

Zimbabwe: a model for the sustainable use of wildlife and the development of innovative wildlife management practices

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SYNOPSIS

In the African context, Zimbabwe has been one of the most aggressive promoters of the sustainable use philosophy. In contrast to the fact that the world's biodiversity is shrinking daily, Zimbabwe's wildlife management practices, both in the Parks and Wildlife Estate (PWLE) and the communal/private land sector, are expanding. More than 30% of the country's land mass is now under some form of wildlife use. Few countries in the world can match this trend. There are greater numbers of several wildlife species, including the elephant, than at any time in the country's history, despite human population growth and land tenure problems. A marked exception to this is the black rhinoceros. It is possible that if innovative wildlife management practices were introduced into the conservation of this species (including consumptive use) several years ago, the black rhinoceros's status would have been very different today.

Why are land areas for wildlife increasing? Zimbabwe boasts several progressive and innovative conservation initiatives, including the Communal Area Management Programme for Indigenous Resources (CAMPFIRE), the Conservancy concept, Intensive Protection Zones (IPZs) for the rhinoceros and detailed evaluation of multi-species (cattle and/or wildlife) production systems. Within these initiatives, sport hunting and live sales of wild animals are generating considerable income to both the private sector and communal wildlife programmes. Other innovative research programmes include use of electric fencing in control of problem animals. This chapter presents information on these initiatives and challenges the view, from an African perspective, that exploitation (sustainable use) of wildlife is negative and may only achieve short-term economic objectives.

1996 in Taylor & Dunstone

13.1 INTRODUCTION: ZIMBABWE – AT THE LEADING EDGE OF CONSERVATION

As we approach a new century, the problems facing humanity are enormous. This is reflected by unchecked population growth, continued ethnic strife, political upheavals and civil wars. There is a distinct lack of vision by many political leaders and politicians in terms of an understanding of environmental problems and the value of renewable natural resources in contributing towards sustainable development. Humanity must adopt life styles and development paths that respect and work within nature's limits (IUCN/UNEP/WWF, 1991): to do otherwise would be foolish and short sighted and will court disaster in time.

Africa is a continent of great biological diversity, but with the considerable problems that have been outlined above it faces significant constraints in supporting and maintaining this diversity. If Africa's problems with the environment and management of natural resources are to be addressed, solutions uniquely African need to be found. It is within this context that Zimbabwe is a model for developing, initiating and evaluating resource management programmes that are innovative and address key issues. These initiatives have been developed by individuals, government and university departments, and conservation organizations with a unique understanding of Africa. This understanding is the key to successfully unlocking the door to a better life for Africa's rural poor and moving towards integration of conservation with development needs.

Through many of these initiatives, Zimbabwe has come into conflict with conservation and animal welfare organizations, many of whom believe that the solution to conserving natural resources lies in eliminating or banning any form of consumptive use. It is apparent that many of these organizations who purport to be the saviours of wildlife fail to appreciate the link between economic and social factors concerning resource management and the conservation of biodiversity in Africa. The trend in Zimbabwe is for accelerated integration of a rapidly expanding wildlife industry into the mainstream economy of the country. In contrast to the fact that the world's biodiversity is shrinking daily, Zimbabwe's wildlife management practices, both in the Parks and Wildlife Estate (PWLE) and the communal/private land sector, are expanding. More than 30% of the country's land mass is now under some form of wildlife use (Table 13.1) (Zimbabwe Trust, 1992; Martin 1993; Prescott-Allen and Prescott-Allen, 1996).

Following the decimation of wildlife by both disease (rinderpest pandemic) and uncontrolled hunting in the nineteenth and early twentieth centuries, policies have evolved in Zimbabwe that have resulted in a steady expansion of wildlife of many different species. There were more

Table 13.1 Wildlife as a land use in Zimbabwe, 1994 (source: Department of National Parks and Wild Life Management)

Land category	Total area (km ²)	Area under wildlife (km ²)	Percentage (%)
State land	57 010	49 000	86
Communal land	162 790	30 000	18
Commercial farms	170 961	37 000	22
Totals	390 761	116 000	30

elephant, crocodile, ostrich, buffalo and other species in Zimbabwe in 1994 than at any time in the country's history, and these populations continue to increase through innovative wildlife management practices (Wildlife Producers' Association, personal communication). A marked exception is the black rhinoceros. Individuals who have been operating at the sharp end of rhino conservation over the last decade believe that if a broader based approach to conserving these animals had been adopted several years ago, including consumptive use such as sport hunting and legal horn trade, the status of this charismatic megaherbivore would have been very different today (R.B. Martin, personal communication).

13.2 INTERACTION BETWEEN HUMANS AND WILDLIFE

Habitat loss, legal (uncontrolled) and illegal hunting represent the greatest threat to Africa's biodiversity. Habitat loss is a direct result of population pressures, civil wars and land tenure problems. During and after the scramble for Africa, colonial governments arbitrarily defined national borders (Pakenham, 1991) and established game reserves within strict boundaries. These boundaries created a 'hard edge' between those indigenous people who may have lived within these reserves historically, but now live on the border; that is, in communal lands (Figures 13.1 and 13.2). There were no benefits to indigenous people from these game reserves, and any exploitation of wildlife within (other than by the colonial powers) was by illegal hunting (snaring and shooting), and illegal harvesting of wood and grazing of livestock within park boundaries. This 'hard edge' is indefensible in the light of Africa's population growth and hunger for land; any conservation initiatives that fail to recognize this are doomed. The conflict generated by the 'hard edge' can vary, but invariably results from resentment, including a history of racial conflict, crop damage and potential for loss of life and property.

Within Zimbabwe, significant numbers of wildlife are found in communal land areas (Table 13.1) and in many instances these animals will move between communal lands, safari areas and national parks. These areas are usually in Natural regions IV and V which receive minimal

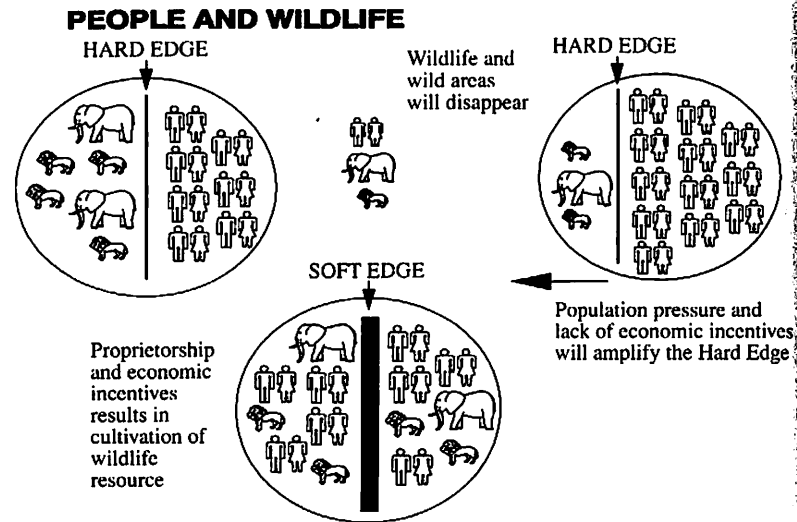


Figure 13.1 The 'hard edge': a division between wildlife and people, an historical fact and further constrained by population pressures. Solution: softening of the 'hard edge' through programmes such as CAMPFIRE.

rainfall and are unsuitable for most agricultural pursuits. Communities are often at barely subsistence levels and survival (both historically and in some instances currently) does not take in the necessities of preserving wildlife and considering animal welfare (Hutton, 1994).

13.3 TO EXPLOIT OR USE SUSTAINABLY: A POSITIVE CONCEPT OR A QUICK FIX?

It is becoming increasingly apparent that wildlife conservation in Africa cannot be viewed in isolation from other larger economic and social factors (Makombe, 1994). The dilemma is to balance conservation with development. Exploitation, by definition implies that something is 'turned to advantage', that one makes use of for one's own ends, and this carries the connotation that exploitation is negative. Many conservation initiatives in southern Africa 'exploit' wild animals, but certainly not negatively. We must be careful not to allow this term to be used when describing conservation programmes such as CAMPFIRE or sport hunting.

An alternative term, as adopted by IUCN/UNEP/WWF (1991) in the *World Conservation Strategy: Caring for the Earth*, is sustainable use. This applies to natural or renewable resources, and implies using these

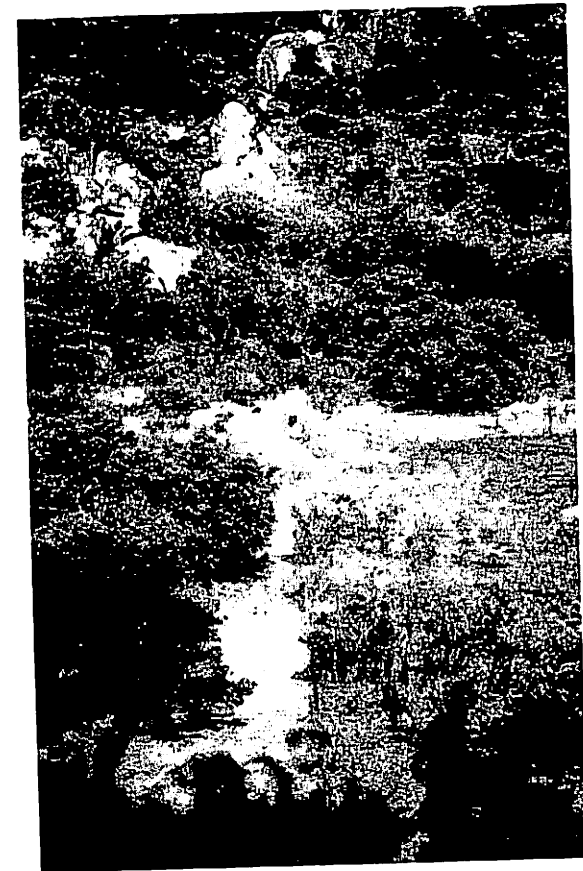


Figure 13.2 Graphic representation of the 'hard edge': fence line with Matobo National Park on the right and communal land on the left. Some softening of 'hard edge' with controlled seasonal grass cutting for thatching and sale by communal land people. Note thatching grass pile in background in National Park.

resources at rates within their capacity for renewal. In the context of Zimbabwe's conservation initiatives, this term will replace 'exploitation'.

In understanding wildlife conservation in Africa it is essential to comprehend the basics of conservation, preservation and sustainable use. These are key concepts that in the author's opinion have been manipulated and misunderstood in the developed world. Conservation implies that a resource should be used (this can be for either non-consumptive or consumptive use) (Passmore, 1974) and inherently recognizes that the

resource has a value, both aesthetic and economic. Preservation implies that the resource should not be used, but preserved for future posterity, and is valued solely for its aesthetic appeal (Passmore, 1974). Within the African context, and particularly the southern African context, preservation has no major role to play in the future of wildlife and wild areas, although it may be important in other geographical areas and with particular species (Robinson, 1993). This is because of preservation's protectionist message, which is inappropriate in view of Africa's social and economic problems. Conservation's major driving force under African conditions is utilization, which is synonymous with the maintenance of biological diversity, and the key to the success of this philosophy is sustainability (Zimbabwe Trust, 1992; Makombe, 1994). This emphasizes the need for people to manage biological diversity as an essential foundation for the future, to maintain wildlife populations for their benefit and to use species sustainably to enhance quality of life (Makombe, 1994).

13.4 SPORT HUNTING

Exploitation of wild animals through sport hunting has existed for centuries throughout Africa. In the nineteenth and early twentieth centuries hunting pressures were considerable, with little understanding of sustainable offtake. In southern Africa, particularly South Africa, many species of plains game were brought close to extinction by the end of the nineteenth century. Over the last several decades there has been an increase in understanding by the hunting fraternity of the need for monitoring offtake and trophy size, and for setting hunting quotas. Hunting has become more closely linked with conservation and to the future of wild animals and rural communities.

Sport hunting in Zimbabwe is a growth industry. The key to this was the Parks and Wildlife Act 1975, which promoted the sustainable utilization of wildlife by conferring proprietorship of wildlife resources on the 'owners or occupiers of alienated land' (Murphree, 1991). Indeed, the growth of the wildlife industry in Zimbabwe had its impetus in this act. Between 1985 and 1990 there was a 42% increase in the number of days of sport hunting; this represented an increase in revenue of 117% (Table 13.2) (Bond, 1994). Within the CAMPFIRE programme incomes from hunting quotas almost tripled between 1990 and 1993 (Prescott-Allen and Prescott-Allen, 1996).

In the developed world there are individuals and organizations who see no link between sport hunting and conservation. Hunting is often perceived as purely killing animals for sport, thus creating an emotive smokescreen that has clouded the perceptions of many individuals. That sport hunting and conservation are inexorably linked can be amply demonstrated by the following examples.

Table 13.2 Growth in sport hunting in Zimbabwe, 1985 to 1990 inclusive (source: Price Waterhouse and Environmental Resources Limited, 1992)

Year	Hunting days	Income (US\$)	Income (Z\$)
1985	7 966	4 313 343	7 079 177
1990	11 338	9 368 171	24 718 129
% change	42%	117%	249%

13.4.1 Sport hunting of white rhinoceros in South Africa

Since 1968, sport hunters have shot 820 adult white rhino bulls. During the same period, the population has increased from 1800 to 6370. Revenue earned from these hunting activities has exceeded US\$22.3 million (Adcock and Emslie, 1994). This represents a clear indication of hunting's conservation component, with many ranching and game park enterprises moving towards profitability, and has promoted the continued existence of their rhino populations. Trophy hunting has been highly sustainable and has generated significant revenue.

13.4.2 Sport hunting and CAMPFIRE

Sport hunting constitutes the main source of income to most districts in Zimbabwe implementing CAMPFIRE. Safari operators lease hunting concessions from district councils by paying dues, in the form of either trophy fees, a percentage of gross revenue, or a lump sum payment. Of the wildlife-based revenue earned through CAMPFIRE, 90% was derived from sport hunting between 1989 and 1992, representing over US\$1.8 million (Z\$10 million) (Bond, 1994; Child and Bond, 1994). Zimbabwe earns approximately Z\$1 billion from tourism and the sport hunting contribution is 40%. This is a clear demonstration of the conservation and sport hunting link in addressing ecological and rural development needs in southern Africa (see section 13.8 for further discussion).

Sport hunting in Zimbabwe is a valuable industry but it is also acknowledged as a 'high risk' one and necessarily carries higher profits to cushion against unforeseen problems, such as civil unrest. The safari hunting market is one where demand exceeds supply, but there is limited scope to increase it in Zimbabwe since in most areas the offtake is close to the limit of sustainability (Martin, 1993, 1994a,b). It is likely that a multi-faceted approach will be adopted with eco/adventure tourism, the increased profitability of which will replace sport hunting in many areas.

13.5 CAPTURE AND LIVE SALES

With the trend in land use indicated in Table 13.1, trade in live animals amongst farmers within southern Africa has escalated. This has been further enhanced by the ability to move various species across borders and by a more rational approach adopted by veterinary authorities (C. Foggin and E. Anderson, personal communication) towards restrictions on animal movement – buffalo in particular. Many key species, including elephant, rhino (black and white), buffalo, sable, roan, nyala and Lichtenstein's hartebeest, are being traded profitably. Wildlife auctions have been held regularly over the last few years (Table 13.3). For example, a recent auction of 120 sable antelope generated US\$318 000 (Z\$2 640 000), and the first Natal Parks Board auction of five black rhino in 1992 netted 2.2 million rand (approximately US\$600 000) (Wildlife Producers' Association, personal communication). Success in this aspect of the wildlife industry requires the maintenance of professional standards in game capture and minimum standards with holding facilities, whilst closely monitoring animal welfare.

13.6 CONSERVATION AND COMMERCIAL CONSUMPTIVE USE OF WILDLIFE

In Zimbabwe, a successful conservation initiative (albeit non-mammalian) has been achieved by placing a high economic value on the Nile crocodile.

Table 13.3 Some recent prices from wildlife auctions in Zimbabwe, 1993 (source: Wildlife Producers' Association, Harare, 1993; exchange rate (approx.) US\$1 : Z\$6.5)

Species	Unit price (US\$)	Unit price (Z\$)
Sable (female)	3077	20 000
Elephant	2667	17 000
Sable (male)	2308	15 000
Giraffe	1102	7000
Eland	1038	6700
Zebra	615	4000
Bushbuck	500	3250
Ostrich	423	2800
Blesbok	415	2700
Tsessebe	385	2500
Reedbuck	249	1600
Oribi	234	1500
Wildebeest	231	1500
Impala (female)	81	525
Impala (male)	62	400

The population of Nile crocodile is noticeably healthy if one spends any time in the wild areas of Zimbabwe, and even in some of the not so wild areas. Some say it is too healthy, and this makes for interesting anecdotal accounts of encounters with crocodiles, although some unfortunately have ended in tragedy. In the 1960s Nile crocodile populations were severely depleted throughout most of the range of the species (Pinchin, 1994). A major crocodile conservation programme was initiated in Zimbabwe, and by 1983 was showing promise. Through CITES, Zimbabwe's population was downlisted to Appendix II, allowing the legal export of crocodile products and expansion of the industry. The numbers of crocodile in Zimbabwe are estimated to be > 50 000 in the wild, with 150 000 in captivity. The success of this conservation programme has filtered through to CAMPFIRE communities with crocodile ranchers paying local communities for egg-collecting rights and also providing employment. This is another example of 'exploitation' providing long-term benefits to a species and to rural development.

13.7 MULTI-SPECIES PRODUCTION SYSTEM PROJECT

In evaluating the success or otherwise of various conservation initiatives within the private sector in Zimbabwe, several conservation organizations are involved in implementing research programmes. One such organization is the World Wide Fund for Nature (WWF). The WWF Multi-species Production System Project was implemented to evaluate critically various farming enterprises involving cattle, or cattle with wildlife, or wildlife alone (D. Cumming, personal communication). The survey focused on the question of which of these three alternative land-uses can best exploit semi-arid rangelands in a sustainable manner (Jansen *et al.*, 1992; Price Waterhouse, 1994). With serious questions being asked concerning the viability of cattle farming in certain areas of Zimbabwe (Natural regions IV and V) and the impact on the environment by cattle in these marginal areas, the need for a detailed economic and environmental evaluation of these various enterprises was long overdue. Politically, replacing cattle (a traditional animal in African society) with wildlife is a sensitive issue, and wildlife utilization has been seen as a white-dominated industry. It has become critical, therefore, that facts and figures are made available demonstrating the economic performance of wildlife versus cattle and the value of wildlife to the economy of Zimbabwe.

The results of the survey of 89 ranches with either cattle or wildlife reinforced the notion that well-managed wildlife enterprises are potentially more financially viable than cattle enterprises, specifically in Natural regions IV and V. On average, wildlife had a return on investment of 8.6% compared with cattle at 2.5%, with respective net revenues

per hectare of US\$1.11 compared with US\$0.60 (Bond, 1994). It was made clear that, in order for a wildlife ranching enterprise to be successful, experience in marketing was essential. Caution was expressed in advocating wildlife as the panacea for economic and environmental problems and a key constraint to both is the negative effects of a number of government policies.

There are examples of this type of study carried out elsewhere in southern Africa (Price Waterhouse, 1994) but there is little doubt that the historical prejudices surrounding wildlife in relation to traditional agricultural enterprises (fostered heavily by colonial administrations) are being eroded significantly, allowing the sustainable use philosophy to flourish and the environment to recover.

13.8 CAMPFIRE: COMMUNAL AREA MANAGEMENT PROGRAMME FOR INDIGENOUS RESOURCES

Many modern African governments are almost as distant from rural land use practices as former colonial regimes (Metcalf, 1993). A critical issue here is policy, and as Murphree (1991) states: 'Unless policy on tenure and natural resource management seriously considers the third option of communally-based resource management regimes for much of our land (Zimbabwe) there is little reason, either from the historical record or from analysis of the factors and dynamics involved, to be optimistic about our environmental future.' There is little doubt that pressure on land will continue to grow, and any posturing from the West concerning the need to maintain biodiversity purely for aesthetic reasons will be engulfed by short-term political and subsistence/survival factors. With a 'hard edge' philosophy to managing our wildlife resources came resentment from many local communities who believed that government, through the national parks, cared more for wildlife than for people.

In Zimbabwe a key principle in resource management that attempts to answer the 'hard edge' problem is that 'people seek to manage the environment when the benefits of management are perceived to exceed its costs' (Murphree, 1991; Martin, 1993). CAMPFIRE addresses this and vests proprietorship of wildlife resources in the local people: it advocates that rights of access to wildlife must be based on distinctive community and resource boundaries (Metcalf, 1993; Prescott-Allen and Prescott-Allen, 1996). This programme operates on the belief that wildlife utilization as a form of land use will only be endorsed by rural communities when individual members receive direct benefit (Murphree, 1991; *CAMPFIRE Newsletter*, 1994). CAMPFIRE also operates on the principle that 'a communal resource management regime is enhanced if it is small enough (in membership size) for all members to be in occasional face-to-face contact, enforce conformity to rules through peer pressure and has a

long-standing collective identity' (Murphree, 1991). The principles of CAMPFIRE ensure that more than 50% of any revenues earned from wildlife resources should accrue to local communities and to the lowest level. In Zimbabwe, 25 rural districts have the 'appropriate authority' to manage their wildlife resources. Within these, 12 districts with 70 wards (82 000 households) and 600 000 people have active CAMPFIRE programmes. This is carried out on approximately 1 million hectares and has generated Z\$10 million in revenue (*CAMPFIRE Newsletter*, 1994; B. Child, 1995, personal communication).

There are several key issues within CAMPFIRE that are linked to sustainable use and a few examples are presented here.

13.8.1 Economics and accountability

In accepting CAMPFIRE, a community has decided that wildlife will be a major form of economic activity in the community and will be important for the livelihood of the people. Dividends earned through wildlife activities are disbursed to households within the community, but there are also collective community concerns. These are addressed through peer and community pressure. A percentage of each household's dividend is allocated, for instance, to building a new schoolroom or purchasing a new grinding mill. There is accountability and transparency in this process as dividends are handed out with the community present.

Comments that have been recorded demonstrate the value of grass-roots conservation with an economic base, and the following is a quote from Murphree (1991) concerning a statement by one of the councillors at a CAMPFIRE meeting in which revenues were shared: 'This money comes to you from your wildlife. It is your money. The decision is yours. You cannot wait for government. You can develop your community according to how you decide.' The rural African is exploiting a resource sustainably and recognizes wildlife as being crucial to development and providing a better living for their family.

13.8.2 Elephants and sport hunting

In the continuing debate over the 1989 CITES ivory trade ban, Zimbabwe has always argued strongly that the ban would adversely affect the success of community-based resource programmes. There is concern that any pressures to stop elephant sport hunting (trophies are still allowed to be exported back to countries such as the USA) would further jeopardize CAMPFIRE programmes, resulting in a reduction in economic incentives for sustainable wildlife utilization in crucial communal land areas in southern Africa. The elephant plays a vital role in revenue generation in these programmes (Taylor, 1993). The value of elephants to the rural

poor does not come just from sport hunting: culling provides much needed protein and hides can be processed and sold.

Pressures to stop sport hunting of elephants are real, an example being a moratorium proposed in 1992 by the US Fish and Wildlife Service (USFWS, undated) to ban or restrict elephant sport hunting. Bond (1994) states that the total value of the 1992 communal lands sport-hunted quota of 89 elephants and other animals is over Z\$3 million (US\$352 000) (Figure 13.3). It is estimated that the 1989 CITES ban has cost rural communities more than Z\$4 million in lost revenues over four years (B. Child, personal communication). The ban has resulted in the inability of rural communities to sell, legally, ivory that has been collected from elephants shot during problem animal control (PAC). Approximately 15 tons (or half of Zimbabwe's ivory stockpile) represents PAC ivory.

13.8.3 Fencing

In several of the CAMPFIRE areas, problems related to negative interactions between wildlife and community members, particularly associated with crop damage, have been solved by appropriately placed electric fencing (Murphree, 1991; Hoare and Mackie, 1993). For example, in the planning of resource management by one CAMPFIRE community a wildlife committee was formed and they soon moved into land-use planning. They set aside 20 km² for fields and settlement, to be surrounded by an electric fence. The rest of the ward was set aside for wildlife with the development of sport hunting and eco/adventure-based tourism.

13.9 CONSERVANCIES: CONSERVATION AND THE PRIVATE SECTOR

Conservancies offer one of the most exciting wildlife developments in southern Africa with the potential of contributing significantly to the maintenance of biodiversity.

There is no formal definition of a conservancy. The term can be applied to any number of privately owned properties which are amalgamated into a single complex in order to enable more efficient management, utilization and protection of some or all of the natural resources in the area (du Toit, 1992; Price Waterhouse, 1994). Zimbabwe is not unique in adopting the conservancy concept – South Africa has established a number of large conservancies in Natal and bordering the Kruger National Park (Penzhorn, 1994). The uniqueness of Zimbabwe's large conservancies stems from the fact that they were developed to provide a safe haven for the black rhinoceros, outside of the PWLE. The three major conservancies were formed in 1991 in the lowveld (other smaller conservancies exist elsewhere in Zimbabwe). The main focus of conser-

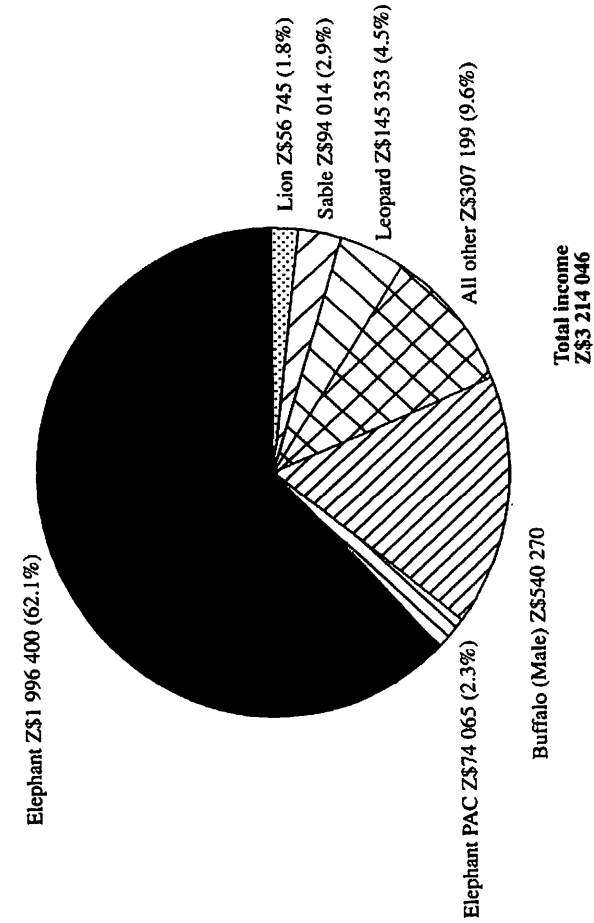


Figure 13.3 The value (Z\$) of elephants and other animals to CAMPFIRE in eight districts in Zimbabwe, 1992 (PAC, problem animal control). Source: Bond (1994).

vancy agreements is cooperative management of the wildlife resource (Price Waterhouse, 1994).

The key to the success of a conservancy lies in its constitution, and this is built around four main principles:

1. That internal game fencing is limited, in order not to divide a conservancy into compartments and thereby interfere with the natural movement and breeding of animals.
2. In the event that a conservancy property passes into the hands of an agency whose land use and wildlife management practices are not consistent with the conservancies, that property will be excised from the conservancy, and conservancy assets retrieved.
3. The members are jointly responsible for meeting recurrent management costs.
4. Management of the conservancy wildlife is based on sound scientific principles.

Within Zimbabwe, three large conservancies have been established. Save Valley (321 000 ha) and Chiredzi River (89 000 ha) are located in the south-east lowveld; Bubiana (128 000 ha) is located in the south-west lowveld. Among or within them, these conservancies hold a large number of Zimbabwe's black rhino. The most exciting aspect of the conservancies has been their realization of the enormous potential for conservation programmes other than rhinos, including high quality tourism and limited sport hunting. These conservancies have much potential (in the light of government failure to finance adequately conservation efforts in the PWLE through the Department of National Parks) for competing with some of the major national parks in Zimbabwe.

In the context of mammal exploitation and sustainable use, the conservancy concept amply demonstrates the long-term potential of utilization. Three examples will be discussed briefly. These have been generated in a report by Price Waterhouse (1994) in conjunction with the owners of the three conservancies.

1. In a short-term ranch study, an evaluation was performed comparing cattle and wildlife on a ranch within one of the conservancies. Based on an annual stocking rate of 1 livestock unit (LSU)/20 ha for cattle, gross revenues were likely to be Z\$429 000. At 1LSU/10 ha, revenues increase to Z\$858 000, or Z\$18–36/ha, but environmental degradation would be significant. In contrast, a wildlife production model would generate (in the short term) revenues of Z\$1 478 000, or Z\$61.31/ha. With the latter, more people would be employed and more revenue would be spent in the local economy.
2. A medium-term study involved the running of a 40-bed safari lodge and an eight-bed exclusive camp within a conservancy. The safari

lodge generates annual gross revenues of Z\$9 million and the small camp Z\$1 million. Profits from these operations are significant, as are the number of local people employed from surrounding communal lands.

3. The third example is based on the Londolozi operation in South Africa, which is part of the Sabie Sand Wildtuin near Kruger National Park and demonstrates the long-term potential of a former cattle ranch converted to wildlife. In 1992, Londolozi generated over Z\$18.6 million, with net profits of Z\$4.64 million. In addition this operation has a very strong socio-economic component with support for surrounding local communities.

It is likely that the major conservancies in Zimbabwe will have a strong component of eco/adventure tourism in their operations, but will be diverse in supporting limited sport hunting, live sales of wildlife and controlled culling with meat for the local communities. The establishment of these conservancies has added significantly to land area under wildlife use in Zimbabwe. Politically, they are acceptable because they are located in Natural regions IV and V where communal land degradation is significant.

The conservancies, therefore, offer some hope of assisting these communities to climb out of the spiral of subsistence living and poverty; they have the potential to create increased environmental awareness and to impact on individual perceptions of conservation/sustainable use as much as CAMPFIRE. It is hoped that they will operate hand-in-hand.

13.10 NATIONAL PARKS CONSERVATION PROGRAMME: INTENSIVE PROTECTION ZONES FOR BLACK AND WHITE RHINOS

The decline of the black rhinoceros in Zimbabwe has been dramatic with the first indications of a poaching onslaught in 1986. Over the last eight years, the population has declined by more than 90%, with significant loss of human life due to a very aggressive anti-poaching stance adopted by the Zimbabwean Government (ZBRCS, 1992). Despite this effort, the population now rests at approximately 260 animals.

The black rhino is an example of a mammal that has not paid its way in conservation terms (Martin, 1993) and there are individuals who question why it should. Stark facts from the last decade on the decline of the black rhino provide some of the answers. Many conservationists in Zimbabwe believe that this decline has been accelerated by a strict protectionist policy. There is no doubt that the rhinos that lived in communal lands in the 1980s were significant in number. Many of these communal lands are located on the northern border and adjacent to

many national parks. The loss of these rhino can be attributed not just to illegal hunting, but also to a failure to place a value on these animals by the local communities.

The belief is that if a small percentage of older adult males were selected and offered on quota to be sport hunted within a CAMPFIRE programme, the enormous earnings (estimated at US\$100 000–200 000, or Z\$800 000–1 600 000) would have stemmed the decline of this species in Zimbabwe. It has been amply demonstrated in CAMPFIRE that poaching virtually stops when wildlife assumes a role in the local economy (B. Child, personal communication; see also Chapter 4). In the case of the rhino, there would have been less collaboration and more reporting of the presence of illegal hunters.

At present, Zimbabwe's black and white rhinos are protected in Intensive Protection Zones (IPZs) in the PWLE and private land conservancies. The IPZs represent areas within national parks or safari areas that have viable populations of rhinos, with increased scout density, better training, more equipment and vehicles. In addition, the majority of rhinos have radio-collars which serve to provide information for law enforcement and behavioural data. All these populations have been dehorned (Plate 1) and in many instances dehorned again. The collection of data on a recent operation indicated a calf survival rate (calves less than 6 months old when mothers were dehorned) of more than 71% and probably close to 100%, and 71% for calves older than 6 months. This is in sharp contrast to a report by Berger and Cunningham (1994) who indicated that survival rates may be close to 0%. No black rhinos have been known to have been poached in the last 26 months in Zimbabwe and this has been attributed to dehorning and improved law enforcement.

13.11 CONCLUSIONS

The question of whether sustainable use of natural resources will succeed will depend on many factors and the perfect mix and match may be hard to attain. Despite the positive results seen in CAMPFIRE in Zimbabwe, there have been some early failures and problems still exist (Chapter 4; B. Child, personal communication). There is no doubt that a balance must be attained between non-use, consumptive use and non-consumptive use and that dialogue must be established between proponents of each of these. In this chapter, arguing for a philosophy of use with natural resources, several examples have been given that support the concept of sustainable use as a long-term strategy in preserving biological diversity in Africa. In considering sustainable use there are several important factors that need to be taken into account and summarized:

- political, social and economic considerations;
- philosophy of use;
- cash and sustainability;
- a shifting conservation axis;
- maintenance of biodiversity into the next millennium.

13.11.1 Political, social and economic considerations

Whether wildlife should pay its way depends on many factors but the most important are: where the wildlife is in the world; political and historical considerations; land tenure issues; and the status of species (viable, threatened or endangered). Conservation cannot operate in a vacuum and too many issues are driven by environmental considerations without taking into account both economic factors and socio-cultural backgrounds (Martin, 1994a,b). The answer must lie at the regional and country level, or even at the village level, in a given country. It is vital to resurrect the community as the unit of social and economic analysis with respect to natural resources (Bromley, 1993).

Historically, governments have paid lip service to conservation, with inadequate amounts of their budgets going towards protected areas. In 1994, Zimbabwe's budget allocated Z\$1.67 billion to defence and only Z\$44 million to the custodians of wildlife on state land: the Department of National Parks and Wild Life Management. Therefore, without political support nurtured by conservation education, any conservation initiative will be doomed in the long term.

13.11.2 Philosophy of use

In the debate about preservation versus sustainable use, it is recognized by both sides that preserving habitats is an important component of any conservation philosophy. But positive feedback results from the promotion of a philosophy of use. The Parks and Wildlife Act 1975 in Zimbabwe was predicted to result in the decline of wildlife throughout the country, leading to local extinctions (Martin, 1994b). In fact the exact opposite became true. Not only have wildlife numbers increased, but also the land available to wildlife in the private and communal land sector now approaches 18% of Zimbabwe's total land area. As well as resulting in the preservation of habitats, this has promoted a far-reaching conservation philosophy in which all indications point towards long-term sustainability.

13.11.3 Cash and sustainability

In southern Africa an economic/ecological partnership exists with interest (extra wildlife) accumulating in the bank despite some rigorous initial

spending (exploitation). The capital (habitat/ecosystem and wildlife) has been protected by healthy returns (earnings and interest accumulated) due to economic incentives to protect. Cash is one of Africa's most effective development extension agents (Murphree, 1991) and as Child states (Child and Peterson, 1991): 'Real and immediate benefits, graphically illustrated by cash, cement the relationship between wildlife and economic development. These incentives are crucial to encourage communities to cultivate their wildlife resources.'

13.11.4 A shifting conservation axis

The issue of sustainable use has polarized the conservation world. Those groups that preach preservation and animal welfare organizations that vehemently oppose any use, especially hunting, have gained the high ground in recent years, adversely influencing organizations such as CITES. It has been a clear indication of 'convenience' conservation operating by remote control. This has recently changed: the axis has shifted and rightly so. During the recent 1994 CITES meeting, sustainable use, instead of being perceived as extreme, has moved on to centre stage with more overlap with the preservationist groups (R. Martin, personal communication; Martin, 1993). The more extreme animal welfare groups have become marginalized, but it is imperative that this should not detract from the need to consider animal welfare within wildlife management practices. Indeed, it is vital to support those animal welfare groups who occupy the middle ground.

All too often recipes supplied by the West are based on a belief in the infallibility of science for matters which are primarily socio-economic (Martin, 1994a). To quote Clarke (1992): 'Modern western science, moreover, is being offered to (imposed upon?) cultures globally, as a problem-solving device, dragging along with it its particular set of assumptions and its selected, and biased vision.' It is ironic that Zimbabwe is regarded as a pariah in the eyes of many conservationists and organizations in the West, when more land is being put under wildlife management. Many Zimbabwean conservationists believe that proprietorship and economic benefits are the key initiators of sustainability (Martin, 1994b) and that ecological criteria have been too weighty.

13.11.5 Maintenance of biodiversity into the next millennium

Under the current world 'climate' and political leadership, a decline in biodiversity world-wide will continue despite all efforts by governments, international organizations such as CITES and others. This is an inescapable fact and is made more stark by events in Africa, a continent with such enormous potential but so many depressing failures, politically,

socially and environmentally. Is there any cause for optimism? Only if, as the World Conservation Strategy 1991 states, we 'adopt life styles and development paths that respect and work within nature's limits'. The onus and focus of effort to achieve this differs between the developed and developing world but the ultimate goal is the same: a biologically diverse and ecologically healthy planet. To achieve this many individuals, organizations and policy makers must remove their 'blinkers', show more tolerance towards alternative viewpoints (especially those from the developing world) and be driven by flexibility, creativity and innovation in addressing environmental and conservation issues.

Every creative act in science, art or religion involves a new innocence of perception liberated from the cataract of accepted beliefs.

Arthur Koestler

REFERENCES

- Adcock, K. and Emslie, R.H. (1994) The role of trophy hunting in white rhino conservation, with special reference to Bop parks, in *Proceedings of a Symposium on Rhinos as Game Ranch Animals*, (eds B.L. Penzhorn and N.P.J. Kriek), South African Veterinary Association, Onderstepoort, South Africa, pp. 35-41.
- Berger, J. and Cunningham, C. (1994) Phenotypic alterations, evolutionary significant structures, and rhino conservation. *Conservation Biology*, 8(3), 833-840.
- Bond, I. (1994) The importance of sport-hunted African elephants to CAMPFIRE in Zimbabwe. *TRAFFIC Bulletin*, 14(3), 117-119.
- Bromley, D.W. (1993) Common property as metaphor: systems of knowledge, resources and the decline of individualism. Presidential address to the Fourth International Conference of the International Association for the Study of Common Property, Manila, June 1993.
- CAMPFIRE Newsletter (1994) November, CAMPFIRE Association, PO Box 661, Harare, Zimbabwe.
- Clarke, M.E. (1992) Worldviews, science, and the politics of social change. Paper presented at the Third Annual Conference of the International Association for the Study of Common Property, Washington DC, September 1992.
- Child, B. and Bond, I. (1994) Marketing hunting and photographic concessions in communal areas, in *Safari Operations in Communal Areas in Matabeleland, Proceedings of the Natural Resources Management Project Seminar and Workshop*, (ed. M.A. Jones), Department of National Parks and Wild Life Management, Harare, Zimbabwe, pp. 37-55.
- Child, B. and Peterson, J.H. (1991) *CAMPFIRE in Rural Development: The Beitbridge Experience*, Harare, DNPWLM/CASS Working Paper 1/91.
- du Toit, R.F. (1992) Large-scale wildlife conservancies in Zimbabwe: opportunities for commercial conservation of endangered species. Paper presented at 3rd International Wildlife Ranching Symposium, Pretoria, October 1992.
- Hoare, R. and Mackie, C.S. (1993) *Problem animal assessment and the use of wildlife management fencing in communal lands of Zimbabwe*, WWF (MAPS) Project Paper No. 39, Harare, Zimbabwe.
- Hutton, J. (1994) A 'war' between humans, wildlife. *CAMPFIRE Newsletter*, 8, CAMPFIRE Association, PO Box 661, Harare, Zimbabwe.

- IUCN/UNEP/WWF (1991) *Caring for the Earth: a Strategy for Sustainable Living*, Gland, Switzerland.
- Jansen, D., Bond, I. and Child, B. (1992) *Cattle, Wildlife, Both or Neither: Summary of Survey Results for Commercial Ranches in Zimbabwe*, WWF Multispecies Animal Production Systems Project, Paper No. 30, WWF Harare, Zimbabwe.
- Makombe, K. (ed.) (1994) *Sharing the Land: Wildlife, People, and Development in Africa*, IUCN/ROSA Environmental Issues Series No. 1, IUCN/ROSA, Harare, Zimbabwe and IUCN/SUWP, Washington, USA.
- Martin, R.B. (1993) 'Should wildlife pay its way'? Paper presented in Perth, Australia. Zimbabwe Government Publication, Department of National Parks and Wildlife Management, Harare, Zimbabwe.
- Martin, R.B. (1994a) The Influence of Governance on Conservation and Wildlife Utilisation. Paper presented at a conference on Conservation Through Sustainable Use of Wildlife, University of Queensland, Brisbane, Australia. Zimbabwe Government Publication, Department of National Parks and Wildlife Management, Harare, Zimbabwe.
- Martin, R.B. (1994b) Alternative Approaches to Sustainable Use: What does and doesn't work. Paper presented at a conference on Conservation Through Sustainable Use of Wildlife, University of Queensland, Brisbane, Australia. Zimbabwe Government Publication, Department of National Parks and Wildlife Management, Harare, Zimbabwe.
- Metcalf, S. (1993) CAMPFIRE: Conservation can succeed. *Wildlife Watch*, 1(3), 28-29.
- Murphree, M.W. (1991) Communities as Institutions for Resource Management. CASS Occasional Paper series, National Conference on Environment and Development, Maputo, Mozambique. CASS, University of Zimbabwe, Harare, Zimbabwe.
- Pakenham, T. (1991) *The Scramble for Africa*, Abacus Books, London.
- Passmore, J. (1974) *Man's Responsibility for Nature*, Duckworth, London and Scribner, New York.
- Penzhorn, B.L. (ed.) (1994) *The Future Role of Conservancies in Africa?* Wildlife Monograph No. 1, Onderstepoort 1994, Du Toit Game Services, Sunnyside, Pretoria, South Africa.
- Pinchin, A. (1994) Conserving the Nile crocodile in Zimbabwe - the value of sustainable yield utilisation. *International Zoo News*, 251 (41/2), 19-24.
- Prescott-Allen, R. and Prescott-Allen, C. (eds) (1996) *Assessing the Sustainability of Uses of Wild Species. Case studies and initial assessment procedure*, IUCN, Gland, Switzerland.
- Price Waterhouse (1994) The Conservancies: New Opportunities for Productive and Sustainable Land-Use. Save Valley, Bubiana and Chiredzi River Conservancies with Price Waterhouse Wildlife, Tourism and Environmental Consulting, Harare, Zimbabwe.
- Robinson, G.R. (1993) The limits to caring: sustainable living and the loss of biodiversity. *Conservation Biology*, 7(1), 20-28.
- Taylor, R.D. (1993) Elephant management in Nyaminyami District, Zimbabwe: turning a liability into an asset. *Pachyderm*, 17, 19-29.
- USFWS (undated) *US Endangered Species Act. Proposed Guidelines on African Elephant Sport Hunted Trophy Permits*, US Fish and Wildlife Service.
- Zimbabwe: At the Leading Edge of Conservation. 1993. A report in response to the Humane Society of the United States. Department of National Parks and Wild Life Management of Zimbabwe.

- Zimbabwe Trust (1992) *Wildlife: relic of the past, or resource of the future*, Environmental Consultants (PVT) Ltd, Harare, Zimbabwe.
- ZBRCS (1992) *Zimbabwe Black Rhino Conservation Strategy*, Zimbabwe Government Publication, Department of National Parks and Wild Life Management, Harare, Zimbabwe.

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