Best Practices in Sustainable Hunting

A Guide to Best Practices From Around the World

CIC Technical Series Publication No. 1

ISBN: 978-963-87791-1-3

Citation:
Damm, G. R. (2008): Recreational Trophy Hunting: "What do we know and what should we do?" – In: Baldus, R. D.; Damm, G. R. & Wollscheid, K. (eds.): Best Practices in Sustainable Hunting – A Guide to Best Practices from Around the World, pp. 5–11.

Published by the CIC – International Council for Game and Wildlife Conservation

Editors: Dr. Rolf D. Baldus
Gerhard R. Damm
Kai-Uwe Wollscheid

The editors thank Kristóf Hecker for his secretarial and technical support in producing this publication.

Address:

CIC – International Council for Game and Wildlife Conservation
Administrative Office, P.O. Box 82, H-2092 Budakeszi, Hungary
Phone: +36 23 453 830, Fax: +36 23 453 832
E-mail: office@cic-wildlife.org, Website: www.cic-wildlife.org

Cover photos: Horst Niesters, Eugène Reiter, STEP
Digital cartography: Mike Shand

Printed in Hungary

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FOREWORD

Wildlife management and conservation can provide excellent opportunities for rural development. Sustainable use of wildlife significantly contributes to local and national economies in many parts of the world, and I very much welcome the initiative to share best practices and experiences in this area, launched by our colleagues from the International Council for Game and Wildlife Conservation (CIC).

As the leading UN agency in international efforts to combat hunger and poverty, FAO helps developing countries and countries in transition to improve their agriculture, forestry and fisheries practices and to ensure good nutrition for all. In pursuit of rural development, food security and poverty alleviation, FAO supports its member countries in formulating policies for conservation and sustainable use of renewable natural resources through informed participatory processes.

FAO's involvement in the wildlife sector has evolved over the years. FAO pioneered internationally funded field projects on wildlife and protected area management in the 1960s and maintained this momentum well into the 1990s. Between 1975 and 1996, FAO guided the implementation of more than 200 projects related to wildlife and protected areas in 85 countries.

Over time, the complexity of conservation activities has increased inexorably. FAO's activities have changed considerably, including a reduction of field work. However, simultaneously our work now encompasses formulation of policies and legislation, involving all relevant stakeholders and working with local communities to meet their needs. Given its neutrality and recognized expertise in policy, institutional and legal matters, FAO is particularly able to support member countries in wildlife policy and law development. Large international non-governmental organizations have significantly increased their involvement in projects over the years and are now the major implementers of field activities.

In February 2008, member countries attending the sixteenth session of the African Forestry and Wildlife Commission and its Working Party on Wildlife and Protected Area Management requested FAO support and assistance in, among others, examining the potential for sustainable use of wildlife and creating enabling environments for allowing nature tourism, sustainable hunting tourism and other forms of wildlife use. The delegates also strongly confirmed the importance of wildlife for rural development in Africa and its relevance in the delivery of FAO's mandate in food security and poverty alleviation.

FAO believes, in keeping with the Plan of Implementation of the World Summit for Sustainable Development (WSSD) and the UN Millennium Development Goals, that partnerships are the way forward for delivering sustainable development and poverty eradication. We are increasingly working with partners in our wildlife-related activities, as in our other areas of work.

Our cooperation with CIC provides a good example of the mutual benefits that can be drawn from such partnership. The organizations complement each other in developing an enabling framework for sustainable use of wildlife and in developing wildlife and hunting policies and laws. FAO benefits from CIC's extensive membership, broad experience and diversity in practical wildlife management. CIC members provide valuable inputs for the fine-tuning and finalization of FAO's work on wildlife policy and legislation. A joint

network of specialists from CIC and FAO is improving exchange of information and sharing of policy expertise. FAO then provides a neutral forum for discussing the best practices and policy options.

I am pleased to see our collaboration increasing over the years. Our collaboration in addressing wildlife issues in Central Asia, dating back to the Bishkek Global Mountain Summit in 2002, has been very fruitful. This publication on Best Practices in Sustainable Hunting Tourism, available both in English and Russian, is one of the concrete results. I again sincerely thank CIC for taking the initiative to publish for the first time a compilation of best practices in sustainable hunting. I hope it will significantly contribute to sharing of knowledge and experience across the world, to serve decision-makers and practitioners in developing the wildlife sector in their countries.

Jan Heino
Assistant Director-General
FAO Forestry Department

PREFACE

The United Nations Member States adopted the Millennium Development Declaration with the objective to significantly reduce worldwide poverty until the year 2015. This requires increased economic growth, more jobs, higher incomes and better opportunities, in particular for the poor and in disadvantaged areas. However, development should not be pursued at any cost: The environment needs to be protected, harmful emissions must be reduced, biodiversity should be maintained and forests and wildlife ought to be conserved in accordance with national legislations and the provisions of International Conventions.

Urbanization is proceeding quickly and more and more people live far removed from nature. Yet all over the world there are men and women who are still depending upon wildlife for survival, and their interactions with nature and wildlife form important elements of their cultures and lifestyles. Traditional and recreational hunting supports the livelihoods of them.

Fortunately wildlife is a renewable resource. It can be utilized forever, provided the use is sustainable. Many game species have a remarkable vitality and can tolerate even high utilization levels. Fortunately the reproductive cycle of most game species is short, especially when compared to trees, which need decades or even centuries to grow after having been cut. Wildlife populations can recover quickly, even where commercial overexploitation occurred, provided the surviving populations kept their genetic diversity and the respective habitats remain intact.

There are many ways how wildlife may be used; these could be subsistence, commerce or trade, recreation and tourism. In all cases such wildlife use takes place on land. Wildlife use consequently competes with other forms of land use. Land is nearly everywhere a scarce commodity and growing populations increase the demand for land. There have been many very well meant efforts advocating the total protection of wildlife, yet none of those considered the social and economic consequences for the people living on the land with or close to wildlife. It is a fact that total protection makes wildlife lose its economic value; consequently wildlife comes out second best in the competition for the most appropriate land use.

International Conventions and Agreements, like the “Convention on Biological Diversity” and the “Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity”, confirm the right and the need for the sustainable use of natural resources. Contrary to the opinion of many, sustainable use does not rule out the protection of wildlife and natural environments, e.g. in the form of national parks. Resource use and human interventions, particularly in those areas, need to be minimized, however. But, in most protected national parks, wildlife populations have to be managed to balance their impact on other species and on vegetation. These management processes may include hunting. Sustainable use and long term protection of wildlife do not contradict, but complement each other; they are two sides of the same coin. Together they constitute “conservation”, as per the definition of the World Conservation Union.

Of all wildlife uses, hunting tourism is of particular economic relevance. Hunting has the potential to generate extraordinarily high revenues with a minimal take-off of individual game animals – usually older male specimens. Hunting tourism can therefore develop into an economic and social force of considerable impact in underdeveloped rural, remote and agriculturally marginal areas. At the same time, a significant potential for abuse and malpractices is inherent in hunting tourism: corruption, fraud, overshooting of

quotas, bad management, loss of wildlife numbers and biodiversity. There are examples of bad practices from virtually all continents.

On the other hand there are also many best practices, which show the opposite, and which bear witness to the positive impact hunting of tourism on wildlife, habitats and the people who live with wildlife and manage it. Therefore, hunting tourism is widely accepted as an integral part of rural development. However, every effort has to be made that hunting and hunting tourism are practiced in a proper and sustainable way in order to fulfil its role as a positive management tool and powerful incentive! Hunting can generate revenue for conservation and at the same time provide economic and social benefits for the rural populations who share the land with wildlife and bear its direct and indirect costs.

The discussion and development of best practices in recreational hunting and hunting tourism are a significant responsibility of the hunters. Hunters have to demonstrate to the non-hunting public that they are conscious of the consequences hunting brings about and that they accept responsibility for the wild resources they are using.

The *International Council for Game and Wildlife Conservation* (CIC) is today active in 83 countries as an international, politically independent advisory body. The membership includes governments (32 Member States around the world), hunting and conservation associations, universities, experts in a variety of research fields and well as dedicated private individuals. The CIC plays an active role in the worldwide efforts to keep hunting sustainable and to develop hunting, and especially sustainable hunting tourism, into a powerful instrument for conservation, human development and poverty alleviation.

Hunters and other conservationists are discussing best practices and synergies between hunting and conservation already for many years; the dialogue has produced positive outcomes, uncovered negative trends and assisted in countering undesirable developments. Yet the work is far from over. These efforts were by-and-large divided by language barriers, and therefore rather limited in their outcomes and potential influence. On one side of the world, English is being used as principal language, whereas in hunter-conservationist circles of vast areas of Europe and Asia issues are being discussed in Russian only. We may conclude that important developments and information in the one or other language are unavailable to those who do not speak both, thus limiting a solution-oriented dialogue and an exchange of ideas across continents.

Hunting tourism plays an important role in the Russian Federation, the states of the Caucasus, in the republics of Central Asia and in some other states, where Russian is used as *lingua franca*. The discussion on *best* versus *worst practices* in hunting and hunting tourism, the exploration of methods on how to optimize benefits and minimize impacts and how to use regulated sustainable hunting as a tool for conservation needs to overcome the language barrier.

In order to stimulate the dialogue between the English and the Russian speaking part of the world and in order to create a basis for the interchange of ideas, the CIC and the FAO jointly present this booklet with relevant articles about the interactions of hunting, conservation and governance in a Russian English edition.

A future project will aim at publishing a booklet with papers available only in Russian for the Anglophone world. We are confident that this first effort will assist in enlisting the future help of native Russian speakers in order to promote a rewarding dialogue across the language barrier.

Dr. Rolf D. Baldus, President, CIC Tropical Game Commission
Gerhard R. Damm, Vice-President, CIC Tropical Game Commission
Kai-Uwe Wollscheid, MSc., CIC Director General

Best Practices in Sustainable Hunting (2008) pp. 5–11.

RECREATIONAL TROPHY HUNTING: "WHAT DO WE KNOW AND WHAT SHOULD WE DO?"

Gerhard R. Damm
Vice-President, CIC Tropical Game Commission

Abstract. Trophy hunting is an important tool in conservation, but it is not conservation in itself. As a conservation tool, trophy hunting must provide measurable social, economic and ecological benefits. Hunting tourism and ecotourism have a number of similar elements and, well managed hunting tourism fulfils the concepts of ecotourism. Hunting tourism may be considered the least intrusive form of ecotourism since the balance of evidence proves that trophy hunting can help conserve threatened species and their habitats. The work done at several international symposia in recent years forms the basis for the development of Principles, Guidelines, Criteria and Indicators for hunting as key components of global sustainable hunting tourism, of resident recreational hunting and in consequence as a building block for rural poverty alleviation and as an important conservation contribution.

Key words: Sustainable Use; Trophy Hunting; Recreational Hunting; Conservation; Best Practices; Hunting Associations; Sustainable Hunting Tourism; Principles, Criteria and Indicators of Sustainable Hunting.

1. Introduction

In the 21st century, hunting in general and trophy hunting in particular are almost purely recreational. Recreational trophy hunting is the motor which drives a multi-million dollar global hunting industry. We need to establish strategies for the different hunting regions in the world, which show that recreational trophy hunting is part of a triple-bottom-line approach to sustainable conservation. This approach includes social, economical and ecological considerations.

The Society of Conservation Biologists (SCB) discussed these issues in 2001 in Christchurch/New Zealand. The process continued at the Conservation Hunting Conference in Edmonton/Canada in 2004 and brought together stakeholders at the London Recreational Hunting Symposium in 2006. In July 2007, a follow-up meeting at the SCB conference in Port Elizabeth/South Africa looked at practical solutions. Some participants at the latter meeting stated that the process has not yet found the appropriate attention of some important international hunting associations, lip service and monetary contributions towards the various conferences excluded. Although, there seems to be no lack of comprehension on the part of the hunting organizations, but there is certainly a lack of willingness to cooperatively drive an evolutionary adaptation of traditions, concepts and practices. Furthermore a cohesive global strategic vision on how to solve the issues of the present and the challenges of the future is missing.

The 54th General Assembly of the International Council of Game and Wildlife Conservation CIC in Belgrade debated this under the topic "Trophy Hunting, Hunting Trophies and Trophy Recording" in a workshop in May 2007. It formed part of the ongoing process within the CIC to find regionally applicable solutions for trophy hunting as well as for national and international hunting tourism. The participants from international organizations like CIC, Dallas Safari Club, FNAWS-ISHA, Conservation Force, Rowland Ward, FAO, IUCN, CITES as well as representatives of many European and some African Hunting Associations felt that a permanent international expert taskforce should work in this field. The CIC debate expanded the ongoing work of CIC on Sustainable Hunting Tourism.

2. History of Recreational Trophy Hunting

In the United States, President Teddy Roosevelt founded the Boone & Crockett Club in 1887. The Boone & Crockett Trophy Scoring System was established in 1930. Rowland Ward in London started to compile measurements in 1892. In 1930 the CIC was established and the CIC trophy formula started to take form. All three systems focused on comparative analysis and the achievements of the newly fashionable wildlife management philosophy. In the mid 1970s Safari Club International emerged with an own record book. Whereas the record books of Boone & Crockett, CIC and Rowland Ward are open for anybody who selects to have a trophy registered, SCI's book is restricted to SCI members only.

The entry limits of Boone & Crockett, CIC and Rowland Ward are set at high scores, whereas SCI entry levels for most recorded game species are set at relatively low limits. Boone & Crockett makes it obligatory that all trophy owners who wish to enter a trophy in the B&C book sign an affidavit confirming that the trophy was taken under strict "Fair Chase" conditions. A similar "Fair Chase Statement" is presently contemplated by Rowland Ward and CIC, respectively.

Hunting trophies are extraordinary characteristics in horns, tusks, overall body size, mane, etc of mature males. These trophies develop with age. They are usually directly connected with the breeding success of the trophy animals. The really outstanding trophies occur with animals crossing the line to post-reproductive stage. Such animals have also spread their genes during many breeding seasons.

High trophy scores or high entry limits can therefore be interpreted as being conducive towards the hunting of mature trophy animals, whereas low trophy scores and low trophy entry limits may be interpreted as favouring the taking of immature or younger animals still active or necessary in the healthy breeding cycle of the game population.

Advancing age eventually becomes an exclusionary factor from breeding activity. The removal of a few mature males from an animal population with a healthy demographic structure falls largely within the compensatory mortality range. CIC and Rowland Ward are therefore contemplating to include age related parameters into their trophy scoring methods.

Those opposed to trophy hunting concentrate their arguments on the statement that hunters kill the best "trophy-bearing males". They disregard that females contribute 50% of the genetic material. Neither does their argument consider the limiting influence of environmental and nutritional factors on trophy development.

The myth that "trophy hunting for big horns" contributes towards the degeneration of species' characteristics originates probably from a Canadian study (Coltman 2003) on a small population of Rocky Mountain bighorn sheep. In contrast, Loehr (2006) found similarity in the relationship between growth rate and longevity in thinhorn sheep (*Ovis dalli*) for hunted and natural mortalities. Loehr suggests that ram horn growth rate does not respond to artificial selection. Lee (2006) stated "that big-horned bighorn rams are becoming more numerous, not less so – they are definitely not going bald" and refers to the entries in the Boone & Crockett Record Book.

That trophy standards are improving applies also to a wide variety of African game animals. The African elephant is one exception. The poaching pandemic was responsible for the near total elimination of big tuskers. The African Buffalo is another exception as we will hear later.

There are some negative aspects to recreational trophy hunting. These aspects have their root partially in the competitive focus of some hunters to obtain "record" trophies, partially the term "sport hunting".

"Sport hunting" has been deliberately misinterpreted by hunters and anti-hunters. Roosevelt's Fair Chase movement at the end of the 19th century was intended to distinguish the real hunter from the market hunter who had indiscriminately killed game to the point of eradication. Sportsmen and sport hunting meant fair play, style, dash and moderation. Not "sport" as in golf or tennis!

The Safari Club International record book and the SCI award programs are highly profitable ventures for SCI. They also foster competition and low entry limits, a growing number of "slams" and awards may encourage hunters to collect the most, or the biggest, or most of the biggest trophies. Yet the bulk of the entries are so-called "representative trophies", which may be of pre-reproductive age. Nevertheless, the Hunting Report, an international newsletter covering trophy hunting around the world sees positive aspects and states that "the robustness of the world hunting economy and the spill over of economic value into local communities are due in large part to SCI-type trophy hunting. The Hunting Report also states that conservation programs worldwide are flourishing because of this 'mania' and that these programs are cropping up in ever smaller nooks and crannies of the world because of SCI's readiness to create new trophy categories to celebrate newly defined subspecies".

In Europe, the CIC formula system is occasionally being misused for individual glorification and an unhealthy competition between European hunting countries to "produce" the largest antlers. Moreover, the CIC scoring system has distinct flaws, like beauty and penalty points, which may be construed as being given or subtracted on an understandably subjective basis.

A consequence of this development was that the tape measure and "shopping lists" with animals and specific trophy sizes unfortunately became part of many hunts. A good number of hunting managers, professional hunters and landowners succumbed to the "record temptation". Ultimately, the trend encouraged genetic manipulation of game animals, canned shooting, high-fenced killing grounds supplied by "breeder facilities" and abetted the killing of immature animals and of those which are essential for breeding.

Overshooting of quotas by hunt operators and unsustainable quotas for trophy animals set by regulatory authorities have also contributed to opposition towards trophy hunting. This can be said especially in Central and East Asia in relation to certain local deer populations of (*Cervus elaphus ssp.*), argali sheep (*Ovis ammon ssp.*), Urial sheep (*Ovis orientalis ssp.*), brown bear (*Ursus arctos ssp.*), but also for some regions and species on the African continent.

The underlying reasons are often a combination of several factors: In some hunting areas the change in political and economic systems led to rogue free-market attitudes; to some extent the observed decline in trophy animals may be attributed to the commercial use and/or poaching of wildlife; the short-term allocation of concessions often has a consequence to a "*let's take what we can as long as we can*" attitude; periodic adverse climatic impacts in areas subject to droughts and severe temperature variations; socio-political changes like an increase in private herd ownership of domestic animals which affect wildlife habitats negatively, and so forth.

This issue has been addressed by a number of authors in scientific papers, yet no major hunting organization has considered the necessity of getting involved and issue clear "State of Wildlife Warnings" in those cases where resource management and hunting is observably unsustainable.

3. Implications of Recreational Trophy Hunting

Capturing economic return from trophy hunting through entrepreneurial spirit helps to preserve and produce hunting opportunities. Trophy hunting provides economic benefits beating those of conventional agriculture

and thus could encourage biodiversity conservation. Harris (2004) argues that trophy hunting tourism avoids most of the problems of ecotourism because hunting has the potential to provide relatively large financial inputs to specific areas with little need for additional infrastructure. The "damage" caused by trophy hunting is, in fact, minimal – last not least, one of the results of sound conservation management is the sustainability in numbers of mature trophy class animals. Although the image of a dead animal may be distressing to non-hunters, well-managed hunter harvests are almost inconsequential from a biological viewpoint. Yet even in those positive cases, the question remains often open whether the funding obtained through trophy hunting is being put to good use.

Although the trophy quality of horned and antlered game within a game population can be used to judge the overall demographic health of a particular game population, the trophy recording in the traditional "Books" is, however, only of limited value to judge important biological parameters. There are four reasons:

• The relative weight in the scoring formulas given to anthropomorphic factors like "beauty", color, etc.;

• The lack of biologically relevant species-specific information;

• The less than exact geographical and other data concerning the location of the hunt;

The lack of non-trophy data, like the weight, body condition of the killed animal and the circumstances when it was killed (*i.e.* single animal, within a herd, rutting, observations regarding breeding success, etc).

Much information could be obtained from precise records of hunted animals, if the data sets would be complete, accurate and honest. However, we must not forget that trophy hunting is not a random process and the data do not represent random samples from a particular demographic class; data interpretation must take this into account. The CIC is, therefore, contemplating and discussing a complete revision of its hunting trophy database.

The protectionists advocate the prohibition of all wildlife trade and markets – hunting included. This misguided stance is paralleled by the narrow focus in many hunting circles which base the selection of trophies on traditional anthropomorphic ideals, disregarding important biological components and most importantly the age of the trophy animal. Both viewpoints are detrimental for wildlife. The following examples show some cases, where subjective hunter trophy "ideals" might ultimately be unsustainable:

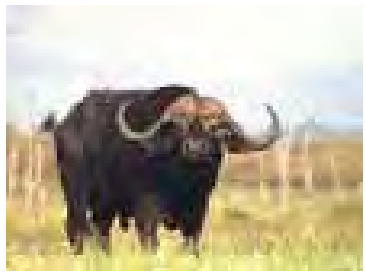
• The average hunter selects Cape buffalo trophies according to standards set by record books. This leads to bulls being killed before they entered the breeding cycle (Gandy & Reilly 2004, Robertson 2007, Taylor 2006). The net effect of killing a good portion of immature bulls has approximately the same result as if harvesting immature individuals only (Ernande *et al.* 2003). Trophy quality will suffer and side effects like lower birth rates, disturbances in social structure, etc will occur subsequently.

• The African lion suffered from the hunting of prime pride males essential for the maintenance of healthy lion demographics. Packer's "black nose theory" was a first step to establish criteria for assessing the age of life male lion. Packer's age criteria have been expanded in "A Hunters Guide to Aging Lions in Eastern and Southern Africa". Although field research still has to be done to determine whether these criteria are applicable throughout the lion range, the premise that hunting mature lions above a certain age bracket will have no detrimental effects on the genetic make-up and the sustainability of the population is of importance.

• In the United States some wildlife managers now propose to let the middle age class whitetail bucks live. They want hunters to take more yearling bucks and mature trophy bucks only above a certain age bracket, as well as does, in order to balance an observed terribly skewed whitetail demography.

- In Europe, Hackländer (2007) stated that hunting selection in red deer based on anthropomorphic ideals in antler scoring formulas might throw the genetic diversity of a deer population out of balance, since it disregards the natural genetic diversity in antler formation. Hackländer recommends to base selection criteria on overall physical appearance and age.

- In the Russian Federation, but also in other hunting countries of Central and East Asia, Maral, wild sheep and bear species are arguably the highest value contributors to recreational trophy hunting, yet none of the hunting management regimes bases harvest rates on age factors. Systems like those applied in North America may offer solutions, like a minimum rack size for Maral (*i.e.* the six-point regulation in the western Canadian provinces), Stone's sheep (either the tips of the horns have to pass the bridge of the nose when seen from the side or the annuli of the horns have to show a minimum age of 8 ½ years), grizzly and black bear (pre molar extraction and scientific age evaluation) as well as the mandatory examination of trophies from key species by the regulatory authorities.



This is a mature huntable bull

This bull should be left alone (Photos: Catherine Robertson)

The question of limiting off-take to mature males of near post-prime or post-prime age brackets in trophy hunting is being debated for many years. Apart from Rowland Ward and the CIC, none of the major scoring systems of the international hunting associations has shown an inclination towards change. There may be several reasons: the hunting associations are reluctant, because change may create controversies amongst their membership; the hunting operators are reluctant, because they see their work being complicated and the landowners may see a reduction in financial benefits.

Other causes may be the lack of cooperation between hunting operators and the scientific community and in consequence the observable tendency of scientists to impose their views on the hunting stakeholders despite of vague empirical hunting data, shifting regulatory frameworks and usually short-term hunting concession use.

The "certification issue" is a case in point. What works for globally traded timber in a multi-billion dollar industry is not necessarily successful in the relatively insignificant niche market – in global economic terms – of recreational trophy hunting. The promoters of "certification systems", especially of single species systems have overlooked the terms of economic feasibility and administrative practicality as well as the tendency of such systems to become corrupt. This applies even more to those all-inclusive certification systems, which hold promise to end up in expensive administrative nightmares.

Trophy hunting exerts selective pressure on adult males and trophy selection is a less than an exact science. Therefore, the success of trophy hunting programs depends on adaptive management processes. Hunting regimes – especially in remote areas like in some parts of Africa and Central/East Asia – need to produce sex and age-specific mortality patterns similar to those occurring naturally; respectively they have to

maintain demographic structures in the hunted game populations which are conducive to natural breeding behaviour (Harris *et al.* 2002)

Hunting associations, especially those involved in trophy recording, should acknowledge the need for international cooperation to ensure that such hunting programs are encouraged. The combined efforts of the hunting associations and the national wildlife management authorities must include the scientific community like the IUCN specialist groups to produce positive outcomes.

4. Conclusion

The "pressures" of hunting in the 21st Century involve limited time frames, fussy hunters, the vagaries of game and a good dose of luck. This is compounded by the "*if I don't take it now, the next hunter will*" attitude (Taylor 2007). The clients' nationality also has an influence on trophy ambitions – European clients, especially German and Austrian, tend to prefer "character" trophies, usually older animals; American clients, who make up the large majority of hunters travelling the globe, prefer symmetrical, high scoring trophies, often younger animals essential as breeding reservoir. These particular "pressures" must be addressed by the hunting associations in focusing the interest of their members and of the hunting service providers on the "holistic" hunting experience instead of the inches, centimeters and points of a trophy. Independent international hunting media can add a momentum of peer pressure, which would eventually filter down to the individual hunter.

Regulatory and scientific authorities need to carefully monitor the impact of hunting on the genetic and population make-up of game species and use appropriate adaptive management processes to immediately act on undesirable outcomes.

In the context of international and national provisions and legal requirements for sustainable use (e.g. CBD Guidelines on Biodiversity and Tourism Development, Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity), hunting tourism, as specialized form of ecotourism, has to establish suitable principles and criteria for trophy hunting, as is the case for any other form of land use.

The CIC initiative "Sustainable Hunting Tourism" proposes the development of a formalized set of Principles, Criteria and Indicators embedded within a framework of guidelines. This process, driven by a think tank of experts drawn from hunting, scientific, tourism and regulatory authorities, will enable the objective evaluation of hunting against the three pillars of sustainability.

Trophy hunting can outweigh any perceived or real disadvantage, if responsibly managed and monitored. The Principles, Criteria and Indicators can provide global standards and tools for these processes. Broken down into regionally applicable modules they will lead towards acceptable "Best Practice Standards" in recreational hunting tourism and hunting in general.

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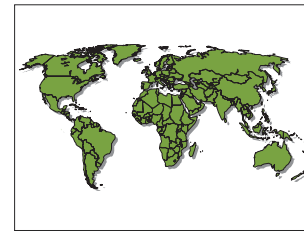
WILDLIFE: CAN IT PAY ITS WAY OR MUST IT BE SUBSIDIZED?



Dr. Rolf D. Baldus
President, CIC Tropical Game Commission

Abstract. Conservation of biodiversity is desirable for a variety of ecological, economic and other reasons. Whereas economics do not necessarily rank top of the list, the neglect thereof will inevitably lead to the failure of achieving conservation objectives. If wildlife and protected areas do not contribute to poverty reduction but instead limit available resources which otherwise could be used to alleviate poverty, then their conservation has no political future. They will not be able to compete with other forms of land use. Sustainable financing should mainly be self-generated, as wildlife is a productive renewable resource. Permanent subsidies by outside sources should remain the option only in well-justified individual cases when all other income-generating possibilities have been exhausted.

Key words: wildlife conservation, renewable resource, poverty

1. Finance as Core Conservation Problem

The upkeep of national parks, game reserves and similar protected wildlife areas goes hand in hand with a considerable effort. Depending on the objectives for protecting an area, the costs of developing infrastructure and keeping a reasonable management regime average between 50 and 300 US$ per km^2 annually. In small protected areas the costs per unit area can even be much higher.

Considering the total size of areas under protection in developing and in transformation countries the effort of upkeep adds up to enormous sums, which are usually neither covered by income nor, because of other priorities, by public budgets. Some countries have placed 10 to 25% of their land surface under strict protection. The positive economic impact of such areas on the economy are significant in countries such as Tanzania and South Africa, but low in others, which have little tourism such as in Central Asia.

Empirical studies prove a distinct correlation between financial investment and successful protection. On the other hand practical experience shows that inefficient and corrupt administrations can also easily consume high financial inputs and investment without tangible results. It is not necessarily true that a lot of money helps a lot! Adequate financing is therefore a prerequisite but not in itself sufficient.

It should also not be forgotten that finance is only „*a*“ and not „*the*“ core conservation problem as it is so often assumed to be but seldom queried. In many practical cases much more could be achieved with the available finance if only the money was spent more wisely and if the management was more efficient.

Nevertheless in reality many protected areas are seriously under-funded and cannot meet their goals. Surveys show that only a few are raising even close to the income required to cover expenditure. Most aid projects have not managed to change this. Presently there seems to be a general consensus that there is little hope that Central Asia's wildlife protected areas will ever be self-supporting.

In many countries, significant wildlife populations continue to exist outside protected areas. Basic protection of this wildlife by the respective authorities entails further expenditure over and above that of the protected

areas. Unfortunately the reality of most countries is that these means are lacking, and effective anti-poaching outside protected areas is even less of a reality than within.

2. "Use It or Lose It"?

Just as development cooperation followed the principle of "help for self-help", so too was it undisputable to economists that conservation of wildlife and other natural resources should also orientate itself on basic economic principles. Wildlife and protected areas can be economically used and consequently have the potential to generate income in a sustainable manner which can finance their upkeep and contribute at the same time to the welfare of people, in particular of the rural dwellers sharing the same areas. Income, so the doctrine goes, was to cover expenditure as much as possible. Natural resources, which generate income, have a higher chance of being conserved by people, perpetually striving to meet their needs, than those resources, which solely entail costs. Despite simplifying it a bit too much, the slogan "use it or lose it" sums it up nicely.

Of course such a principle cannot be applied in absolute terms. It is not valid in each and every case. Not every protected area, not every type of biodiversity, can be utilized or is able to finance itself.

As a general rule protection and utilization are not fundamental contradictions. The World Conservation Union (IUCN) defines "conservation" to mean both the protection and sustainable use of natural resources including wildlife. International conventions and declarations, such as the Convention on Biological Diversity, give nations the right to utilize their natural resources including wildlife in all consumptive and non-consumptive forms.

Sustainable use options for game are many and varied. These include photo tourism, hunting, game ranching, meat production, use of by-products and live capture. Empirical experience shows that a combination of different forms of utilization usually renders the highest income. In some instances environmentally friendly game utilization can bring equal or even greater revenues per unit area than other land use options, e.g. agriculture. It is possible to design all these forms of use in an environmentally friendly or – in the case of over-utilization – an unsustainable manner.

Where organized properly, however, the so-called consumptive use of game has contributed to the protection of species and habitats and increase of wildlife numbers. In this way, endangered or near-extinct species have been saved through a combination of protection and utilization.

Controlled tourist hunting is an especially revenue-rich form of utilization, which impacts relatively little on the environment. For emotional and ideological reasons, however, hunting is often excluded as an option for income generation. Opponents of utilization have joined together in large and financially powerful groups that are able to exert wide public and political influence.

In systems in which utilization is not permitted, wildlife represents costs only to the landowner and not any income. Those however who inflict only costs on the proprietor or user of land and yet deny them the benefits are with certainty contributing to the extinction of wildlife.

By putting a value on a resource, an incentive is created to protect it in order to be able to reap benefits in the long-term. Some countries have outlawed hunting (e.g. India or Kenya) in order to protect their wildlife. Such bans have always been fictional as they have not been able to halt the on-going massive illegal utilization. Empirical data from countries with hunting bans show that these have by no means contributed to the protection of wildlife. On the other hand, in countries where game has been given a value this has either led to an increase or at least slowed down the decrease in wildlife numbers.

A precondition for the long-term success of any system of utilization is that a considerable share of the income is reinvested into protection and management and further that the landowner can profit from the game on the land.

3. How to Reduce the Deficits

In principle the system "use it or lose it" has had a high degree of success. Nevertheless the income to be realized in many areas does not suffice to protect wildlife and its habitats and to additionally generate revenues for landowners and the state. As was mentioned earlier, it is also important to take into account that some species or biospheres are so rare, endangered or sensitive that they are not suitable for utilization.

In such cases it is inevitable that ways be sought to close the financial gap between income and expenditure. Once again, the aspect of cost should be considered first. More often than not, one should start by improving financial planning and spending and by lowering expenditure. Under a strict financial management regime, less external finance is needed to close the deficit. The same applies to spending levels. If funds are scarce, not everything that might be desirable in such fields as research, monitoring or infrastructure should be financed. Economic investment has to be subjected to cost-benefit considerations. "Can we afford tourism?" is a question which must be asked in relation to national parks which are under-utilized, but at the same time nevertheless cause high investment and running costs. Sometimes the entire revenue from tourism is not sufficient to finance a fraction of the road network put in by a donor for the use of the tourists. This may all sound blatantly obvious; however there are many real life examples where such simple principles have been ignored.

Many governmental and parastatal structures assigned with the task of managing protected areas are ineffective. They tend to be overstaffed, lacking in transparency, and are constrained in decision making by excessive bureaucracy. Reforms are needed that, as is well-known, are hard to realize. It may make sense to privatise such structures totally or in part. State bureaucracies are burdened with many tasks over and above their capabilities that would be best left to the private sector.

In many cases it would make sense to privatise entire protected areas. Biodiversity protection need not be compromised if a park, having been badly managed by the state and running at a loss, is managed by the private sector with the intention of earning money. Plundering of the parks by the private sector, as is done frequently by public sector staff, can be prevented if management plans; long-term lease agreements and regular eco-audits are put in place.

If the management and protection of wildlife on communal and private lands is entrusted into the hands of those who own or hold the land, i.e. the communities and the landowners, then this would also lead to a reduction of management costs for governmental institutions. In this way a "Community-based Conservation Programme" can not only increase the conservation status of such areas but can also reduce public spending.

State departments are generally reluctant to privatise, as they would thus be deprived of sources of revenue and lose both influence and power. They much prefer external financing schemes, which after all permit deficits to be covered with few strings attached. There is also minimum pressure to conform, thus allowing those responsible to continue as before.

4. Creative Financing to Stimulate without Oppressing Efforts

The question whether wildlife "can pay its way" has often been raised. The answer is simple: Under certain conditions, wildlife can make a substantial contribution to its own conservation, but there are circumstances in which it cannot.

The following wildlife areas should be self-supporting under normal circumstances:
- National Parks with attractive wildlife populations suitable for mass tourism and located in politically stable countries.
- Small prime wildlife protected areas in private hands suitable for high price/low volume tourism.
- Relatively small areas offering a special attraction which is in high demand.
- Well-managed hunting areas.

Wildlife outside protected areas can equally be sustained, if the population pressure is not too high, some amount of proper control is in place, and rural communities are allowed to use their wildlife in a regulated system and on a sustainable basis for their own benefit.

It has to be accepted that many other wildlife-protected areas need some kind of permanent outside subsidies. The hope to finance them with so-called "eco-tourism" has turned out to be an illusion for a number of reasons.

What form this external funding should take is not a subject of this paper? Different types of innovative conservation funding, mainly in the form of "Trust Funds", are presently being developed. The important fact is that such outside funding should only complement and not substitute efforts of self-reliance and that the above-mentioned economic principles are adhered to. Conservation finance must be tied to achievement. It must not bankroll the non-performers. Otherwise they get rewarded and the performers are punished.

This is easy to postulate, but difficult to secure in practise. Whether we like it or not, proper controls by those who provide the funds and therefore have the foremost interest that they are put to proper use, are indispensable. It is presently a trend, mostly borne by frustration over the lack of success of classical project aid, to provide assistance increasingly in the form of budget finance and basket funding. This might be regarded as modern and politically correct by some; however, it is difficult to see how such systems, with their limited and indirect control, could work better. After all lack of funds is not the main conservation bottleneck, but rather organizational and management deficits.

There is another issue that should be mentioned here, as it is only a minority of conservationists who seem to be aware of it: Multiple use approaches normally lead to higher revenues from wildlife and protected areas. Without controlled hunting it will not be possible in most cases to earn sufficient revenues for conservation. This does not imply that prime National Parks should be turned into hunting reserves. But in most countries there are enough buffer zones and other areas, many of them neglected, which are suitable. In some cases, it is advisable to protect an area as a hunting reserve instead of a National Park. Even in situations where wildlife populations are relatively depleted, some careful use is possible and wildlife populations will recover fast as long as the habitat is still available for wildlife and some degree of protection against illegal exploitation is put in place with the money earned from hunting.

The hunting areas can be remote. They do not have to be scenic, and they do not necessarily need to have spectacular and abundant wildlife populations. Also, management and the infrastructure needs are less than in sophisticated tourist areas. Hunting carried out in this way, if it is well controlled and the off-takes are within sustainable limits, can have more of eco-tourism character than many of the photographic ventures.

It is difficult to understand why some countries, protected areas or projects complain that they are unable to finance the upkeep of their wildlife, and at the same time do not permit sustainable hunting. But sometimes one has the impression that some wildlife lovers believe in a dogma that “wildlife should not pay its way”, even if it can.

In Germany, a densely populated country, wildlife is used and hunted in a regulated system. Revenues go to the landowners. Every year around 1,4 million large mammals, such as roe deer and wild pigs, are shot by the hunters who pay dearly for this privilege. A hunting ban would result in annual economic losses of around 500 million US$ and would lead to additional public spending in the range of several hundred million US$. Despite being relatively wealthy, Germany has decided against bearing these losses and costs. Why then should the German tax payer via development aid subsidize wildlife in these African countries where the Government has taken the deliberate decision to ban hunting and sacrifice the revenue, although wildlife numbers allow sustainable use and land owners even demand it?

Best Practices in Sustainable Hunting (2008) pp. 17–19.

TROPHY HUNTING FOR ENDANGERED SPECIES

Dr. Ute Grimm
CITES Scientific Authority (Fauna)
German Federal Agency for
Nature Conservation, Bonn, Germany

Abstract. Trophy hunting for endangered species is a subject tackled from two angles within the German Federal Agency for Nature Conservation: (a) in its general discussion on the subject of "nature conservation and sustainable consumptive use" and (b) by acting as national CITES Scientific Authority. The first approach is described below.

Key words: CITES, trophy hunting, sustainable use, endangered species

1. Sustainable Consumptive Use of Wildlife

National workshops were organised by the Federal Agency for Nature Conservation (FANC) on the subject of sustainable consumptive use (SCU) in both 1999 and 2000. Representatives of administrative authorities, various non-governmental organisations and scientific institutions discussed a definition and criteria for SCU, as well as measures for its promotion and introduction. Twenty-five criteria for SCU were identified, which can be categorized into four different areas:

- basic biological data on the population level (including population size, reproductive system, mortality, population structure, social structure, behaviour, health status, habitat, genetic variability, conservation of evolutionary potential);
- basic biological data on the ecosystem level (including effects of the species on/within the ecosystem, effects of ecosystem changes on the species);
- management and monitoring (including organizational and institutional framework, management plan with regular internal monitoring of several aspects, feed-back mechanisms, and monitoring of external factors such as the effects of demand on the international market);
- socio-cultural acceptance and economic effectiveness (including socio-cultural and ethical acceptance, economic aspects, involvement of local communities).

2. Position statement "Trophy Hunting for Endangered Species Abroad"

In order to develop a position statement on "Trophy Hunting for Endangered Species Abroad", FANC collected available information from various sources, such as official publications and statements of specialists and organisations with interest in this subject. Compiled information was classified in relation to the criteria identified in the SCU workshops, and evaluated with regard to the question: "Is scientific evidence available to decide whether or not trophy hunting has negative effects on the target population of the respective species or its ecosystem?" The study revealed that most information available refers to carnivore and *Caprinae* species, and that long-term studies comparing the development of a hunted population with that of a population undisturbed by hunting activities are lacking. The results of the study can be summarized as follows:

Trophy hunting abroad by German hunters is primarily carried out in other European countries, Africa and Central Asia. Main targets are deer and pig species, antelopes and gazelles as well as small game and waterfowl.

In many countries, trophy hunting is a very lucrative way (few tourists, high income) to simultaneously make use of and manage wildlife. In comparison with photo (mass) tourism, expenditures on infrastructure, such as hotels and roads, are regarded to be considerably lower. Projects such as CAMPFIRE and the Torghar Conservation Project, in which the responsibility for the sustainable use of "their" wildlife is transferred to the local communities, often cause value to be attributed or reattributed to wild animals, which previously were only regarded as competitors for food, or even as direct threats to human lives.
Some programs for sustainable consumptive (trophy) use of endangered wildlife have resulted in a decrease in poaching and in slowing down the expansion rate of agricultural areas. Various examples worldwide (Zimbabwe, Pakistan, South Africa) have shown that conservation areas (such as national parks and game reserves) can be expanded and interlinked with each other through such projects. This helps the target species to expand and multiply on the one hand, and serves to preserve the original natural environment and its biological diversity on the other. It is not known, whether trophy hunting alone, independent of such programs, would yield such positive effects as well, because the needed information for such an assessment is not available.

An assessment of trophy hunting must not be limited to quantitative aspects, such as stock size and reproduction rates. Possible negative effects on the population and social structure as well as genetic variability within each species have not yet been sufficiently investigated, and will require greater attention in trophy hunting management in the future. Therefore, research on reference areas not affected by hunting will be especially significant in the future. The one-sided promotion of purely hunting-related interests (such as hunting for predators of the target species or the introduction of foreign species) is to be strictly renounced.

3. Minimum Requirements for Acceptable Trophy Hunting

Against this background and assessed from a nature conservation point of view, trophy hunting for endangered animal species can only be regarded as acceptable in individual cases, as long as - in addition to the strict implementation of any necessary legal regulations - at least all of the following minimum requirements are met:

- Animals are removed on the basis of an adaptive wildlife management plan that is changeable at any time;
- trophy hunting provides direct local conservation benefit (e.g. preventing planned agricultural use or settlement in the hunting area);
- the local communities receive a financial benefit from the trophy hunt;
- there is no predator control in order to increase the population of target species;
- there is no introduction of non-native species (either entire populations or individuals) for the purpose of trophy hunting.

In addition, with ongoing projects, all following requirements in particular should be met over the medium and/or long term, when introducing trophy hunting into new areas or assessing whether to expand trophy hunting to previously unhunted species or not:

- Poaching is effectively eliminated;
- the effects of trophy hunting on the gene pool, behavioural ecology and reproductive success of the target species are studied;
- a completely protected area without any hunting influence is available as a reference area for research;
- a completely protected area in the direct vicinity of the hunting areas is available serving as a refuge for species affected by hunting.

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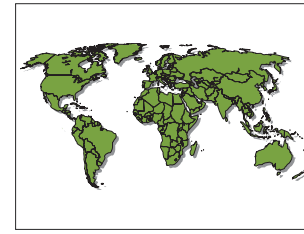
The great success of conservation through sustainable hunting: markhor. Kabul markhor (Capra falconeri megaceros). (Photo: Dr. Nicolas Franco)

SUSTAINABLE HUNTING TOURISM POSITION PAPER OF THE CIC TROPICAL GAME COMMISSION



(1)

Sustainable use of nature is a binding principle which has been accepted worldwide as being effective for the protection and management of natural resources and biological diversity.

This concept – which has been used in German forestry for over 200 years – was adopted in 1992 by the *United Nations Conference on Environment and Development* in Rio as a general principle for humans to interact with the natural resources on earth. It implies that the use of components of biodiversity should not lead to its gradual decline.

The parent organization of international environmental and biodiversity conservation – the *International Union for Conservation of Nature* (IUCN) – agrees with this principle and declared at its 2nd IUCN World Conservation Congress in October 2000 in Amman that the sustainable use of natural resources is an important driving force in conservation. Through it biological diversity is sustained in the long term while human needs are met.

In February 2004, the 7th Conference of Parties to the *Convention on Biodiversity* (CBD) in Kuala Lumpur adopted the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (AAPG) - to a large extent based on IUCN's Amman Policy Statement. The AAPG provide a framework for assisting stakeholders on all geographical as well as institutional levels on how to ensure that their uses of biodiversity will not lead to its long-term decline. Taking the wildlife sector as an example, it is obvious that the AAPG present a common base to develop coherent approaches to sustainable wildlife use.

Sustainable hunting tourism is an example for such use of natural resources – not only in central Europe, but globally. If it is sustainable it maintains and promotes biodiversity, if it is not, it is a violation of international conventions.

Hunting is often referred to as the 'consumptive' use of wildlife in contrast to the 'non-consumptive' forms of use (e.g. photo- or nature tourism). Every type of tourism consumes natural assets. Natural resources can suffer heavy damage through mass tourism, even through eco-tourism. In contrast thereto, hunting as a 'soft' form of nature tourism, does not require an elaborate infrastructure, nor does it require permanent structures. Relatively high revenues can be generated by few clients. The well-regulated take-off of 1 to 2% of prime or post-prime males does not damage the respective game populations. If funds generated through sustainable hunting tourism are directed towards conservation and if local populations share the economic benefits, this form of the use of natural resources can play a direct role in reducing rural poverty and contributes to conservation efforts.

It is a fact that hunting can lead to the preservation of wild animals – even in endangered and/or threatened game populations. General hunting bans have never stopped the decline of animal populations anywhere; they have in the contrary and for various reasons, sped up the loss of wildlife habitat, the reduction of game numbers and even led to the extinction of species.

(2)

Article 3 of the Convention on Biological Diversity states that it is the sovereign right of nations to use their own resources in compliance with their environmental policies. Numerous states – including many developing countries – make use of their wildlife through controlled hunting. Increasingly, noticeable revenues are finding their way towards local rural populations – or are reinvested into the conservation of wildlife.

Emotional and ideological attacks from the animal rights movement originating from the industrial countries of the northern hemisphere against such forms of use are rightly viewed by developing nations as an attack on their sovereignty and a clandestine form of 'neo-colonialism'. It is ethically questionable that certain non-governmental organizations, which drive these anti-use campaigns in rich countries, collect immense sums through donations of the unsuspecting public, and spent most of it for themselves or on elaborate PR campaigns. At the same time, the rural populations of the poor countries and the game populations there get little or nothing. Especially indigenous peoples, like the Inuit or the KhoiSan, who depend on hunting for their economic and cultural survival, have suffered under such anti-hunting campaigns and their continued existence and cultural identity is at risk.

Hunting is a legitimate form of land use – a hunting ban would limit the options of the land owners, be it communities, the state or private individuals. This would actually not only be a form of expropriation, but it would also make the owner lose interest in conserving wildlife on the land. For rural populations, specifically in developing countries, the sustainable use of wildlife (meat, monetary income) is a concrete incentive for the conservation of animals on their land and serves as compensation for damages to life, property and crops which are otherwise often not recovered or reimbursed. Revenues from hunting allow governmental or private wildlife management agencies to finance protective measures (e.g. anti poaching activities, habitat protection and/or restoration), which can otherwise not be funded due to other priorities.

(3)

In many countries – especially in the developing world – organized hunting tourism has rapidly grown during the past half century. This trend is of great economic and environmental significance.

For the host country and its rural population this hunting tourism has numerous advantages:

- Conservation of ecosystems;
- Substitution of potentially destructive land use with wildlife management as a form of environmentally friendly land use;
- Income generation and employment in poor and disadvantaged areas;
- Direct benefits for the rural population – monetary, nutrition, jobs;
- Economic and wise use of habitats which are not well suited for agriculture and conventional tourism;
- Ecosystem conservation through uses alternative to intensive agriculture;
- Building awareness amongst the local population regarding the value of wildlife which is otherwise only regarded as harmful, a nuisance and a cost;
- Less negative impacts on the environment in comparison with other forms of tourism;
- Less poaching through the concerted efforts of all who are interested in the revenues generated by hunting tourism.

(4)

Hunting is biological sustainable when there are long term guarantees that the take-off of individual trophy animals does not impair a healthy demographic structure of the particular game population. Furthermore it has to be ascertained that the role of the game population(s) within the ecosystem and their interaction with other game and non-game species furthers the objectives of biological diversity Practices which put individual game species at risk to becoming endangered are not sustainable and cannot be accepted. Hunters are committed to keeping the loss of biodiversity at a minimum and sound wildlife management processes need to be flexible and adaptive in order to quickly react to game population dynamics and changing environmental conditions by modifying take-off levels, quotas and if applicable, hunting methods and seasons.

In accordance with resolutions adopted by the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) selective hunting may contribute to the survival of endangered wildlife species – when, for example, revenues from hunting are a motivation and an incentive to conserve the species in question. Such hunting must be in accordance with the relevant CITES regulations and the export and import regulations of the respective management and scientific authorities. Like every human activity, hunting can develop best when an appropriate societal and legal framework fosters transparency, good Governance and rule of law. Perverse incentives on national levels need to be abolished and both positive and negative sanctions must be effectively applied to guarantee sustainability.

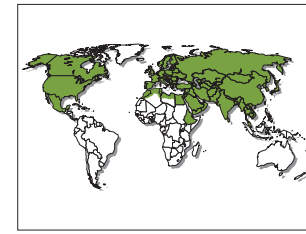
(5)

All hunting tourists have certain obligations. The following points are particularly noteworthy:

1. The hunter has to be aware of and respect the relevant international and national hunting and conservation legislation. Hunting which does not correspond with national laws, CITES, customs or other regulations for the protection of species, is not acceptable. If necessary, legal steps have to be taken against the hunting operator, professional hunter/guide or booking agent.
2. Before leaving for the host country the hunter should get familiar with the general conditions of the country, the hunting area, the wildlife and its ecology.
3. Respect for the culture, religion and way of life of the host country is essential. The national and local rules and traditions of hunting are to be respected. Modest, unobtrusive and respectful behavior is recommended.
4. The internationally recognized written and unwritten principles of ethical hunting and fair chase should be followed – even if the host country does not require this. The guidelines of the conservation of nature and wildlife species are to be followed during hunting.
5. Fair chase allows only hunting of wildlife within its natural habitat; individual game animals need to be interacting parts of wild sustainable populations – where all the temporal and spatial requirements of the particular game population are met, and where the individual has all the chances to escape from the hunter. This rules out ‘canned shooting’, ‘put & take’ practices or the pursuit of drugged, trapped, habituated and tame animals. Shooting from motorized vehicles and with the aid of artificial light sources is as unethical as hunting females with dependent young. Wounded wildlife has always to be tracked down.
6. The hunting tourist has the duty to reject and admonish unlawful and unethical hunting practices and offers and, if necessary, to take or support legal action.
7. The needs of the local population, who lives where the hunt takes place, are to be taken into account while hunting. Game meat should always be used sensibly.
8. Only appropriate weapons and calibers are to be used for hunting. The hunter is obligated to test fire weapons before the hunt.

Best Practices in Sustainable Hunting (2008) pp. 23–24.

POSITION STATEMENT OF THE IUCN CAPRINAE SPECIALIST GROUP ON TROPHY HUNTING



The main goal of the IUCN Caprinae Specialist Group is the conservation of Caprinae. Because most threats to biodiversity originate from human activity, conservation biology involves a consideration of economic, social and political factors that affect the well-being of wild plants and animals. Hunting, and in particular trophy hunting, can play a major role in Caprinae conservation. In trophy hunting, the size of the animal killed, or some aspect of its morphology, provides a "score" that can be compared to those of other animals of the same taxon. Several organizations keep records of trophy scores. For some, the higher the score, the higher the personal value of the trophy and the higher the willingness to pay to obtain the trophy. Other trophy hunters simply prefer to hunt any large specimen of a given species.

For Caprinae, the horns are measured to score a trophy. Because most Caprinae are sexually dimorphic, with males larger than females, trophy hunting of Caprinae is almost always a selective hunt for large-horned males. In most species the horns grow through life, and trophy hunters are mostly interested in mature males. Species of the genera *Ovis* and *Capra* are particularly sought after because of the very large horns of mature males.

Trophy hunting usually generates substantial funds that could be used for conservation activities such as habitat protection, population monitoring, law enforcement and research or management programs. Equally importantly, the revenues from trophy hunting can provide a strong incentive for conservation or habitat protection by demonstrating the economic worth of Caprinae to local people.

Because they seek adult males, trophy hunters are unlikely to have a negative short-term impact on most healthy populations. It is unlikely that trophy hunting of mature males will cause extinction. A population of Caprinae that produces mature males (aged 6–12 years, depending on the species) and therefore provides trophy hunting opportunities, is likely reasonably healthy. Because trophy hunting is incompatible with poaching or habitat destruction, several of the goals of trophy-hunting programs are shared with the goals of the Caprinae Specialist Group. Other specialist groups may not have such convergent goals, because for some taxa (for example large carnivores) trophy hunting is not as selective for mature males, or has negative consequences by disrupting the social structure.

Biologists and trophy hunters often disagree about the role of trophy individuals in a population. The argument that trophy males are past their prime, and therefore are surplus animals, is invalid. On the contrary, trophy hunters selectively target those males that would be responsible for much of the reproduction in an unhunted population. Large males have high reproductive success because they outcompete other males for access to estrous females. Trophy hunting thus selects against the best (or "fittest", in a Darwinian sense) males in a population, but little is known about its long-term genetic or ecological effects. If the genetic make-up of successful males in a trophy-hunted population is different from that in a non-hunted population, the population gene pool will be altered.

Because of its ecological, social and economic implications, trophy hunting is a major interest of the IUCN Caprinae Specialist Group. It is therefore important to explicitly present the CSG's position on this important and complex issue.

The IUCN Caprinae Specialist Group recognizes that under appropriate management conditions, trophy hunting can be a valid component of many conservation programs for Caprinae and their habitat. We **support** trophy hunting programs that satisfy the following criteria:

- A science-based harvest plan to limit as much as possible the difference in age structure between trophy-hunted and unhunted populations. Harvest of trophy males must be limited, target the oldest age classes and allow for a certain number of mature males to die of natural causes. Present knowledge is insufficient to estimate the proportion of males that must not be harvested to avoid negative long-term ecological or genetic consequences for the population. Excessive levels of trophy hunting may lead to selection for small horns, or alter the life-history strategy of male Caprinae, possibly decreasing subadult survival.
- A conservation-oriented use of the funds generated by trophy hunting. We **do not support** trophy hunting of Caprinae for purely economic goals. We **support** programs that can demonstrate that a substantial part of the revenues is used to foster effective conservation, habitat protection, population monitoring, environmental education, or research. We **support** community-based trophy hunting programs where funds are channeled into local conservation programs.

We **do not accept** the following practices that are sometimes associated with trophy hunting:

- Trophy hunting of Caprinae for purely economic goals where revenues go into general government funds or are absorbed only by International outfitters.
- Alienation of local communities to favor foreign trophy hunters. Support of local communities is essential for the success of conservation programs.
- Predator control with the sole goal of increasing the availability of trophy males.
- Artificial feeding to increase horn growth.
- Selective hunting with the goal of affecting horn morphology, or artificial introductions of individuals thought to have genetically larger horns.
- Hunting regulations which allow outfitters to overharvest an area and then move to different areas.

Link to the position statement on the website of the IUCN/SSC – Caprinae Specialist Group: http://pages.usherbrooke.ca/mfesta/iucnwork.htm

To hunt a Rocky Mountain Goat (Oreamnos americanus) in its own terrain requires a hunter to be almost as surefooted as these magnificent game animals. (Photo: Horst Niesters)

Best Practices in Sustainable Hunting (2008) pp. 25–26.

POSITION ON TROPHY HUNTING OF THE WWF SOUTH AFRICA

WWF-South Africa regards hunting as a legitimate conservation management tool and incentive for conservation, and regularly engages with major game hunting associations to promote ethical hunting and combat inhumane practices.

We aren't opposed at all to trophy hunting and wholeheartedly support the proactive, science-based, in-situ management of plant and animal populations and the sustainable consumptive use of surplus stocks, but oppose canned hunting where animals are specifically bred for hunting outside of natural systems.

- Canned hunting detracts from the principle that activities which involve the sustainable consumptive use of natural resources should be based on the management of the renewability of such natural resources. Therefore, the management of such "canned" species has no incentive for the future conservation of such species, nor their required natural habitats.
- Incentives for canned hunting are not based on the well being of the species and thus generated income doesn't benefit conservation.
- Canned hunting negates the principle of "fair chase" which is the fundamental basis for the hunt.

Trophy hunting is defined as "a specific form of wildlife use that involves payment for a hunting experience and the acquisition of a trophy by the hunter". WWF recognises the diversity of cultural attitudes and opinions with regards to trophy hunting. Trophy hunting occurs and ultimately, it is up to local communities and their local and national governments, to determine how they use their natural resources to benefit people, species and habitats.

Many countries utilise trophy hunting as a wildlife conservation and management tool within the broader framework of sustainable use programmes. When improperly managed, trophy hunting can have serious detrimental impacts on wildlife. Thus, in some circumstances, WWF provides scientific and technical advice to relevant stakeholders (e.g. government and local authorities, local communities and private landowners), to improve the management of such programmes, to assist them in providing benefits to species populations and/or habitats, and local communities.

WWF acknowledges that trophy hunting, where it is scientifically based and properly managed, has been proven to be an effective conservation and management tool in some countries and for certain species. That is particularly the case in areas where alternative sources of income or land use practices are unlikely to bring in much needed funds for people or wildlife, or to create sufficient incentives for conservation (as opposed to other forms of land use). In addition, there is evidence that in some areas where trophy hunting is used as one of a range of conservation tools, poaching of both the hunted species and other species in the habitat has been reduced.

However, WWF recognises that the trophy hunting of threatened species may appear at odds with their conservation, particularly those that are seen as icons of the natural world and as powerful symbols of the need for concerted action. WWF urges that for threatened or endangered species, all other conservation incentives and activities be fully explored before considering hunting them for trophies.

WWF believes that where trophy hunting is practiced, it must benefit the conservation of the species or population involved in the wild or its habitat and provide benefits for local communities as an incentive for their participation.

WWF believes that a significant portion of revenue generated from trophy hunting should be re-invested into conservation programmes. Furthermore, trophy hunting must always benefit the conservation of the species or its habitat and provide benefits for local communities.

Best practice standards for trophy hunting programmes

WWF strives to ensure the relevant stakeholders implement best practice standards, including:

- A science-based approach to providing benefits to species and their habitats.
- An adequate legal framework to regulate all aspects of the trophy hunting programme (e.g. quota-setting, trophy standards, national laws and regulations, professional guide and hunter standards).
- Adequate implementation capacity at local and national levels (e.g. administration, enforcement).
- A science-based monitoring and administrative framework (e.g. quota setting, population trends, adaptive management).
- Maximizing economic and social benefits to enhance conservation.
- Adherence to accepted humane standards, including ensuring that methods used are as humane as possible
- Respect for local cultural attitudes.
- Weighing the potential benefits to the species and local communities against the risks, erring on the side of precaution.

Read the full text on the WWF website: http://www.panda.org.za/article.php?id=527

Best Practices in Sustainable Hunting (2008) pp. 27–31.

SUSTAINABLE CONSERVATION AND GRASSROOTS REALITIES LESSONS FROM THE CONSERVATION PROGRAMME IN TORGHAR, BALOCHISTAN, PAKISTAN

(Case Study)

Luc Bellon
STEP (Society for Torghar Environmental Protection)

Abstract. Many aspects of the conservation programme in Torghar run contrary to the accepted wisdom by which sustainable conservation interventions are usually designed and implemented. Yet, it remains one of the most successful programs of its kind in Pakistan. The success of the programme lies mainly in the fact that the seeds of conservation were planted, both, by the inhabitants of the mountain themselves, and by concerned outsiders. The case of Torghar shows that sustainability, even when set as a goal, should primarily be regarded as a process, rather than an achieved outcome.
The Torghar Conservation Programme was founded on the principle of sustainable use of natural resources, which was immediately seen as the only viable way to save the two species – Suleiman Markhor (*Capra falconeri jerdoni*), a wild goat and Afghan Urial (*Ovis orientalis cycloceros*), a wild sheep. Through regulated trophy hunting, the project was to achieve substantial resources and to create incentive for the local population to protect their animals.

Key words: Torghar, Pakistan, ungulates, conservation, sustainable use

1. General presentation of the programme

This article focuses on the achievements of a sustainable use programme called the Torghar Conservation Programme (TCP), implemented by the Non Governmental Organisation named Society for Torghar Environmental Protection (STEP).

1.1 The programme area

This programme takes place in Torghar, a mountain forming the northern most part of the Toba Kakar Range. It is situated in Killa Saifullah District, Balochistan Province, Pakistan.

The project has a “core” area, which is directly protected under the programme, and a surrounding “buffer” area, which hosts human settlements and domestic herds. The project area is a rectangle approximately 35 km long by 20 km wide. The altitude varies between 2,500-3,300 meters.

1.2 Basic aims of the programme

The programme aims at safeguarding from extinction two animal species: one of wild sheep known as the Afghan Urial (*Ovis vignei cycloceros*); the other of wild goat known as the straight horned/Suleiman Markhor (*Capra falconeri jerdoni*). Both species inhabit a limited area that ranges from the mountains of north western Balochistan, Pakistan (Takatu and Toba Kakar Ranges) and some parts of Afghanistan (Roberts 1997).

The wilderness of northeast Balochistan has long been famous for its abundant and diverse wildlife. Its mountains once contained abundant populations of Sulaiman Markhor, Afghan Urial, leopard, and, in some

places, black bear. Torghar was considered one of the most important wildlife areas of the District. Since the late 1970s, the Afghan war initiated a steady flow of refugees, weapons, and ammunition. With modern weapons (mostly Kalashnikov) and, the ready availability ammunition, seasonal migrants and local residents increased their hunting of local wildlife. By the early 1980s; the Sulaiman Markhor and Afghan Urial populations were drastically reduced, while species like leopards became extinct in the region.

Afghan Urial (Ovis vignei cycloceros), (Photo: SUSG-CAsia)

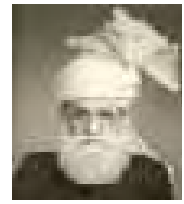
1.3 Socio-economic context

The northern part of Balochistan is for the most part inhabited by Pashtuns. The Pashtuns of Torghar are members of the Kakar tribe.
The population living in the project area ranges from 2000 to 4000 individuals. The people are, for the most part, semi-nomadic pastoralists tending large Herds of sheep and goats. In Tanishpa where limited cultivable land and perennial water is available, people have small agricultural fields and orchards.

2. Trophy Hunting and Self-Sufficiency

As said in the previous section, the Torghar Mountain is situated in the Provincially Administered Tribal Area (PATA). Hence, local tribal leaders have considerable power. The TCP itself was initiated by one of the most charismatic leader from the region: late Nawab Taimur Shah Jogizai.

Himself a hunter, Nawab Taimur Shah Jogizai became a privileged witness to the depletion of wildlife. After noticing the near extinction of Markhor and Urial in many of the adjacent mountains, the Nawab decided to ban the hunting of animals in Torghar, one of the last strongholds of these species. The TCP was born under his auspices. The initial enforcement of the ban was enabled by both his tribal authority as well as his administratively recognised powers.



Late Nawab Taimur Shah Jogizai

2.1 Official institutions and hunting permits

The tribal leader enforced his decision without any contribution from government institutions. That itself induced a drawback when it came to hunting permits: the administration not being involved, did not initially deliver any official hunting permits to the interested Trophy hunters.

In 1986 TCP applied to the Government of Balochistan (GoB) for Urial hunting permits. These permits being mainly destined to foreign hunters, TCP suggested raising the fees from the original Rs.750 (equivalent to less than USD 100 at that time) to USD 1000. TCP's main argument for doing so was to curtail the well known trafficking of local permits being ceded to foreign hunters without any official permission. The suggestion to create a specific permit destined for export would enable a check on this practice. Yet, the request was rejected by the then Minister of Forest & Wildlife (GoB).

Between 1987 and 1989, in the absence of government permits, hunts were conducted through "tribal permits"; *i.e.* a letter signed by Nawab Jogizai certifying that the trophy animal had been hunted in "his" area. At that time, permits were not needed to export trophies to Europe; while the United States Fish and Wildlife Services (US-FWS) agreed to make an exception, by accepting the validity of the Nawab's letter. It was only in 1989 that the procedure for official permits was re-established. 10 Urial permits were issued to TCP for the first time. As per suggestion of TCP, USD 1000 fee was paid to the Government for each Urial permit. The 10 permits issued by the GoB were not utilized in one go due to TCP's policy of limiting the number of hunts. As a result this quota was extended over a period of several years.

In legal terms, issuing hunting permits is the prerogative of the Provincial Government. But **export permit** can only be granted by the Federal Government through its Scientific Management Authority called the National Council for Conservation of Wildlife (NCCW).

After years of meetings and discussions, NCCW finally agreed, in 1998, to issue export permits for Urial trophies.

The hunting of Markhor remained banned because of it being listed on Appendix-I of CITES (Convention on International Trade in Endangered Species of wild fauna and flora). The situation only changed in 1997 during a Conference of Parties of CITES, held in Zimbabwe. There, the Government of Pakistan, supported by SUSG-CAsia petitioned for allowing a limited quota of Markhor trophies to Pakistan. The citing of Torghar as a successful example of conservation through trophy hunting played the leading role in convincing the delegates.

CITES eventually granted Pakistan with six permits for sport hunted Markhor trophies. Out of these, NCCW of the federal government granted 2 permits to Torghar and the rest to the North West Frontier Province (NWFP) and Northern Areas. This quota of two permits to Torghar continued for four years until 2003 when CITES increased Pakistan's quota from 6 to 12 Markhor hunting permits. These permits both facilitated the export of the trophies for foreign hunters, and created an opportunity for direct involvement of the Pakistani government at the federal level.

The trophy fees have increased, between 1988 and 2006, from USD 15,000 to USD 40,000 for Suleiman Markhor, and from USD 8,000 to USD 10,000 for Afghan Urial. The rates are agreed upon by NCCW. Out of the fee, 20% is paid to the Provincial Government, while the remaining is used to fund the programme. A successful hunt has to be reported to the Provincial Wildlife Department, which then approaches the NCCW; it is only then that the latter provides the export permits.

3. Torghar Biodiversity and Sustainable Use

3.1 Sustainable use

The TCP was founded on the principle of **sustainable use of natural resources**. This concept was defined by IUCN (International Union for Conservation of Nature) as follows:

Sustainable use of natural resources as defined by IUCN:
IUCN recognizes that the economies, cultures, and well-being of all human societies depend on the use of biodiversity. Conservation must address the way that we use biodiversity, rather than construct artificial distinctions between people and nature.
The concept of sustainability is central to conservation but it embodies social dimensions – including distribution, values, and equity – as well as an understanding of the intrinsic limitations on the supply of biological products and ecological services.
The goal is to adopt uses of biodiversity that are sustainable.

The concept of sustainable use initially faced opposition by many conservation organisations, as it meant killing the species which were the subject of conservation. Yet, after many years of gradual implementation, sustainable use is now recognised world wide as one of the most effecient means to save the Biodiversity. In the Case of the TCP, the idea was immediately seen as the only viable way to save the two animal species. Through **regulated trophy hunting**, the project was to achieve substantial resources and create incentive for the local population to protect their animals.

3.2 Trophy hunts

The hunting season for Markhor and Urial starts in November and goes on until March. The animals sought by hunter are exclusively older males with the largest horns. Hunting those animals means leaving the female and younger males at peace, therefore not interfering in the reproduction cycles. The growth rate is thus undisturbed. It is the responsibility of the game guards to identify the appropriate animals. However, the hunter is free to select the animal to be hunted.

3.3 Surveys

The sustainability of Trophy hunting is dependent on the allocations quotas for each species and ensuring their enforcement. Hence, the first requirement to initiate such projects is to survey the animal population and assess the maximum number of specimens that can be harvested without disrupting the reproduction cycle. The final figures in 1988 survey stood at observation of 56 Markhors and 85 Urials.

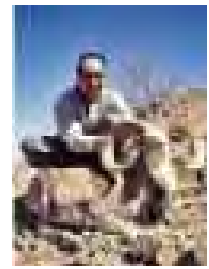
Further censuses were conducted in 1994, 1996, 1997, 1998, 1999, 2002 and 2005. They include surveys of Urial and Markhor population, range conditions, livestock, diseases, small mammals, and flora.

3.4 Sustainable harvest

The main characteristics of Markhor and Urial are: relatively long life span, relatively high reproductive rate for a species of its body size, polygynous mating system, relatively high survival of adult age classes, relatively low susceptibility to predators, and adaption to rugged and fluctuating conditions. These suggest that the Markhor and Urial populations are relatively tolerant to conservative harvest rates and have the capacity to rebound from overharvest. In such species there is normally an "excess of males whose loss has little effect on population levels" (Schaller 1977).

According to Johnson (1997), the limited trophy hunting has not affected the increase in the population of Markhor and Urial. As he states himself: "*The simple fact that both populations have continued to grow steadily while subject to a strictly controlled trophy hunt is ample evidence that harvest levels have been conservative*".

Frisina (2000) recommended that "*Trophy hunting has not impacted the ability of Markhor and Urial population to increase. For the male population segment a sustainable annual trophy harvest for Markhor should be up to 18. A sustainable trophy harvest for Urial should be up to 13.*"



A hunter with his Afghan urial trophy. (Photo: STEP)

Despite these recommendations, TCP has allowed an annual trophy hunt of only 1-2 Markhor and 4-5 Urial until 2004, even though the estimated "sustainable harvest" based on surveys would allow many more for the first the trophy hunt was increased to 5 animals in 2005-2006.

4. A Gradual Implementation

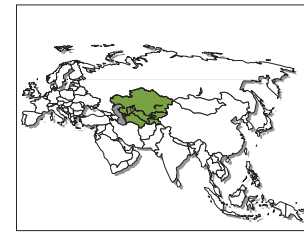
4.1 A self run project: the Game Guard Programme

The Game Guard Programme (GGP) stipulated that tribesmen were to be recruited from the local population as game guards. It recommended that wildlife surveys be undertaken regularly, establishing the number of Markhor and Urials that could be hunted. The hypothesis was that the development of local livelihoods based on trophy hunting would demonstrate to the local tribesmen that managing the area for wildlife protection could be an economically viable use of the land and its resources.

The GGP was launched in 1985 and seven local tribesmen – former hunters – were hired as game guards to control illegal hunting and to assist in wildlife surveys. Since then this number of gamegards has increased to 93 in 2007.

The hunter with his trophy, a Sulaiman Markhor (Capra falconeri jerdoni), members of STEP and game guard. (Photo: STEP)

CONSERVATION AND USE OF WILD UNGULATES IN CENTRAL ASIA – POTENTIALS AND CHALLENGES



Stefan Michel
Nature Protection Team, Tajikistan

Abstract. Central Asia inhabits a rich fauna of wild ungulates providing a high potential for sustainable use. During the last hundred years the region faced a considerable loss of population numbers and distribution ranges. Conservation efforts are usually focusing on protected areas and rarely consider potentials of wild ungulates for sustainable land-use. Trophy hunting in exceptional cases contributes to conservation, but more often relies on protected areas and encourages poaching by local people not benefiting from revenues of hunting programmes. Many species are under threat due to uncontrolled hunting and habitat degradation. Well managed utilization schemes could provide a significant potential for rehabilitation and sustainable use of wild ungulate species and their habitats. Requirements for sustainability of utilization are: understanding of ecological background, monitoring of populations and trends, recognition and adequate involvement of local people, transparency and independent control. National efforts in this direction are supported by international state and non-governmental organizations.

Keywords: Former Soviet Union, Central Asia, wild ungulates, conservation, sustainable land-use, trophy hunting

Introduction

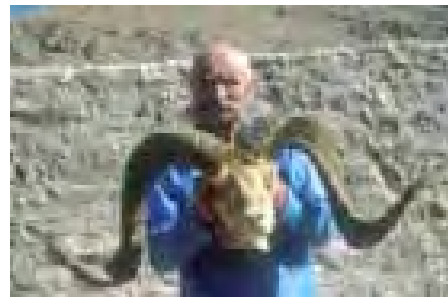
For the purpose of this article the states located east of the Caspian Sea and south of Siberia, i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan are summarized as Central Asia. Despite considerable differences in their political systems, the countries have much in common in terms of culture and land-use, and share many aspects in pre-Soviet history and Soviet legacy. Thus it seems justified referring to the region as a whole in this brief overview.

Central Asia is a region which has been deprived of much of its populations of larger animal species as well as of entire ecosystem types at an immense rate before and during the Soviet era and immediately after. Where nowadays the city of Tashkent spreads, Turan tigers *(Panthera tigris virgata)* were still roaming in gallery forests stalking numerous wild boar *(Sus scrofa)* and Bukhara red deer *(Cervus elaphus bactrianus)*, just a bit more than one hundred years ago. Since then, in the entire valleys of the Amudarya, Syrdarya and other rivers gallery forests have been excessively clear cut with subsequent development into farmland and pastures. The last Turan tiger was killed in the 1950s. Bukhara deer subsist only in few fragmented forest parcels. Lately the deer population reached critical levels of only few hundred animals and could only be preserved by intensive conservation efforts, including captive breeding. Even wild boar, a problem species in many parts of the world, is largely extinct and the remnant populations are too low for being effectively utilized.

Large sections of steppe and semi-desert areas, once home for large herbivores as Asian wild ass *(Equus hemionus kulan)*, goitered gazelle *(Gazella subgutturosa)*, saiga antelope (*Saiga tatarica tatarica*) and probably wild horse *(Equus ferus przewalskii)* have been cultivated as arable lands. Most of the remaining drylands were equipped with watering points for intensive livestock production. Land-use intensification and relentless commercial hunting and poaching have caused the almost complete extinction of the

mentioned herbivores in the lowlands. The Asian wild ass subsists only in few reserves, in several of them recently reintroduced. The saiga antelope population numbers collapsed from more than one million heads in the 1970s to a few thousand. The goitred gazelle survives only in the most remote desert areas, by far in too low numbers to provide a prey basis for the Asian cheetah, which seems now to be extinct in the entire region.

The mountain ranges of Central Asia (Tien Shan, Pamiro-Alai, the Pamirs, Kopetdagh and some smaller ranges) and the Central Kazakhstan hill country are home for several *Caprinae* species like local varieties of argali *(Ovis ammon)*, urial *(Ovis orienalis)*, markhor *(Capra falconeri)* and ibex *(Capra sibirica)*. These wild sheep and goat once have been abundant and widespread as petroglyphes (rock drawings), historical travel narratives and even recent reports suggest. Nowadays even the Siberian ibex, still the most widespread and abundant species is missing from large mountain areas of its former home range and may even be difficult to observe inside protected areas. The other capra species, the markhor, subsists only in fragmented small populations. The distribution areas of the different subspecies of wild sheep (urials and argalis) became extremely fragmented as well. At least two subspecies, the Bukhara urial *(Ovis orientalis bocharensis)* and the Karatau argali *(Ovis ammon nigrimontana)* are under acute threat of extinction. The other subspecies' populations are reported to subsist at a stable but low level at best, or rapidly declining in the worst case.



Local hunter with the skull of an argali from the Kyzylkum desert, an area where nowadays hardly any argali could be found. (Photo: Henry Mix)

Despite this depressing situation wild ungulates in Central Asia could still account for potentially a high economic contribution to sustainable land-use, especially in arid drylands and many mountain regions if remaining populations would be managed well and given time to recover. However, the fast loss of these species is usually only recognized and documented by a narrow circle of experts. Neither politicians nor the major stakeholders with an interest in the use of these species are aware of, or are flatly denying the acute risk of permanent depletion of these valuable resources. On the other hand, and equally concerning, many conservation efforts are concentrating on pure protection concerns and rarely consider the potential or actual economic value of these animals. Consequently, the ordinary citizens of the Central Asian republics perceive conservation as unnecessary "luxury". Conservation legislation is rarely enforced because of budget restraints. Additionally, the lack of effective access and benefit sharing regulations encourages local poachers as well as companies who market hunting rights to see game as nobody's property which should be taken before somebody else is doing so – another striking example of Hardin's "Tragedy of the Commons".

The intention of this article is to promote a focussed dialogue regarding the economic, social and ecological potentials and challenges for the long-term sustainable use of the Central Asian game species and the requirements of sustainable hunting systems. This dialogue could provide new approaches for sustainable

hunting in the republics in question, which may benefit local rural people and ensure the conservation of species, genetic diversity and optimal game population levels. Last but not least, the Convention on Biological Diversity, of which all the mentioned states are members says: *"Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations"*.

History of wildlife use and conservation

People in Central Asia used wildlife just as elsewhere in the world. Archaeological artefacts, in particular petroglyphes showing hunting scenes, provide evidence about the historical importance of hunting species like saiga, deer, ibex and wild sheep. Hunting is still considered an important cultural asset. Skulls of hunted animals are often displayed at holy sites (shrines) or at special places in the dwellings. While game was and is still often seen as an open access resource, freely available for everybody, traditional regulations and rules from centuries past indicate that concerns about the sustainability of hunting are not just a modern phenomenon. For instance people from Badakhshan (Tajikistan) reported about customary restrictions concerning hunting seasons, age and sex of hunted animals and take-off rates; they mention that responsibilities where clearly assigned within the rural communities and hunting areas of neighbouring villages clearly demarcated. Members of formerly nomadic communities, as the Kyrgyz of the Eastern Pamirs tell of traditional rules, concerning the number of animals one hunter was allowed to hunt. Nevertheless, even in pre-Soviet times unrestricted hunting caused already sharp declines of game populations. For example, the saiga antelope was almost extinct in the 1920s.

Soviet period conservation and game management are often referred to as success story. This is only partially true. The Soviet power installed a system of strictly protected reserves, the *zapovedniks* and managed to restore the almost extinct saiga populations by strict enforcement of a hunting ban. On the other hand, the excessive cultivation of virgin and even marginal lands without consideration of ecological costs and long term profitability at national economy level led to a dramatic habitat loss for wild ungulates. Moreover, the remaining ungulate populations were perceived as a resource to be exploited for the fulfilment of the production targets. Certainly, some scientists raised a voice of concern regarding the sustainability of such resource use, but decision makers were more concerned about the achievement of prescribed short term take-off quantity than long-term sustainability. Thus examples for overexploitation of game populations during Soviet times are numerous. The large-scale commercial saiga harvest was rather limited by availability of staff, time and ammunition than by officially set quotas and consequently repeatedly led to population collapses. One regional saiga population, the Kalmykian herd never recovered from that destruction. The extermination of goitered gazelles in the large desert areas of Turkmenistan, Uzbekistan, and Kazakhstan or the shrinking of populations of Marco Polo sheep *(Ovis ammon polii)* in the Pamirs were all caused by unrestricted commercial hunting. Despite these cases of state-organized overexploitation made worse by widespread poaching by local people, the prevailing strictly organized Soviet structure, secure basic livelihoods, severe restrictions on the possession of arms and ammunition and a functioning control system in the *zapovedniks* and game reserves ensured that most species enjoyed some minimum level of protection.

The situation worsened considerably during *perestroika* and the first years of independence of the Central Asian countries. Economic liberalization and the opening of boundaries for trade and people allowed the mass export of wildlife products, in particular saiga horns, and the selling of trophy hunts to foreign hunting tourists. State institutions in charge of wildlife conservation and game management were the principal perpetrators abetted by weakening enforcement of use restrictions. Moreover, local rural people suffering from a rapidly worsening household income situation and even the collapse of agricultural production structures (in particular

in Kazakhstan and Kyrgyzstan) showed little acceptance of any state-imposed restrictions on wildlife use. The collapse of the saiga populations in Kazakhstan was principally caused by a limitless take-off of saiga rams to export their horns. The slaughter was carried out by the state brigades in charge of saiga management and by country-wide operating commercial poacher syndicates and finished off by locals living in the range areas. In Tajikistan the civil war caused the local extinction of several game species as armed groups occupied protected areas as operational bases and the easy availability of firearms allowed the suffering rural people to satisfy their nutritional needs by hunting wild animals. After the civil war in Tajikistan, the weapons were collected by the government, yet the Pamirs, border troops who rarely received any significant monetary compensation often lent arms to shepherds to supply them with meat of Marco-Polo sheep. More often than not they supplemented their income by killing large rams and selling the horns to visiting trophy hunters.

An acute lack of public funding for protected areas, and protected area staff hampered conservation efforts during the first years of independence; conservation and wildlife management experts moved to better paid jobs or emigrated from the region; inadequate legal and institutional frameworks, widespread corruption and a general lawlessness worsened an already bad situation.

Nevertheless, a few courageous people achieved some considerable success, preventing much worse losses even under these trying conditions. Many protected areas could at least be formally maintained, in some cases even extended. Some new protected areas were established, most notably the Tajik National Park. While the existing, extended and newly established protected areas might be considered being just “paper parks” they provided and provide a basis for step by step improvement of conservation management. Despite certain limitations, like livestock grazing inside the protected areas, or poaching by park staff, they ensured at least some level of protection compared to open access areas. Internationally financed projects significantly contributed to the survival and extension of the protected areas systems. They assisted with the introduction of management principles which included the local rural population; they introduced new protected areas categories like the biosphere reserves and helped with the implementation of species-specific anti-poaching and rehabilitation activities.

The development of private hunting companies, usually based on the lease of hunting rights on defined hunting areas differed by character and impact. In many areas the emphasis was being put on short term exploitation, sometimes even factoring in the utilization of game populations of adjacent protected areas. A prominent example is the establishment of a markhor hunting area on parts of the Surkhan *zapovednik* in Uzbekistan. In other cases there was not even the pretext of setting land aside for hunting reserves and hunting just took place at the borders or even inside protected areas. The circumstances under which international trophy hunting was done, combined with the lack of adequate benefit sharing mechanisms for the locals, encouraged local men, who felt disenfranchised from their game resources, to resort to widespread poaching. On the other hand, there are examples of hunting companies, for instance in the Tajik Pamirs, who invested quite successfully in the protection of the game populations, provided attractive employment opportunities for local people and contributed in some extent to public budgets. The sustainability of such hunting companies was and is often at risk by the geographically limited areas at their disposal, the short duration of leasing contracts, insufficient monitoring and wildlife management at population level and intense poaching in the areas surrounding the hunting leases.

Wildlife use and conservation at present

Many of the above stated challenges still remain despite of national efforts and international assistance to the Central Asian countries. Except of some comparably small species-specific projects (on saiga, Bukhara deer, snow leopard), most activities of internationally supported projects certainly were specifically justified by the conservation needs of endangered species, but were in planning and implementation based on broader

approaches of protected areas development, livelihoods improvement and environmental awareness creation. These approaches without doubt are justified and necessary, but with limited resources, those species acutely endangered by direct persecution and habitat degradation often disappeared from the focus of attention. Targeted monitoring activities on population dynamics and take-off were rarely implemented. Thus these larger international conservation projects' impact on endangered ungulate species and the improvements of the game management systems achieved by those projects seem to be low or are at least difficult to evaluate.

Conservation efforts by national institutions and international conservation bodies are often linked to pure preservation and rarely take the potential or actual economic value of game animals into account. Strictly protected areas (*zapovedniks*) or other seriously restricting preservation measures are the preferred methods for the protection of threatened species. The low effectiveness of these methods and even potential adverse effects, e.g., underpaid zapovednik staff becoming poachers, are rarely considered. On the other hand, efforts concerning the sustainable use of game species are more often than not strongly opposed.

Working partnerships between hunting companies and service providers and scientists hardly go beyond the formal setting of quotas by the appointed management institutions. Moreover, quotas are often based on doubtful data as systematic monitoring was almost impossible during the last 15 years and survey techniques are frequently antiquated and not founded on contemporary scientific standards. Recent wildlife surveys are lacking or are limited in extent and time. Thus the population numbers for important game species are based on extrapolations from outdated data and subjective interpretations.

In some marginal rural areas the utilization of wildlife resources still plays a considerable role in local livelihoods. This is in particular the case in the Eastern Pamirs of Tajikistan where the Marco Polo sheep is one of the primary meat sources; to a lesser extent in vast semi-desert and steppe areas in Kazakhstan where goitered gazelle and saiga are hunted on subsistence basis; and in many other regions where wildlife contributes at least partially to the food basket or is used for income creation. The current policies and legal frameworks consider nature resources as state-owned and neglect the interests of local people and their need to use these resources. There is hardly any legal access right for local people to wildlife resources and only an extremely limited share of the economic revenues coming from their utilization by outsiders reaches local levels. Quite often, stakeholders from government and from hunting companies see any wildlife use by local people as illegitimate competition.

In Soviet times, Kazakhstan had an institution for wildlife exploitation and management, the *okhotzooprom*. With the collapse of the saiga population, at least partly caused by the same institution, the country lost an important resource basis. Less than two decades ago the saiga and other ungulates held a high economic importance for sustainable land management; now this potential is widely forgotten. However, recently the government of Kazakhstan implemented a "*Program for Conservation and Restoration of Rare and Extinct Ungulate Animal Species and Saiga (2005-2007)*". While official numbers suggest a slight recovery of the saiga populations, there is still reason for concern. Despite significant efforts in terms of creation and extension of protected areas, increasing inspection staff numbers and salaries, poaching (subsistence, commercial and by rich sport hunters) is rampant, in particular on the Ustyurt population. New infrastructure projects like gas and oil pipelines cause disruption of migration routes and monitoring data are unreliable, and may even be politically biased. While the saiga receives much attention, other species are even more under pressure. This concerns the goitred gazelle as well as the wild sheep subspecies Karaganda Argali *(Ovis ammon collium)* in the low mountains and in the Kazakhstan hill country. The situation is hardly under control. An effective involvement of local people in protection, management and utilization of ungulate species is so far not under consideration and state based approaches are clearly preferred.

In comparison to other Central Asian countries Kyrgyzstan has transferred more decision making authority to local communities. A new and more inclusive approach to conservation has been introduced in the Issyk

Kul biosphere reserve. However, so far no sustainable management systems for wild ungulates are in place and protected areas have limited and poorly paid staff. A number of private hunting areas have been established, but the limited size of these areas, insufficient managerial capacity and other shortages prevent them from becoming an instrument of sustainable management of wildlife. Reportedly, staff of hunting areas is often involved in year round poaching activities, with game species getting a rare period of relative peace only during the official hunting season when international hunters are present.

Tajikistan's wildlife resources have been heavily affected during the years of civil war and economic crisis when arms were abundant and when many people under absence of alternatives had to rely for survival on natural resources. In some areas Marco Polo sheep and ibex are still important sources of meat for individual consumption and the local market although authorities are making efforts to prevent poaching by confiscating of firearms, establishment and enforcement of protected areas. Marco Polo trophy hunting is regulated by demarcated concession areas which can be leased for a number of years and the issuance of a limited number of Marco Polo licenses for these areas. Some of these hunting areas, but not all, have quite effective protection systems, well paid and motivated staff. The license fees are shared by the central and local governments providing at least some potential for direct local benefits. However, local communities complain about not getting a share of the incomes from the licenses. Additionally there seems to be an illegal market for trophy hunts, in particular for Heptner's markhor.

Turkmenistan modified the *zapovednik* system during the last years and provided local people with some access to the resources of the formerly strictly protected areas. It seems that poaching was tolerated in a great extent. The Asian wild ass (kulan) population of the Badghyz reserve declined from estimated 4,000-5,000 in 1993 to few hundreds after 2000 with one subpopulation going extinct. The situation of wild sheep and goitered gazelles is probably worse.

The many problems of the early transition period are still manifest in Uzbekistan. Poaching is widespread, even inside protected areas. Sale of game meat at markets is normal, in particular of saiga in the Autonomous Republic of Karakalpakstan. Effectively managed hunting areas are the rare exception. Hunting tourism relies on formally protected *zapovedniks* and their immediate vicinity. Especially critical is the purchase of trophies of endangered species from enclosures. These trophies can be imported to the home countries of the hunters as captive bred animals while the real origin remains in the dark. A breeding centre for goitered gazelles maintains a sustainable population but so far could not fulfil its original purpose of rehabilitating the wild population. Instead of releasing surplus animals into the wild, trophy specimens from the breeding centre are marketed to hunters and zoos. A rare success story is the rehabilitation of the Bukhara deer population in one reserve and its surroundings with intensive assistance by a WWF-supported project. The development of any sustainable use of wild ungulates in Uzbekistan first requires a significant improvement of the conservation management system for the rehabilitation of the target species' populations, including the institutional setting and managerial capacity, monitoring schemes, effective protection, and benefit sharing mechanisms for ensuring of support by the local people.

Potentials and risks for the sustainable use of wild ungulate populations

The described situation will most likely reduce any expectations about sustainable use of wild ungulates in Central Asia. Ungulate numbers are considerably below the optimal levels and in many case even these low numbers are declining. In areas, where large and increasing numbers of people put pressure on small and shrinking ungulate populations and their habitats, these species are at risk being exterminated within few years. Under the current conditions sustainable take-off rates remain low and the contemplation of consumptive forms of wildlife use must be based on sound ecological assessments and include integrated as well as independent control mechanisms.

However, this alarming picture should not distract from contemplating the potentials of wise use of wild ungulates. If the limiting anthropogenic factors are removed ungulate populations are able to recover in remarkably short time frames. The reproductive ecology of the ungulates in Central Asia is adapted to harsh environment; and natural fluctuations due to drought or *dzhut* (long lasting snow and ice cover of the fodder grounds) are part of the natural system and are quickly compensated for.

On the other hand, it is necessary to consider that many ungulates have only survived in habitats outside the optimum range of these species. Land-use changes, competition of livestock and poaching have forced wild sheep and goats to use only the most inaccessible mountain areas where harsh conditions prevail. The saiga has lost parts of the former home range due to land cultivation and wild asses suffer especially at the watering points from livestock competition and poaching. Anthropogenic induced factors over and above a naturally harsh environment significantly increase the mortality rate and reduce the actual reproduction potential of the concerned species. The flexibility and fast adaptation of the game species, however, would allow the mitigation of limiting factors. Where poaching is effectively controlled and hunting is regulated to cause only minimal disturbance, wild ungulates could quickly learn to coexist with other land-use forms.

Rehabilitation and sustainable use of wild ungulate populations can provide a land-use option which avoids land degradation often caused by intensive livestock grazing and tillage. Wild ungulates are much better adapted to the ecosystems than domestic livestock. Their important ecosystem functions include the spreading of the seeds of plant species over wide areas the redistribution of nutrients through their manure.

The Servertov's argali, the smallest argali subspecies occurs in the hottest part of the argali range area. The need for shelter makes them vulnerable to deforestation and competition with livestock. (Photo: Richard Reading)

The potential of native wildlife for sustainable land-use is high, especially where arable agriculture and/or livestock breeding are costly, risky and/or unsustainable. In the dry steppe zone harvests from rainfed agriculture are hardly predictable and often failing due to inter-annual variations of rainfall. In these landscapes saiga (*Saiga tatarica tatarica*) provide a viable alternative land-use opportunity with their high

adaptability to temporally and spatially varying forage availability and the avoidance of pasture degradation often caused by the less mobile domestic livestock. Similar potentials exist in hilly and mountainous areas where intensive livestock grazing often causes vegetation degradation and soil erosion. In most cases wildlife management and livestock herding are not necessarily mutually exclusive.

Central Asia's wild ungulates are already heavily under pressure by diverse poachers, habitat competition with livestock, and degradation of vegetation. Under these circumstances the promotion of their utilization may bear the risk of intensifying the exploitation and thus giving them the final blow for extinction. In Uzbekistan the sale of 3 to 7 Severtzov argali rams per year to foreign hunting tourists hardly effects the population officially estimated with around 1,500 individuals. But, despite of the hunts being under direct control of the state authority in charge of the core population in the Nuratau *zapovednik,* only negligible funds are reinvested into the protection system; and local people, bearing the restrictions on grazing in this area, do not receive any tangible share. De-motivated *zapovednik* wardens are the result and local people have a moral excuse for illegally grazing livestock in the area and for poaching. This example just illustrates one variant of the risks related to any kind of consumptive use of wildlife populations.

Principles and requirements for sustainable use programs

Prerequisites for any sustainable use of wild ungulates include sufficient ecological knowledge, healthy populations of target species, active conservation management, well-trained and dedicated staff, an adequate legal structure and minimal corruption.

Exploitation of wildlife populations requires a sufficient understanding of the ecology of the target species, its habitat and interactions with other species. Important variables include the factors limiting a population's size, sources of mortality, the age structure and growth rate of the population, key habitat resources and their locations, inter-specific relationships and major threats to the species' habitat. Sustainable use may begin before sufficient research concludes, but in such cases adaptive management approaches must be implemented by well trained and motivated staff

The most important prerequisite to a sustainable hunting program is the presence of at least one healthy population of the target species. This means that the population is at least large enough to sustain some level of harvest without causing the population to decline. In addition, the target population should exhibit a stable demographic structure. Before and during any hunting program periodic monitoring is necessary to provide reliable estimates of the size and composition of the target populations. Ongoing poaching has to be monitored and recognized. All hunter harvested game animals have to be thoroughly recorded by sex, age, trophy class, body condition, location of kill, etc.

Since hunting programs generate significant revenues, they are an obvious target for corrupt officials. As such, agencies that want to develop sustainable hunting programs should first demonstrate their commitment to good Governance, including the ability and willingness to find and prosecute corrupt staff members.

Last but not least, local rural people should be recognized as legitimate stakeholders and users of wildlife. This step, in combination with long term concession lease periods will create the incentives for local people and hunting companies to consider long term use options and thus stimulate sustainability of wildlife use. The assignment of secure user rights and/or a significant share of the proceeds from commercial hunting for local development needs should be linked to clear responsibilities of the beneficiaries and can thus stimulate good conservation management.

Hunting programs should include internal as well as external monitoring and control mechanisms based on defined principles, criteria and indicators of ecological sustainability, economic viability and social acceptance. They should support good governance and avoid biased decision making by defining administrative structures and responsibilities thus providing transparency for stakeholders and the public.

Ongoing efforts and perspectives

The recognition of the risk of irreversible loss of game species in the Central Asian countries is growing. Supported by the Convention on Migratory Species the range countries of the saiga started national and joint efforts for rehabilitation of the saiga populations and their sustainable use. The Central Asian Countries Initiative on Land Management (CACILM) promotes dialogue about needs and perspectives of combating desertification and achieving sustainable land management. Some of the Central Asian countries explicitly included wildlife management as sustainable land-use in their National Programming Framework.

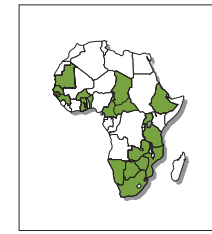
Some domestic and foreign NGOs have started projects and programs targeted on wild ungulates. The largest program is the Altyn Dala Conservation Initiative, aiming at conservation of steppe ecosystems in Kazakhstan while focussing on the Betpakdala saiga population. The activities planned and implemented under responsibility of the Association for Conservation of Biodiversity of Kazakhstan and supported by Frankfurt Zoological Society, Royal Society for Protection of Birds and WWF concentrate on establishment of new protected areas and anti-poaching. The Tajik NGO Nature Protection Team with support of the Snow Leopard Conservancy and the Christensen Fund is implementing a project on community based conservation and use of biodiversity. These activities will be complemented by the involvement of an integrated expert provided to Nature Protection Team by the German Centre for Migration and Development (CIM), which will assist the development and implementation of activities focussing on sustainable management mountain ungulates in selected pilot areas in partnership with local communities, state institutions and scientists.

German development cooperation is currently considering and planning a regional project on sustainable nature resource management and conservation of biodiversity with a strong focus on wild ungulates. This project would be implemented by German Society for Technical Cooperation (GTZ) and will likely become the first larger project of international development cooperation which puts rehabilitation, conservation and use of wild ungulates populations in the centre of efforts for sustainable land-use and economic development of marginal areas in Central Asia.

Future efforts for conservation and sustainable management of Central Asia's wildlife should, in addition to the respective government bodies and national scientific institutions, involve in a concerted action of international hunting associations, IUCN species specialist groups, local hunt managers and service providers, representatives of local communities as well as the regulatory authorities of the main importing regions of trophies.

Best Practices in Sustainable Hunting (2008) pp. 41–47.

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



Peter A. Lindsey[1, 2]
[1]*Senior Research Fellow*
Mammal Research Institute
University of Pretoria, South Africa
[2]*Savé Valley Conservancy in Zimbabwe*

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

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

1. Introduction

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

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

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

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

2. Scale of the trophy hunting industry

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

2.1 Southern Africa

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

2.2 East Africa

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

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

2.3 Central and West Africa

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

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

3. Trophy hunting as a conservation tool

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

3.1 Trophy hunting can be sustainable

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

3.2 Trophy hunting creates financial incentives for conservation

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

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

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

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

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

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

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

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

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

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

4.2 Problems with trophy hunting on state and communally owned land

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

i. Quota setting, over shooting

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

ii. Allocating hunting areas

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

iii Corruption

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

iv. Competition with citizen hunting

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

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

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

5. Potential solutions to problems affecting the trophy hunting industry

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

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

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

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

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

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

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

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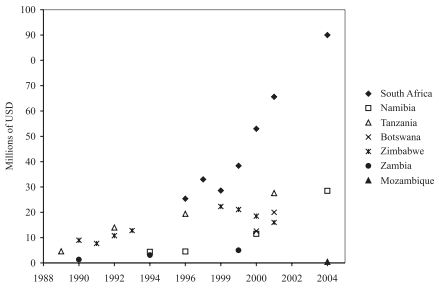


Figure 1. Recent trends in gross annual revenues from trophy hunting in southern and East Africa (Source: Lindsey et al. 2007)

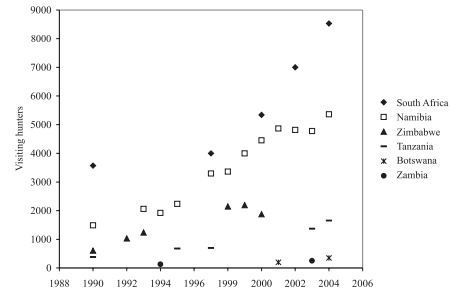


Figure 2. Recent trends in the number of foreign hunters visiting southern and East Africa (Source: Lindsey et al. 2007)

NAMIBIA COMMUNAL AREA CONSERVANCIES

L. Chris Weaver[1] **and Theunis Petersen**[2]
[1]*World Wildlife Fund (WWF), Chief of LIFE Project, Namibia*
[2]*LIFE Project Wildlife Utilization Specialist, Namibia*

Abstract. Namibia has put in place one of the most innovative conservation management programmes in Africa. Through the years, Namibia has developed and instituted a number of incentive-based laws which have successfully inspired recovery of wildlife populations on private lands, and more recently, on communal state lands. Consequently, both private land owners and rural communities (who form communal conservancies) are now integrating the management and sustainable utilization of wildlife into their production strategies. A fundamental factor in this conservation movement has been the contributions of the trophy hunting industry. This paper describes the visionary legislation for hunting and conservation as well as the practical terms of community based hunting, and how this success became real. The contributions of the hunting industry bring benefit on many levels of society and nature but the article also shows the future challenges of this approach.

Key words: Namibia, conservancies, sustainable use, trophy hunting

1. Background

Since independence in 1990, Namibia, a large country with less than two million people located in southwestern Africa has put in place one of the most innovative conservation management programmes in Africa, if not the world. In contrast to previous governmental policies, the 1996 communal area conservancy legislation has provided incentives and motivation for communal area residents across Namibia to conserve their wildlife resources. As a consequence, communities who form conservancies (Conservancies are legally-recognized, geographically-defined areas that have been formed by communities who have united to manage and benefit from wildlife and other natural resources.) are now managing and sustainably utilizing their wildlife through trophy hunting, meat harvesting, live game sales, and other forms of non-consumptive tourism. Conservancies are legally-recognized, geographically-defined areas that have been formed by communities who have united to manage and benefit from wildlife and other natural resources. These cash and in-kind benefits have fostered a greater appreciation of the value of wildlife and stimulated communities to incorporate wildlife conservation practices into daily livelihood strategies. Concomitantly, poaching of wildlife has decreased and unparalleled recoveries of wildlife across Namibia's communal areas are occurring. By mid-2007, a total of 50 communal conservancies had formed, covering approximately 11.8 million hectares and engaging close to 230,000 community members. This represents over 14.42% of the country's landmass and 12.21% of its population.

A fundamental factor in this conservation movement has been the contributions of the trophy hunting industry, and the speed at which trophy hunting proceeds have been returned to conservancies to underwrite conservation costs and support rural development activities. Shortly after registration of the first four conservancies in 1998, hunting concessions were awarded and much-needed cash almost immediately began to flow to conservancies. By the end of June 2007, there were a total of 22 hunting concessions in 29 out of 50 communal conservancies.

2. National hunting and wildlife management policies and legislation:

Namibia is fortunate in that it has benefited from visionary legislation that gives recognition to the merits of devolving rights over wildlife to private citizens. It defines wildlife into three different categories:

1. *specially-protected game* – globally significant species such as elephant and rhino;
2. *protected game* – less common, but valuable species such as roan antelope, sable, eland red hartebeest, etc.; and
3. *huntable game* – common plains game such as kudu, springbok, oryx, and warthog, and common game birds.

This legislation also prescribes the circumstances when wildlife and by whom wildlife may be utilized. *Specially-protected* and *protected game* may only be hunted under the virtue of a permit issued by the Ministry of Environment and Tourism (MET), with permit allocations being based upon sustainable offtake quotas. In contrast, conditional rights of ownership to *huntable game* have been given to private farm owners and conservancies, who in turn, may decide how to utilize their *huntable game.* Use options may entail: shoot-for-sell, shoot for own-use, biltong/meat hunting, culling (mostly restricted to springbok), game capture, and/or trophy hunting.

Namibia has a long history of ground-breaking conservation legislation, with its first visionary Act being passed in 1967 when the government of the day allocated use-rights to certain species of wildlife to Namibian landowners. The conservation results of giving these rights to private citizens have been dramatic, and it is estimated that wildlife numbers on Namibia's freehold land (some 44% of the country) have increased by almost 80% since the late 1960s. The passage of the communal area conservancy legislation in 1996 gives recognition to the success of the 1967 legislation and grants similar conditional ownership rights to communal area residents who form conservancies.

3. Hunting in practical terms

The trophy hunting season starts on February 1 and ends the last day of November, with the prime hunting period being during the cooler months of May – October. Trophy hunting must take place under the supervision of Namibian registered hunting guides, who must be certified by the MET. There are a number of categories for hunting guides. The entry level is a Hunting Guide, who is an individual that having passed his/her hunting examination, may guide clients on his/her farm. Following two years of successful hunting operations and 12 hunting safaris, a Hunting Guide may apply for registration as a Master Hunter, which will then allow him/her to hunt on a number of properties. After an additional two years and a further 12 hunting safaris, a Master Hunter can take theoretical and practical examination to become a Professional Hunter. The final and highest category is a registered Big Game Hunter. This level can only be achieved after two years of employment under a registered Big Game Hunter and a passing mark of 80% or more in the hunting guide examination. Additionally before such candidate is allowed to write the exams the candidate must also provide proof of experience with dealing with big or dangerous game.

Trophy hunting takes place through three different types of tenurial arrangements in Namibia. The vast majority of plains game hunting takes place on private land, where the land owner serves as the Hunting Guide or has a contractual arrangement with an MH or PH to provide rights to game found on the farm. Big Game (elephant, buffalo and lion) hunting takes place under contract to government (MET) or communal area conservancies. The State controlled concessions are periodically auctioned (to the highest bidder) to Big Game Operators (approximately every three years). The State's Big Game concessions are located in remote areas of national parks or game reserves, or on communal lands where a conservancy has yet to form. In contrast, the communal area conservancy hunting concessions are found within registered conservancies or encompass several conservancies, should they be small in size. There are presently (end of June 2007) twenty two hunting concessions operating in 29 communal conservancies. Communal conservancy

concessions are generally tendered by post to the registered Big Game Hunters in Namibia, with conservancies opting to interview the three best offers to assure compatibility between the PH and the conservancy management authorities. This approach promotes acquisition of competitive market values for concessions and empowers local communities to choose appropriate partners.

4. Contributions of the hunting industry

The latest MET statistics indicate that approximately 5,800 trophy hunters from different parts of the world visit Namibia annually, with the estimated economic contributions from trophy hunting being in excess of USD 70 million. The vast majority of this income is returned to operators and spin-off benefactors of the industry (i.e., airlines, hotels, tourism facilities, etc.). Yet, increasing portion of the industry's benefits are beginning to return to communal area conservancies, and in the process, precipitating major conservation benefits to local communities and Namibia as a country.

Since the commencement of communal conservancies in 1998, trophy hunting returns to conservancies have increased annually. The trophy hunting revenues continue to be the primary source of game utilization benefits to conservancies. However, the value-added from the meat distributed from trophy animals, employment income, and the above assorted other uses of wildlife are significant and increasing rapidly on an annual basis. During 2000, the total income and benefits to communal conservancies from all of the above forms of game utilization (including trophy hunting income) amounted to USD 165,000). By 2006, this had increased by almost tenfold to USD 1,330,000).

At surface value, this may not seem like much income. However, when one views the significance of this income and the changes in peoples' livelihoods and attitudes towards wildlife, one gains a deeper appreciation of the changes the trophy hunting industry is catalyzing in Namibia's communal areas. Following are some significant, related impacts:

- **Uses of the income –** The trophy hunting revenues are being returned as cash directly to conservancy committees, who in turn, use the income to pay salaries of community game guards and other conservancy staff members who carry-out conservancy wildlife management policies and plans. This income is allowing conservation activities to be conducted at the grassroots level, and facilitating involvement and ownership of conservation activities by the broader community;

- **Changes of attitude –** Prior to passage of the conservancy legislation, wildlife were considered pests and competition to subsistence agricultural livelihoods. The income generated by trophy hunting, combined with other forms of wildlife use (harvesting for own-use meat, sale of live game, and non-consumptive tourism), has altered this situation by demonstrating that wildlife can be a valuable community resource;

- **Changes in livelihood and land-use strategies –** The communal area conservancy movement has become an extremely popular conservation and development option in Namibia's communal areas. The 50 conservancies cover nearly 12,000,000 hectares of land and encompass more than 230,000 community residents. These figures represent 14% of Namibia's landmass and 13% of its population, respectively. Ultimately, this wave of communal conservancies will crest when conservancies cover more than 20% of the country and involve approximately 1 out of every 7 citizens.

- **Enhancement of national park system –** Namibia's national park system encompasses approximately 115,000 km² of land, or slightly less than 14% of Namibia's surface area. Significantly, 30 of the 50 registered conservancies are either adjacent to national parks or in key corridors between them. Cumulatively, these 30 conservancies provide more than 60,000 km² of wildlife compatible buffer areas

around the existing national park system. Given Namibia's patchy rainfall patterns and frequent periods of drought, this increased habitat is particularly meaningful; and

- **Recovery of wildlife populations –** Community recognition of the value of wildlife has lead to a marked reduction in poaching, while the introduction of grassroots wildlife management practices (*i.e.* development & maintenance of wildlife water points, dedicated wildlife productions zones, reintroduction of game to facilitate faster recovery rates, etc.) have precipitated massive recoveries of wildlife populations in large communal regions of Namibia. Such recoveries have been documented in Caprivi, Nyae Nyae, and the entire northwestern Namibia where annual game counts since 2000 have shown increasing population trends.

The conservation impacts of the conservancy program obviously cannot be fully attributed to the trophy hunting industry. However, it can be safely stated that trophy hunting has been a key catalyst. Trophy hunting income came on the heels of the first four communal conservancies' registration, and was and remains instrumental to demonstrating the value of wildlife to community residents. The resultant change in community attitudes towards wildlife has precipitated a reduction of poaching and introduction of proactive wildlife management practices. Concomitantly, the income received by conservancies empowers Namibian communities, for the first times in their lives, with the financial resources to invest in their community development needs. This is an upward, spiraling situation that is a "win-win" situation for hunting in Namibia, wildlife conservation, and community empowerment.

A trophy hunted buffalo being delivered to San community members for meat distribution in the Nyae Nyae Conservancy. (Photo: Dhyani Berger, LIFE Project, 1998)

5. Challenges to the hunting industry

The trophy hunting is beginning to prosper in the communal area conservancies, but it is only in its infancy and massive upside potential has yet to be developed and tapped. In this regard, there are a number of challenges facing Namibia's communal area conservancies and their ability to harness the full potential of the trophy hunting industry, including:

- **Zoning in conservancies –** Conservancies are multi-use areas, supporting non-consumptive tourism, subsistence agriculture (i.e., livestock and crop production), settlements, and other forms of wildlife utilization such as meat harvesting for local use and live game sales for income. There is a need to spatially and temporally zone conservancies to minimize conflict between uses and to allow optimal utilization of conservancy wildlife resources. In particular, zoning between hunting (trophy and own-use) areas and non-consumptive tourism must be developed and the capacity developed in conservancy staff to manage and enforce these compatible use zones;

- **Development of industry** – There is extensive scope for expanding the number of hunting concessions offered by communal conservancies, particularly given the large number of registered and emerging conservancies that do not have hunting concessions. The average size of the 22 communal area hunting concessions is more than 200,000 hectares, with these concessions being found in some of the wildest and least developed areas of Namibia. There is potential to significantly expand this number, with future concessions also being found in vast, unspoilt, wild tracts of land. Similarly, given the large numbers of game found in many of these conservancies, their continued positive growth trends, and the outstanding trophies being harvested, there is room to substantially bolster the offtake quotas in the existing concessions. Lastly, given the abundance of plains game species (more than 140,000 springbok, 25,000 oryx, and 18,000 Hartmann's zebra in the northwest conservancies alone, it is envisioned that sport hunting for non-trophy animals offers substantial opportunities for conservancies to increase their income from hunting;

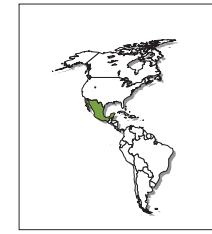
- **Involvement of black sector –** Namibia, as with nearly all of Africa, has suffered from a lack of involvement and ownership by black Africans in the hunting industry. Unless this situation is addressed, it is doubtful there will be little long-term governmental support for this industry. Thus, there is a need to foster and promote more black Namibian professional hunters in the industry, and to build the skills and capacity of such individuals to become competitive professional hunters who can champion the industry with governmental policy makers;

- **Anti-hunting lobby –** As with the trophy hunting industry in the rest of the world, there is a need to continuously educate the public about the conservation and development merits of trophy hunting and to counter emotional and misleading propaganda against the industry by the anti-hunting lobby; and

- **Hunting Industry Regulation –** The Namibia trophy hunting industry strives to provide professional and ethical services. Nonetheless, there is a need to further strengthen the standards and ethics of the Namibia trophy hunting industry, and to put in place mechanisms through which the Namibia Professional Hunters Association (NAPHA) and conservancies can ensure professional hunters are guiding their clients in accordance with the highest hunting ethics and codes of conduct.

Best Practices in Sustainable Hunting (2008) pp. 53–58.

HUNTING AS A TOOL FOR WILDLIFE CONSERVATION – THE CASE OF SHEEP HUNTING IN MEXICO



Raymond Lee
President/CEO, Wild Sheep Foundation

Abstract. Pre-settlement bighorn sheep numbers in Mexico were large; however, the population did not fare well in the face of human activities. Bighorn sheep numbers decreased to the point that bighorn sheep hunting was closed in 1922. Standardized surveys were started in 1993, and hunting was reopened in two states in 1995.
The Wild Sheep Foundation is the world's primary wild sheep conservation organization. One of the ways that the Foundation raises funds is by auctioning wild sheep hunting permits. The Foundation has developed conservation programs in two states of Mexico. Since 1996, 77 permits have been sold for USD 5,626,175. The local communities also derive jobs, a source of self-respect, from these programs. Wild sheep are now their principal source of income.
As the conservation measures were put into place, the number of bighorn sheep increased. The age and scores of the rams harvested have also increased through time.

Key words: bighorn sheep, hunting, Mexico, permits, wildlife management, wild sheep

1. *El Vizcaino* Biosphere Reserve

The "*El Vizcaino*" Biosphere Reserve straddles the Baja California Peninsula in the Mexican state of Baja California Sur. It is an interesting area that truly is where the desert meets the sea. Within this 10,000 square mile Biosphere are: the extremely rare and endangered peninsular pronghorn antelope; the primary birthing area for the Gray whale; one of the world's largest salt producing facilities; some amazing pre-historic cave murals; volcanoes; geothermal electric plants - and desert bighorn sheep.

A desert bighorn ram (Ovis canadensis weemsi) observed during a survey of the El Vizcaino Biosphere of Baja California Sur. (Photo: Raymond Lee)

2. History of Sheep Hunting In Mexico

Bighorn sheep have existed in Mexico for more than 10,000 years. While pre-settlement numbers were quite large, the population did not fare well in the face of subsistence hunting and diseases contracted from domestic livestock. Bighorn sheep numbers continued to decrease to the point that the hunting of bighorn sheep in the state of Baja California Sur was closed in 1917. This hunt closure was extended nationwide in 1922. This closure was in effect until a series of experimental hunts were conducted in the late 1960s. The first annual hunting season for bighorn sheep was authorized in 1969. These seasons continued, under various regulations, until 1993 in Baja California Sur and Sonora. Hunting in Baja California was closed by presidential decree in 1990 due to a lack of knowledge of bighorn sheep distribution and numbers. In 1993, following Mexico's participation in the Convention in Trade of Endangered Species (CITES), all bighorn sheep hunting in Mexico was suspended because there was not enough technical information to allow the issuance of permits.

To address this issue, and to better determine the bighorn sheep distribution and management opportunities, standardized helicopter surveys were initiated in Mexico in the winter of 1992. Hunting was reopened in Baja California Sur and Sonora in 1995. The Biosphere was first formally surveyed in 1996 and a large number of animals were observed. Through great efforts, the federal government authorized four permits for the Biosphere that year.

3. History of Land and Wildlife Management in Mexico

In Mexico, while a region may be designated as a "protected area", it can also be overlaid by other land ownership restrictions. Land ownership in Mexico is taken extremely seriously, as this was one of the prime causes of the Mexican Revolution (1910–1917).

In 1997, Mexico developed a program for the Conservation of Wildlife and the Diversification of Production in the Rural Sector. This program led to the development of the SUMA – System of units for the conservation, management, and sustainable development of wildlife. The basic unit of this system was the development management unit (UMA). Each UMA must have a resource management plan and a technician to monitor the resources. Hunting permits are authorized under the UMA system to the landowners, thus to the ejido. The UMA for the Ejido Alfredo Bonfil is called the *Bienes Communales Bonfil*.

4. Special Fundraising Permits

The Foundation for North American Wild Sheep (FNAWS) is the primary wild sheep conservation organization in the world. It was incorporated in 1977 by wild sheep advocates who wanted to reverse the decline in wild sheep populations. It was established to develop the necessary funding and provide the political muscle to do so. FNAWS' efforts have been largely successful, resulting in a 4-fold increase in wild sheep numbers in North America during the following 25 years. One of the ways that FNAWS raises funds for wild sheep conservation efforts is through the auction of wild sheep hunting permits. These permits typically allow a hunter the prime hunting periods for a generous length of time, but in no way guarantees a successful harvest.

FNAWS has a Convention each year where a number of special fundraising permits are offered at auction. In this manner FNAWS helps support wildlife management programs in 17 United States, 5 Mexican States, and 4 Canadian Provinces. A single permit has brought as much as USD 405,000 for an opportunity to hunt a wild sheep in Canada. These auctions give many philanthropists the opportunity to provide funds for wildlife conservation efforts.

A history of the number of permits for the Bienes Communales Bonfil UMA and their sales values is shown below:

Year	#Permits	Revenue (in USD) (low-high)*	Total (in USD)
1996	4	40,000–50,000	175,000
1997	1	87,690 (raffle)	87,690
1998	1	115,250 (raffle)	
1998	2	51,000–58,000	224,250
1999	1	72,235 (raffle)	
1999	2	50,000–57,000	179,235
2000	2	49,000–82,500	131,500
2001	2	57,500–65,000	122,500
2002	4	50,000–58,000	214,000
2003	4	45,000–64,000	204,000
2004	4	45,000–59,000	199,000
2005	5	40,000–66,000	267,500
2006	5	55,000–70,000	321,000
2007	5	45,000–74,000	306,500
In total	**42**		**2,460,175**

*These figures represent the lowest auction bid and the highest auction bid for the permits that year.

In 1997, 1998, and 1999 one permit each year was raffled. This was to allow the "average" hunter the opportunity to be drawn for a desert sheep permit.

In addition, in 1998 and 1999, a total of 5 recreational "show me" trips were also auctioned, producing an additional USD 27,500. While this was additional funding provided by the bighorn sheep program, it also shows that the recreational tourist will not pay nearly as much as the hunter.

5. Use of Funds

The revenue from these permits is placed into a *fideicomiso*, essentially a bank trust. A technical committee was established to review the proposals – for wildlife conservation projects or for social development projects in the local community – and allocate the funds. The committee is comprised of representatives of the State Governor, the Coordinator of Natural Protected Areas, the Ejido Bonfil, the Federal Wildlife Department, the State Wildlife Department, the State Wildlife Enforcement Agency, the Mexican Foundation for Wild Sheep, the State Agriculture Department, the Rural Development District, FNAWS, and the Municipality of Mulege.

The funds were used for a variety of projects and programs. They were used to conduct regular wildlife patrols and establish guard stations. Physical barriers to traffic were built to reduce access to poachers. The wildlife habitat was evaluated and the condition monitored; and some improvements (such as water developments and domestic grazing modifications) were made. Scientific studies of the wildlife were conducted and several rural development projects were completed. These developments included the construction of a base camp for future hunters. Since the hunts occur for only a short period of the year, this base camp serves as a meeting place and a civic center for the community.

In addition, the people who worked in the hunting camp (the cooks, cleaners, guides, outfitters, wranglers, etc.), were all from the local community. “Eco-guardians” were hired to patrol the areas and to help ensure the safety and the food/water resources for the wildlife. Thus the local community derived a number of jobs, a source of self-respect, from the wildlife program.

As the conservation measures were put into place, the number of bighorn sheep in the Biosphere continued to increase. During the helicopter survey in 1996 a total of 99 animals was classified. This number increased to 103 in 1997, and to 131 in 1999. In addition, the number of rams increased from 27 to 32 to 34 for these respective surveys. Subsequent aerial surveys have been conducted, paid by the trust fund, to evaluate the age and sex structure of the population and recommend the number of permits to be authorized. The permit levels have increased to 6. The age and scores of the rams harvested have also increased through time – showing the conservative nature of the harvest strategy – and also resulting in increased value for the permits.

5. Tiburon Island and the Seris

A similar program was developed across the Sea of Cortez. Here, an indigenous people – the Seris – make their living along the coast of Sonora, Mexico. Tiburon Island is located 3 miles off the mainland, separated by a channel called “The Little Hell” due to the extreme currents and shifting bottom. The island, Mexico’s largest, is some 15 miles wide and 30 miles long and approximately 450 square miles, with mountains reaching 4,000 feet.

The physical and natural features of the island made it appear to be an exceptional place to start a nursery for bighorn sheep. Here in 1975, in a cooperative effort between the New Mexico Department of Game and

A desert bighorn ram (Ovis canadensis weemsi) observed during a survey of the El Vizcaino Biosphere of Baja California Sur. (Photo: Raymond Lee)

Fish and the Mexican Wildlife Department, 20 wild sheep were caught on the mainland and released upon the island. The islands in the Sea of Cortez are designated as protected areas by the federal government. In this case, by the Mexican Law of 1975, the natural resources of the island are to benefit the local indigenous peoples in the area, the Seris.

A brief flight over the island was made in 1985 and a population estimate of about 80 animals was made. The first standardized aerial survey was conducted in 1993. The current estimates for the island were "maybe 100 animals". In just the first 2.5 hours of the survey over 250 animals were observed. Population estimates for the island were increased to 750 animals.

A similar program as that in the Biosphere was implemented upon Tiburon Island by FNAWS. Working with the Autonomous University of Mexico to ensure the proper management of other wildlife and habitat values, on the island, the first hunts were initiated. Subsequent aerial surveys have been conducted. The most recent survey in November 2006 resulted in a record number of wild sheep observations, and a record number of older aged rams, on the island. A history of the permits and their sales values (which average USD 90,457 per permit) is shown below:

Year	#Permits	Revenue (in USD) (low-high)**	Total (in USD)
1998	2	195,000–200,000	395,000
1999	2	97,500–100,000	197,500
2000	2	90,000–91,000	181,000
2001	2	72,500–85,000	157,500
2002	3	70,000–96,000	253,500
2003	4	81,000–99,000	363,000
2004	5	65,000–117,500	458,500
2005	5	65,000–100,000	412,000
2006	5	60,000–85,000	350,000
2007	5	67,500–90,000	398,000
In total	**35**		**3,166,000**

**These figures represent the lowest auction bid and the highest auction bid for the permits that year.

The funds from these permits have been used for habitat studies on the island, for development of business amongst the Seris (ie., motors for their fishing boats) and for direct stipends to the Seris.

The wild sheep population on the island has also been used to re-populate other parts of Mexico. Since 1995, 386 sheep (at USD 3,000 per sheep) have been relocated from the island into historic bighorn sheep habitat in Sonora, Chihuahua, and Coahuila, with plans to go into Nuevo Leon. At USD 3,000 per sheep, the Seris have obtained another USD 1,158,000 from "their" wild sheep.

Before these hunting conservation programs were initiated, both the ejiditarios in central Baja and the Seris along the coast were impoverished, and gave little value to wildlife. In the Biosphere, people ran large herds of domestic goats - impacting both the habitat and the native wildlife. Now the wild sheep provide a great deal more revenue than ever conceived.

Historically, the Seris used Tiburon Island primarily as a summer campground and as a place to weather storms while fishing. Now, the island is the principal source of income for the two villages along the sea. Have these programs been successful both in increasing the wildlife numbers in these areas, while increasing the quality of life for the local inhabitants? Just ask them.

Punta Chueca - the main village of the Seri Indians - located on the Mexican mainland near Tiburon Island. (Photo: Raymond Lee)

CIC – INTERNATIONAL COUNCIL FOR GAME AND WILDLIFE CONSERVATION

A Worldwide Community for the Conservation of Wildlife through Sustainable Use

The International Council for Game and Wildlife Conservation (CIC) is a politically independent advisory body aiming to preserve wild game. To achieve this goal the CIC is promoting sustainable use of wildlife resources, and plays an active role in the worldwide efforts to keep hunting sustainable and to develop hunting, especially sustainable hunting tourism, into a powerful instrument for conservation, human development and poverty alleviation.

Born from a Central European idea around 1900, the CIC was created in 1928 in Palárikovo (Slovakia), following an initiative of Count Louis Károlyi and his friends from different European countries. CIC was registered in Paris (France) in 1930 and since then it has gained global recognition as a unique advisor in the field of sustainable use and conservation of wildlife.

CIC is recognized by the Austrian Government as an international non-governmental and non-profit organization, working in the public interest. Since 2003, CIC has its seat in Vienna (Austria), the Administrative Office is in Budapest (Hungary).

Under the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the CIC enjoys the status of an Intergovernmental Organisation (IGO).

MEMBERS

The CIC is today active in 83 countries. The membership includes governments (32 Member States around the world), hunting and conservation associations, universities and experts in a variety of research fields as well as dedicated private individuals. The CIC has over 40 National Delegations, which are responsible for activities in their own countries.

The Working Group Young Opinion brings together junior members who are less than 34 years old. All activities are financed by the membership fees, donations and sponsoring.

STRUCTURE

INTERNATIONAL COMMISSIONS AND WORKING GROUPS

This knowledge-based network carries out projects, formulates recommendations and organizes scientific conferences related to specific aspects of wildlife conservation and use. The different topics and activities can be divided under the following categories:

- Policy: Sustainable Use, Agri-Environmental Measures
- Science: Migratory Birds, Big Game, Small Game, Tropical Game, Hunting Dogs, Exhibitions and Trophies
- Culture: Traditional Hunting, Falconry, Hunting in Art, Wildlife Photography, Hunting and Gastronomy
- Education: Wildlife Management Education Network involving young people of the world for sustainable use.

REGIONAL COORDINATION FORUMS

In order to work efficiently on the regional scale, the CIC has established coordination forums for Central and South-East Europe, Central Asia and the Mediterranean Region, which carry out cross border

cooperation. Regardless of political, religious or geographical boundaries, the CIC brings political decision makers and people from different professions from numerous countries to one table, and ensures that concerted conservation action receives support from all parts of the society. In this regard, transboundary collaboration has become natural and an element of success, and the CIC has been able to meaningfully contribute to improved international understanding and cooperation.

Man's cultural development is originated from the gatherer, hunter and fisher. We endeavor to save the cultural heritage of indigenous hunting tribes. (Photo: Horst Niesters)

ACTIVITIES

The CIC is first of all a service provider:

- to the hunter as conservationist;
- to all stakeholders in wildlife management;
- to the general public informing them about the values and virtues of wildlife and sustainable hunting;
- for species and habitat conservation;
- to fight poverty through sustainable use for the benefit of local people;
- to develop and establish standards, guidelines, policy and legislation for sustainable hunting and wildlife management;
- to fight against poaching and overexploitation;
- to develop studies and pilot projects.

ACHIEVEMENTS

During its 80 years of existence, CIC has achieved major goals in the conservation of endangered species around the world, e.g. the Peregrine Falcon, Thaki Wild Horse, Houbara Bustard and the Saiga Antelope.

In addition to this practical work, CIC has advocated and promoted the principle of sustainable use in policy development at international environmental debates. In 2004, for example, the Convention on Biological Diversity (CBD) approved the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, which document has been underwritten by 190 States. And again in 2004 the IUCN World Conservation Congress declared Recreational Hunting as a further valuable contributor to conservation.

The CIC played active role in the development of the European Charter on Hunting and Biodiversity, which was adopted by the Standing Committee of the Convention for the Conservation of European Wildlife and Natural Habitats (Bern Convention) in 2007.

MISSIONS AND OBJECTIVES

In all national and international bodies concerned with the management of wild-living resources, the CIC and its members seek:

- the recognition of the global environment as a common concern of all of us;
- respect for a natural balance between all forms of life in their ecosystems;
- the conservation of nature for the interest of the present and future generations;
- the avoidance of the loss of valuable biological diversity, implementing the objectives of "Countdown 2010";
- the optimum sustainable use of natural resources as an important tool for social and economic benefits, thereby providing an incentive for their conservation;
- the improvement of wildlife management and land-use;
- the promotion of scientific research and education as well as information to the general public.

The CIC pledges to undertake everything in its capacity in order to ensure that these objectives are met in an ethical manner and that these principles are the basis for all its interventions and activities worldwide.

GLOBAL PARTNERSHIP FOR SUSTAINABLE HUNTING

CIC maintains strong alliances for promoting sustainable use as well as furthering wildlife policy and law development with partners like:

THE UNITED NATIONS INSTITUTIONS:
FAO, UNEP, UNDP and UNESCO

ENVIRONMENTAL CONVENTIONS:
Convention on Biological Diversity (CBD); Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Convention on Migratory Species (CMS), with which a partnership agreement was signed in 2005; Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA); Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention); Ramsar Convention on Wetlands.

INTERNATIONAL NON-GOVERNMENTAL ORGANISATIONS:
IUCN – The World Conservation Union; Wetlands International; International Association for Falconry (IAF); Federation of Associations for Hunting and Conservation of the EU (FACE); WWF; BirdLife; International Union of Game Biologists (IUGB), etc.

NATIONAL NON-GOVERNMENTAL ORGANISATIONS:
CIC National Delegations are also working together with NGOs being relevant for national or regional aspects of hunting and wildlife conservation.