the island is unknown, but the population grew quickly after reintroduction to around 500, probably the island's carrying capacity. In 1995, a coalition of institutions initiated a programme to fund bighorn sheep research and conservation while providing needed income for the Seri through the international auctioning of exclusive hunting permits on the island.

Initially, permits often garnered 6-figure bids (in US dollars). From 1998 to 2007, the Seri Indians earned US\$3.2 million from bighorn sheep hunting permits and the sale of young animals for translocation – funds that were reinvested in Seri



Note: Population figures are the numbers of animals observed in annual transect and point surveys, with a low likelihood of animals being counted more than once; figures therefore represent minimum estimates.

Source: Chimeddorj Buyanaa, WWF Mongolia, unpublished data.

2

Population counts for Altai argali in the Gulzat Local Protected Area, Mongolia



A bighorn sheep, New Mexico, United States of America

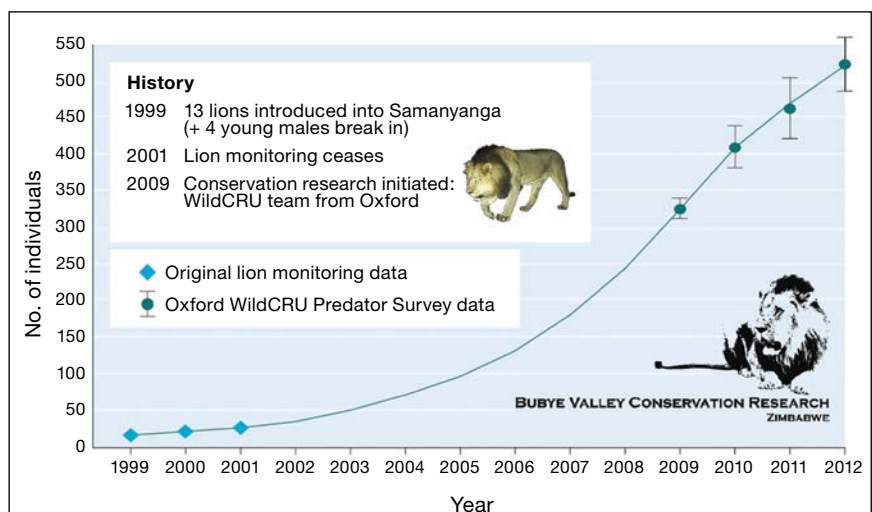
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community projects, the management of the bighorn sheep population, and the maintenance of the island in an undisturbed state. The funding of the island's conservation through trophy hunting continues, with the Seri recently selling permits for US\$80 000–90 000 each. The island has also been an important source population for the re-establishment of bighorn sheep populations in the Sonoran Desert and elsewhere on the mainland. Many ranchers in the Sonoran Desert have greatly reduced or eliminated livestock to focus on wildlife because of the substantial revenues that can be generated from trophy hunting for bighorn sheep and mule deer (*Odocoileus hemionus*) (Valdez *et al.*, 2006; Wilder *et al.*, 2014; Hurley, Brewer and Thornton, 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 in the wildlife sector from

game ranching as the hobby of a few dozen ranchers to, by 2000, some 1 000 landowners conserving 2.7 million hectares of wildlife land, with trophy hunting a primary driver of this change (Child, 2009;



3
The lion population in the privately owned Buby Valley Conservancy, Zimbabwe, 1999–2012

Note: The privately owned Buby Valley Conservancy is on land previously used for farming and depends on trophy hunting to fund wildlife conservation. Samanyanga is an area in the east of the conservancy on the banks of the Buby River.

Lindsey, Romañach and Davies-Mostert, 2009). The number of landholders involved and the area of wildlife land conserved have since declined significantly under the land reform programme; nevertheless, despite the challenging economic conditions in the country today, private conservancies continue to play a crucial role in conservation. The two conservancies described below both rely on trophy hunting as the primary source of revenue and would be unviable without it. Both have made efforts to attract nature-based tourism that does not include hunting (often referred to as photographic tourism), but this does not contribute significant revenue (Zimbabwe's political instability has had far more impact on photographic tourism than on hunting tourism).

The Savé Valley Conservancy (SVC), covering 344 000 hectares, 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, buffaloes and lions (among other species) in the area. Today,

SVC has around 1 500 African elephants, 121 black and 42 white rhinos, 280 lions and several packs of 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, personal communication, 9 February 2016; Sango Wildlife, undated).

The 323 000-hectare Buby Valley Conservancy (BVC), also a converted cattle ranch, now has roughly 500 lions (Figure 3), 700 African elephants, 5 000 African buffaloes, 82 white rhinos and, at 211, the third-largest black rhino population in Africa. Trophy fees in 2015 generated US\$1.38 million. BVC employs about 400 people and invests US\$200 000 annually in community development projects (BVC, undated; B. Leatham, personal communication, 17 January 2016).

Note that the revenues generated by trophy hunting protect and benefit many non-hunted species in these ranches, such as the black rhino, white rhino and African wild dog.

Case study 5. Communal conservancies in Namibia

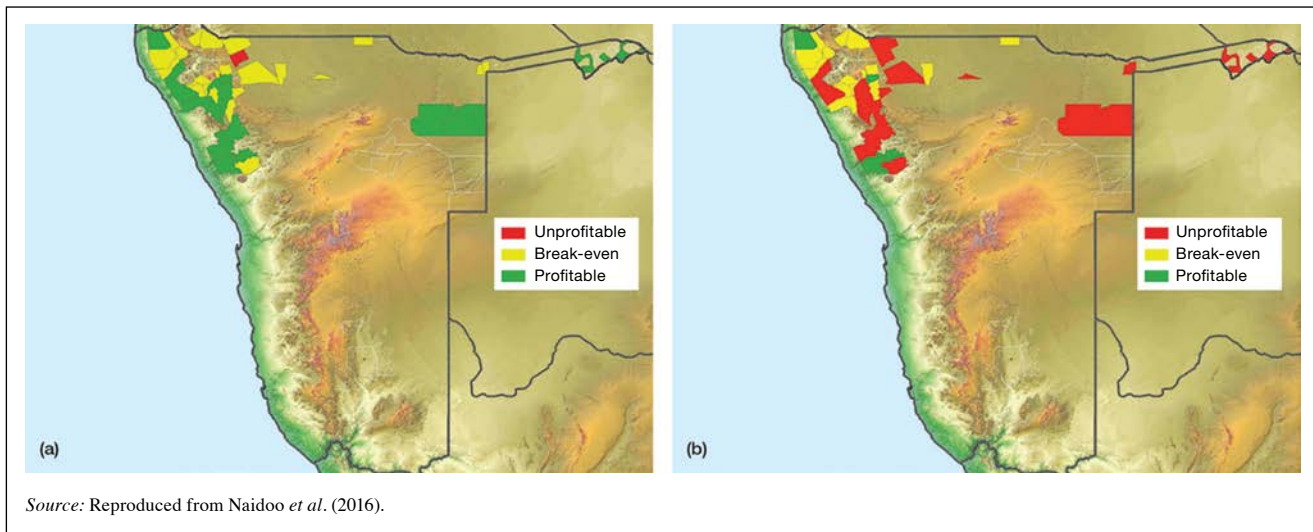
In the early 1990s, many residents of Namibian communal lands viewed wildlife species as detrimental to their livelihoods because they destroyed crops and water installations and killed or injured livestock and people. In 2015, 82 communal conservancies managed 1.6 million hectares for conservation, lands that are also home to around 190 000 people, including indigenous and tribal communities (NACSO, 2015).

Trophy hunting has underpinned Namibia's success 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 wildlife populations and local benefits would both decline dramatically (Naidoo *et al.*, 2016; Figure 4).

Overall, conservancies generate around half their benefits (e.g. cash income for individuals or communities; meat; and social benefits like schools and health clinics) from photographic tourism and half from hunting. Much of the revenue is reinvested into the management and protection of wildlife. Around half the conservancies gain their benefits solely from hunting, with most of the rest deriving parts of their incomes from hunting alongside tourism. Only 12 percent of conservancies specialize in tourism (Naidoo *et al.*, 2016). Revenues from trophy hunting for 29 wildlife species in conservancies totalled NAD36.4 million (about US\$2.7 million) in 2015 (NACSO, 2015). Communities directly receive payments of about US\$20 000 for each elephant hunted, plus about 3 000 kg of meat (Chris Weaver, personal communication, 18 January 2016).



White rhino: under threat from poaching, but trophy hunting can be beneficial for conservation. This rhino is in the Thanda Private Game Reserve, South Africa



Wildlife populations have shown dramatic increases in Namibia since the beginning of the communal conservancy programme. On communal lands in the northeast, the population of the sable antelope (*Hippotragus niger*) increased from 724 in 1994 to 1 474 in 2011, and the impala (*Aepyceros melampus*) population grew from 439 to 9 374 over the same period. In the conservancy region in the northwest, the population of the threatened Hartmann's mountain zebra (*Equus zebra hartmannae*) increased from fewer than 1 000 individuals in the early 1980s to an estimated 27 000 in 2011, and the number of black rhinos 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 led to an increase in the population of elephants from around 7 500 in 1995 to more than 20 000 today. The Kunene Conservancy's lion population grew from roughly 25 in 1995 to 150 today, and Namibia now has a large free-roaming lion population outside national parks (NACSO, 2015; C. Weaver, personal communication, 18 January 2016).

Case study 6. Markhor and urial in Pakistan

In Pakistan in the mid-1980s, local Pathan tribal leaders were concerned

that uncontrolled illegal hunting for food had greatly reduced populations of both the Suleiman (straight-horned) markhor (*Capra falconeri megaceros*) (<100 individuals) and the Afghan urial (*Ovis orientalis*) (around 200 individuals). After unsuccessfully petitioning the government to protect these two species, the Pathan leaders developed the Torghar Conservation Project based on a simple concept: that community members 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 project covers about 100 000 hectares inhabited by 4 000 people. Between 1986 and 2012, hunting of the two species generated US\$486 400 for the provincial government and US\$2.71 million for the local community, the latter covering the 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: by 2012, the markhor population had grown to an estimated 3 500 individuals, while a 2005 survey of urial estimated the population at 2 541 (Woodford, Frisina and Awun, 2004; Frisina and Tareen, 2009; Mallon, 2013).

4
Revenue generated by trophy hunting underpins the success of the Namibian communal conservancy programme. The maps illustrate the economic viability of community conservancies in Namibia under (a) the status quo; and (b) a simulated trophy-hunting ban

Similar examples exist elsewhere in Pakistan and in Tajikistan (and see also the article on page 17 of this edition). Such developments have contributed to a recent improvement in the conservation status of markhor in the IUCN Red List, where it is no longer listed as Threatened. Outside protected areas, stable and increasing populations are found only in areas where there is sustainable hunting (Michel and Rosen Michel, 2015).

HOW WOULD TROPHY HUNTING BANS AFFECT CONSERVATION AND INDIGENOUS AND LOCAL COMMUNITIES?

Outright bans on trophy hunting, as well as import or transport restrictions on high-value species, especially in the European Union and the United States of America, could end trophy hunting by making programmes economically unviable (see Figure 4). The case studies presented here make it clear that, in the absence of effective and sustainable

**Photo tourism:
rarely a full
substitute for trophy
hunting in Africa**



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alternatives, removing the incentives and revenue provided by trophy hunting would likely cause serious population declines for a number of threatened or iconic species, potentially stopping and reversing the recovery of (for example) some populations of African elephant, black and white rhino, Hartmann's mountain zebra and lion in Africa, markhor, argali and urial in Asia, and bighorn sheep in North America. Populations of threatened species not subject to trophy hunting – such as the snow leopard and African wild dog – could also be negatively affected.

For some indigenous and local communities, making trophy hunting illegal or unviable would mean the loss of cash income from hunting concessions on their

land, less access to meat, and lost employment options. The indigenous Khwe San and Mbukushu (around 5 000 people) in Bwatwata National Park, who are among Namibia's poorest people, have earned around NAD2.4 million (US\$155 000) per year from trophy hunting in recent years (R. Diggle, personal communication, 18 March 2016); stopping trophy hunting would be an enormous setback for them because of both a loss of income and reduced access to meat (and living in a national park means they cannot graze livestock or grow commercial crops). If trophy hunting became unviable, thousands of rural Zimbabwean households that directly benefit from CAMPFIRE³ would collectively lose about US\$1.7 million per

year (already reduced from US\$2.2 million by import bans on elephant trophies in the United States of America) (C. Jonga, personal communication, 27 August 2015). These are substantial amounts of money in countries where the average income of rural residents is a few dollars or less per day. Even more fundamentally, perhaps, unilateral trophy restrictions by importing countries would reduce the power of already-marginalized rural communities to make decisions on the management of

³ The CAMPFIRE [Communal Areas Management Programme For Indigenous Resources] is Zimbabwe's community-based natural resource management programme, one of the first such programmes globally (Mutandwa and Gadzirayi, 2007).

their lands and wildlife in ways that respect their right to self-determination and that best meet their livelihood aspirations.

CAN ALTERNATIVE LAND USES REPLACE TROPHY HUNTING?

Trophy hunting is not the only means of increasing the economic value of wildlife and generating local benefits. It is often assumed that photographic tourism could replace trophy hunting: this is certainly a valuable option in many places and has generated enormous benefits for conservation and local people, but it is viable in only a small proportion of the wildlife areas now managed for trophy hunting. In contrast to trophy hunting, photographic tourism 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 supplies, and waste management), and local skills and capacity. Photographic tourism and trophy hunting are frequently highly complementary land uses when separated by time or space. Where photographic tourism is feasible in areas also used for trophy hunting, it is typically already being pursued (e.g. case studies 4 and 5). Like trophy hunting, photographic tourism – if not carefully implemented – can have serious environmental impacts and return few benefits to local communities, with most value captured offshore or by in-country elites (Sandbrook and Adams, 2012).

To be effective, alternatives to trophy hunting need to provide tangible and effective conservation incentives. They need to make wildlife valuable to people over the long term, and they should empower local communities to exercise rights and responsibilities over wildlife conservation and management. Various forms of payment schemes for ecosystem services (PES schemes) have considerable potential for mobilizing investments or voluntary contributions from governments, philanthropic sources and the private sector and motivating the conservation of species and

habitats. An example – albeit limited by the difficulty of obtaining stable funding – is the land-leasing scheme carried out by Cottar's Safari Service with Maasai communities in Olderkesi, Kenya (IUCN SULi *et al.*, 2015). REDD+⁴ can provide incentives and revenue flows to local communities in some areas, although with many caveats. PES schemes are difficult options and risk donor dependency. A crucial challenge is ensuring that revenue flows are sustainable over the long term and not contingent on highly changeable donor priorities.

REFORMING TROPHY-HUNTING PRACTICES

Despite the positive examples outlined here, we are fully aware that, in many countries, trophy-hunting governance and management have many (typically undocumented) weaknesses and failures, and action by decision-makers to support effective reform should be strongly supported. Import restrictions are often attractive interventions for remote decision-makers because they are easy to implement and can be carried out at low cost to decision-making bodies, which do not bear formal accountability for the impacts of their decisions in affected countries. Conservation success, however, is rarely achieved by single decisions in distant capitals; rather, it typically requires long-term, sustained multistakeholder engagement – in-country and on the ground.

As an alternative to unilateral, blanket restrictions or bans that would curtail trophy-hunting programmes, decision-makers could consider whether specific trophy-hunting programmes meet requirements for best practice (IUCN SSC, 2012; Brainerd, 2007). Where there are governance and management problems, it would be most effective to engage with relevant

countries in addressing, for example, transparency in funding flows, community benefits, the allocation of concessions and quota setting; the rights and responsibilities of indigenous peoples and local communities; and the monitoring of populations and hunts. Hunting stakeholders – importing countries, donors, national regulators and managers, community organizations, researchers, conservation organizations, and the hunting industry and hunter associations – have important roles to play in improving standards.

In certain cases, conditional, time-limited and targeted moratoria aimed at addressing identified problems could help improve trophy-hunting practices. Bans, however, are unlikely to improve conservation outcomes unless there is a clear expectation that improved standards will lead to the lifting of such bans and the country has the capacity and political will to address the problem. It is crucial, at least in developing countries, therefore, that moratoria are accompanied by funding and technical support for on-the-ground management improvements and by a plan to review the status of the initial problem after a specified period.

CONCLUSION

Trophy hunting is increasingly under intense scrutiny and facing high-profile and often-effective campaigns calling for broad-scale bans. There are valid concerns about the legality, sustainability and ethics of some hunting practices, but calls for bans or import restrictions risk “throwing the baby out with the bathwater”, undermining programmes that are having substantive and important positive effects on species recovery and protection, habitat retention and management, and community rights and livelihoods.

In some contexts, there may be valid and feasible alternatives to trophy hunting that can deliver the above-mentioned benefits, but identifying, funding and implementing these requires genuine consultation and engagement with affected governments, the private sector and communities. Such

⁴ REDD+ is the term given to the efforts of countries to reduce emissions from deforestation and forest degradation and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks (www.forestcarbonpartnership.org/what-redd).

alternatives should not be subject to the vagaries of donor funding and, crucially, they must deliver equal or greater incentives for conservation over the long term. If they do not, they could hasten rather than reverse the decline of iconic wildlife, remove the economic incentives for the retention of vast areas of wildlife habitat, and alienate and undermine already-marginalized communities who live with wildlife and who will largely determine its future. ♦



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