

SPORT HUNTING AS A SUSTAINABLE USE OF WILDLIFE

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I. INTRODUCTION

Sport hunting³ has become a controversial issue in the conservation community. Some people argue that sport hunting can contribute to conservation of species and their habitats. Others believe sport hunting exploits species and rural people and contributes little, if anything, to conservation. In this paper we examine three "desk" case studies of sport hunting [Northwest Territories, Canada (Annex 1), Tanzania (Annex 2), and Zimbabwe (Annex 3)] to identify specific conditions under which sport hunting can contribute to conservation.

Each desk study includes six sections: a) Introduction, b) Administrative Framework, c) Hunting, d) Social and Economic Factors, e) Summary and Conclusions, and f) Literature Cited. They were prepared using information available in the literature, documents provided by government officials and tour operators, and telephone interviews with people in the countries. None of the countries visited. However, drafts of each study were reviewed by specialists in the countries and their comments and suggestions have been included in the final account.

By their nature, these desk studies are limited by the information provided by, and the opinions of, the authorities contacted, and hence they unavoidably reflect this bias. Nevertheless, this report represents the first attempt to provide a structured assessment of the potential sport hunting may have to contribute to conservation. The studies also provide a baseline of information that will be useful in carrying out more detailed field assessments in the future.

To evaluate objectively the contributions of sport hunting to conservation we have used Requirements and Benefits which were identified by participants in a workshop to draft an IUCN policy for sustainable use of wild species⁴ held in conjunction with the IVth World Parks Congress. The Requirements represent the minimum conditions that must be met to ensure that wild species are used sustainably and not threatened by over-exploitation:

- * Abundance and distribution: At least the general size and distribution of the target population should be known. It should be large enough to sustain a controlled harvest.
- * Species biology: The general biology (e.g., food, reproductive behavior, and habitat requirements) of the species should be well enough understood, to the extent that time, skills and finances allow, to manage the population. Procedures should allow for progressive improvement of that knowledge.

³ The term "sport hunting" is used in this paper to mean trophy hunting or safari hunting of game animals, which are often used interchangeably based on the vernacular of the region.

⁴ Since the Parks Congress the draft IUCN policy has been revised in response to reviewers' comments. While some of the requirements and benefits used in this report are not expressly cited in the revised draft policy their intent is implied.

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- * Population monitoring: The status of the harvested population should be monitored directly by population surveys and or indirectly through information recorded on harvested animals. Procedures should exist to adjust harvest levels based on the results of the monitoring.
- * Controls: Levels of use should be conservative and within the reproductive capacity of the species. Harvest regulations (e.g., bag limits, seasons) should be enforced.
- * Habitat management: The area(s) from which the species are harvested should be managed to maintain the habitat.

The Benefits provide a means of assessing the positive influence sustainable uses may have on the rural people associated with the resource, the status of species, and other species and the habitat:

- * Incentives: People living near the resource should have incentives to conserve it, other species, and its habitat.
- * Valuation: Economic values of the species and its habitat should be enhanced as a result of the use.
- * Sustainability: There should be a sustainable supply of the resource for the economic and cultural benefit of the people that use it.
- * Population recovery: If applicable, previously over-exploited populations should recover as a result of the managed use of the species.
- * Conservation of other species: Other species should be conserved as a result of the managed use of the species.

While these Requirements and Benefits are inter-related, in practice they measure different aspects of uses of wild species. The Requirements focus on management practices, while the Benefits provide a means of assessing the consequences of uses. Therefore, we use both "yardsticks" to measure the contributions sport hunting can make to conservation in the context of the desk studies.

Following our analysis of the desk studies we provide general conclusions and recommendations in the form of a checklist for assessing the sustainability of sport hunting and the contributions sport hunting activities are making to conservation. We recognize that the checklist is not perfect and will require refinement as experience is gained. However, it does provide a structure for assessing and monitoring sport hunting from a conservation perspective.

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II. BACKGROUND

For the past several hundred years there has been a progressive and systematic codification of laws directed at securing and maintaining land for wild game and controlling harvests of individual species. In Europe, these controls were tied to property rights of the aristocracy and "common folk" were denied access. During the colonial era these concepts were transferred to Asia, Africa and North America. In Asia and Africa, in general, colonial laws controlled harvests by restricting access to particular species. Following independence of these countries, many of the laws have remained in effect. As a result, most wild species remain controlled as "king's game" (*res nullius*) by government agencies with little or no authority granted to rural people to manage the resource directly. Nevertheless, basic principles of wildlife (= population) management began to emerge over the last century with the establishment of hunting reserves, harvest quotas, seasons, and the like under government authority.

In the United States, however, an entirely different approach to sport hunting has evolved. According to Burger and Teer (1981), the American Revolution effectively broke many traditions that impinged on individuals' rights -- including controls over hunting of wild game. Following the Revolution wild game was considered the property of the state and all citizens "... had the right to harvest game without charge." It is this concept of free access that has dominated legislation governing sport hunting in the United States.

Today, sport hunting in the United States is a leisure activity with a very substantial following. For example, in 1985, over 16,000,000 sport hunters spent over US\$ 10 billion for travel and lodging, equipment, licenses, tags and permits, and other miscellaneous costs for all categories of hunting, including big game, small game, migratory birds, and "other animals hunted" (United States Fish and Wildlife Service, 1985). Over 12,000,000 (75%) of these hunters spent nearly US\$ 6 billion (60%) for big game hunting alone. Reported expenditures for licenses, stamps, tags, and permits totalled US\$ 435,345,600 for all types of sport hunting of which nearly US\$ 300,000,000 was from big game hunters (Ibid).

Given the potential market reflected in these figures, it is not surprising that developing countries with large and diverse populations of game species have promoted sport hunting to obtain hard currencies.

It has only been in the past few years that sport hunting has become an issue in the conservation community. In part, the present controversy stems from segments of the animal welfare community, which oppose any consumptive uses of wild animals and have been particularly vocal in their opposition to sport hunting. The debate is exacerbated because of instances of flagrant disregard for established policies and laws designed to protect game species (e.g., Arab hunting expeditions in Chad, hubara bustard harvests in Pakistan). At the same time "safaris" have been romanticized in novels, films, and the press in developed countries, promoting the view that international safari hunting is a recreational activity only pursued by the wealthy. Such a history

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has not helped the image of sport hunting in the mainstream conservation community and has contributed to the controversy.

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III. DESK STUDY ANALYSES

Northwest Territories (Canada)⁵

Requirements

1. Abundance and distribution-- The world population of polar bears is estimated to be 22,000 of which 12,700 are estimated to be in Canada (Taylor, pers. comm.). Canada's polar bears are distributed among twelve populations located in Manitoba, Newfoundland, Northwest Territories, Ontario, Quebec and the Yukon. The largest population is located in Northwest Territories (NWT) (Amstrup and Wiig 1991).
2. Species biology-- While not expressly stated in the desk study, the biology of polar bears is relatively well known, and figures prominently in the government's implementation of the polar bear management plan. In Northwest Territory representatives of the Department of Renewable Resources must take into account the biology of the species when advising villagers in the development of their community-based management plans.
3. Population monitoring-- Canada budgets nearly CA\$ 1,000,000 (US\$ 869,565) annually for polar bear management, including population research and monitoring (Sterling, pers. comm.). In Northwest Territory the 1992/93 budget for polar bear management is CA\$ 560,000 (US\$ 486,956) (Lloyd, pers. comm.). The Canadian Wildlife Service uses population census data and reviews polar bear mortality data to establish a national harvest quota which is then allocated to the provinces and Northwest Territories.
4. Controls-- Canada is a signatory to the *International Agreement on the Conservation of Polar Bears* (1973) along with United States, USSR, Denmark, and Norway (Lloyd and Graf 1990). Article III of the *Treaty* allows harvest of polar bears by indigenous peoples, including: Inuit, Inuvialuit, Dene and Metis. The Canadian government interprets this to mean indigenous communities can allocate some of their annual quota to sport hunting. These quotas, combined with a discrete hunting season (1 October to 31 May) and a tag system, are the principal means of controlling harvests. Sport hunters are permitted to kill only one polar bear and if they are not successful, the tag is destroyed. Each settlement in the NWT has a Hunters and Trappers Association (HTA) or Council (HTC) who represent the interests of the community to government and provide an organizational framework for native hunters' participation (Llyod, pers. comm.)

⁵ see Annex 1.

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5. Habitat management.-- Article II of this treaty states: "Each contracting Party shall take appropriate action to protect the ecosystems of which the polar bears are a part, with special attention to habitat components such as denning and feeding sites and migration patterns, and shall manage polar bear populations in accordance with sound conservation practices based on the best available scientific data". The IUCN/SSC Polar Bear Specialist Group is designated the technical advisor to the Parties to the Treaty.

Benefits

1. Incentives.-- The Inuit's primary incentive to manage wild species is culturally based. Traditional use and respect for polar bears encourages avoidance of waste and the most efficient use of the species. Economic incentives are primarily linked to the value of the pelts which are sold to people in Europe and Japan for approximately CA\$ 600 (US\$ 521) to CA\$ 1,300 (US\$ 1,130) each, depending on their size. Sport hunting is an important economic incentive to conserve the species in out-post communities comprised of three or four families, which have few other means for earning money (Taylor, pers. comm.). Where over-harvest of polar bears by Inuit has reduced some populations, it has been due to the lack of management awareness and not necessarily poaching or the breakdown of traditional attitudes toward polar bears (Lloyd, Sterling, pers. comm.).

Largely in response to land claim agreements that will cede well over 50% of the Northwest Territory to indigenous people, the Department of Renewable Resources has developed a five year plan to establish community agreements for managing populations of polar bears. The Department provides community leaders with information about the status of polar bear populations in their region and the laws governing uses. With this information the community prepares a Polar Bear Management Plan with assistance from the Department. Out of 32 settlements possessing a license to hunt polar bear, eight settlements in the west and central Arctic and four settlements in the high Arctic have developed their own Polar Bear Management Plans (Sterling, pers. comm.). Each Management Plan reflects the conditions and wishes of the community to manage their polar bear populations sustainably.

2. Valuation.-- Income from sport hunting has introduced an additional incentive for conserving the species, particularly in out-post communities which have few other sources of income. About CA\$ 1,400,000 (US\$ 1,217,391) is earned per year by communities in Northwest Territories, from the sale of skins, sport hunting, and replacement value of the meat (Lloyd, pers. comm.). It is estimated that on the average, communities receive approximately CA\$ 11,500 (US\$ 10,000) per hunt. Based on the 1989/90 quota, income to communities participating in the polar bear management programme was about CA\$ 650,000 (US\$ 565,217).
3. Sustainability.-- The fact that the quotas have remained at about the same level since 1985 may suggest that overall, Canada's populations have been stable for the past seven

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years. Kevin Llyod notes that where management planning has been implemented in NWT in cooperation with communities, polar bear populations are stable.

4. Population recovery.-- While data were not available to determine whether polar bear populations have increased, there is some evidence that populations have been stable since the species was protected under the international treaty. The world's population is estimated to be at least 22,000, of which over 50% (12,700) is in Canada.
5. Conservation of other species.-- No data are available on the impact of the polar bear management plan on other species. However, in those instances where rural communities have developed polar bear management plans, there is an implication that the community does take into account habitat requirements, and in that context, conservation of other species is accommodated.

Conclusions

Polar bear sport hunting in Northwest Territories is sustainable and contributes to the conservation of the species and its habitat. Government policies are directed at providing support and assistance for polar bear management to rural communities. Communities are responsible for managing the resource and are accountable to government. Finally, there is a strong cultural tradition among the indigenous people to conserve the species.

Nevertheless, pending land claim agreements will give indigenous residents responsibility for natural resources. While culturally motivated to conserve the species, most villagers lack the technical knowledge necessary to do it. Hence, the Department of Renewable Resources is assisting communities to prepare and implement polar bear management plans. Hunters and Trappers Associations and Councils oversee implementation of these plans and represent the communities with the government. Income from sport hunting is significant in out-post communities where the management plans are being developed.

As a result, there is good reason to believe that the species and habitat will continue to be conserved in the future.

Tanzania⁶

Requirements

1. Abundance and distribution.-- Game animals are generally abundant and widely distributed in Tanzania. Information on the abundance and distribution of game species is obtained from infrequent aerial censuses (for large animals), ground surveys, and reports

⁶ Annex 2.

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by Regional Game Scout officers and sport hunting tour operators. There are no institutionalized procedures outside of periodic meetings of District Wildlife Department officials, to evaluate this information (Mlay, pers. comm.).

2. Species biology-- The desk study does not provide specific data on the biology of the game species; however, it can be implied from the licensing procedures that licensed guides are familiar with the natural history of the species. Further, the biology of most, if not all game species is fairly well understood by scientists.
3. Population monitoring-- The government has not undertaken annual censuses of game species populations; however, it was reported that quotas are adjusted based on information provided by Regional Game Officers, Game Scouts and professional hunters. In 1990, quotas were set for 46 species (Tanzania Wildlife Department, pers. comm.). A new unit has recently been formed to survey species populations, assess survey results, establish harvest rates, and monitor the status of species populations. This unit will serve as Tanzania's CITES Scientific Authority (Edwards and Broad 1992).
4. Controls-- Sport hunting is allowed under the *Wildlife Conservation Act* of 1974 and is limited to the quotas for each species that are established by the Wildlife Department. Sport hunting is limited to a season (July through March). The national quota is allocated by the Wildlife Department to individual sport hunting concession holders. The "performance" of each concession holder is reviewed every two years. Apparently, the performance is evaluated in terms of the operator's quota. If the species quotas have not been filled, the operator risks losing the concession. Hence, operators are obliged to fill the quota irrespective of the actual status of the species in their concession.
5. Habitat management-- Based on the information provided, habitat management, for the most part, is an obligation of the sport hunting concession holders. Applicants for sport hunting concessions are required to provide: a) a list of species to be utilized, b) a detailed plan for developing the concession area, c) a plan for anti-poaching activities, and d) a plan describing how communities in, or surrounding, the concession block will participate in the safari operations and how they will be compensated. Applications are evaluated on the basis of: a) the company's knowledge of wildlife conservation; b) information on hunting facilities, e.g., number of vehicles, camping sites; c) marketing approach; and d) past experience of the company, e.g., foreign exchange earnings and operations in other countries (Mlay, pers. comm.).

Until 1990, operators were granted sport hunting concessions for between one and three years. Now, most concessions are granted for five years. Some operators would like longer terms (i.e., 15 to 20 years), noting that longer concession leases would provide more incentive to invest in the type of management required to benefit wildlife and habitat and increase the economic value of the area. For example, they could build proper fire breaks and prepare boreholes to control grazing by wildlife, provide technical

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training to local communities on census techniques, and assist in wildlife monitoring and anti-poaching activities.

Benefits

1. Incentives-- Incentives are not generally linked to conservation objectives, except insofar as the government's Wildlife Protection Trust receives income from sport hunting fees. Rural communities generally do not receive direct economic benefits from sport hunting, except the Masai people in the Ngorongoro Conservation Area who retain all "access fees" paid by sport hunting operators and government game fees (Stuart and Adams 1990).

In the last two years, two sport hunting tour operators have developed an incentive system with local communities to stop wildlife poaching. The Cullman Wildlife Rewards and Benefits Project was established in 1990 by Tanzania Game Tracker Safaris in cooperation with the Wildlife Department. In 1991 the Imhoff Conservation Fund was established to focus on the Kigozi Game Reserve with government approval. Under the Cullman programme, villagers are employed for anti-poaching and a reward scheme has been established for turning in snares, poachers, firearms, etc (Hurt, pers. comm.). In addition to anti-poaching, the Imhoff programme will emphasize better land-use practices

2. Valuation-- Sport hunting in Tanzania has established economic values for game species, but this value is primarily realized by government and sport hunting tour operators. Only in the Ngorongoro Conservation Area and the communities benefitting from the two programmes established by sport hunting operators do the people associate sport hunting with increased valuation of the species. The Wildlife Department is very dependent on the revenues generated from license, tag, permit, and "conservation" fees. In 1990, total revenues to the state from tourist hunting (including license, game, and conservation fees) were US\$ 2,579,542 according to a Wildlife Department officer (pers. comm.), of which 75% (US\$ 1,934,657) went to the Treasury and 25% (US\$ 644,885) to the Wildlife Protection Fund which, in turn is used for wildlife conservation.

Constantius Mlay, Director of Tanzania's Wildlife Department reported that they are beginning to work with a number of NGOs to develop mechanisms for sharing income from wildlife use (sport hunting and cropping) with rural communities. When instituted, these actions will provide more effective means of linking sport hunting with increased valuation of wild species by rural communities.

3. Sustainability-- The desk study does not provide any evidence that would indicate that the populations of game species are stable, declining, or increasing. Nevertheless, poaching by rural people is extensive. Long-line cable snares are a common means of poaching in northern Tanzania, killing thousands of animals each year during their

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migrations. Often up to 90% of the animals killed in the snares are not harvested. The harvested meat is sold to local communities and throughout Tanzania (Hurt and Etling 1991). While there are no figures on the amount of income generated, these illegal enterprises may contribute substantial revenues to the rural economy. In southern Tanzania, poaching is more commonly conducted with firearms.

4. Population recovery.-- No data were provided that would indicate the depressed wildlife populations have recovered as a result of sport hunting.
5. Conservation of other species.-- The Wildlife Department's anti-poaching programme and the recent initiatives of the sport hunting operators would indicate that other species are benefitting to some extent from sport hunting. In the first instance the government's anti-poaching activities appear to be at least partially linked to the revenues earned from the sport hunting fees. A percentage of sport hunting-related income is deposited in the Wildlife Trust which is used for a broad array of conservation activities including anti-poaching. In the Cullman Programme, over 4,200 snares were confiscated; 238 poachers arrested, and 25 poacher's camps were destroyed in two years.

Conclusions

With the exception of those activities initiated by the private operators, there appears to be very little direct linkage between sport hunting and enhanced conservation of game or any other species. Most of the revenues the Wildlife Department receives from fees related to sport hunting appear to go into anti-poaching activities and not into ecological research that will assist understanding of sustainable use of wildlife activities. There is not sufficient information on the status of the wild populations, in particular concessions, to determine if the government's quotas are within limits for the species' sustainable use. To date, government has emphasized the income generating potential of sport hunting and administrative controls. Only in Ngorongoro, and those instances where operators have developed specific community-oriented projects, can it be said that communities are benefitting from sport hunting. Although the funds set up by sport hunting operators have provided economic benefit to cooperating communities, the programme is and not an integral part of the government's management programme. Under the programme, sustainability of the rewards is uncertain. Communities generally do not participate in planning of sport hunting activities -- including those projects instituted by sport hunting operators. Community involvement in sport hunting appears to be limited to providing traditional support services, which acknowledge no rights or decision-making responsibilities to the rural people.

The government is adjusting its policies to emphasize conservation in relation to sport hunting. Also, it is working with NGOs to develop mechanisms to share income from sport hunting with local communities which will provide more incentives to conserve species. And, certain rural communities are now given a quota to harvest some species for subsistence.

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Zimbabwe⁷

Requirements

1. Abundance and distribution-- While not addressed directly in the desk study, Zimbabwe's Department of National Parks and Wild Life Management (DNPWLM) has considerable data on the status and distribution of game species. The Department's knowledge that many private landowners eliminated wildlife on their lands, was central to the government's decision to grant landholders the right to use wild species in 1960.
2. Species biology-- One of the principal responsibilities of the DNPWLM is to advise private landholders and rural communities on communal lands on the management requirements and procedures for using wildlife. This implies an understanding of the biology of the species.
3. Population monitoring-- Each private landholder can use the wild species on his land as he sees fit; however, government has the right to rescind that authority. Because the landholders recognize the potential value of wild species, their management optimizes maintenance of that value. Sport hunting generally emphasizes older males. To determine how many species may be available for sport hunting landholders are continuously monitoring their stock.

On communal lands, government authorizes communities to use wild species by granting them "Appropriate Authority" under the Communal Areas Management Plan for Indigenous Resources (CAMPFIRE) based on a management plan that is prepared by the community (Martin 1986). The management plan follows guidelines provided by the Department of National Parks and Wildlife Management. Authorized communities are also required to submit an annual report which includes a description of monitoring procedures.

In both cases (private lands and communal lands) the DNPWLM emphasizes maintaining data on animals that have been harvested rather than intensive surveys, noting that these data can "... enhance the efficiency of management, and allow quotas to be set ...".

4. Controls-- The *Wildlife Conservation Act* of 1960 and its successor, the *Parks and Wild Life Act* of 1975, provide the legal means for controlling wildlife uses. Under the 1975 law government controls are minimal. Harvest levels for sport hunting, problem animal control, cropping, and live sales of different species are determined by the landholder or by the community council where Appropriate Authority has been granted by the Department. Harvest quotas on communal lands are set within levels of exploitation that

⁷ Annex 3.

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are recommended by the DNPWLM. The DNPWLM advises all managers of wildlife that quotas constrain supply and, because of the high world demand for quality trophy hunting, it is to their advantage to be conservative in setting the quotas (Child 1990). As a result, income from sport hunting has continually increased and been sufficient to warrant maintaining populations that produce the desired number and "quality" of animals.

5. Habitat management-- Management of the habitat is more passive than active. Nevertheless, the value realized from the sale of sport hunting safaris is, to some extent, tied to the quality of the habitat in which the hunting takes place. As noted, in at least one area, a significant number of cattle ranchers have begun using wildlife (Child, pers. comm.). This would imply that these ranchers are controlling cattle grazing and encouraging restoration of natural habitat adequate to support the wildlife on their property.

Benefits

1. Incentives-- The *Parks and Wild Life Act*, enacted in 1975, gives landholders the right to manage wildlife for their own benefit, thus providing an economic incentive to reinforce the scientific, aesthetic, and moral justifications for wildlife conservation. The economic potential of wild species has prompted a significant number of private landholders (particularly cattle ranchers) to adopt management programmes for their use in sport hunting, wildlife viewing and cropping for meat and hides.

The government recognizes the need to provide means for using wildlife on communal lands to the benefit of those residing on those lands. Their first programme (Windfall) was not very successful at returning cash benefits to the rural communities. However, in under four years, the CAMPFIRE Programme has proven to be very successful in this regard. Through their District Councils, management plans are developed, hunting quotas auctioned to hunting operators, and revenues distributed to the villagers. Government facilitates this process by providing technical assistance.

2. Valuation-- Central to the Zimbabwe sport hunting programme is the establishment of values for the different game species. In the beginning, government set these values by assessing the product values (e.g., meat, skin, etc) represented in each animal. Today, as trophy animals are sold through open auctions, values are set entirely through a free-market system. Government realizes revenues from sport hunting through income taxes paid on individual and company revenues. It also markets sport hunting safaris on government-controlled lands. All revenues go to the central treasury (Child, pers. comm.). Wildlife is contributing an estimated US\$ 40,000,000 per year to Zimbabwe's economy. In 1990, it estimated that sport hunting represented nearly 25% of this income (US\$ 9,360,000). Between 1990 and 1991 communities participating in the CAMPFIRE

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Programme received US \$4,000,000, representing about US\$ 400 per household. In some areas this amount doubled the household income.

3. Sustainability-- Because of the economic incentives that are emphasized in Zimbabwe, combined with the on-going monitoring of the status of the populations and the conservative harvest quotas, wild populations are continuing to increase in numbers.
4. Population recovery-- The *Wildlife Conservation Act* of 1960 and the *Parks and Wild Life Act* of 1975, were enacted to maximize land use potential with wildlife and minimize growing conflicts between wildlife and people. These Acts allowed commercial utilization of wildlife. As a result many cattle ranchers converted part or all of their cattle production to wildlife production, mostly for cropping for meat and hides. Current research shows that 34 out of 37 ranches in one area now keep wildlife, now mostly for the lucrative profits of sport hunting and wildlife viewing. Four ranchers now raise only wildlife, while 31 have both cattle and wildlife (Child, pers. comm.). Through the CAMPFIRE Programme, poaching in communal areas has decreased significantly. Attitudes toward wildlife has changed. Communities now value wildlife like their cattle (Metcalf, pers. comm.).
5. Conservation of other species-- No data were provided concerning the conservation of other species. Nevertheless, because such a large percentage of private and communal lands have implemented sustainable wildlife management activities, it can be implied that large numbers of other species have benefitted from sport hunting. Sport hunting brings an immediate cash return from the use of the species. In most cases where wildlife management has been initiated the potential of earning income from sport hunting was an important motivation. As reported in the desk study, according to Brian Child "Without sport hunting, some 10,000 elephant and all the other game would be excluded from their range amongst people...[and]... some 20% of Zimbabwe's farming area, which is being developed for wildlife, would revert to unsustainable agriculture."

Conclusions

Sport hunting in Zimbabwe is an excellent example of the sustainable use of wild species that contributes to conservation. Ownership rights to wildlife are institutionalized through legislation. The government has emphasized a service and advisory role to help landowners and communal people to better manage the resource. Rather than invest in elaborating controls that limit individual decisions, the government has emphasized the value of wild species and the potential economic benefits that can be derived from its use. By advising landholders and community councils on the benefits and technical requirements (monitoring, quotas, marketing) of wildlife use, the government has provided a framework for sustainable use of game species.

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IV. CONCLUSIONS AND RECOMMENDATIONS

The desk studies have demonstrated that sport hunting can contribute to the conservation of wild species and their habitats. The analysis led us to conclude that sport hunting in Northwest Territories (polar bear) and Zimbabwe is sustainable and contributes to conservation. While the Tanzania sport hunting programme does not meet the requirements for sustainable use of the resource, the Wildlife Department is taking steps so that sport hunting will do so in the future. Further, in Tanzania, in those cases where the commercial operators have initiated community-based programmes with government approval, there is evidence of concrete conservation benefits.

The desk studies further reveal that sport hunting activities are most likely to contribute to conservation when they provide direct economic benefits and opportunities for communities living closest to where the hunting activity occurs. Socio-economic information on employment and income for local communities, and every group involved in sport hunting is vital. Unfortunately, very few data are available on economic aspects of sport hunting. It is also important that local communities participate in the planning, management, and implementation of sport hunting and receiving a reasonable share of the financial return. Both are important to ensure proper management of the activity and the resource.

The most effective sport hunting activities, from a conservation perspective, are developed as co-management systems involving citizens, commercial operators, and the government. Based on our analysis, we propose the following checklist as a guide to determine if a sport hunting activity is compatible with conservation objectives:

Social considerations:

1. **Does sport hunting fit within the cultural values of the people in the vicinity of the activity? Do the people have a tradition of hunting wild game? Irrespective of their cultural values, do the people want to obtain some benefits from sport hunting?**

If the answers to these questions are "no" then it should be assumed that the sport hunting is being imposed on people, and should not be condoned.

2. **Do the local people have need to use wild game for cultural or subsistence reasons? Do they harvest animals to meet these needs irrespective of laws that limit access to the resource (e.g., closed seasons, bag limits, etc.)?**

If the local people have such needs, then sport hunting, or national laws, should not prevent their access to the resource. Harvest levels should not preclude use of the resource by the people to fulfill their needs.

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3. Do the local people want to achieve some economic benefits from the use of the species for sport hunting?

Irrespective of their values systems and/or needs, people may wish to use the resource to earn income. In such cases, technical assistance should be provided to ensure that the use is sustainable.

Species/habitat considerations:

4. Is the biology of the species well enough known to develop a management plan? Is the species protected from exploitation during breeding periods and when young are born?

In most instances, the biology of the animals of interest to sport hunters is relatively well known. They are generally prominent species that have been studied extensively. Nevertheless, it is important that those involved in administering the sport hunting programme know the basic biological and ecological requirements of the species.

5. Are harvest quotas conservative? Is the reproductive capacity of the species adequate to maintain the population levels irrespective of the authorized and un-authorized harvest levels?

It is critical that the harvest level be within the reproductive capacity of the species. If harvest levels exceed the reproductive capacity of the species, sport hunting will not be sustainable.

6. Is hunting selective? Are older adult males the primary interest of sport hunters? Are records kept by guides and wildlife officials on the age and average size of the trophy?

Normally, sport hunters are interested in animals that have the largest horns, antlers, etc. In many species only the oldest males would meet this condition. Depending on the species' reproductive behavior, it is important that records be kept on the age of the harvested animals to be sure that the reproductive capacity of the population is not unduly reduced.

7. Is the habitat area adequate to support the species? Is the habitat healthy?

If the sport hunting activity is to be sustainable, it is essential that the species' habitat requirements are maintained. Often this will require controlling grazing of domestic livestock. At the minimum the status of the habitat should be monitored to detect changes that could affect the future of the enterprise.

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8. **Is the status of the population monitored regularly? Do procedures exist to adjust the harvest quota based on the monitoring? Are harvest records evaluated in comparison with population survey information to adjust harvest quotas?**

A dynamic management system is essential if harvests are to be sustainable. Of greatest importance is maintenance of records on the animals that are harvested and the efficiency of the harvest. Periodic censusing of the wild population will provide a basis of evaluating such data. Procedures should exist to adjust harvest quotas based on an evaluation of data obtained from monitoring activities. Over time, comparisons of monitoring data with baseline survey data are essential to determine any affects the harvest may be having on the wild population.

Economic considerations:

9. **Is there a demand for the species in the sport hunting market? Is the demand sufficient to realize the income necessary to manage the species and provide the incentives to conserve the species?**

There should be sufficient interest among sport hunters in the target species to substantiate developing a sport hunting programme. Local demand for the species may not indicate that the foreign hunters would be interested.

10. **Is the cost of the sport hunting consistent with the free-market value of the species?**

It is important that the total cost of the hunting activity (including license fees, tag fees, guide fees, tour costs, travel and accommodations) not exceed what the market will sustain.

11. **Do the people living in the vicinity of the target population receive an equitable share of income? Is this income for services? For access to the resource? Or both?**

Participation of local people in the development and implementation of programmes to use wild species is important if they are to have the incentive to continue to maintain the species and its habitat. In most cases the principal incentive will be financial. Irrespective of the form of the benefit, it is essential that the people have a say in how the benefits are realized.

Administrative considerations:

12. **Does the government have the means to defer responsibility for managing the resource to citizens?**

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Current wildlife statutes in most countries do not provide a means to transfer responsibility for managing wild resources to citizens. Whether citizens can manage wild resources sustainably depends on their having the legal authority to do so. With the legal authority clear guidelines should establish the responsibilities of the users and define how they will be accountable for their management of wild resources.

13. **Are the people living in the vicinity of the resource participating in decisions governing the use of the resource?**

It is critical that communities take an active role in deciding how to manage their resource -- how quotas are used, how payment is to be received, and what role they will play in resource management. Such participation provides a means for understanding the value of the resource and requirements for managing it for their benefit.

14. **Does the government advise and assist citizens to develop management programmes for the use of the resource?**

Communities or landowners may need technical assistance to properly manage wild resources (e.g., population censusing and monitoring techniques, dynamic management planning, setting quotas, habitat maintenance, data recording requirements). Governments, as the body ultimately responsible for the conservation of the resource, should provide such assistance. In the absence of government assistance, NGOs may need to fulfill this need.

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ANNEX 1

SPORT HUNTING IN
NORTHWEST TERRITORIES
(CANADA)

Stephen R. Edwards

Catherine M. Allen

August 1992

IUCN - The World Conservation Union
Sustainable Use of Wildlife Programme

NORTHWEST TERRITORIES (CANADA)

I. INTRODUCTION.

Canada's Northwest Territories (NWT) has an abundance of fish, terrestrial wildlife, marine mammals, migratory birds and natural habitat (Lloyd and Graf 1990). Many of these species are migratory moving between jurisdictions in Canada and significant numbers cross international boundaries (Porcupine Caribou Management Board 1989, Cournoyea and Bromley 1986).

Sport hunting of large game is permitted in the NWT for muskox, caribou, polar bear, grizzly bear, black bear, moose, Dall's sheep, wolves and wolverine (Lloyd and Graf 1990). Hunting is carefully monitored and controlled for all species by the Government of Canada and its Territories and Provinces. This case study focuses on polar bear hunting in the NWT.

The NWT is a vast land area covering one-third of Canada (3,426,000 km²), stretching from the Arctic Circle in the north and bordering Manitoba, Saskatchewan, Alberta, and British Columbia to the South and the Yukon Territory to the west. Indigenous people (Inuit, Inuvialuit, Dene and Metis), numbering about 55,000 in 64 communities, form the majority of the resident population. Most communities are only accessible by air (Lloyd and Graf 1990); income levels are modest as there are few job opportunities. For indigenous people in the Northwest Territories, wildlife is the centre of their culture and economy, according to Sterling (1991). Consequently, he notes, wildlife and the environment have a higher priority in government policy in NWT than in the rest of Canada or even most countries of the world.

From the perspective of the Inuit people of NWT the primary incentive to manage wildlife is to ensure that future generations of Inuit, other Canadians and people of other nations will have the same opportunities to enjoy them, as they do today. Sheila Nasagaluak, a member of the Sachs Harbor Conservation Plan Working Group summarizes the Inuit viewpoint:

"Conservation is ensuring that if we take muskox, there will be muskox the next year and the year after that. The same for anything else. This applies to all uses of the land: if it is used and enjoyed now, it must be left and preserved so that it will be there for the next year and for future years."

The world population of polar bears is estimated to be about 22,000 (Taylor, pers. comm.). Ian Stirling of the Canadian Wildlife Service believes the polar bear population is higher: between 30,000 and 40,000. Recent survey reports put Canada's polar bear population at an estimated 12,700, 58% of the total population (Taylor, pers. comm.). There are twelve polar bear populations in Canada located in Manitoba, Newfoundland, Northwest Territories, Ontario, Quebec and the Yukon Territory. The total administrative and operating budget for polar bear management in Canada approaches CA\$ 1,000,000¹ (US\$ 869,565) per year (Sterling, pers. comm.). There are no designated protected areas in Canada where polar bear hunting by indigenous people is prohibited. In the NWT, the Wildlife Management Division of the Department of Renewable Resources and Inuit communities are develop-

¹ One Canadian dollar = 1.15 U.S. dollars (1/10/92 exchange rate).

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ing Polar Bear Management Plans to ensure sustainable harvest levels and healthy polar bear populations.

Although threats to wildlife and habitat such as oil and gas exploitation are significant and taken very seriously, harvest management is emphasized by the NWT Department of Renewable Resources (Lloyd pers. comm.). In the absence of a sound management plan, including collecting and evaluating census and harvest data, there is a potential for polar bear populations to be over-harvested. Illegal hunting is not considered a problem in most areas of the NWT because: residents have a great respect for the polar bear populations, as they are a part of their cultural tradition; communities gain economic and social benefit from both subsistence and sport hunting, providing an incentive to protect the populations from over-exploitation; and the isolated area and climatic conditions discourage illegal hunting by non-natives (Lloyd, Stirling pers. comm.).

II. ADMINISTRATIVE FRAMEWORK.

The governments of Canada and the Northwest Territories recognize that sustainable use of renewable natural resources is essential to the long-term economic security, self-sufficiency and social well-being of northern residents. The Canadian government delegates most authority for polar bear management to the Provinces and Territories; however, it can intervene in cases of mismanagement.

In NWT the Department of Renewable Resources (DRR) is the government agency responsible for overseeing the Territory's Polar Bear Management Programme. Kevin Lloyd is Director. The following principles have been adopted by NWT to guide decisions and actions related to resource use:

1. economic development shall be promoted which maintains harvestable resources at sustainable levels, essential ecological processes and natural diversity;
2. residents shall have meaningful input and participation in decisions related to conservation and resource development; and
3. conservation and development practices shall take into account the local knowledge, values and experience to be found among the regular users of the environment as well as the information developed in academic institutions, industry and government.

In 1935, concern about over-exploitation of polar bears led the government of Canada to limit the hunting season to 1 October to 31 May. This season remains in effect today. The *NWT Game Ordinance*, adopted in 1949, requires hunters and trappers to be licensed, including all native residents.

An initiative of IUCN/SSC's Polar Bear Specialist Group led to the signing of the *International Agreement on the Conservation of Polar Bears* in 1973 by five countries: Canada, United States, USSR, Denmark, and Norway (Lloyd and Graf 1990). The Polar Bear Specialist Group is designated the technical advisor to the Parties to the Treaty. Article II of this treaty states: "Each contracting Party shall take appropriate action to protect the ecosystems of which the polar bears are a part, with special

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attention to habitat components such as denning and feeding sites and migration patterns, and shall manage polar bear populations in accordance with sound conservation practices based on the best available scientific data". The most recent report of the Polar Bear Specialist Group summarizes the global status of the species (Amstrup and Wiig 1991).

Article III allows harvest of polar bears by indigenous peoples. The Canadian government has interpreted this to include a "token" sport hunt where indigenous communities decide to allocate some of their annual quota to such hunts. Article IV commits signatories to "... enact and enable such legislation and other measures as may be necessary for the purposes of giving effect to this Agreement". The *NWT Wildlife Ordinance and Regulations Act* of 1960 implements this Agreement in the NWT.

Within this context the DRR's function is to: 1) provide advisory services on technical and biological factors for wildlife management, 2) facilitate cooperation among communities for managing shared populations, and 3) ensure enforcement of territorial and federal laws.

Three organizations have responsibilities in regards to polar bear research, management, and conservation in Canada:

1. Polar Bear Technical Committee (PBTC).-- This committee meets annually to recommend management approaches based on analysis of research data. It may also propose specific regulations or review proposed regulations presented by any member. It is comprised of biologists from the provinces of Manitoba, Ontario, Quebec, and Newfoundland/ Labrador, two territories (Northwest and Yukon) and the Canadian Wildlife Service (CWS). The United States also participates, with representation by the U.S. Fish and Wildlife Service, as the United States and Canada share a population of polar bears in the Beaufort Sea.
2. Polar Bear Administrative Committee (PBAC). This committee meets annually to respond to recommendations made by the PBTC and to draft changes in regulations. It is comprised of directors of the provincial, territorial, and federal wildlife services responsible for managing polar bears.
3. Hunters and Trappers Associations (HTA) or Councils (HTC). Each settlement in the Northwest Territories has an HTA or HTC comprised of active hunters and trappers. Changes in regulations are often developed through consultations between the DRR and the affected HTA/HTCs. Proposed legislative changes are reviewed by the HTA/HTCs before they are enacted.

The full implementation of three primary land claim agreements, between indigenous people and the Government of Canada, will establish a variety of co-management systems. These co-management systems will secure a prominent role for native people in all aspects of the management of renewable resources and habitat, i.e., 50% native representation on all management boards (Lloyd and Graf 1990). The first land claim agreement, the *Inuvialuit Final Agreement: The Western Arctic Claim*, was

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signed in 1985. Implementation began in 1985. Under this land claim agreement, the government of Canada has provided funding for wildlife and fisheries related research on ways to better manage these resources. A second land claim agreement covering half of the Northwest Territories, an area three times the size of Texas, is scheduled to be signed in 1992.

Largely in response to these land claim agreements, the DRR has developed a five-year plan to establish community agreements for managing populations of polar bears, particularly where two or more communities "share" these populations. To achieve this goal, a workshop is organized by the DRR for leaders from the communities to draft a Polar Bear Management Plan agreement. The DRR provides community leaders with information about the status of polar bear populations in their region. Harvest data are reviewed in relation to each community boundary. National regulations regarding polar bear management are reviewed. The maximum harvest quota, established by the DRR, for the population is presented.

With this information the communities decide what restrictions they want to impose in the context of their management plan, e.g., reduction of harvest quotas, hunting of only males, etc. When the communities reach consensus on the contents of the agreement, the DRR drafts the agreement. The draft is reviewed by the communities and then sent to the Minister for his signature before being adopted as law. Following this procedure a Polar Bear Management Plan is prepared, with the participation, support, and commitment of the communities living closest to the polar bears. Out of 32 settlements with licenses to hunt polar bear, eight settlements in the west and central Arctic and four settlements in the high arctic have developed Polar Bear Management Plans (Stirling, pers. comm.). Each Management Plan is different and reflects the conditions and wishes of the community to manage their polar bear populations. To date, the NWT is the only jurisdiction in Canada that has developed Polar Bear Management Plans with communities (Stirling, pers. comm.). Examples of polar bear management plans include: Beverly and Kaminuriak Caribou Management Plan (1987) and Interim Management Plan of the Porcupine Caribou Management Board (1989).

The 1992/93 budget for polar bear management in NWT is CA\$ 560,000 (US\$ 486,957) (plus salaries for four staff). The budget includes CA\$ 30,000 (US\$ 26,087) to monitor the harvest (Lloyd, pers. comm.). Strict accounting of all polar bear mortalities caused by humans (i.e., hunting, problem animal control, self defense, and accidental death) is required by law. For each polar bear killed the following information is required: the date of the kill, the age and sex of the animal, the name of the hunter, the community where the bear was shot, and for what reason. These data are recorded in a polar bear management database.

III. HUNTING.

A national quota provides the basis for controlled hunting of polar bears. This quota is set annually by the Canadian Wildlife Service. The national quota for the 1990/91 season was 686 animals, of which 617 were allocated to the NWT (Lloyd, pers. comm.). Within the NWT the DRR allocates the quota among the communities participating in the programme, and provides aluminum tags to the HTA or HTC for each animal in the quota. The HTA or HTC issues the tags to the hunters.

NORTHWEST TERRITORIES (CANADA)

Community quotas are based on population census data, but are generally about 8-10 bears. A complete population census requires five to six years to complete. The draft NWT Polar Bear Management Plan calls for repeating each population census every 20 years (Llyod, pers. comm.).

The quota covers all harvests of polar bears, including subsistence hunting, non-native sport hunting, and problem animal control. Communities decide how to allocate the quota among these categories. Between 1985 and 1990 an average of 65 animals were allocated to sport hunting per year; 60 in the 1989/90 season (Table 1).

Table 1 Polar bear sport hunts allocated by communities in Northwest Territories (1989-90 season).

COMMUNITY	SUCCESSFUL HUNTS	UNSUCCESSFUL HUNTS	TOTAL
Arctic Bay	4	0	4
Broughton Island	1	0	1
Clyde River	2	0	2
Iqaluit	5	4	9
Grise Fiord	4	3	7
Holman	4	0	4
Igloolik	2	0	2
Pangnirtung	2	0	2
Paulatuk	1	2	3
Resolute	10	1	11
Sachs Harbor	6	0	6
Tuktoyaktuk	1	0	1
Coral Harbor	6	0	6
Hadley Bay	0	2	2
TOTAL	48	12	60

Source: K. Lloyd, Department of Renewable Resources, NWT, Canada.

Commercial outfitters market and book polar bear hunts, primarily in Asia, Europe, and the United States. The market appears to be stable, but confined to a certain segment of the sport hunting community. According to Taylor (pers. comm.), most hunters participate in polar bear hunts for the thrill of the hunt and to experience the environment, rather than to kill an animal.

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Currently, most clients come from Europe and Asia. A fair number of Americans have participated in polar bear hunts; however, they cannot legally import their trophy into the United States as trade in polar bear trophies is prohibited under the Marine Mammal Protection Act (1973). Many leave their trophy in storage in Canada, hoping that the United States' import restrictions will be lifted in the future.

Outfitters must be licensed by the Territory or Province. The outfitters make all arrangements with the community where the client will go to hunt polar bears; however, they do not normally participate in polar bear hunts (Tudor-Davies, pers. comm.).

The HTA or HTC in each community designates the guides, who are experienced polar bear hunters. A different guide is assigned to each hunt to ensure that as many qualified guides as possible have the opportunity to earn income. The HTA or HTC issues the tags to hunters and determines where the hunt shall take place.

Within the approved non-native hunting quota, each hunter has the opportunity to kill one polar bear. If the hunter does not get a bear the tag is invalidated and the quota is decreased by one. Based on figures provided by the DRR, 20% of the hunts (12 animals) were unsuccessful during the 1989/90 season (see Table 1).

IV. SOCIAL AND ECONOMIC FACTORS.

From the viewpoint of indigenous people in the NWT, the primary values of polar bears are non-economic, including: cultural, social, traditional, and spiritual. The polar bear (Nanook) is revered and respected. The first kill by a young Inuk is a rite of passage (Taylor, pers. comm.).

Secondarily, polar bears are valued for their pelts, which rank first among all fur bearers in Canada. In very rough terms, polar bear pelts average between 6 and 13 feet long and sell for (wholesale) CA\$ 100 (US\$ 87) per foot. In Canada, almost all polar bear pelts are exported to markets in Europe and Japan. Very few pelts are kept by Inuit (Stirling, pers. comm.).

Sport hunting for polar bears represents a tertiary value. As dog teams must be used in non-native polar bear hunts, and most communities do not maintain dog teams, only a few communities are able to guide sport hunters. Further, the *NWT Wildlife and Regulations Act* requires that non-native hunters be accompanied by a native guide who is a resident of the community, or one near by. Nonetheless, for those communities that are able to meet these condition, significant income is earned from sport hunting. Incorporated hamlets of 450-600 people do not generally rely on polar bear sport hunting for their livelihood. Some of these hamlets choose not to use their quota to sell guided polar bear hunts to non-natives. On the other hand, out-post communities, e.g., Resolute and Grise Fiord, comprised of three or four families, have few options for generating income and often rely on the cash income from polar bear hunts, (Taylor, pers. comm.).

A typical polar bear sport hunt is marketed for US\$ 13,500 to US\$ 14,000. Polar bear hunts generally last for 10 days. The tour package includes: the guide, local transport and meals (prepared by an

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assistant guide), snowmobile transport of provisions between camps, a dog team for the hunt, and the tag fee. International travel and in-transit costs are not included. Using figures provided by Lloyd, Table 2 lists typical expenses incurred by non-native hunters for community services, booking agent fees, and government fees. Based on these figures CA\$ 11,450 (US\$ 9,957) goes to the community if the hunt is successful; CA\$ 8,050 (US\$ 7,000) if unsuccessful. Of the CA\$ 3,500 (US\$ 3,043) 'tag fee' received by the HTA or HTC about CA\$ 1,100 (US\$ 957) is used to rent the sled dogs and cover the costs of fuel, supplies, and equipment for the hunt. If an aircraft is used to position a hunt most of the remainder of the 'tag fee' may be expended. Independently, Jerome Knapp, President of Canada North Outfitters, Inc. estimated that communities receive between CA\$ 11,000 (US\$ 9,565) and CA\$ 11,500 (US\$ 10,000) per hunt (pers. comm.). Table 3 provides a rough estimate of the total income received by each community participating in the NWT polar bear programme (based on 1989/90 quota and harvest figures). Overall income to all villages was about CA\$ 650,000 (US\$ 565,217).

Table 2. Expenses incurred by a foreign polar bear hunter (in Canadian dollars).

CATEGORIES OF EXPENSES	UNSUCCESSFUL HUNT	SUCCESSFUL HUNT
BASIC COMMUNITY FEES:		
Tag fee	3,500	3,500
Guide fee	3,500	3,500
Souvenirs	500	500
Clothing	550	550
Contract bonus		2,000
Additional bonus		1,000
Skinning/dressing pelt		400
BOOKING AGENT FEE:	4,000	4,000
IN-TRANSIT COSTS	1,000	1,000
GOVERNMENT FEES:		
Trophy fee	500	500
License fee	25	25
TOTAL	13,575	16,975

Source: K. Lloyd, Department of Renewable Resources, NWT, Canada.

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Table 3. Distribution of polar bear-related income to communities participating in the programme.

COMMUNITY	SUCCESSFUL HUNTS	INCOME PER HUNTER	SUBTOTAL	UNSUCCESSFUL HUNTS	INCOME PER HUNTER	SUBTOTAL	TOTAL INCOME
Arctic Bay	4	11,450	45,800	0	8,050	0	45,800
Broughton Island	1	11,450	11,450	0	8,050	0	11,450
Clyde River	2	11,450	22,900	0	8,050	0	22,900
Iqaluit	5	11,450	57,250	4	8,050	32,200	89,450
Grise Fiord	4	11,450	45,800	3	8,050	24,150	69,950
Holman	4	11,450	45,800	0	8,050	0	45,800
Igloolik	2	11,450	22,900	0	8,050	0	22,900
Pangnirtung	2	11,450	22,900	0	8,050	0	22,900
Paulatuk	1	11,450	11,450	2	8,050	16,100	27,550
Resolute	10	11,450	114,500	1	8,050	8,050	122,550
Sachs Harbor	6	11,450	68,700	0	8,050	0	68,700
Tuktoyaktuk	1	11,450	11,450	0	8,050	0	11,450
Coral Harbor	6	11,450	68,700	0	8,050	0	68,700
Hadley Bay	0	11,450	0	2	8,050	16,100	16,100
TOTAL	48	11,450	549,600	12	8,050	96,600	646,200

Source: K. Lloyd, Department of Renewable Resources, NWT, Canada

Sale of polar bear pelts generated another CA\$ 600,000 (US\$ 521,739), and in those settlements that consumed polar bear meat, Lloyd (pers. comm.) estimated the replacement value, at CA\$ 150,000 (US\$ 130,435) per year. Taking into account income from sport hunting, sale of pelts and the replacement value for meat, the polar bear harvest represents a total value of CA\$ 1,400,000 (US\$ 1,217,391) per year to NWT.

Polar bears are slowly gaining importance as a tourist attraction. Wildlife viewing, including polar bears, is a growing industry in Northwest Territories. There are no precise figures available; however, Lloyd estimated that CA \$200,000 (US \$173,913) was earned per year by communities in NWT from non-consumptive polar bear-related tourism. Jerome Knapp reports that his company grossed around CA\$ 100,000 (US\$ 86,957) in one year from polar bear watching tours in the NWT.

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Several communities with seasonal polar bear populations now offer polar bear watching tours, the most notable is in the town of Churchill, (outside of NWT) where polar bears can be seen consistently between mid-October to mid-November. Each year, these polar bear watching tours are completely sold out by the 20 tour operators in Churchill. Direct income generated by tour operators from polar bear watching in Churchill is over CA\$ 1,000,000 (US\$ 869,565), according to Doug Webber, the mayor of Churchill and an outfitter. This figure does not include income from souvenir sales.

V. SUMMARY AND CONCLUSIONS.

The NWT polar bear sport hunting program fulfills the basic requirements for the sustainable use of the resource:

- * There is a clear definition of the rights and responsibilities of the users of the species and its habitat. Rural communities prepare and implement polar bear management plans under the auspices of the DRR. In this context, communities have the choice to allocate part of their assigned quota to sport hunting. The DRR assists communities by providing census data and basic biological information on the species, based on an annual census of the populations. Through the annual reporting requirements, tagging scheme and regular visits to the communities, the DRR provides the means to monitor community actions. The management regime closely links the uses of polar bears with benefits and establishes the authority and accountability of the users. The role of the resource managers (HTA or HTC) is identified.
- * The governments of Canada and NWT share responsibility for ensuring that polar bears are conserved and that all uses are sustainable. Their laws and policies are compatible with the sustainable use of wild species. Because of Canada's commitment to assist the economic development of the indigenous people, it has interpreted the international polar bear treaty to permit limited sport hunting within the context of indigenous uses.
- * The NWT DRR has developed a programme for community management of polar bears. Twelve settlements (eight in the west and central Arctic and four in the high Arctic) have developed Polar Bear Management Plans. The Management Plan accounts for all uses of polar bears and establishes conservative use levels. The baseline status of the populations is established through a government census procedure. The impacts of the harvests are assessed, both directly through censuses and indirectly through measurements taken on harvested animals. The management planning process relies heavily on the DRR providing information on the biology of the species, the status of the populations, etc. The communities apparently are effective in controlling and enforcing quota limits.
- * The DRR is doing extensive education and training with settlements throughout the NWT on natural resource management, relating use activities to potential impacts on the species and the environment.
- * No information is available on how the sport hunting activity contributes to the management of the area (ecosystem, biophysical region).

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The following potential benefits of sport hunting of polar bears have been identified:

- * sport hunting enhances the economic value of the species and habitats, in those communities that derive significant income from sport hunting.
- * the management planning process assures a continuing supply of resources vital for the cultural survival of the Inuit.
- * the income and cultural benefits provide significant incentives to conserve or enhance wild populations of polar bears and their habitats.
- * polar bear populations remain healthy in Canada, and particularly in NWT. However, the consequences of the land claim agreements that are being negotiated could have serious consequences for the survival of the species. If wildlife utilization, such as sport hunting, ceases to be economically viable then there will not be much incentive for maintaining wildlife when offers for oil and gas leases could provide native people with lucrative revenues (Lloyd and Graf 1990).

NORTHWEST TERRITORIES (CANADA)

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ANNEX 2

SPORT HUNTING IN
TANZANIA

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August 1992

IUCN - The World Conservation Union
Sustainable Use of Wildlife Programme

TANZANIA

I. INTRODUCTION.

Tanzania has rich and diverse wildlife resources, with the highest concentration of large mammal inhabiting vast grasslands and open woodlands in the northern part of the country. Revenues from wildlife viewing and sport hunting contribute significantly to the national economy. This case study examines the general approach the government has taken to control and benefit from sport hunting

Important game species include: buffalo, elephant, (presently with zero quota) lion, leopard, impala, eland, gazelle, kudu, zebra, klipspringer, zebra, wildebeest, duiker, warthog, and wildebeest. Total protection is accorded to Abbot's duiker, colobus monkey, wild dog, chimpanzee, giraffe, rhino, and cheetah (Tanzania Wildlife Department).

Tanzania covers 945,890 km² (5% cultivated lands, 37% pasture lands, and 45% forest/woodland) and supports a human population of over 26 million people, most of whom live in rural areas. Agriculture employs about 86% of the work force (Stuart and Adams 1990). All land is owned by the government. Individuals are granted rights to use land for specific purposes approved through a government process, and can own structures on the land as well as agricultural improvements. Under Tanzanian law, the right to use land can be revoked (Edwards and Broad 1992). Approximately 12% (11,913 km²) of the land in Tanzania is managed under four categories of protected areas, three of which permit controlled sport hunting:

- * National Parks, in which human habitation is prohibited and total protection is provided all wildlife and the habitat. Management is directed at protecting the resources and using them for tourism, education, and research. Consumptive use of wildlife is not allowed.
- * Game Reserves, for the most part, were established to conserve areas with high concentrations of game or that are important for migratory species. Human habitation is prohibited. Tourist hunting is permitted under special licenses issued by the Wildlife Department. Tourist hunting is promoted along with some wildlife viewing.
- * Game Controlled Areas, in which both resident and tourist hunting is allowed under licenses issued by the Wildlife Department. All other forms of land and natural resource use (e.g., agriculture, grazing, logging) are permitted and human habitation is allowed. The wildlife populations are declining in many Game Controlled Areas because of the human impact and loss of habitat. Consideration is being given to "de-gazetting" some Game Controlled Areas and upgrading others.
- * Partial Game Reserves are a type of Game Controlled Area in which Game Reserve status has been applied in regard to certain species which need special protection. Hunting is allowed, as in Game Controlled Areas.

The best known protected areas are located in the north: Serengeti National Park (with the contiguous Ngorongoro Conservation Area), Maswa Game Reserve, and the Ikongoro and Loliondo Game Controlled Areas (Stuart and Adams 1990). The Ngorongoro Conservation Area was established and

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is managed under a special Act-of-Parliament to conserve the ecosystem, promote tourism, and enhance the welfare of the Masai people. Multiple use of the area is allowed, however, certain activities are prohibited or confined to designated zones. Another special case is Mweka College, located in northern Tanzania which was established in 1963 as a College of African Wildlife Management. It manages land and allows sport hunting of certain game often not occurring in Game Reserves for which a conservation royalty of US\$ 600 per day is charged each hunter. All Game reserves and Game controlled areas are under the authority of the Wildlife Department.

The principal threat to wildlife in Tanzania is habitat loss for agriculture and livestock production. Large-scale, organized poaching also represents a significant threat, particularly to migratory species in the northern part of the country.

II. ADMINISTRATIVE FRAMEWORK.

The government has sole authority over wildlife. It aims to conserve the abundant wildlife and habitat resources for future generations, as evidenced in the number of protected and conservation areas. Equally important, however, is the strong desire to use the wildlife resources sustainably as a means of generating foreign exchange, which is desperately needed to finance wildlife management programmes (Edwards and Broad 1992). As a result, Tanzania is building a strong tourist industry in wildlife viewing and sport hunting.

Sport hunting is allowed under the *Wildlife Conservation Act* of 1974, which also provides for the implementation of Tanzania's responsibilities under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). However, between 1974 and 1982 sport hunting was banned for political reasons. The Wildlife Department of the Ministry of Tourism, Natural Resources, and Environment is responsible for implementing the *Wildlife Conservation Act*. Constantius Mlay is the Director of the Wildlife Department. The Wildlife Department is divided into six sections: Licensing; Research, Training and Extension; Development and Management; Tourist Hunting; Preventative Actions (which includes an Anti-Poaching Unit); and Administration and Finance. A total of 4,700 people are employed by the wildlife Department; 40 work in Dar es Salaam. The annual operating budget for the Department was not available.

The Wildlife Department issues hunting permits and licenses to safari operators and hunters subject to specific regulations. There is no legislation allowing citizens to utilize wildlife either for subsistence or commercial purposes without fulfilling the hunting license requirements. However, the government recognizes that rural communities living next to wildlife resources must also benefit if wildlife populations and their habitat are to survive. Efforts are being made to develop and implement a policy to share wildlife-related income with local communities (Mlay, pers. comm.).

In Tanzania a license to operate a safari company is called a tala and different operations within one company will require separate talas. Several different talas and permits are issued in relation to commercial safari operations:

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- * Tour Operator talas are required for sport hunting or game viewing. The license fee is US\$1,000 for each and many operators hold both talas. Talas are issued annually. According to Tanzania Wildlife Department officials, nineteen were issued in 1991.
- * Talas are required for sport hunting guides, who are considered professional hunters and wildlife viewing guides. The tala specifies what kind of guide service license is for. A sport hunting guide's tala also lists the holder's hunting credentials. All hunting safaris are led by license guides. To qualify for a hunting guide tala, applicants must pass a written exam given by the Wildlife Department. The annual fee is US\$1,000 and is normally paid by the operator. Each professional hunter is allowed to guide no more than two hunters per hunting safari. There are approximately 80 licensed sport hunting guides in the country (Hurt, pers. comm.).
- * Work permits are required of all expatriates working in the country. Work permit applications for expatriate professional hunters are processed by the Wildlife Department and issued by the Tourism Department. The fee is US\$1,000. In addition, each expatriate professional hunter must obtain a seasonal work permit from the Immigration Department. Reportedly, a large number of the professional hunters holding talas are expatriates (Hurt, pers. comm.).
- * A trophy dealers license is required of all companies responsible for preparing wildlife for international shipment. They are issued by the Wildlife Department. All safari companies with foreign clients must have this license to arrange for export of the trophies.

Safari companies lease land for hunting and wildlife viewing. Each company is required to submit an application outlining the proposed uses of a particular hunting block (=concession). Applicants are required to provide: a) list of species to be utilized; b) a detailed plan for developing the concession area; c) a plan for anti-poaching activities; and d) a plan describing how communities in, or surrounding, the concession block will participate in the safari operations and how they will be compensated (Mlay, pers. comm.). Until 1990, operators were granted hunting concessions for between one and three years. Now, most concessions are granted for five years.

According to the Wildlife Department, applications are evaluated on the basis of: a) the company's knowledge of wildlife conservation; b) information on hunting facilities, e.g., number of vehicles, camping sites; c) marketing approach; and d) past experience of the company, e.g., foreign exchange earnings and operations in other countries.

Each safari operator granted permission to use a concession block is evaluated by the Wildlife Department every two years on the basis of their performance during the prior seasons to determine whether they will be allowed to retain their hunting block. If an operator's performance is judged to be poor, the block may be re-assigned to another operator. Performance is interpreted to mean fulfilling the quota. Some concession holders note that under this requirement, if the actual status of a population is lower than the quota would suggest, they are still obliged to meet their quota or risk having their concession assigned to another operator. Established operators are also required to provide a copy of their income tax return verifying that the anticipated income in foreign exchange was

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deposited in the National Bank of Tanzania. Successful applicants are required to register their companies as either national or foreign companies before they are allowed to operate their business.

Safari companies are required to make a significant investment in order to utilize a hunting concession. They must mark the area of their concession, establish roads to patrol the area, set up permanent tent camps, and often construct an air strip to bring in clients. Some operators would like the Wildlife Department to grant hunting concessions for a longer term (i.e., 15 to 20 years). They say that with longer term concessions, they would have more incentive to invest in the type of management required to benefit wildlife and the habitat, and increase the economic value of the area while establishing mutually beneficial working relationships with local communities (McCallum and Van der Neut, pers. comm.). For example, they could build proper fire breaks and prepare boreholes to control grazing by wildlife, provide technical training to local communities on censusing techniques, and assist in wildlife monitoring and anti-poaching activities.

III. HUNTING.

The sport hunting season in Tanzania lasts from July through March. Hunting quotas are established annually for each game species. No animal may be hunted unless it appears on the government quota list. Quotas are established for each species from aerial censusing (for large animals), ground surveys, and from reports by Regional Game Scout officers and safari operators. Adjustments to harvest quotas for individual taxa are made on the basis of information provided by Regional Game Officers, Game Scouts and professional hunters (Mlay, pers. comm.). The 1990 quota for 46 species is presented in Table 1. This list is not the same as the list for which game fees are charged by the Wildlife Department (see Tables 2 and 3). It is not known if the national quota is allocated among the different concession holders, based on censuses of populations in the concessions. More conservative quotas to ensure sustainable offtake levels are being developed by a new unit established to survey species populations, establish offtake rates, and monitor the status of species populations. This unit will function as Tanzania's CITES Scientific Authority.

Companies market the hunting safaris primarily in Europe and the United States. Rates are charged according to the number of days on the safari and the number of people in the hunting party. Table 4 lists the prices Tanzania Game Tracker Safaris charges for different sport hunting tours in Tanzania. Clients choose the species they wish to hunt from a list of available species in the operator's hunting block.

Sport hunters are required to pay the following fees:

- * Safari hunting licenses are required of all foreign hunters. In 1992, fees are US\$ 450 for seven day hunts and US\$ 600 for 16, 21, and 28 day hunts. The hunting license is issued for the specific species requested by the client, provided the quotas have not been exhausted in the concession.
- * Game fees are charged for each animal shot. Different fees are assessed for each species, and different fees are assessed depending on whether the hunter is a "resident citizen", "resident non-

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Table 1. 1990 Quota for Game Species.

SPECIES	1990 QUOTA	SPECIES	1990 QUOTA
Baboon	963	Leopard	363
Buffalo	953	Lion	437
Bushbuck	379	Jackal	262
Bushpig	128	Oryx	89
Civet	190	Oribi	16
Cerval cat	195	Porcupine	190
Dikdik	267	Puku	20
Duiker	413	Ratel	197
Eland (male)	365	Reedbuck	455
Elephant	0	Roan	163
Grysbok	34	Sabel	218
Genet	161	Steinbuck	165
Gerenuk	97	Suni	132
Gazelle (Grant's)	235	Sitatunga	55
Gazelle (Thomson's)	217	Topi	309
Hippo	427	Waterbuck	459
Hyaena	336	Worthog	805
Hartebeest	651	Wildebeest	614
Impala	844	Wildcat	101
Kudu, greater	252	Zebra	834
Kudu, lesser	81	Zorilla	86
Klipspringer	112	Ostrich	245
		Crocodile	60

Source: Tanzania Wildlife Department.

citizen", or "tourist". Table 2 lists the fees assessed residents (citizens and non-citizens) for 28 species. Table 3 lists the fees assessed foreign hunters for 1988-90 and 1991 for 73 species.

* CITES permits are required for those taxa that are listed under the Convention that are exported from Tanzania as trophies. The sport hunter is responsible for obtaining the CITES import permit (from the country to which the trophy is to be imported) prior to departing for Tanzania. The safari operator delivers the import permit to the Wildlife Department and obtains the necessary export permit for the trophy. The CITES export permit fee is TSh 600¹ (US\$ 2.60).

* The Wildlife Department assesses a "conservation fee" of US\$ 100 per day on both hunters and observers on hunting safaris. Revenues are deposited in the Tanzania Wildlife Protection Fund. The Wildlife Department uses this fund to help pay for wildlife conservation activities, including law enforcement and anti-poaching. Funds are allocated to Districts based on the amount of income obtained from the sport hunting in the District. Twenty-five percent of the game fees also go to the Wildlife Protection Fund. According to the Director of the Wildlife Department, from July-December 1991, revenues from the Conservation Fee earned US\$38,000 (200million

¹Exchange rate: 300 Tanzania Shillings (TSh) = 1 US\$ (12/91)

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Table 2. 1990 Game fees for non-citizen and citizen residents for select species.

SPECIES	GAME FEES NON CITIZEN (TZs)	GAME FEES NON CITIZEN (US\$)	GAME FEES CITIZEN (TZs)	GAME FEES CITIZEN (US\$)
Buffalo	27,020.00	117.48	6,000.00	26.09
Bushbuck	15,440.00	67.13	1,200.00	5.22
Bushpig	9,843.00	42.80	1,200.00	5.22
Dikdik	7,720.00	33.57	450.00	1.96
Duiker-blue	8,363.30	36.36	600.00	2.61
Duiker-common	8,363.30	36.36	600.00	2.61
Eland (male)	38,600.00	167.83	10,000.00	43.48
Thomson's gazelle	8,363.00	36.36	1,500.00	6.52
Grant's gazelle	9,971.70	43.36	1,200.00	5.22
Hare	2,251.70	9.79	300.00	1.30
Hartebeest	16,276.70	70.77	3,000.00	13.04
Impala (male)	10,615.00	46.15	2,000.00	8.70
Hyrax-rock	3,216.70	13.99	200.00	0.87
Oribi	5,468.30	23.78	500.00	2.17
Pigmy antelope	5,468.30	23.78	400.00	1.74
Reedbuck	12,866.70	55.94	1,200.00	5.22
Steinbuck	6,433.30	27.97	1,500.00	6.52
Topi	16,083.30	69.93	500.00	2.17
Worthog	14,153.30	61.54	3,000.00	13.04
Wildebeest	14,153.30	61.54	1,500.00	6.52
Ducks and geese	1,150.00	5.00	200.00	0.87
Grancolins	760.00	3.30	150.00	0.65
Painted snipe	760.00	3.30	300.00	1.30
Snipe	760.00	3.30	150.00	0.65
Sandgrouse	760.00	3.30	150.00	0.65
Pigeon	760.00	3.30	150.00	0.65
Guinea fowls	1,150.00	5.00	150.00	0.65

Source: Tanzania Wildlife Department.

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Table 3. 1990 and 1991 Tanzania game fees assessed tourist hunters.

ENGLISH NAME	SWAHILI NAME	1990 GAME FEES US \$	1991 GAME FEES US \$
Baboon (olive)	Nyani mwetundu	85	90
Baboon (yellow)	Nyani (njano)	85	90
Buffalo	Nyati	420	600
Busbuck	Mbawala	240	340
Busbpig	Ngurwe mwitu	135	190
Caracal	Simba mangu	50	70
Givet cat	Fungo	100	140
Genet	Kamu	130	180
Serval cat	Mondo	130	180
Wild cat	Kimburu	110	150
Crocodile	Mamba	600	840
Dikdik	Dipidigi	120	170
Abbot's duiker	Mindi	130	180
Blue duiker	Ndimba	130	180
Common-duiker	Nya	130	180
Red-duiker	Funo	130	180
Eland	Pofu	600	840
Elephant	Tembo	2,500	4,000
Galago	Komba	100	150
Bat-eared fox	Mbewha masikio	130	180
Grant gazelle	Swala granti	155	220
Thomson gazelle	Swala-tomi	130	190
Gerenuk	Swala twiga	920	1,300
Giraffe	Twiga	n/a	n/a
African hare	Sungura	35	60
Jumping hare	Kima ngedere	35	60
Coke's hartebeest	Kongoni	260	370
Lichtsteins hartebeest	Konzi	260	370
Hippopotamus	Kiboko	600	840
Hedge hog	Kalunguyeye	50	80
Giant forest hog	Ngurwe mkubwa	260	370
Spotted hyena	Fai (kinguwa)	130	190
Rock hyrax	Pimbi (kwaga)	50	80
Tree hyrax	Peiele (Wibari)	65	100
Impala	Swala pala	185	240
Golden jackal	Bweha	80	120
Striped jackal	Bweha mraba	80	120
Backed jackal	Bweha	80	120
Klipspringer	Mbuzi	510	720
Greater-kudu	Tandale mkubwa	815	1,170
Lesser-kudu	Tandale mdogo	920	1,300
Leopard	Chui	1,400	2,000
Lion	Simba	1,400	2,000
Mongoose	Nguchiro	35	60
Colobus monkey	Mbega mweupe	n/a	n/a
Blue monkey	Kima	75	120
Vervet monkey	Tumbili	75	120
Oribi	Tiya	85	120
Oryx	Chorora	620	870
Ostrich	Mbuzi	520	740
Otter	Fai maji	100	140
Pygmy antelope	Paa (Suni)	85	130
porcupine	Ndungu	85	70
puku	Sbesbe	155	220
python	Chatu	210	300
Ratel (honey badger)	Nyegere	50	70
Reedbuck-bobor	Tobe-ndope	200	290
Reedbuck-mountain	Tobe-mlima	200	290
Reedbuck-southern	Tobe-kwai	200	290
Roan antelope	Korongo	620	870
Sharps grynbuck	Dondoo shapi	100	150
Sable antelope	Palapaia	840	1,200
Sitatunga	Nzobe	620	900
Steinbuck	Dondoro	100	150
Topi	Nyamera	250	350
Warthog	Ngiri	220	320
Common waterbuck	Kuro	310	440
Defassa waterbuck		310	440
Wild dog	Mbwa mwitu	n/a	n/a
Nyasa wildebeest	Nyumbu-kusi	220	320
White-beared wildebeest	Nyumbu kidevu	220	320
Zebra	Pundamilia	365	590
Zonilla	Kicheche	100	100

Source: Department of Wildlife, Tanzania.

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Table 4. Tanzania Game Tracker Safaris' prices (US dollars); 1992 safari season.

NUMBER HUNTERS PER PARTY	NUMBER GUIDES PER PARTY	7 DAY SAFARI	16 DAY SAFARI	21 DAY SAFARI	28 DAY SAFARI
1	1	13,650	28,640	36,015	45,080
2	1	10,220	21,200	26,565	33,180
2	2	12,215	25,520	32,025	39,900
3	2	10,395	21,520	26,985	33,600
3	3	11,375	23,680	29,610	36,960
4	2	9,205	19,040	23,730	29,540
4	3	9,870	20,480	25,515	31,780
5	3	9,240	19,040	23,835	29,540
5	4	9,835	20,400	25,410	31,640
6	3	8,400	17,280	21,525	26,740
Observers	--	1,750	3,680	4,935	6,300

Source: Tanzania Game Tracker Safaris, Ltd.
Highest and lowest price combinations circled.

- * Firearms permits are required of all hunters who bring firearms into Tanzania. A maximum of three firearms are allowed. Until recently, the duty was US\$ 100 per firearm, however, this fee has reportedly been dropped along

with a duty on imported ammunition Van der Neut, pers. comm.).

Tanzania Game Tracker Safaris requires their clients to deposit US\$ 4,000 (for a seven day safari) to US\$ 10,000 (for a 28 day safari) at the time the tour is booked to cover the various fees. Unused balances are returned to the client after the safari or the client is invoiced for any expenses not covered by the deposit.

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IV. SOCIAL AND ECONOMIC FACTORS.

The revenues from sport hunting in Tanzania is considerable. In 1990, total revenues to the state from tourist hunting (including license, game, and conservation fees) were US\$ 2,579,542 according to Wildlife Department officials, of which 75% (US\$ 1,934,657) went to the Treasury and 25% (US\$ 644,885) to the Wildlife Protection Fund. The 1990 revenue was based on 489 tourist hunters at an average cost of US\$ 5,275. The Wildlife Protection Fund supports a variety of projects including law enforcement and other departmental requirements. However, it does not appear to be the Wildlife Department's sole source of annual funding.

Overall, including international travel, safari operator's fees, and personal expenditures, it is estimated that each tourist hunter spends between US\$ 20,000 and \$ 50,000 to participate on a safari in Tanzania. Together, safari hunting and game viewing generate about US\$ 30 million in revenues in Tanzania annually, according to Tanzania Wildlife Department officials. Beyond the fees that the government collects, it is not known how much of this money is retained in Tanzania, however, operators have significant costs that they must bear including the preparation and maintenance of their hunting concessions, and food and other client services while on safari, etc, which are paid for in Tanzania. Gross annual revenues earned by the 19 licensed safari operators in 1990 were estimated to be US\$ 14 million (McCallum, pers. comm.). Tanzania Game Tracker Safaris estimates their gross earnings in 1989 were US\$ 1.2 million. Further, they report that in 1991 their company had a total of 1,904 client/days (hunters plus observers) in country; 1,918 in 1992. Based on these figures the "conservation fee" alone that was collected by the Wildlife Department would total US\$ 136,400 and US\$ 143,000 respectively.

Rural communities do not own or manage land for sport hunting. Direct economic benefit is limited to providing services to safari operators as trackers, skinners, and camp support. Masai people in the Ngorongoro Conservation Area, however, manage the land and therefore receive direct revenues from safari operators and from game fees. In addition, a few communities have received financial benefits directly from some safari operators in the form of donations for schools, clinics, etc. and financial rewards for anti-poaching assistance.

Poaching by local communities is extensive and is exacerbated when they are denied the opportunity to utilize wildlife and its habitat (Hurt and Etling 1991). Long-line cable snares are a common means of poaching in northern Tanzania. These cables are one to three kilometers long and can have several hundred snare loops per cable. Like a drift net, long-line cable snares are indiscriminate in what they catch. Hurt and Etling (1991) report that thousands of animals of numerous large and small species are killed by these snares each year during their migration. Species commonly caught in the snares include: zebra, wildebeest, impala, duiker, wart hog, eland, giraffe, Cape buffalo, ostrich, big cats, and hyena. Because the snare lines are so efficient in capturing animals, often up to 90% of the animals killed in the snares are not harvested. The harvested meat is sold to rural communities throughout Tanzania. While there are no figures on the amount of income generated, these illegal enterprises may contribute substantial revenues to the rural economy. In southern Tanzania poaching is more commonly conducted with firearms.

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In the last two years some safari operators have been actively working with local communities to stop wildlife poaching. The Cullman Wildlife Rewards and Benefits Project was established in 1990 by Tanzania Game Tracker Safaris in cooperation with the Wildlife Department.

Tanzania Game Tracker Safari's founder and Vice Chairman, Mr. Robin Hurt, established the programme because of his concern for the loss of wildlife from snaring by local poachers. Mr. Joseph Cullman, an American sport hunter and conservationist, made a large donation to start the reward fund which bears his name. The goals of the project are to stop poaching of wildlife by sharing profits from sport hunting with local communities who participate in anti-poaching programmes and to demonstrate the benefits of utilizing wildlife resources sustainably.

The Cullman Project is funded through donations by sport hunters participating in Tanzania Game Tracker Safari hunts and some sport hunting organizations. When the hunter pays the government game fee to hunt in a Tanzania Game Trackers Safaris' hunting concession, he or she is invited to make a contribution to the fund. Almost all hunters participating in Tanzania Game Tracker Safaris hunts contribute to the fund, according to company representatives. Contributions to the Cullman Fund are reported to be about US\$ 3,200 per hunter, or 20% of the average game fees of US\$ 16,000.

All contributions are deposited in the Cullman Fund account in Houston, Texas administered by Tanzania Game Tracker Safaris. A bank account in Dar es Salaam is jointly administered by the Tanzania office of Tanzania Game Tracker Safaris and the Wildlife Department. As project funds are needed, money is transferred from Houston to the account in Dar es Salaam.

The Project was launched in 1990 in the Makua Village in the Maswa Game Reserve where Tanzania Game Tracker Safaris holds a hunting concession. Makua, with a population of around 800 people, was considered an ideal choice to launch a pilot project because it was located in the buffer zone surrounding Serengeti National Park and, according to Mr Hurt, the main source of income was from poaching with snares.

The Cullman project hired sixteen men from Makua to make up an anti-poaching team, under the supervision of a government game warden. Each received the same salary as the government game warden, about TSh 500 (US\$ 4.00) per day plus meals. The project provided uniforms, vehicles, bicycles, and other necessary equipment. Only the government game warden assigned to the project is authorized to carry a firearm. The anti-poaching team is active all year. In addition to their salary, members of the anti-poaching team can receive rewards for each snare collected or destroyed, poacher's camp destroyed, confiscated firearm or bow, and for apprehended and prosecuted poacher. The reward for apprehending a poacher is scaled according to the target species. The reward for an apprehended and prosecuted elephant or rhino poacher is US\$ 500 (Hurt, pers. comm.).

According to Tanzania Game Tracker Safaris officials, in 1990 the Makua anti-poaching programme resulted in:

- 2,075 snares collected and destroyed
- seven poaching camps destroyed

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- 68 poachers apprehended, prosecuted and convicted.
- US\$ 14,000 in rewards paid out

In 1991, Makua, and a second village, Saka Saka, which joined the programme, had the following result in four game areas:

Maswa Game Reserve (Makua and Mbona):

- 946 snares collected and destroyed
- 18 poaching camps destroyed
- one rifle and 20 bows and arrows confiscated
- 94 poachers arrested and prosecuted

Monduli Wildlife and Forest Reserve:

- 1,209 snares collected and destroyed
- 23 poachers captured

Ugalla West Game Reserve:

- three elephant poachers captured
- two firearms confiscated

Kigozi Game Reserve:

- 50 poachers, illegal honey hunters, illegal loggers and illegal fisherman arrested.

In total, 170 poachers were arrested, 2,155 snares were destroyed, 18 poachers' camps were destroyed, and three firearms were collected. In 1990 the rewards earned were approximately US\$ 14,000, Makua villagers used this money to purchase a maize grinding machine and engine. Subsequently the Wildlife Department has given Makua village a harvest quota for meat for subsistence use. Tanzania Game Tracker Safaris has helped the village harvest wildlife under this quota.

These community-oriented projects have been well received. Tanzania Game Tracker Safaris owns 13 hunting concessions. As of this year the Cullman rewards scheme is being implemented in five of these concessions, according to Mr. Hurt (pers. comm.).

A second project called the Imhoff Conservation Fund, named after another concerned hunter, began in 1992. This project was launched in the Kigozi Game Reserve to combat poaching, illegal lumbering, and inefficient honey gathering. Like the Cullman project, the Imhoff Conservation Fund employs an anti-poaching team, however, equal emphasis is given to educate the rural people in regard to better land-use practices such as how to harvest honey without destroying the trees (McCallum, pers. comm.).

Mr. Mlay noted that he is very pleased with the results of the projects and would like to see programmes like those sponsored by the Cullman and Imhoff Funds replicated in other areas in Tanzania.

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Recognizing that wildlife poaching in Tanzania is done almost exclusively for the commercial game meat market, Tanzania Game Tracker Safaris would like to provide cropping services to give villages a source of game meat. However, the Wildlife Department has not yet granted permits for this activity.

Tanzania Game Tracker Safaris provides the Wildlife Department with regular reports from their concession areas. The reports are prepared bi-monthly by Tanzania Game Tracker Safaris professional hunting guides and contain notes on animal activity, habitat status, poaching incidences, etc. The Wildlife Department is reportedly pleased with the Tanzania Game Tracker Safaris's field reports and is considering making such reports a condition of granting hunting concessions in the future (Mlay, pers. comm.).

A number of safari operators reportedly wish to employ poachers during the hunting season as game s, etc. and as members of community based anti-poaching teams for the remainder of the year (DeGeorges 1990). They argue that by compensating the poacher for using his knowledge of wildlife in a positive manner, the incentive to poach is removed, as it would serve to the poacher's advantage to utilize wildlife wisely rather than "mine it", as they are doing at present (DeGeorges 1990).

The Wildlife Department is also working with a number of NGOs to assess wildlife management needs and develop mechanisms for sharing income from wildlife use (sport hunting, cropping, and tourism) with rural communities.

V. SUMMARY AND CONCLUSIONS.

The Tanzania sport hunting programme is still in the early stages of development, even though sport hunting has been authorized for nine years. The Wildlife Department is actively reviewing and refining administrative and management procedures. Nevertheless, as it stands now, the overall programme does not meet the requirements for sustainable use of wild species, as outlined in IUCN's draft policy.

While there are considerable administrative requirements, vis-a-vis permitting and licensing procedures, there remains no clear definition of the rights and responsibilities of the users over the species and the habitat. The Wildlife Department has no mechanisms by which it can share, or defer, its responsibility for wildlife with rural communities. In practice, the wildlife resources of Tanzania are used by many different users (e.g., game viewers, sport hunters, game harvesters from villages). Under these circumstances co-management should be encouraged and supported.

The Cullman and Imhoff projects, initiated by private donors, are good examples of co-management schemes that provide direct benefits to rural communities. Unfortunately, only a few villages are presently involved in the programme. While these funds are welcome and provide some economic benefit to certain communities, they are nonetheless, voluntary and not an integral part of the government's management programme. Under this system, the economic sustainability for rural communities from sport hunting activities will always be uncertain and therefore suspect. Rural communities do not participate in planning any aspect of sport hunting activities -- including the projects instituted by sport hunting operators. Community involvement in sport hunting appears to be limited to providing traditional support services, which acknowledge no rights or decision-making responsibilities.

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The resource manager is not clearly identified. While the Wildlife Department grants safari companies concession rights to discrete blocks, long-term tenure is not guaranteed. Under the present evaluation system, it would appear that far too much weight is placed on the success of the harvest (i.e., meeting the quota), with the implication that the quota is linked to revenue. The fact that safari companies believe they will lose their concession to another company if they do not fulfill their quota requirement is not good. Under no circumstances should the concession holders be penalized for not fulfilling the quota if it is based on inadequate baseline censuses. It would be far better for the Wildlife Department to emphasize community involvement and management of the resources in their evaluation of performance in the concessions. Because economics plays such an important role in the decision-making processes, it would also be reasonable to review the foreign exchange earnings generated by the different concessions.

The government needs to adjust its policies and laws to emphasize community involvement in sport hunting. Government's role today is primarily that of permit issuer, tax collector and policeman, with decision-making authority concentrated in the capital. To be effective in the long-term, the Wildlife Department should develop a greater capacity for extension services, particularly targeted at rural communities and their capacity to manage wildlife.

With 12% of the land area of the country managed as protected areas, most game species are probably receiving minimal protection. To ensure conservation benefits, concession holder's management plans for their concessions should address the following:

- * Censusing and other procedures to establish the population status of the various game species in each concession;
- * Procedures for recommending conservative quotas for the different game species covered in the management plan;
- * Procedures for reporting to the Wildlife Department documenting their activities;
- * Plans to reduce, or eliminate illegal hunting in the concession area;
- * Planned capital improvements (e.g., roads, fire lanes, wells, tent camps) that will be provided;
- * Plans for involving rural villages in the vicinity of the concession, in the management of the resources, including censusing, anti-poaching, training and field assistance; and
- * How benefits from sport hunting will be shared with the rural villages.

Sport hunting is a multi-million dollar industry in Tanzania. It would appear that a substantial portion of the Wildlife Department's annual operating budget is linked to the amount of foreign exchange it earns, of which sport hunting-related revenues form the largest share. The US\$ 100 per day "conservation fee" assessed participants on sport hunting safaris represents considerable revenue for the

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Department; however, there appears to be little connection between these funds and conservation efforts in the regions where sport hunting is permitted.

The Government has decided to return a percentage of the revenues from conservation and game fees to rural villages in the future. And, more local people appear to be employed by safari operators in various capacities.

Safari operators would like to invest more in management of wildlife and habitat in their concession areas. This includes hiring and training local anti-poaching teams to patrol their concession area and providing technical assistance in censusing and monitoring wildlife populations, vehicle maintenance and habitat maintenance. Nevertheless, The most visible benefit to wildlife from sport hunting appears to be the Cullman Rewards and Benefits programme started by the Tanzania Game Tracker Safaris in their concessions. This programme is helping reduce poaching in those concessions and adjacent areas where it has been implemented and provides direct economic benefits to rural villages. It is expected that the Imhoff Conservation Fund will provide similar results.

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ANNEX 3

SPORT HUNTING IN
ZIMBABWE

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IUCN - The World Conservation Union
Sustainable Use of Wildlife Programme

ZIMBABWE

I. INTRODUCTION.

Wildlife is emerging as one of Zimbabwe's most valuable renewable resources. In the last thirty years the government of Zimbabwe has encouraged research and development of programmes that promote sustainable use of wildlife resources for the economic benefit of the people and as a better way to manage Zimbabwe's large wildlife estate. This case study examines Zimbabwe's approach to sport hunting as a means for managing wildlife resources in and outside protected areas to the benefit of both wildlife and the people.

Important game species include: elephant, buffalo, wildebeest, hippo, zebra, impala, waterbuck, bushbuck, duiker, eland and kudu, steenbok, klipspringer, nyala, warthog, lion, leopard (Martin and Thomas 1991).

Zimbabwe covers 390,759 km² (7% cultivated, 12% pasture, and 61% forest/ woodland) and supports a human population of over 10 million people; 70% reside in rural areas. Agriculture employs over 36% of the people and accounts for about 18% of the GDP (Stuart and Adams 1990). Because much of Zimbabwe's lands are non-arable they have been used for livestock production. Commercial and private land owners comprise 4,500 large scale farms and ranches and 9,000 small-scale farms, occupying 17,000 km². Communal lands, which are government owned, non-protected areas, support some 840,000 households occupying over 16,000 km² (Murindagomo 1990).

According to Cumming (1990), about 14% of Zimbabwe's land area is protected by the government exclusively for wildlife: national parks (6.5%), safari areas (4.8%), botanic gardens and recreational areas (1.2%), and forestry land (1.5%). While the government actually owns wildlife, full rights of exploitation have been devolved to both private and communal landholders which has effectively doubled the land area that is now under wildlife management. Hence, nearly 30% of Zimbabwe's land area supports wildlife and its habitat.

The principal threat to wildlife in Zimbabwe is population growth and human poverty, with the consequent loss of habitat for agriculture and livestock production (Child, pers. comm.). And, Metcalfe (pers. comm.) notes that loss of wildlife habitat for agricultural production is "... mainly a phenomenon of communal lands. Particularly at risk are those ... [communal lands] ... with high or changing settlement patterns near protected wildlife areas."

II. ADMINISTRATIVE FRAMEWORK.

Overall responsibility for wildlife in Zimbabwe rests with the government, but management has been transferred to landholders, except in protected areas. The government encourages the conservation of wild animals and their habitats outside protected areas, recognizing that this is only likely to be successful if wildlife can be used profitably and the primary benefits accrue to people with wildlife on their land. The government regards recreational sport hunting as an economically and ecologically efficient use of wildlife consistent with a policy for high quality and low density tourism (Department of National Parks and Wild Life Management 1992). The government supports this policy with

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legislation that encourages decentralization of responsibility and accountability for wildlife management to landholders (both private and communal).

The Department of National Parks and Wild Life Management (DNPWLM), under the Ministry of Natural Resources and Tourism is the government agency responsible for the management and conservation of wildlife in Zimbabwe. William Nduku is the Director of DNPWLM which has a staff of 4,000. The DNPWLM directly oversees wildlife-related activities on all government lands including parks, game reserves, and communal lands. DNPWLM is the agency responsible for implementing Zimbabwe's responsibilities under CITES.

Prior to 1960, all wildlife and habitat was managed under the sole authority of the state. All commercial utilization of wildlife (including sport hunting) was illegal. Many private landowners eliminated wildlife on their lands, especially where cattle production was prominent, because they perceived wildlife as a threat (i.e., disease vector, grazing competitor). As a result, wildlife declined significantly in non-protected areas.

In 1960 the *Wildlife Conservation Act* was enacted to maximize land use potential with wildlife and minimize growing conflicts between wildlife and people. This law allowed commercial utilization of wildlife under a permit issued by the government. According to Child (pers. comm.) many cattle ranchers converted part or all of their cattle production to wildlife production. Despite initial optimism, game cropping failed to be economically sustainable. The wildlife industry was rescued by the boom in the international safari business. Attention shifted from game cropping to safari hunting on designated public lands and on privately owned ranches (Murphree 1990).

To encourage, yet control game cropping and safari hunting, and recognizing that landholders were in the best position to manage wildlife, the *Parks and Wild Life Act* was enacted in 1975. The main objective of this law was to "... confer privileges on owners or occupiers of alienated land as custodians of wildlife ..." (Zimbabwe, 1975). This law gives landholders the right to manage wildlife for their own benefit, thus providing an economic incentive to reinforce the scientific, aesthetic, and moral justifications for wildlife conservation. This bold step was taken in response to the failure of legislated protection of wildlife in all but protected areas.

Today, sport hunting is permitted on four categories of land in Zimbabwe: a) private lands (ranches); b) communal lands; c) state land; and d) forest lands. Each landholding entity receives revenues from sport hunting (Child, pers. comm.).

- * Private Lands.-- Sport hunting on private lands is controlled by the landholder and by community committees with considerable legal powers. However, the government can rescind this authority if it determines that the landholder is not managing the wildlife in a sustainable manner. Private lands generally support plains animals such as kudu, impala, and sable. The number and types of animals (except rhino) available for safari hunting are determined by the landholder who runs his own safari company or leases hunting concessions to safari operators for a fee. Game fees and concession fees go directly to the landholder. The DNPWLM does not require private

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landholders to monitor animal populations or habitat conservation on their land. However, the DNPWLM does provide technical assistance to ranchers through its regional network of ecologists.

- * Communal Lands-- The *Parks and Wild Life Act* of 1975 authorizes the DNPWLM to grant District Councils on communal lands "appropriate authorities" to manage wildlife within the boundaries of their communal lands, provided the DNPWLM is satisfied that the Council has the capacity to manage these resources properly and with the full participation of, and benefit to the people it represents.

District Councils with appropriate authority use their wildlife as they wish, but invariably lease communal lands to safari operators as concessions, as this is the most lucrative option. Premium value species such as elephant, lion, and buffalo most frequently occur on communal lands. Concession and game fees are paid directly to the elected District Councils, which is encouraged to allocate monies to households in the community where the animals are shot (producer communities).

- * Safari Areas-- Safari areas are state lands managed by the DNPWLM, which sets its own annual hunting quotas for species. Quotas are calculated on the basis of aerial censuses (for large animals), ground reconnaissance, and reports from professional hunters and rural communities. Hunting is forbidden for species listed as "specially protected" (e.g., rhinos and roan antelope). The DNPWLM auctions hunting concessions to safari operators for about Z\$ 200,000 (US \$65,000). All concession and game fees go to the national treasury (Child, pers. comm.).

- * Forestry Lands-- These are state-owned lands set aside primarily for forest production under the authority of the Forestry Department. The Forestry Department operates their own safari operations and retain all concession and game fees.

In 1978, the DNPWLM introduced Project WINDFALL (Wildlife Industries New Development for All), in the first attempt by government to enable rural communities to realize direct economic benefits from wildlife under the *Parks and Wild Life Act*. The objective of the project was to reduce conflicts between people and wildlife in communal areas and improve attitudes about wildlife conservation and protected areas by returning revenues to the communities where wildlife was utilized or where the communities were adjacent to national parks. The communities were to receive two major benefits from this programme: meat from culls in national parks, and revenues from safari hunting on lands outside of national parks. Revenue would be returned to the District Council for distribution to Wards (communities).

Several factors contributed to the project's failure to gain popular support. Local communities, living with wildlife, saw no direct link between wildlife and the benefits. The benefits were distributed too widely in the Districts, rather than to the communities in the area where the wildlife was harvested. Although the project generated several million US dollars, only 50% was returned to District Councils, and only then after several years. Most of the monies were used to build schools and clinics in urban

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populated areas in other parts of the country. Income from the project was not a recurrent benefit, and thus the incentives were not geared to any sustainable objectives. And finally, the programme did not motivate community participation in management of wildlife (Metcalf, pers. comm.).

Recognizing the shortcomings of WINDFALL, in 1986 the DNPWLM launched the Communal Areas Management Programme For Indigenous Resources (CAMPFIRE). CAMPFIRE's objective is to create appropriate institutions under which resources are managed and exploited by resident communities, not by government officials. Profits from enterprises may be used for communal benefits or distributed to individual households at the discretion of the District Council and community (Martin 1986). To participate in the programme a community must obtain legal proprietorship, (i.e., "appropriate authority") over the wildlife. To obtain appropriate authority a District Council must prepare a wildlife management plan, demonstrating the Council's management capacity, intent to return benefits to producer communities, and means for distribution and use of wildlife-related revenues within the Council's jurisdiction. An annual report detailing wildlife and business management practices is required of all Districts granted appropriate authority (see Annex 1).

Under CAMPFIRE, communities are taught how to set their own quotas which are approved by DNPWLM. The community may use their quota in anyway they wish (e.g., sport hunting, cropping, problem animal control). Most sell the largest portion of their quota for safari hunting for the income; however, part of the quota is allocated for problem animal control because of the damage to crops and personal injury or loss of life, especially by elephants (Child, pers. comm.).

CAMPFIRE is administered by the DNPWLM, with support from the Zimbabwe Trust (ZIMTRUST) and assistance provided by the Center for Applied Social Science (CASS) at the University of Zimbabwe and the World Wide Fund for Nature (WWF). The role of each under the programme is as follows:

- * DNPWLM is responsible for policy, monitoring, quotas, technical advice, problem animal control, training, and ensuring that uses are sustainable and that the people benefit;
- * WWF-Multi Species Project is responsible for providing technical assistance, ecological planning, economic analysis, and donor support;
- * CASS is responsible for social, economic, and political research, monitoring, and documentation analysis; and
- * ZIMTRUST is responsible for programme management, participatory planning, monitoring, training, donor support, and institutional development.

The CAMPFIRE Association provides representation for its communal members, assists in monitoring, and provides technical advice in the extension of the programme. It serves communal landholders much as the Wildlife Producers Association, which was formed in 1985 to represent and promote commercial wildlife utilization on private lands.

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III. HUNTING.

The government requires that all clients be guided by a professional hunter. All professional hunter must be well trained in wildlife management, ecology, marksmanship, auto mechanics, etc. They are required to pass a preliminary examination followed by a two-year apprenticeship. Following the apprenticeship, they must then pass a practical and second written exam to receive a license. License and registration fees are Z \$100 (US \$20) per year.

Licensed professional hunters generally work for safari outfitting companies who must also be registered with the government. Companies applying for registration can not be in violation of government laws, inspection of camp sites, etc. Registration fees are minimal. Trade associations for hunters and safari operators manage the affairs of these groups, reducing the workload of the DNPWLM (Child, pers. comm.).

Government controls over sport hunting in Zimbabwe are minimal and are designed to encourage a free-market system. The right to use wildlife is granted to those that hold title or authority to the land. Landholders generally realize income from the sale of the "right to hunt" (= concession) as well as the right to shoot a particular trophy animal (= trophy fee), and for access for photographic safaris. Government realizes income through taxes on the revenues received by the private businesses and directly from its marketing of concessions and trophy animals on government lands.

In his *Notes on the Safari Hunting Industry* (Child 1990a) Brian Child states:

"The marketing of safari hunting depends very much on the quality of trophies offered, and this in turn requires that the population is not over-harvested. Most trophies are mature rather than older males where horn wear begins to exceed growth. To ensure that clients obtain mature males, it is essential that the population is managed so that young males can mature into this class, therefore dictating that offtake rates are kept to 3% for small antelope, 2% for larger ones, and 0.5% for elephant. Predators can be hunted more heavily (5%) because they have litters and breed faster. In many ... wildlife utilization programmes, much emphasis is placed on ... surveys to establish and manage wildlife populations. This is useful, but expensive, and [has] high margins of uncertainty for most species, except the large easily seen animals like elephant. More important than intensive surveys, is a system of records that permits adaptive management. If the following records are kept and plotted, trends will soon be apparent and offtake can be adjusted accordingly:

- 1) average size of trophy for each species using standard Rowland Ward or Safari Club International (SCI) measurements,
- 2) average age of trophies for each species, ... [and]
- 3) indices of abundance from formal surveys (aerial or road), or well kept records of animals seen per distance travelled."

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Child (1990b) contends that "Such record systems greatly improve the efficiency of management, and allow quotas to be set such that trophy quality is maintained." Within this framework the DNPWLM establishes permissible levels of exploitation that guide all categories of landholders in establishing harvest quotas for sport hunting, problem animal control, cropping, and live sales of different species.

Inherent in this model is the fact that quotas, to a great extent, influence market value and hence investment in maintaining the resource. Quotas constrain supply. Because world demand for quality trophy hunting is high, prices are rising steadily. Income from sport hunting is significant enough to warrant maintaining populations that produce the desired number and 'quality' of animals. Further, it is possible to establish a value for each species and hence the projected income level that can be achieved. Abuses to quotas by individuals are usually controlled by his neighbors who have the legal power to enforce quotas. The government only intervenes in these matters as a last resort, or as an arbiter (Child pers. comm.).

Hunting trips are marketed according to the length of the hunt and the variety of species hunted (Table 1). Clients pay two fees: daily rates, and trophy fees for each animal shot. In practical terms, the price of a hunt depends on the variety of the species, the availability of key (high value) species, and the quality of the trophies. Larger antelope are marketed for one to two days of hunting at US\$ 200-400 per day. Adding big game, such as buffalo, lion, or leopard, increases hunts by four to five days and rates to US\$ 800 per day. The addition of an elephant will increase rates to over US\$ 1,000 per day and the length of the hunt to over 21 days (Child 1990a).

Because of the diversity of species and different values, sport hunts can be packaged to optimize revenue. Daily rates, and the length of the hunt, increase with the addition of dangerous game (e.g., elephant, lion) to the hunting safari which have inherently greater value, from a market perspective than common antelope species such as impala.

Today values for game species are established exclusively through a free market system. However, initially, the government provided wholesale price, or value estimates, for each species. Table 2 summarizes the government estimated wholesale values for select species in 1989. These figures were derived from an assessment of prices charged for game meat, skins, and trophy fees in several southern African countries. It is noteworthy that for the species listed, on the average, the wholesale value (in US\$) established for trophies is 7.5 times greater than the combined value of the meat and skin. Government wholesale prices for game species establish a base value for each species that assist landholders to obtain maximum income from hunting concession sales in the free market system. Landholders generally charge safari operators 50% to 100% more than the government whole sale price for "trophy fees" when they sell them. In practice, the 'markup' depends on how easily the quota can be achieved, the quality of the animals hunted, the combination of other animals available in a hunt, and the cost of delivering and servicing the client party in the area. Today, government advises District Councils under CAMPFIRE regarding price structures in marketing their quotas, including encouraging the use of tender and interview procedures.

Table 1. Representative values (in US\$) of typical "hunts" marketed by safari operators in Zimbabwe.

HUNT	SPECIES	"TROPHY FEE"	DURATION	DAILY RATE	TOTAL DAILY RATE	VALUE OF HUNT
Plains-game	bushpig	100				
	diuker	100				
	eland	600				
	grysbok	150				
	impala	150				
	kudu	650				
	steenbuck	150				
	warthog	100				
	wildbeest	500				
	zebra	500				
	Subtotal	3,000	10	400	4,000	7,000
"Sable"	+ sable	1,500				
	Subtotal	4,500	10	400	4,000	8,500
"Buffalo"	+ cape buffalo	1,500				
	Subtotal	6,000	14	800	11,200	17,200
"Cat"	+ leopard	2,000				
	Subtotal	8,000	18	800	14,400	22,400
"Elephant"	+ elephant	10,000				
	Subtotal	18,000	21	1,000	21,000	39,000
"Big Four"	+ lion	2,000				
	Subtotal	20,000	28	1,000	28,000	48,000

Source: B. Child, Department National Parks and Wild Life Management, Zimbabwe.

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Table 2. Data used to calculate wholesale values for selected species in Zimbabwe by the DNPWLM (1989).

SPECIES	MEAT VALUE (Z\$)	MEAT VALUE (US\$)	SKIN VALUE (Z\$)	SKIN VALUE (US\$)	TROPHY FEE (Z\$)	TROPHY FEE (US\$)	BASE WHOLESALE VALUE (Z\$)	BASE WHOLESALE VALUE (US\$)
Elephant (M)	2,400	480	2,400	480	7,500	7,500	12,300	8,460
Elephant (F)	1,600	320	1,500	300	2,500	2,500	5,600	3,120
Elephant (Fi)	1,600	320	1,500	300	1,000	1,000	4,100	1,620
Zebra	160	32	150	30	600	600	910	662
Hippo	800	160	300	60	1,500	1,500	2,600	1,720
Giraffe	400	80	300	60	1,000	1,000	1,700	1,140
Buffalo (M)	360	72	60	12	1,000	1,000	1,420	1,084
Buffalo (F)	288	58	60	12	500	500	848	570
Buffalo (Nr)	360	72	60	12	500	500	920	584
Kudu (M)	32	6	20	4	400	400	452	410
Kudu (F)	160	32	40	8	250	250	450	290
Eland (M)	120	24	40	8	900	900	1,060	932
Eland (F)	280	56	40	8	500	500	820	564
Duiker	10	2	40	8	75	75	125	85
Waterbuck (M)	144	29	10	2	700	700	854	731
Waterbuck (F)	112	22	40	8	350	350	502	380
Sable (M)	160	32	40	8	1,200	1,200	1,400	1,240
Sable (F)	128	26	40	8	600	600	768	634
Wildebeest	80	16	20	4	400	400	500	420
Impala (M)	80	16	10	2	75	75	165	93
Impala (F)	36	7	10	2	50	50	96	59
Lion (M)	144	29	800	160	2,500	2,500	3,444	2,689
Lion (F)	96	19	600	120	1,500	1,500	2,196	1,639
Leopard	40	8	800	160	2,000	2,000	2,840	2,168
TOTAL	9,590	1,918	8,880	1,776	27,600	27,600	46,070	31,294
AVERAGE	399.6	79.9	370.0	74.0	1,150.0	1,150.0	1,919.6	1,303.9

Source: B. Child, Department of National Parks and Wild Life Management, Zimbabwe.

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IV. SOCIAL AND ECONOMICS FACTORS

Sport hunting is marketed as an export product in Zimbabwe. The prices for safari tours are quote in US dollars. Therefore, income is insulated from the affects of devaluation of the Zimbabwe dolla and internal inflation.

According to Child (pers. comm.) wildlife (and natural areas) in all of its uses, including consumptive and non-consumptive, is generating an estimated Z\$ 200,000,000 (US \$40,000,000) annually in Zimbaabwe. In 1990, a provisional estimate indicates that 1,000 sport hunting clients spent US\$ 9,360,000 including trophy fees, for 128 elephants, 500 buffalo, 88 lions, 182 leopards, 313 sable, and 1,343 impala. Safari hunting is the foremost activity on Zimbabwe's several hundred game ranches. Child (1990b) notes that revenues from sport hunting have induced a massive switch away from livestock into wildlife management ... [among private landholders] 34 out of 37 ranches in one area now keep wildlife. Four ranchers now raise only wildlife, while 31 have both cattle and wildlife. Aside from sport hunting and a growing wildlife-based tourist industry, game ranches also harvest wildlife to sell meat and hides to local and international markets.

Wildlife populations on private lands have also grown significantly in the last 30 years since sport hunting was allowed. In each case, landholders are obliged to invest in developing water supplies, anti-poaching, censusing of wild populations, etc. As Child further notes, National Parks are benefiting from wildlife ranching. In areas adjacent to Hwange National Park, ranchers have switched entirely to wildlife, both for sport hunting and tourism. And, in southern Zimbabwe, several ranchers have formed a conservancy for wildlife on their lands.

Sport hunting in communal land areas participating in CAMPFIRE grossed an estimated US \$4,000,000 in 1990 and 1991. This amounts to roughly \$400 each for 18,000 households (144,000) people (Child, pers. comm.). In some communities this represented a doubling of the annual income to households. Communities work directly with safari operators to manage the populations in their areas. As a result, these communities have significant financial incentive to ensure that poaching does not take place. The cooperating agencies or organizations under CAMPFIRE, and sometimes operators, provide technical training to the community in wildlife and business management.

Hunters are required to sign a declaration to the effect that all payments for a hunt will be retained in Zimbabwe. What funds are deposited outside of the country illegally, most likely come back in the form of needed supplies and equipment not available in Zimbabwe (e.g. ammunition, vehicle parts, etc.). Operators are now allowed to retain up to 7.5% of their foreign exchange earnings to cover the cost of importing the supplies and equipment for their businesses.

There is no discrimination between resident and tourist sport hunters with regard to fee structures. Child notes that the primary objective is to maximize benefits to landholders, not to subsidize sport hunting.

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In regard to use of communal lands for sport hunting, the Nyaminyami and Guruve Districts were the first (January 1989) to be authorized to manage wildlife under CAMPFIRE (Child 1989). Over 1989-90 the Nyaminyami District (population approximately 35,000) has generated Z\$ 618,693 (US\$ 300,000) in revenue from trophy and concession fees (Zimbabwe Trust 1990a). In Guruve District, approximately 7,000 people from one ward participating in CAMPFIRE received Z\$ 500,901 (US\$ 250,000) (Zimbabwe Trust 1990b). In both Districts the money was used to finance public projects (e.g., schools and clinics) and the balance was distributed in cash to households.

Beitbridge District stands out in CAMPFIRE as a model programme with considerable promise for implementing rural community development throughout Zimbabwe. With approximately 84,000 people, Beitbridge District has far less wildlife because of drought, extensive livestock management and overgrazing, and poaching. Wildlife is relegated to the periphery of communal lands, especially near neighboring game ranches and protected areas. And, they have received little technical or financial assistance from DNPWLM, ZIMTRUST, CASS or WWF (Child and Peterson 1991). Nevertheless, at their own initiative, several people from Beitbridge District participated in several workshops in 1989 with commercial ranchers and the CAMPFIRE Association. Afterwards, the Beitbridge District Council formed a wildlife management committee and asked representatives of the Ward (sub-district) and Vidco (village) to join in drafting the District Wildlife Management Plan for submission to the DNPWLM (Child and Peterson 1991).

In 1990 the District Council sold their first hunting quota to a neighboring rancher. Several members of the community were trained as game scouts. The management committee also kept accurate records detailing the number of animals shot by hunters. In 1991 the district council marketed their hunting quota by advertising it in the national newspaper. Out of four offers, the committee chose a proposal which offered Z\$ 100,000 (=US\$ 40,000) plus development of an ostrich farm worth Z\$ 40,000 (=US\$ 16,000) (Child and Peterson 1991).

Revenues from the 1990 season were allocated by Ward or Vidco according to where the animals were shot. For example, the Chikwarakwara Vidco, with approximately 1,192 people in 149 households, earned Z\$ 50,235 (US\$ 20,000) in trophy fees plus another Z\$ 46,000 (US\$ 18,000) from DNPWLM in compensation for damage caused by problem animals. This vidco earned the most money because more wildlife was shot in their area than in other communities. A 10% levy was assessed to cover the Council's costs. The community met and discussed how they wanted to spend their revenues. They decided that every household in Chikwarakwara would receive US\$ 400, but opted to contribute US\$ 200 to purchase a community grinding mill and improve their school (Child and Peterson 1991). Poaching has decreased in this area and attitudes toward wildlife have changed. According Metcalfe, (pers. comm.) communities now value their wildlife like their cattle.

Management of the wildlife for sport hunting has also provided marketing opportunities for game-viewing tourism. In one example Mr. Clive Stockil, a private landholder and safari operator has entered into an agreement with the Mahenye community to establish a permanent tourist camp on their communal lands. The site borders Gonarezhou National Park. Stockil will lease land from the community and will employ villagers (Stockil, pers. comm.).

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Participation in CAMPFIRE has grown rapidly. By 1991, twelve districts had been granted appropriate authority by the DNPWLM, almost one quarter of all communal lands, representing over a million people (Metacalfe 1991). Ten more districts are expected to receive appropriate authority from the DNPWLM (Child pers. comm.). Thus, of the 55 Districts in Communal Areas, nearly 40 percent are managing their wildlife under CAMPFIRE.

Sport hunting in Zimbabwe is viewed as being critical to establishing value to wildlife and providing the economic incentive to manage it properly. Brian Child notes that previous conservation philosophies took wildlife away from people, alienated landholders from its management, and antagonized them resulting in widespread over-utilization and poaching. CAMPFIRE has given wildlife back to the people. They now value and manage it because it benefits them. He further notes that at present no, CAMPFIRE project could start without trophy hunting, because it provides the immediate financial return necessary to convince rural communities to manage the resource for its sustainable wildlife use.

V. SUMMARY AND CONCLUSIONS.

The sport hunting programme in Zimbabwe is a model for the sustainable use of wildlife. The programme meets all requirements identified as essential for sustainable use of wild species in a draft policy being developed by IUCN. Central to the government's success is the adoption of the *Parks and Wild Life Act* in 1975. This law transferred proprietorship of wildlife to private landholders and provided the means for wildlife on communal lands to be managed under the authority of District Councils.

This law provides a clear definition of the rights and responsibilities of the users (landholders, hunters, etc.) over the species and habitats. Sport hunting activities closely link the use, benefits, authority, and accountability with the users. Because the wild resources are used by many different users, various co-management schemes involving the government, private landholders, and communal District Councils have been established. In each case, the resource manager is identified and responsibilities delineated. The present programme is the result of over thirty years of experience.

Sport hunting has been emphasized because of its high economic value and the selective nature, low off-take of species (to ensure quality and limit supply), and the relatively high (and immediate) financial return that is realized. Even areas with low wildlife density can usually withstand the low off-take from sport hunting. Landholders and rural communities receive economic benefits that encourage their management of the wildlife more intensely, the rebuilding of depleted wildlife populations, and in some cases, restoration of habitat.

The government recognizes its responsibility to the citizens and the world community to ensure that uses are sustainable. National policies and laws are compatible with the principles of sustainable use of wild species. While transferring proprietorship to those living with the wildlife, the government retains the authority to remove that authority in extreme cases. Normally, community pressure is sufficient to correct problems. Government has, in general, shifted from the role of policeman to that

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of supportive advisor, encouraging all those living with wildlife to accept responsibility for maintaining the resource. Advice is provided on development of management plans, values, and marketing.

One important role fulfilled by government is assisting private landholders, and particularly communal District Councils, to develop management regimes for the species over which they are granted authority. They are taught censusing methods, how to set quotas, record keeping procedures, and how to assess the impact of the off-take. As a result, several different variations in benefit distribution and incentive structures are emerging through this adaptive management process. Sport hunting harvests, under the quota system recommended by government, are inherently conservative. As a further step to ensure the conservation of the species, a large part of the country is set aside as national parks (6.5%) in which sport hunting is not permitted.

A number of conservation benefits can be identified:

- * Poaching, both for subsistence and for the black market is being controlled by community pressure, especially in communal lands under CAMPFIRE, who have the incentive to protect wildlife.
- * The number of elephants destroyed because of the damage they are causing has decreased. Communities view elephants as more valuable alive than dead and only want the chronic problem animals destroyed. For example, in Tsholotsho prior to 1990, it was normal for DNPWLM personnel to shoot 50 elephants a year under the Problem Animal Control (PAC) programme. In 1990 by linking sport hunting to the PAC programme, that figure was reduced to 20 animals (Metcalf, pers. comm.).
- * Natural habitat is being saved and rehabilitated as a result of the economic incentives associated with trophy hunting. One example is in the Mahenye community. Facing growing conflicts with elephant and other wildlife populations, this Vidco near Gonarezhou National Park, voluntarily abandoned its villages on Ngwachumeni Island to turn it into a wildlife management area. They are now implementing CAMPFIRE in their area. They have stopped cutting down trees so as to improve wildlife habitat and have also banned grazing of cattle from outside their community, with the objective of increasing the amount of habitat available for wildlife.

In other cases, villages with low wildlife densities are setting aside land, which would have been used for crops or cattle in order to ranch wildlife.

- * From a social/economic development standpoint there is a growing trend towards allocating income from sport hunting directly to households as cash dividends. According to Child, in 1992, seven District Councils will earn over US \$500,000 for a total income of over Z\$ 68 million. The Districts, through open consultation with the communities, determine how the income will be distributed to households.
- * Both people on communal lands and private landholders are working together to develop safari hunting in their areas. Because ranchers normally have ungulate populations and communal

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areas have larger, more valuable animals, ranchers and communal people often work closely to optimize revenues from different combinations of species.

- * Communal people are also receiving training from commercial ranchers and safari operators in wildlife management.
- * Government, and communal and private landholders are gaining confidence that wildlife resources can be managed sustainably, with substantial economic benefits.

Brian Child recently summed up the value of sport hunting to wild lands and wildlife conservation in Zimbabwe:

"Without sport hunting, some 10,000 elephant and all the other game would be excluded from their range amongst people. Without sport hunting, some 20% of Zimbabwe's farming area, which is being developed for wildlife, would revert to unsustainable agriculture."

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Guidelines for CAMPFIRE

Department of National Parks and Wildlife Management
June 1991

Appropriate authority

The Department of National Parks and Wildlife Management (DNPWLM) is the agency responsible for wildlife conservation and management in Zimbabwe. DNPWLM policy recognises that landholders are better placed to manage wildlife on their land than the Department provided certain conditions are met. The DNPWLM has therefore granted 'appropriate authority status' to certain District Councils provided these Councils have stated their intent to follow the principles embodied in the CAMPFIRE concept.

Appropriate authority status effectively gives District Councils the same rights to manage their wildlife as enjoyed by commercial farmers except that quotas must be approved by DNPWLM.

This document sets out the key objectives of CAMPFIRE and the guidelines that District Councils should follow as a condition of appropriate authority. It also outlines the brief reporting procedures required by DNPWLM to monitor the programme.

Objectives of CAMPFIRE

CAMPFIRE is a rural development programme that harnesses wildlife enterprises to improve the livelihoods of people in rural communities. The fundamental aim is to provide people with more money, better health, and a greater and more educated role in acquiring these for themselves. This requires improved:

1. human managerial capacity:

The programme aims to improve the managerial capacity of rural communities through hands-on management experience at all levels of the District -- Council, Wards, Villages, Households and Individuals;

2. human well-being:

The programme aims to improve the well-being of people by providing direct benefits, through improved social services (schools, clinics), infrastructural projects (e.g. water, grinding mills) or by paying out cash;

3. sustainable use of environment:

The programme aims to conserve and cultivate wildlife by providing landholders with direct incentives to do so. DNPWLM is ultimately responsible for conserving the nation's wildlife, and believes that only direct incentives allow this. Consequently, appropriate authority status will be reviewed if producer communities do not benefit directly.

To achieve these three objectives, several principles must be followed.

Principle 1: Return benefits to producer communities

Benefits from wildlife must be returned directly to 'producer communities'. If benefits are not returned, communities gain little from conserving wildlife, especially as they bear the costs of doing so. Consequently, wildlife will continue to disappear. If wildlife disappears, so does one of the few opportunities for sustainable economic development in remote areas. DNPWLM wishes to avoid this.

To create the incentives to cultivate wildlife, Councils are required to return at least 50% of the gross revenue from wildlife to the community (Ward, Vidco or Village) which produced it (e.g. where the animal was shot). Communities must be fully involved in the process of choosing how to spend this money (projects, cash or both).

Council should retain no more than 15% of total income from wildlife as a levy to cover overheads. Likewise, Council should spend no more than 35% of total revenue on wildlife management costs (e.g. law-enforcement, monitoring, capital development for wildlife). Moreover, this expenditure should be in the producer community that earned it.

DNPWLM will look with favour on Councils that:

- o return more money to producer communities than these minimum figures; and
- o involve communities intimately in making decisions.

Principle 2: 'Producer communities' should be small and homogeneous

DNPWLM encourages Councils to define producer communities as Villages, Vidcos or (preferably small) Wards because the smaller the producer community, the more successful are CAMPFIRE programmes. The ideal size of a producer community is 100 to 200 households because this is large enough for a wildlife programme, and small enough that all households can be involved in the programme and accountable for it.

Principle 3: Full choice of expenditure

Producer communities must be given the full choice of how to spend their money, including both projects and cash payments. Councils must take the necessary steps to ensure producer communities participate fully in these decisions.

Where communities value cash above projects, they should be allowed cash. Council should not insist on projects because some projects are not worth implementing, or demand a great deal of extra management expense.

Projects should be chosen and implemented promptly in order to strengthen the link between wildlife and benefits, and to avoid money lying idle in banks. Therefore Council should:

- o present producer communities with their wildlife revenues;
- o ensure the development of project plans that include budgets, the means of implementing projects, and the people or committees responsible for doing so. Without this detail, project plans are dreams and will benefit no-one;
- o ensure that revenues are presented to communities, and that plans for spending their wildlife revenues debated and decided upon by them, within six months of the end of the hunting season (i.e. by June).

Principle 4: Accountability

Councils should keep producer communities (i.e. Council's constituency) fully informed of, and involved in, CAMPFIRE.

Councils are also accountable to government. When granted 'appropriate authority', day to day management of wildlife becomes the responsibility of the local authority. However, by law, DNPWLM remains ultimately responsible for all wildlife in Zimbabwe (Parks and Wild Life Act, 1975) and is therefore required to monitor the progress of CAMPFIRE, especially since it is a new initiative. Therefore, a condition of appropriate authority status is that each District Council submit an annual report to DNPWLM no later than June the following year.

Principle 5: Open, competitive marketing

Hunting and photographic concessions must be marketed competitively using such means as auctions or tenders advertised in newspapers. Criteria for selecting tenders should be discussed, and the best offer chosen (not necessarily the highest offer), at open meetings. Offers should be submitted in dollars rather than in kind, except where the latter is appropriate. Community members should be kept informed of events.

Principle 6: Avoid unfair taxation of wildlife

Wildlife should be taxed in the same manner as other resources. Like cattle or crops, benefits from wildlife should be given to producers (households) in full. Producers (not wildlife) should then be taxed to provide community services or infrastructure. Direct taxation of wildlife before benefits reach landholders reduces its value to them, and will result in wildlife disappearing even in areas where it is the best land use.

Annual report

In their annual report, Councils granted appropriate authority status will be expected to demonstrate that the guidelines given in this document are followed. DNPWLM will review these reports in determining the continuation of appropriate authority status. Should Council have difficulty in implementing these guidelines they are invited to approach DNPWLM for assistance at any stage. DNPWLM intends to sponsor a manual to further assist Districts.

An annual report should include:

1. Summary of land use and settlement.
2. Wildlife management including details on:
 - administration of hunting and tourism;
 - problem animal control;
 - crop protection, fencing, compensation;
 - monitoring of wildlife;
 - any other issues.
3. Financial review. This is crucial and must fully describe:
 - total income, including its source according to:
 - * area (e.g Ward or Village where animal was shot);
 - * activity (e.g. safaris, tourism, other);
 - * carryover from previous years.
 - Council recurrent and capital expenditure (broken down);
 - allocation of income to producer communities;
 - allocation of revenues by each producer community to projects, wages, household cash dividends, etc.
4. Institutional report including:
 - efforts to raise community awareness;
 - Village and Ward participatory and management structures;
 - training, etc.
5. Plan of action for following year including budgets, requirements for support, problems, ideas, etc.

Conclusion

The CAMPFIRE programme can bring significant development to rural areas provided it is properly implemented. It is also an evolving programme so continual communication between all groups involved in the programme is vital. The guidelines set out here will be subject to on-going review by DNPWLM, which encourages feedback from Councils.

The Department wishes District Councils every success with their CAMPFIRE programmes and will assist wherever we can or locate other agencies to do so.

