



AFRICAN WILDLIFE FOUNDATION®

**Study on the Development of Transboundary Natural Resource
Management Areas in Africa**

Kilimanjaro Heartland Case Study

Dr. Philip Muruthi
Chief Scientist
African Wildlife Foundation
P.O. Box 48177
Nairobi, Kenya
Pmuruthi@awfke.org

Katharine Frohardt
Program Technical Director
African Wildlife Foundation
1400 16th Street, NW Suite 120
Washington, DC 20036
Kfrohardt@awf.org

TABLE OF CONTENTS

I. INTRODUCTION	6
II. SITE DESCRIPTION AND CONTEXT	9
SUMMARY SITE DESCRIPTION	9
ECOLOGICAL CONTEXT	9
POLICY CONTEXT	12
INSTITUTIONAL CONTEXT	13
SOCIO-ECONOMIC CONTEXT	14
III. HISTORICAL OVERVIEW OF AWF'S PROGRAM IN KILIMANJARO HEARTLAND (AND RELATIONSHIP TO TBNRM)	16
SINGLE SPECIES CONSERVATION	16
COMMUNITY CONSERVATION AND ENTERPRISE SUPPORT	17
IV. TRANSBOUNDARY EVOLUTION: APPLYING AWF'S HEARTLAND PROGRAM TO THE KILIMANJARO LANDSCAPE	20
HEARTLAND START-UP	22
PARTICIPATORY PLANNING	23
ANALYSIS OF INITIAL CONSULTATION PROCESSES	29
V. EMERGING LESSONS ON TBNRM IN KILIMANJARO HEARTLAND	30
WHEN TBNRM MAKES GOOD SENSE	30
WHEN NATIONAL AND LOCAL LEVEL ACTION MAKES MORE SENSE	32
MOVING FORWARD: EARLY LESSONS AND THOUGHTS ON KILIMANJARO AND TBNRM	32
LITERATURE CITED	35

ACRONYMS

AWF	African Wildlife Foundation
BSP	Biodiversity Support Program
CBNRM	Community-based Natural Resource Management
CITES	Convention on the International Trade in Endangered Species
CSC	Conservation Service Centers
EAC	East African Community
GCA	Game Control Area
GRMC	Group Ranch Management Committee
HCP	Heartland Conservation Planning
KWS	Kenya Wildlife Service
NGO	Non-Governmental Organization
NNRMC	Neighborhood Natural Resource Management Committee
OCC	Olkejuado County Council
PBOP	Participatory Business Options Planning
SCP	Site Conservation Planning
TANAPA	Tanzania National Parks
TWD	Tanzania Wildlife Division
TNC	The Nature Conservancy
TBNRM	Transboundary Natural Resource Management
WMA	Wildlife Management Area

ACKNOWLEDGEMENTS

This paper was written under the aegis of the Biodiversity Support Program (BSP). For their sponsorship and support we are grateful. Special thanks are to Harry van der Linde, BSP's transboundary natural resource management (TBNRM) project coordinator. We developed the terms of reference for this paper with Harry, and through his encouragement and guidance, we have written it. We also appreciate the support accorded to us at AWF while we researched and wrote this paper. For discussing various aspects of this paper, our special thanks are to Patrick Bergin, Moses Kanene, Helen Gichohi, Jonathan Lekanaiya, Alfred Kikoti, and James Kahurananga. Credit for producing the maps goes to Adam Henson.

We would like to acknowledge the constructive comments and suggestions made by reviewers appointed by the BSP including Richard Bagine, Allan Rogers and Debra Snelson. Within AWF, we thank Patrick Bergin, Joanna Elliot, Helen Gichohi, and James Kahurananga for providing detailed comments and suggestions.

We are thankful to the participants of the Participatory Scoping Meeting of the Heartland Conservation Process, held in December 2000 and facilitated by AWF. Much of the material in this paper arose from discussions held at that workshop. AWF also wishes to thank The Nature Conservancy for its generous contribution of technical expertise to the work of AWF and our partners in Africa. The authors are grateful to all those who have contributed to the journey we have tried to chronicle in this paper. We have done our best to represent the information availed to us through reports, papers and many discussions. Should there be any errors, they are ours.

PREFACE

When BSP came to AWF and requested that we chronicle our learning in the Kilimanjaro Heartland in case study format for its analysis of TBNRM efforts in East Africa, we were initially a bit reluctant. Although AWF has been active across this landscape for more than three decades, our shift to landscape scale conservation action through our African Heartland program is quite recent. So too, therefore, is our learning at this scale. In addition, although the site clearly crosses borders, it is not a formal TBNRM area. We struggled with how best to frame the case study so that it would sit somewhat comfortably with the other cases. Finally we did put misgivings aside, and began work on the case study. We were motivated in large part by a recent evaluation of AWF. The evaluation, while very positive about our program and especially of the partnerships that characterize our implementation strategies, found that AWF really fell down in the area of documenting our work, our logic when we shift gears, and our learning. We thought that we would catch BSP in its twilight hours to begin this important documentation, beginning with one Heartland.

As we began to respond to the spirit of the terms of reference for the case study, what began to emerge (and what remains for the reader to digest), is enormously AWF-centric. Given the collaborative way that AWF goes about the work of conservation in Africa, this merits explanation. First, the terms of reference required that we keep length down and focus quite narrowly on AWF's journey and learning. Second, the short time allocated for the effort precluded the sort of research that would have been required to ensure accuracy of representation of the efforts of other colleagues. A larger-scale effort no doubt would have rounded out the picture of conservation across this landscape and generated a far richer case study. We leave that to future efforts, and begin with as frank a representation of our own work in this landscape as we could manage.

For the same two reasons (terms of reference and time available), the case study also gives less time to the non-biological side of our operations across this landscape. AWF has a long

history in areas of community conservation, economics and a clear commitment to ensuring appropriate benefit flows from conservation action. AWF's second major program area, Conservation Service Centers, is designed precisely to work with communities and private sector in support of effective conservation business venture development. This case study focuses instead on AWF's African Heartland program, and work in Kilimanjaro Heartland. While the Heartland program also incorporates socio-economic parameters into design and implementation of conservation strategies, we are in very early stages of implementation at landscape scale in Kilimanjaro Heartland, and we start from a foundation of science. Therefore, the result is a very biologically-oriented case study. We look forward to balancing this picture in the years to come as work with partners progresses.

I. INTRODUCTION

The African Wildlife Foundation (AWF), a non-governmental organization, was established in 1961 to work towards the conservation of Africa's unique wildlife resources, in partnership with African individuals, local communities and institutions. From its founding to present day, AWF's understanding of conservation issues, and hence its program, has changed and evolved. Over the past three years in particular (1998-2001), AWF has tried to analyze the work and experiences of its teams and partners in relation to key conservation threats and trends in Africa. The result has been a reorganization of AWF's program so that it aligns more closely to our mission of keeping wildlife in Africa, in hopes of achieving greater conservation impact.

This has translated into a sharper focus on high biodiversity value landscapes across Africa, AWF's *African Heartlands*. Heartlands are large African landscapes of exceptional wildlife and natural value extending across state, private, and community lands. AWF works with these landholders (e.g., government, local authorities, individuals, communities) and others in the Heartlands to conserve wild species, communities, and natural processes. Because Africa's wildlife cannot be conserved everywhere, the great majority of AWF's resources and efforts are now invested in these Heartlands (see Figure I, AWF African Heartlands). This portfolio of landscapes, and habitat types represented, will increase as AWF expands its African Heartlands program in the coming years. AWF does not prioritize transboundary areas for investment as Heartlands, though many of our current priority sites do cross borders.

AWF's decision to adopt a large-scale landscape approach to conservation has been influenced by current conservation thinking and the need to ensure that AWF, along with partners, achieves conservation impact at sites selected as priorities for action. Conservationists are increasingly adopting the landscape perspective when designing management plans and analyzing the environmental factors affecting species and communities of interest (Noss 1996, 2000). Scale is important in conservation (Levin 1992, Forman 1998, Noss 2000) and working at large scales has certain ecological and economic benefits including maintaining ecological connectivity and integrity of systems: species, habitats, communities, and processes (Taylor et al. 1993, Dobson 1996, Forman 1998).

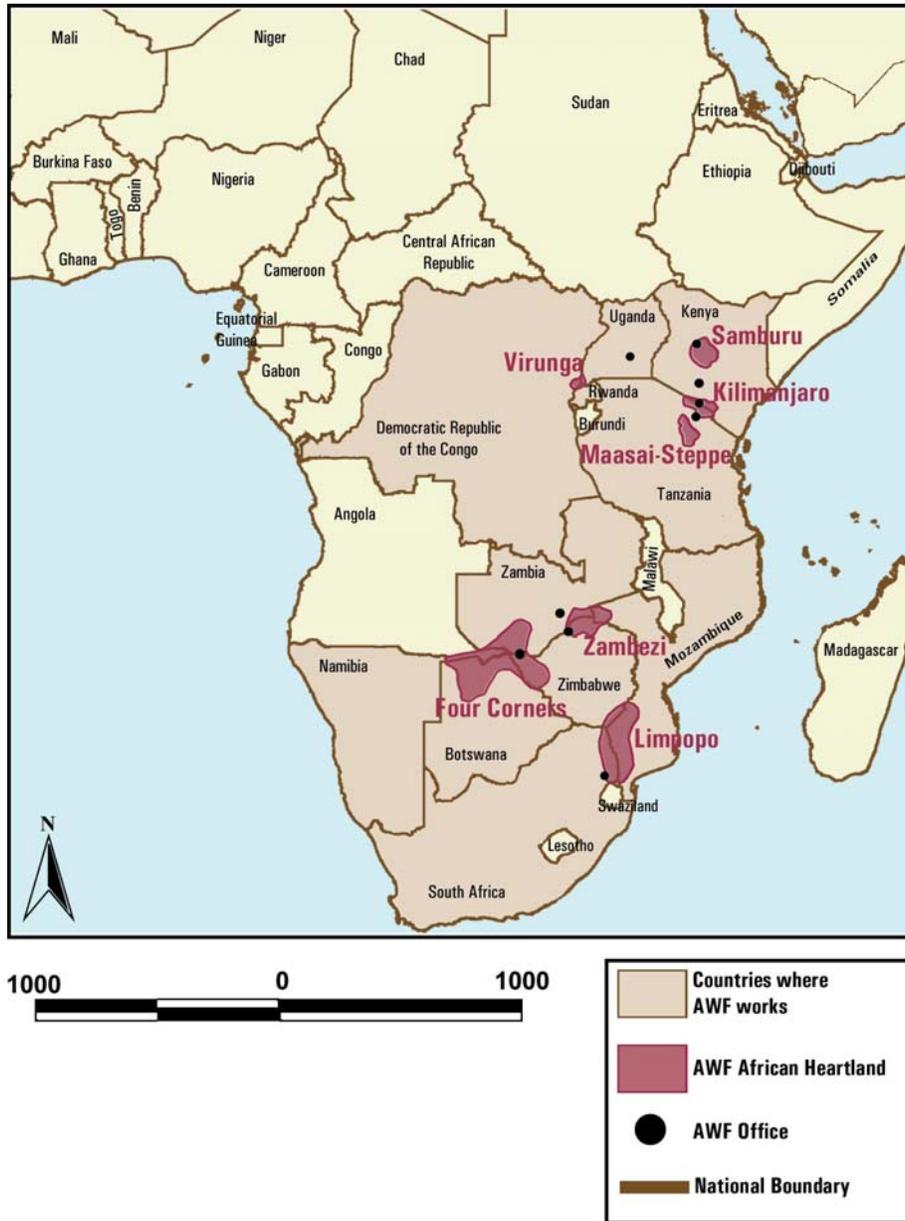
This case study seeks to chronicle AWF's learning in a landscape where it has had an active and evolving presence for over three decades: the Amboseli-Longido area spanning Kenya and Tanzania borders, an area AWF now calls the Kilimanjaro Heartland. The Kilimanjaro Heartland includes the semi-arid savanna of the greater Amboseli ecosystem that lies just north and west of Africa's highest peak and most recognized symbol, Mt. Kilimanjaro. The Heartland supports exceptional biological and other values. It is home to the best studied wild population of African elephants in the world and endangered species including cheetah and wild dogs, and contains an important system of wetlands welling up from Mt. Kilimanjaro.

AWF's work has evolved from a single species focus on the elephants of Kenya's Amboseli National Park, to a program that is designed to protect a fuller range of the species, systems and ecological processes that characterize the landscape. For the Kilimanjaro Heartland, this evolution in program design to landscape scale to capture both ecological and economic benefits of large scale has brought with it some transboundary thinking and activity. AWF's involvement in this landscape did not, however, begin with an emphasis on transboundary natural resource management (TBNRM). The large-scale site planning process that AWF is adapting for use in Africa (see Section III) yields conservation targets that determine the size of the area in which AWF will work with partners. In the Kilimanjaro Heartland, many conservation targets and/or key threats to their viability span the political border. This has

indicated the value, if not necessity, of transboundary strategies in order to effectively address the needs of selected targets. Therefore, the integration of TBNRM in Kilimanjaro Heartland, in early stages, is driven by ecological necessity, and is not an end in and of itself.

As part of BSP's broader effort to analyze TBNRM projects across Africa, AWF hopes that this case study will contribute to improving current understanding of TBNRM through its focus on changes in conservation thinking and practice in one landscape during the last three decades. Furthermore, AWF hopes to share some of its learning about large-scale site planning tools, using Kilimanjaro Heartland to illustrate. The case study briefly documents our journey in this landscape, exploring as well the social, political, cultural and institutional context within which our conservation learning has taken place (see Sections II. and III). We also look at the applicability and non-applicability of the TBNRM approach to conservation in the Kilimanjaro landscape (see Sections IV. and V.). It is our hope that this case study will be of broad interest to conservation and development planners and practitioners, and particularly relevant to those focusing on Africa, where we find that practice, learning and analysis of the TBNRM approach is really just beginning.

Figure I: AWF African Heartlands



II. SITE DESCRIPTION AND CONTEXT

Summary Site Description

The Kilimanjaro Heartland includes the semi-arid savanna of the greater Amboseli ecosystem that lies just north and west of Africa's highest peak and most recognized symbol, Mt. Kilimanjaro in Tanzania. Other of the Heartland's most distinguishing features include: Amboseli National Park, an important tourist destination; six large Maasai group ranches; Tanzania's Kilimanjaro and Arusha National Parks, as well as Lake Natron and the low-lying savannas of Longido (see Figure II, Kilimanjaro Heartland). The Heartland supports exceptional biological values, such as the best known and studied population of African elephants in the world and is home to endangered species including cheetah and wild dogs. This landscape also contains an important system of wetlands welling up from Kilimanjaro, critical in that almost all wetlands outside Amboseli National Park have been drained for agriculture.

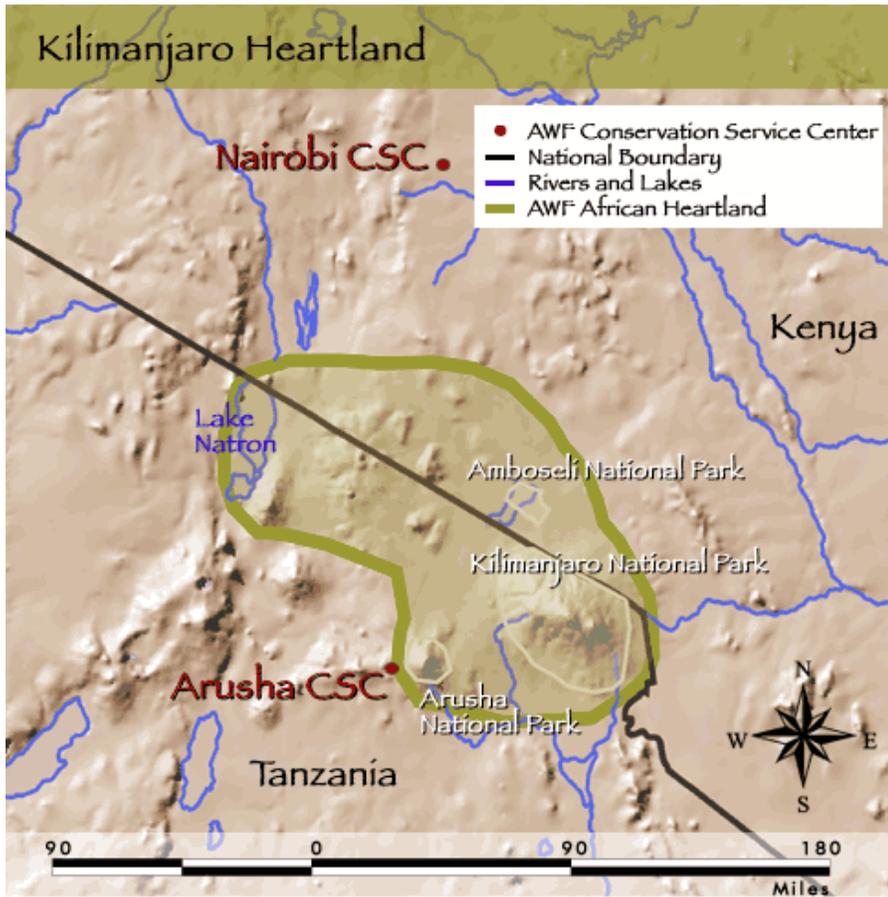
There is substantial scope for conserving this Heartland's diverse habitats, including key wildlife corridors and dispersal areas that support spectacular wildlife diversity and densities. The historic functioning of the greater Amboseli ecosystem naturally crossed the Kenya-Tanzania border, supporting a rich variety of large mammals, flora and other fauna. Successful conservation will, by ecological necessity, embrace transboundary management at some level, acknowledging differences in institutions and policies on either side of the border.

Ecological Context

The Kilimanjaro Heartland is characterized by a wide range of climatic and geographical features which give rise to habitats ranging from afro-montane, to woodland and open savanna, to aquatic (Newmark 1991, TANAPA 1993, Western 1969). There are several distinguishing peaks: Mt. Kilimanjaro (5,895 m.), Mt. Meru (4,556 m) and other smaller mountains and ranges such as the Ol Doinyo Narok characterized by its mist forest. From the mountains, the landscape rolls to low-lying areas in both Kenya and Tanzania, which are home to large herds of plains game. In Kenya, the mean elevation of the Amboseli basin is 1,140 meters. Tanzania's Lake Natron is a shallow endorheic soda lake situated on the floor of the Eastern Rift Valley 610 meters above sea level.

Rainfall and temperatures are varied within and between locations in the Kilimanjaro Heartland. There is also considerable variation in rainfall between years. In the vicinity of Mt. Kilimanjaro there are two wet seasons: November to December and March to May, with the driest months August to October. On the mountain, rainfall decreases rapidly with altitude: mean precipitation is 2300mm in the forest belt (1830m), 1300mm on the upper edge of the forest (2740m), 525mm in the moorland (3718m) and less than 200mm at Kibo hut (4630m), producing desert-like conditions at the peak (TANAPA 1993). Diurnal temperature ranges are considerably higher at higher altitudes. The Amboseli ecosystem, climatically in Mt. Kilimanjaro's northern rain shadow, usually experiences a dry season between May and October. Other months of the year have unreliable rains with possible dry spells in January and February. Between 1972 and 1991, the rainfall at Amboseli averaged 334.5 mm per annum with a range of 132 to 532 mm (Alberts 1992). Daily maximum and minimum ambient temperatures in the Amboseli basin are relatively invariant during the year with a mean maximum temperature of 31.3°C and a mean minimum temperature of 13.9°C (Alberts 1992).

Figure II, Kilimanjaro Heartland



Mt. Kilimanjaro supports a succession of distinct vegetation zones (e.g., on the lower slopes there is montane forest, heath and moorland, while toward the summit there is alpine desert), each with plants best adapted to the set of environmental conditions at that altitude, particularly the range of temperatures and the amount of rainfall (Newmark 1991, TANAPA 1993). Agriculture and settlement on the mountain's lower slopes have replaced the natural vegetation in what used to be a lower montane forest.

Aside from notable peaks, most of the Kilimanjaro Heartland is characterized by a semi-arid savanna ecosystem in both Kenya and Tanzania. Local geological forces make this ecosystem distinctive, productive and diverse. Hydrologically, Mt. Kilimanjaro discharges much of its forest's annual rainfall to the plains below through underground aquifers that feed the many springs and swamps that dot the Amboseli plains. The swamps and springs in the Amboseli basin are used by migratory ungulates during the dry season, whereas the dry bushed grassland responds quickly to rain and attract migrants from the Amboseli basin for as long as the rain pools last. The shifting swamps, fluctuating water table, and the impacts of wildlife and Maasai on these habitats create continuously changing relationships between them.

Plant production is low over most of the northern basin, but the many swamps and shallow water table create a rich tapestry of habitats. Amboseli National Park supports a complex mosaic of vegetation types with a small number of species dominating each stratum. The short grasses are interspersed with the *Acacia* woodland, shrubs and forbs of various species. The waterholes and swamps are surrounded by dense mats of the grass *Cynodon dactylon* and stands of the yellow-barked acacia trees, *Acacia xanthophloea* with the associated understory of *Azima tetracantha* and *Salvadora persica*. The umbrella trees, *Acacia tortilis*, are more distant from the waterholes and swamps. *Azima tetracantha*, *Salvadora persica*, and *Sueda monoica* are the most common shrubs in Amboseli. The common forbs include *Trianthema ceratocephala* and *Diplotera albicaula*. The grasses are dominated by perennial species of the genus *Sporobolus* primarily *S. kentrophyllus*, *S. africanus*, *S. marginatus* and *S. consimilis*. The Amboseli ecosystem has experienced changes in the last three decades including a transformation of the plant community into a xeromorphic, halophytic one (Western and Van Praet 1973, Young and Lindsay 1988). These changes, in addition to the substantial decline in the number of standing *Acacia xanthophloea* trees, has impacted the population of wild-feeding species (Western 1973, Isbell *et al.* 1990, Altmann 1998). The ecosystem is a dynamic one. In recent years the area under swamps in Amboseli National Park has also increased. Management and conservation actions have to be adaptive and responsive to these changes in order to ensure the survival of viable conservation targets.

On the Tanzanian side of the Kilimanjaro Heartland the grasslands (bushed, wooded or open) combined with the higher altitude areas provide a favorable environment for pastoralism. The common grasses include *Aristida*, *Eragrostis*, *Panicum*, *Pennisetum*, *Chloris*, *Themeda* and *Cynodon*. Common tree species are *Acacia*, *Commiphora*, *Balanites* and *Combretum*.

The Kilimanjaro Heartland contains great biological richness. The elephant, a keystone species, ranges widely from the montane forests to the low lying plains across the international border. The elephant population of about 1,000 individuals continues to grow at around 4% per annum and has historically suffered minimal poaching relative to others (Muruthi *et al.* 2000). There are also large populations of ungulates that use this landscape, migrating between wet and dry areas within and between the two countries. The relative importance of each country to wildlife migrations is unknown to us at the moment. Within Kenya's Kajiado district these ungulate populations have remained relatively stable when there were severe declines elsewhere (de Leeuw 1998). To the best of our knowledge no such data exist for the ungulate populations on the Tanzanian side of the border. Two wards (Tinga Tinga and Omolog) in Longido Division in Tanzania include wildlife rich areas around Sinya and a corridor leading up to Kilimanjaro. Lake Natron, currently without protection status,

has no macrophyte flora but the herb swamp is a fresh water system with a typical spectrum of tall species including *Cyperus papyrus*, *Phragmites mauritianus* and *Typha domingensis*. There is a rich vertebrate fauna in the swamps with abundance of birds (Hughes and Hughes 1992).

Policy Context

Both Kenya and Tanzania recognize that conservation contributes to a range of national and local objectives. That said, conservation related statutes and policies in Kenya and Tanzania have created a complex institutional and policy environment where mandates over land and rights over resources are often unclear (Barrow *et al.* 2000). However, there are many positive signs that the policy environment is improving in favor of conservation (Barrow *et al.* 2000, IRG 2000, Wamukoya and Situma 2000).

Both countries are signatories of conservation conventions such as CITES, World Heritage, Biosphere Reserves, African Convention on Nature and Natural Resources, Convention on Biodiversity (CBD) (Barrow *et al.* 2000). Since the 2000 technical meeting of the CBD in Montreal, Tanzania has adhered to the Ramsar Convention¹ of which Kenya is also a signatory. Several sites within the Heartland have international recognition: Amboseli National Park is a UNESCO Man and Biosphere site; Kilimanjaro National Park is a World Heritage Site (Barrow *et al.* 2000). Under the United Nations Environment Program, the Lusaka Agreement on cooperative enforcement operations directed at illegal trade in wild fauna and flora was adopted in September 1994.² The Lusaka Agreement has a secretariat based in Kenya that works in several focal sites, including the Kilimanjaro area, to reduce the threat to wildlife through illegal hunting and trade. The treaty for the establishment of East African Community, which was signed in November 1999, creates an enabling environment for international cooperation in conservation including support for TBNRM activities in the region. However, the development and implementation of natural resource management policies at the regional level which incorporate transboundary elements such as use of shared resources, land tenure, security, infrastructure and tourism development remains a challenge to TBNRM.

Kenya and Tanzania are both creating policies that will decentralize wildlife management, giving more powers to the local communities outside the formal national parks (Barrow *et al.* 2000, IRG 2000, Wamukoya and Situma 2000). In Tanzania, a wildlife policy enacted in March 1998 recognizes explicitly the principle that wildlife must pay if it is to be welcome on private and communal lands. The policy provides for the creation of “wildlife management areas (WMAs)” on community lands where wildlife management is selected by the community as a land use and economic activity. In 1998, AWF undertook a study which concluded that Tanzania’s strong legislation in support of the village as an institution provided opportunities for strong local control that have been missing in other countries. That said, implementation of the wildlife policy has been delayed pending drafting of regulations by the government.

A key difference in conservation policy affecting the Heartland is on hunting. No hunting, except limited gamebird shooting is allowed in Kenya. In Tanzania’s Game Control Areas (GCAs), licenses are issued to hunting companies and individuals. Monduli, where most of the Kilimanjaro Heartland is located on the Tanzania side, is considered one of the best districts in Tanzania for safari hunting, particularly on its dry plains. It is one of the few places in Africa where certain species such as lesser kudu and gerenuk can be hunted. If quotas are based on reliable estimates of animal numbers and population structures and

¹ see http://www.ramsar.org/speech_cbd_cop5.htm

² see http://www.lusaka_agreement.html

subsequently respected, licensed hunting would not threaten wildlife. However, the numbers and distribution of wildlife are not effectively monitored, nor are rules and regulations often monitored in GCAs (Meindersma and Kessler 1996). Traditional hunting is illegal in both Kenyan and Tanzanian parts of the Heartland.

Another important policy area for the Heartland is the climate for tourism and investment. Tourism in Kenya and Tanzania expanded greatly during post independence years to become the second highest earner of foreign exchange after agricultural crops (WTO 1996). During the last five years the climate for tourism has improved within Tanzania relative to Kenya where it has declined due to perceived general insecurity. The general policy climate in Tanzania still does not, to a large extent, favor the establishment of wildlife based enterprises. The delay in issuance of WMA regulations in Tanzania may daunt prospective tourism investors. While land tenure and user rights over wildlife resources remain uncertain, macroeconomic variables such as taxation and interest rates have tended to work against the establishment as well as commercial performance of wildlife enterprises (Mwinyiechi 2001). A socio-economic mapping of the Kilimanjaro Heartland, not completed to date, could guide optimum community wildlife enterprise development. This would involve valuation of the key resources in the Heartland, and could indicate transboundary enterprise opportunities and costs, as well as predict future sources of pressure.

Institutional Context

There are many institutional players in the Kilimanjaro Heartland, at different stages of development and realization of mandates. These include wildlife authorities, Maasai-owned group ranches, tour operators and hotel owners. Some key stakeholders in this landscape include: Kenya Wildlife Service (KWS); Tanzania Wildlife Division (TWD); Tanzania National Parks (TANAPA); Ministries of Water, Livestock, Agriculture, and Lands; tourism operators; local government councils; local communities and non-governmental organizations.

In Tanzania, TWD is responsible for the management of all wildlife, including those outside protected areas. TWD administers the Game Control Areas (GCA) which occupy most of the Kilimanjaro Heartland in Tanzania and fall within Monduli district. Monduli district is approximately 95% GCA (Meindersma and Kessler 1996). Longido GCA and Lake Natron GCA are included in the Kilimanjaro Heartland. Those portions of Arumeru district where Kilimanjaro and Arusha National Parks and their surroundings are located are also included in Kilimanjaro Heartland. Kilimanjaro National Park and Arusha National Park are administered by TANAPA. TANAPA is a government parastatal with the mandate to conserve and manage wildlife resources within protected areas for the present and for posterity.

In Kenya, KWS is a government parastatal with the mandate to conserve and manage Kenya's wildlife resources within and outside protected areas for the present and for posterity. KWS is the sole government agency with this mandate in Kenya. Within KWS the departments of Wildlife Service, Research and Planning and Security deal directly with conservation and management of wildlife. KWS has been undergoing restructuring, which creates uncertainty regarding the extent and priorities of this institution's roles in the Heartland, especially outside Amboseli National Park. The Olkejuado County Council (OCC) has an important role in the Amboseli area. In the park, the OCC owns Ol Tukai, an excision of 400 acres. Additionally, most of Kilimanjaro Heartland in Kenya is within Kajiado district where OCC plays a key role in development activities.

The Maasai-owned group ranches (Figure 1) make up the larger part of the Kilimanjaro Heartland on the Kenya side. These group ranches have together formed an umbrella association, the Amboseli-Tsavo Group Ranch Wildlife Association. Among the association's

aims is to integrate the activities of the various member ranches thus allowing for wildlife and livestock to be managed within a large landscape. However, the group ranches have continued with their own individual wildlife activities. Consequently the role and status of the association remains unclear. It is also unclear what level of support the association expects and gets from government authorities. There remain major areas of ambiguity and difference within and between local administrative structures.

Many NGOs operate in the Kilimanjaro Heartland, among them AWF with conservation programs on both sides of the border. Vreugdenhill (2000) provides an analysis of organizations with wildlife related activities in Kajiado district of Kenya. We are unaware of a similar analysis covering the Tanzania side of the Kilimanjaro Heartland.

Socio-Economic Context

The Heartland is mostly occupied by Maasai pastoralists who keep cattle and sheep. There is continuity of the pastoral Maasai community on both sides of the border, which represents an important opportunity to conserve and restore this landscape. The dependence of pastoralism on space for livestock mobility and tracking of seasonal resources has also allowed wildlife to thrive. However, we note that the Maasai culture is dynamic and many are becoming cultivators along the swamps and the slopes of the mountain, where land is arable. In addition, influxes of non-Maasai people into the area during the last three decades have increased the amount of land under cultivation. In Kenya, Kajiado ranked eighth among districts in Kenya in the context of intercensal population change between 1969 and 1979 (ASAL 1990). Immigration has exacerbated the problem of land shortage, and pressure on the national parks has increased. The pressure from cultivation is also being felt on the Tanzania side of the border with cropland expanding at the expense of wooded and bushed grasslands. In 1978 only 4% of Monduli district was cropped. In 1995 about 14% of Monduli district was cropped and much land is left fallow after being cleared of its original vegetation (Meinderstma and Kessler 1996).

The opportunity costs of wildlife game and protected areas are fairly high to local people, in terms of lack of access to water, user rights and lack of or limited shared revenues. In Tanzania and Kenya the local communities do not fully benefit from wildlife conservation (Barrow *et al.* 2000). This situation could change, as studies show that in such dry ecosystems wildlife or mixed wildlife/livestock is the most economically viable land use. For example, in Kenya's Laikipia district, successful wildlife tourism business provides the main economic justification for wildlife as a land use, alone or mixed with livestock. Commercial returns per hectare for wildlife viewing are up to four times that for livestock alone (Elliott and Mwangi 1997).

The Kilimanjaro Heartland offers strong potential for the development of economic activities centered around sustainable use of wildlife and other natural resources. Although Kenya and Tanzania have recently experienced a revamping of their tourism industry (Barrow *et al.* 2000), much more could be achieved in the Kilimanjaro Heartland. Amboseli National Park is one of Kenya's top wildlife tourist destinations, notable for its established elephant population and views of Kilimanjaro. However, surrounding community areas in Kenya have attempted to benefit from developing their own tourist facilities and spin off tourism enterprises (e.g. crafts, cultural centers, campsites, and community-run concession areas), and have not been very successful to date. There are very few cases where local communities have entered into agreements with private tour operators. Poor infrastructure and weak tourism marketing limit access to markets. Adjacent Tanzanian areas are more focused on safari hunting, with very limited broader tourism infrastructure in place.

The potential for the local people to gain from wildlife is great. Maasai attitudes toward wildlife have ranged from indifference to antagonism (Western 1994). In the Kilimanjaro Heartland, the Maasai tolerate wildlife to a large extent. This may be explained by the fact that many Maasai used to perceive wildlife as their “second cattle,” a resource that sees them through droughts when their own herds are depleted (Western 1982). That said, conflict is ongoing between the Maasai and government authorities responsible for wildlife management, there is continued spearing of wildlife and other forms of human-wildlife conflict persist. In a court case the OCC has challenged the establishment of Amboseli National Park by carving land from the Maasai trust lands.³

In Kenya, group ranches, a dominant land tenure system and economic presence on the landscape, are under threat because government policy supports subdivision into individually owned parcels. The “Group Ranch” land tenure system in Kenya was created under the Group Lands Representative Act (CAP 287 of 1968) allowing for a piece of land to be allocated and registered under kinship groups (Migot-Adholla and Little 1981). A group title is provided for each group ranch. The basic characteristic of the group ranch tenure system is the communal nature of access and user rights relating to land and other resources by all members of the individual ranch. Each group ranch is led by a group ranch management committee (GRMC). The GRMC is duty-bound to hold any property and to exercise its powers for and on behalf of the collective benefit of all members of the group and to consult the other members of the group. In the Kilimanjaro Heartland, the Maasai people practice semi- sedentary pastoralism whose management involves migration of livestock and humans. If the Maasai-owned group ranches are physically allocated and separated, effects on wildlife, Maasai pastoralism and the suggested TBNRM could be disastrous. Members of the Olgulului ranch (which encloses Amboseli) have allocated themselves small plots of agricultural value on higher ground on the slopes of Kilimanjaro. The aim is that subsistence foodstuffs grown can then supplement their traditional pastoralism.

³ Case reported on page three of the East African Standard newspaper on February 2001

III. HISTORICAL OVERVIEW OF AWF'S PROGRAM IN KILIMANJARO HEARTLAND (and relationship to TBNRM)

AWF's involvement in the Kilimanjaro landscape started in the 1970s, and can be broken into two primary areas of focus: 1) *Single species conservation* and 2) *Community conservation and enterprise support*. Actions within each of these areas were largely standalone and Kenya-focused until the late 1990s when AWF initiated the African Heartlands program and began to shift to landscape-scale planning and operations. Some of these initiatives are evolving into cross-border projects and bringing in the Tanzania side of the landscape more strongly. In this section we briefly describe the evolution of these historic areas of involvement, in support of landscape level conservation impact in Kilimanjaro Heartland and their relevance to TBNRM.

Single species conservation

- *Elephants*

Much work has been undertaken to document the population and behavioral ecology of the elephants within the Amboseli area, with support including that from AWF for research activities since the 1970s (e.g. Moss 1988, 1992, Lee and Moss 1985, Western and Lindsay 1984). Until the late 1990s, much less work had been done on the ecology of the elephants and especially their interactions with the local Maasai people, their livestock and their habitats. Many gaps remained in our knowledge of the human, social and ecological determinants of elephant ranging patterns in the Amboseli ecosystem, including areas in Tanzania.

Elephants spend much of their time outside of the 390 km² Amboseli National Park. This translates into increased contact and, eventually, conflict with surrounding Maasai communities and their livestock. Between January and November 1997, at least 15 elephants were killed in conflict situations with local people, representing 75% of the population's mortality for the period (Muruthi *et al.* 2000). It became increasingly clear that successful conservation strategies had to hinge on relaxing the pressure on habitats, especially within Amboseli National Park, and encouraging coexistence/reducing conflict between elephants and local people (see also IUCN / SSC African Elephant Specialist Group 1998, Said *et al.* 1995).

AWF has had to scale-up beyond historic Amboseli National Park involvements and shift from a principally research-focused investment, to a more multidisciplinary approach to elephant conservation. More of the research had to be management-oriented, such as seeking to better understand the relationship between the local Maasai people and elephants (Kangwana 1993). In coordination with this and other research efforts, AWF developed an outreach project in support of elephant conservation in the Amboseli area, which has been active since 1997. Finding lasting solutions human-elephant conflicts is the major emphasis of the outreach project. The elephant project had not only moved from its traditional operations within the park to wider research coverage of areas outside the park, but also was mitigating human-elephant conflicts on the Kenya side of the border. A strong, multi-sector partnership has emerged in support of these efforts in Kenya.

Meanwhile, there were only a few exploratory projects on the Tanzanian sides (e.g. Poole and Reuling 1997). Consequently, there is a relatively poorer understanding of the elephant population in Tanzania and what constraints and opportunities exist for conservation of this transboundary population. In January 2000, AWF sponsored a basin-wide total count of elephants, but it did not comprehensively cover the Tanzanian side of the border. In November 2000, AWF directed support to a project in Tanzania that aims to establish the

current status of the elephants in the west Kilimanjaro area and what constraints and opportunities exist for conservation. The project is determining the population size and structure of the Amboseli/Kilimanjaro elephants in Tanzania, and the ecological, human and social determinants of their ranging and movement patterns. To ensure that elephants continue to have access to lands owned by communities, the project is working with key stakeholders to look into mechanisms to anticipate, prevent and alleviate conflict.

In December of 2000, elephants emerged as a key conservation target for Kilimanjaro Heartland (see Section IV.) AWF's goal for this important target is to maintain the elephant population(s) and secure their range in as natural a state as possible. In support of this goal, AWF is working with partners, including governments, private sector and communities to maintain existing wildlife migration corridors and dispersal areas, and to restore connectivity between key habitats. Through our involvement, we will continue to foster cooperation between Kenya and Tanzania to ensure effective conservation of the transboundary elephant population. Data will be shared between projects in Kenya and Tanzania to yield a more comprehensive picture of the elephant population. Working with Kenyan researchers, the Tanzania research effort is already establishing the relationship between elephants seen in West Kilimanjaro and those found on the Kenyan side of the border. Through this project and other partner initiatives, AWF will continue to facilitate joint planning and management meetings with key stakeholders in Kenya and Tanzania. In this way, our support for elephant conservation in the Kilimanjaro Heartland is moving from the pure Kenya-focused research of the 1970's to more of a transboundary approach.

- *Wild dogs*

With an estimated 3000-5000 individuals remaining worldwide, wild dogs are endangered and an important conservation target in the Kilimanjaro Heartland (see Section IV). Habitat loss, disease, and competition with other predators and human related impacts such as direct persecution (e.g., wire snaring) and road kills threaten the survival of the wild dog. Deliberate or accidental killing of wild dogs by people is a major barrier to wild dog recovery, both inside and outside protected areas.

Since 1998, AWF has funded research of an important remnant population of wild dogs confirmed in Kajiado district, southern Kenya, and ranging into northern Tanzania. By virtue of its transboundary ranging pattern, the wild dog is another candidate for transboundary conservation efforts and management strategies. This remnant population is estimated at 75 individuals, which may constitute about a third of Kenya's wild dog population. Threats facing the wide ranging wild dogs occur in both countries but we are just beginning to understand them in Kenya. In keeping with the results from the Heartland planning meeting in December of 2000, AWF plans to expand our wild dog research and conservation efforts to the Tanzania side of Kilimanjaro Heartland in the near future.

Community conservation and enterprise support

Community involvement in conservation efforts in Kilimanjaro Heartland is particularly important because protected areas form only a small portion of this landscape, and are connected by a network of communal and private lands. The communal areas are critical to the ecological integrity of the system. Community conservation efforts to date have been handled in-country, but there seem clear advantages to some level of transboundary coordination and action. For example, the broader (and cross-border) involvement of communities in conservation could ensure that private and communal lands are available to conservation targets, including those that are transboundary (see Section IV). More involvement of community and private lands would serve to release pressure from the protected areas, avail habitats to wildlife while providing key system linkages and offer

opportunities to make better the livelihoods of local people. Conservation of these lands would maintain access to habitats that wildlife has traditionally used.

In support of increased community involvement in conservation, AWF has participated in the development of policy within the key government wildlife authorities. For example, AWF worked with TANAPA to establish strategic plans, budgets and support mechanisms for community initiated projects. At present, community conservation has the strong support of TANAPA through strategic plans, board approval and field implementation. Similarly in Kenya, the experience of AWF following the pilot community conservation project at Tsavo (Barrow et al. 1995) led to the establishment of the Community Wildlife Service within Kenya Wildlife Service (KWS) and to the development of practices and procedures relating to training, benefit sharing and utilization. At the local level AWF has been working with communities, private sector and government to enhance the conservation value of lands outside protected areas and to improve local people's livelihoods. AWF was also involved in negotiations on how to share revenue accruing from Amboseli National Park, provision of technical assistance in broader areas of community conservation (Barrow et al. 1995, 2000), and the outreach project aimed at alleviating human/wildlife conflicts.

As we continue with our program, we are learning that better partnerships are essential at all levels in and between countries. A recent extension of AWF's community conservation efforts in the Heartland is our new work to improve the water supply to the local Maasai and reduce conflicts with wildlife over water. The water pipeline and boreholes around the park are not functioning optimally. In 2000, AWF commissioned a study that analyzed the situation on the ground and made recommendations on how to improve the situation. AWF, KWS, the local county council and communities are at present working on improving the water supply outside the Amboseli National Park.

Lowering the costs of living with wildlife is a major step in encouraging the local people to share their lands with wildlife. Towards this end, AWF is exploring partnerships with the private sector, as these will become significant in this important tourist destination. For instance, working with local Maasai and a private operator on Mbirikani Group Ranch, AWF developed criteria for management of gamebird hunting in a way that that would both conserve the birds and benefit communities that live with them. After a thorough study of the ecology of the gamebirds, including how to monitor numbers, the ranch and the tour operator entered into an agreement regarding handling of hunting bookings. After training local people in management systems required for the birdshooting tourism industry, AWF phased out support for the project, which is still going well. Income to the ranch has more than doubled in the last three years.

Also in support of greater community involvement in conservation, including productive links with private sector, AWF's Conservation Service Center (CSC) program developed the participatory business options planning (PBOP) methodology.⁴ This helps communities take stock of their resource assets and available business options in order to initiate viable business partnerships. In the Elarai area of Amboseli, AWF is facilitating a business deal between a tourism investor on an 8,000 ha piece of land owned by the local Maasai community. The community has agreed to set aside this important corridor and wildlife dispersal area to the east of Amboseli National Park for conservation. AWF is also working to promote partnerships between local communities and several established businesses such as Serena Lodges and Hotels and Block Hotels. The areas of interest within Kilimanjaro Heartland are important corridor and dispersal areas linking Amboseli to key areas and resources in Tanzania. AWF anticipates that there will be many opportunities to establish business

⁴ AWF's first CSC was initiated in Arusha, Tanzania in 1996, and continues to provide these and other services to local communities.

ventures on the Tanzania side of the border, particularly when the government completes the guidelines for establishing WMAs.

One opportunity and challenge in the transboundary area is to work with the private sector to increase the total value of the area through collaborative efforts to improve the products, infrastructure and security instead of promoting competition for investment between the different parts of the heartland. This has not been explored to date at AWF, nor to the best of our knowledge has anyone else undertaken this work. No socio-economic surveys have been carried out in the Heartland to map opportunities and costs for enterprise development. A valuation study carried out by AWF (Emerton 1995, 1996) was done only in Kenya for the 1,200 ha Namanga Hill forest, which straddles the Tanzania-Kenya border. This study highlighted the importance of the local Maasai, whose survival relies on the forest, as important stakeholders in the Ol Donyo Orok forest conservation process. Because the study was necessitated by the threats arising from rapidly changing land-uses around the nearby cross-border Namanga town, in the best of worlds the study really should have covered both Tanzania and Kenya. This case (like that of single species above) highlights the need for conservation partnerships to cross national boundaries. In the absence of regional agreements, this valuation study could be undertaken under the aegis of informal alliances.

IV. APPLYING AWF'S HEARTLAND PROGRAM TO THE KILIMANJARO LANDSCAPE

In developing the *African Heartland* program, it was clear from the start that AWF and our partners simply could not be everywhere there was wildlife. This reality necessitated strategic prioritization of high value African landscapes for conservation action. Our research revealed that while much quality prioritization work had been done by colleagues at continent scale, or conversely to direct programming at the scale of an individual protected area, little work had been done in Africa to prioritize for investment at landscape scale. This seemed to be due to institutional priorities with respect to scales of operations, coupled with available resources.

AWF's prioritizing efforts for *African Heartlands*, therefore, sought to address this gap. Working roughly from WWF ecoregions, AWF applies a set of criteria divided into three categories: biological; feasibility; and innovation and learning. The result is a suite of biologically outstanding landscapes, where with partners we can put in place an operational conservation program geared to achieving targeted conservation impact. While application of these criteria to date have resulted in sites that cross borders, the existence of an international border is not one of our selection criteria. These selection criteria do not prioritize TBNRM areas for investment, nor are they tailored for a TBNRM approach.

African Heartland Selection Criteria
<i>Biological</i>
<ul style="list-style-type: none"> • Is there an ecologically intact core? • Is there high potential to enhance ecological function by restoring or maintaining connectivity? • Is there high biological value based on species diversity and endemism? • Are there endangered and/or declining species currently or historically present on the landscape? (AWF Species Themes) • Does this add a different habitat type(s) to AWF's landscape portfolio?
<i>Feasibility</i>
<ul style="list-style-type: none"> • Is there an appropriate niche for AWF? • Are there appropriate partners with whom to work? • Can conservation, social and economic and/or commercial benefits be generated that will abate threats in a heartland, and in cost-effective ways? • Can AWF and partners raise the necessary funds? • Are there insurmountable political barriers to success?
<i>Innovation and Learning</i>
<ul style="list-style-type: none"> • Will conservation actions offer scope for innovative solutions and methodologies? • Does this allow AWF to replicate accumulated expertise in abating certain multi-site threats (e.g., human-wildlife conflict; livestock-wildlife disease -- AWF Species Themes)

AWF applied the above selection criteria to Kilimanjaro, as follows:

Biologically, the national parks including Amboseli, Kilimanjaro and Arusha anchor the Heartland, and provide an ecologically intact core. Elephant dispersal data show that some move across the border daily, leaving good habitat areas in Tanzania to drink at Kenya's water sources (e.g., Amboseli ecosystem network of swamps) and back again. This transboundary elephant population, as well as large ungulate populations (including seasonal migrations), can benefit from landscape scale conservation action. Similarly, livestock and

local pastoral communities stand to benefit from larger scale land management, as will be discussed below.

In terms of likelihood of restoring and/or maintaining connectivity in the Kilimanjaro Heartland, AWF is working with Maasai communities surrounding Amboseli National Park to render community lands more “friendly” to elephants and other wildlife. In Tanzania, AWF’s work further south with communities on setting up Wildlife Management Areas (WMAs) suggests similar scope in and around Kilimanjaro.

The exceptional biological and associated values of the Kilimanjaro Heartland are perhaps best captured through the international recognition bestowed upon two protected areas: Amboseli National Park is a Biosphere Reserve, Kilimanjaro National Park is a World Heritage Site. Key attributes of this Heartland include:

- The best-known and most studied population of African elephants in the world, and the associated wealth of information and baseline data including individual life histories;
- Endangered species including wild dog and rhino (now locally extinct but potential for reintroduction);
- An important system of wetlands and swamps welling up from Kilimanjaro, and associated wildlife and aquatic birds;
- A landscape that includes the African savanna with Africa’s highest peak and most recognized symbol as a backdrop;
- Two national parks, Amboseli and Kilimanjaro, which are important tourist destinations with the highest earnings for their respective countries.

Important for AWF, Kilimanjaro Heartland also added some new habitat types for our east Africa portfolio of sites, including montane forests (e.g., Mts. Kilimanjaro, Meru, Namanga), and aquatic systems (Lake Natron).

In terms of the Feasibility criteria, AWF has had and continues to have a niche. As described in Section III, this has changed over time, evolving from support restricted to research on elephants, to a more active role with Maasai communities surrounding Amboseli, then to increased work with enterprises and private sector linkages through CSCs, through to the most recent work at landscape level with partners through Heartlands.

As an NGO in this role, as we will discuss more in Section V, we have begun to provide some leadership in support of more landscape-scale visioning and land conservation. To properly function in this niche, and particularly to participate in some transboundary conservation activities that have emerged as priority actions from Heartland planning efforts to date, AWF has a strong and varied network of partners. AWF has begun to facilitate the gathering of key government players in both countries (e.g., KWS, TANAPA, Forestry, Agriculture etc) to come plan and implement together (again, see Section V). We are also bringing together many kinds of stakeholders: at village, district, regional, national and international levels, which will be necessary if landscape scale and TBNRM efforts in particular are to be effective. For example, to conserve the Amboseli-Mt. Kilimanjaro Corridor has already required that at the very local level we form neighborhood natural resource management committees based on traditional Maasai practices. From our position as NGO, we can link efforts of these local committees on both sides of the border.

AWF has begun to assist in leveraging multi-donor support into this landscape in ways that individual governments and local NGOs cannot, and to bring together other initiatives that contribute to TBNRM. There are abundant opportunities for both strategic and cost effective threat abatement and benefit generation, as our growing caseload of CSC work in this

landscape demonstrates. Finally, AWF does not see any insurmountable political barriers to success.

For Innovation and Learning criteria, our long history in and knowledge of this landscape translates into many opportunities to test new approaches and refine threat abatement strategies. In some cases we recognize that this long history can also perhaps constrain innovation, in that we will likely be more mindful of partner relationships built over many years. This, for example, caused AWF to try large scale planning tools in other Heartlands before coming to Kilimanjaro (see Section V). That said, in Kilimanjaro AWF has already pioneered design and application of the consolation scheme to alleviate human wildlife conflict around Amboseli, with scope for replication across this Heartland and elsewhere. In addition, AWF's CSCs are facilitating the formation of conservation business ventures in support of conservation objectives for this landscape.

It is worth noting that, given our long history in the region, we were able to judge that potential for conservation success was high were we to invest in this area as a Heartland. This is not to say that AWF selected Kilimanjaro as a Heartland because of our history in the area. In fact, AWF went through a process of shedding other historic involvements where fit with new Heartland selection criteria was not so strong.

Heartland Start-Up

With internal consensus on Kilimanjaro as an AWF Heartland, AWF began to plan for a program that would address the needs of the priority species and ecological processes that characterize this cross-border landscape. In order to do this, we first recognized the need to more substantively bring in and represent the Tanzanian side of this cross-border Heartland. To help us do this, AWF contracted with a senior Tanzanian conservation professional with extensive experience negotiating with both the Tanzanian and Kenyan governments on conservation issues and policies. His scope of work included: initiating Heartland set up; fostering relationships in support of landscape level conservation with relevant statutory authorities, landowners and other stakeholder groups; beginning participatory planning for the heartland; promoting and supporting heartland activities and functions; and assisting AWF to identify and recruit qualified staff for the Kilimanjaro Heartland.

With a cross-disciplinary team of AWF technical staff, the consultant initiated a series of consultations with key authorities and stakeholders. This included various government agencies in Kenya and Tanzania, including Kenya Wildlife Service, Tanzania National Parks, Tanzania Wildlife Division. In Kenya, given AWF's long history in the greater Amboseli ecosystem, consultations included a full range of district officials, members of group ranches, and community leaders. As AWF broadens operations to incorporate transfrontier components, ensuring a balanced representation of stakeholders is a top priority. Participatory planning, during which we come to consensus around key conservation targets and strategies to alleviate threats to targets (see section following), facilitates this stakeholder representation and involvement.

It merits mention that these discussions include significant input from women. Although a challenge in the Maasai culture, over time AWF has found ways to incorporate this traditionally under-represented voice. Several program staff are female and Maasai, which has helped to bridge discussions. In addition, our community conservation and outreach/environmental education activities have women and adolescents as specific target groups, with tailored activities to achieve their sustained input and participation.

In Tanzania, these consultations translated into an expression of support from TANAPA for AWF's Heartlands initiative, and a pledge of full support for work across the landscape.

Negotiations with TWD, which has jurisdiction over much of the Kilimanjaro Heartland in Tanzania, are ongoing. Initial consultations with communities in Tanzania indicate support, but also the need for many more discussions so that AWF's program intentions are clear.

Following these consultations, AWF made the transition to a multi-disciplinary AWF Heartland team on the ground. This team of three has expertise in areas of natural resource management, enterprise development, and community conservation. They have completed office set up at the border town of Namanga, within easy reach for both sides to optimize transboundary input, approaches and communications. This team continued with a range of stakeholder consultations, in preparation for the first Heartland Conservation Planning meeting for the Heartland, as described below.

Participatory Planning

Across Heartlands, AWF has been working with partners on an iterative planning process that guides site-level investment, management and impact monitoring. This planning process, Heartland Conservation Planning (HCP), is an adaptation of The Nature Conservancy's (TNC) Site Conservation Planning (SCP) approach, as used by their International Program. 56

AWF ran first HCP workshops, what we call Participatory Scoping Meetings, in Heartlands where AWF had the least history. We found that this was in fact an easier way to test and adjust these planning tools, without the pressures of a 30 year history and some long standing partner and stakeholder relationships. As a result, AWF ran the Participatory Scoping Meeting in Kilimanjaro in December of 2000, more than one year after first use of these tools in other of our Heartlands.

Together with a group of 38 stakeholders representing different sectors (e.g., government, private sector, landholder groups, etc.), we began the process of scoping out landscape level conservation needs and action. The primary objective of the meeting was to begin to develop key strategies for protecting conservation targets in the Heartland. With participants, we arrive at these strategies by getting clarity on: what we are trying to protect (targets); threats to these targets; and discussing the socio-economic landscape. Summary data on conservation targets and associated goals, critical threats and strategies follows:

⁵ See The Nature Conservancy's "Site Conservation Planning: A Framework for Developing and Measuring the Impact of Effective Biodiversity Conservation Strategies," April 2000.

⁶ see http://www.consci.org/scp/other_res.htm

Table 1: Conservation targets and goals for Kilimanjaro Heartland

Conservation Targets	Goals
<i>Systems</i>	
Acacia-grassland savanna mosaic	<ul style="list-style-type: none"> • Maintain vegetative composition and condition • Restore degraded areas
Wildlife migration routes/dispersal areas	<ul style="list-style-type: none"> • Maintain existing migration corridors and dispersal areas, and restore connectivity between anchors
Hydrological systems: wetlands, swamps, springs, lakes, rivers, flood plains	<ul style="list-style-type: none"> • Restore dry-season flow regimes and water tables • Maintain species diversity in wetlands • Protect water quality
<i>Communities</i>	
Montane forests: mist cloud, dry montane, rain forests	<ul style="list-style-type: none"> • Restore former extent and condition/composition of forests
Sacred Maasai cultural sites	<ul style="list-style-type: none"> • Identify and respect (protect and restore) sacred sites
<i>Species Assemblages</i>	
Large predators: lion, leopard, cheetah, striped hyena	<ul style="list-style-type: none"> • Increase the population size of declining predator species and appropriate range of declining predators
Avi-fauna: raptors (eagles, hawks), flamingo, cattle egret	<ul style="list-style-type: none"> • Maintain population and restore range • Maintain secure breeding grounds (raptors, flamingo)
Declining ungulates: kudu, giraffe, gerenuk, eland	<ul style="list-style-type: none"> • Increase population size and restore range
<i>Species</i>	
Elephant	<ul style="list-style-type: none"> • Maintain population and secure range
African hunting dog	<ul style="list-style-type: none"> • Increase population and restore secure “predator-friendly” range
Declining tree species: juniper, ebony	<ul style="list-style-type: none"> • Restore and maintain species population
Black rhino	<ul style="list-style-type: none"> • Restore and maintain population back into this ecosystem

The meeting is structured into plenary and breakout sessions. The conservation targets that each of four breakout groups came up with were very similar, and plenary discussions generated consensus on these targets. Much discussion centered around issues that relate to the fact that the site crosses a boundary. A key issue that emerged from the plenary discussion of conservation targets was the relationship between pastoralism and wildlife management practices. Meeting participants recognized a strong interdependence between these two systems and felt that strategies to conserve conservation targets at the system level and the species level must take into account the importance of integrating these different types of land uses. Traditional pastoral societies have come into conflict with wildlife management regimes in times of climatic stress and in areas where human population and pressures have increased competition for shared resources such as water and rangelands.

Hydrological systems emerged as an important conservation target and discussions on these features occurred throughout the three-day meeting. Participants acknowledged that this target is very broad and further break down is needed when looking for strategies to positively affect specific hydrological systems. For example, strategies to improve the water quality of Lake Natron are different from those needed to restore water levels in wetlands outside of Amboseli National Park. As a result, hydrological systems as a conservation target were separated into the following areas with specific features listed: Wetlands and swamps, such as Amboseli, Kimana, Namelok, Olpusave and Shompole swamps; Lakes, including Lake Natron and Lake Magadi; and Rivers, such as Namanga.

The conservation of Maasai cultural practices was discussed at length. The protection of sacred cultural sites such as the Maasai hill of elders, Oldonyo Lengai, and the Engaruka ruins was stressed and participants deemed the protection of these sites very important. A greater appreciation of Maasai culture and land use practices is related to the above discussion of integrating traditional pastoralism with wildlife management practices. Participants felt that an overall increase in collaboration between the Maasai, wildlife managers, and other local communities will improve conservation initiatives in the Kilimanjaro Heartland.

There was also a discussion about the protection of forest resources across the landscape and three types of forests were grouped into the target of montane forests. These include montane forests of Mt. Kilimanjaro and Mt. Meru, mist cloud forests, and the dry forests of Longido.

Migration corridors and dispersal areas were discussed as important conservation targets for wildlife conservation on this landscape. The increased pressures from conversion to agriculture, increased development and settlements outside of protected areas, and subdivision of land is severely disrupting migration routes of wildlife and creating intense human-wildlife conflicts. An example of this conflict was discussed outside of Amboseli among Maasai pastoralists who have been coming into conflict more frequently with elephants. Ultimately linked to this target were discussions on whether grazers should be included as a target, specifically zebra and wildebeest. There was much debate on grazers, and it was felt that their uneven distribution was more important than population size per se. It was decided to address concerns about grazers such as zebra and wildebeest under the conservation target wildlife migration routes and dispersal areas.

Black rhino locally extinct on the Kilimanjaro landscape. Historically, the landscape hosted high numbers, but rhino populations declined primarily due to poaching. Participants discussed reintroduction and decided to include black rhino as a conservation target for the Kilimanjaro Heartland.

The striped hyena was also discussed and subsequently included in the “large predators” target. The conservation goal of this target is to increase the population size and appropriate range of this and other declining large predators.

Conservation goals were discussed at length and specifically what the goals of each target should be. In some cases it was determined that maintaining present numbers of animals such as elephants was the conservation goal. However, in the case of the black rhino, the recommended conservation goal is to reestablish them to this landscape and restore their range and habitat. The range of conservation goals varied based on the condition and viability of each target.

Table 2: Critical threats and strategies for Kilimanjaro Heartland

Critical Threats	Strategies
Sub-division of land (land privatization)	<ul style="list-style-type: none"> • Land-use planning at district level as opposed to national level. • Promote national policies to allow land owners to keep wildlife on their lands • Develop incentive structures to maintain habitat and wildlife areas • Encourage cross-border cooperation
Conversion to cropland	<ul style="list-style-type: none"> • Promote conservation-related enterprises for alternative land uses • Encourage development of land-use plans and zoning • Income diversification
Incompatible human settlements	<ul style="list-style-type: none"> • Participatory land-use planning across sectors • Community based natural resource management and benefit sharing • Tourism development
Incompatible grazing practices	<ul style="list-style-type: none"> • Improve range management • Coordinated policies between Kenya and Tanzania • Facilitate cooperation between Wildlife Management Areas (WMAs) and Group ranches
Incompatible forestry practices/ Management	<ul style="list-style-type: none"> • Conduct forest inventory • Develop forestry management plans • Silviculture, tree nurseries • Improve extraction techniques
Charcoal production	<ul style="list-style-type: none"> • Income diversification • Agroforestry, woodlots • Identification of fuel alternatives
Change in traditional pastoral systems	<ul style="list-style-type: none"> • Coordination between the different land-use systems • Recognize and maintain interdependence of traditional pastoralism and wildlife management in this ecosystem • Improve equitable distribution of water sources
Human/wildlife conflict	<ul style="list-style-type: none"> • Identify, demarcate and map migration corridors and dispersal areas in relation to human settlements • Utilize participatory land-use planning and zoning • Institutionalize and expand consolation schemes
Water diversions for agriculture	<ul style="list-style-type: none"> • Strengthen water regulation mechanisms • Improved coordination among water users

Though treatment of strategies is somewhat cursory in this first HCP workshop, some interesting discussion, particularly as it relates to TBNRM, occurred for several of these strategies, as follows:

- *Land-use planning at district level:* Those gathered felt it important to be specific that the district was in fact the appropriate level at which to effectively address land use planning issues across this landscape at this time. Both Kenya and Tanzania have weak land-use plan policies at national level, and there is as yet no agreement between the two countries that they will be conserving this area as a wildlife area. In fact, the Kenya side is showing increasingly sedentary behavior on the part of the local people, who are being encouraged to boost agricultural production in support of Kenyan government policy of food sufficiency and individual private land ownership. This heightens the need for effective land use planning to forestall severe

fragmentation of wildlife habitat in that this trend can be less friendly to conservation than the conventional pastoralism traditionally practiced in the landscape (hence this strategy linked to the key threat of land subdivision in Table 1 above). In Tanzania, the move is more in the direction of establishing WMAs (Severe 2000). In the absence of national level policy support, meeting participants felt that it would be possible and acceptable to use existing district mechanisms to support effective land use planning. In Kenya, the District Development Committees would be one such mechanism. Further consultation, both informally and at participatory workshops, is necessary to ensure stakeholder support for final decisions in this area.

- *Promote conservation-related enterprises for alternative landuses:* Meeting participants felt that joint marketing in support of coordinated enterprise development was necessary. Discussions revealed different national perspectives. For example, Tanzanians discussed Kenyan "exploitation" of "their" resources (e.g., Mt. Kilimanjaro). Currently, there is no official joint marketing by Kenya and Tanzania.
- *CBNRM and benefit sharing:* As land use patterns in the landscape indicate, much of the transboundary natural resource management will be in the hands of communities. Participants discussed the fact that CBNRM is still weak and somewhat uncertain in both countries. They felt that communities in Kenya currently benefit more than do those in Tanzania, but that the future may well be brighter on the Tanzania side given the trend towards WMAs. Of note here is that the issue of hunting came up, again with very different national perspectives emerging. An emerging lesson here (see Section V) relates to the clear need to harmonize use of cross-border wildlife populations.
- *Identify/demarcate corridors:* No cross-border efforts currently exist that would facilitate protection of key corridors. Participants felt that corridor identification and demarcation was a critical first step. Currently, the Kitendeni corridor is demarcated in Tanzania, but in Kenya it is an area targeted for subdivision into individual land ownership for cultivation. Due to clear interdependence cross-border with respect to wildlife and local pastoralists, in order to save vital corridors there is a great need for cross-border cooperation through TBNRM.
- *Improve range management:* Maasai communities have traditionally moved between the two countries in response to rainfall and forage availability, a pattern which is now threatened by lack of land use planning and incompatible grazing practices emanating from increasingly sedentary behavior. It is clear that the ecological system will be more resilient to grazing the larger the area available for grazing. In this landscape, increasing the size of area available for grazing will be achieved largely through TBNRM. Of note here is that national policies currently discourage cross-border movements because of the potential for disease transmission. Technically, in order to cross the border with livestock, one is required to complete forms and satisfy other bureaucratic requirements. Maasai will simply ignore these rules, many crossing the border daily or seasonally as needed. An emerging lesson for AWF here is that wildlife-compatible practices and cultural exchanges of a common people should, in fact, be encouraged as a strong component of effective (and locally supported and managed) TBNRM.
- *Strategies for alleviating human-wildlife conflicts:* Actual strategies for alleviating human-wildlife conflict are largely lacking and have little institutional base in Kilimanjaro Heartland. More efforts are needed to reduce human wildlife conflicts and to spread lessons learned (e.g. through expansion of consolation scheme currently practiced only on the Kenya side).

- *Water diversions:* Here again, different national perspectives emerged. Kenyans were largely attributed with large-scale diversion and extraction of water in this landscape. For example, the Nolturesh water project, which supplies water to areas next to Nairobi, tapped out a very large proportion of the river flow. Further diversions for growing agriculture have created additional conflict over access between farmers and herders (Campbell et al. 2000). This has had the effect of changing ecosystem dynamics in unusual ways, including shifting the wildlife and livestock migration/dispersal patterns. This clearly has effects not only in Kenya, but across the border into Tanzania as well. Most of the water in fact originates from Tanzania and diversions influence large-scale migrations. Another clear (obvious even, but so important that we capture here) lesson here is that large water projects (and particularly ones involving a transboundary water source) need discussion and agreement with all parties before they are implemented.

Workshop participants were supportive of a collaborative process between partners that will lead towards the shared vision of enhanced wildlife conservation across the Kilimanjaro landscape, and recognized AWF's work and role in helping this to happen. With respect to next steps following the Participatory Scoping Meeting, the group recommended the following:

- *Increased dialogue between stakeholders on both sides of the Kenya/Tanzania border:* It was felt that this dialogue can be both formal and informal. Informal dialogue is not only useful for resolving problems at the local site level, but also to ensure that stakeholders on each side of the border are open to cross-border communication.
- *Improved transboundary natural resource management:* Participants felt that this was a major way in which to achieve conservation of targets in a sustained manner. It was felt that it should be possible to achieve this even though some policies differ between Kenya and Tanzania.
- *Greater interaction and stakeholder involvement starting at the village level up to the district, regional, and national level:* Participants felt that local communities were key stakeholders in the entire HCP process. Not only do local communities own most of the land in this Heartland, they also live and interact with wildlife daily. Their lands form the vital habitat outside the protected areas. There are no cross-border protected areas in Kilimanjaro Heartland.
- *Integration of development strategies, with emphasis on the complex social and economic factors facing the people who share this landscape.* Participants stressed the importance of considering the needs of all land users, including agriculturalists and pastoralists. In a Heartland, different land holdings and management can comprise a larger conservation landscape. Landowners including the villagers are primary stakeholders and decision-makers.
- *Increased collaboration with Tanzanian partners at all levels, especially with Tanzania Wildlife Division (TWD).* AWF should be increasingly active and visible with stakeholders on the Tanzania side of the Kilimanjaro landscape. TWD is a main stakeholder in the landscape based on their mandate to manage wildlife in all Game Control Areas (GCAs). Participants felt that the Heartland program needed to be popularized and well-explained to stakeholders at all levels.

AWF was urged to facilitate a follow on HCP meeting, which we call a Heartland Science Planning meeting. This involves a smaller group of area scientists and other technical experts, and the objectives of the meeting are several: review targets and threats; assess the viability of selected targets; develop baseline for targets and threats; and identify priority information gaps and ways forward. With clarity on conservation targets and threats to those targets, experts gathered can also move to spatial mapping of targets and strategies, an exercise called conservation zoning.

Analysis of initial consultation processes

Even with an extended period of time for Heartland start up and stakeholder consultation, bringing the parties together for this first transboundary planning meeting was not easy. In spite of the combined efforts first of the consultant, and subsequently of the AWF heartland team, to consult widely with stakeholders, acceptability of the Heartland concept proved more difficult, particularly in Tanzania, than we had originally anticipated. Based on early consultations with key partners we had planned on signing several partner agreements, detailing the intended scope of collaboration. We have found these helpful in several of our Heartlands, not to prematurely jump to formal agreements, but simply to document mutual intent to collaborate and scope of intended collaboration. In Heartlands, where so much of the conservation work will be done by a range of partners and stakeholders, we have found this to be helpful in getting started. None of these agreements were in fact signed before the Participatory Scoping Meeting.

In addition, in spite of concerted AWF efforts to clarify the Kilimanjaro Heartland program, particularly given residual uncertainty among some stakeholders in Tanzania, some opted not to attend the December planning meeting. Notably absent were the Tanzania Wildlife Department, who wanted the program clarified further before they would fully engage. An emerging lesson here for AWF (see Section V) is the need to make the program clear at all levels, and even at different levels within same institution. Also, in spite of the village as an institution in Tanzania, very few key villages attended the initial planning meeting. We attribute this both to the need for further clarification of the program, but also to a lack of resources for village representatives to come to meeting. AWF should have facilitated provision of resources well in advance to ensure this critical attendance. In contrast, from Kenya, a Member of Parliament, a key district clerk and other senior leaders from the district attended the meeting, and made clear their willingness to work with AWF. Finally, regional bodies such as East Africa Community were not represented. This was in fact, simply an administrative error on the part of AWF. In fact, EAC has a committee on environment whose mandate is to encourage cross-border cooperation, and AWF will ensure better coordination in the future.

Subsequent to the December meeting, AWF has been making particularly good progress with key stakeholders in Kenya, and is taking additional steps to eventually ensure the same in Tanzania. In Kenya, AWF is now working on an agreement with the OCC, which represents a key district for Heartland operations. AWF's community conservation officer has engaged local people, OCC, KWS and other NGOs in renewed talks on how to manage the water issues and conflicts arising around the park during the dry seasons. These talks will result in a new strategy and actions to effectively manage this perennial water problem at Amboseli, a key threat identified at the December meeting, and one that truly necessitates TBNRM. In Tanzania, in order to properly invest in the requisite relationship building, and reinvigorate the process of establishing agreements with lead agencies and districts, AWF recruited an appropriate complement to the Heartland team, who has been based in Tanzania since March of 2001.

V. Emerging Lessons on TBNRM in Kilimanjaro Heartland

When TBNRM makes good sense

As AWF moves forward with a varied portfolio of activities and collaborations at landscape scale and across borders in the Kilimanjaro Heartland, we are beginning to isolate areas where we consider TBNRM of enormous value, if not essential. To date these include:

- Shared resources (either through high mobility or natural ecosystem linkages);
- Research and monitoring (often in support of the above shared resources);
- Management response to rapidly changing ecosystem dynamics;
- Shared threats; and
- Tourism

We qualify here that TBNRM in the above areas can be at many different levels of action and intensity. For example, in some cases facilitating good cross-border exchange of information to ensure that activities on either side of the border are well coordinated (or at least non-conflicting) is what is most pressing. In others, actual jointly designed and executed protection of wildlife that ranges across borders may be indicated for truly effective conservation of selected targets. We anticipate that appropriate levels of TBNRM activity will change over time as work with partners in the Kilimanjaro Heartland progresses.

Shared Resources: In the Kilimanjaro Heartland, the natural features and their interdependence compel at least some level of TBNRM for effective conservation. The temporal and spatial distributions of wildlife promote such a broad-scale approach to conservation and management. The cross-border ecosystem is circumscribed by seasonal wildlife and livestock migrations (Western and Dunne 1979, Western and Lindsay 1984, Western 1994) dependent on rainfall patterns. In addition to seasonal migrations, there are daily movements of wildlife and domestic ungulates between the swamps and waterholes in Kenya and the higher grazing lands in Tanzania. Migratory species such as flamingos feed at Amboseli in Kenya and nest at Lake Natron in Tanzania. Many of the conservation targets (see Table 1) for Kilimanjaro Heartland traverse the political borders and connectivity (*sensu* Taylor *et al.* 1993) is essential for their successful conservation. These include: Acacia-savanna mosaic, wildlife migration routes/corridors, hydrological systems, mobile predators, avifauna, elephants and wild dogs.

There is also an urgent need to conserve specific shared resources such as water in the Kilimanjaro Heartland, and, given the hydrology of the landscape, a coordinated TBNRM approach is indicated. To the best of our knowledge, no joint effort currently exists to manage water. Meanwhile, water resources are becoming increasingly scarce with time due to incompatible extraction practices.

Research and monitoring: Joint or transboundary research and monitoring efforts are largely absent and/or uncoordinated at the moment in the Kilimanjaro Heartland. That said, given the number of shared resources in the Heartland (see above), coordinated/integrated programming between Kenya and Tanzania could contribute to their conservation. In the case of the elephant for example, current knowledge is skewed in favor of the population while in Kenya. Much work remains to be done in Tanzania if this elephant population that ranges cross-border is to be effectively conserved. Joint research and conservation programs promote the sharing of experience, expensive equipment, staff, and the use of standardized methods, databases and information management systems for more integrated and effective conservation. As has been the experience of the International Gorilla Conservation Program (for which AWF is a coalition member) in Central Africa with their ranger-based monitoring

program, these research and monitoring efforts can be executed nationally, but to a standard system. Sharing of results, feedback to management, and eventually regional analysis and use of information in the context of TBNRM can come along more gradually.

Management response to rapidly changing ecosystem dynamics: Changing ecosystem dynamics (e.g., water table fluctuations, vegetative change, shifting wildlife range and dispersal patterns) characterize the Kilimanjaro Heartland, historically and to current day. For example, long-term ecological studies are indicating that, as more and more of the vegetation in the Amboseli basin has died, the animals have responded by spending more time outside the park including areas in Tanzania (Western and Lindsay 1984, Poole and Reuling 1997, Bronikowski and Altmann 1996). Given these ecosystem dynamics, a TBNRM approach including law enforcement, fire management, tourism and other developments could prove more effective (and more cost-effective) than separate country's efforts. Through a TBNRM approach, it will also be possible to reduce pressure on the protected areas, especially Amboseli as the vegetation in Tanzania appears in better health than that in Kenya.

A TBNRM approach in the Kilimanjaro Heartland will also encourage cooperation by other sectors across borders such as the customs and immigration, culture, agriculture, and education. As evidenced at the HCP meeting in December 2000, joint planning can bring politicians and other policy makers and implementers from the two countries together. This is enhanced by the shared cultures (mainly Maasai) and languages (primarily Kiswahili and English) between the two countries.

Shared threats: A TBNRM approach has the potential to more effectively combat various of the threats that come from either and/or both sides of the border. This is particularly true for those that require joint collaborative action for successful abatement. For example, threats such as insecurity, poaching, fire, and diseases such as rinderpest and malignant catarrh do not recognize borders. Already there is a joint law enforcement program between the protected areas to combat poaching and threats to tourism. This local arrangement between KWS staff and their counterparts in Tanzania seems to work well. In all cases, we should look to build off of efforts that work.

Tourism: The main tourist attractions in the Kilimanjaro Heartland are Mt. Kilimanjaro and Amboseli National Park with their fauna, flora and peoples. These two sites are only 50 kilometers apart across the international border. However, these attractions are not marketed together nor does there exist a mechanism to make it easier for the visitor to enjoy these two areas and the intervening matrix full of wildlife and Maasai culture in Kenya and Tanzania. A formalized shared tourism circuit between Kenya and Tanzania does not exist. This means that tourists wishing to visit a place just across the border have to travel long distances to the official border crossing points in order to complete immigration, travel and currency exchange procedures before they can enter either country.

Tourism could be used to enhance transboundary habitat connectivity through encouraging conservation in the corridors and dispersal areas. That would create many niche opportunities for enterprises to the benefit of landowners including local communities, private and governments. That said, as discussed earlier we have not yet done comprehensive socio-economic mapping of the Heartland that would guide in part optimum community wildlife enterprise development, nor have we done comprehensive valuation of key resources to establish their opportunity costs. Both of these efforts would help to establish or confirm transboundary enterprise priorities and predict future sources of pressure.

The Kilimanjaro Heartland is not based on a transfrontier park and the non-protected areas are essential if any wildlife and tourism industry is to thrive in the landscape. In support of tourism, a TBNRM approach would allow for the sharing of services including marketing and

improved security. A TBNRM approach to tourism in the Kilimanjaro landscape would bring in the benefits of large scale: viable wildlife habitat, more visitors and more financial benefits to a wide spectrum of stakeholders. We know from interactions with private sector wildlife players, that many do operate in both Tanzania and Kenya. One opportunity and challenge to TBNRM is to work with the private sector to increase the total value of the landscape (e.g. through collaborative efforts to improve the “product,” infrastructure, security) instead of the more usual competition for private sector investment from the different (national) parts of the Heartland.

When national and local level actions make more sense

There are several conservation targets for the Kilimanjaro Heartland that have a restricted range (Table 1: swamps, springs, black rhino, declining tree species). To conserve these targets will require localized solutions, at least initially, rendering a TBNRM approach less relevant. In other cases, TBNRM may be desirable but not attainable in the short term. For example, the conflicting laws about conservation and use of natural resources between Kenya and Tanzania may impede TBNRM. The policy allowing hunting in Tanzania while Kenya prohibits hunting is an example that will need to be addressed before successful TBNRM can be applied in this landscape. Kenya and Tanzania will need to have balanced involvement with international conventions and protocols (e.g. CITES) and use them to support TBNRM.

In other cases, local efforts are most appropriate for achieving conservation impact, particularly when the work is geared to engaging communities in complementary resource management behaviors. In Kenya for example, Maasai families have access and user rights relating to land communally owned as Group Ranches of which there are six around Amboseli National Park. A group ranch is divided into “neighborhoods” or “nkutot,” basically a cluster of bomas, usually within a kilometer of each other. The “neighborhood” existed as a social unit within the Maasai traditional system before the Group Ranches were established by the Government of Kenya during the late 1960s. Within each “neighborhood” unit there is the Neighborhood Natural Resource Management Committee (NNRMC). The NNRMC is an informal council of elders (“ilukuny oo nkutot”) that controls access to natural resources such as grazing and water. This ensures that there is planned settlement and movement of livestock to avoid overgrazing and conflicts over the use of resources. In this way, the “neighborhood” influences behavior and patterns of resource use and forms the basis of conflict resolution in the livestock economy. There is a feeling of obligation to act in the interest of the community within a “neighborhood.”

With some training targeted at the NNRMCs, their current traditional functions in resource management (water and grazing) could be transformed into dynamic institutions for village level conservation and development functions. More broadly, in recognition of the central role played by the “neighborhood” in the Maasai customary natural resource management, AWF has been testing the “neighborhood” as the social unit for community participation in conservation through which conservation action can be brought closer to the local people ensuring active participation in managing shared resources.

Moving forward: early lessons and thoughts on Kilimanjaro and TBNRM

As AWF’s experience working in this landscape for over three decades suggests, a strategic plan for landscape level action is necessary in order to achieve sustained conservation impact. This plan, under design for Kilimanjaro through the HCP process (see Section III), clearly identifies conservation targets, threats to those targets (including stresses and sources of stress), and explores the socio-economic landscape in order to identify and implement

strategies to abate critical threats. This is a participatory process, with partners jointly articulating a shared vision for the landscape.

AWF's Heartland program is really a management proposal for a large landscape. The HCP is a process of creating a shared vision and plan of action with partners. Partners should first be able to see, then experience the mutual benefit of managing towards this plan. The strength of this mutual benefit is a fundamental premise of AWF's Heartland program, and one which we anticipate seeing borne out in Kilimanjaro Heartland. We are at early stages in motivating this level of participation and buy-in in this landscape, but are encouraged at early signs of interest.

In terms of TBNRM, some of the lessons and insights that have emerged to date include:

- *Supportive policy environment:* As cited above, the policy environment in both countries in support of TBNRM is evolving positively but very slowly. International agreements such as the East African Cooperation Commission (based at Arusha), and the Lusaka Agreement based at Nairobi can be used to support TBNRM. Additionally, the Kilimanjaro Heartland includes sites that are already recognized internationally, such as Heritages Sites (Kilimanjaro National Park) and Man & Biosphere Sites (Amboseli National Park), a Ramsar site (Lake Natron) which should further facilitate TBNRM efforts. It will be important that conservation efforts at these internationally recognized sites adhere to the provisions of the respective international conventions.
- *Government commitment to working with landowners:* Within each country there needs to be government commitment to working with landowners outside protected areas. In addition to a lack of fully developed policies in support of landowner participation, neither Kenya nor Tanzania has fully devolved responsibility and authority for resource management to landowners. In Kenya group ranches have the authority to manage their land but not the wildlife resources. That landowners are capable of managing natural resources in a sustainable and responsible manner is exemplified in the Kilimanjaro Heartland by community groups managing water around Amboseli, community groups managing Game Sanctuaries at Kimana and Enselenkei, community groups managing conflicts between people and wildlife around Amboseli National Park, and the growth of WMAs in Tanzania.
- *Clarity on responsibilities of parties:* Relationships and responsibilities of all key collaborators should be well-established and agreed-upon in advance to avoid problems and confusion later on. An effective TBNRM will require adaptive approaches by collaborators, especially because TBNRM in Kenya and Tanzania is a relatively new phenomenon taking place in a changing cultural, social and political landscape. Effective TBNRM will require strengthened capacity of key institutions to deliver services to their clients. Community mobilization activities, which have been undertaken at small scale in the past, will need to be expanded.
- *NGO as facilitator:* Kilimanjaro, as well as other of AWF's Heartlands, has demonstrated the valuable role an NGO like AWF plays in facilitating the coming together of various stakeholders in support of landscape scale conservation and TBNRM. This is particularly critical in early days of putting in place a vision for large-scale conservation action, when "soft" leadership is required. For success, the facilitating NGO should have a strong and varied network of partners, and the NGO must be able to motivate and sustain their participation in joint planning and implementation. Particularly in the context of TBNRM in Kilimanjaro where cross-border links are via community held lands, as a facilitating NGO AWF can informally

link efforts of local communities on both sides of the border. For example, AWF is working with key partners on each side of the border to “secure” important habitat linkages and wildlife dispersal areas that will ultimately allow for large viable habitats to be available to wildlife and local pastoralists.

- *Cost-effectiveness*: Part of AWF’s criteria for Heartland selection, AWF sees abundant opportunities for both strategic and cost-effective threat abatement and benefit generation in Kilimanjaro Heartland. While this does not necessarily suggest a need for transboundary management, it can likely facilitate it.
- *Balanced stakeholder representation*: In Kilimanjaro, AWF has already taken specific action to ensure input from traditionally under-represented voices (e.g., women). Several program staff are female and Maasai, which has helped to bridge discussions. In addition, our community conservation and outreach/environmental education activities have women and adolescents as specific target groups, with tailored activities to achieve their sustained input and participation. AWF feels that, particularly as complexity increases with transboundary management, ensuring a balanced representation of stakeholders is a top priority.
- *Landowners as key to TBNRM*: For Kilimanjaro, land use patterns are such that the critical landholdings in terms of cross-border management are held privately and/or by communities. Government owned and managed protected areas (e.g., Amboseli, Kilimanjaro, Arusha) function more as outer anchors for the Heartland. This is an important distinction, in that many other (if not most) of Africa’s transboundary sites to date are characterized by contiguous protected areas. Hence, communities are critical players in TBNRM efforts in Kilimanjaro, and must benefit for it to be sustainable.
- *Transitions in communal land tenure*: Linked to the above, shifts in communal land tenure will influence landscape scale conservation efforts and, in some cases, TBNRM. For example, the transition underway in Kenya away from group ranches due to government policy that supports subdivision into individually owned parcels will be an important one. In the Kilimanjaro Heartland, the Maasai people practice semi-sedentary pastoralism. If the Maasai-owned group ranches are physically allocated and separated, effects on wildlife, Maasai pastoralism and the suggested TBNRM could be very detrimental. If land ownership can instead be allocated through shares in a land-holding institution, there may be great potential for improved local institutions and devolved land management.
- *Multi-level, but bottom up for effective TBNRM*: Our experience in Kilimanjaro, though in nascent stages, is already indicating the need both for many different kinds of stakeholders (e.g., village, district, regional, national and international levels), and for village or neighborhood based strategies if TBNRM is to be effective. For example, to conserve the Amboseli-Mt. Kilimanjaro corridor, we’ve already been involved in facilitating neighborhood natural resource management committees at the very local level, based in Maasai practices. Also relating to our role as NGO facilitator, we are trying to link up efforts of these local committees on both sides of the border.
- *Strong and balanced field-level presence*: AWF’s experience in implementing landscape-scale conservation (and true particularly when TBNRM is involved) has shown that we absolutely need to have a project coordinator on the ground and to commit adequate resources over the long-term. It is important that the coordinator be effective in partnership building and institutional constituency building. For

Kilimanjaro, in recognition of the transboundary nature of the landscape, we also found it critical to site the Heartland office carefully, within easy reach of both sides of the border to optimize transboundary input, approaches and communications. For Kilimanjaro this meant an office at the border town of Namanga.

- *Culture as explicit TBNRM component:* Our experience in Kilimanjaro with respect to pastoralism and wildlife management is that wildlife-compatible practices and cultural exchanges of a common people should be encouraged as a strong component of effective (and locally supported and managed) TBNRM.
- *Exchange of TBNRM lessons:* With TBNRM a relatively new phenomenon in East Africa, AWF sees great value in bringing lessons from other TBNRM areas to benefit the Kilimanjaro Heartland as an emerging TBNRM area. For example, the Gaza-Kruger-Gonarezhou transfrontier conservation area and others have been spearheaded by steering committees. At the time of writing this paper, no such mechanism exists for the Kilimanjaro Heartland, though this is conceivably a facilitation role that AWF could come to play.

The Kilimanjaro Heartland is not a formal TBNRM area. That said, we do anticipate in the future that there will be a more inclusive approach to development of the area built largely upon conservation and natural resource management (and associated benefit streams), and that barriers will be removed that will empower and stimulate regional integration. AWF hopes to play a constructive role in moving this process forward within the context of Kilimanjaro Heartland programming, in close collaboration with our many partners in the region.

Literature cited

- Alberts S., C. 1992. Maturation and dispersal in male baboons (*Papio cynocephalus*). Ph.D dissertation. The University of Chicago, Chicago.
- Altmann S.,A. 1998. Foraging for survival. Yearling baboons in Africa. The University of Chicago Press, Chicago.
- ASAL 1990. Kajiado District Atlas. Ministry of Reclamation and Development of Arid, Semi-Arid Areas and Wastelands, Kajiado, Kenya.
- Barrow, E., K. Kangwana and D. Berger D. 1995. The role of the African Wildlife Foundation in the evolution of community conservation practice and policy in Kenya. AWF Discussion Papers Series. CC-DP-10.
- Barrow, E., H. Gichohi and M. Infield. 2000. Rhetoric or reality? A review of community conservation and practice in East Africa. Evaluating Eden Series, Roe, D. (editor), International Institute for Environment and Development, London, UK.
- Bronikowski A.M. and J. Altmann. 1996. Foraging in a variable environment: weather patterns and behavioral ecology of baboons. Behavioral Ecology and Sociobiology 39: 11-25.
- Campbell DJ., Gichohi H., Mwangi A., Chege L. 2000. Land use conflict in Kajiado District, Kenya. Land Use Policy 17: 337-348.
- de Leeuw, J. Prins H.T., Evanson, C. N., Said M.Y. de By R.A. 1998. Interpretation of

- DRSRS counts (1977-1997) in the rangeland districts of Kenya. ITC, Enschede, The Netherlands.
- Dobson, A. P. 1996. Conservation and biodiversity. Freeman and Company, New York.
- Elliott, J. and Mwangi, M. M. 1997. *Making Wildlife "Pay" in Laikipia, Kenya*. African Wildlife Foundation – Laikipia Wildlife Economics Study Discussion Paper No. 1. Nairobi.
- Emerton, L. 1995. Socio-economic notes on Namanga Hill Forest Reserve, Kenya Forest Department, Nairobi
- Emerton, L. 1996. Local livelihoods and biodiversity loss: a case from Kenya. Paper presented to IUCN conference on Economics and Biodiversity loss, Gland.
- Forman, R. T. T. 1998. Land mosaics: the ecology of landscapes and regions. Cambridge University Press, Cambridge UK.
- Hughes R.,H., and J., S. Hughes. 1992. A directory of African wetlands. IUCN, Gland, Switzerland.
- Kangwana, K., F. 1993. Elephants and Maasai: Conflict and Conservation in Amboseli, Kenya. Ph.D. thesis, Darwin College, Cambridge.
- East African Community Act, 2000. Laws of Kenya. Kenya Gazette Supplement No. 46 (Acts no.5) Government Printer, Nairobi.
- Isbell, L., A., D., L. Cheney, R., M. Seyfarth. 1990. Costs and benefits of home range shifts among vervet monkeys (*Cercopithecus aethiops*) in Amboseli National Park, Kenya. Behavioral Ecology and Sociobiology 27: 351-358.
- IUCN/SSC African Elephant Specialist Group (1998) Review of African Elephant Conservation Priorities. Draft document, IUCN, Gland, Switzerland.
- IRG 2000. Community based conservation experience in Tanzania: an assessment of lessons learned. Unpublished report prepared for USAID/Tanzania, Task Order No. 12.
- Lee, P. and Moss, C., J. 1985. Early maternal investment in male and female African elephant calves. Behavioral Ecology and Sociobiology 18: 353-361.
- Levin, S. A. 1992. The problem of pattern and scale in ecology. Ecology 73: 1943-1967.
- Meindertsma, J., D. and J., J. Kessler. 1996. Planning for a better environment in Monduli District. Netherlands Economics Institute. Rotterdam, The Netherlands.
- Migot-Adholla S.,E. and Little P.,D. 1981. Evolution of policy towards the development of pastoral areas in Kenya. In Galaty, J.G. (ed.). The future of pastoral peoples. International Development Research Group, Ottawa.
- Moss C., J. 1988. Elephant Memories: Thirteen Years in the Life of an Elephant Family. William Marrow, New York.
- Moss, C., J. 1992. Some reproductive parameters in a population of African elephants, *Loxodonta africana*, in Proceedings of the Second International National Center for

Research in Reproduction Conference on ‘Advances in reproductive Research in man and Animals’ (ed. C.S. Bamba), The Institute of Primate Research, National Museums of Kenya, Nairobi.

- Muruthi, P., Stanley Price M., Soorae P., Moss C., and Lanjouw A. 2000 Conservation of large mammals in Africa: What lessons and challenge for the future? In Entwistle, A. and Dunstone, N. (eds), *Priorities for the conservation of mammalian biodiversity: has the panda had its day?*, Cambridge University Press, Cambridge, England.
- Mwinyiechi, U. 2001. Wildlife Enterprise: The National Framework in Tanzania. In: Gwashure, Sachedina and Raggi (eds), *The impact of Wildlife-based Enterprises On Local Livelihoods and Conservation in Tanzania*. Report for the Wildlife Enterprise for Local Development (WELD) Project carried out by African Wildlife Foundation with Assistance of the European Union, Nairobi, Kenya.
- Newmark W.,D. 1991. The conservation of Mt. Kilimanjaro. IUCN, Gland.
- Noss, R.F. 1996. Ecosystems as conservation targets. *Trends in Ecology and Evolution* 10: 921-922.
- Noss, R. F. 2000. Landscape species as conservation tools. A report to the Wildlife Conservation Society, Bronx, New York.
- Poole, J. and Reuling, M. 1997. A survey of Elephants and other wildlife of the West Kilimanjaro Basin, Tanzania. Unpublished Report available at AWF.
- Said, M.Y, R.N. Chunge, G.C. Craig, C.R. Thoules, R.F.W. and H.T. Dublin HT (1995) African Elephant Database. IUCN SSC occasional paper #1. IUCN, Gland, Switzerland.
- Severe, E. L. M. 2000. Conservation of wildlife outside core wildlife protected areas in the new millennium. Unpublished paper presented by Director of Tanzania Wildlife Division at the “African Wildlife Management in the New Millennium” Conference at College of African Wildlife Management, Mweka, Tanzania.
- Singh, J. J. 1999. Study on the development of transboundary natural resource management areas in southern Africa – global review lessons learned. Biodiversity Support Program, Washington, DC, USA.
- TANAPA 1993. Kilimanjaro National Park. General Management Plan / Environmental Impact Assessment. Tanzania National Parks Planning Unit, Arusha, Tanzania.
- Taylor, P.D., L. Fahrig, K. Henein and G. Marriam. 1993. Connectivity is a vital element of landscape structure. *Oikos* 66: 571-573.
- Vreugdenhill M (2000) Analysis of organizations with wildlife related activities in Kajiado district. Report for the Semi Arid Rural Development Program (SARDEP), Kajiado, Kenya.
- Wamukoya, G.M., F.D.P. Situma. 2000. Environmental management in Kenya. A guide to the Environmental Management and Coordination Act. Center for Research and Education on Environmental Law, Nairobi.

- Western, D. 1969. "Amboseli". *Africana* 3(12): 17-20.
- Western, D. 1973. The structure, dynamics and changes of the Amboseli ecosystem. Ph.D dissertation, University of Nairobi.
- Western, D. 1982. Amboseli National Park: enlisting landowners to conserve migratory wildlife. *Ambio* 11(5).
- Western, D. 1994. Ecosystem Conservation and Rural Development: The Case of Amboseli, in (eds D. Western, R.M. Wright, S.C. Strum (1994), *Natural Connections: Perspectives in Community-based Conservation*. Island Press, Washington.
- Western, D. and T. Dunne. 1979. Environmental aspects of settlement site decision among pastoral Maasai. *Human Ecology*. 7(1): 75-98.
- Western, D. and Lindsay, W. K. 1984. Seasonal heard dynamics of a savanna elephant population.
- Young, T., P., W., K. Lindsay. 1988. Role of even-age population structure in the disappearance of *Acacia xanthophlea* woodlands. *Afr J Ecol* 26: 69-72.